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O001 / #594

Oral Session
ORAL ABSTRACT PRESENTATIONS - ENDOCRINE CANCERS/ADRENAL
01-03-2024 11:00 - 12:00

PRETREATMENT WITH PHENOXYBENZAMINE OR DOXAZOSIN - WHICH BETTER PREVENTS HYPERTENSIVE SURGES DURING LAPAROSCOPIC ADRENALECTOMY FOR PHEOCHROMOCYTOMA?

Karolina Zawadzka[1], Piotr Małczak[2], Michał Wysocki[3], Piotr Major[2], Michał Pędziwiatr[2], Magdalena Pisarska-Adamczyk[4]
[1]Jagiellonian University Medical College, Doctoral School Of Medical And Health Sciences, Kraków, Poland, [2]Jagiellonian University Medical College, 2nd Department Of Surgery, Kraków, Poland, [3]Ludwik Rydygier Memorial Specialized Hospital, Department Of General Surgery And Surgical Oncology, Kraków, Poland, [4]Jagiellonian University Medical College, Department Of Medical Education, Kraków, Poland

Background and Aims: Selective or non-selective alpha-blockers are currently used to prevent intraoperative hypertensive surges during adrenalectomy of pheochromocytomas and paragangliomas (PPGLs). However, the effect of these two types of drugs on the effective prevention of hypertensive surges remains ambiguous. The aim of our study was to compare the effectiveness of pretreatment with phenoxybenzamine (PXB) and doxazosin (DOX) in the context of preventing hypertension during laparoscopic adrenalectomy of phaeochromocytoma.
Methods: From 124 consecutive patients who underwent laparoscopic adrenalectomy of phaeochromocytomas in our clinic between 2003 and 2022, we selected 60 patients pretreated with phenoxybenzamine alone and 30 treated with doxazosin and retrospectively collected their data.
Results: There were no statistically significant differences between the PXB and DOX groups in terms of sex, age, BMI, comorbidities, and pheochromocytoma size. Preoperative systolic blood pressure was higher in doxazosin-treated patients (median 134.5, IQR 20 mm Hg vs median 125, IQR 30 mm Hg in PXB group, p=0.045). There was no difference between groups in diastolic blood pressure before surgery and the first blood pressure measured during surgery. The percentage of patients who experienced hypertension during the procedure did not differ between the PXB and DOX groups: episodes of blood pressure above 160 mmHg in 61.67% vs. 66.67% of patients (p = 0.64), and blood pressure above 200 mm Hg in 23.33% vs. 26.67% of patients (p = 0.73). However, in patients who experienced intraoperative hypertensive episodes, the duration of the BP episodes >200 mmHg was significantly higher in the DOX group: median 7.5 minutes, IQR than in the PXB group (median 7.5, IQR 5 minutes versus median 22.5, IQR 30 minutes, p=0.02).
Conclusions: Patients pretreated with doxazosin had higher systolic blood pressure before surgery. Furthermore, in the doxazosin-treated patients, intraoperative hypertensive episodes above >200 mg lasted significantly longer than in the phenoxybenzamine group.

O002 / #944

Oral Session
ORAL ABSTRACT PRESENTATIONS - ENDOCRINE CANCERS/ADRENAL
01-03-2024 11:00 - 12:00

DIURNAL URINE ALDOSTERONE IN PREGNANCY LINKED TO HIGHER BLOOD PRESSURE IN OFFSPRING FROM 3 MONTHS TO 5 YEARS OF AGE IN THE ODENSE CHILD COHORT.

Hajir Al-Jorani
Research Unit of Endocrinology, Department Of Endocrinology, Ouh, Odense, Denmark, Odense, Denmark

Background and Aims: Background: Maternal 24-hour (24h) urine (u-) aldosterone levels associated with higher placenta and birth weights. Moreover, maternal blood pressure (BP) was higher in case of high salt (sodium) or low potassium intakes. There is no available data on possible links between maternal 24h u-aldosterone or sodium (Na^+) and potassium (K^+) intakes and offspring BP (OBP). Our primary hypothesis was that maternal 24h u-aldosterone was positively associated with OBP. Aim: To investigate associations between maternal 24h u-aldosterone levels in 3rd trimester pregnancy and OBP. Secondly to examine associations between maternal 24h u-sodium or 24h u-potassium and OBP; the theoretical impact of offspring sex will be examined.
Methods: This study is part of the Odense Child Cohort (OCC), an observational prospective cohort. A total of 481 mother-child dyads had complete 24h u-aldosterone collected in gestational week (GW) 29 in combination with OBP. Offspring systolic (SBP) and diastolic BP (DBP) were measured at ages 3 and 18 months as well as 3 and 5 years. Maternal Na^+ and K^+ intakes were assessed from 24h u-Na^+ and u-K^+ excretions.
Results: Increase of 1 µg in maternal 24h u-aldosterone was significantly associated with higher SBP (β = 0.51 mmHg (95% CI: 0.25; 0.78)) and (β = 0.25 mmHg (95% CI: 0.04; 0.47) at 3 and 18 months of age, respectively, after adjusting for confounders. When separating girls and boys, 24h u- aldosterone was only significantly associated with SBP in girls (β = 0.54 mmHg (95% CI: 0.05; 1.03)) and (β = 0.59 mmHg (95% CI: 0.04; 1.14)) at 3 and 18 months, respectively; no significant association was seen in boys.
Conclusions: Conclusion: Higher maternal 24h u-aldosterone levels were significantly associated with higher SBP in small children, with only girls having significant associations.

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O003 / #1782

Oral Session
ORAL ABSTRACT PRESENTATIONS - ENDOCRINE CANCERS/ADRENAL
01-03-2024 11:00 - 12:00

USE OF STEROID PROFILING COMBINED WITH MACHINE LEARNING FOR THE DIAGNOSIS OF MILD AUTONOMOUS CORTISOL SECRETION

Jimmy Masjkur
Berit Klinik, Endocrinology, Wattwil, Switzerland

Background and Aims: Diagnosis of mild autonomous cortisol secretion (MACS) is limited by inconsistency of low-dose dexamethasone suppression test (DST) results on follow-up. Applications of artificial intelligence combined with mass spectrometry-based steroid profiling might address the problem. This study assessed whether plasma steroid profiling combined with machine learning might assist the diagnosis of MACS in patients with adrenal adenoma.
Methods: Design: Multicenter prospective cohort study with a retrospective component. Setting: Multiple tertiary care referral centers. Patients: Two hundred and fourty five patients with an adrenal mass were screened for MACS. The disease was excluded in 191 patients and confirmed in 54 at the end of the three-year follow-up phase.
Results: Main Outcome and Measures:. Statistiscal tests and machine-learning algorithms were applied to a panel of 14 plasma steroids measured by mass spectrometry. Areas under receiver operating characteristic curves, sensitivity, specificity, and other diagnostic performance measures were evaluated. Results: Patients with MACS showed lower ($P<0.0001$) plasma concentrations of dehydroepiandrosterone, dehydroepiandrosterone-sulfate, progesterone and androstenedione than subjects without MACS. The highest concentration ($P<0.0001$) in plasma steroids among patients with SC were observed for 11-deoxycortisol and 11-deoxycorticosterone. Nevertheless, concentrations of cortisol in patients with MACS were higher ($P<0.05$) than in those with a non-functional (NF) adrenal mass. A machine learning-designed mode of 14 steroids predicted MACS in patients with adrenal lesions at a diagnostic sensitivity and specificity of > 94%. The external validation utilizing the follow up as well as pre- and post-operative data set validated the prediction model with a superior accuracy of up to 93% compared to that of the DST (71%)
Conclusions: Distinct plasma steroid profiles combined with machine learning may provide a simplified and improved screening method for establishing the diagnosis of MACS.

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O004 / #1922

Oral Session
ORAL ABSTRACT PRESENTATIONS - ENDOCRINE CANCERS/ADRENAL
01-03-2024 11:00 - 12:00

MANAGEMENT OF ADRENOCORTICAL CARCINOMA (ACC) AND MITOTANE USE IN ROUTINE CLINICAL CARE (PRACTICE) IN CHINA

Jianhua Deng
Peking Union Medical College Hospital, Beijing, China

Background and Aims: Adrenocortical carcinoma (ACC) is a rare but aggressive cancer, however, there is few systematic real-world evidence on ACC treatments had been collected and studied in China. We conducted a focused literature review (FLR) to provide a comprehensive review on (1) ACC disease management and mitotane use in the routine clinical care in China, as well as some contextual information on (2) ACC epidemiology, (3) treatment patterns and (4) disease burden. The search strategy applied to the four study objectives. The corresponding concepts and keywords for each study objective were used to search in China National Knowledge Infrastructure (CNKI) and Embase database respectively. In total, this FLR reviewed 642 records and 73 studies were selected from CNKI, reviewed 297 records and 46 studies were selected from Embase. Current results indicated that mitotane had been used in both an adjuvant and palliative treatment setting for years with a certain level of effectiveness and mitotane treatments improved recurrence-free and overall survival rates for ACC patients in China. With careful and closely mitotane monitoring in clinical practice, the FLR suggested that mitotane could be considered for incorporating into current Chinese ACC treatment guideline.
Methods: Data extraction also included specific information varying across study objectives: 1. Mitotane use for ACC patients in China: mitotane name (molecule or trade name or manufacturer), original or unlicensed mitotane, efficacy data, safety data, use pattern and compliance, patient characteristics, hospital access, use case, main benefits and differences observed. 2. ACC epidemiology: prevalence and incidence (crude or adjusted), survival, comorbidities, association with other tumors or cancer syndromes, biomarker status, region. 3. ACC treatment patterns: surgery, radiotherapy, chemotherapy or antineoplastic agents, other systemic drug treatment, traditional Chinese medicine, reason for treatment, treatment outcome, treatment compliance. 4. ACC burden: healthcare Resources Utilization (HCRU), direct costs, humanistic burden, medical insurance.
Results: 3.1. Description of Included Studies In total, FLR searching in CNKI identified 642 records and after full-text review of 114 unique studies, 73 studies were included. FLR searching in Embase identified 297 records and after full-text review of 81 unique studies, 46 studies were included. A deduplication process as well as specific inclusion/exclusion criteria were applied at each step of the articles review process (see PRISMA diagrams in Figure 1 and Figure 2 (Appendix B), including number of hits per source and study objective, and reasons for exclusion) 3.2. ACC epidemiology in China 3.3. Mitotane use 3.5. ACC disease burden
Conclusions: Mitotane use and, effectiveness outcomes.

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O005 / #881

Oral Session
ORAL ABSTRACT PRESENTATIONS - ENDOCRINE CANCERS/ADRENAL
01-03-2024 11:00 - 12:00

A SINGLE FSH-BLOCKING DRUG FOR OSTEOPOROSIS, OBESITY AND NEURODEGENERATION

Satish Rojekar[1], Anusha Rani Pallapati[1], Judit Gimenez-Roig[1], Funda Korkmaz[1], Steven Sims[1], Uliana Cheliadinova[1], Victoria Demambro[2], Anisa Gumerova[1], Tal Frolinger[1], Daria Lizneva[1], Clifford Rosen[2], Tony Yuen[1], Mone Zaidi[1]
[1]Icahn School of Medicine at Mount Sinai, Center For Translational Medicine And Pharmacology, New York, United States of America, [2]MainHealth Institute for Research, Center For Molecular Medicine, Scarborough, United States of America

Background and Aims: Pharmacological and genetic studies suggest that FSH is an actionable target for diseases affecting millions, notably osteoporosis, obesity and Alzheimer's disease (AD). We showed that blocking FSH action prevents bone loss (Cell, 2006; PNAS, 2018), fat accrual (Nature, 2017) and AD–like features in mice (Nature 2022). We recently developed MS-Hu6, a first–in–class, humanized, epitope–specific FSH blocking antibody that binds to FSHβ with a K_D of 7.52 nM (PNAS, 2020). We showed that MS-Hu6 or its parent murine antibody, Hf2, binds specifically to FSHβ, without binding to LH and TSH. Here, we report that FSH blockade prevents obesity, osteoporosis and AD in mice.
Methods: Bone, metabolic and neurobehavioral phenotypes were examined in mice, either ovariectomized or on a high–fat diet, treated with FSH-blocking antibody. Biophysical properties and pharmacokinetics of MS-Hu6 were also studied.
Results: 20–week–old C57BL/6 male mice on a high–fat diet were injected with a range of doses of Hf2 or vehicle s.c. five–days–a–week for 8 weeks. Hf2 (100 µg/mouse/day) reduced the increase in fat mass by 33% starting week 3, with a 7% reduction in in body weight. In separate studies, MS-Hu6 not only caused beiging of white adipose tissue in UCP1–reporter ThermoMice (IVIS imaging), but also improved bone density and microstructure (micro-CT) by elevating bone formation (dynamic histomorphometry). The increase in bone mass and improved microstructure were replicated in Cliff Rosen's lab using C57BL/6 mice 24 weeks post–ovariectomy. Novel Object Recognition testing of AD–prone, ovariectomized 3xTg mice showed a deficit in recognition memory, which was reversed after 8 weeks of Hf2 (100 µg/mouse/day for 5–days–a–week) exposure. Biodistribution studies using ^{89}Zr–labelled, biotinylated or unconjugated MS-Hu6 in mice and monkeys showed localization to bone, bone marrow, fat depots and brain tissue. MS-Hu6 displayed a β phase $t_{½}$ of 7.8 days in humanized Tg32 mice. In monkeys, an acute single injection of MS-Hu6 did not affect vitals, and biochemical parameters remained within the normative range. Using a range of physicochemical techniques, we tested 215 variations of excipients to yield a formulation with thermal, colloidal, monomeric and structural stability at an ultra–high concentration (100 mg/mL) with acceptable viscosity, clarity and turbidity parameters. MS-Hu6 showed the same "humanness" as human IgG1 in silicoand was non–immunogenic in ELISPOT assays for IL-2 and IFNg in human PBMC cultures.
Conclusions: MS-Hu6 is efficacious, durable and manufacturable, and is therefore poised for human testing as a multipurpose therapeutic for obesity, osteoporosis, and perhaps for AD.

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O006 / #1415

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 01
01-03-2024 14:00 - 15:00

SAFETY AND EFFICACY OF ADVANCED HYBRID CLOSED LOOP SYSTEM IN FASTING RAMADAN BY PEOPLE WITH T1D

Asma Deeb[1], Reem Hassan Beck[2,3], Rama Watad[2], Shaker Suliman[2], Lubna Eldeeb[2]
[1]Sheikh Shakhbout Medical City, Paediatric Endocrinology, AbuDhabi, United Arab Emirates, [2]ssmc, Paediatric Endocrinology, AbuDhabi, United Arab Emirates, [3]Sheikh Shakhbout Medical City, Clinical Research, Abu Dhabi, United Arab Emirates

Background and Aims: Advances in technology enabled people with TID to fast safely. Changing the pump settings for Ramadan fasting remained an area of debate. With the newer advanced hybrid closed loop systems, it remained unclear how safe and efficacious the system is for fasting Ramadan. We aim to study if the system can be used safely and effectively in Ramadan and if smart guard settings require adjustment.
Methods: Patients using MiniMed™ 780G system and intending to fast Ramadan were enrolled. Standard Ramadan education was given. No changes of current smart guard settings were applied. Demographic, device, sensor use and glycemic data were collected and compared for Ramadan and the month prior (Shaaban). Glycemic data is also compared between fasting and non-fasting hours within Ramadan.
Results: 37 T1D patients (20 female, mean age = 21.2 ± 9.7) were enrolled. There was no statistically significant difference in mean SG, SG CV%, TIR, TBR, TAR and GMI%. No difference was seen in insulin TDD, basal insulin or manual daily boluses. However, there were significantly less automated daily boluses delivered during Ramadan (35.0 ± 10.2 vs 40.5 ± 17.3 p = 0.033). During the non-fasting hours, TIR was significantly lower (49.4 ± 16.1 versus 72.6 ± 13.8) ($p < 0.001$), while TAR (181-250 mg/dL) and (>250 mg/dL) were significantly increased (31.0 ± 9.7 versus 17.4 ± 6.2 and 17.7 ± 16.0 versus 8.3 ± 9.9 respectively ($p < 0.001$).
Conclusions: The use of the 780G system in T1D patients during Ramadan is safe. However, adjustments to tighten glycemic control is required to prevent hyperglycemia in non-fasting hours.

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O007 / #136

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 01
01-03-2024 14:00 - 15:00

DIABETES RAPID EVALUATION AND LOWER LIMB AMPUTATION MANAGEMENT(DREAM) SERVICE IMPROVES AMPUTATION-FREE SURVIVAL THROUGH PODIATRY-TRIAGED FAST-TRACK MULTIDISCIPLINARY SERVICE

Shyn Yi Tan[1], Siti Nurfarahdillah Binte Abdul Razak[2], Francis Wong Keng Lin[3], Edward Choke Tieng Chem[4], Sueziani Binte Zainudin[5]
[1]Nanyang Technological University, Lee Kong Chian School Of Medicine, Singapore, Singapore, [2]Sengkang General Hospital, Podiatry, Singapore, Singapore, [3]Sengkang General Hospital, Orthopaedic Surgery, Singapore, Singapore, [4]Sengkang General Hospital, Vascular Surgery, Singapore, Singapore, [5]Sengkang General Hospital, Endocrinology, Singapore, Singapore

Background and Aims: Diabetic foot ulcers (DFU) are common and costly diabetes complication with high morbidity as the leading cause of non-traumatic lower extremity amputation. Diabetes Rapid Evaluation for lower limb Amputation Management (DREAM) clinic provides early access to multi-disciplinary treatment for people with DFU through podiatry-triaging with support from endocrinology, orthopedic surgery and vascular surgery. We aim to evaluate the effectiveness of DREAM clinic on diabetes-related complications.
Methods: This was a 12-month single-center prospective study. Patients attending DREAM clinic with a DFU were included. Data on baseline demographics, medical comorbidities including chronic diabetes complications, dates of referral and presentation, incidence of lower extremity amputation, Emergency Department visits, inpatient admissions, and outpatient clinic visits were collected. The clinical outcomes evaluated were the 1) duration between referral and presentation, 2) incidence of major lower extremity amputation at 4 weeks, 12 weeks, and 52 weeks, and 3) healthcare utilization of Emergency Department visits, inpatient admissions and outpatient clinic visits within 6 months from the index visit. Chi-square tests were performed on wound outcomes at Week 4, Week 12 and Week 52. Kaplan-Meier analysis was performed to determine the amputation-free survival (AFS) of DREAM cohort in 1 year.
Results: Ninety-one participants were enrolled. Mean age was 62 years with 62.6% males. All participants had Type 2 Diabetes with mean glycated haemoglobin A1c of 8.5%. Eighty-two had at least one chronic diabetes complication. The median time taken for participants to present to DREAM clinic from referral was 5.0 days (IQR: 8.25-1.00). The rate of major amputation was 1.1% at 4 weeks, 1.2% at 12 weeks, and 4.62% at 1 year. AFS rate at 1 year was 89.1% (±3.7). There was an average attendance of 0.4 visits for Emergency Department, 3.6 visits for specialist outpatient clinics and 1.3 visits for Podiatry wound care clinic, 2.0 visit for primary care clinics and 4.8 primary care nurse wound care clinic within 6 months of index DREAM clinic visit.
Conclusions: The promising results in this study suggest the DREAM clinic is a step in the right direction in the management of DFU. Further longer-term studies are needed to evaluate larger populations for clinical outcomes, quality of life measures and cost-effective analysis. **Acknowledgements** We would like to thank Departments of Podiatry, Endocrinology, Orthopedic Surgery, Vascular Surgery, General Medicine, clinic operations, finance and all staff of Sengkang General Hospital pertinent in developing this workflow to its current stage.

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O008 / #912

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 01
01-03-2024 14:00 - 15:00

AN AI-DRIVEN PERSONALIZED COACHING MODEL DEMONSTRATED SIGNIFICANT IMPROVEMENTS IN TIME IN RANGE (TIR) AND TIME ABOVE RANGE (TAR) IN 100 DAYS

Shivtosh Kumar, Annie Mattilda Raymond, Chhavi Mehra
Ragus Healthcare Pvt Ltd, Research And Development, Bengaluru, India

Background and Aims: In recent times, the incorporation of artificial intelligence into the healthcare sector has brought about substantial progress. One such innovative model, the Sugarfit Diabetes Reversal and Management Program (SDRMP), represents a comprehensive platform designed to effectively manage type 2 diabetes. This study aims to assess the improvements in glycemic control during the continuous glucose monitoring (CGM) period following participation in the SDRMP.
Methods: This study undertakes a retrospective analysis of individuals enrolled in the SDRMP who used CGM on at least two occasions during the program with a gap of a minimum of 90 days and maximum of 120 days. The analysis encompasses a cohort of 403 participants, including 319 males and 84 females, with an average age of 50.30±11.48 years. SDRMP harnesses the power of artificial intelligence to guide individuals with diabetes toward making healthier lifestyle choices. This personalised, precise, yet comprehensive platform was developed by diabetes experts who offer guidance on diet, exercise, and mindfulness techniques, supplemented with physician advice on medication management.
Results: Participants exhibited a significant improvement of 4.7% in TIR with a p-value <0.0001 and a 4.9% reduction in TAR with a p-value <0.0001. However, there was a marginal increase in TBR by 0.28%. Among the 403 participants, 90 individuals displayed Glycemic Variability (GV) exceeding 25% in the first CGM, and they experienced a substantial improvement of 4.6%±5.75% in the second CGM. During this period, these users demonstrated improvements in HbA1c levels from 8.82±1.72 to 7.62±1.32, fasting blood sugar levels from 167.57±58.66 to 147.84±53.17 mg/dl, and weight from 78.57±14.96 to 76.12±14.59 kg. The average interval between CGM 1 and CGM 2 was 103±8.7 days.
Conclusions: The findings emphasise the significant potential of the SDRMP in achieving substantial improvements in both Time in Range (TIR) and Time Above Range (TAR) within a relatively short time frame. According to expert consensus, optimal TIR is recommended to exceed 70%, with TAR below 25%, and TBR below 3%. Encouragingly, the SDRMP has effectively increased TIR to 77%, reduced TAR to 21%, and maintained TBR at <2%. These results highlight the promise of AI-driven interventions like SDRMP in enhancing glycemic control among individuals with type 2 diabetes, ultimately improving their overall health and quality of life.

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O009 / #980

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 01
01-03-2024 14:00 - 15:00

THE IMPACT OF A REMOTE INPATIENT GLYCEMIA MANAGEMENT TEAM ON INPATIENT GLYCEMIC CONTROL AND CLINICAL OUTCOMES

Ma. Donna Pelicano[1], Timothy Soepadmo Kurniawan[2], Sueziani Binte Zainudin[2]
[1]Sengkang General Hospital, General Medicine, Singapore, Singapore, [2]Sengkang General Hospital, Endocrinology, Singapore, Singapore

Background and Aims: With the increased prevalence of diabetes mellitus and its impact on morbidity and mortality and healthcare economic burden, multidisciplinary inpatient glycemia management (IGM) teams were implemented to improve clinical outcomes. With the emerging era of telemedicine, this study had explored the impact of remote IGM programme on inpatient glycemic control in noncritical care settings in a peripandemic era.
Methods: Inpatients admitted in August 2022 were included into an automated computerised IGM team list for 24 hours when they were hypoglycaemic (<4.0 mmol/L) or hyperglycaemic (>10 mmol/L). They were divided into an intervention arm, consisting surgical inpatients with endocrinologist-led IGM team providing input on improving glycemia, and a control arm consisting other inpatients on standard care. Data on demographics and diagnoses were collected. Outcomes evaluated include inpatient mean daily capillary glucose (MDG) levels, length of stay, time to euglycemia, and recurrence of hyperglycaemia and hypoglycaemia. MDG was compared within and between arms using paired and unpaired t-test respectively. Incidence of hyperglycaemia and hypoglycaemia was compared between arms using chi-squared test. Length of stay and time to euglycemia were compared using Mann Whitney-U test.
Results: One hundred and ninety participants were recruited. MDG decreased in both arms (p=0.061). Subgroup analysis showed decreased MDG with intervention among males (p<0.001), HbA1c≥7.0% (p=0.010), and admission hyperglycaemia (p=0.043). Incidence of hyperglycaemia decreased (p=0.004) with IGM intervention, with no difference in length of stay or time to euglycemia.
Conclusions: This study supports a remote IGM model to improve inpatient glycaemic control. Further larger studies are needed to evaluate longer-term outcomes and cost-effectiveness in this era of telemedicine.

O010 / #741

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 01
01-03-2024 14:00 - 15:00

ACTIVE VITAMIN D TREATMENT AND PREVENTION OF SARCOPENIA IN ADULTS WITH PREDIABETES: RANDOMIZED CONTROLLED TRIAL

Tetsuya Kawahara[1], Gen Suzuki[2], Shoischi Mizuno[3], Naoki Tominaga[4], Yoshisya Tanaka[5], Tetsuya Inazu[6]
[1]Shin Komonji Hospital, Endocrinology And Diabetes, Kitakyushu, Japan, [2]International University Health and Welfare Clinic, Internal Medicine, Ohtawara, Japan, [3]National Cancer Center EPOC, Division Of Biostatics, Kashiwa, Japan, [4]Shin Komonji Hospital, Internal Medicine, Kitakyushu, Japan, [5]University of Occupational and Environmental Health, First Department Of Internal Medicine, Kitakyushu, Japan, [6]Ritsuymeikan University, Pharmaceutical Department, Kusatsu, Japan

Background and Aims: Observational studies show inverse associations between serum vitamin D levels and sarcopenia incidence; however, it remains unclear whether treatment with vitamin D prevents its development. Aim is to assess whether eldecalcitol, an active vitamin D analog, can reduce the development of sarcopenia among adults with prediabetes.
Methods: This is a double-blinded, multicenter, randomized, placebo-controlled trial. Participants aged 50 years and older who had prediabetes without sarcopenia which was defined by using handgrip strength and bio-impedance analysis were randomly assigned to receive eldecalcitol 0.75μg per day or matching placebo for three years. The primary endpoint was sarcopenia incidence. The secondary endpoints were the incidence of falls and changes in skeletal muscle volume, strength, and body fat mass.
Results: A total of 1,094 participants (44.2% women with a mean age of 60.8 years) were followed up for a median of 2.9 years. Eldecalcitol treatment showed a significant preventive effect on sarcopenia incidence compared with placebo (25 [4.6%] of 548 participants in the eldecalcitol group and 48 [8.8%] of 546 in the placebo group; hazard ratio [HR], 0.51; 95% confidence interval [CI], 0.31 to 0.83; P=0.007). Eldecalcitol treatment also showed a significant risk reduction of falls compared with placebo (which occurred in 135 [24.6%] in the eldecalcitol group and 179 [32.8%] in the placebo group; HR, 0.78; 95% CI, 0.62 to 0.97; P=0.026). In addition, treatment of eldecalcitol as compared with placebo did show significant increases in appendicular skeletal muscle volume (0.45% vs. -1.72%; P<0.001), handgrip strength (1.85% vs. 0.45%; P<0.001), and decreases in body fat mass (-0.15% vs. 0.31%; P=0.028). There were no substantial adverse event differences between groups.
Conclusions: Treatment with eldecalcitol significantly reduced the incidence of sarcopenia among people with prediabetes via increasing skeletal muscle volume and strength. That might lead to a significant risk reduction of falls.

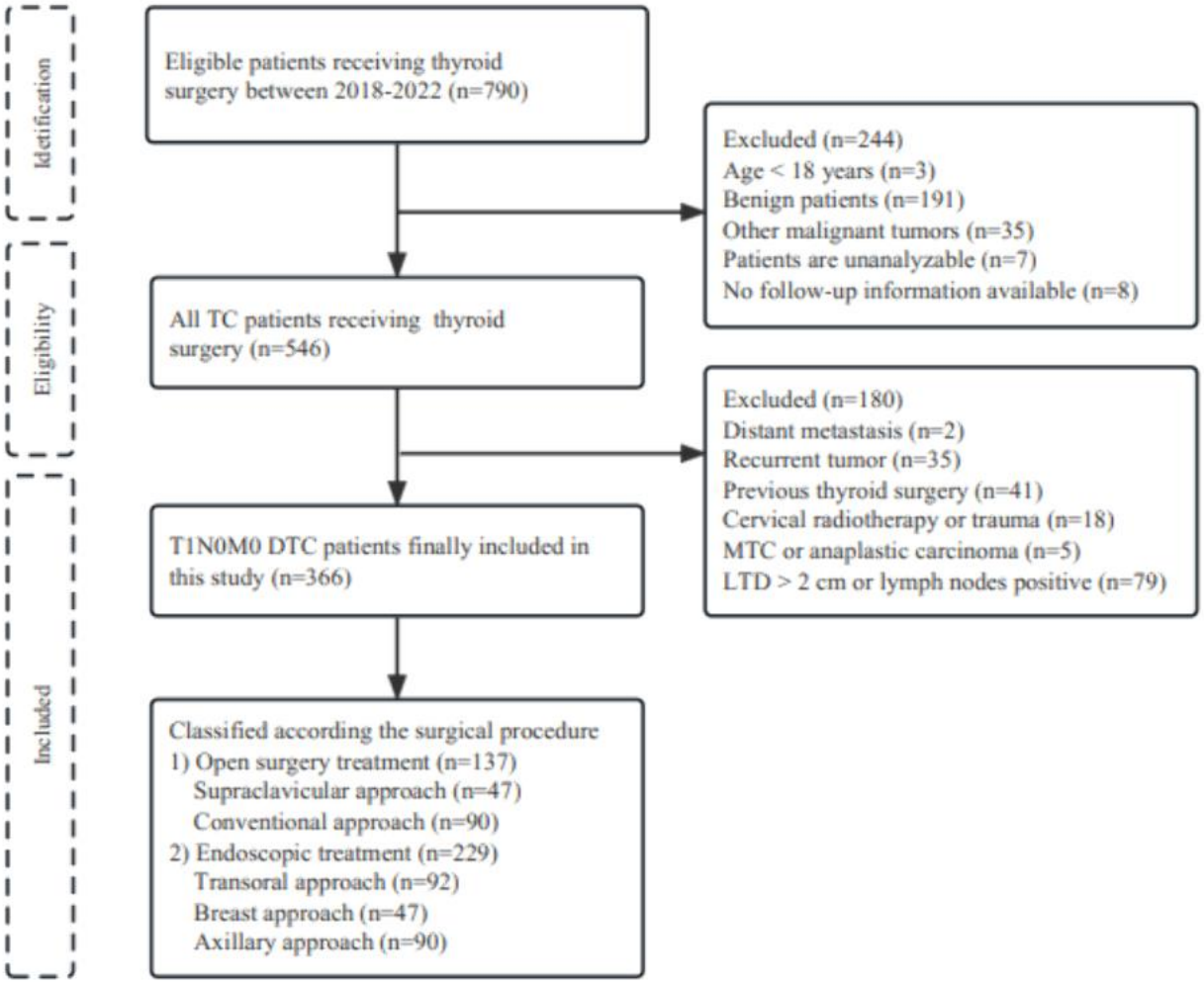
O011 / #1540

Oral Session
ORAL ABSTRACT PRESENTATIONS - THYROID
01-03-2024 17:40 - 19:00

NOMOGRAM FOR PREDICTING RECURRENCE OF PAPILLARY THYROID MICROCARCINOMA AFTER FIVE SURGICAL APPROACHES: A RETROSPECTIVE STUDY

Qiang Li, Wan Wei, Rui Lv
the Affiliated Huaian No.1 People's Hospital of Nanjing Medical University, Department Of Breast And Thyroid Surgery, Huaian, China

Background and Aims: The head and neck are frequently affected by the cancer known as papillary thyroid microcarcinoma (PTMC). Patients with early-stage PTMC ($T_1N_0M_0$) had a 5-year disease-free survival (DFS) of> 95%. The best course of treatment for PTMC is still up for debate because some patients experience postoperative recurrence and metastasis. This study aimed to review the factors influencing 5-year DFS for PTMC and demonstrate the oncologic safety of different surgical modalities.
Methods: A retrospective examination of clinicopathological data from patients admitted to our hospital's Department of Breast and Thyroid Surgery between 2016 and 2022 and those treated at another facility between 2015 and 2018 was done. The data from our hospital was separated into training and internal validation cohorts in a 7:3 ratio. On the other hand, the external validation cohort was created using data from a separate department. The 5-year DFS for PTMC patients undergoing various surgical procedures in the training cohort was studied using logistic regression. Cohorts were used for internal and external validation, and a nomogram was
created.



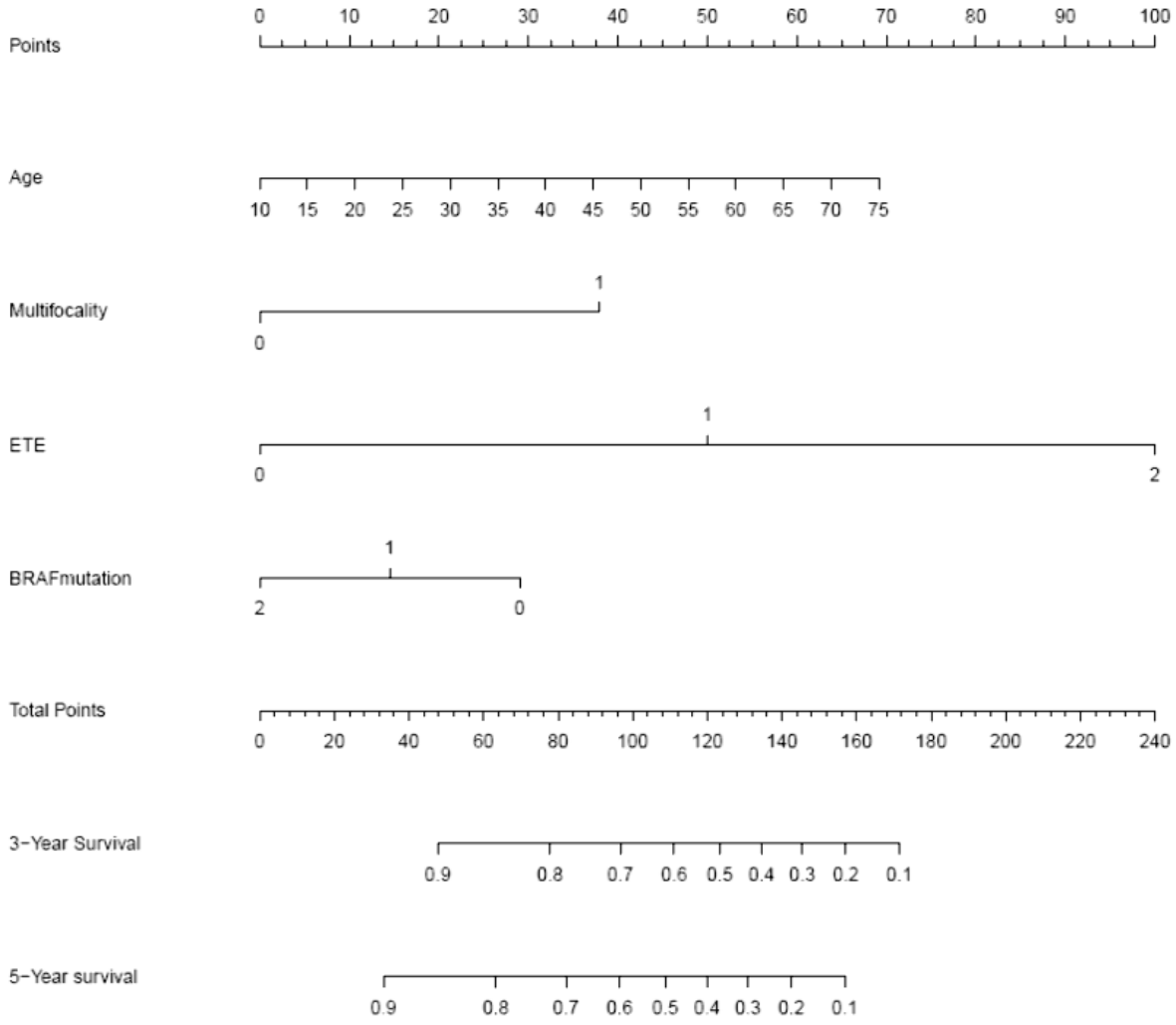
Results:

Table 3 prognostic factors for DFS on multivariate analysis (Cox model)

	Univariate Analysis			Multivariate Analysis		
	p-value	HR	95% confidence interval	*p*-value	HR	95% confidence interval
Age (years)	0.079	0.466	0.199-1.091	**0.001**	0.182	0.065-0.509
Gender	0.607	1.32	0.459-3.796	0.338	1.858	0.523-6.596
Tumor size	0.608	0.821	0.388-1.741	0.979	0.989	0.415-2.355
Histology	0.601	0.586	0.079-4.328	0.640	0.611	0.078-4.820
Hashimoto's thyroiditis	0.086	0.474	0.202-1.111	0.400	0.646	0.234-1.784
Multifocality	**0.029**	2.581	1.100-6.056	**0.002**	4.631	1.73-12.401
ETE	**0.001**	3.645	2.356-5.640	**0.001**	3.816	2.286-6.371
BRAF mutation	**0.018**	0.541	0.326-0.900	**0.020**	0.474	0.253-0.887
CLNM	0.221	1.582	0.759-3.296	0.282	1.594	0.681-3.728
No. metastasized lymph nodes(≥5)	**0.001**	5.878	2.233-15.472	0.426	1.712	0.456-6.428

Multivariate unconditional logistic regression analysis showed no significant difference in recurrence between PTMC patients with different surgical methods and approaches (P> 0.05). Age < 55 years, multifocality, extrathyroidal extension, and BRAF mutation were potential risk factors for the 5-year DFS rate of PTMC patients (P< 0.05). In the training, internal, and external validation cohorts, the prediction results of the nomogram model had good consistency with the actual situation.

Conclusions:



The nomogram model constructed in this study has a good predictive effect on the 5-year DFS rate of PTMC patients with different surgical methods and approaches.

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O012 / #567

Oral Session
ORAL ABSTRACT PRESENTATIONS - THYROID
01-03-2024 17:40 - 19:00

INVESTIGATING THE EXPRESSION PATTERNS OF RET/PTC AND THEIR ASSOCIATION WITH THE HIGH PREVALENCE OF THYROID CANCER IN PAKISTANI WOMEN

Ruqia Baig[1], Rashida Khan[2], Qaisar Mansoor[2], Nafeesa Kainat[1]
[1]PMAS Arid Agriculture University Rawalpindi, Zoology, Wildlife & Fisheries, Rawalpindi, Pakistan, [2]Institute of Biomedical & Genetic Engineering (IBGE) Islamabad, Pakistan, Institute Of Biomedical & Genetic Engineering (ibge), islamabad, Pakistan

Background and Aims: Thyroid cancer (TC) the most prevalent endocrine malignancy in the human population, with its prominent subtype papillary thyroid carcinoma (PTC), encompassing 80%-90% of all cases. Genetic investigations have revealed RET/PTC rearrangements as a pivotal process in the pathogenesis of thyroid cancer. These alterations can cause aberrant MAPK activation, resulting in the progression of thyroid cancer. The present study aims to explore the role of RET/PTC rearrangements in thyroid cancer development, with a specific focus on the PTC subtype. This study seeks to unveil critical insights into the underlying mechanisms of thyroid cancer pathogenesis for novel prognostic and therapeutic approaches.
Methods: A total of 160 thyroid cancer tissue and multi nodular goiter (MNG) samples from patients were collected, alongside adjacent normal control samples after taking informed consent. Using the TRIZOL method, RNA was extracted, followed by cDNA synthesis by using a commercially available cDNA Synthesis kit. Quantitative Real-Time PCR was carried out for analysis of the expressional variations of RET/PTC1 and RET/PTC3, comparing them with normal control samples. Statistical analysis was conducted using SPSS software.
Results: Among thyroid cancer patients, a heigh frequency was observed in stages 1 and 2, accounting for over 90% of cases. Increased expression of RET/PTC1 and RET/PTC3 at statistically significant levels (p-value $p<0.05$), was observed in thyroid cancer tissues as compared to normal and MNG specimens.
Conclusions: This study suggests that RET/PTC rearrangements are of utmost significance in the onset of thyroid cancer, particularly within the Pakistani population. Increased level of RET/PTC1 and RET/PTC3 in thyroid cancer patients suggests their important role that can be explored in context to new approaches that can be used for specific treatments and novel diagnostic markers.

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O013 / #994

Oral Session
ORAL ABSTRACT PRESENTATIONS - THYROID
01-03-2024 17:40 - 19:00

MACHINE LEARNING PREDICTION OF PANCREATITIS RISK WITH METHIMAZOLE AND PROPYLTHIOURACIL: A NATIONWIDE RETROSPECTIVE OBSERVATIONAL STUDY

Muhammed Kizilgul[1], Talip Yigit[2], Naim Ata[3], Ahmet Celik[4], Bekir Ucan[1], Mustafa Sahin[5], M. Mahir Ulgu[3], Suayip Birinci[6]
[1]Ankara Etlik City Hospital, Endocrinology And Metabolism, Ankara, Turkey, [2]29 Mayıs University, Faculty Of Economics And Administrative Sciences, Istanbul, Turkey, [3]Turkish Ministry of Health, General Directorate Of Health Information System, Ankara, Turkey, [4]Mersin University, Faculty of Medicine, Cardiology, Mersin, Turkey, [5]Ankara University, Faculty of Medicine,, Endocrinology And Metabolism, Ankara, Turkey, [6]Turkish Ministry of Health, Vice President, Ankara, Turkey

Background and Aims: In recent years, there has been increasing data showing that the risk of acute pancreatitis (AP) is increased in patients using methimazole (MMI). However, this relationship could not be demonstrated with propylthiouracil (PTU) use. We aimed to investigate the association between drugs used in the treatment of hyperthyroidism (MMI, PTU, propranolol) and the diagnosis of AP in a population-based study.
Methods: The database consisted of more than 85 million citizen records between January 1, 2017, and December 31, 2022. Within the scope of the study, the data of patients diagnosed with hyperthyroidism (ICD 10: E05) and the individuals who developed acute pancreatitis (ICD 10: K85) after being diagnosed with hyperthyroidism were examined. Analyzes were carried out using R Studio 4.2.0 software. In the realization of the analysis; “readxl”, “Rcpp”, “tidyverse”, “caret”, “stats”, “caTools” and “psych” packages were used. The test-train technique as a machine learning method was used in logistic regression models. The results of both logistic regression and linear regression models were tested with a 95% confidence interval and a 5% margin of error
Results: A total of 1,329,934 individuals diagnosed with hyperthyroidism were examined. A total of 10,815 (0.81%) patients developed acute pancreatitis after being diagnosed with hyperthyroidism. Using methimazole increases the probability of experiencing AP diagnosis after hyperthyroidism diagnosis by 0.22 times (22%), with a prediction success rate of 50.91% while using propylthiouracil increases the probability of experiencing AP diagnosis 0.32 times (32%), with a prediction success rate of 52.45%. Using propranolol increases the probability of experiencing AP by 0.03 times (3%), with a 49.31% predictive success rate. The fact that the person is using all three drugs (in separate times) increases the probability of experiencing AP 0.89 times (89%), with a predictive success rate of 54.11 %. The duration between MMI use and AP was statistically significant (0.89%, p<.0001, accuracy: 51.31%) while, it was not significant with PTU (0.5%, p>0.05, accuracy: 50.91%) (Table
1).

Table 1: Results of logistic regression analysis

Variables (Dependent/Independent)	Post-treatment AP (0-1)		
	Coefficient (β) (%)	P Value	Accuracy (%)
Sex	-6.75	-.	50.34
Age	2.56	<.0001	59.60
Methimazole	21.63	<.0001	50.91
Propylthiouracil	32.00	<.0001	52.45
Proporonolol	2.63	-	49.31
Total drug#: 1	45.71	<.0001	54.11
Total drug#: 2	48.82	<.0001	
Total drug#: 3	89.28	<.0001	
Time to AP (MMI)	0.83	<.0001	51.31
Time to AP (PTU)	0.50	-	49.31
Time to AP (PP)	0.89	<.0001	50.91

Conclusions: Although the risk for both PTU and MMI is low, their use increases the risk of AP. While the relationship between duration of drug use and AP development was significant with MMI, it was not significant with PTU. The use of these drugs at separate times contributes to a higher risk of AP. Although drug-induced acute pancreatitis is relatively rare, a firm understanding of the drugs associated with the condition should alert the clinician to appropriately diagnose and treat patients.

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Oral Session
ORAL ABSTRACT PRESENTATIONS - THYROID
01-03-2024 17:40 - 19:00

HYPOTHYROIDISM REDUCES PARASITEMIA AND IMPROVES RESPONSE TO INFECTION IN A NON-LETHAL MURINE MALARIA MODEL

Erika M. Guerrero[1], María Gutiérrez[1], Susana Pérez-Benavante[2], Jose M Bautista[2], Ana Aranda[1,3], Susana Alemany[4]
[1]Instituto de Investigaciones Biomédicas "Alberto Sols" CSIC-UAM, Metabolismo Y Señalización Celular, Madrid, Spain, [2]Facultad de Veterinaria, Universidad Complutense de Madrid, Bioquímica Y Biología Molecular, Madrid, Spain, [3]Instituto de Investigaciones Biomédicas "Alberto Sols" CSIC-UAM, Fisiopatología Endocrina Y Del Sistema Nervioso, Madrid, Spain, [4]Instituto de Investigaciones Biomédicas, Metabolismo Y Señalización Celular, Madrid, Spain

Background and Aims: Malaria remains a critical public health problem today. It is caused by Plasmodium parasites, with an estimated 627 000 malaria deaths and 241 million malaria cases per year. The parasites can cause severe anemia, cerebral malaria or metabolic acidosis, leading to death especially of children and pregnant women. Parasites can infect the circulating red blood cells (RBCs), in which Plasmodium matures trough different stages including rings, trophozoites and schizonts, with the further release of an amplified number of parasites. Recently, we have shown that hypothyroidism in mice confers tolerance to cerebral malaria, increasing survival to lethal Plasmodium berghei ANKA, by a mechanism involving Sirtuin 1 activity (Sci Adv.8;14; 2022)
Methods: Hypothyroid mice were infected with P. yoelii 17XNL, a non-lethal Plasmodium strain that causes a self-resolving malaria.
Results: Compared to euthyroid mice, hypothyroid mice infected with P. yoelii 17XNL showed strongly reduced organ damage and deposition of hemozoin. In addition, these mice showed milder metabolomic changes in response to infection. Behavioral and respirometric values observed in hypothyroid mice at the onset of infection were more stable over the course of the disease. All these changes were associated with lower parasitemia in hypothyroid animals. Hypothyroidism decreased parasite load in all different types of RBCs during P.yoelii 17XNL infection, being reticulocytes the preferred infected cell. Parasitemia reduction was secondary to a delay in the intra-erythrocytic developmental cycle of the parasite, with increased amounts of rings and decreased number of trophozoites and schizonts. Furthermore, treatment of euthyroid mice with the Sirt-1 activator SRT1720 mimics the effect of hypothyroidism, reducing parasitemia during the course of the infection. P. falciparum is the parasite species causing the most severe cases of malaria in humans. Importantly, in vitro treatment of P. falciparum with SRT1720 reduces parasite growth in human RBCs at similar ED50 value ranges than the antimalarial chloroquine, suggesting that Sirt1 activators may represent a novel treatment for the disease.
Conclusions: Our results show that hypothyroidism also protects from non-lethal malaria in mice, by a mechanism involving a significant suppression of parasitemia. If this can apply to humans, it is likely that the population living in endemic areas of iodine deficiency and endemic hypothyroidism could present a stronger resilience to both cerebral and non-cerebral malaria.

O015 / #792

Oral Session
ORAL ABSTRACT PRESENTATIONS - THYROID
01-03-2024 17:40 - 19:00

A PHASE 2 STUDY TO EVALUATE EFFICACY AND SAFETY OF IBI311 IN CHINESE SUBJECTS WITH ACTIVE THYROID EYE DISEASE

Haiyang Zhang[1], Jing Sun[1], Yinwei Li[1], Junjie Deng[2], Lei Qian[2], Huifang Zhou[1], Xianqun Fan[1]
[1]Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Ophthalmology, Shanghai, China, [2]Innoventbio, Clinical Development, Suzhou, China

Background and Aims: Thyroid eye disease (TED), an autoimmune disease commonly associated with Graves' disease, involving periocular tissues, potentially causes disfiguration and vision loss. Insulin-like growth factor 1 receptor (IGF-1R), a receptor in the pathogenesis of TED, has been proved to be an effective therapeutic target. This study aimed to evaluate efficacy and safety of IBI311, a monoclonal antibody in solution targeting IGF-1R, in Chinese patients with active TED.
Methods: This was a multicenter, randomized, double-masked, placebo-controlled phase 2 study. Thirty-three participants with moderate-to-severe active TED were randomized in a 2:1 ratio to receive intravenous infusions of IBI311 or placebo every three weeks (Q3W) from week 1 to week 9 (10 mg/kg of body weight for the first infusion and 20 mg/kg for subsequent infusions). Subsequently, all participants will receive IBI311 Q3W from week 12 to week 21. The primary outcome was proptosis responder proportion (percentage of subjects with a ≥ 2 mm decrease from baseline in proptosis in the study eye and without a ≥ 2 mm increase of proptosis in the fellow eye) at week 12.
Results: At week 12, the proptosis responder proportion was significantly higher in participants treated with IBI311 than with placebo (59.1% [13 participants] vs. 18.2% [2 participants], P = 0.0309, odd ratio (OR) = 11.55). The overall response (36.4% [8] vs. 9.1% [1], OR = 3.55) and diplopia response (64.71% [11 of 17] vs. 25% [2 of 8], OR = 4.21) was higher in participants treated with IBI311 than with placebo at week 12. The mean change in proptosis from baseline was higher in IBI311 group than in placebo group (-2.9 [0.43, standard error] mm vs. -0.7 [0.58] mm) at week 12. The mean change in clinical activity score (CAS) from baseline was similar between IBI311 and placebo groups (-1.9 [0.29] vs. -2.3 [0.39]) at week 12. Therapeutic effects on proptosis, overall response and diplopia were more robust as the duration of treatment increased. Most adverse events were mild or moderate in severity and no serious adverse event was reported in IBI311 group.
Conclusions: Among Chinese patients with active TED, IBI311 resulted in better outcomes with respect to proptosis, overall response and diplopia than placebo. IBI311 was safe and well tolerated in TED patients.

O016 / #587

Oral Session
ORAL ABSTRACT PRESENTATIONS - THYROID
01-03-2024 17:40 - 19:00

RESULTS FROM THE OPEN-LABEL EXTENSION OF A GLOBAL PHASE 3 STUDY OF ONCE-WEEKLY SOMATROGON IN PEDIATRIC PATIENTS WITH GROWTH HORMONE DEFICIENCY

John Choe[1], Renata Stawerska[2], Ronnie Wang[3], Joel Steelman[4], Michael Wajnrajch[5], Marc Thomas[6], Daria La Torre[7], Moshe Phillip[8], Cheri Deal[9], Lawrence Silverman[10], Carrie Taylor[5], José Cara[11]
[1]Transition Therapeutics Corp. ULC, Opko Health Inc, Miami, United States of America, [2]Department of Endocrinology and Metabolic Diseases, Polish Mother's Memorial Hospital – Research Institute, Lodz, Poland; Department Of Paediatric Endocrinology, Medical University Of Lodz, Lodz, Poland, [3]Biostatistics, Pfizer Inc, Groton, United States of America, [4]Endocrinology Department, Cook Children's Medical Center, Fort Worth, United States of America, [5]Rare Diseases, Pfizer Inc, New York, United States of America, [6]Rare Diseases, Pfizer Ltd, Tadworth, United Kingdom, [7]Rare Diseases, Pfizer Srl, Rome, Italy, [8]Institute for Endocrinology and Diabetes, Schneider Children's Medical Center Of Israel; Sackler Faculty Of Medicine, Tel-aviv University, Petah Tikva, Israel, [9]Endocrine Service, Centre De Recherché Chu Ste-justine, Université De Montréal, Montréal, Canada, [10]Pediatric Diabetes & Endocrinology, Goryeb Children's Hospital, Atlantic Health System, Morristown, United States of America, [11]Endocrine & IEM Global Product Development, Pfizer Inc, New York, United States of America

Background and Aims: Somatrogon, a long-acting recombinant human growth hormone (rhGH) is approved as a once-weekly treatment for pediatric growth hormone deficiency (pGHD). A global Phase 3 study (NCT02968004) demonstrated that once-weekly somatrogon was non-inferior to once-daily somatropin in children with pGHD. This abstract describes the efficacy and safety of somatrogon in patients following 3 years of the study.
Methods: In the main study period, patients were randomized to receive either once-weekly somatrogon (0.66 mg/kg/week) or once-daily somatropin (0.24 mg/kg/week) for 12 months. After the main study period, patients were eligible to enter an open-label extension (OLE), during which all patients received somatrogon. In the OLE, somatrogon-treated patients continued to receive somatrogon (somatrogon/somatrogon group) at their current dose (≤0.66 mg/kg/week, depending on whether dose reductions were required in the main study) and somatropin-treated patients received somatrogon (somatropin/somatrogon group) at 0.66 mg/kg/week.
Results: Of the 222 patients (somatrogon=108, somatropin=114) who completed the 12-month main study, 212 (somatrogon=104; somatropin=108) entered the OLE and received somatrogon. At the end of the main study, somatrogon- and somatropin-treated patients had similar mean height velocity (HV) (somatrogon: 10.18 [SD: 2.42] cm/year; somatropin: 9.68 [SD: 2.46] cm/year) and gain in height SDS (0.93 vs 0.84). At the end of OLE Year 2, both treatment groups demonstrated similar growth outcomes. Mean (SD) HV in the somatrogon/somatrogon and somatropin/somatrogon groups was 7.78 (1.91) and 7.99 (1.73) cm/year, respectively and mean (SD) change from baseline in height SDS was 1.57 (0.77) and 1.67 (0.79), respectively. Mean (SD) change from baseline in IGF-1 SDS in the somatrogon/somatrogon and somatropin/somatrogon groups was 3.00 (1.28) and 2.97 (1.12), respectively. During the main study, adverse events (AEs) were reported in 86.2% and 84.3% of somatrogon- and somatropin-treated patients, respectively. During Years 1 and 2 of the OLE, AEs were reported in 72.2% and 71.6% of all patients, respectively; most AEs were mild to moderate. Injection site pain was the most common AE in both years of the OLE. The incidence of serious AEs was 4.7% and 0.6% in Years 1 and 2 of the OLE, respectively (none were related to treatment).
Conclusions: Throughout the global Phase 3 study, patients in both groups demonstrated continued catch-up growth with somatrogon treatment and somatrogon maintained a favorable safety profile. No

differences in growth were observed between patients who received somatrogon vs somatropin in the main study. Clinicaltrials.gov: NCT02968004 Acknowledgements: The authors wish to thank all the investigators involved in this study.

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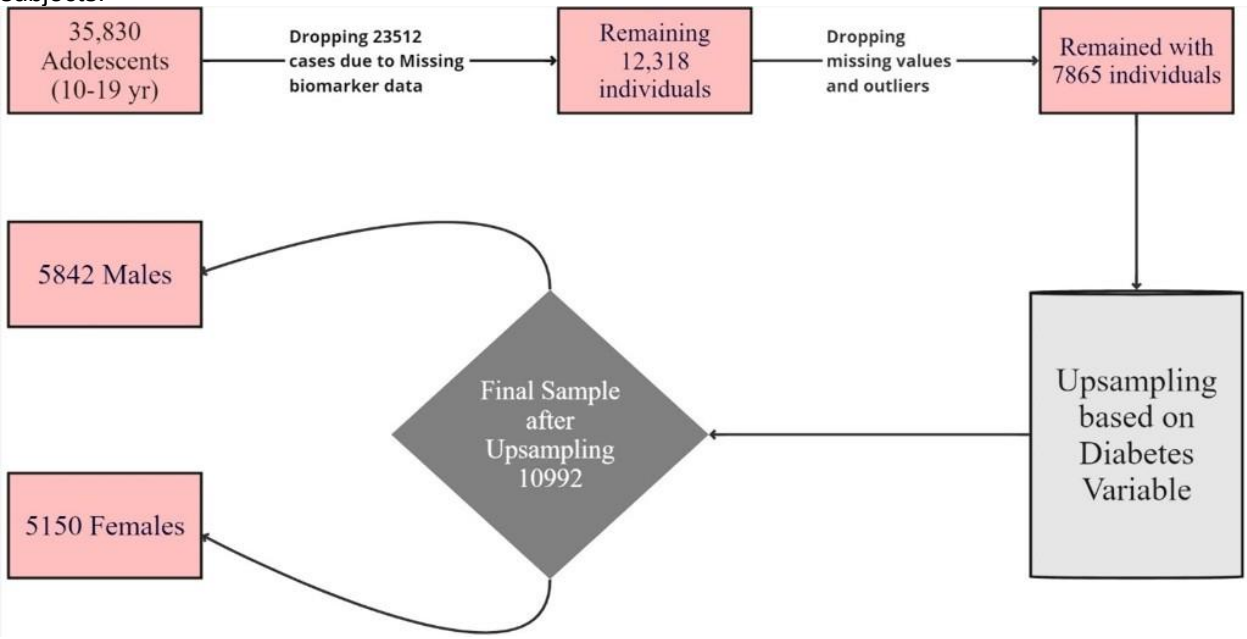
O017 / #710

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 02
02-03-2024 11:20 - 12:20

MACHINE LEARNING ANALYSIS IDENTIFIES WAIST-TO-HEIGHT RATIO (WHTR) AS THE BEST PREDICTOR OF DIABETES AND PREDIABETES IN INDIAN ADOLESCENTS: RESULTS FROM INDIAN NATIONAL NUTRITION SURVEY

Kirti Kirti[1], Harshal Deshmukh[2], Shri Kant Singh[3], Thozhukat Sathyapalan[2]
[1]International Institute for Population Sciences, Department Of Biostatistics And Demography, Mumbai, India, [2]University of Hull, Department Of Endocrinology And Diabetes, Hull, United Kingdom, [3]International Institute for Population, Department Of Biostatistics And Demography, Mumbai, India

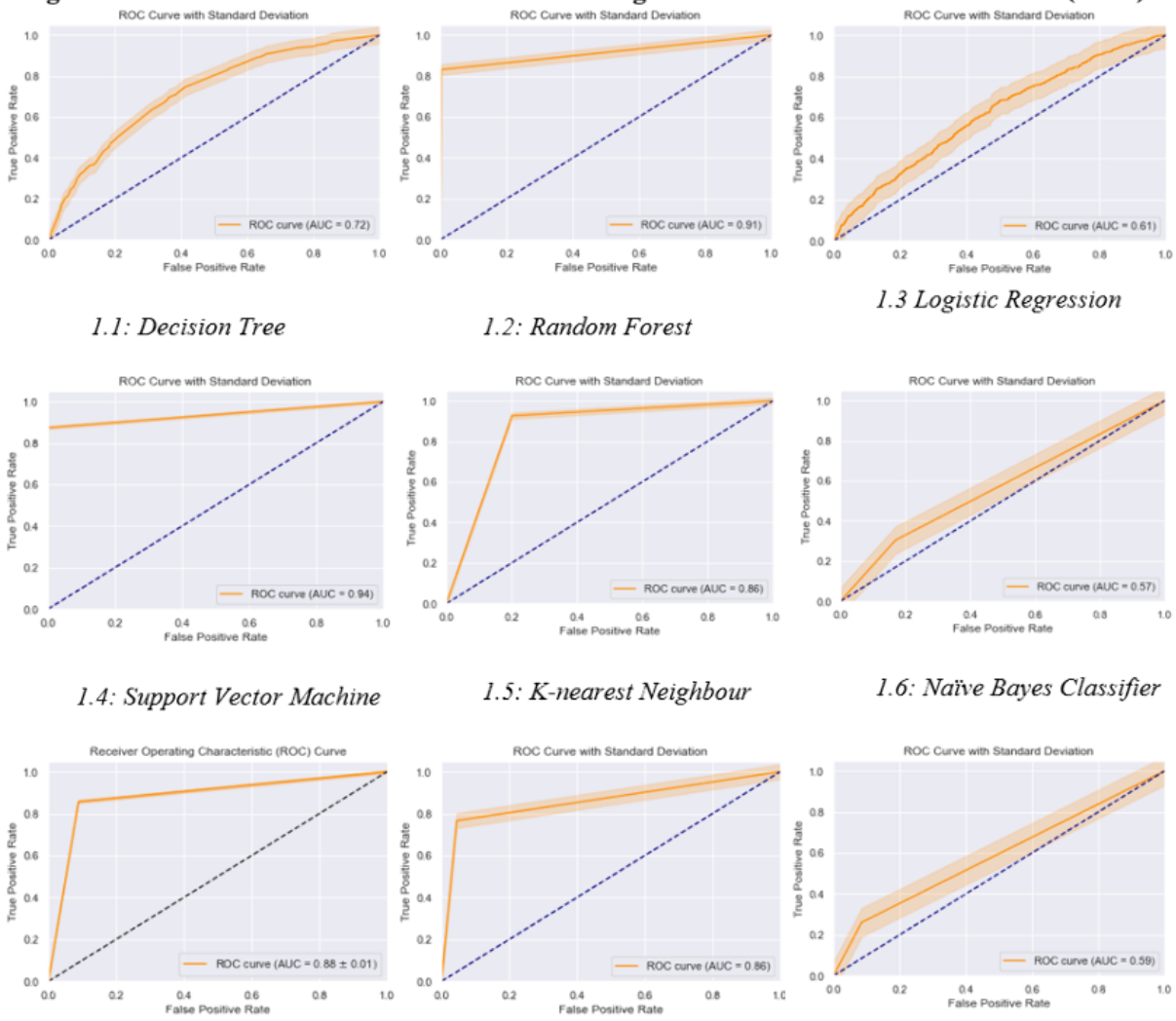
Background and Aims: Background: The burden of diabetes has increased significantly in India over the last three decades, with as many as one-third of all the new cases being diagnosed attributed to the adolescent population. The objective of this study was to use machine learning algorithms to identify the risk factors associated with pre-diabetes and diabetes in adolescents in India.
Methods: Design, Setting, and Participants: The study utilizes secondary data, i.e., Comprehensive National Nutrition Survey conducted in 2016-18. The study sample includes children and adolescents aged 10-19 years. We used 9 machine learning algorithms for classification, assessing and obtaining the best model for ascertaining the risk of diabetes among adolescents in India. Various indices were used to evaluate the classification algorithms, such as the 'accuracy score', 'F1 score', 'recall score', 'precision score', and 'area under the curve' (i.e., AUC). Results were obtained based on the model with higher precision and accuracy in predicting the risk of diabetes among study subjects.



Results: The study consisted of 35,830 adolescents of 7865 adolescents (X% females) had complete data. The presence of diabetes and prediabetes in the study population was 11% (n=1888) while the

prevalence of diabetes alone was 0.6% (n=233). Amongst the machine learning models Random Forest performed the best with precision score of 0.99, recall score of 0.85, and F1-score of 0.91. The top predictors of associated with diabetes and prediabetes in these analysis were waist-to-height ratio (WHtR) (RI=0.077), BMI (RI=0.076), and waist-circumference (RI=0.073). Estimated optimum cut-off values for WHtR and BMI was obtained as 0.62 and 34.89, with an AUC of 0.79 and 0.60 respectively.

Figure 1: ROC curves for different classification algorithms with area under the curve (AUC)



1.1: Decision Tree

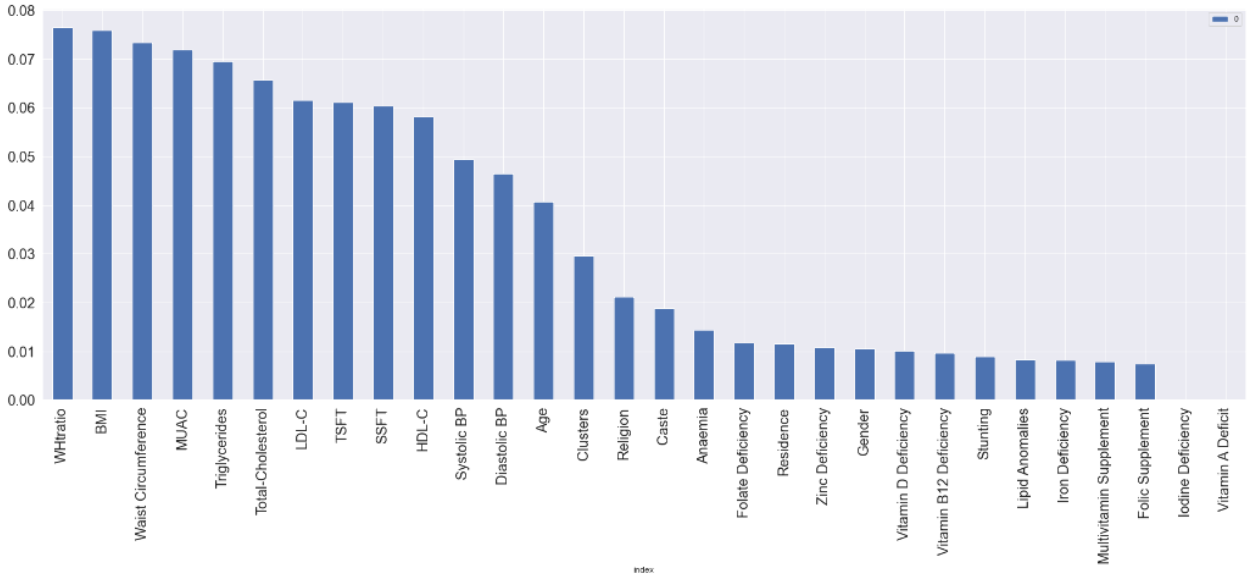
1.2: Random Forest

1.3 Logistic Regression

1.4: Support Vector Machine

1.5: K-nearest Neighbour

1.6: Naïve Bayes Classifier



Conclusions: and Relevance: In this extensive analysis of machine learning techniques, we demonstrate that Waist-to-Height Ratio (WHtR) emerges as the most effective predictor for diabetes and prediabetes among adolescents in India. Our findings suggest that WHtR can serve as a cost-effective and accessible screening tool for identifying diabetes and prediabetes within this demographic.

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O018 / #795

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 02
02-03-2024 11:20 - 12:20

YOUNG-ONSET DIABETES IN ASSOCIATION WITH INSULIN RECEPTOR SUBSTRATE 2 (IRS2) MUTATION SUGGESTS NOVEL SUBTYPE OF MONOGENIC DIABETES

Suvyaktha Simha[1], Anirudh Krishnamurthy[2], Yug Garg[3], Madhumati Vaishnav[4], Siddhartha Dinesha[5], Reshma Bv[6], Kavitha Muniraj[2], Leena Lekkala[7], Sathyanarayana Srikanta[2], Samatvam Diabetes Collaborative Study Group[8]
[1]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [3]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [4]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [5]Sri Chamundeshwari Medical College Hospital and Research Institute, Internal Medicine, Bangalore, India, [6]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [8]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Diabetes (non-autoimmune) in young children, especially in absence of obesity is often due to monogenic causes. We report a case of IRS2 mutation, a potentially novel locus for Maturity Onset Diabetes of Young (MODY).
Methods: A non-obese Asian Indian girl with “type 2 diabetes” (T2D) since age 9 (GAD65 and islet-cell antibodies negative; C-peptide normal; HbA1c 6-7% on metformin; parents T2D), also had hypertriglyceridemia (500 mg/dl) and evidence of polycystic ovaries. Change of physician (T1D diagnosis!) resulted in switch to insulin therapy at age 12 (HbA1c 8-8.5%). At age 16, the “healthy child” developed acute severe abdominal pain leading to a very complicated enigmatic hospital course comprising acute pancreatitis, Klebsiella sepsis, pneumonia, severe metabolic acidosis (ketoacidosis), malignant hyperthermia, cardiac arrest, circulatory shock, renal failure, superficial femoral artery thrombosis, pulmonary artery thrombosis/embolism, hypoxic encephalopathy, rhabdomyolysis, thrombocytosis, reversible posterior encephalopathy and severe critical illness neuropathy/myopathy. She gradually recovered, but has mild hypoxic brain injury. She was on a basal-bolus insulin regimen receiving close to 100 units insulin/day with a HbA1c of 7.6%. Given these clinical features and disease progression, she was screened for monogenic diabetes with suspicion for MODY7 due to KLF11 mutation, in view of propensity for thrombotic complications. Genetic analysis however showed no variations in known loci for MODY. A subsequent whole exome sequencing revealed heterozygous c.2566G>A (p.A856T) mutation in exon 1 of the IRS2 gene.
Results: Her serum C-peptide fasting was 2.44 ng/mL (1.1-4.4); fasting plasma glucose 138 mg/dl; HOMA-IR 2.04; HOMA-%B 64.4; HOMA-%S 48.9. She was transitioned from insulin back to oral hypoglycemic therapy and is maintaining good glucose control on a combination of metformin, bromocriptine, teneligliptin, voglibose and glimepiride. Currently, her weight is 51 kg, height 155 cm, BMI 21.2 kg/m2, blood pressure 108/79, HbA1c 7.5%, total-cholesterol 175, HDL-cholesterol, LDL-cholesterol 66, triglycerides, uric acid 7.0, creatinine 0.51 (all mg/dl), eGFR 138 mL/min/1.73m2 and urine albumin: creatinine ratio 5804 µg/mg creatinine. Dapagliflozin and telmisartan were added. She has evidence of steatotic liver disease. Her thrombophilia screen was normal.
Conclusions: IRS2 is a critical protein mediating intracellular insulin action and variants in this gene have been associated with insulin resistance. Recently, mutation in IRS2 has been reported in a large Chinese family with features of MODY. Mutations in IRS2 likely represent a novel locus for monogenic diabetes.

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O019 / #1678

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 02
02-03-2024 11:20 - 12:20

SERUM RESISTIN AND ADIPOCYTE FATTY ACID BINDING PROTEIN LEVEL IN DIFFERENT TRIMESTERS OF GESTATIONAL DIABETES MELLITUS

Tahmina Ferdousi[1], Tania Tofail[2], Sharmin Jahan[2], Muhammad Abul Hasanat[1]
[1]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh, [2]Bangabandhu Sheikh Mujib Medical University, Department Of Endocrinology, Dhaka, Bangladesh

Background and Aims: Resistin and adipocyte fatty acid binding protein (AFABP) are inflammatory adipocytokines released from adipose and other tissues. It is thought that they are related to insulin resistance and pathogenesis of gestational diabetes mellitus (GDM). This study aimed to determine the level of serum resistin and AFABP in mothers with GDM and normal glucose tolerance (NGT) in all trimesters to see whether they differ among different trimesters as well as between GDM and NGT.
Methods: This cross-sectional study included 81 pregnant women with GDM (among them 25 from 1st, 25 from 2nd & 31 from 3rd trimesters) and almost an equal number of NGT after challenging by three sample 75gm oral glucose tolerance test (OGTT) following WHO-2013 criteria in the Endocrinology department of BSMMU. Resistin, AFABP and insulin were measured from serum samples obtained in a fasting state during OGTT. Glucose was measured by the glucose oxidase method, insulin concentration by chemiluminescent immunoassay, and resistin and AFABP by sandwich ELISA method. Equations of homeostatic model assessment (HOMA) were used to calculate insulin indices.
Results: Resistin [13.2(9.85, 16.0) vs. 4.66(3.53, 5.96), median(IQR); p<0.001] but not AFABP [0.61(0.42, 1.52) vs. 0.80(0.43, 1.70), median(IQR); p=0.235] was significantly higher in GDM than NGT group. Similarly, resistin was also higher in all the trimesters [1st: 13.5(9.4, 16.65) vs. 4.22(3.63,6.00), p <0.001; 2nd: 12.8(9.73,14.37) vs. 4.47(3.68,5.60), p <0.001; and 3rd 13.75(10.62,18.12) vs. 4.97(3.04,6.69), p <0.001 respectively] but not AFABP (p=NS for all) in GDM than NGT. However, neither resistin nor AFABF showed any within-group significant difference (p=NS for all) among the three trimesters. Holding BMI cut-off at 23 kg/m^2, resistin was significantly higher in GDM than NGT in both low and high BMI groups. Neither resistin nor AFABP significantly correlated with any of age, gestational age, BMI, glucose values and insulin indices in GDM or NGT. By binary logistic regression, resistin was observed as an independent predictor for GDM [OR(95%CI;1.170(1.097-1.247), p<0.001] but not for AFABP [1.084(0.834-1.408), p=0.547]. Multigravida (p=0.019) and HOMA-IR (p <0.001) were also observed to be independent predictors of GDM. ROC curve analysis explored resistin (AUC=0.856; p<0.001) and HOMA-IR (AUC=0.721; p<0.001) as good predictors for GDM.
Conclusions: Resistin but not AFABP is increased in GDM than that of NGT irrespective of gestational age. None of them differ among trimesters within any of GDM or NGT mothers. Resistin is related to dysglycaemia but not to insulin resistance or gestational weight gain. Resistin is a good predictor for GDM.

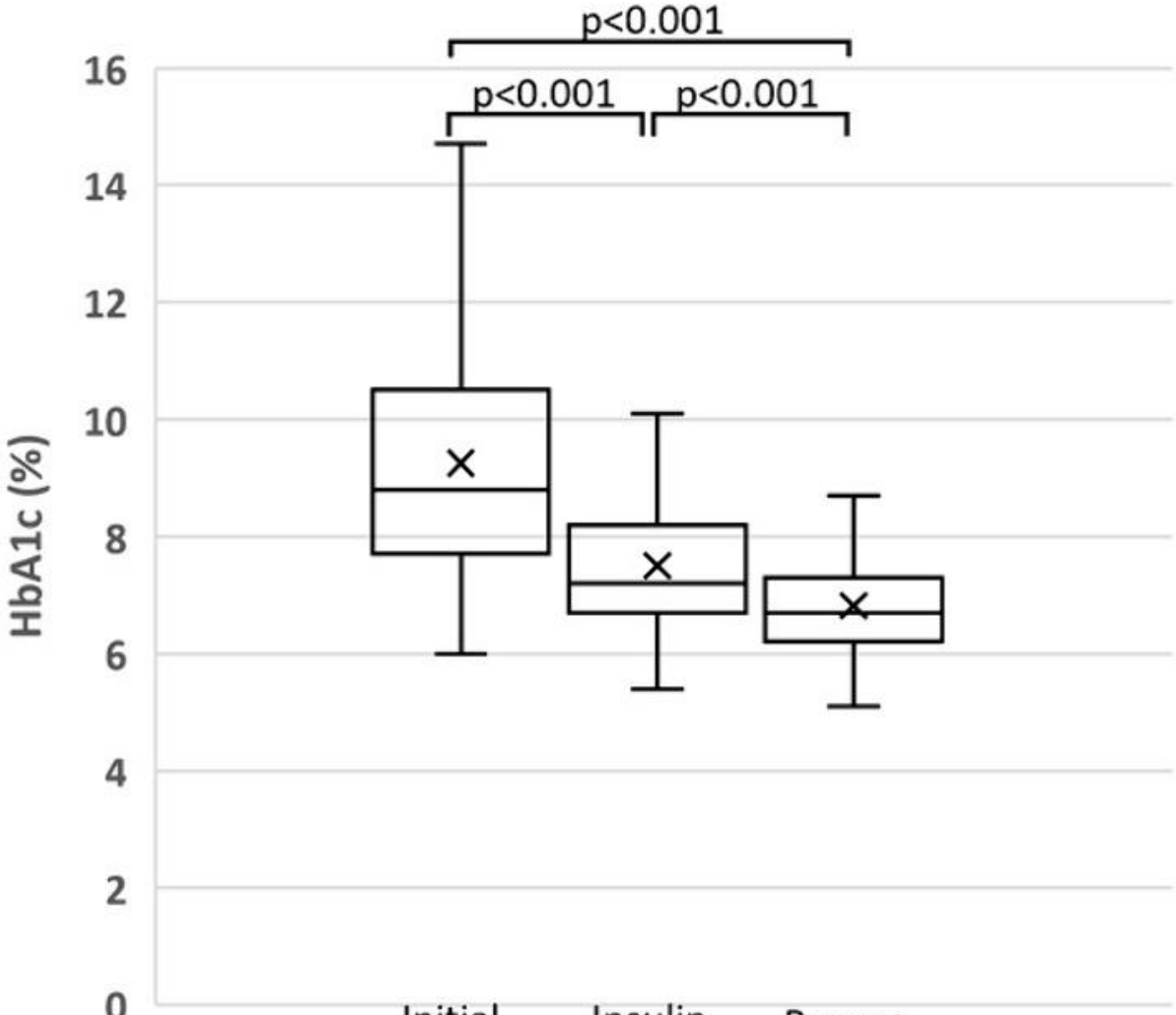
O020 / #548

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 02
02-03-2024 11:20 - 12:20

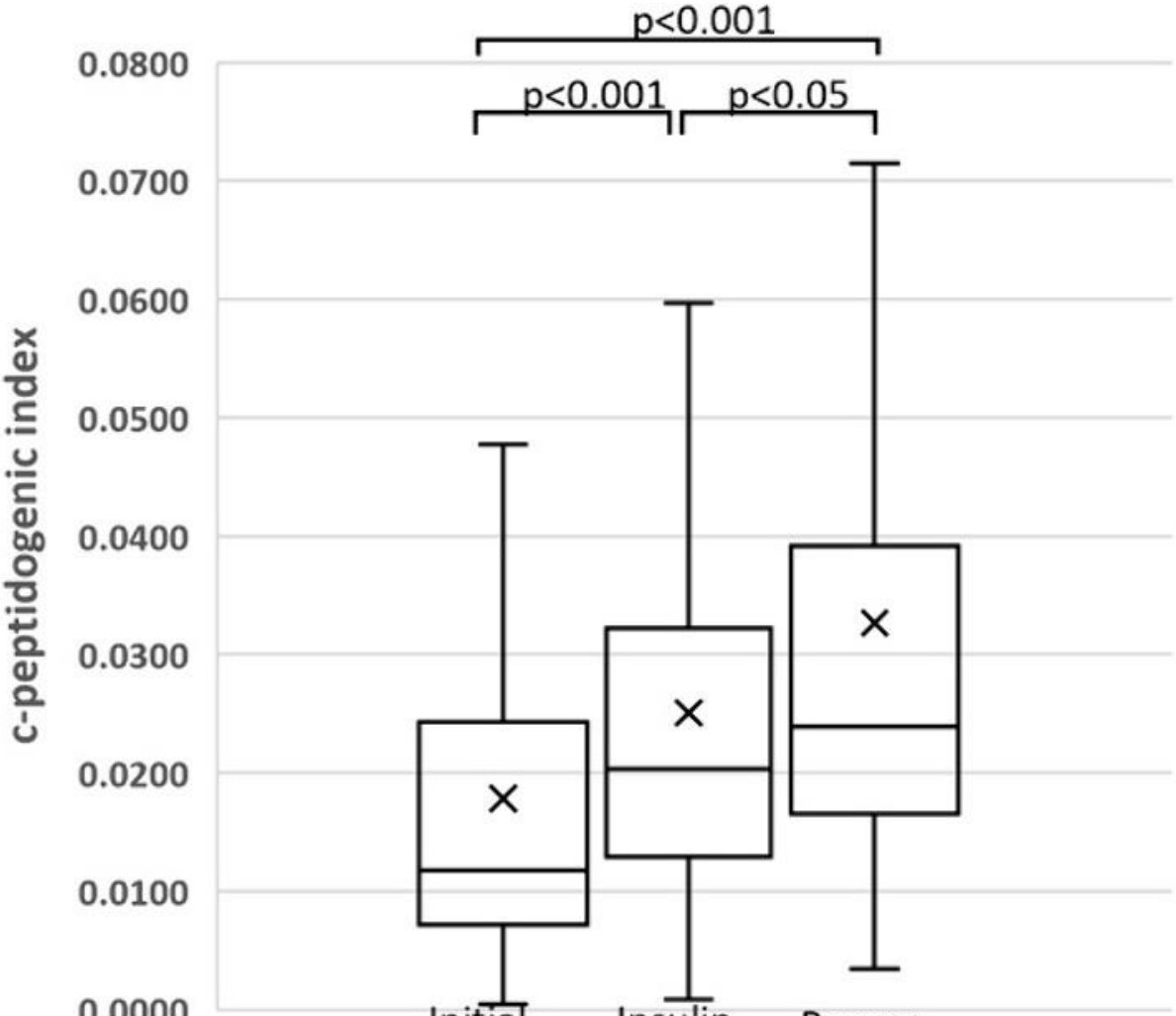
INSULIN PUMP THERAPY IN TYPE 2 DIABETES WITH EMPAGLIFLOZIN IMPROVED GLUCOSE CONTROL

Soobong Choi, Joonho Wang, Hyunju An
Konkuk University Medical School, Internal Medicine, Chungju, Korea, Republic of

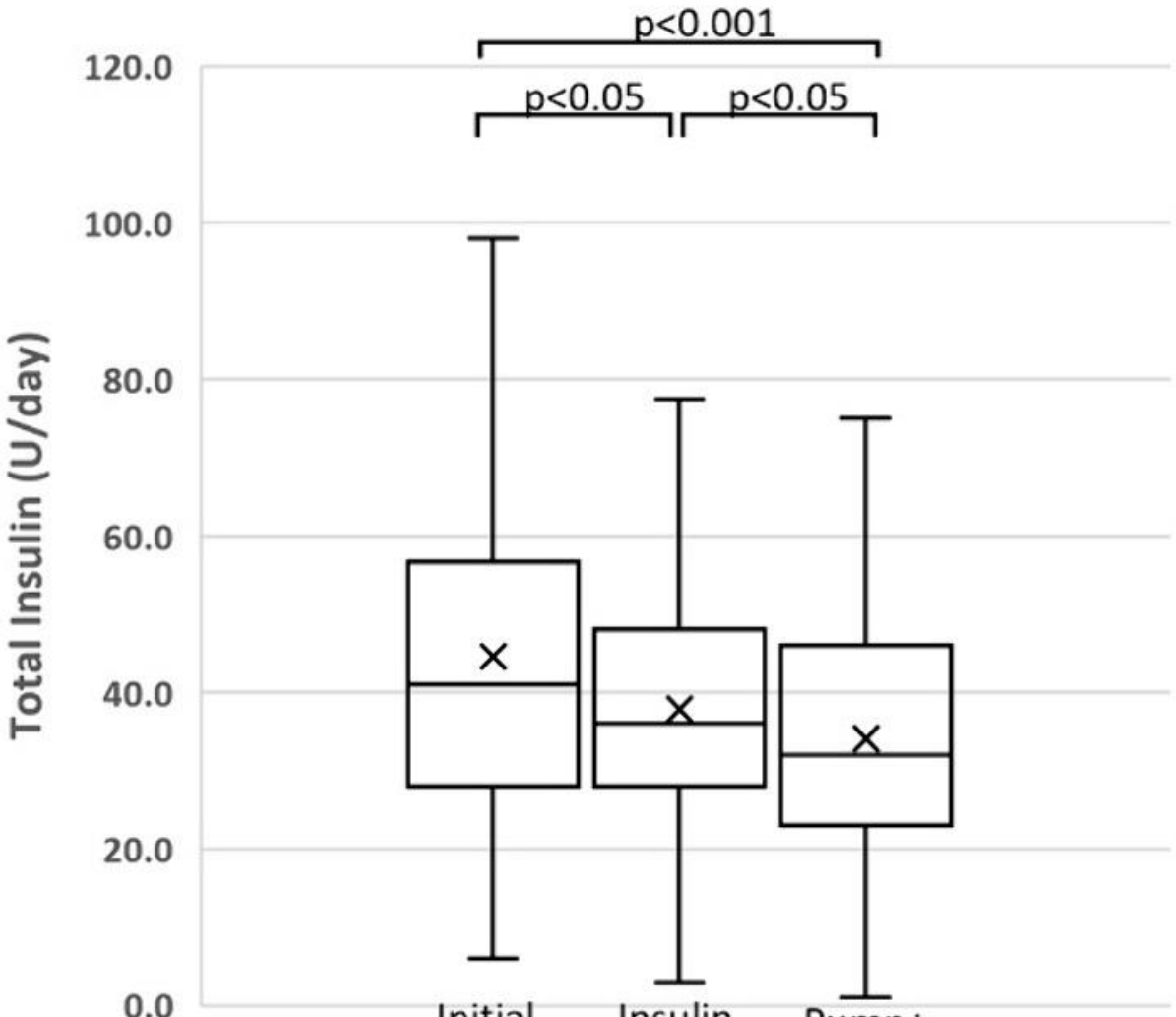
Background and Aims: Empagliflozin, a selective inhibitor of sodium-glucose cotransporter 2 (SGLT2), has been shown to improve glycaemic control, insulin resistance and insulin-associated weight gain in type 2 diabetes mellitus (T2DM) patients. Here the efficacy of insulin pump treatment with empagliflozin therapy is evaluated in this population.
Methods: This was a single-center retrospective observational study. A total of 160 patient, whose T2DM was controlled by insulin pump, was assigned to receive 10mg/day of empagliflozin. The primary end point was change from baseline in HbA1c after insulin pump treatment and empagliflozin therapy, respectively. Secondary end points were changes from baseline in insulin dose, BMI, creatinine and c-peptidogenic index after insulin pump treatment and empagliflozin therapy, respectively.
Results: Data from 160 patients were analyzed. For the population, mean±SD of T2DM duration was 12.3±8.1 years, mean±SD of insulin pump treatment duration was 3.5±3.1 years and mean±SD of empagliflozin therapy duration was 5.2±1.3 months. Mean±SD of HbA1c was changed form 9.25±2.03% at initial visit to 7.50±1.18% after insulin pump treatment ($p<0.001$) and 6.82±0.91% after empagliflozin therapy added to insulin pump treatment ($p<0.001$). Furthermore, the c-peptidogenic index was increased ($p<0.001$) and insulin dose was decreased ($p<0.001$) after empagliflozin therapy added to insulin pump treatment. The BMI and creatinine were stable during insulin pump treatment and empagliflozin therapy.



	Initial Visit	Insulin Pump	Pump+ Jardiance
Mean	9.25	7.50	6.82
SD	2.03	1.18	0.91



Mean	0.0178	0.0250	0.0327
SD	0.0179	0.0186	0.0273



Mean	44.6	37.8	34.1
SD	21.4	15.7	15.3

Conclusions: Empagliflozin added to insulin pump treatment improved glycaemic control, c-peptidogenic index and insulin dosing in T2DM patients. Also, this therapy stabilized BMI and creatinine.

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Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 02
02-03-2024 11:20 - 12:20

MATERNAL AND NEONATAL OUTCOMES OF WOMEN WITH TYPE 1 DIABETES AT A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN

Saima Askari[1], Mussarrat Riaz[2]
[1]Baqai Institute of Diabetology and Endocrinology, Baqai Medical University, Karachi, Pakistan, [2]Baqai Institute of Diabetology and Endocrinology, Endocrinology, Karachi, Pakistan

Background and Aims: Background and Aim Pregnancy in women with type 1 diabetes mellitus is associated with an increased risk of congenital malformations, obstetric complications, and neonatal morbidity. To minimize risks to both mothers and infants, good multidisciplinary care is required between diabetologists, obstetricians, neonatologists, and nursing and allied health professional specialists. We sought to investigate maternal, perinatal, and neonatal outcomes of pregnancy in women with type 1 diabetes.
Methods: This retrospective cohort study extracted data regarding prenatal, intrapartum, and postnatal outcomes of pregnancies in women with onset of T1DM <18 years identified from the pregnancy register at Baqai Institute of Diabetology and Endocrinology (BIDE), Baqai Medical University, Karachi, Pakistan All women diagnosed with T1DM and who became pregnant at least once after diagnosis, visiting the outpatient department of BIDE from June 2010- May 2023 were included. A predesigned questionnaire was developed for data records. It includes demographic details, diabetes and obstetric history, clinical examination, treatment details, maternal, perinatal, and neonatal outcomes.
Results: In our study, the median gestational week at delivery was 32 weeks, and 3/5th of recruited females underwent caesarian section. Furthermore, the mean HbA1c was 8.29% at the time of conception, and almost half experienced miscarriages and abortion. Table 01: Demographical details:

Variable
Age at recruitement (in years)
Age at the time of diagnosis (in years)
Years with T1DM
Age at first conception
No.of pregnancy
One
Two
Three
Four
More than four
Gestational age of baby at the time of delivery (in weeks)
HbA1C
FBS (mg/dl)
RBS (mg/dl)

Table 2: Pregnancy status and mode of delivery

Variables

Women taken folic acid in first trimester
Yes
No
Pregnancy status
Planned
Unplanned
Complication during pregnancy
Yes
No
Mode of delivery
C-section
Elective Csection
Emergency Csection
Normal vaginal delivery (NVD)

Table 03 : Education related to Contraception and pregnancy

Pre-pregnanacy counselling
Yes
No
Awareness of glycaemic target
Yes
No
Postnatal advice
Breast feeding
Bottle feeding
Combination
Contraception counselling
Yes
No

Figure 01 Figure 02 Figure 03: NEONATAL COMPLICATIONS

Conclusions: Conclusion: The high frequency of unplanned pregnancies and cesarean sections along with poor management of prepregnancy care must be improved to improve maternal and perinatal outcomes for this high-risk group.

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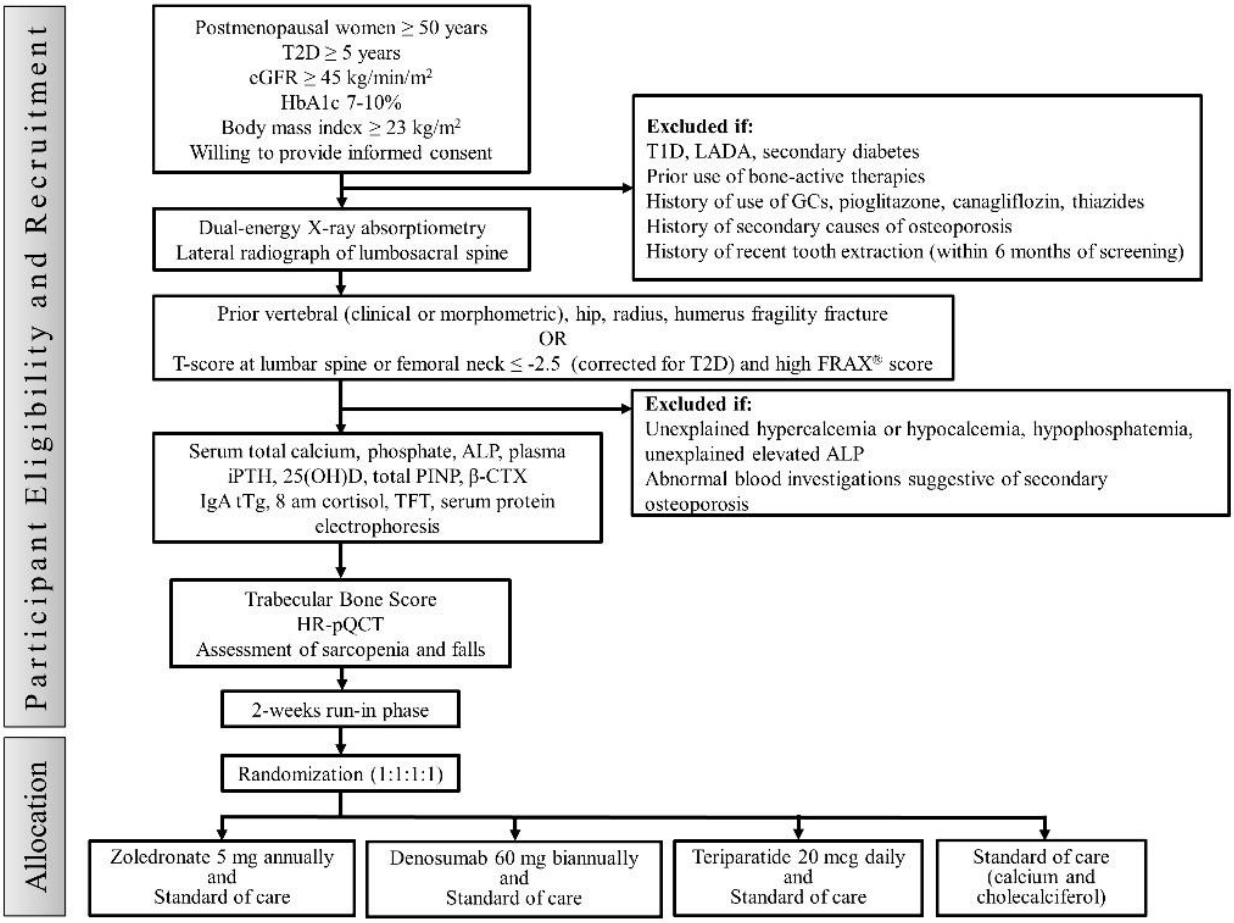
Oral Session
ORAL ABSTRACT PRESENTATIONS - BONE/PITUITARY/NEUROENDOCRINOLOGY
02-03-2024 13:20 - 14:20

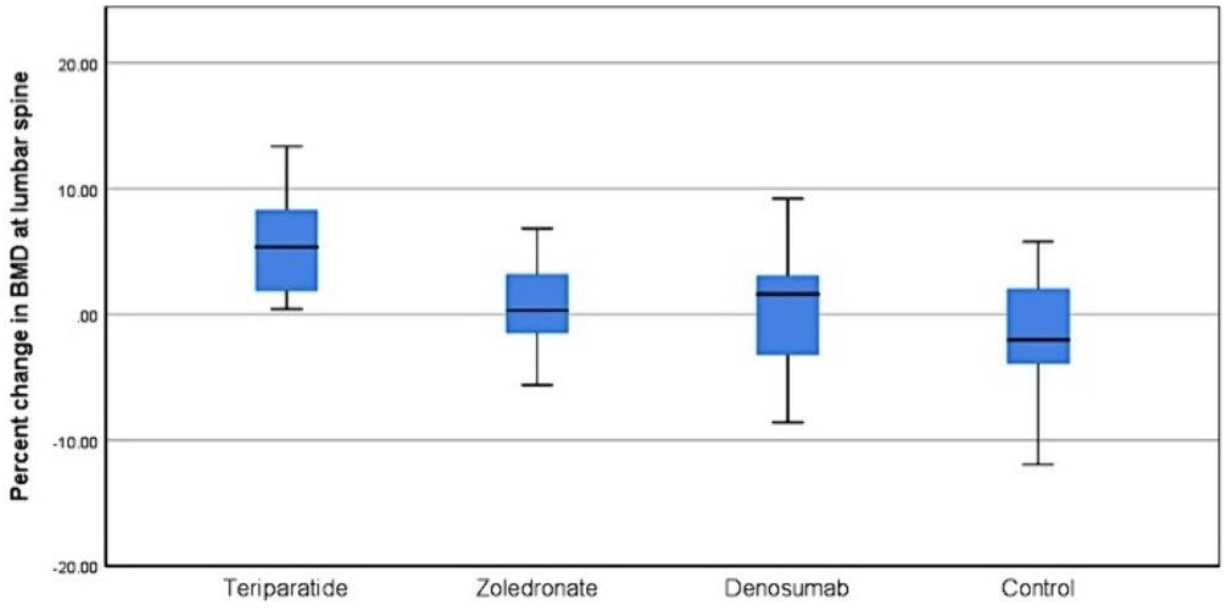
EFFICACY OF TERIPARATIDE, ZOLEDRONATE OR DENOSUMAB IN POSTMENOPAUSAL WOMEN WITH TYPE 2 DIABETES MELLITUS AT HIGH-RISK OF FRAGILITY FRACTURES: A RANDOMIZED CONTROLLED PILOT TRIAL

Rimesh Pal[1], Trupti Prasad[1], Sanjay Bhadada[1], Veenu Singla[2], Ashok Kumar[3]
[1]PGIMER, Endocrinology, Chandigarh, India, [2]PGIMER, Radiology, Chandigarh, India, [3]PGIMER, Clinical Tutor, Chandigarh, India

Background and Aims: People with type 2 diabetes (T2D) are at high-risk of fragility fractures, however, there are no randomized controlled trials (RCTs) evaluating the efficacy of anti-osteoporosis drugs as a primary pre-specified endpoint in T2D. The present study aims to compare the efficacy of anti-osteoporotic drugs in postmenopausal women with T2D.
Methods: We conducted a prospective, randomized, open, blinded endpoint (PROBE) clinical pilot trial wherein postmenopausal women (≥50 years) with T2D (duration ≥5 years), HbA1c 7-10%, eGFR ≥45 ml/min/1.73 m^2 and prior vertebral (clinical/morphometric), hip, radius, humeral fragility fracture or bone mineral density (BMD) T-score (adjusted for diabetes) at lumbar spine/femoral neck ≤-2.5 and high FRAX score were included (Figure 1). Subjects with secondary causes of osteoporosis, prior exposure to bone-active therapies or glucocorticoids/pioglitazone/thiazides/canagliflozin were excluded. Finally, eligible subjects underwent estimation of serum calcium, phosphate, alkaline phosphatase, parathyroid hormone, 25-hydroxyvitamin D and bone turnover markers (BTMs) (total PINP, β-CTX) along with trabecular bone score (TBS) and high-resolution peripheral quantitative computed tomography (HR-pQCT) of non-dominant hand and leg. After a 2-week run-in phase, they were randomized in a 1:1:1:1 ratio to receive yearly zoledronate, or biannually denosumab or daily teriparatide (in addition to standard of care, i.e., calcium 1000 mg/day and cholecalciferol 1000 IU/day) or only standard of care (control). The primary endpoints were change in areal BMD and frequency of incident fractures at 15 months. The secondary endpoints will be change in HR-pQCT parameters, TBS and BTMs at 15 months.



Results: 133 subjects were randomized to one of the 4 treatment groups. The baseline clinical, biochemical and radiological parameters were matched in all the 4 groups. Till June 30, 2023, 15-month follow up was completed for 14 participants in teriparatide group, 20 participants in zoledronate group, 17 participants in denosumab group and 14 participants in the control group (Figure 2). At 15 months, BMD at the lumbar spine increased by 5.35 (1.8,8.5)% in teriparatide group, 0.3 (-1.5,3.2)% in zoledronate group, 1.6 (-4.1,3.2)% in denosumab group and reduced by 1.9 (-4.3,2.1)% in control group (p=0.003) (Figure 2). TBS declined and tibial trabecular heterogeneity (Tb.1/N.SD) (on HR-pQCT) increased at 15 months. Only 3 incident fractures occurred during the study period.



Conclusions: In conclusion, teriparatide leads to a significantly greater rise in lumbar spine BMD in postmenopausal women with T2D at a high-risk of fragility fractures, however, a longer duration of follow-up is required to yield meaningful incident fracture data.

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Oral Session
ORAL ABSTRACT PRESENTATIONS - BONE/PITUITARY/NEUROENDOCRINOLOGY
02-03-2024 13:20 - 14:20

UNVEILING THE THERAPEUTIC POTENTIAL OF DIMERIC [R25C]PTH(1-34) PEPTIDE AS A NOVEL ANABOLIC AGENT FOR OSTEOPOROSIS TREATMENT

Minsoo Noh[1], Xiangguo Che[2], Thomas Dean[3], Han Seok Choi[4], Hunsang Lee[5], Thomas Gardella[3], Je-Yong Choi[2], Sihoon Lee[1]
[1]Gachon University College of Medicine, Department Of Internal Medicine, Laboratory Of Genomics And Translational Medicine, Incheon, Korea, Republic of, [2]Kyungpook National University, School of Medicine, Korea Mouse Phenotyping Center (kmpc), Department Of Biochemistry And Cell Biology, Cell And Matrix Research Institute, Daegu, Korea, Republic of, [3]Massachusetts General Hospital and Harvard Medical School, Endocrine Unit, Boston, United States of America, [4]Dongguk University College of Medicine, Department Of Internal Medicine, Goyang, Korea, Republic of, [5]Korea University, Department Of Life Sciences, Seoul, Korea, Republic of

Background and Aims: The identification of unusually high bone densities in hypoparathyroidism patients homozygous for a parathyroid hormone (PTH) mutation at the 25th amino acid position, where arginine is replaced by cysteine (known as ^{R25C}PTH), has raised the possibility that this altered protein exerts unique biological effects contributing to increased bone volume. This study delves into the profound impact of ^{R25C}PTH on its dimerization and functional characteristics. Our objective is to elucidate its consequences on receptor binding affinity, downstream signaling pathways, and its potential role in bone metabolism.
Methods: To investigate the propensity of ^{R25C}PTH(1-84) for dimerization, we conducted transient protein expression and employed western blot analysis. Chemically synthesized ^{R25C}PTH(1-34) was used to assess its binding capabilities to PTH1R and its ability to induce cAMP production in vitro. Additionally, we performed in vivo experiments with ^{R25C}PTH(1-34) in a mouse model to measure cAMP levels, calcemic responses, and phosphatemic responses. Further evaluation of bone metabolic functions was carried out using a calvarial injection model and an ovariectomized (OVX) mouse model.
Results: Our investigations reveal that ^{R25C}PTH(1-84) spontaneously forms dimers. Dimeric ^{R25C}PTH(1-84) displays distinctive receptor binding behavior, showing a specific affinity for the RG conformation of PTH1R, albeit with an overall reduced binding affinity. Moreover, in vitro experiments demonstrate that cAMP production induced by dimeric ^{R25C}PTH is significantly lower compared to that induced by monomeric ^{R25C}PTH. Remarkably, in an in vivo mouse model, dimeric ^{R25C}PTH exhibits a complete loss of cAMP signaling capability. Despite these deviations, dimeric ^{R25C}PTH(1-34) exerts substantial bone anabolic effects in calvarial injection assays and an osteoporosis mouse model induced by ovariectomy, closely resembling the effects of PTH(1-34). The dimerization of ^{R25C}PTH disrupts the conventional cAMP-PKA signaling pathway, leading to hypocalcemia and hyperphosphatemia despite elevated PTH levels. However, alternative bone metabolism pathways may be activated, contributing to an overall increase in bone formation. This alteration in signaling associated with enhanced bone anabolism suggests dimeric ^{R25C}PTH as a possible candidate for bone anabolic therapy.
Conclusions: Dimeric ^{R25C}PTH(1-84) represents a novel peptide modulator of PTH1R signaling and bone metabolism, and may offers insights into novel therapeutic avenues for bone-related disorders. Our study underscores the value of comprehensive investigations into the molecular mechanisms underpinning the unique behaviors of altered PTH peptides and the broader implications for physiological regulation. This work suggests dimeric ^{R25C}PTH(1-84) as a potential candidate for bone anabolic therapies.

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Oral Session
ORAL ABSTRACT PRESENTATIONS - BONE/PITUITARY/NEUROENDOCRINOLOGY
02-03-2024 13:20 - 14:20

A RANDOMIZED PHASE 3 TRIAL TO ASSESS EFFICACY AND SAFETY OF A NOVEL FORMULATION OF OCTREOTIDE SUBCUTANEOUS DEPOT IN PATIENTS WITH ACROMEGALY

Diego Ferone[1], Pamela Freda[2], Laurence Katznelson[3], Federico Gatto[1], Pinar Kadioglu[4], Pietro Maffei[5], Jochen Seufert[6], Julie Silverstein[7], Joanna Spencer-Segal[8], Elena Isaeva[9], Alexander Dreval[10], Maria Harrie[11], Agneta Svedberg[11], Fredrik Tiberg[11]
[1]IRCCS Ospedale Policlinico San Martino, Department Of Internal Medicine, Genova, Italy, [2]Columbia University, Medicine, New York, United States of America, [3]Stanford University, Adult Neurosurgery, Stanford, United States of America, [4]Istanbul University-Cerrahpasa, Department Of Internal Medicine, Istanbul, Turkey, [5]Padua University Hospital, Medicine, Padua, Italy, [6]University of Freiburg, Medicine, Freiburg, Germany, [7]Washington University School of Medicine, Neurosurgery, St Louis, United States of America, [8]University of Michigan, Internal Medicine And Michigan Neuroscience Institute, Ann Arbor, United States of America, [9]Interregional Clinical Diagnostic Center, Medicine, Kazan, Russian Federation, [10]Moscow Regional Research Clinical Institute, Endocrinology, Moscow, Russian Federation, [11]Camurus AB, Camurus Ab, Lund, Sweden

Background and Aims: Acromegaly, a rare endocrine disorder resulting in excess growth hormone (GH) and insulin-like growth factor-1 (IGF-1), involves phenotypic alterations and comorbidities that increase mortality and negatively impact quality of life (QoL). Current standard of care (SoC) treatments have established efficacy and safety profiles, but typically require healthcare provider administration, pose substantial treatment burden, and leave room for improved disease control. CAM2029, a novel subcutaneous octreotide depot with ~5x-higher bioavailability than octreotide long-acting repeatable (LAR), is provided as a ready-to-use syringe or injection pen enabling once-monthly self-administration. Here, we report the pivotal trial assessing CAM2029 efficacy in patients with acromegaly.
Methods: In this phase 3, multinational, randomized, double-blind, placebo-controlled trial (NCT04076462), patients on stable treatment with octreotide LAR or lanreotide autogel, and with normal IGF-1 levels at screening, were randomized 2:1 to once-monthly CAM2029 20 mg or placebo for 24 weeks. The primary endpoint was the proportion of patients with IGF-1 ≤upper limit of normal (ULN) (mean of week 22/24 measurements); the key secondary endpoint was the proportion of patients with both IGF-1 ≤ULN (week 22/24 mean) and mean GH <2.5 µg/L (week 24). Patient-reported outcomes (PROs) were assessed at baseline and week 24.
Results: 72 patients were randomized to CAM2029 (n=48) or placebo (n=24). Both primary and key secondary endpoints were met with superiority for CAM2029 versus placebo (p=0.0018, p=0.0035, respectively; Table 1), confirmed by all sensitivity and supportive analyses. Median time to loss of response (IGF-1 >ULN) was 8.4 weeks in the placebo arm, and not reached in the CAM2029 arm. Mean IGF-1 remained <ULN throughout the study for CAM2029, but not placebo. PROs showed improved QoL, treatment convenience, and patient satisfaction for CAM2029-treated patients versus baseline SoC, with numerically greater improvements than placebo (Table 1). CAM2029 was well tolerated with a comparable safety profile to SoC treatments. No new or unexpected safety signals were observed. One treatment-related serious adverse event (cholecystitis) was recorded in the placebo arm, and five patients discontinued treatment due to injection site erythema or induration (CAM2029: n=3, placebo: n=1) and migraine (CAM2029:

Table 1. Efficacy endpoints

Primary and key secondary endpoints				
	Treatment arm	**Responders, %**	**CAM2029-placebo, % (95% CI)**	**upper-tailed p value**
Primary endpoint IGF-1 response rate	CAM2029 Placebo	72.2 37.5	34.6 (11.3, 57.9),	p=0.0018*
Key secondary endpoint IGF-1 response rate (including dose-reduced patients)[a]	CAM2029 Placebo	72.2 37.5	34.6 (11.3, 57.9),	p=0.0018*
Key secondary endpoint IGF-1 and GH response rate	CAM2029 Placebo	70.0 37.5	32.3 (8.8, 55.7),	p=0.0035*
PROs				
AcroQoL	**Treatment arm**	**LS mean of change from baseline[b] (95% CI) at week 24**		**p value**
Total score	CAM2029 Placebo	4.685 (1.510, 7.861) 2.237 (−2.246, 6.721)		p=0.0038* p=0.3280
Physical domain score	CAM2029 Placebo	3.968 (0.346, 7.590) −1.198 (−6.348, 3.952)		p=0.0318* p=0.6484
Psychological domain total score	CAM2029 Placebo	5.054 (1.684, 8.424) 4.433 (−0.313, 9.178)		p=0.0033* p=0.0671
TSQM				
Convenience score	CAM2029 Placebo	13.85 (9.45, 18.25) 9.90 (4.06, 15.75)		p<0.0001* p=0.0009*
PSS (1-5)[c]		**Mean score (95% CI) at week 24**		
	CAM2029 Placebo	3.9 (3.6, 4.2) 3.4 (2.9, 3.8)		N/A N/A

Intention to treat analysis set. For analyses of primary and key secondary endpoints, patients with intercurrent events were regarded as non-responders independently of their endpoint result; Mantel-Haenszel-type common difference in proportions across strata, stratified by prior treatment (octreotide LAR or lanreotide ATG). In the closed testing procedure for the primary and key secondary endpoints, a comparison was eligible for superiority testing only if all previous comparisons, if any, had established superiority at the one-sided significance level of p<0.025. [a]No patients in the study had an IMP dose reduction; [b]At baseline, patients were receiving SoC; [c]Patients rated overall treatment experience compared to their previous treatment with octreotide LAR or lanreotide ATG from 1 ("much worse") to 5 ("much better"). *Statistically significant difference compared to (1) placebo for primary/key secondary endpoints and (2) SoC at baseline for PROs. AcroQoL: Acromegaly Quality of Life; ATG: autogel; CI: confidence interval; GH: growth hormone; IGF-1: insulin-like growth factor-1; IMP: investigational medicinal product; LAR: long-acting repeatable; LS: least squares; PRO: patient-reported outcome; PSS: Patient Satisfaction Scale; SoC: standard of care; TSQM: Treatment Satisfaction Questionnaire for Medication.

n=1).

Conclusions: CAM2029 treatment resulted in robust biochemical control superior to placebo, substantially improved PROs compared to baseline SoC and placebo, and a safety profile consistent with

SoC somatostatin receptor ligand treatments, demonstrating the potential of CAM2029 as an alternative to SoC acromegaly treatments that addresses unmet patient needs.

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Oral Session
ORAL ABSTRACT PRESENTATIONS - BONE/PITUITARY/NEUROENDOCRINOLOGY
02-03-2024 13:20 - 14:20

THE ACRO-TIME SCORE: A NEW CLINICAL, PATHOLOGICAL AND IMMUNE INTEGRATIVE APPROACH TO EARLY IDENTIFY ACROMEGALY PATIENTS RESISTANT TO TREATMENT WITH FIRST GENERATION SOMATOSTATIN LIGANDS

Sabrina Chiloiro[1], Antonella Giampietro[1], Marco Gessi[2], Liverana Lauretti[3], Pier Paolo Mattogno[3], Alessandro Olivi[3], Guido Rindi[2], Alfredo Pontecorvi[1], Laura De Marinis[1], Francesco Doglietto[3], Antonio Bianchi[1]
[1]Gemelli Hospital Università Cattolica del Sacro Cuore, Endocrinology, Rome, Italy, [2]Gemelli Hospital Università Cattolica del Sacro Cuore, Human Pathology, Rome, Italy, [3]Gemelli Hospital Università Cattolica del Sacro Cuore, Neurosurgery, Rome, Italy

Background and Aims: Introduction: Somatotropinomas are benign pituitary tumors, with a heterogenous biological and clinical behavior. The control of acromegaly is reached in 25%-65% of patients (pts) treated with first generation somatostatin ligands (fg-SRLs). The tumor microenvironment reflects the interaction between tumor cells and the host immune system and may potentially regulate tumor behavior and therapy outcome. We aim to develop a scoring system that includes clinical, pathological and immune markers to early identify fg-SRLs resistant acromegaly pts, that require second line treatments.
Methods: 43 consecutive acromegaly pts were included according the following criteria (1) first line treatment with surgery, (2) post-surgical fg-SRLs therapy (3) availability of tumor specimens for experimental analysis. Pts not-naïve to acromegaly therapies before surgery, with history of radiotherapy of head and neck within 10 years before pituitary surgery, with immune-related disease were ruled out.
Results: We analyzed 18 clinical, pathological and immune features as possible predictors of fg-SRLs response. Eighteen pts (41.9%) were fg-SRLs resistant. Fg-SRLs resistance was associated to age at acro-diagnosis <37 years (AUC: 0.72 OR: 2 95%IC: 1.1-4 p=0.04), cavernous sinus invasion (OR: 9.3 95%IC:1.4-61 p<0.001), Ki-67>1.5% (OR: 3.2 95%IC:1.2-13.1 p=0.04), score 0-1 of SSTR2A (OR: 2.7 95%IC: 1.7-4.1 p=0.03), ratio CD68+/CD8+ cells<5.7/HPF (AUC: 0.709 OR: 4.9 95%IC:1.2-19.2 p=0.03) and persistence of post-surgery residual tumor (OR: 2.5 95%IC:1.3-4.7 p=0.004). These variables were analyzed in a logistic regression model, yielding a beta coefficient of 3.7 for age >37 years; of -3 for cavernous sinus invasion; of -0.2 for Ki-67>1.5%; of 20 for SSTR2A score 2-3; of -0.9 for CD68+/CD8+cells ratio >5.7/HFP; and of -0.9 for persistence of post-surgery residual. We assigned a score to each covariate proportional to its beta coefficient, yielding a cumulative score for each patient. The score values ranged from 18.5 to 24 in cases responsive to fg-SRLS and from -5.5 to 21.5 in fg-SRLs resistant cases. A score <19 was chosen as cut-point to identify fg-SRLs resistance (AUC: 0.059 p<0.001 95%IC: 0.0-0.126), with a fg-SRLs resistance in 84.6% of cases (p<0.001 OR: 3.7 95%IC:1.7-6.7).
Conclusions: This new score integrates clinical, pathological, immunological data and may predict resistance to fg-SRLs and the need of second line treatments.

O026 / #1477

Oral Session
ORAL ABSTRACT PRESENTATIONS - BONE/PITUITARY/NEUROENDOCRINOLOGY
02-03-2024 13:20 - 14:20

ORAL PALTUSOTINE MAINTAINS IGF-I, GH, AND SYMPTOM CONTROL IN PATIENTS WITH ACROMEGALY SWITCHED FROM INJECTED SOMATOSTATIN RECEPTOR LIGAND MONOTHERAPY: PHASE 3, PATHFNDR-1 STUDY RESULTS

Monica Gadelha[1], Alessandra Casagrande[2], Christian J. Strasburger[3], Martin Bidlingmaier[4], Peter J. Snyder[5], Mirtha A. Guitelman[6], Cesar L. Boguszewski[7], Michael Buchfelder[8], Ilan Shimon[9], Gerald Raverot[10], Miklós Tóth[11], Emese Mezősi[12], Mirjana Doknić[13], Xiaolin Fan[2], David Clemmons[14], Michael Keeley[2], Peter J. Trainer[2], R. Scott Struthers[2], Alan Krasner[2], Beverly M.K. Biller[15]
[1]Universidade Federal do Rio de Janeiro, Neuroendocrinology Research Center/endocrinology Division, Medical School And Hospital Universitario Clementino Fraga Filho, Rio de Janeiro, Brazil, [2]Crinetics Pharmaceuticals, Inc., San Diego, United States of America, [3]Charité Universitaetsmedizin, Campus Mitte, Department Of Medicine For Endocrinology, Diabetes And Nutritional Medicine, Berlin, Germany, [4]Ludwig-Maximilians University, Neuroendocrine Research Group, Department Of Internal Medicine, Munich, Germany, [5]University of Pennsylvania, Division Of Endocrinology, Diabetes And Metabolism, Department Of Medicine, Philadelphia, United States of America, [6]Hospital Carlos G. Durand, División Endocrinología, Buenos Aires, Argentina, [7]University Hospital, Federal University of Paraná, Department Of Internal Medicine, Endocrine Division (sempr), Curitiba, Brazil, [8]University Hospital Erlangen,, Neurosurgery Department, Erlangen, Germany, [9]Tel Aviv University, Institute Of Endocrinology, Rabin-beilinson Medical Center, Faculty Of Medicine, Tel Aviv, Israel, [10]Groupement Hospitalier Est Hospices Civils de Lyon, Endocrinology Department, Reference Center For Rare Pituitary Diseases Hypo, yon Cedex, France, [11]Semmelweis University, Department Of Internal Medicine And Oncology, Budapest, Hungary, [12]University of Pécs Medical School, Department Of Medicine, Pécs, Hungary, [13]Clinic for Endocrinology, Diabetes and Metabolic Diseases, Neuroendocrinology, Belgrade, Serbia, [14]University of North Carolina at Chapel Hill, Chapel Hill, United States of America, [15]Massachusetts General Hospital (MGH), Harvard Medical School, Neuroendocrine And Pituitary Tumor Clinical Center, Boston, United States of America

Background and Aims: Paltusotine is the first investigational, once-daily, oral, selectively targeted SST2 agonist in development for the treatment of acromegaly and carcinoid syndrome. PATHFNDR-1 (NCT04837040) was a double-blind, placebo-controlled, randomized, international, multicenter study that evaluated the safety and efficacy of paltusotine in participants with acromegaly. Participants had an IGF-I ≤1.0xULN at baseline while taking a stable dose of long-acting, injected somatostatin receptor ligand (SRL) monotherapy (octreotide or lanreotide).
Methods: Eligible participants were randomized 1:1 to switch to paltusotine 40 mg/day or placebo for 36 weeks. Paltusotine dose titration (range 20-60 mg) during the first 24 weeks was based on IGF-I levels and tolerance (dose changes not permitted after week 24). IGF-I, GH (iSYS immunoassay), and pituitary MRI were assessed centrally. Acromegaly symptoms were recorded using the Acromegaly Symptoms Diary (ASD, developed per FDA Guidance, higher scores represented a greater symptom burden).
Results: 58 participants (paltusotine n=30; placebo n=28), mean age 54.9 (SD 13.7) years, 55% female, were enrolled; all participants were previously controlled on octreotide (59%) or lanreotide (41%). The primary endpoint was achieved, with a significantly greater proportion of participants maintaining IGF-I levels at ≤1.0xULN (mean of weeks 34 and 36) after switching from SRLs to paltusotine compared to placebo (83% vs. 4%, p<0.0001). All 3 pre-specified secondary endpoints were met. Compared to placebo, paltusotine was significantly better at maintaining IGF-I (mean change from baseline in IGF-I: paltusotine +0.04 vs +0.83xULN placebo, p<0.0001), GH (proportion of participants who maintained GH

<1.0 ng/mL by week 34: paltusotine 87% vs. 28% placebo, p=0.0003), and ASD scores (mean change from baseline in ASD scores: paltusotine -0.6 vs. +4.6 placebo, p=0.02). Paltusotine was well-tolerated, with a safety profile consistent with either SRL therapy or acromegaly. The frequency of adverse events (AEs) confirmed by Investigators to be due to acromegaly was lower in paltusotine-treated participants compared to placebo-treated participants (30% vs. 86%). No clinically significant changes in pituitary tumor size were observed.

Conclusions: In participants with biochemically controlled acromegaly who were switched to once-daily, oral paltusotine, IGF-1, GH, and symptom control were maintained, and AEs related to acromegaly were lower on paltusotine than on placebo.

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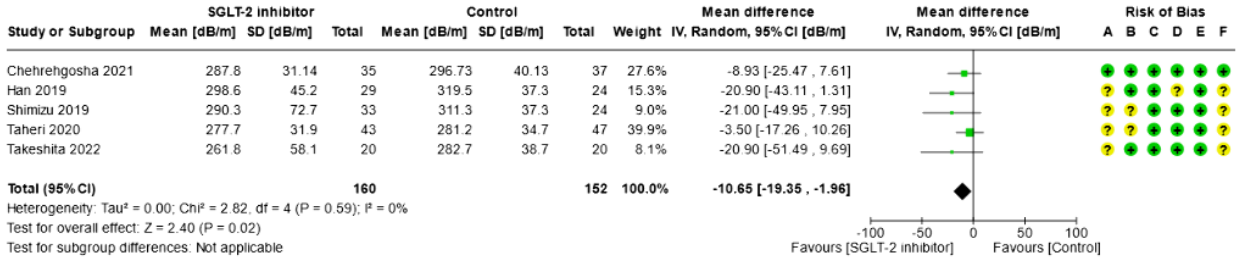
O027 / #963

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 03
02-03-2024 16:50 - 18:10

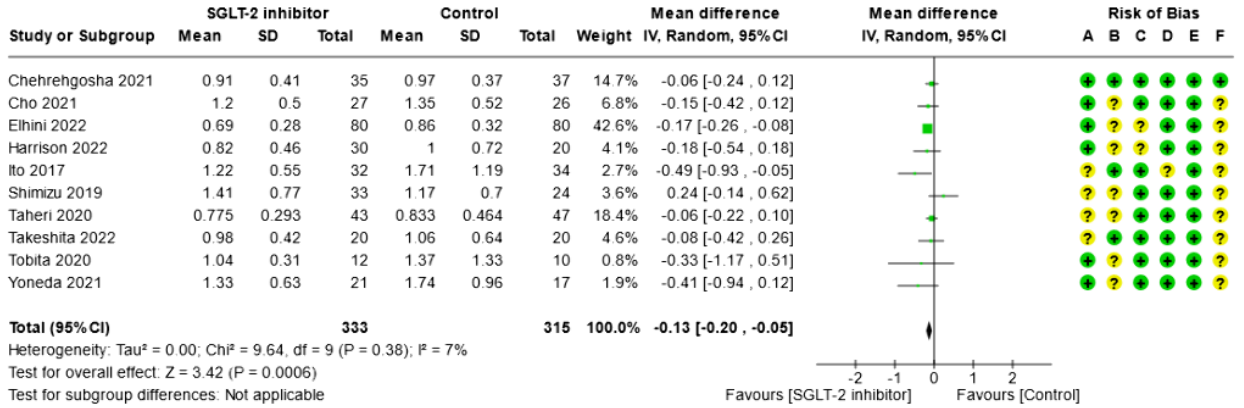
EFFICACY OF SODIUM-GLUCOSE COTRANSPORTER 2 INHIBITORS ON HEPATIC FIBROSIS AND STEATOSIS IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE: AN UPDATED SYSTEMATIC REVIEW AND META-ANALYSIS

Albert Macaire Ong Lopez[1], Janine Audrei Pajimna[2]
[1]St. Luke's Medical Center-Quezon City, Section Of Endocrinology, Diabetes And Metabolism, Quezon City, Philippines, [2]St. Luke's Medical Center-Quezon City, Department Of Internal Medicine, Quezon City, Philippines

Background and Aims: Non-alcoholic fatty liver disease (NAFLD) is a major cause of liver-related morbidity worldwide which, if left untreated, can lead to the development of various complications over time. Apart from weight loss and lifestyle modifications, pharmacologic treatments remain limited. However, the role of the oral hypoglycemic agent sodium–glucose cotransporter 2 (SGLT2) inhibitor on the treatment of NAFLD has more recently been investigated. The aim of this systematic review and meta-analysis is to evaluate the effectiveness of SGLT-2 inhibitors in improving hepatic steatosis and hepatic fibrosis using imaging biomarkers and histopathology in patients with non-alcoholic fatty liver disease.
Methods: A comprehensive database search was performed via PUBMED, Cochrane Central Register of Controlled Trials, Embase and ACP Journal Club, published from inception to June, 23, 2023, without any language restrictions. All randomized controlled trials (RCTs) that evaluate SGLT-2 inhibitors for non-alcoholic fatty liver disease (NAFLD) aged 18 yrs and above, regardless of comorbidities were included. The risk of bias in the included studies was assessed using the Cochrane Risk of Bias 2.0 (RoB 2.0) tool. Evidence from individual studies was synthesized as mean differences for continuous data, while as risk ratio for dichotomous outcomes. A random-effects meta-analyses model was performed together with an inverse variance or Mantel-Haenszel method as appropriate.
Results: 16 eligible RCTs involving 1138 participants were analyzed, all of which had a low to some concerns for risk of bias. Significant difference in means was observed for liver controlled attenuation parameter (5 trials, n=312; MD: -10.65 dB/m, 95% CI [-19.35, -1.96], p=0.02, I^2 = 0%); liver-to-spleen attenuation ratio (3 trials, n=163; MD: 0.11, 95% CI [0.01, 0.21], p=0.04, I^2 = 78%); MRI-proton density fat fraction (5 trials, n=330; MD: -2.61%, 95% CI [-5.05, -0.17], p=0.04, I^2 =78%), and fibrosis-4 index (10 trials, n=648; MD: -0.12, 95% CI [-0.21, -0.04], p=0.005, I^2=16%) after treatment with SGLT-2 inhibitors as compared to controls. For post-treatment biopsy parameters, the SGLT-2 inhibitor group was associated with at least one-stage reduction in hepatocellular ballooning (2 trials, n=86; RR: 2.19, 95% CI [1.22, 3.94], p=0.009, I^2=0%) and liver fibrosis (2 trials, n=86; RR: 2.29, 95% CI [1.12, 4.68], p=0.02, I^2 = 33%) versus the control group. There were no significant differences found between the two groups with respect to changes in steatosis or lobular inflammation on biopsy.



Risk of bias legend
(A) Bias arising from the randomization process
(B) Bias due to deviations from intended interventions
(C) Bias due to missing outcome data
(D) Bias in measurement of the outcome
(E) Bias in selection of the reported result
(F) Overall bias



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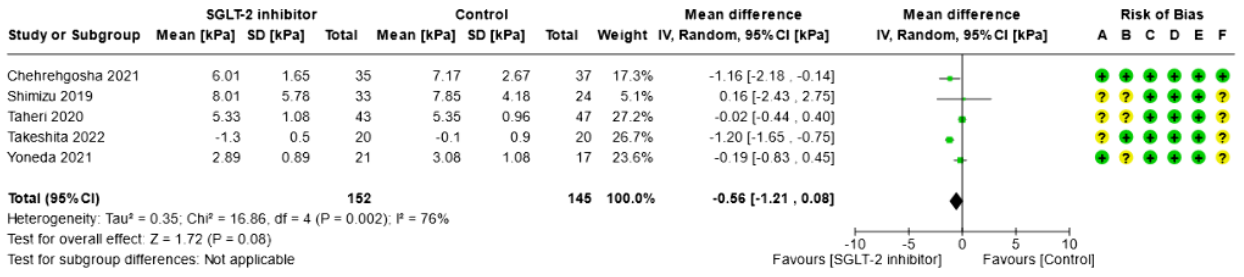

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(F) Overall bias

Conclusions: SGLT-2 inhibitors may improve hepatic steatosis and/or fibrosis in patients with NAFLD and diabetes mellitus with low to moderate certainty of evidence.

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O028 / #1746

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 03
02-03-2024 16:50 - 18:10

THE NEW ZEALAND EATING BEHAVIOR QUESTIONNAIRE - VALIDATION STUDY FOR A NOVEL ASSESSMENT TOOL TO DESCRIBE ACTIONABLE EATING BEHAVIOR TRAITS

Ole Schmiedel, Rinki Murphy
University of Auckland & Te Toka Tumai Auckland, Auckland Diabetes Centre, Auckland, New Zealand

Background and Aims: Individualized management of obesity remains challenging and, to date, most treatment is based on clinical judgment. This study aimed to develop and validate a novel questionnaire-based tool to identify three pre-defined eating behavior (EB) traits, emotional eating, reduced satiety (constant cravers), and reduced satiation (feasters) that may predict selective medication response given their targeted actions.
Methods: We recruited 977 individuals from a tertiary academic diabetes clinic to participate in this two-phase validation study. Participants self-reported weight management activities and were asked to self-assess their EB characteristics. The initial questionnaire included 42 visual analog scale questions. In Phase I, 729 participants completed the questionnaire, including Māori (11.8%) and Pacific peoples (19.3%). After the random division of the study sample, Exploratory Factor Analysis (EFA) confirmed a three-factor model as the best fit. Stepwise removal of items with inadequate factor loading retained 27 of 42 items, which accounted for 96% of the variance. Confirmatory Factor Analysis (CFA), performed on the second half of the sample, demonstrated good model fit with the final 27-item questionnaire. Internal consistency was high for factor (a = 0.82-0.95) and demographic subgroups, and similar to those obtained in the EFA. Test-retest reliability in a subset of 399 participants who repeated the questionnaire after a four-week interval (Phase II) showed moderate to good reliability.
Results: Participants were classified into one of three EB types based on the highest median score among the factors. Test-retest reliability was robust for emotional eaters (71.25%) and constant cravers (68.9%). The correlation between aggregate EB score (sum of three EB scores) and BMI was significant (Spearman rho =0.314, P=0.0005). The questionnaire reliably identified three distinct EB traits, which may be informative for precision medicine applications for obesity management.
Conclusions: Identifying characteristics that reliably distinguish people with obesity to enhance response rates to different obesity treatments has proven to be challenging, and most obesity management is empirical and still based on clinical judgment and individual factors. Having an additional tool in the clinical assessment process that helps to classify patients based on their dominant eating behavior traits before starting obesity treatment could help select the most appropriate therapies. Our finding supports the factors of reduced satiety, reduced satiation, and emotional eating as distinct eating behavior traits. Using this tool to identify people with dominant EB and treating them with their EB congruent behavioral intervention or medication may enhance outcomes and could be a future step towards personalized obesity medicine.

O029 / #872

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 03
02-03-2024 16:50 - 18:10

BRINGING FULLY CLOSED-LOOP OPEN-SOURCE AUTOMATED INSULIN DELIVERY (OS-AID) TO INDIA: POTENTIAL MODEL FOR OTHER RESOURCE-LIMITED SETTINGS (PEERS-LED STAR CLINIC)

Rahul Singh[1], Jamie Kurtzig[2], Madhumati Vaishnav[3], Suvyaktha Simha[4], Diya Manjunath[5], Siji Jose[6], Sapna Manjunath[7], Kavitha Muniraj[6], Reshma Bv[6], Apoorva Govind[8], Sathyanarayana Srikanta[6], Rayhan Lal[9]
[1]Insulin Yogi Research Center, Biotechnology Material Science, Bangalore, India, [2]Stanford University, Biomedical Engineering, Palo Alto, United States of America, [3]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [4]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [5]Vellore Institute of Technology, Biotechnology, Vellore, India, [6]Insulin Yogi Research Center, Health Technology, Bangalore, India, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [8]Samatvam Research Center, Pediatric Endocrinology, Bangaiore, India, [9]Stanford University School of Medicine, Endocrinology, Palo Alto, United States of America

Background and Aims: In children and adults with type 1 diabetes (T1D), use of an open-source AID system results in a significantly higher percentage of time in the target glucose range, than the use of a sensor-augmented insulin pump. However, implementation of this health enriching technology in resource-limited setting poses multiple economical, supply/logistics, as well as, health care professionals (HCPs) awareness and training challenges.
Methods: Beginning 2020, in the midst of the COVID-19 pandemic, through a transcontinental (USA-INDIA; Stanford-Samatvam) telemedicine (online training of endocrinology teams and T1Ds; continued WhatsApp group support) collaboration, a proof-of concept clinical trial was initiated by an altruistic philanthropic family (Sri Kurtzigs) and an international domain expert (Prof Rayhan Lal) from USA. In phase 1, six T1D youngsters ("T1D Stars of India") already using open loop pump, were transitioned to closed-loop open-source AID using: (a) compatible insulin pump (IP), (b) continuous glucose monitors (CGM; Dexcom G6; subsequently changed to Abbott Libre Freestyle with Miaomiao Smart Reader) and community-developed OpenAPS algorithm (running on Android or iOS on smartphones). In phase 2, additional T1Ds (IP prior users and non-users) are being initiated on OS-AID, in the volunteer self-help "Peers-Led Star Clinic".
Results: During the follow-up period of 40 months and 380 patient-months of OS-AID experience, there were significant improvements in: time-in-range (TIR), time below range (TBR) and time above range (TAR) (Figure 1). HbA1c and episodes of severe hypoglycemia decreased, with slight reduction in insulin total daily dose (TDD). There were major improvements in quality of life (QoL) and diabetes treatment satisfaction (DTS). Highly altruistic, motivated, tech-savvy and experienced "non-medical" T1D peers (OS-AID ambassadors) are primarily responsible for the project's continuing success and growth, with health care professionals (HCPs: endocrinologists and diabetes counsellors), playing a background facilitating role.
Conclusions: The success of the pioneering (first-of-its-kind in India), non-commercial, volunteer, do-it-yourself (DIY) AID/"Artificial Pancreas" program, has ignited both the patient and physician community, towards creative strategies to extend the health enriching benefits of this technology to increasingly greater number of children and adults with T1D in the country. Further challenges to be addressed include, lowering the material costs (IP and supplies, CGM), health care professional training and patient awareness and education. Figure

1:

		HbA1c	TIR	TBR	TAR	HYPO /YEAR	DKA /YEAR	HOSP /YEAR	TDD INSULIN
		%	%	%	%	#	#	#	Units
Before OS-AID	Mean	7.1	56.0	15.2	28.8	2.1	0.0	0.0	54.3
	SD	0.7	16.6	11.1	15.5	2.8	0.0	0.0	22.9
After OS-AID	Mean	6.6	81.3	5.2	13.5	0.3	0.0	0.0	42.8
	SD	0.5	8.8	4.1	9.6	0.7	0.0	0.0	18.1
P value		0.12	0.002	0.03	0.03	0.10			0.28

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Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 03
02-03-2024 16:50 - 18:10

LOW MUSCLE MASS AND CARDIOMETABOLIC HEALTH AMONG INDIVIDUALS OF SOUTH ASIAN DESCENT - FINDINGS FROM THE KERALA DIABETES PREVENTION PROGRAM

Nitin Kapoor
Christian medical college, Vellore, Vellore, India

Background and Aims: Low muscle mass is an emerging health challenge representing the confluence of the rise in the elderly population, and poor physical activity by individuals. It is associated with a higher risk of cardiometabolic disease in the Caucasian population but there is paucity of data on the same form the South Asian region. Moreover, individuals of south Asian descent have a significantly higher cardiometabolic risk at a lower degree of body mass index and often have limited facilities to diagnose low muscle mass due to cost constraints. In this study we explored the association of muscle mass with cardiometabolic parameters. We also studied the utility of anthropometric indicators for predicting muscle mass in this cohort.
Methods: Kerala Diabetes Prevention Program(KDPP), is a cluster randomized clinical trial primarily aimed to study the impact of a proficient peer led lifestyle intervention with a sizeable follow-up of high diabetes risk individuals. In this study we utilize the baseline screened participants of this trial. Normal healthy subjects from the community between the age of 30-60 years screened for recruitment in the KDPP study were assessed for their demographic characteristics, lifestyle habits and medical history using standardized questionnaires. Anthropometric measurements such as height, weight, body fat percent, waist circumference (WC), hip circumference(HC), waist hip ratio(WHR) and waist height ratio(WHR) were obtained using predefined standardized techniques. Body composition was assessed using TANITA body composition analyser (model SC330). Muscle mass percentage of less than 62% in women and less than 73% in men was defined as Low Muscle Mass. Data analysis was done using SPSS 21.0. Area under the receiver operating characteristic (ROC) curve for predicting low muscle mass for each anthropometric indicator was calculated.
Results: 1709 study subjects were recruited of which 61% were men(M:F :: 1060:649). The Mean body mass index of the study population was 24.4(4.1) Kg/m2. Diabetes was diagnosed in 357/1709(21%) individuals. 59% of the study population were diagnosed to have low muscle mass. (Fig 1). The cardiometabolic risk factors including diabetes, hypertension and dyslipidaemia were significantly higher in those with low muscle mass.(Fig 2) Wasit circumference was diagnosed as the best anthropometric indicator for evaluation of low muscle mass in this south Asian population.(Fig 3)

MEN

585/1060

55.4%

(95% CI 52.1 -58.2)

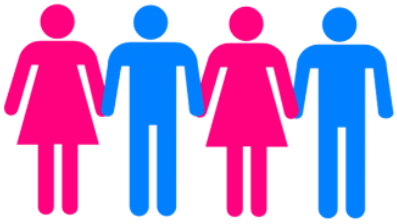
WOMEN

437/649

67.3%

(95% CI 63.5-70.9)

Total study population

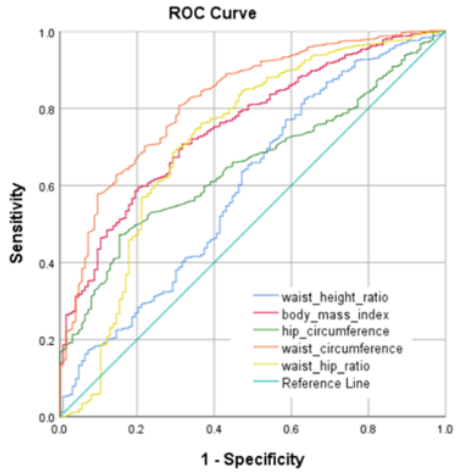


1022/1709

59%

(95% CI 57.4 -62.2%)

Parameter studied	Low Muscle Mass Mean(SD) N= 1022	Normal Muscle Mass Mean(SD) N = 687	P-value
Age(Years)	47.8(7.3)	47.85(7.4)	NS
Fasting Glucose (mg/dl)	117.5(37.5)	111.3(30.5)	<0.001
Post prandial Glucose (mg/dl)	131.7(75.7)	110(69.1)	<0.001
HbA1c (%)	5.72(0.93)	5.67(0.95)	NS
Proportion with Type 2 DM (%)	24.9%	15.1%	<0.001
Total Cholesterol	220.6(36.5)	212.5(41.1)	<0.001
Triglycerides	126.8 (91.5)	120.2(70.1)	NS
HDL Cholesterol	48.9(14.3)	53.3(16.2)	<0.001
LDL Cholesterol	146.2(34.7)	155.7(36.6)	<0.001
Proportion with Dyslipidemia	79%	69.1%	<0.001
Systolic Blood Pressure	129.1(19.7)	119.8(16.4)	0.001
Diastolic Blood Pressure	77.5(12.2)	70.8(10.3)	0.001
Hypertension	21%	16%	0.009



Test Variable	AUC	95% Confidence Interval		Significance
		Lower limit	Upper limit	
Waist Circumference	**0.823**	**0.784**	**0.861**	**< 0.0001**
Body Mass Index	0.755	0.714	0.795	< 0.0001
Waist hip ratio	0.718	0.662	0.774	< 0.0001
Hip circumference	0.651	0.610	0.693	< 0.0001
Waist height ratio	0.599	0.544	0.655	< 0.0001

Conclusions: Low muscle mass is common among individuals in the south Indian population. Individuals with low muscle mass have a higher associated cardiometabolic risk. Waist circumference is the best clinical predictor of low muscle mass in this population.

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O031 / #128

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 03
02-03-2024 16:50 - 18:10

GLYCEMIC CONTROL IN PREDIABETES PATIENTS FAVORABLY ALTERS SERUM NLRP3 INFLAMMASOME AND RELATED INTERLEUKINS: A LONGITUDINAL STUDY

Nasser Al-Daghri, Hend Alfadul, Shaun Sabico
King Saud University, Biochemistry, Riyadh, Saudi Arabia

Background and Aims: Prediabetes (PD) is a significant risk factor for type 2 diabetes mellitus (T2DM). Intervention through healthy lifestyle modifications is the initial approach to individuals with PD to prevent future complications. Hyperglycemia-associated with PD is associated with NLRP3 inflammasome complex activity and related interleukins levels, yet no study evaluated how the expression of NLRP3 inflammasome complex and related interleukins (1α, 1β, 18, 33 and 37) changes overtime in individuals with a PD condition that did or did not develop T2DM. This study aimed to investigate the effect of 6-month of lifestyle modification on the expression of NLRP3 inflammasome and related interleukins (1α, 1β, 18, 33 and 37) in serum of individual with a PD condition that did or did not develop T2DM.
Methods: This interventional study included 67 Saudi adults (mean age = 41.9±8.0 years, mean BMI = 33.15±5.5 kg/m^2). Overnight-fasting serum samples were collected at baseline and at 6-month follow-up. Serum levels of NLRP3, capsase-1 and related ILs were assessed using commercially available immunoassay kits at both visits.
Results: showed that IL-1α levels significantly increased in the PD group that developed T2DM ($p=0.046$), IL-33 levels significantly decreased in the PD group that reverted to normal ($p<0.001$) and NLRP3 levels significantly decreased in the PD group that remained PD ($p=0.01$). Results also showed a positive correlation between NLRP3 and both IL-1α and IL-33 overtime ($p<0.001$ and $p=0.028$, respectively).
Conclusions: In conclusion, glycemic control through lifestyle modification favorably altered NLRP3 inflammasome complex (NLRP3, IL-1α and IL-33 levels) in PD patients and this may partially explain how such interventions reverse harmful metabolic and inflammatory phenotypes.

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O032 / #1682

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 03
02-03-2024 16:50 - 18:10

LYSYL OXIDASE (LOX) AND INTERFERON- GAMMA (IFN- Γ), A REGULATORY CROSSTALK IN TYPE 2 DIABETES WITH AND WITHOUT NEPHROPATHY

Manaswini Mangaraj[1], Gayathri Devi D[2], Sandip Kumar Panda[3], Suchitra Kumari[2], Gautom Kumar Saharia[2]
[1]All India Institute of Medical Sciences. Bhubaneswar, Biochemistry, Bhubaneswar, India, [2]AIIMS. Bhubaneswar, Biochemistry, Bhubaneswar, India, [3]AIIMS. Bhubaneswar, Nephrology, Bhubaneswar, India

Background and Aims: Diabetic nephropathy (DN) is a leading microvascular complication of diabetes and a major culprit in the development of end stage kidney disease (ESKD). Even though aggressive management for blood sugar control has been carried out, the prevalence of diabetic nephropathy has not been reduced in the past two decades, which has led to the identification of multiple other factors in the pathogenesis of diabetic kidney disease. Lysyl Oxidase (LOX), an extracellular enzyme is shown to have altered expression in diabetes and its various microvascular complications owing to its effect on vascular remodeling through increased collagen cross linking. Studies have also shown that IFN-γ predominantly produced by NK cells plays an important role in inflammation by affecting collagen cross linking and has been shown altered in diabetes mellitus. However, the information regarding interaction between LOX and IFN-γ in DN is scarce. Thus, the present study aimed at assessing serum LOX, serum IFN-γ levels and their association in patients with diabetes and diabetic nephropathy.
Methods: An observational cross-sectional study that included 40 DN, 40 DM without Nephropathy and 40 age and sex matched healthy control of above 18 years of age. Fasting blood sample was analyzed for routine biochemical investigations. Serum LOX and IFN-γ were assessed by Sandwich ELISA as per manufacturer's protocol. Their diagnostic accuracy and interaction with the disease process was also assessed. Results were interpreted using SPSS version 26.p value <0.05 was considered significant. This study has been approved by Institutional Ethics Committee.
Results: A significant increase was observed in serum LOX levels in the DM and DN group compared to controls, with marked fall in serum IFN-γ in both the patient groups. Both of them registered significant correlation with Glycemic status and renal function. Area under curve revealed significant diagnostic accuracy for both these parameters with the disease process. A prominent inverse relationship was also noted between serum LOX and IFN-γ in the study group.
Conclusions: Raised LOX and marked fall in IFN-γ may have an etiological association with DM with a resultant contributory role in deterioration of kidney function .Inverse relation between them in Diabetes may indicate their probable regulatory interaction that have contributed to kidney damage as shown previously in studies conducted in rat model. More collaborative efforts with increased sample size are needed for substantial conclusion.

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Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 03
02-03-2024 16:50 - 18:10

TARGETING THE RANK/RANKL/OPG BONE PATHWAY AS TREATMENT STRATEGY FOR CONGENITAL MUSCULAR DYSTROPHY TYPE 1A

Jerome Frenette, Anteneh Argaw, Zineb Bouredji
Université Laval, Réadaptation, Quebec, Canada

Background and Aims: Congenital muscular dystrophy type 1A (CMD1A) is a lethal genetic neuromuscular disease caused by mutations in the LAMA2 gene that encodes the laminin α2 subunit, a structural protein ensuring muscle integrity during contractions. Dystrophic muscles undergo cycles of degeneration and regeneration combined with chronic inflammation and an irreversible fibrosis. A large proportion of the children affected by CMD1A does not reach adolescence. Several studies have shown that bone and muscle loss occur simultaneously in several neuromuscular diseases. Our team hypothesized that the RANK/RANKL/OPG system, the main regulator of bone remodeling, plays a key role in bone-muscle crosstalk. The interaction between the receptor activator of nuclear factor κB (RANK) and its ligand RANKL is responsible for bone resorption. Osteoprotegerin (OPG) acts as a soluble RANKL receptor and inhibits bone breakdown. We previously showed that a 10-d treatment with full-length OPG fused Fc (FL-OPG- Fc) restored muscle function in mdx mice, and one-month treatment with anti-RANKL increased dystrophic bone and muscle functions. Our recent work also showed that RANKL neutralization modulated NF-κB activation and prevented dystrophic hearts from hypertrophy. Our goal was to test whether FL-OPG-Fc or anti-RANKL protect skeletal muscle and bone in CMD1A.
Methods: To test the effects of these treatments in a more severe and genetically different dystrophic mice model, male dy ^{2J}/dy ^{2J} mice (CMD1A mouse model) aged of 4 weeks received either FL-OPG-Fc [1mg/kg/d] for 10 d or an anti-RANKL [4mg/kg/3d] for 28 d. The contractile properties of slow and fast twitch skeletal muscles and the biomechanical and histomorphometric properties of tibiae were assessed ex vivo.
Results: Our results show that acute treatment with FL-OPG-Fc significantly improves both the absolute and specific strength of dystrophic skeletal muscles and bone histomorphometric parameters. In addition, prolonged treatment with anti-RANKL improves bone stiffness and ultimate load in dy ^{2J}/dy ^{2J} mice. Anti-RANKL treatment, to a lesser extent than FL-OPG-Fc, also improves dystrophic skeletal muscle force.
Conclusions: Thus, FL-OPG-Fc seems to be more efficient than the anti-RANKL in protecting skeletal muscles, suggesting that FL-OPG-Fc may also act independently of RANKL inhibition. Our results open potentially new clinical applications for the preservation of bones and skeletal muscles in CMD1A.

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O034 / #730

Oral Session
ORAL ABSTRACT PRESENTATIONS - REPRODUCTIVE HEALTH
03-03-2024 11:20 - 12:20

A CRYPTOZOOSPERMIC INFERTILE MALE WITH Y CHROMOSOME AZFC MICRODELETION AND LOW FSH LEVELS DUE TO A SIMULTANEOUS POLYMORHISM IN THE FSHB GENE

Andrea Graziani[1], Maurizio Merico[2], Giuseppe Grande[2], Antonella Di Mambro[2], Riccardo Selice[2], Alberto Ferlin[2]
[1]University of Padua, Department Of Medicine, Padua, Italy, [2]University of Padua, Andrology And Reproductive Medicine Unit, Padua, Italy

Background and Aims: Genetic causes account for 10%–15% of male factor infertility, making the genetic investigation an essential and useful tool, mainly in azoospermic and severely oligozoospermic men. In these patients, chromosomal abnormalities and Y chromosome long arm microdeletions represent the most frequent findings, causing a primary severe spermatogenic impairment with classically increased levels of FSH. On the other hand, polymorphisms in the FSH receptor (FSHR) and FSH beta chain (FSHB) genes have been associated with different FSH plasma levels, due to variations in the receptor sensitivity (FSHR) or in the production of FSH from the pituitary gland (FSHB).
Methods: We described the case of a man with Y microdeletion and -211G>T polymorphism in the FSHB gene.
Results: We described the case of an unusual patient with a combined genetic alteration [classic AZFc deletion of the Y chromosome and TT homozygosity for the -211G>T polymorphism in the FSHB gene (rs10835638)], presenting with cryptozoospermia, severe hypospermatogenesis, normal LH and testosterone plasma concentrations, but low FSH levels. The patient had a partial benefit from treatment with FSH (150 IU three times/weeks for 6 months) that allowed him to cryopreserve enough motile spermatozoa to be used for intracytoplasmic sperm injection.
Conclusions: According to our knowledge this is the first report of an infertile man with AZFc-Y microdeletion with low FSH plasma concentrations related to homozygosity for the -211G>T polymorphism in the FSHB gene. Microdeletions in the Y chromosome represent the most frequent genetic cause of severe male infertility, being detected in 10-15% of non-obstructive azoospermia and 5-10% of severe oligozoospermia. The most frequent microdeletion (about 60-70% of the deletions) involves the AZFc region and are associated with variable phenotypes, the most frequent of which being represented by azoospermia and severe oligozoospermia/cryptozoospermia. In our patient, FSH plasma levels (1.0 IU/l) were unusually low, making the suspicion that the patient could harbor a mutation/polymorphism in the FSHB genes by modulating FSH production from the pituitary gland. In our patient we detected TT homozygosity in the -211 G>T polymorphism, a major contributor to low FSH plasma levels and our group reported that men with the -211 T allele in the FSHB gene had a significant increase in spermatogenesis after treatment with respect to carriers of the other genotypes This case report highlights that a thoughtful diagnostic approach to male factor infertility could lead to the correct identification of the etiologic and pathophysiologic mechanisms causing an otherwise “idiopathic” form of severe semen alteration.

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O035 / #884

Oral Session
ORAL ABSTRACT PRESENTATIONS - REPRODUCTIVE HEALTH
03-03-2024 11:20 - 12:20

THE PREVALENCE OF ERECTILE DYSFUNCTION AND ITS ASSOCIATION WITH AGE IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA

Yuliya Tishova[1], Ruslan Zukov[2], Lev Demidov[3], Vladimir Kuznetsov[4], Pavel Borisov[5], Valentina Leonenko[4], Anastasia Bondarenko[6], Kristina Zakurdaeva[7], Ilya Tsimafeyeu[8]
[1]K-Medicine, Endocrinology, Moscow, Russian Federation, [2]A.I. Kryzhanovsky Krasnoyarsk Cancer Center, Oncourology, Krasnoyarsk, Russian Federation, [3]N.N. Blokhin National Medical Research Center of Oncology, Biotherapy, Moscow, Russian Federation, [4]Stolichnaya Diagnostica Clinic, Tuchkovo Brunch, Tuchkovo, Russian Federation, [5]City Clinical Oncology Center, Outpatient Department, St. Petersburg, Russian Federation, [6]I.M. Sechenov First Moscow State Medical University, Internal Medicine, Moscow, Russian Federation, [7]RakFond, Oncology, Moscow, Russian Federation, [8]Bureau for Cancer Research (BUCARE), Moscow, Moscow, Russian Federation

Background and Aims: The results of many studies showed that the prevalence of erectile dysfunction (ED) increases with age in “healthy” population. In this prospective multicenter study, we assessed the prevalence of ED and its association with age in patients with metastatic renal cell carcinoma prior to initiation of first-line systemic therapy.
Methods: Untreated patients with metastatic clear-cell renal cell carcinoma were included. Exclusion criteria were known acute infectious, acute hematological and cardiovascular diseases, thyroid dysfunction and/or thromboembolic events in history. All patients were evaluated for erectile function with the 5-item version of the International Index of Erectile Function (IIEF-5) and Functional Assessment of Cancer Therapy-Kidney Symptom Index (FKSI-19) before first cycle of the first-line immunotherapy or targeted therapy. Measurements were taken among patients attending regular oncology visit in cancer centers during the study period. Baseline factors were entered into a multiple regression model.
Results: Three hundred fifty-seven male patients with mRCC were enrolled. Median age was 62.9 years (range 32–78 years) and 194 (54%) patients had at least one cardiovascular risk factor. The lungs were the most common sites of metastases (n=282; 79%). According to IMDC model, 103 (29%), 169 (47%), and 79 (22%) patients had favorable, intermediate, and poor cancer prognosis, respectively; 6 (2%) were unclassified. Two hundred forty-six (69%) patients reported a negative change in their sexual life including 153 (62%) patients with no sexual activity. The prevalence of any grade ED was 77.8% with IIEF-5 median score of 16. Older patients (>65 years old), patients with intermediate/poor IMDC prognosis, and patients with kidney cancer symptoms had an IIEF-5 score below median. In multiple regression model, ECOG performance status, hemoglobin level, and FKSI-19 kidney symptom index were significantly correlated with IIEF-5 score (all $P < 0.01$).
Conclusions: In the largest prospective study, ED was found in three quarters of male patients with metastatic renal cell carcinoma. We have shown that ED is not related to the age of patients, but correlates with general health status and the presence of symptoms of the disease.

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O036 / #1784

Oral Session
ORAL ABSTRACT PRESENTATIONS - REPRODUCTIVE HEALTH
03-03-2024 11:20 - 12:20

COMPARISON OF THE EFFECTS OF DAPAGLIFLOZIN VERSUS METFORMIN IN OVERWEIGHT AND OBESE NON-DIABETIC PCOS WOMEN- AN INTERVENTIONAL STUDY

Soumya S Inamadar[1], Vrinda Agrawal[1], Shanthi Naidu[2], Bipin K Sethi[1]
[1]CARE HOSPITAL, Department Of Endocrinology, HYDERABAD, India, [2]CARE HOSPITAL, Department Of Biochemistry, HYDERABAD, India

Background and Aims: Polycystic ovarian syndrome (PCOS) is the most common form of endocrinopathy in women, associated with chronic anovulation, androgen excess and long term metabolic and cardiovascular consequences. Metformin has been widely used in PCOS women to target the insulin resistance and the metabolic derangement associated. The use of SGLT-2 inhibitors remains less explored. In this study we aim to extrapolate the cardiovascular benefits of this class by use of Dapagliflozin in non-diabetic overweight and obese PCOS women in comparison with Metformin. Our primary objective was to compare the effects on metabolic and anthropometric parameters and the secondary objective was to compare the effects on hormonal parameters.
Methods: The study was conducted in endocrinology out-patient department at CARE hospital, Hyderabad. A total of 25 patients were enrolled over the study period of 9 months, 14 patients were initiated on Metformin in combination with combined oral contraceptives (COCs) and 11 patients on Dapagliflozin plus COCs. The phenotypic and anthropometric characteristics were noted during enrollment and tests for metabolic and hormonal profile were done at baseline. Patients were followed for 3 months, and at completion of treatment, repeat assessment and testing for anthropometric, metabolic and hormonal parameters were done.
Results: At follow-up we had 10 patients in Metformin group and 8 patients in Dapagliflozin, who completed treatment. We found a significant decrease in weight ($p = 0.041$) and BMI ($p = 0.011$) in the Dapagliflozin group compared to the Metformin group. There was a significant difference in waist and hip circumference in each of the groups, but there was no significant difference in between the groups. In the metabolic parameters, the reduction seen in FBS, PBS, fasting Insulin and HOMA-IR were comparable between the two groups. The HbA1C reduction was greater and significant in the Dapagliflozin group ($p = 0.016$). The trends of total cholesterol, HDL, and triglycerides were comparable in both the groups. There were no significant changes noted in hirsutism score or acne grading. There was a significant increase in SHBG and a decrease in DHEAS and total testosterone in both the groups.
Conclusions: In this study, we observed comparable effects of the SGLT-2 inhibitor, Dapagliflozin to Metformin. With already existing evidence of SGLT-2 inhibitors on the cardio-vascular outcomes, this gives us a scope to explore this class of drugs in PCOS management and also as an alternate to Metformin in patients having intolerance to it.

O037 / #33

Oral Session
ORAL ABSTRACT PRESENTATIONS - REPRODUCTIVE HEALTH
03-03-2024 11:20 - 12:20

DIABETES AND HYPERTENSION RATES AMONG POSTPARTUM WOMEN IN BANGLADESH

Farzana Ferdous
Nagasaki University, School Of Tropical Medicine And Global Health, Nagasaki, Japan

Background and Aims: Globally, gestational hypertension and diabetes mellitus incidences occur in around 12–22% and 8-26% of pregnancies respectively and are expected to rise more rapidly in low- and middle-income countries (LMICs). Research reveals that people living with scarcity, especially in areas, are at a greater risk for infectious diseases and are at increased threat for NCDs including reproductive-age women. Data on these conditions' prevalence, effects, and risk factors in the local context is required to plan for local service delivery for prevention, early diagnosis, and management. The study aimed to identify NCD risks among women from Pregnancy to postpartum in the resource-limited populations in Bangladesh.
Methods: This study is part of an observational pregnancy cohort conducted in Bangladesh, over 1 consecutive year. A total of 387 women were recruited within 24-36 weeks of pregnancy, and 364 women were followed over at 6 months post-pregnancy. Data on blood pressure, blood glucose and/or glycosylated hemoglobin, and hemoglobin level were collected during pregnancy and after 6 months of post-pregnancy.
Results: The pregnant women's mean (sd) age was 24.4 (5.0) years. Ninety-three percent of women gave live birth. At baseline, the incidence of pregnancy-induced hypertension (PIH) (SBP >140 mmHg & DBP >90 mmHg) was 8.8%, and elevated PIH (SBP >130-139 mmHg & DBP >80-89 mmHg) was 28.5%. At post-pregnancy follow-up, the incidence of elevated high blood pressure (HBP) was 12.8% and 3.05% had HBP. At baseline, the prevalence of gestational diabetes was 4.5% (HbA1c>6.4%) and glycemic intolerance (GI) 40.6% (HbA1C=5.4%-6.4%) using WHO criteria. At follow-up, the diabetic prevalence was 11% and GI was 46% (HbA1C=5.7%-6.4%). Five women died due to birth complications i.e. excessive bleeding or prolonged labor.
Conclusions: Pregnancy-induced non-communicable diseases are an emerging problem in rural Bangladeshi women. The study findings advocate appropriate interventions for NCDs that linger from pregnancy in resource-limited contexts.

O038 / #654

Oral Session
ORAL ABSTRACT PRESENTATIONS - REPRODUCTIVE HEALTH
03-03-2024 11:20 - 12:20

SITOSTEROLAEMIA IN A 12-YEAR-OLD CHILD WITH SHORT STATURE

Reham Ghanim, Nandu Thalange, Mohamed Wasfy Elabiary
Al Jalila Children's Speciality Hospital, Pediatric Endocrinology, Dubai, United Arab Emirates

Background and Aims: Sitosterolaemia, also known as phytosterolaemia, is a rare inherited plant sterol storage disease. first described in 1974. Sitosterolaemia is characterized by tendon and tuberous xanthomas and by a strong propensity toward premature coronary atherosclerosis. Untreated, the condition causes a significant increase in morbidity and mortality. We present a 12-year-old boy with short stature who was also diagnosed with sitosterolaemia.
Methods: Case Presentation: A 12-year-old boy was referred to the endocrinology clinic due to short stature. His past medical history was unremarkable, With normal birth weight and normal development. Family history revealed consanguineous parents (first cousins), and hyperlipidaemia. Clinical examination was largely unremarkable except for his short stature. His height was below the 0.4th centitle, and his weight was on the 3rd centile (Mid parental centile 7th centile). He was in early puberty (G2P2A1). Initial laboratory tests ruled out thyroid disorders and celiac disease. Bone profile, zinc, iron, IGF1, and IGFBP3 levels were all within normal limits. While his bone age was slightly delayed, it was not significantly below the mean (-0.24 standard deviations). Sella MRI showed pituitary hypoplasia. He was started on growth hormone therapy. To mitigate the effects of puberty on his height and to delay bone closure, he was treated with a GnRH analogue and anastrozole. Subsequent lipid profiling revealed elevated total cholesterol (224 mg/dL) and elevated LDL cholesterol (295 mg/dL), indicating dyslipidaemia. Genetic testing targeting short stature yielded a positive result for a homozygous pathogenic variant in the ABCG8 gene. This finding was consistent with a diagnosis of sitosterolaemia. He was treated with a diet low in plant lipids, combined Atorvastatin-Ezetimibe (10-40 mg) tablet, using 1 tablet daily with good effect.
Results: In the presence of abnormal lipid profile, blood test for Sterols level is diagnostic. Our patient was incidentally diagnosed from the short stature gene panel with a positive mutation in the ABCG8 gene. Detailed family history is crucial for recognition and management of other affected family members to prevent cardiovascular complications related to dyslipidaemia.
Conclusions: This case highlights the necessity of considering sitosterolaemia in the differential diagnosis of short stature and incorporating lipid profile in the initial work up.

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Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 04
03-03-2024 13:20 - 14:20

CORRELATION OF SLEEP TO GLYCEMIC CONTROL: A CROSS SECTIONAL STUDY CONDUCTED AT GLUCARE.HEALTH SHOWCASING THE IMPORTANCE OF CONTINUOUS SLEEP MONITORING

Cigdem Ozkan, Hala Zakaria, Milena Caccelli, Yander Celeste De Los Rios, Yousef Said, Ali Hashemi, Ihsan Almarzooqi
GluCare.Health, Endocrinology And Metabolism, Dubai, United Arab Emirates

Background and Aims: Diabetes mellitus is a chronic health concern with factors like aging, modern lifestyle habits, and improved diagnosis contributing to its growth. Risk factors include unhealthy habits such as poor diet, smoking, inactivity, obesity, and sleep-related disorders. Sleep affects hormones like melatonin and leptin, which influence appetite and metabolism. Sleep deprivation can lead to overeating, obesity, and insulin resistance. Patients with diabetes (PWD) often face sleep disorders, including sleep apnea, which exacerbates leptin resistance. Poor blood glucose control, both high and low, can disrupt sleep patterns. These sleep-related issues impact the quality of life and overall well-being of PWD. Unfortunately, the majority of traditional care providers do not measure or track sleep data despite the availability of sleep trackers and remote monitoring platforms. The aim of this research is to examine the relationship between glycemic control in Type 2 diabetics and sleep duration along with quality of sleep.
Methods: A cross-sectional study was carried out at the GluCare.Health, Dubai, UAE. A total of 32 Type-2 Diabetic patients answered the Pittsburgh Sleep Quality Index (PSQI). PSQI scoring scale ranges from 0 to 21 and scores greater than 5 indicate poor sleep quality. GluCare Health routinely provides PWD with sleep trackers, and continuously monitors patients sleep data along with other digital biomarkers as part of its integrated, continuous diabetes management.
Results: Participants were mostly males (78.1%) with a mean age of 49.34 ± 11.2 years. Mean BMI was 28.15 ± 4.53 kg/m2, and mean duration of diabetes was 8.99 ± 9.35 years. The mean PSQI score was 7.91 ± 4.5. In the present study, poor sleep quality was reported in 65.6% of participants. Patients with better sleep quality had lower HbA1c levels (6.18%) compared to individuals with poorer sleep quality (7.48%) (p=0.022). Moreover patients with shorter diabetes durations (0-5 years) were more likely to have a >5 PSQI score compared to those with longer diabetes durations (6-15 years or >15 years) (p=0.050). Additionally, gender differences were evident, with more males having poorer sleep quality than females, suggesting gender-related variations in sleep patterns within this population (p=0.012).
Conclusions: In summary, this research underscores the substantial prevalence of poor sleep quality among Type 2 diabetic patients and its impact on glycemic control. It highlights the need for healthcare providers to consider sleep assessment, the self-tracking and monitoring of sleep data and tailored interventions as integral components of diabetes management to improve patient outcomes and overall well-being.

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O040 / #642

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 04
03-03-2024 13:20 - 14:20

DETERMINATION OF THE PREDICTIVE VALUE FOR EACH OF HYPOGLYCEMIC SYMPTOMS IN DIABETIC PATIENTS

Fahimeh Soheilipour
Minimally Invasive Surgery Research Center, Aliasghar Children Hospital, School of Medicine, Iran University of Medical Sciences, Tehran, Iran, Pediatric, Tehran, Iran

Background and Aims: Hypoglycemia is the most common acute complication of T1DM .The ability of people to detect symptoms of hypoglycemia has been reported as being poor. This study aims to explore the sensitivity, specificity, positive predictive value and negative predictive value of hypoglycemia symptoms. This results can help people with T1DM and their caregivers to better recognize episodes of hypoglycemia.
Methods: This study is a prospective observational study and 19 patients enrolled with T1DMan specific SMBG log book was given to each subjects. Subjects were asked to log their SMBG value and their signs and symptoms whether they are hypoglycemic or not.
Results: 19 patients with type 1 diabetes, including 11 females (58%) and 8 males (42%) with the mean age of 20.6 (±8.5) and mean duration of diabetes 7.7 (± 5.6) years enrolled the study. Among the total number of 1003 BS readings, 164 episodes of hypoglycemia (BS≤70 mg/dL) were recorded, 25 of which were asymptomatic (15%). Mean number of symptoms for BS levels below 50 mg/dl, between 50 and 60 mg/dl and above 60 mg/dl were 4.8, 3.5 and 1.1 symptoms per episode of hypoglycemia respectively. The frequency of hypoglycemia symptoms, regardless of the level of BS was hunger (18%), shivering (13%), confusion (12%), palpitation (11%), headache (9%), sweating (7%), nausea (7%), lack of coordination (7%), sleepiness (6%), weird behavior (4%) and difficulty of speech (4%). Hunger and weird behavior had the most and least sensitivity (49% and 10% respectively), while weird behavior (98%) and headache (36%) had the most and least specificity respectively. Highest and lowest PPV belonged to weird behavior (55%) and headache (7%), while highest and lowest NPV belonged to palpitation, hunger and dizziness (87%) and headache (71%). Hunger and shivering with the combined sensitivity of 80% and positive predictive value of 82% are the strongest symptoms for the prediction of a hypoglycemia event.
Conclusions: Hunger and shivering with the combined sensitivity of 80% and positive predictive value of 82% are the strongest symptoms for the prediction of a hypoglycemia event. This results can help people with T1DM and their caregivers to better recognize episodes of hypoglycemia.

O041 / #111

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 04
03-03-2024 13:20 - 14:20

A META-ANALYSIS FOR EFFICACY OF SELF-HELP INTERVENTIONS FOR GLYCEMIC AND BEHAVIOURAL OUTCOMES AMONG PEOPLE WITH DIABETES

Anggi Wicaksana, Renny Wulan Apriliyasari, Pei-Shan Tsai
Taipei Medical University, School Of Nursing, College Of Nursing, Taipei City, Taiwan

Background and Aims: Background and aims: The self-help interventions benefit for persons with diabetes but no current study estimate the pooled effects to the glycemic and behavior outcomes. The aim was to assess the pooled effects of self-help interventions on glycemic and behavior outcomes among persons with diabetes.
Methods: Methods: Meta-analysis in five databases was conducted. Only study recruited adults with diabetes, testing the effect of self-help interventions and reported the interested outcomes; including HbA1c, self-management behavior, self-efficacy, and quality of life, were assessed. The short-, mid-, and long-term effects were pooled in random effect model with Hedge's g and 95% confidence interval (CI) as outcomes.
Results: Results: About 1,438 studies were identified but only 14 provided data for meta-analysis. Total of 2,392 people with diabetes included in the study with female dominancy (63.75%) and average age was 54.26 years. A significant effect of self-help interventions was found in short-term for HbA1c (Hedges' g = -0.497, 95%CI = -0.791, -0.167), self-efficacy (Hedges' g = 0.629, 95% CI = 0.060, 1.197), overall quality of life (Hedges' g = 0.413, 95% CI = 0.104, 0.721), physical quality of life (Hedges' g = 0.182, 95% CI = 0.031, 0.333), and mental quality of life (Hedges' g = 0.469, 95% CI = 0.156, 0.783) in persons with diabetes. Furthermore, the self-help interventions remained had effect at mid-term for self-management behavior (Hedges' g = 0.305, 95% CI = 0.155, 0.454), and overall quality of life (Hedges' g = 0.562, 95%CI = 0.315, 0.810).
Conclusions: Conclusion: Self-help interventions could provide positive benefit on quality of life; both in short- and mid-term assessment. The short-term effect of self-help interventions only recorded for HbA1c and self-efficacy while self-management behavior get benefit at mid-term effect.

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O042 / #865

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 04
03-03-2024 13:20 - 14:20

CARDIOVASCULAR DISEASE IN TYPE 1 DIABETES. SEX DIFFERENCES

Riccardo Maria Pollis, Edoardo Fabris, Mario Luca Morieri, Angelo Avogaro, Saula Vigili De Kreutzenberg
University Hospital of Padua, Metabolic Diseases, Department Of Medicine, Padua, Italy

Background and Aims: Cardiovascular disease (CVD) is the leading cause of morbidity and mortality in patients affected by type 1 diabetes mellitus (T1DM), who show an excess risk compared to non-diabetic subjects. In particular, T1DM women have a greater excess risk of fatal and non-fatal vascular events, compared to T1DM men, especially for incident coronary heart disease. Current evidence suggests sex differences are related to a greater effect of hyperglycaemia on vascular risk in women than in men. However, CVD sex differences in T1DM, still remain partially unexplained. At baseline, we examined sex differences in cardiovascular risk profile, including the 10-year risk of fatal and non-fatal outcomes, using the Steno T1 Risk Engine (ST1RE), in a cohort of T1DM patients. We also compared cardiovascular event rate incidence, in a prospective study.
Methods: Three hundred twenty-nine T1DM patients, in primary prevention, regularly followed in our diabetes care unit (190 males; 139 females; mean age 50.2±15.2 years; duration of diabetes 22.8±13.9 years) were enrolled. Principal anthropometric and biochemical parameters, 10-year CVD (ischemic heart disease, stroke, and peripheral vascular disease) risk and ongoing cardiovascular medications were recorded at baseline. Incidence of CVD events was evaluated during a mean follow-up of 3.7±1.1 years. ST1RE accuracy was assessed by ROC analysis.
Results: At baseline, there were no differences in terms of age, duration of disease, BMI, glycaemic control, and estimated cardiovascular risk (female 20.0% vs male 17.7% at 10 years; p=0.237) in women with respect to men. Also, cardiovascular drug prescriptions were similar between men and women. However, women showed a slightly but significant impaired kidney function (eGFR 93±22 vs 100±14 ml/min/1.73m^2; p<0.001), higher albuminuria (36.8±130.7 vs 25.9±130.7 mg/g/creatinine; p<0.001) and less regular physical activity (p=0.006) than men. Similar cardiovascular events (male 7 vs female 3; p=0.439) occurred during the follow-up period. ST1RE performance was adequate, in our cohort, with an AUC of 0.88 (95% CI, 0.78-0.99).
Conclusions: In conclusion, there was no difference neither in estimated CVD risk nor in cardiovascular event incidence between T1DM females and males, in our cohort. ST1RE appears to be a valid calculator, able to detect T1DM patients at greater risk of first events. Our data suggest a possible reduction of sex disparities in CVD in T1DM.

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O043 / #1930

Oral Session
ORAL ABSTRACT PRESENTATIONS - DIABETES 04
03-03-2024 13:20 - 14:20

PHYSICIAN SELF-REPORTED FACTORS INFLUENCING THE MANAGEMENT OF PATIENTS WITH TYPE 2 DIABETES AND HIGH RISK OF CARDIOVASCULAR DISEASE ACROSS THE MIDDLE EAST AND AFRICA (PACT-MEA)

Hessa Al Kandari[1], Sam Salek[2], Hani Sabbour[3], Naji Alamuddin[4], Fatheya Alawadi[5], Wael Almahmeed[6], Samir Assaad-Khalil[7], Emel Mashaki Ceyhan[8], Jihad Haddad[9], Landman Lombard[10], Mary Ngome[11], Rayaz Malik[12], Gourav Yadav[11]
[1]Dasman Diabetes Institute, Kuwait, Population Health Department, Kuwait, Kuwait, [2]University of Hertfordshire, School Of Life And Medical Sciences, Hatfield, United Kingdom, [3]Cleveland Clinic Abu Dhabi, Heart, Vascular & Thoracic Institute, Abu Dhabi, United Arab Emirates, [4]King Hamad University Hospital, Royal College Of Surgeons In Ireland–bahrain, Adilya, Bahrain, [5]Dubai Hospital, Endocrine Department, Dubai, United Arab Emirates, [6]Cleveland Clinic Abu Dhabi, Abu Dhabi, UAE, Abu Dhabi, United Arab Emirates, [7]Alexandria University, Department Of Internal Medicine, Alexandria, Egypt, [8]Novo Nordisk A/S, Soborg, Denmark, [9]Bader Medical Complex, Amman, Jordan, [10]Cape Town Medical Research Centre, Cape Town, South Africa, [11]Novo Nordisk Saglik Urunleri Tic Ltd Sti, Istanbul, Turkey, [12]Weill Cornell Medicine Qatar, Department Of Medicine, Doha, Qatar

Background and Aims: Some of the highest rates of type 2 diabetes (T2D) are found in the Middle East and Africa (MEA). Optimal management of atherosclerotic cardiovascular disease (ASCVD) is key to reducing morbidity and mortality in patients with T2D. We aimed to assess the clinical decision making of physicians treating patients with T2D and high risk of ASCVD in both primary and secondary care across seven MEA countries as part of an observational study (PACT-MEA, NCT05317845) assessing ASCVD prevalence and treatment patterns in the region.
Methods: We conducted an online, cross-sectional study of physicians (n = 385) managing patients with T2D in Bahrain, Egypt, Jordan, Kuwait, Qatar, South Africa and UAE between June 13 and October 1, 2022. PACT-MEA investigators were recruited from each participating study site (n = 63), and the remaining physicians were recruited by email from a database of physicians who had opted into research surveys but had not participated in the PACT-MEA study.
Results: The study participants were specialists (endocrinologists, diabetologists, internal medicine physicians, and cardiologists; 53%) and physicians from primary care (family practice physicians and general practitioners; 47%). When selecting antihyperglycemic treatments, physicians considered efficacy (73%), cardiovascular safety (51%), and cardiovascular benefit (45%) as the top three factors. They agreed that treatment adherence/compliance (92%), safety concerns (92%), impact on health-related quality of life (88%), and affordability (85%) influenced their T2D management decisions. Most physicians agreed that availability of treatment (87%) was a practice setting factor that influenced their decision making. The respondents agreed that the four most impactful physician factors influencing clinical decision making were continuous medical education (96%), medical knowledge (96%), international clinical guidelines (95%), and previous experience with a product (94%). When asked about patient empowerment, physicians were least likely to agree that exchange of views with patients (86%) described their decision-making process. Most physicians agreed that improved communication skills of physicians (97%), coaching and question prompts for patients (91%), and patient decision aids (87%) could improve shared decision-making.
Conclusions: Physicians reported that certain key patient factors, physician factors, and medication factors influenced their management of patients with T2D. There may be an opportunity to improve

patient and physician T2D education in the MEA through improved dialogue to enable more patient-centred disease management.

E-Poster Discussion

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E-Poster Discussion
E-POSTER DISCUSSION: TECHNOLOGY/PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 09:40 - 10:00

DEVELOPMENT AND VALIDATION OF DIABETES INTERPRETER, A MOBILE APPLICATION-BASED TOOL FOR POINT-OF-CARE EVALUATION OF CHILDREN WITH DIABETES.

Alapan Mahapatra[1], Proteek Sen[1], Vibha Yadav[2], Dhvani Raithatha[2], Santosh Olety S[3], Rishi Shukla[4], Jayati Jhala[5], Piyush Sharma[6], Anurag Bajpai[1]
[1]Regency CDER, Pediatric Endocrinology, kanpur, India, [2]Regency CDER, Pediatric Endocrinology, Kanpur, India, [3]Karnataka Institute of Endocrinology and Research, Pediatric Endocrinology, Bengaluru, India, [4]Regency Centre for Diabetes, Endocrinology & Research, Endocrinology, Kanpur, India, [5]P D Hinduja Hospital and Research Center, Khar Facility., Endocrinology, Mumbai, India, [6]Regency Health, Pediatrics, Kanpur, India

Background and Aims: Background- Inappropriate classification of children and adolescents with diabetes has significant short-term (development of diabetic ketoacidosis in missed Type 1 Diabetes) and long-term implications (missed opportunity to use non-insulin treatments in Type 2, monogenic, and neonatal diabetes and missed assessment of associations of specific forms of diabetes). Aim- To develop and validate Diabetes Interpreter, a mobile application-based tool for point-of-care guidance of children and adolescents with diabetes.
Methods: Method- We developed Diabetes Interpreter a mobile application-based tool to provide algorithmic guidance in the evaluation of children and adolescents with diabetes based on key clinical details. The application guidance was compared to that offered by an adult endocrinologist, a senior pediatric endocrinologist, a young pediatric endocrinologist, and a pediatric trainee in 302 children and adolescents with diabetes presenting to our Pediatric Endocrinology Clinic (251 with Type 1, 34 with Type 2, six with monogenic form, and 11 with neonatal diabetes).
Results: - The Diabetes Interpreter had a high level of concordance with clinical diagnosis and guidance (score 600, 99.3%). The overall concordance score for pediatric endocrinologists (expert 1 543; 89.9%; expert 2 468; 77.4%) was higher than adult endocrinologists (405; 67%) and pediatric trainees (229; 37.9%). Discordance was observed in 297 instances for the pediatric trainee (49.2%), 163 for the adult endocrinologist (26.9%), 81 (13.5%) for the young pediatric endocrinologist, and 46 (7.6%) for the senior pediatric endocrinologist. The use of a Diabetes interpreter would have prevented 97.2% of these errors. Diagnostic work-up was recommended by the Diabetes Interpreter in 51 (16.8%) cases as against 299 (99%) by the pediatric trainee and 147 (48.7%) by the adult endocrinologist.
Conclusions: Conclusion- The diagnosis and guidance provided by the Diabetes interpreter are highly concordant with the clinical diagnosis and are expected to improve the classification of childhood and adolescent diabetes across settings while reducing the diagnostic burden.

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E-Poster Discussion
E-POSTER DISCUSSION: TECHNOLOGY/PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 09:40 - 10:00

HIGH CARDIOVASCULAR RISK AMONG PATIENTS OF SHEEHAN SYNDROME ON OPTIMAL HORMONAL REPLACEMENT-A CASE CONTROL STUDY.

Abid Rasool[1], Bashir Laway[1], Mohd Saleem Baba[1], Naseer Ahmad Choh[2], Zaffar Amin Shah[3]
[1]Sher-i-kashmir Institute Of Medical Sciences, Endocrinology, Srinagar, India, [2]Sher-i-kashmir Institute Of Medical Sciences, Radiology, Srinagar, India, [3]Sher-i-kashmir Institute Of Medical Sciences, Immunology, Srinagar, India

Background and Aims: Sheehan Syndrome (SS) is characterized by partial or complete loss of anterior pituitary hormones. Higher prevalence of atherosclerotic risk factors in SS like abdominal obesity, dyslipidemia, and chronic inflammation predispose SS patients to coronary artery disease (CAD). This study was designed to estimate CAD risk enhancers [hs-CRP, ApoB and Lp(a)] and calculate the 10-year probability of Cardiovascular (CV) events in SS patients using Framingham risk scoring (FRS) and Coronary artery calcium (CAC) score. AIMS: 1. Evaluation of clinical risk using Framingham risk score in patients with Sheehan Syndrome. 2. Assessment of coronary artery calcification by CT Scan using Agatston score.
Methods: Sixty-three SS patients on stable hormonal replacement treatment except for GH replacement and sixty-five age, BMI, and parity matched controls were enrolled in this study. All participants were subjected to clinical examination, biochemical/hormonal assessment, and measurement of hs-CRP, ApoB and Lp(a). Coronary multidetector computed tomography was performed in all patients and controls by a 16-row multislice scanner to assess CAC. The 10-year probability of CV events was estimated by calculating FRS and CAC score.
Results: The mean (±SD) age of SS patients and controls was 49.08±6.30 and 46.75±7.78 years respectively (p=0.066). SS patients had higher mean total cholesterol, triglycerides, LDL cholesterol, and lower mean HDL cholesterol. The mean serum IGF-1 levels were lower in SS patients than in controls (68.22 ±21.11ng/ml vs 148.76±44.19ng/ml respectively, p=0.01). CV risk enhancers [hsCRP, apoB, and Lp(a) concentration] were significantly higher in SS patients than in controls (p=0.000). After calculating FRS, 95.2% of SS patients were classified as low risk and 4.8% as intermediate risk for probable CV events and all controls were classified as low risk. CAC was detected in 50.7% SS patients and in 7.6% controls (p=0.006). Based on the CAC score, 23.8% SS patients had minimal risk, 23.8% mild and 3.2% had moderate risk for probability of CV events within 10 years. In controls, 6.2% had minimal risk and 1.6% had a mild risk for probable CV events within the next 10 years. Multiple coronary arteries were involved more frequently than a single artery.
Conclusions: Significant number of asymptomatic patients with SS had CAC and are categorized at risk for CAD.

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E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 01
01-03-2024 09:40 - 10:00

AGE-RELATED CHANGES IN GLUCAGON LEVELS DURING PHYSIOLOGICAL AND PATHOPHYSIOLOGICAL AGEING

Markéta Vaňková, Josef Včelák, Běla Bendlová, Daniela Vejražková
Institute of Endocrinology, Molecular Endocrinology, Prague, Czech Republic

Background and Aims: To understand the pathological changes associated with glucose homeostasis in older age, it is essential to know the natural age-related pattern of hormone levels involved in glucose homeostasis. Surprisingly, little information is available on glucagon levels in healthy adults and the elderly. Glucagon plays a central role in intermediary metabolism. Recent studies point to the importance of glucagon not only in glucose, but also in lipid and amino acid metabolism (liver-alpha cell axis). Glucagon is also considered as a stress hormone and plays an important role in the CNS. Dysregulation of glucagon secretion and action is thus associated with a number of pathological conditions. The aim of this study was to investigate fasting glucagon levels in individuals with normal glucose tolerance during natural aging and compared to patients with type 2 diabetes mellitus (T2DM) and patients with Alzheimer's disease (AD).
Methods: In a population-based study, 991 people with normal glucose tolerance (786 women, 205 men, with age ranging from 18 to 90 years) the fasting glucagon levels were screened. To compare glucagon levels in healthy and diseased subjects over 55 years of age, 245 people (69 non-diabetic AD patients, 111 T2DM patients and 65 controls) were examined in detail. Fasting glucagon and other glucose metabolism related parameters, lipids, liver enzymes (ALT, AST) and amino acid levels were monitored. Software Statgraphics Centurion, version-XV was used for ANCOVA ($p<0.05$].
Results: In a population-based study of people with normal glucose tolerance increasing glucagon levels with age were observed, regardless of gender. In people over 55 years of age: 1) Higher glucagon, insulin and C-peptide levels in both AD and T2DM patients compared to controls were found, however glycaemia levels were the same in AD patients as in controls, 2) Serum lipids did not differ among groups, 3) AD patients had lower and T2DM patients had higher liver enzyme levels compared to controls, 4) Amino acid profile significantly differed among groups, probably reflecting their different metabolism in these two diseases.
Conclusions: Fasting glucagon levels naturally increase with age. We have confirmed that both T2DM and AD are associated with fasting hyperglucagonemia; however, the pathogenetic causes and metabolic effects of elevated glucagon levels appear to differ in these two diseases. In T2DM, it is likely to be related to fasting hyperglycaemia and in AD is more likely to be primarily associated with altered amino acid metabolism Supported by: AZV-NU20-01-00308, MH-CZ-DRO (EU00023761)

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E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 01
01-03-2024 09:40 - 10:00

KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING GESTATIONAL DIABETES MELLITUS AMONG PREGNANT WOMEN ON ANTENATAL APPOINTMENT IN GOVERNMENT APPROVED HEALTHCARE FACILITIES IN NIGERIA: A CROSS-SECTIONAL STUDY

Uchenna Ugwu, Osmond Ene
University of Nigeria Nsukka, Human Kinetics And Health Education, Nsukka, Nigeria

Background and Aims: Gestational diabetes mellitus (GDM) is a serious threat to first-time pregnancy, and a major concern of every country's healthcare system. The main objective of the study was to determine the knowledge, attitude and practice (KAP) regarding gestational diabetes mellitus (GDM) among pregnant women on antenatal appointment in government approved healthcare facilities in Nigeria and also to establish the significant correlation and association within sociodemographic variables.
Methods: It was a healthcare facility-based cross-sectional study, conducted in government approved healthcare facilities in Nigeria, from January to March, 2023. A total of 1,750 pregnant women were sampled and surveyed using convenient sampling technique. Data were collected using an adapted questionnaire "Gestational Diabetes Mellitus Knowledge, Attitude and Practice Questionnaire" with 0.87 reliability index. Statistical analysis was completed using IBM SPSS version 22. Frequency, percentage, Odds Ratio statistics and Chi-square test were applied for data analysis. All computations were deemed statistically significant at p value ≤0.05.
Results: Out of 1,750 eligible participants, 1,488 (88.4%) valid responses were analysed. Slightly above one-third of the participants (39%) were below 30 years, with 66% being alcoholics, 17% unmarried and 36% working at the time of the study. Only 44% of them had high degrees with 34% having 2 children and more, 81% being Christians, and majority (64%) living in rural areas. Only 8% of them had history of diabetes. The study showed that 69% of the pregnant women knew about GDM, 65% had positive attitude and 79% had desirable GDM practice. Statistically, there were positive correlation between KAP regarding GDM and age, marital status, education level, and parity status (Odds Ratio≥1) while negative correlation was observed on alcohol consumption, working status, religious affiliation, resident, tobacco consumption, and diabetes history (Odds Ratio≤1). Furthermore, the KAP regarding GDM was significantly associated with alcohol consumption, education, parity status, and resident (p-value<0.05) while no association was recorded on age, marital status, working status, religious affiliation, tobacco consumption, and diabetes history (p-value=0.80>0.05) respectively
Conclusions: Approximately three-quarter of the pregnant women knew about GDM, had positive attitude and had desirable GDM practice. The KAP regarding GDM was positively correlated and significantly associated with sociodemographic variables. Healthcare facility-based interventions on KAP regarding GDM are paramount to be incorporated in the national healthcare programs in order to sustain high knowledge, enhance attitude and improve desirable GDM practices among pregnant women in Nigeria and other countries of the world.

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E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 01
01-03-2024 09:40 - 10:00

INNOVATION IN PODIATRIC PRACTICE: SAMADHAN FOOT STAND

Lakshmi K Shankhdhar, Kshitij Shankhdhar, Smita Shankhdhar
LK Diabetes Centre, 26 Lekhraj Market-1, Indiranagar, Diabetolgogy, Lucknow, India

Background and Aims: Podiatric care is often an ignored aspect of diabetic foot care. Foremost thing in podiatric care is a podiatric table/chair which serves many purposes ranging from clinical examination to procedures but it is quite expansive and very few physicians, at least in developing countries, can afford it. So we designed a very economical and affordable Samadhan Foot Stand, costing barely 10 USD and serves effectively as a substitute for a podiatric table/chair. Word Samadhan is a Hindi word meaning solution. We offer this as a solution to a hard-pressed need for an affordable podiatric table/chair.
Methods: Parts of Samadhan Foot Stand (SFS): **Base of Foot Stand:** The stand has a solid heavy wooden base to support weight of the foot and leg. **Column:** Flat broad column establishes connection between leg rest and base. **Leg rest:** It is a cut in the column on the top with padding where a patient accommodates his ankle. **Pocket:** The column has a pocket to accommodate necessary equipments e.g. Monofilament, Wartenberg wheal, Tuning fork, Hammer, Thermo tip, measuring tape, caliper, cotton wool etc. Nail care related instruments can also be placed in the same pocket e.g. Scissors, Scalpel, calipers and files. The same pocket can accommodate dressing related material too during management of a foot ulcer or lesion.
Results: Utility Of Samadhan Foot Stand: It serves as a working foot examination platform. The physician has to sit in his chair to examine the foot in detail. He can undertake neurological examination using a tuning fork, Monofilament etc. Even peripheral pulses can be easily examined. The examiner can keep all necessary gadgets in the pocket of the SFS. Range of foot joint can be assessed to diagnose limited joint mobility. Skin temperature and deformities of foot can also be checked. Even Audio Doppler can be accommodated in the pocket and Ankle Brachial Index can be calculated. While patient accommodates his foot in the SFS, Biothesiometry can also be conducted. The same SFS might be used for minor surgical interventions too such as ablation of a corn or callus. Full nail care can be rendered while foot is placed in the SFS. Even dressings can be undertaken while foot is in the SFS. Even photography of the foot lesions is convenient while foot is in the SFS Interestingly, SFS might be placed in the physician's chamber anywhere since it occupies little space.
Conclusions: SFS is very economic substitute for Podiatric chair.

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E-Poster Discussion
E-POSTER DISCUSSION: PITUITARY
01-03-2024 09:40 - 10:00

BONE HEALTH AND SKELETAL FRAGILITY IN SECOND- AND THIRD-LINE MEDICAL THERAPIES FOR ACROMEGALY: PRELIMINARY RESULTS FROM A PILOT MONOCENTER EXPERIENCE

Sabrina Chiloiro[1], Antonella Giampietro[1], Amato Infante[2], Pier Paolo Mattogno[3], Claudia Dell'Atti[2], Liverana Lauretti[3], Alessandro Olivi[3], Alfredo Pontecorvi[1], Laura De Marinis[1], Francesco Doglietto[3], Antonio Bianchi[1]
[1]Gemelli Hospital Università Cattolica del Sacro Cuore, Endocrinology, Rome, Italy, [2]Gemelli Hospital Università Cattolica del Sacro Cuore, Diagnostic Imaging, Oncological Radiotherapy And Hematology, Rome, Italy, [3]Gemelli Hospital Università Cattolica del Sacro Cuore, Neurosurgery, Rome, Italy

Background and Aims: Skeletal fragility is a clinically relevant and not-reversible complication of acromegaly, involving around 40% of patients at the time of acromegaly diagnosis. Few studies have investigated the effects on skeletal health of medical therapies for acromegaly.
Methods: In this retrospective longitudinal monocenter study, we investigated the outcome of skeletal fragility in patients treated with Pasireotide Lar in combination with Pegvisomant (PAS-Lar +Peg-V), also by comparison to those observed in patients treated with conventional therapies.
Results: We included 6 patients treated with PAS-Lar +Peg-V, 6 patients treated with Peg-V in monotherapy, 16 patients treated with Peg-V plus first-generation somatostatin receptor ligands (fg-SRLs), and 10 patients treated with Pasi-Lar. None of the patients treated with PAS-Lar+Peg-V experienced worsening of spine and femoral bone mineral density (BMD) and incident vertebral fractures (i-VFs). The frequency of i-VFs was significantly lower in patients treated with the Peg-v+Pasi-Lar (0%), as compared to those observed in m-Peg-V treated patients (50%, p=0.03). The frequency of i-VFs was slightly but not significantly higher in patients treated with Pasi-Lar (12.5% p=0.062) and in those treated with the fg-SRLs+Peg-V (37.5% p=0.364), with respect to those treated with Peg-V+Pasi-Lar (0%). I-VFs occurred more frequently in patients with a longer diagnostic delay (p=0.047), in patients with higher GH levels at acromegaly diagnosis (p=0.02), and in patients who experienced a worsening of BMD (p=0.005).
Conclusions: Our preliminary data suggested that in aggressive and multi-drug resistant acromegaly, the combination therapy Peg-V+Pasi-Lar may prevent the worsening of BMD and i-VFs.

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E-Poster Discussion
E-POSTER DISCUSSION: PITUITARY
01-03-2024 09:40 - 10:00

A RETROSPECTIVE STUDY ON CLINICAL CHARACTERISTICS, TREATMENT APPROACHES AND OUTCOME DATA OF PATIENTS WITH PROLACTINOMA FOLLOWED UP AT A TERTIARY CARE CENTER IN SRI LANKA

Tharaka Athukorala[1], S Pathmanathan[2], Uditha Bulugahapitiya[2], Manilka Sumanatilleke[3]
[1]National hospital of Sri lanka, Diabetes And Endocrine Unit, Colombo , Sri Lanka, [2]National Hospital of Sri Lanka, Diabetes And Endocrinology Unit, Colombo, Sri Lanka, [3]Diabetes and Endocrinology Unit, National Hospital Of Sri Lanka, Colombo, Sri Lanka, Colombo, Sri Lanka

Background and Aims: Prolactinoma accounts for the majority of diagnosed functioning pituitary adenomas and can be successfully treated with dopamine agonists most of the time without surgery or radiotherapy. However, data looking at treatment modalities and outcomes are scarce in the South Asian region. This Knowledge can bring new insights into managing prolactinomas in resource-poor settings. To assess clinical characteristics, therapeutic approaches and their outcomes in patients with prolactinoma followed up at a tertiary care center in Sri Lanka.
Methods: A descriptive cross-sectional study was conducted at the Diabetes and Endocrine Unit at the National Hospital of Sri Lanka. Patients with prolactinoma followed up at the clinic were recruited. Socio-demographic and clinical data were gathered through an interviewer-administered questionnaire and medical records.
Results: Data was collected from 54 patients and 51.9 % (n=28) were female. The mean age of the population was 43.3 ± 12.98 years. Females had a mean age at presentation of 35.95 ± 13.53 years whereas among males it was younger with 33.32 ± 9.31 years. In females 75%(n=21) presented with headache, 67.8% (n =19) with galactorrhea and 64.2% n=18) with menstrual irregularities. Most males, 88.4% (n=23), presented with visual impairment due to the mass effect, whereas 73% (n=19) presented with headache. Majority of the population had macroprolactinomas (53.7% n=29) with a mean prolactin level of 36015.7 mIU/L. Microprolactinomas accounted for only 29.6% (mean prolactin-5952.87mIU/L) while 16.8% (n =9) had giant prolactinomas (mean prolactin-78588.62 miu/L)2 patients who had surgery as the first-line treatment (3.7%) failed to achieve remission. 37 patients received cabergoline as first-line treatment and 19 of them are tumour free. 12 patients received bromocriptine and 8 are tumour-free. 5 patients received radiotherapy and none are tumour free.
Conclusions: Among Sri Lankan patients with prolactinoma,dopamine agonists as first-line treatment have a good response. However, further studies are recommended to decide on the best treatment strategy in a resource-poor setting like Sri Lanka when the current management of prolactinomas is shifting towards surgery

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E-Poster Discussion
E-POSTER DISCUSSION: PITUITARY
01-03-2024 09:40 - 10:00

PASIREOTIDE LAR TREATMENT IS ABLE TO NORMALIZE IGF-I LEVELS EVEN IN ACROMEGALY PATIENTS COMPLETELY RESISTANT TO FIRST-GENERATION SOMATOSTATIN RECEPTOR LIGANDS.

Luiz Eduardo Wildemberg, Leandro Kasuki, Ana Carolina Gadelha, Nelma Verônica Marques, Monica Gadelha
Medical School and Hospital Universitario Clementino Fraga Filho, Neuroendocrinology Research Center/endocrinology Division, Rio de Janeiro, Brazil

Background and Aims: Background: first-generation somatostatin receptor ligands (fg-SRL) are the main medical treatment in acromegaly. Several biomarkers of response to this drug have been evaluated, some of them with very robust data. On the contrary, there is still a lack of concrete evidence of predictors of response for pasireotide in the literature. Previous studies show that all patients responsive to pasireotide LAR were also partially responsive to fg-SRL. Some of these studies even demonstrated a negative correlation between IGF-I decrease by fg-SRL and tumor volume reduction by pasireotide. Aim: the study's objective is to evaluate whether achieving biochemical control with pasireotide LAR is viable even in acromegaly patients completely resistant to fg-SRL.
Methods: our study consists in a retrospective study in which a single center's chart reviews of acromegaly patients was analyzed. Patients previously treated with fg-SRL and not controlled by this drug who were later treated with pasireotide were included in the study. Biochemical control was considered when IGF-I levels decreased to 1xUPN or lower. Resistance to fg-SRL occured if IGF-I decrease is lower than 50% after at least 6 months of treatment with the drug's highest dosage. Patients who presented an IGF-I decrease < 20% were considered completely resistant.
Results: among 52 patients treated with pasireotide LAR, only 38 had available data related to their response to fg-SRL and were included in the study. Of these, 27 (71%) were resistant to fg-SRL, 16 (42%) being considered completely resistant. During treatment with pasireotide, biochemical control was achieved in 22 (58%). The controlled patients had, at baseline, lower GH levels (3.25 vs 5.35 ng/mL, p=0.041) and tumor diameter (1.5 vs 2.0 cm, p=0.009). Also, these patients presented higher tumor reduction (26 vs 0%, p=0.013), but this was not correlated with GH nor IGF-I reduction by fg-SRL. Percentage of GH and IGF-I reduction previously achieved after treatment with fg-SRL was higher in controlled patients (67 vs 22% p=0.009 and 42 vs 15% p=0.021, controlled vs uncontrolled group, respectively). Although most uncontrolled patients presented worst response to fg-SRL, 12 (44%) resistant patients and seven (44%) completely resistant patients had normal IGF-I levels after pasireotide LAR treatment.
Conclusions: Conclusion: our data indicates that pasireotide can be a viable treatment option for acromegaly even in patients completely resistant to fg-SRL.

PD009 / #31

E-Poster Discussion
E-POSTER DISCUSSION: THYROID 01
01-03-2024 09:40 - 10:00

CLINICAL IMPLICATION OF BILATERALITY AND UNILATERAL MULTIFOCALITY IN PAPILLARY THYROID CARCINOMA: A PROPENSITY SCORE MATCHING STUDY

Kwangsoon Kim
The Catholic University of Korea, Department Of Surgery, Seoul, Korea, Republic of

Background and Aims: Papillary thyroid cancer (PTC) is often found with multifocal disease, which has been reported to be associated with aggressive features and less favorable prognosis. The aim of this study was to compare the clinicopathologic characteristics of bilateral PTC and unilateral-multifocal PTC and identify predictors of recurrence.
Methods: The medical records of 1745 patients with multifocal PTC who received surgical treatment at Seoul St. Mary's Hospital were retrospectively reviewed. The clinicopathological characteristics and recurrence rates were compared based on the cancer laterality. 371 patients who received total thyroidectomy were matched to investigate recurrence risk and disease-free survival (DFS). The average duration of follow-up was 105.4±22.2 months (range 55-139).
Results: Before propensity score matching (PSM), there was no difference in recurrence rate between the bilateral and the unilateral-multifocal groups. Cancer laterality was not a predictor of DFS on Cox regression analyses. After PSM, however, unilateral-multifocality was associated with significantly increased risk of recurrence (HR 2.664; p=0.018). Similarly, unilateral-multifocality showed significantly poorer DFS on the Kaplan–Meier analysis (p=0.014).
Conclusions: Unilateral-multifocality is associated with poorer clinical outcome compared to bilaterality. Our findings suggest that unilateral-multifocal PTC should be treated with total thyroidectomy with lymph node dissection for local disease control. A thorough preoperative investigation should be performed to detect multifocality before initial surgical intervention for optimal treatment.

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PD010 / #1051

E-Poster Discussion
E-POSTER DISCUSSION: THYROID 01
01-03-2024 09:40 - 10:00

A COMPREHENSIVE META-ANALYSIS IDENTIFIED NEW HUB GENES THAT ARE ASSOCIATED WITH PAPILLARY THYROID CARCINOMA USING A CORRELATION NETWORK APPROACH

Zahra Jafari[1], Seyed-Morteza Javadirad[2]
[1]University of Isfahan, Department Of Cell And Molecular Biology And Microbiology, Faculty Of Biological Science And Technology, Isfahan, Iran, [2]University of Isfahan,, Department Of Cell And Molecular Biology And Microbiology, Faculty Of Biological Science And Technology, Isfahan, Iran

Background and Aims: Thyroid cancer is a type of endocrine cancer that can be classified into four types, with papillary thyroid carcinoma (PTC) appearing to be the most common. The precise genetic factors responsible for thyroid cancer remain unidentified. Kinetochore Associated 1 (KIAA0166) encodes a protein that actively participates in the segregation of chromosomes during cell division. The current study aims to evaluate the KIAA0166 gene expression in PTC patients. It also explores its potential correlation with cancer incidence.
Methods: Weighted gene co-expression network analysis (WGCNA) was performed to identify hub genes. A microarray meta-analysis of 127 PTC and adjacent healthy tissue was used to evaluate the differential expression of hub genes. Meta-data was normalized, principal component analysis (PCA) was applied to identify outliers, and differential expression was assessed with Limma. RT-qPCR was used to quantify the expression of mRNA after RNA extraction and cDNA synthesis in 10 normal tissues and 10 PTC tissues.
Results: WGCNA identified five hub genes, and our comprehensive bioinformatics analysis confirmed that KIAA0166 had the most significant upregulation pattern in PTC patients (logFC=1.017, adj.p.val = 3.087e-13). PTC and adjacent normal tissues showed significant upregulation of KIAA0166 expression by RT-qPCR (logFC=1.378, p.val = 0.021).
Conclusions: PTC tissues show a marked elevation in the expression of the KIAA0166 gene, and this elevation is related to PTC prevalence.

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E-Poster Discussion
E-POSTER DISCUSSION: THYROID 01
01-03-2024 09:40 - 10:00

EFFECT OF TWO NOVEL TYROSINE KINASE INHIBITORS (CLM29 AND CLM3) IN PRIMARY ANAPLASTIC THYROID CANCER CELLS, OBTAINED BOTH FROM BIOPSY, OR FINE-NEEDLE ASPIRATION CITOLOGY.

Silvia Martina Ferrari[1], Giusy Elia[2], Francesca Ragusa[2], Eugenia Balestri[2], Chiara Botrini[2], Armando Patrizio[3], Valeria Mazzi[2], Gabriele Materazzi[2], Alessandro Antonelli[2], Concettina La Motta[4], Poupak Fallahi[5]
[1]University of Pisa, Department Of Clinical And Experimental Medicine, Pisa, Italy, [2]University of Pisa, Department Of Surgical, Medical And Molecular Pathology And Critical Area, Pisa, Italy, [3]Azienda Ospedaliero-Universitaria Pisana, Department Of Emergency Medicine, Pisa, Italy, [4]University of Pisa, Department Of Pharmacy, Pisa, Italy, [5]University of Pisa, Department Of Translational Research And Of New Technologies In Medicine And Surgery, Pisa, Italy

Background and Aims: Background and aims: Anaplastic thyroid carcinoma (ATC) is a rare and fatal human cancer. Nowadays, its treatment consists of a multimodal protocol of surgery, chemotherapy and hyperfractionated accelerated external beam radiotherapy, leading to a median patient survival of 6-10 months. A major advance in the management of this fatal disease would be the identification of an effective systemic treatment. Testing the sensitivity to different drugs in primary cell cultures from ATC (pATC), obtained from each patient, could improve the treatment efficacy avoiding the administration of inactive therapeutics and potentially dangerous adverse effects. In this study we aimed to evaluate the antineoplastic effect of two novel “pyrazolo[3,4-d]pyrimidine” compounds (CLM3, CLM29) in pATC, obtained both from biopsy (biop-pATC) and fine-needle aspiration citology (FNA-pATC).
Methods: We tested the antiproliferative effect of these drugs on pATC established from 6 patients. The concentrations of the compounds used in the in vitro experiments were 1, 5, 10, 30, 50, 100 mcM for CLM3 and 5, 10, 30, 50 mcM for CLM29.
Results: In both FNA-pATC and biop-pATC, we observed a significant reduction of proliferation with respect to the control with CLM29, and a slight but significant reduction with CLM3. The tested compounds increased dose-dependently the percentage of apoptosis either in FNA-pATC or biop-pATC. No significant differences were reported about sensitivity to CLM29 or CLM3 between the tested ATC cells from FNA, or biopsy.
Conclusions: Our data showed that CLM29 and CLM3 were able to reduce cell growth as well as to increase apoptosis in primary human ATC cells. A similar sensitivity to the tyrosine kinase inhibitors (TKIs) CLM3 and CLM29 was shown for both primary cells obtained by FNA and from biopsy. The possibility to test the sensitivity to different TKIs in each patient could open the way to personalized treatments, avoiding the administration of ineffective, and potentially dangerous, drugs.

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PD012 / #631

E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 01
01-03-2024 09:40 - 10:00

PHYSIOTHERAPY TRAINING AND EDUCATION PRIOR TO ELECTIVE CAESAREAN SECTION AND ITS IMPACT ON POST-NATAL QUALITY OF LIFE: A SECONDARY ANALYSIS OF A RANDOMIZED CONTROLLED TRIAL

Kalani Weerasinghe[1], Mohamed Rishard[2], Subhani Brabaharan[2], Yasaswi Walpita[3]
[1]The Faculty of Medicine, University of Colombo, No. 25, Kynsey Road, Colombo 8, Sri Lanka., Health And Wellness Unit, Colombo, Sri Lanka, [2]The Faculty of Medicine, University of Colombo, No. 25, Kynsey Road, Colombo 8, Sri Lanka., Department Of Obstetrics And Gynecology, Colombo, Sri Lanka, [3]The Faculty of Medicine, University of Colombo, No. 25, Kynsey Road, Colombo 8, Sri Lanka., Department Of Community Medicine, Colombo, Sri Lanka

Background and Aims: Caesarean section (CS) is associated with numerous complications that lead to the delayed return to functional activities that have a negative influence on the post-natal quality of life (QOL). It is evident that providing regular evidence-based physiotherapy training and education prior to elective CS helps to enhance the post-natal QOL by improving physical, mental, social, and general well-being. The purpose of this study was to examine the effectiveness of physiotherapy training and education prior to elective CS on post-natal QOL.
Methods: This single-blind parallel randomized controlled study was carried out at De Soysa Hospital for Women (DSHW), Colombo. The study enrolled 54 women who were scheduled to undergo elective CS. The intervention group (n = 27) of women received physiotherapy training and education, while the control group (n = 27) received standard nursing care. In addition to the primary outcome measures, post-natal QOL was measured. The results were examined using descriptive statistics and the independent samples t-test in IBM SPSS 20.
Results: The intervention group showed a higher post-natal QOL for the domains of physical function, role limitation due to physical health, energy/fatigue, and pain than the control group ($p < 0.05$).
Conclusions: Physiotherapy training and education prior to elective CS play a pivotal role in improving the physical health-related domains of QOL following CS. Trial Registration: SLCTR/2019/029-APPL/2019/028; Registered on 6th of September 2019

PD013 / #1057

E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 01
01-03-2024 09:40 - 10:00

BREAKING BARRIERS: NEED FOR MULTIDISCIPLINARY CARE CENTERS TO ADDRESS CHALLENGES FACED BY CHILDREN WITH DIFFERENCES IN SEX DEVELOPMENT

Sumudu Seneviratne, Jananie Jayasinghe, Sathee Hewakuruppu, Indumini Sandalika, Chamath Jayakody
Faculty of Medicine, University of Colombo, Paediatrics, Colombo, Sri Lanka

Background and Aims: The management of differences in sex development (DSD) in children is challenging due to the intricate, multifaceted, and individualized nature of the condition. This complexity is further compounded by the specific socio-cultural attitudes prevalent in the South Asian context, along with scarcity of available data. The present study underscores the imperative need for the establishment of a Multidisciplinary Care Center (MCC) aimed at addressing the myriad challenges faced by individuals affected by DSD and mitigating existing gaps in the provision of comprehensive care. This study aimed to review data from a university clinic-based electronic-patient registry, to identifying the medical, psycho-socio-cultural challenges encountered by children with DSD, and evaluate of the potential advantages of an MCC as a centralized, specialized service hub designed to facilitate and promote improved health outcomes
Methods: Data from an electronic patient-registry of young people with DSD managed between 1999-2022, at the University of Colombo Professorial Unit-Pediatric Endocrinology clinic, Lady Ridgeway Hospital for children were analyzed with ethical approval (EC-18-092).
Results: This study included 119 patients with DSD (mean age:13 years, range: 2-24 years) from Sri Lanka. Of them, 10.9% were born from consanguineous marriages. The study population consisted of individuals with different conditions: CAH (36.97%), XX DSD (4.20%), XY DSD (40.33%), Chromosomal DSD (2.5%), and Turner syndrome (10.9%). 89.9% of patients received medical management, and 59.7% underwent genital surgery. Disclosure of underlying condition was done in 47.9% of patients, at a mean age of 12 years. Gender dysphoria was suspected in 21.2% of patients screened, and puberty related problems in 52.1% of patients. In the context of legal aid, 10.9% required a name/gender change in their birth certificate, and 4 patients were able to obtain a clear birth certificate. MCC based clinic profiles were established for 58.8% of patients, and 6.7% were managed through multidisciplinary team meetings. 5.9% of patients are undergoing transitional care while 3.4% patients were transferred to adult care services.
Conclusions: Children with Disorders of Sex Development (DSD) encounter substantial challenges. Establishing a dedicated Multidisciplinary Care Center (MCC) could serve as an effective approach to address these challenges comprehensively. Such a center could offer transitional care services, crucial psychosocial support, legal assistance, and enhanced coordination of care. These provisions are particularly vital for the relatively small population of affected patients who require highly specialized care to facilitate an improved quality of life.

PD014 / #757

E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 01
01-03-2024 09:40 - 10:00

COMPREHENSIVE APPROACH TO MALE FACTOR INFERTILITY ALLOWS DEFINING THE DIAGNOSIS AND RESTORING NATURAL FERTILITY

Giuseppe Grande[1], Andrea Garolla[1], Andrea Graziani[1], Anna Laura Astorri[2], Annamaria Merola[3], Maria Pia Ambrosini[4], Enrico Busato[5], Giuseppina Pompa[2], Domenico Milardi[2], Alberto Ferlin[1]
[1]University of Padua, Andrology And Reproductive Medicine Unit, Padua, Italy, [2]Fondazione Policlinico Universitario "Agostino Gemelli" Scientific Hospitalization and Treatment Institute (IRCCS), Centre For Natural Reproductive Medicine “isi - Paul Vi”, Division Of Endocrinology, Rome, Italy, [3]Fondazione Policlinico Universitario "Agostino Gemelli" Scientific Hospitalization and Treatment Institute (IRCCS), Department Of Women's, Children's And Public Health Sciences, Rome, Italy, [4]Clinical Centre “St. Joseph”, N/a, Lucrezia di Cartoceto (PU), Italy, [5]Ca' Foncello Hospital, Obstetrics And Gynaecology Department, Treviso, Italy

Background and Aims: Several clinical conditions associated with male factor infertility may benefit of medical treatment, aimed to improve seminal parameters and restore natural fertility. However, 30-50% of male patients with infertility and reduction in semen parameters are classified as affected by “idiopathic infertility” and often directly addressed to ART. It has been demonstrated that approximately 15% of couples still undergo ART without any previously andrological evaluation in the real-life setting.
Methods: We performed a restrospective multicentric study in couples seeking natural fertility, aimed to analyze the impact of diagnosis and medical treatment of infertility on pregnancy rate; we moreover analyzed in details the population of couples with isolated male factor in order to have detailed information on how defining the diagnosis may impact in restoring natural fertility.
Results: A male factor has been demonstrated in 23% and in 45% of the couples respectively alone and associated with female factor. Idiopathic infertility was reported in 8% of the couples (Fig1). Figure 2 reports the pregnancy rate stratified for the age of the woman. 29% of the couples experienced a failure in previous IVF/ICSI cycles (mean 2.3 cycles per couple). 36% of these couples obtained a natural conception after ethiological treatment of infertility. We studied in detail the 233 couples in which a female factor has been excluded. Normal semen parameters were observed in 13% of patients, while different semen alterations were found in the remaining 87%. The relative prevence and the pregnancy rate for each group of patients, classified according to their diagnosis and treatment performed is reported in Figure 1.

Clinical condition	Treatment performed	Prevalence in the studied group (n; %)	Spontaneous pregnancy (n; %)
Abacterial or post-infective male accessory gland inflammation	Prednisone 25 mg daily for 1 month and antioxidants for 3 months	102 (48.8%)	18 (17.6%)
MAGI	Antibiotics followed - if inflammatory US signs were present after treatment - by prednisone + antioxidants	90 (43.1%)	43 (47.8%)

Hypospermatogenesis	FSH 150 UI for 3/week for 3 months	35 (16.7%)	6 (17.1%)
Varicocele	Varicocele repair surgery	4 (8.4%)	1 (25.0%)

Conclusions: Our data underline represents the first overall demonstration of the efficacy of a comprehensive approach to the diagnostic process of male infertility, both in reducing the percentage of idiopathic infertility and in restoring natural fertility based on a rationale treatment.

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PD015 / #818

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 02
01-03-2024 09:40 - 10:00

COMPARISON OF RENAL PROTECTIVE EFFECTS BETWEEN SGLT2 INHIBITORS AND DPP4 INHIBITORS IN TYPE 2 DIABETES IN REAL-WORLD CLINICAL PRACTICE

Hyeong-Kyu Park, Sang-Joon Park, Dong-Won Byun
SOONCHUNHYANG UNIVERSITY HOSPITAL, Internal Medicine, SEOUL, Korea, Republic of

Background and Aims: Recent prospective randomized studies have shown that sodium-glucose cotransporter 2 (SGLT2) inhibitors had renal protective effects compared to placebo in patients with type 2 diabetes (T2D). In this study, we compared the renal composite outcomes between patients with T2D treated with SGLT2 inhibitors and those treated with dipeptidyl peptidase 4 (DPP4) inhibitors using real-world clinical data.
Methods: This retrospective observational study used the Observational Medical Outcomes Partnership Common Data Model (OMOP-CDM) database at four different university hospitals (Soonchunhyang university hospitals in Seoul, Bucheon, Chunan, and Gumi) in Korea. Subjects prescribed SGLT2 inhibitors or DPP4 inhibitors for at least 90 days were included in the SGLT2 inhibitor or DPP4 inhibitor group, respectively. Subjects prescribed GLP-1 receptor agonist or insulin were excluded in both groups. Renal composite outcomes included a 30% decline in estimated glomerular filtration rate (eGFR) compared to baseline or creatinine doubling or dialysis or death from any cause.
Results: After propensity score matching, clinical characteristics in each group at each hospital were well balanced at baseline. Our results from hospitals in Seoul, Bucheon, and Gumi have shown that SGLT2 inhibitor decreased renal composite outcomes compared to DPP4 inhibitor (hazard ratio (HR) 0.644, $p=0.020$; HR 0.560, $p<0.001$; HR 0.657, $p=0.010$, respectively). Furthermore, when all the data were combined, renal composite outcomes were significantly lower in the SGLT2 inhibitor group compared to the DPP4 inhibitor group (HR 0.659, $p<0.001$).
Conclusions: In conclusion, SGLT2 inhibitors effectively reduce renal composite outcomes compared to DPP4 inhibitors in real-world clinical practice.

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PD016 / #1322

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 02
01-03-2024 09:40 - 10:00

INSULIN-SPARING EFFECTS OF ORAL SEMAGLUTIDE: AN ANALYSIS OF PIONEER 8

Haitham Seifeldin[1], Rahila Bhatti[2]
[1]Novo Nordisk, Medical Affairs, Dubai, United Arab Emirates, [2]Genesis Healthcare Centre, Diabetes & Endocrinology, Dubai, United Arab Emirates

Background and Aims: This post-hoc analysis of PIONEER 8 aimed to characterize the transition of adding a GLP-1RA to insulin therapy and to quantify reductions in total insulin dose seen with the addition of oral semaglutide.
Methods: The PIONEER 8 (NCT03021187) trial demonstrated significant glucose-lowering efficacy of oral semaglutide vs. placebo (pbo) in patients (pts) with T2D inadequately controlled with insulin. Additionally, those assigned to oral semaglutide (7 or 14 mg daily) had a lower total daily insulin dose at end of treatment (week 52) relative to baseline, vs. those treated with pbo, suggesting an insulin-sparing effect.
Results: Total daily insulin was not to exceed pre-randomization dose between weeks 8 and 26 but was freely adjustable at the investigator's discretion from week 26 to 52. For all doses of oral semaglutide, a greater proportion of pts were able to maintain a greater level of insulin dose reduction vs. pbo at week 26 (Figure) . Greater proportions of pts on oral semaglutide 3, 7, and 14 mg achieved ≥20% reductions in insulin vs. those in the pbo group at both weeks 26 and 52 (Treatment policy estimand; 27.5%, 28.9%, 31.2% vs. 12.4% and 19.5%, 25.0%, 32.0% vs 5.7%, respectively; P<0.0 for all) .
Conclusions: Addition of oral semaglutide in pts with T2D permits a significant reduction in insulin dose, which may provide benefits (e.g. lower risk of hypoglycemia and weight gain) long-term.

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E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 02
01-03-2024 09:40 - 10:00

TYPE 2 DIABETOGENESIS CONTINUUM AND PHENOTYPES: INSULIN RESISTANCE, BETA CELL DYSFUNCTION, INFLAMMATORY AND METABOLIC BIOMARKER CORRELATIONS

Madhumati Vaishnav[1,2], Leena Lekkala[3], Kavitha Muniraj[3], Yug Garg[4], Reshma Bv[5], Sathyanarayana Srikanta[6], Vinaya Simha[7], Navakanta Bhat[8], Samatvam Diabetes Collaborative Study Group[9]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [4]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [5]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [6]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [7]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [8]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [9]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Further examination of insulin resistance, beta cell dysfunction, inflammatory and metabolic biomarker associations and correlations across the normal glucose tolerance to type 2 diabetes continuum and phenotypes [Dysglycemia Based Chronic Disease (DBCD) multimorbidity care model; American Association of Clinical Endocrinologists 2018].
Methods: Magnitude and correlates of insulin resistance, beta cell dysfunction and other inflammatory and metabolic biomarkers were evaluated in a large cohort of Asian Indian subjects across the type 2 diabetogenesis spectrum [Normal Glucose Tolerance (NGT), Prediabetes (PREDM) and Type 2 Diabetes (T2DM)], with additional Body Mass Index (BMI) stratification [Normal Weight (NW), Overweight (OW) and Obese (OB)]. Analyses included insulin resistance (HOMA IR), beta cell function (HOMA B%), glycated hemoglobin (HbA1c), glycated serum proteins (GSP) and other metabolic and inflammatory biomarkers.
Results: Normal reference ranges for insulin sensitivity and insulin secretion in our representative Asian Indian population were established (NGT+NW: “true healthy”). NGT+OW and NGT+OB subjects exhibited increased prevalence of insulin resistance (25 to 37%) and compensatory hyperinsulinemia (11 to 21%) (Table 1, Figure1). T2DM+NW, T2DM+OW and T2DM+OB subjects demonstrated higher (BMI corrected) prevalence of insulin resistance (17 to 49%) and progressive beta cell failure (44 to 60%). HOMA2 IR and HOMA2 %B displayed significant and informative correlations with various metabolic and inflammatory biomarkers, beginning at the NGT stage itself (Figure 2). For specific biomarkers (HbA1c, GSP, hs-CRP, serum iron and %trans saturation and atherogenic lipid profile), these correlations were qualitatively / quantitatively diabetogenesis stage (NGT versus T2DM) dependent.
Conclusions: Multiple metabolic and inflammatory biomarker abnormalities, and pathogenetically relevant correlations, prevail even in the NGT– “euglycemia” stage of type 2 diabetogenesis, mainly driven by insulin resistance, beta-cell dysfunction and subclinical inflammation. Future in-depth phenotype ("Diabetome" and “Diabetomics”) and genotype characterisation can facilitate “precision, personalised, predictive and preventive” medicine for type 2 diabetes. Table 1: Prevalence of insulin resistance, compensatory hyperinsulinemia and beta cell failure (severe). (T2DM BMI Strata: Prevalence BMI corrected).

Prevalence	Insulin Resistance			Hyperinsulinemia (Compensatory)		Beta Cell Failure (Severe)	
	HOMA1 IR	HOMA2 IR	HOMA2 %S	HOMA1 B%	HOMA2 B%	HOMA1 B%	HOMA2 B%
	> 95th %ile	> 95th %ile	< 5th %ile	> 95th %ile	> 95th %ile	< 5th %ile	< 5th %ile
NGT+NW	5%	5%	5%	5%	5%	5%	5%
NGT+OW	25%	25%	25%	11%	14%	0%	0%
NGT+OB	32%	37%	37%	16%	21%	0%	0%
T2DM+NW	46%	19%	19%	0%	2%	52%	60%
T2DM+OW	31%	17%	17%	0%	0%	44%	60%
T2DM+OB	49%	25%	25%	0%	0%	46%	54%

Figure 1: Insulin Resistance and Beta Cell Dysfunction NGT to T2DM Continuum: HOMA1 IR, HOMA2 IR, HOMA2 S%, Beta Cell Dysfunction.

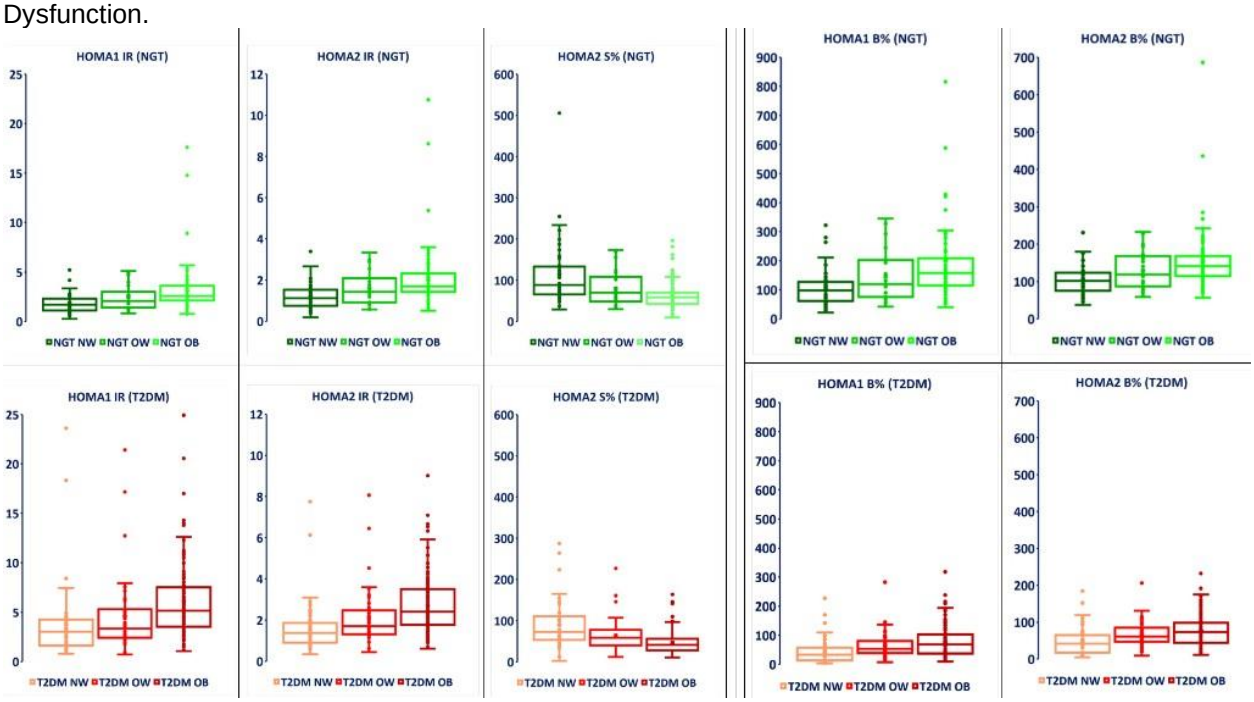
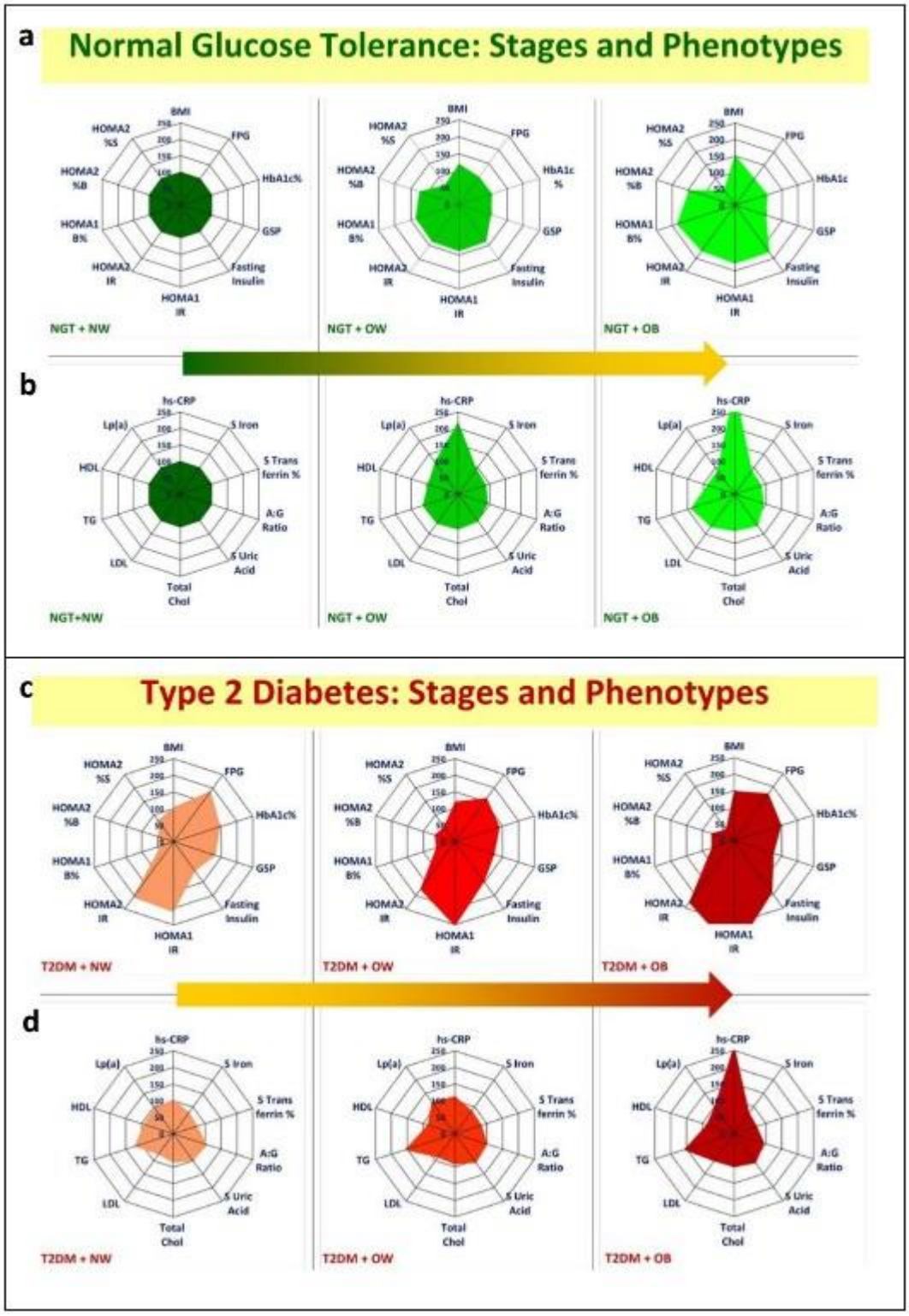


Figure 2: (a and b) Normal Glucose Tolerance and (c and d) Type 2 Diabetes: Stages and Phenotypes (Radar/Spider Plots; 100% circular lines representing normal reference ranges of each parameter). NGT+NW, NGT+OW and NGT+OB and T2DM+NW, T2DM+OW and T2DM+OB. Panels (a,c): Insulin

resistance and beta cell dysfunction. Panels (b,d): Metabolic and inflammatory



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E-Poster Discussion
E-POSTER DISCUSSION: ADRENAL 01
02-03-2024 09:40 - 10:00

AGRESSIVE BILATERAL ADRENAL LYMPHOMAS : ABOUT THREE CASE REPORTS

Oumayma Zarrouk, Anis Grassa, Sana Abid, Ines Bayar, Ekram Hajji, Bilel Ben Amor, Hanene Sayadi, Hela Marmouch, Ines Khochtali
University Hospital Fattouma Bourguiba, Endocrinology And Internal Medicine Department, Monastir, Tunisia

Background and Aims: Primary adrenal lymphomas(PAL)are extremely rare and constitute0.5% of all adrenal tumors.The number of cases described is approximately70 cases and It is bilaterally manifested in approximately70% of cases.The diagnosis is made on histological features,as there is no specific symptoms.Treatement is based on chemotherapy and prognosis is usually poor.
Methods: A descriptive study that included three patients with bilateral adrenal lymphoma.
Results: First case:A 63-year-old woman,admitted for exploration of bilateral adrenal tumors discovered on CT-Scan requested after a 3 week history of asthenia,weight loss,vomiting and abdominal pain.Her medical history comprised hypertension and stroke.Clinical examination revealed no signs of hypersecretion.Biology showed elevated lactate deshydrogenase(LDH)(2times upper normal)and β-2 microglobulin levels(2.6times upper normal).On imaging,there was large adrenal masses measuring 7cm on the right and 9cm on the left side with 32UH of spontaneous density and signs of vascular infiltration.CT-guided biopsy concluded on diffuse large B-cell lymphoma.Chemotherapy treatment was decided.Unfortunately,the patient died before starting treatement. Second case:A 52-year-old man,with a medical history of diabetes mellitus,was admitted for exploration of a deterioration of general condition. Adrenal insufficiency was confirmed by low cortisol level and required hydrocortisone replacement therapy.β-2microglobulin level was elevated (1.75times upper normal).Abdominal CT-scan revealed 2adrenal tumors measuring 7cm on the right and 3cm on the left side with a spontaneous density of 35UH with locoregional invasion(greater curvature of the stomach,tail of pancreas,spleen).The biopsy had shown a diffuse large B-cell lymphoma.The patient is under chemotherapy treatment. Third case:A 54-year-old man was admitted for exploration of bilateral adrenal masses associated with bone pain and general deterioration of health.An abdominal CT scan,done a few days before admission,revealed a 5cm left adrenal mass and a 2cm right adrenal mass of positive density with absolute and relative washout<60% and 40%respectively,associated with a 13mm exophytic right mediolobar renal mass of malignant appearance.Adrenal insufficiency was excluded.Urinary fractionated metanephrines level was normal.Beta-2microglobulin was elevated(1.69times the normal range)and AFP was increased(1.9times the normal range)with a minor rise in LDH.A full body CT scan revealed an increase in tumors volume (8cm on the left;5cm on the right side),several bone metastasis(skull,humerus and scapula),brain metastasis with intra-orbital extension,optic nerve compression,invasion of the sphenoid,the maxillary and cavernous sinus.We also found multiple necrotic thyroid nodules,liver hemangioma and renal lymph nodes.The biopsy of a brain metastase had shown diffuse large B-cell lymphoma and the patient was referred to start chemotherapy.
Conclusions: The prognosis of PAL is usually poor,it grows progressively throughout the adrenal glands.Thus early diagnosis and treatment is the key to saving patients.

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PD019 / #1340

E-Poster Discussion
E-POSTER DISCUSSION: ADRENAL 01
02-03-2024 09:40 - 10:00

A RARE MANIFESTATION OF A RARE DISEASE: ECTOPIC ACTH SYNDROME SECONDARY TO OLFACTORY NEUROBLASTOMA

V Vinitharan[1], Shahini Winson Gnanathayalan[1], Salika Karunanayaka[2], Minuri Fernando[1], Uditha Bulugahapitiya[1]
[1]National Hospital of Sri Lanka, Diabetes And Endocrinology Unit, Colombo, Sri Lanka, [2]National Hospital of Sri Lanka, Neurology Unit, Colombo, Sri Lanka

Background and Aims: Olfactory Neuroblastoma (ON) is a rare malignant neuroendocrine tumour. It is very rarely reported to cause Ectopic ACTH Syndrome (EAS). Here, we report a case of EAS secondary to ON.
Methods: A 40-year-old lady presented with right sided focal seizures complicated with status epilepticus. She was diagnosed with Diabetes Mellitus with severe hyperglycaemia three weeks prior to this admission and started on insulin therapy. Blood sugar was normal on admission. Investigations revealed severe hypokalaemia (1.8 mmol/L). MRI brain showed no focal lesions explaining the seizures but there was mucosal thickening in the paranasal sinuses. Other electrolytes and screening for infections were normal. She didn't have obvious clinical features of Cushing syndrome except generalized monomorphic acne. Also, she denied local nasal symptoms.
Results: ACTH dependant Cushing syndrome was confirmed biochemically with very high cortisol burden of more than 2000nmol/L (ODST 820 nmol/L, ACTH 38 pg/ml). MRI pituitary was normal. CECT Chest, Abdomen and Pelvis showed only enlarged adrenal glands. Bilateral IPSS and PET/CT were parallelly arranged. PET/CT revealed FDG avid nasal polyp. After 2 weeks of the presentation, while awaiting IPSS, potassium and cortisol burden returned to normal. As ODST also came back to normal, IPSS was abandoned. Histology of nasal polyp revealed olfactory neuroblastoma (Hyams Grade 11) with strong cytoplasmic positivity for synaptophysin, ACTH and Chromogranin A. Staging imaging with MRI brain with sinuses and orbits confirmed stage C tumour with extension into ethmoid sinuses and part of the brain. She underwent endoscopic resection of the tumour followed by chemoradiotherapy and awaiting the repeat imaging. This presentation may explain the possible cyclical nature of EAS. She is under surveillance for the possible recurrence of Cushing syndrome. Neurological presentation with seizures is thought to be due to either invasion of the tumour into brain or a paraneoplastic manifestation because seizures has not been reported even with very severe hypokalaemia.
Conclusions: In case of EAS, we should look beyond the thoracoabdominal region including sino-nasal cavity to find out the source. Long term follow-up after resection is required to detect the recurrence of tumour as well as Cushing syndrome.

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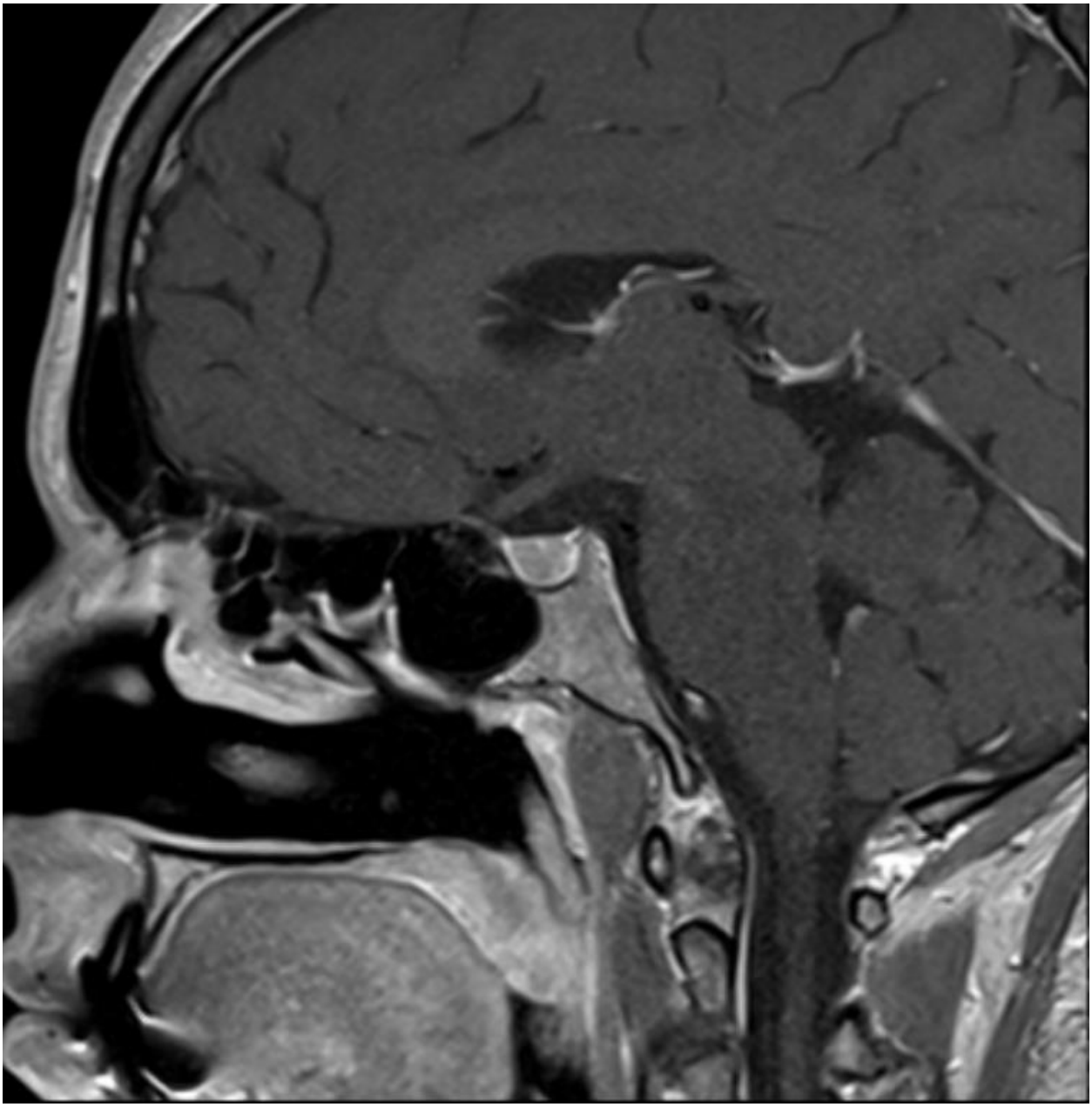
PD020 / #1413

E-Poster Discussion
E-POSTER DISCUSSION: ADRENAL 01
02-03-2024 09:40 - 10:00

ECTOPIC GHRH SECRETION FROM ACC (ADRENOCORTICAL CARCINOMA): A CASE REPORT

Wania Rafaey, Waqas Shafiq, Ahmed Imran Siddiqi
Shaukat Khanum Memorial Cancer Hospital and Research Centre, Internal Medicine, Lahore, Pakistan

Background and Aims: Ectopic acromegaly is a rare condition (less than 1% of acromegaly patients). It is almost always due to extra-pituitary GHRH secretion, mainly from neuroendocrine tumors of pancreatic or bronchial origin. This would be the first reported case (to the best of our knowledge)of Ectopic GHRH secretion from Adrenocortical carcinoma in literature.
Methods: CASE PRESENTATION: A 37-year-old female presented to the clinic with complaints of raised BP and clinical features of acromegaly.Blood workup revealed raised IGF-1 of 391ng/mL (63-223) and raised morning cortisol level of 18ug/dL. Rest of the pituitary hormones were in the normal range. MRI brain showed pituitary hyperplasia with central pituitary stalk.MRI Brain findings could not explain the likely cause of raised IGF-1 and cortisol. To investigate further to find the cause of raised cortisol and IGF-1, CT abdomen was done that showed large right adrenal mass of 4.1cm. Cortisol level failed to supress with overnight dexamethasone suppression test,favouring adrenal to be the cause of raised cortisol. Rest of the adrenal hormones were in the normal range. GHRH could not be checked due to non-availability in our country.She got right adrenalectomy done. Histopathology revealed Adrenocortical carcinoma with a WEISS score of 3. When she came to the clinic four weeks after surgery, her facial features were improved, hands, and feet size were reduced. IGF-1 level was reduced to 267ng/mL. Four months after surgery, IGF-1 level came out to be in the normal range of 127ng/mL <-129<-267 without any pituitary intervention. Her shoe size was reduced from 9 to 7, her facial features of acromegaly completely regressed, the size of her hands and feet reduced to as before, and excessive sweating and menorrhagia settled. BMI was reduced to be in the normal range. BP was maintained in the normal range without any medication. Repeat MRI Brain showed interval regression in the size of the bulky pituitary gland from 14x13x9mm (Image 1) to 13x12x7.5mm (Image 2) without pituitary surgery. Hence, there was ectopic secretion of GHRH from an adrenal tumor, causing raised IGF-1,pituitary hyperplasia and clinical features of acromegaly. Therefore, clinical features of acromegaly resolved after adrenalectomy- site of ectopic secretion of GHRH in this novel case.
Results:



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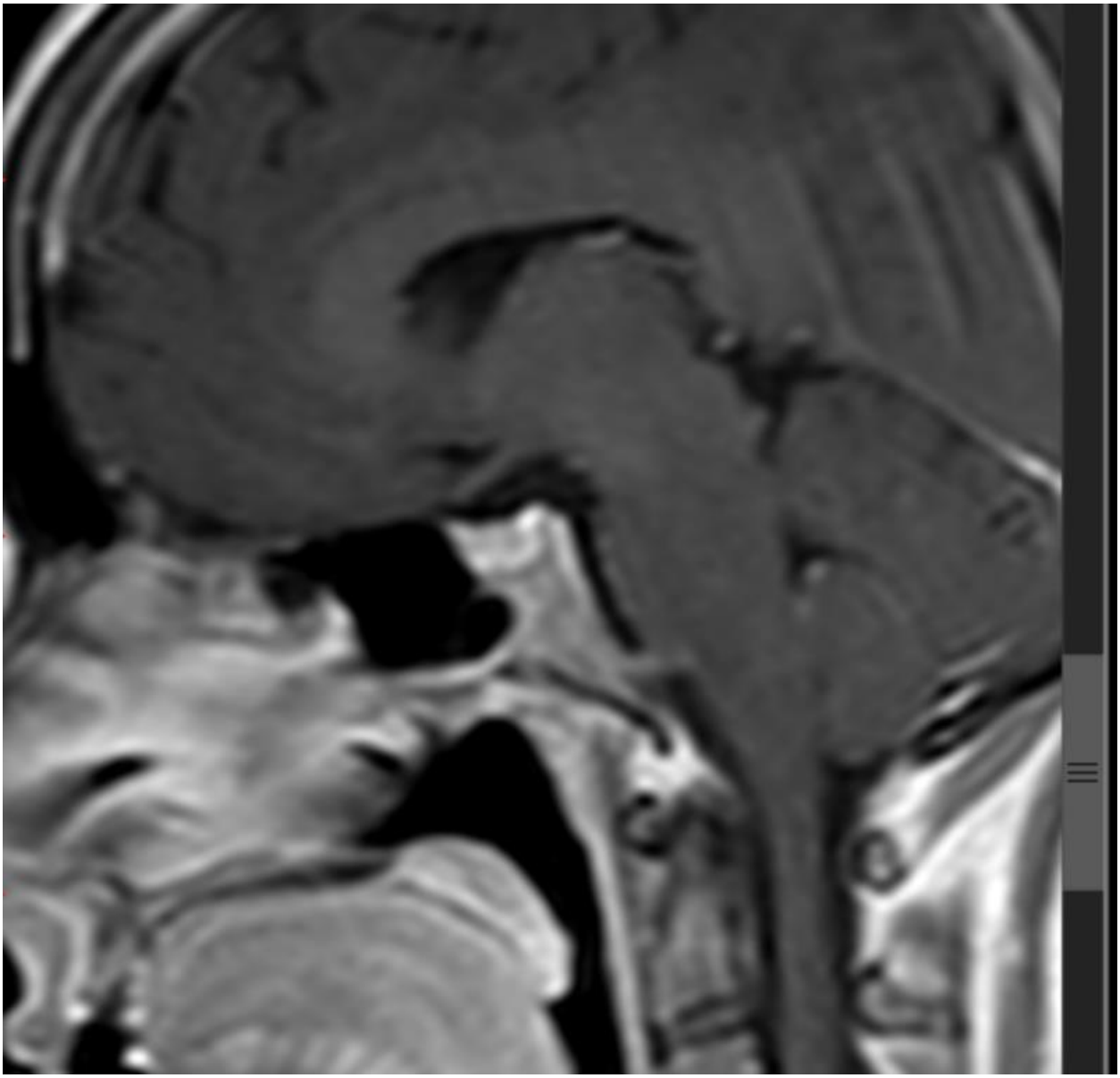

Image 2

Conclusions: -Ectopic secretion of GHRH can occur from adrenal tumors.In case of more than one raised hormones, following diagnostic pathways properly for assessing patients can lead to diagnose even rare conditions.

PD021 / #28

E-Poster Discussion
E-POSTER DISCUSSION: BONE 01
02-03-2024 09:40 - 10:00

BONE MICROARCHITECTURE AND ESTIMATED FAILURE LOAD ARE DETERIORATED WHETHER PATIENTS WITH CHRONIC KIDNEY DISEASE HAVE NORMAL BONE MINERAL DENSITY, OSTEOPENIA OR OSTEOPOROSIS

Ali Ghasem-Zadeh[1], Minh Bui[2], Cherie Chiang[1], Ego Seeman[3]
[1]University of Melbourne, Endocrinology And Medicine, Heidelberg, Australia, [2]University of Melbourne, Centre For Epidemiology And Biostatistics, Melbourne School Of Population And Global Health,, Melbourne, Australia, [3]University of Melbourne, Endocrinology And Medicine, Melbourne, Australia

Background and Aims: Introduction: Measurement of bone mineral density (BMD) is recommended in patients with chronic kidney
disease (CKD). However, most persons in the community and most patients with CKD have osteopenia, suggesting
fracture risk is low. Bone loss compromises bone microarchitecture which increases fragility disproportionate
to modest deficits in BMD. We therefore hypothesized that patients with CKD have reduced estimated failure load due to deterioration in microarchitecture irrespective of whether they have normal femoral neck
(FN) BMD, osteopenia or osteoporosis.
Methods: We measured distal tibial and distal radial microarchitecture in 128 patients with CKD and 275 age- and
sex-matched controls using high resolution peripheral quantitative computed tomography, FN-BMD using bone
densitometry and estimated failure load at the distal appendicular sites using finite element analysis.
Results: Patients versus controls respectively had: lower tibial cortical area 219 (40.7) vs. 237 (35.3) mm^2, p =
0.002, lower cortical volumetric BMD 543 (80.7) vs. 642 (81.7) $mgHA/cm^3$ due to higher porosity 69.6 (6.19) vs.
61.9 (6.48)% and lower matrix mineral density 64.2 (0.62) vs. 65.1 (1.28)%, lower trabecular vBMD 92.2 (41.1)
vs. 149 (43.0) $mgHA/cm^3$ due to fewer and spatially disrupted trabeculae, lower FN-BMD 0.78 (0.12) vs. 0.94
(0.14) g/cm^2 and reduced estimated failure load 3825 (1152) vs. 5778 (1467) N, all $p < 0.001$. Deterioration in
microarchitecture and estimated failure load was most severe in patients and controls with osteoporosis. Patients
with CKD with osteopenia and normal FN-BMD had more deteriorated tibial microarchitecture and estimated
failure load than controls with BMD in the same category. In univariate analyses, microarchitecture and FN-BMD
were both associated with estimated failure load. In multivariable analyses, only microarchitecture was independently
associated with estimated failure load and accounted for 87% of the variance.
Conclusions: Bone fragility is likely to be present in patients with CKD despite them having osteopenia

or normal
BMD. Measuring microarchitecture may assist in targeting therapy to those at risk of fracture.

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PD022 / #842

E-Poster Discussion
E-POSTER DISCUSSION: BONE 01
02-03-2024 09:40 - 10:00

HISTOLOGICAL STUDY UNVEILING THE FRAGILE CORE: TRABECULAR BONE DETERIORATION IN TYPE 2 DIABETES MELLITUS

Mouza Alaleeli, Suneesh Kaimala, Sahar Mohsin
United Arab Emirates University, Department Of Anatomy, College Of Medicine And Health Sciences, Al Ain, United Arab Emirates

Background and Aims: Individuals with Type 2 diabetes mellitus (T2DM) are at a higher risk of experiencing fragility fractures compared to those without diabetes. however; the underlying mechanism is still elusive. The longer duration of T2DM has an adverse effect on the bone microstructure, indicating an increased bone fragility. The primary objective of this study was to characterize the trabecular bone microarchitecture of the femoral head in rats with T2DM employing histological techniques.
Methods: Three-month-old female Wistar rats were divided into control and T2DM groups. T2DM rats were fed with a high-calorie diet for 3 weeks followed by intraperitoneal injection of two lower doses of streptozotocin at weekly intervals. The rats were sacrificed after 8, 10 & 14 weeks of the onset of diabetes. The proximal end of the femur of each animal was used to study the trabecular measurements. The bones were fixed and decalcified prior to paraffin embedding. Then they were sectioned and stained with Masson's Trichrome stain. Trabecular bone volume (BV/TV), trabecular separation (Tb. Sp), trabecular thickness (Tb. Th), and trabecular number (Tb. N) were measured.
Results: It was found that there was a significant decrease ($p < 0.05$) in trabecular bone volume after 10 and 14 weeks of the onset of T2DM. For the trabecular separation, there was a significant ($p < 0.001$) increase in 14 weeks of the onset of T2DM, a non-significant increase in 10 weeks of the onset of T2DM, and no change in 8 weeks of the onset of T2DM. For the trabecular thickness, there was a significant ($p < 0.01$) decrease in 14 weeks of the onset of T2DM, a non-significant decrease in 10 weeks of the onset of T2DM, and no change in 8 weeks of the onset of T2DM. For the trabecular number, there was a significant ($p < 0.05$) decrease in 10 weeks of the onset of T2DM and a non-significant decrease in 8 and 14 weeks of the onset of T2DM.
Conclusions: The trabecular bone structure plays a crucial role in bone strength, and any adverse changes in this structure can increase the risk of fractures. The study's findings imply that individuals with T2DM may be at a higher risk of hip fractures due to these structural changes in their bones.
Acknowledgments: We fully acknowledge the support of the UAEU Program for Advanced Research (UPAR) 2022. Grant No. 12M138.

PD023 / #943

E-Poster Discussion
E-POSTER DISCUSSION: BONE 01
02-03-2024 09:40 - 10:00

IMPLEMENTATION OF FRACTURE LIAISON SERVICE (FLS) IN IRAN

Afshin Ostovar[1], Fatemeh Hajivalizadeh[2], Noushin Fahimfar[1], Mohammad Javad Mansourzadeh[1], Sepideh Hajivalizadeh[1], Abolfazl Bagherifard[3], Farid Najd Mazhar[3], Pouria Tabrizian[3], Mozhdeh Zabihiyeganeh[4], Nafiseh Abdollahi[5], Masoud Shayesteh Azar[6], Roghayeh Khazaeian[3], Hadis Ghajari[7], Mahbobeh Darman[2], Hamid Esmaeilzadeh[8], Mahnaz Sanjari[1], Kazem Khalagi[1], Elahe Hesari[1], Fariba Moradi Ardekani[9], Seyed Ali Hashemi[10], Bagher Larijani[11], Koorosh Etemad[12]
[1]Endocrinology and Metabolism Clinical Sciences Institute, Tehran university of medical science, Osteoporosis Research Center, Tehran, Iran, [2]Ministry of Health and Medical Education, Tehran, Iran, Center For Non-communicable Disease Control & Prevention, Deputy Of Public Health, Tehran, Iran, [3]Iran University of Medical Sciences, Bone And Joint Reconstruction Research Center, Shafa Yahyaeian Orthopedics Hospital, Tehran, Iran, [4]Iran University of Medical Sciences, Neuromusculoskeletal Research Center, Shafa Yahyaeian Orthopedics Hospital, Tehran, Iran, [5]Golestan University of Medical Sciences, Rheumatology Research Center, Sayyad Shirazi Hospital, Gorgan, Iran, [6]Mazandaran University of Medical Sciences, Orthopedic Research Center, Sari Imam Khomeini Hospital, Sari, Iran, [7]Shahid Beheshti University of Medical Sciences, Department Of Epidemiology, School Of Public Health And Safety,, Tehran, Iran, [8]University of Tehran, Department Of Physics, Tehran, Iran, [9]Shiraz University of Medical Sciences, Non-communicable Diseases Research Center, Shiraz, Iran, [10]Shiraz University of Medical Sciences, Bone And Joint Disease Research Center, Chamran Hospital, Shiraz University Of Medical Sciences, Shiraz, Iran, Shiraz, Iran, [11]Tehran University of Medical Sciences, Tehran, Iran., Endocrinology And Metabolism Research Center, Endocrinology And Metabolism Clinical Sciences Institute, Tehran, Iran, [12]Shahid Beheshti University of Medical Sciences, Department Of Epidemiology, School Of Public Health And Safety Safety Promotion And Injury Prevention Research Center, Tehran, Iran

Background and Aims: Osteoporosis has a remarkable burden on the health system, imposing an economic burden of 393.24 million US$ in Iran in 2020. Considering the higher risk of a second osteoporotic fracture after the first one, treatment initiation and monitoring are significant to prevent a second fracture. Following the Fracture Liaison Service (FLS) guideline, recommended by the International Osteoporosis Foundation (IOF), the program has been implemented in Iran since 2020, named “Osteopad”. We aim to report the setting up of the clinics and present the steps forward.
Methods: A team consisting of members from the Ministry of Health (MOH) and the Endocrinology and Metabolism Research Institute (EMRI), Tehran University of Medical Sciences, did a comprehensive literature review, expert panels, and interviews. Using the framework of the IOF protocol, the first national protocol for “Osteopod” clinics was compiled in 2019 according to Iran’s healthcare system, and the pilot phase of the program was started. Appropriate activities were designed for the program including patient identification, assessment of lifestyle risky behaviors, fall risk assessment, treatment initiation, referral system, patient education, monitoring and follow-up, etc. A specific software was designed for the best service management in Osteopod polyclinics (osteopod. ir). Each patient is followed up in determined time spans for events such as falls, new fractures, or death. The data platform in which information is entered provides a valuable database for researching on this momentous subject. EMRI holds national workshops and trains personnel for the best possible practice in the clinics. The expansion phase of this program to the whole country started after updating the national protocol as well as the software.
Results: Four Osteopod clinics have been established in the country so far. The first two FLS centers

were set up in tertiary hospitals in Tehran and Gorgan and are flagged in the map of best practice on the IOF website with silver and bronze medals, respectively. The third and fourth centers were recently set up in Sari and Shiraz, respectively. Till now more than 2400 [1622 (66.5%) women] cases have been registered in the program with the mean age of 65.6 years.

Conclusions: Based on the important impact of Osteoporosis on the health system, Osteopod clinics which follow four steps of identifying, investigating, initiating, and following up are implemented in Iran with the collaboration of MOH and EMRI. Since the pilot phase is successfully done, the expanding phase of the program is in process.

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PD024 / #1250

E-Poster Discussion
E-POSTER DISCUSSION: THYROID 02
02-03-2024 09:40 - 10:00

TRANSCRIPTOMIC PROFILING OF THE RESPONSE TO EXCESS IODIDE IN KEAP1 HYPOMORPHIC MICE REVEALS NEW GENE-ENVIRONMENT INTERACTIONS IN THYROIDAL HOMEOSTASIS

Panos Ziros[1], Dionysios Chartoumpekis[1], Georgios Psarias[1], Ilias Georgakopoulos-Soares[2], Gerasimos Sykiotis[1]
[1]Lausanne University Hospital, Endocrinology, Diabetology And Metabolism, Lausanne, Switzerland, [2]Penn State College of Medicine, Biochemistry And Molecular Biology, Hershey, United States of America

Background and Aims: Iodide plays a pivotal role in thyroid homeostasis due to its crucial involvement in thyroid hormone biosynthesis. Exposure to pharmacological doses of iodide elicits in the thyroid an autoregulatory response to preserve thyroid function, as well as an antioxidant response that is mediated by the Keap1/Nrf2 signaling pathway. Herein, we investigated the transcriptional response of the thyroid to excess iodide in a background of enhanced Nrf2 signaling.
Methods: Keap1 knockdown ($Keap1^{KD}$) mice that have activated Nrf2 signaling were exposed or not to excess iodide in their drinking water for seven days and compared to respective wild-type mice.
Results: RNA-sequencing of individual mouse thyroids identified distinct transcriptomic patterns in response to iodide, with $Keap1^{KD}$ mice showing an attenuated inflammatory response, altered thyroidal autoregulation, and enhanced cell growth/proliferative signaling, as confirmed also by Western blotting for key proteins involved in antioxidant, autoregulatory and proliferative responses.
Conclusions: These findings underscore novel gene-environment interactions between the activation status of the Keap1/Nrf2 antioxidant response system and the dietary iodide intake, which may have implications not only for the goiter phenotype of $Keap1^{KD}$ mice but also for humans harboring genetic variations in KEAP1 or NFE2L2 or treated with Nrf2-modulating drugs.

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PD025 / #1446

E-Poster Discussion
E-POSTER DISCUSSION: THYROID 02
02-03-2024 09:40 - 10:00

FAECAL MICROBIOTA COMPOSITION IN HASHIMOTO'S THYROIDITIS PATIENTS WITH DIFFERENT LEVOTHYROXINE REQUIREMENT

Camilla Virili[1], Silvia Capriello[1], Ilaria Stramazzo[1], Simone Filardo[2], Marisa Di Pietro[2], Rosa Sessa[2], Maria Flavia Bagaglini[1], Marco Centanni[1]
[1]"Sapienza" University of Rome, Medico-surgical Sciences And Biotechnologies, Latina, Italy, [2]"Sapienza" University of Rome, Department Of Public Health And Infectious Diseases, Rome, Italy

Background and Aims: Variation of gut microbiota composition has been described in patients with different thyroid disorders. Since bacteria possess enzymatic activities able to impact on key steps of the metabolic and catabolic processes of thyroxine, the aim of the present study was to check if patients with Hashimoto's thyroiditis showing different requirement of levothyroxine were characterized by different gut microbial composition.
Methods: We examined fecal samples of 48 euthyroid (TSH <0.8-2.5>mU/l) patients with Hashimoto's thyroiditis, subdivided in three groups: A) 13 patients not treated with LT4 (median age=52 years); B) 22 patients reaching target TSH with a dose of LT4 of 1.24 mg/kg/day (median age=49 years); C) 13 patients in need for a higher LT4 dose of 1.75 mg/kg weight/day (+35%;p=0.0001) to reach target TSH (median age= 56 years). All treated patients had been stably hypothyroid in need for LT4 treatment (TSH>10mU/ml); they all took LT4 in fasting condition, avoiding food and drugs interfering with LT4 absorption and action. Moreover, none of the included patients followed unbalanced diets, had disorders or used drugs interfering with fecal microbial composition. Microbiota composition was determined via 16s rRNA sequencing of the hypervariable region V3-4 on Illumina MiSeq. Alpha and beta-diversity indices and all statistical analysis were computed in QIIME 2.
Results: The gut microbiota of groups A and B showed a similar composition, while patients with refractoriness to L-T4 treatment (group C) showed a lower relative abundance of Firmicutes (66.58%) as compared to those in group A (76.8%, p=0.039) or in group B (80.8%,p=0.012). By contrast, patients of group C showed significantly increased Bacteroidetes (21.5%) as compared to both groups A and B (p=0.04), as well as significantly higher relative abundance of Proteobacteria (9.28 vs 2.89% p=0.04) as compared to patients with normal L-T4 absorption. By merging group A and B together, it appears that the ratio between Firmicutes and Bacteroidetes is more than doubled in patients with T4 refractoriness (3.05 to 6.28). Alpha-Diversity Analysis revealed that patients of group A showed higher Shannon's Diversity as well as Pielou's evenness indexes as compared to patients of group C. Beta-Diversity Analysis measured as weighted UniFrac showed a statistically significant clustering (A vs C; p=0.006 and B vs C; p=0.018).
Conclusions: This is the first analysis of fecal microbiota composition in patients with Hashimoto's thyroiditis with different levothyroxine need, showing that a peculiar microbial signature characterizes patients with higher levothyroxine requirement.

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PD026 / #445

E-Poster Discussion
E-POSTER DISCUSSION: THYROID 02
02-03-2024 09:40 - 10:00

ENDOCRINE-DISRUPTING POTENTIAL OF 3,3',5-TRIIODOTHYROACETIC ACID VIA COOPERATION OF NEGATIVE FEEDBACK AND HETEROGENOUS DISTRIBUTION

Ichiro Yamauchi[1], Takuro Hakata[1], Yohei Ueda[1], Taku Sugawa[1], Ryo Omagari[2], Yasuo Teramoto[2], Shoji F Nakayama[2], Daisuke Nakajima[2], Takuya Kubo[3], Nobuya Inagaki[4]
[1]Graduate School of Medicine, Kyoto University, Department Of Diabetes, Endocrinology And Nutrition, Kyoto, Japan, [2]National Institute for Environmental Studies, Health And Environmental Risk Division, Tsukuba, Japan, [3]Graduate School of Engineering, Kyoto University, Department Of Material Chemistry, Kyoto, Japan, [4]PIIF Tazuke-kofukai, Medical Research Institute Kitano Hospital, Osaka, Japan

Background and Aims: 3,3',5-triiodothyroacetic acid (TRIAC) is a metabolite of endogenous thyroid hormones (THs) that can bind to and activate TH receptors (THR). Meanwhile, our previous study highlighted TRIAC's potential as an endocrine-disrupting chemical (Environ Sci Technol. 2022; 56: 13709-13718): THR agonist activity in sewage effluent has been determined in multiple countries and we surprisingly identified TRIAC as the main contributor in Japanese environmental water. In this context, we aimed to investigate TRIAC's potential for endocrine disruption.
Methods: We administered either TRIAC or 3,3',5-triiodo-L-thyronine (LT3) via drinking water to euthyroid mice and 6-propyl-2-thiouracil-induced hypothyroid mice. TH actions was evaluated through growth curves and TH-responsive gene expressions. We visualized changes in the hypothalamus-pituitary-thyroid (HPT) axis as enlargement of the thyroid gland and follicular dysmorphology and further determined by thyroid function tests.
Results: We administered 0.1 μg/mL of either LT3 and TRIAC as a supplemental dose or 1 μg/mL as a high dose to euthyroid mice, but we unfortunately observed slight changes in their phenotypes. To increase the sensitivity for determining TH actions, we analyzed hypothyroid mice, which revealed that 0.1 μg/mL of TRIAC administration suppressed the HPT axis and upregulated TH-responsive genes in liver and heart. Interestingly, we observed that TRIAC administration did not upregulate the expression of TH-responsive genes in the cerebrum unlike LT3 administration. Measurement of TRIAC contents suggested that TRIAC was not efficiently trafficked into the cerebrum. We re-analyzed euthyroid mice with 1 μg/mL of TRIAC administration. Cerebral TRIAC contents did not increase despite TRIAC administration at the high dose, whereas serum levels and cerebral contents of T4 and T3 were decreased via a negative feedback loop through the HPT axis. Consequently, cerebral TH-responsive genes were certainly downregulated by TRIAC administration.
Conclusions: TRIAC administration decreased circulating TH levels by suppressing the HPT axis. Meanwhile, the consequent attenuation of TH actions was compensated by administered TRIAC in peripheral tissues but not in the cerebrum. Poor permeability across the blood–brain barrier of TRIAC caused this discrepancy. Thus, we verified that exogenous administration of TRIAC disrupts TH actions in the cerebrum. The disruptive mechanism is characterized as cooperation of depletion of circulating endogenous THs via negative feedback and heterogenous distribution of TRIAC among different organs. Although further epidemiological studies are required for determining the health impact to us, our findings indicate that TRIAC can pose a neurodevelopmental risk.

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PD027 / #1589

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 05
02-03-2024 09:40 - 10:00

PROGRESSION OF GESTATIONAL DIABETES TO TYPE 2 DIABETES MELLITUS: A PROSPECTIVE OBSERVATIONAL STUDY FROM A RESOURCE CONSTRAINT COUNTRY.

Mussarrat Riaz[1], Nazish Waris[1], Nazli Hossein[2]
[1]Baqai Institute of Diabetology and Endocrinology, Baqai Medical University, Karachi, Pakistan, [2]Dow university of Health Sciences, Gynaecology, Karachi, Pakistan

Background and Aims: Gestational Diabetes Mellitus (GDM) can have serious health consequences for the mother and baby both in the short and longer term. Although glucose dysregulation usually returns to normal shortly after delivery, women diagnosed with GDM have at least a ten-fold increased risk of developing type 2 diabetes mellitus (T2DM) in the future. Therefore, the aim of this study was to investigate long-term risk of T2DM following a diagnosis of gestational diabetes and to identify factors that are associated with increased risk of early progression to T2DM.
Methods: This prospective longitudinal study was conducted at Baqai Institute of Diabetology and Endocrinology (BIDE) and Dow University of Health Sciences (DUHS) from July 2019 to July 2023. Pregnant Women with the diagnosis of GDM by IADPSG criteria visiting outpatient department of BIDE and DUHS were recruited. Women were followed up for at least 03 years after delivery. Detail baseline demographic characteristics and anthropometric measurements were obtained on a pre-designed questionnaire through structured face-to-face interviews after taking informed written consent. Women were counselled about lifestyle modifications and medical nutrition therapy.Follow up about glycemic status were taken immediately after delivery, then at six monthly intervals for 3 years. Analyses were done using statistical package for social sciences (SPSS version 20.0).
Results: Total of 268 females with GDM was screened. Age of females of 25 and under was 11.7%, Between 26 to 35 was (76.6%) and 36 and over was (11.7%). Mean body mass index (kg/m2) was 31.33±6.85 mean systolic blood pressure (mm/Hg) was 118.38±14.34 and diastolic blood pressure (mm/Hg) was 79.05±9.39. Out of 268 women.12.5% had GDM at their 1st pregnancy. 14.6% of women had GDM at their 2nd pregnancy, 23.6% at 3rd pregnancy and 49.3% were multiparous at the time of diagnosis . Majority of women i.e 153(42%) had GDM diagnosed at 2nd trimester . 367(97.1%) women had livebirths and the rest had complications. 239(83.9%) women had their family history positive for of GDM .23% women developed T2DM with 3 years after having GDM, out of which 10.8% women developed T2DM with in a year after being diagnosed with GDM .An additional 15 % women were labelled as pre diabetic.
Conclusions: Women with gestational diabetes mellitus should be considered high risk for developing T2DM. Identifying risk factors for GDM highlights the importance of intervening to prevent the onset of T2DM, particularly in the early years after pregnancy.

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PD028 / #1585

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 05
02-03-2024 09:40 - 10:00

ASSOCIATION BETWEEN GLYCEMIC CONTROL WITH GLOMERULAR FILTRATION RATE IN TYPE 2 DIABETES MELLITUS PATIENTS AT A TERTIARY CARE HOSPITAL

Nazma Akter
MARKS Medical College & Hospital, Endocrinology, Dhaka, Bangladesh

Background and Aims: Background
Diabetes Mellitus (DM) is one of the major risk factors for chronic kidney disease (CKD). Decrease in GFR (Glomerular Filtration Rate) precedes all forms of kidney failure. Though specific, serum creatinine (SCr) may not exceed upper limit of reference range, until GFR is reduced by 60% of normal.Early detection allows enough time for diagnosis and treatment but requires explicit testing strategies for asymptomatic individuals at risk. Better glycemic control as reflected by lower hemoglobin A1c (HbA1c) level may prevent or slow progression of nephropathy in people with DM. AIM This study was designed to evaluate the association between HbA1c & eGFR in type 2 diabetes mellitus (DM) patients
Methods: This observational study was carried out among types 2 diabetes (T2DM) patients who attended an out-patient hormone & diabetic clinic at a tertiary care hospital in Dhaka, Bangladesh. Total 242 type 2 diabetes patients were recruited by random sampling. They were analyzed for S Creatinine and HbA1c. The eGFR was calculated by four variable Modification of Diet in Renal Disease (MDRD) equation using online calculator. Chronic kidney disease (CKD) categorized into five stages based on the eGFR. Patients were classified into 3 groups based on their HbA1c measurement during the study period: HbA1c level lower than 7% (good control); HbA1c level of 7% to 8.5%(Fair control); and HbA1c level greater than 8.5% (poor control).
Results: From total 242 patients, 52.9% were females. We identified 46.3% of the study subjects had an eGFR lower than 60.0 mL/min/1.73 m2 (stage 3-5). The mean HbA1c level was 9.36%. Among study subjects, 62.0% had an HbA1c value higher than 8.5%. Statistically significant positive correlation of HbA1c with S Creatinine values ($r = 0.178$; $p=0.005$) and negative correlation of HbA1c with eGFR values ($r = -0.253$; $p < 0.001$) is observed in type 2DM patients.
Conclusions: There was a significant correlation between HbA1c and eGFR was found. Increased HbA1c in monitoring diabetes mellitus raises an attention for complete evaluation of Renal Function Tests. eGFR can be routinely implemented in renal function tests for early diagnosis of preventable renal impairment due to diabetes.

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PD029 / #1897

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 05
02-03-2024 09:40 - 10:00

IDENTIFYING ADVANCED NON-ALCOHOLIC FATTY LIVER DISEASE IN PATIENTS WITH TYPE 2 DM USING CLINIC-BASED PREDICTION TOOLS.

Juma Al Kaabi[1], Adnan Agha[1], Bachar Afandi[1], Omar Alhaj[2]
[1]CMHS UAEU, Internal Medicine, ALAIN, United Arab Emirates, [2]Tawam Hospital, Internal Medicine, alain, United Arab Emirates

Background and Aims: Introduction Non-alcoholic fatty liver disease (NAFLD) is defined as fatty infiltration of the liver not related to identifiable causes such as alcohol excess or hepatitis or medications and is the most common cause of chronic liver disease worldwide. Various non-invasive tools can help identify the presence of advanced fibrosis in NAFLD such NAFLD fibrosis score (NFS) and FIB-4 index and imaging by ultrasound, Fibroscan or magnetic resonance elastography(MRE). Hamaguchi ultrasound liver grading system has been shown to have sensitivity and specificity in identifying NAFLD to 97% and 100% respectively in comparison with gold standard but invasive liver biopsy. Objective: The aim of this study was to assess the predictive value of NFS and FIB4 in identifying NAFLD amongst patients with type 2 diabetes mellitus in our local Emirati population in comparison with liver ultrasound Hamaguchi grading (which has comparable accuracy to liver biopsy).
Methods: Patients & Methods: We underwent retrospective data collection after approved by local ethical committee (MF2058-2022-855), reviewed all patients charts who had type 2 diabetes mellitus and had liver ultrasound and liver function tests (within 3 months of each other) during the last 5 years for any clinical indication other than NAFLD/liver disease.
Results: Out of 6214 patient medical records screened only 153 patients fulfilled the selection criteria and their recorded ultrasound images were reviewed by expert radiologist and Hamaguchi criteria grading was applied to identify NAFLD which was seen in 45.1% (69; n=153); 68.6% (105/153) females with mean age 59 + SD 12.2 years and 69.9% (107/153) Emirati. The average duration of diabetes in these patients was 12.2 + SD 5.1 years. The NFS score of high/intermediate was found to be 79.7% sensitive in identifying presence of NALFD but the specificity was only 10.7% while the Fib-4 score of high/intermediate was only 30.4% sensitive albeit much more specific at 54.8%. Another factor identified to be associated with presence of fatty liver disease was serum sodium with a value of < 134 mmol/L being 97.1% sensitive and 83% specific.
Conclusions: Conclusion: Fatty liver disease was frequent in this group pf patient with T2DM (45.1%) and NFS score seems to be more sensitive in identifying patient with NAFLD in comparison to FIB-4 index. The presence of hyponatremia also seems to have strongly correlation with presence fatty liver disease.

PD030 / #1412

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 06
02-03-2024 09:40 - 10:00

CONTINUOUS SUBCUTANEOUS INSULIN INFUSION VERSUS MULTIPLE DAILY INJECTIONS IN CHILDREN WITH TYPE 1 DIABETES.DATA FROM REAL CLINICAL PRACTICE.

Gulnur Slyamova, Aigul Durmanova, Assiya Nurgaliyeva, Assel Issabayeva, Alina Alzhaxina
CF "UMC", Internal Medicine, Astana, Kazakhstan

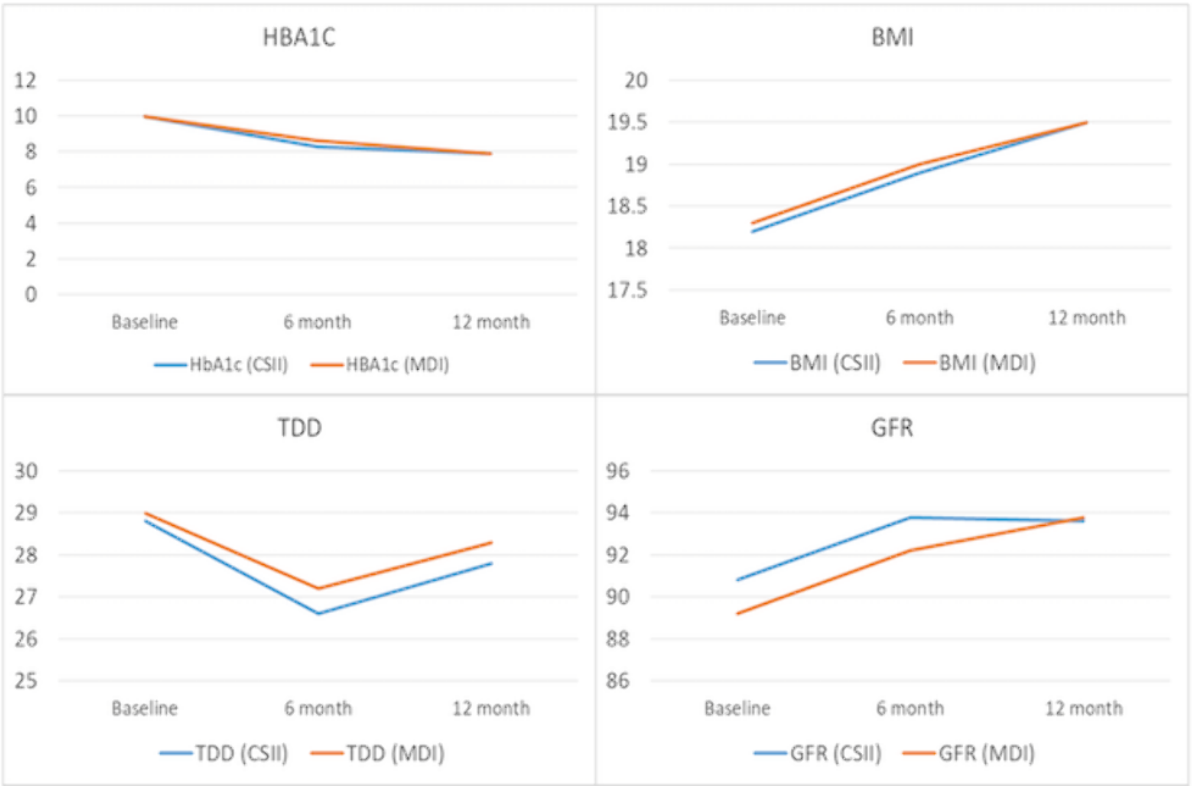
Background and Aims: Incidence of type 1 diabetes (T1D) increases every year for 2,7%. Children diagnosed with T1D, are recommended to be treated with either multiple daily injections (MDI) of insulin or continuous subcutaneous insulin infusion (CSII) via an insulin pump to maintain optimal metabolic control. The aim of this study is to compare efficiency of MDI and CSII in maintaining target HbA1c and sufficient metabolic control.
Methods: This is multicenter retrospective cohort study involved 156 children with T1D who apply either CSII method or MDI with insulin degludec in combination with insulin aspart between 3-17 years . The anthropometric measurements, laboratory and clinical data were compared.
Results: In both groups of patients receiving MDI and CSII, average values for HbA1c, BMI and TDD significantly differed while comparing the results at 6- and 12-months visits to the baseline (Table 1). While mean HbA1c levels significantly decreased from 10.0% to 7.9% in both group during the follow-up, average BMI values increased from 18.2 to 19.5 in CSII group and from 18.3 to 19.5 in MDI group. Mean TDD values tend to substantially decrease in both groups during first 6 months with a slight levelling off towards the end of the follow-up. Although average GFR values increase in both treatment arms, statistically significant was obtained only for CSII group between 12 months visit and baseline (93.6 vs 90.8).

Table1. Comparison of clinical indicators of CSII and MDI group (presented as mean±SD).

Variable (mean±SD)	Baseline (CSII)	6 month (CSII)	12 month (CSII)	Baseline (MDI)	6 month (MDI)	12 month (MDI)
HbA1c	10.2±2.6	8.4±1.7*	7.9±1.3*	10.0±2.4	8.5±1.8*	7.9±1.2*.
BMI	18.2±3.5	18.9±3.1*	19.5±2.8	18.3±3.5	19.0±3.1*	19.5±2.8*
Total Daily Dose of insulin	28.8±1.9	26.6±11.6*	27.8±11.3	29.0±12.0	27.2±11.6*	28.3±11.2
Glomerular Filtration Rate	90.8±29.1	93.8±29.7	93.6±30.0*	89.2±20.4	92.2±30.6	93.8±26.6

*P<0.05 (using paired T-test with Tukey's correction pre versus post sessions).

Figure 1. Clinical indicators for the continuous subcutaneous insulin infusion (CSII) and multiple daily injections (MDI) groups during the study period.



Conclusions: The results of this study showed no difference between using CSII and MDI via insulin degludec in combination with insulin aspart. General reduction in HbA1c was not related of insulin delivery method. In conclusion, long-term use of either CSII or MDI help to maintain glycated hemoglobin within the target levels indicating that other factors than insulin method contribute to a better metabolic control. Additional research is required to assess other modifiable factors that could influence diabetes management.

PD031 / #908

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 06
02-03-2024 09:40 - 10:00

THE IMPACT OF SLEEP DURATION ON GLYCEMIC VARIABILITY (GV) THE NEXT DAY IN INDIVIDUALS WITH TYPE 2 DIABETES (T2D)

Chhavi Mehra, Annie Mattilda Raymond, Shivtosh Kumar, Mridul Maheshwari, Aditya K N
Ragus Healthcare Pvt Ltd, Research And Development, Bengaluru, India

Background and Aims: Glycemic variability (GV) is the fluctuations in blood sugar levels over a period of time. High GV leads to increased cellular oxidative stress which is now being understood as a precursor for endothelial damage and vascular complications. Hence, low GV should be an important goal in diabetes management. Poor sleep contributes to fluctuations in blood sugar levels. Here, we have studied the influence of sleep on GV the next day. This is a retrospective study of 144 T2D patients to investigate an association between sleep time and length to GV the next day.
Methods: Sugar levels were monitored through a continuous glucose monitor (CGM) device worn for a period of 14 days by participants enrolled in Sugarfit's Diabetes Reversal and Mangement program (SDRMP). Participants were expected to log their sleep, food, physical activity and medication data during the 14 days of CGM on the sugarfit app. 144 participants with sleep logs of time and duration on the app were selected for the study. They were then segregated into 2 groups. Group 1 slept for 6 hrs or more and those in Group 2 slept less than 6 hours.
Results: Group 1- with an average of 7.8±0.76 hours of sleep duration and average start time of sleep 22.42pm showed a GV of 18.2±4.4% the following day. Group 2- with an average of 5.7±0.4 hours of sleep duration and an average start time of sleep 23.21pm showed a GV of 23.5±8.9%. Group 2 in comparison to group 1 who had longer sleep hours showed a higher GV by 22.5%
Conclusions: It is a well known fact that shorter sleep hours and late hours is a risk factor to insulin resistance and increased blood sugar levels. On analysis of the data in our cohort of T2D patients, longer duration of sleep was associated with a better GV the next day. The limitations of this study were assessment of uninterrupted vs interrupted sleep which we intend to also analyse in the near future by deep technology driven data collection.

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PD032 / #911

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 06
02-03-2024 09:40 - 10:00

GENDER-SPECIFIC GLYCEMIC OUTCOMES IN AGE- AND BODY MASS INDEX (BMI)- MATCHED MALE AND FEMALE INDIVIDUALS: A COMPARATIVE STUDY OF PRE OBESE PARTICIPANTS

Chhavi Mehra, Annie Mattilda Raymond, Shivtosh Kumar, Ankitha Sequiera
Ragus Healthcare Pvt Ltd, Research And Development, Bengaluru, India

Background and Aims: Research suggests that in developing countries, women's access to healthcare can be constrained by a range of factors, including social, economic, and cultural barriers. This study aims to compare glycemic outcomes following 90 days of personalized coaching. To ensure a comprehensive analysis, the study carefully matches male and female participants based on their age and BMI, as these factors can significantly impact the progression and management of diabetes.
Methods: This study involves a retrospective analysis of glycemic outcomes, including HbA1c, Fasting Blood Sugar (FBS), and weight loss, in 812 participants with Type 2 Diabetes. The participants were divided equally between men and women and were matched for age and BMI, with BMIs falling between 25.1 and 29.9. The analysis covers a 90-day period from their enrollment in Sugarfit's diabetes reversal and management program (SDRMP). This personalized, precise, yet comprehensive platform was delivered by diabetes experts, providing guidance on diet, exercise, and mindfulness, supplemented with physician advice on medication management.
Results: In groups comprising both male and female candidates, there were 85 participants aged 21-40, 264 aged 41-60, and 57 aged 61-80. Females had better outcomes than males overall. Notably, among those aged 21-40, males showed a more significant reduction in HbA1c and FBS, while females experienced greater weight loss. Specifically, HbA1c improved by 1.21±1.34 in females and 1.18±1.36 in males. Similarly, FBS and weight loss were 33.78±56.58 and 3.76±8.32 in females, respectively, compared to 28.67±54.80 and 1.60±2.26 in males.
Conclusions: Contrary to prevailing assumptions that women may face greater challenges in achieving optimal glycemic control, our findings underscored the effectiveness of personalized diabetes management plans for both genders. These results emphasize the significance of adopting personalized interventions to enhance overall quality of life, irrespective of gender. This study contributes valuable insights into addressing gender disparities in diabetes management and highlights the importance of tailored approaches in improving health outcomes for all.

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PD033 / #1935

E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 02
02-03-2024 09:40 - 10:00

TESTICULAR ADRENAL REST TUMORS IN X-LINKED ADRENOLEUKODYSTROPHY PATIENTS

Sofia Enikeeva, Leila Sozaeva, Nadezhda Makazan, Igor Chugunov, Maria Kareva, Valentina Peterkova
Endocrinology Research Center, Pediatric Endocrinology, Moscow, Russian Federation

Background and Aims: Testicular adrenal rest tumors (TARTs) are benign masses that originate from pluripotent testicular steroidogenic cells. High concentrations of ACTH could cause hyperplasia of these cells. TARTs are usually described in patients with congenital adrenal hyperplasia (CAH), there are only few cases of TARTs in patients with other forms of primary adrenal insufficiency (PAI). Here we describe two clinical cases of TARTs in patients with X-linked adrenoleukodystrophy (X-ALD).
Methods: Clinical case description
Results: Patient N., 16 years old. X-ALD manifested with symptoms of PAI (frequent vomiting, weakness) in the age of 1,5 years. There was skin hyperpigmentation, that increased to 4 years. He was diagnosed with PAI (ACTH 1200 pg/ml, cortsol 45,9 nmol/l) in the age of 8 years and hormonal replacement treatment (HRT) was started. During the surveillance minimum level of ACTH was 118 pg/ml, median level was 695,5 pg/ml [234; 1060]. At the age of 16, scrotum ultrasound revealed focal changes of the both testicles, that structurally corresponded to TARTs. He had normal levels of gonadotropins (LH 3,0 U/l, FSH 2,3 U/l) and testosterone (20,1 nmol/l). Inhibin B was not measured. Patient G., 9 years old. X-ALD manifested with PAI at the age of 3 years :ACTH 1250 pg/ml, cortisol 9 nmol/l. During the surveillance median level of ACTH was 602 pg/ml [343; 875]. At the age of 6,5 years, scrotal ultrasound revealed areas of reduced echogenicity in the mediastinum of both testicles, structurally corresponding to TARTs.
Conclusions: Despite the fact that TARTs is a rare pathology in non-CAH patients, all boys with PAI should undergo the scrotum ultrasound to detect the tumors in early stage.

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PD034 / #504

E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 02
02-03-2024 09:40 - 10:00

IMPROVEMENT IN OOCYTE CALCIUM LEVEL AND SUBSEQUENT EMBRYO DEVELOPMENT IN VITRIFIED OOCYTES WITH IRON OXIDE MAGNETIC NANOPARTICLES

Pegah Shayegh[1], Farzaneh Baniasadi[1], Hasan Rajabi Maham[2], Rouhollah Fathi[1]
[1]Royan Institute, Reproductive Biomedicine, Tehran, Iran, [2]Shahid Beheshti University, Faculty Of Modern Medical Sciences And Technologies, Tehran, Iran

Background and Aims: Mammalian oocytes are vitrified for fertility preservation in cancer-stricken women.However,thawing of the oocytes lowers their quality and viability.Recent studies are looking for ways to enhance freezing procedures and reduce cryo-damages.To this end,5nm Fe_3O_4 NPs were used for the vitrification of GV oocytes.
Methods: Thirty adult female NMRI mice(6–8 weeks old)were used to collect the GV oocytes,which were subsequently divided into three groups:non-vitrified(nVit),vitrified(Vit),and vitrified+0.004%w/v MNPs(Vit_NPs).The GV oocytes were initially subjected for 8 minutes to an equilibration solution made up of base medium 10% HSA in HamsF10 and 7.5%v/v ethylene glyco+7.5%v/v dimethyl sulfoxide.They were then transferred to a vitrification solution(VS)containing 15%v/v DMSO,15%EG v/v and 0.5M sucrose in BM to wash for less than one minute.The VS was made with or without Fe_3O4 NPs.They were subsequently put on a Cryotop and placed immediately into liquid nitrogen.7days later,warming was done in W1(1.0M sucrose in BM)for under a minute at 37°C,W2(0.5M sucrose in BM)for three minutes, and W3(0.25M sucrose in BM)for three minutes at room temperature.IVM & IVFhave examined the vitrified-warmed GV oocytes.100mIU/ml FSH and 7.5IU/ml HCG were used for IVM.After 16 hours of incubation,the metaphaseII oocytes (MII)were transferred to the IVF medium including T6+15mg/ml BSA.The IVF drops were then supplemented with the mouse capacitated sperms of the same race.7-8h later,zygotes were moved to the SAGE medium to continue developing and reach the blastocyst stage.In addition,Fura-2AM staining was used to investigate the intracellular calcium levels in GV & MII oocytes in control and experimental groups.
Results: Based on our data, the IVM rate in vitrified oocytes with NPs (89.08% ± 1.64%) has significantly increased compared to the vitrified group (72.29% ± 1.30%). The 2-cell rate of the embryos significantly increased in Vit_NPs (97.78% ± 2.22%) as compared to the Vit group (82.27% ± 3.63). The difference in blastocyst rate in the Vit_NPs group (40.36% ± 7.85%) was also meaningfully higher than those of the nVit (44.93% ± 8.53%) and Vit groups (17.09% ± 2.49%). Also, intracellular calcium mean fluorescence in GV and MII oocytes belonging to Vit (8.20 ± 0.38 and 9.53 ± 0.38) and Vit_NPs (8.49 ± 0.38 and 9.05 ± 0.38) groups had considerably higher than the control nVit group (7.29 ± 037 and 6.88 ± 0.17).
Conclusions: Magnetic nanoparticles (Fe3O4 NPs) can improve the vitrification outcomes (IVM, IVF, and blastocyst formation rates) of mouse GV oocytes. In addition, it seems that increasing the Calcium in Vit_NPs groups was beneficial for the subsequent in vitro embryo development.

PD035 / #734

E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 02
02-03-2024 09:40 - 10:00

CARDIOMETABOLIC, LIVER FIBROSIS AND STEATOSIS INDICES IN A COHORT OF PATIENTS WITH KLINEFELTER SYNDROME (KS)

Andrea Graziani[1], Riccardo Maria Pollis[1], Riccardo Selice[2], Giuseppe Grande[2], Antonella Di Mambro[2], Alberto Ferlin[2]
[1]University of Padua, Department Of Medicine, Padua, Italy, [2]University of Padua, Andrology And Reproductive Medicine Unit, Padua, Italy

Background and Aims: Patients with KS might present with different conditions concerning hypogonadism, cardiovascular system and metabolism, and parameters useful to predict these comorbidities are lacking. The aim of our study was to evaluate cardiometabolic, liver fibrosis and steatosis indices in patients with KS.
Methods: We performed a retrospective study, enrolling 182 patients with KS. Hormonal, metabolic, cardiometabolic indices [Visceral Adiposity Index (VAI), Triglyceride Glucose Index (TyG), Lipid Accumulation Product (LAP), Triglycerides to HDL Ratio (THR)], liver fibrosis indices [AST to Platelet Ratio Index (APRI), Fibrosis-4 Index (FIB4), Non-Alcoholic Fatty Liver Fibrosis Score (NAFLFS)], and liver steatosis indices [Fatty Liver Index (FLI), Hepatic Steatosis Index (HSI] were evaluated. Statistical univariate analysis was performed, calculating Pearson correlation coefficient (r), and p values ≤ 0.05 were considered statistically significant.
Results: Mean age at first visit was 32±1 years, BMI 24.5±0.4 kg/m^2 and waist circumference (WC) 96±1.2 cm. Mean values for reproductive hormones were total testosterone (TT) 10.0±0.4 nmol/l, LH 20.5±1.0 U/L, FSH 33.6±2.1 U/L, SHBG 31.5±1.2 nmol/L, calculated free testosterone (cFT) 0.189±0.008 nmol/L. Metabolic profile was: cLDL 113±2.5 mg/dl, homocysteine 12.9±0.8 mmol/L, HOMA-I 1.5±0.2. Mean indices were VAI 2.24±0.52, TyG 4.4±0.3, LAP 26.59±5.69, THR 1.6±0.3, APRI 0.28±0.01, FIB4 0.71±0.02, NAFLD Fibrosis -3.175±0.071, FLI 28.2±2.3, HSI 32.9±0.5. We focused on the association between cFT and the nine indices and, in particular, statistical univariate analysis showed significant inverse correlation between cFT and the following variables: BMI (r -0.43), WC (r -0.45), VAI (r -0.16), TyG (r -0.17), LAP (r -0.35), FIB4 (r -0.21), NAFLDS (r -0.28), FLI (r -0.39) HSI (r -0.41), but not with THR and APRI. Furthermore, interesting associations were found between SHBG levels and the nine indices.
Conclusions: This is the first study evaluating cardiometabolic, liver fibrosis and steatosis indices in patients with KS. We speculate that testosterone levels are determined by Leydig cell dysfunction and increased LH production secondary to higher SHBG levels induced by liver fibrosis and/or steatosis. Therefore, hypogonadism in KS might be due to both primary testicular damage and insufficient pituitary compensation. Measurement of cFT is required and suggested. Our study also has the advantage of considering LH levels as a marker of pituitary function and cFT as a more sensitive marker of hypogonadism than TT. Limitations of our study include the lack of data on body composition and fat body distribution and the use of indirect scoring systems, instead of abdominal ultrasonography/elastography or liver biopsy.

PD036 / #923

E-Poster Discussion
E-POSTER DISCUSSION: BONE 02
02-03-2024 15:20 - 15:40

IRANIAN MULTI-CENTER OSTEOPOROSIS STUDY (IMOS): INVESTIGATION OF THE PREVALENCE OF OSTEOPOROSIS, OSTEOPENIA, SARCOPENIA AND RELATED FACTORS IN IRAN

Kazem Khalagi[1], Noushin Fahimfar[1], Fatemeh Hajivalizadeh[2], Mahnaz Sanjari[1], Mohammad Javad Mansourzadeh[1], Safoora Gharibzadeh[3], Gita Shafiee[4], Koorosh Kamali[5], Farshid Alaeddini[6], Farshad Farzadfar[7], Arash Ghazbani[1], Elahe Hesari[1], Sepideh Hajivalizadeh[1], Samaneh Mohseni[8], Nazli Namazi[9], Farideh Razi[10], Kobra Gorgani[1], Nekoo Panahi[11], Ramin Heshmat[4], Alireza Raeisi[12], Bagher Larijani[13], Afshin Ostovar[1]
[1]Tehran University of Medical Sciences, Osteoporosis Research Center, Endocrinology And Metabolism Clinical Sciences Institute, Tehran, Iran, [2]Ministry of Health and Medical Education, Center For Non-communicable Disease Control & Prevention, Deputy Of Public Health, Tehran, Iran, [3]Pasteur Institute of Iran, Department Of Epidemiology And Biostatistics, Tehran, Iran, [4]Tehran University of Medical Sciences, Chronic Diseases Research Center, Endocrinology And Metabolism Population Sciences Institute, Tehran, Iran, [5]Zanjan University of Medical Sciences, Social Determinants Of Health Research Center, Zanjan, Iran, [6]Tehran University of Medical Sciences, Tehran Heart Center, Tehran, Iran, [7]Tehran University of Medical Sciences, Non-communicable Diseases Research Center, Endocrinology And Metabo- Lism Population Sciences Institute, Tehran, Iran, [8]Takapo Teb Corp, Takapo Teb Corp, Tehran, Iran, [9]Tehran University of Medical Sciences, Diabetes Research Center, Endocrinology And Metabolism Clinical Sciences Institute, Tehran, Iran, [10]Tehran University of Medical Sciences, Metabolomics And Genomics Research Center, Endocrinology And Metabolism Molecular-cellular Sciences Institute, Tehran, Iran, [11]Tehran University of Medical Sciences, Metabolic Disorders Research Center, Endocrinology And Metabolism Cellular And Molecular Institute, Tehran, Iran, [12]Tehran University of Medical Sciences, Department Of Internal Medicine, Tehran, Iran, [13]Tehran University of Medical Sciences, Endocrinology And Metab- Olism Research Center, Endocrinology And Metabolism Clinical Sciences Institute, Tehran, Iran

Background and Aims: Considering the increasing trend of the aging population in Iran, it is important to estimate the prevalence of aging-related musculoskeletal diseases at the national level, in order to plan and evaluate interventions. Iranian Multi-center Osteoporosis Study (IMOS) is a national survey with the primary objective of estimating the prevalence of osteoporosis, osteopenia, and sarcopenia and their risk factors in a representative sample of urban and rural populations.
Methods: The survey's intended demographic encompassed all individuals in Iran who were aged 50 years or older. The study employed a multi-stage random sampling technique. Iran's 31 provinces were stratified into five groups based on the prevalence of potential osteoporosis risk factors, and one or two provinces were randomly chosen from each group. Subsequently, 2530 individuals aged 50 years or older, who were part of the 8th National Survey of Non-Communicable Diseases (NCD) Risk Factors (STEPs-2021) in the selected provinces, were invited to participate in the Iranian Multicenter Osteoporosis Study (IMOS). Body composition measurements, including bone mineral density, muscle mass, and fat mass, were obtained using Dual-energy X-ray Absorptiometry (DXA) method with HOLOGIC (Discovery and Horizon) devices. The Trabecular Bone Score (TBS) was calculated from the DXA scans using iNsight software. Anthropometric measurements and physical examinations were conducted by trained nurses, and additional necessary information was gathered through face-to-face interviews conducted by these nurses. All laboratory measurements were performed in a centralized laboratory.

Results: Out of the 2650 individuals deemed eligible in the STEPs survey, 1450 (representing 54.8%) participated in the Iranian Multicenter Osteoporosis Study (IMOS). The participants' ages ranged from 50 to 94 years, with an average age of 60.7 years. A total of 2168 variables were analyzed in this study. The prevalence of osteopenia and osteoporosis in the Iranian population aged 50 years and older was found to be 49.7% (95% Confidence Interval: 47.1 – 52.4) and 29.8% (95% Confidence Interval: 27.1 – 32.6), respectively. Additionally, the prevalence of sarcopenia was determined to be 9.8% (95% Confidence Interval: 8.2 - 11.6).

Conclusions: Approximately half of the population in Iran aged 50 years and older is afflicted with osteopenia, while around a third is diagnosed with osteoporosis. Moreover, sarcopenia is prevalent in about 10 percent of this demographic. The findings of this study underscore the necessity for healthcare policymakers to prioritize the design and implementation of preventive interventions targeting osteoporosis, osteopenia, and sarcopenia.

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E-Poster Discussion
E-POSTER DISCUSSION: BONE 02
02-03-2024 15:20 - 15:40

NATURAL HISTORY OF NORMOCALCEMIC HYPERPARATHYROIDISM WITH AND WITHOUT PARATHYROIDECTOMY: A RETROSPECTIVE COHORT

Caroline Hoong[1], Jad Sfeir[2], Bart Clarke[2]
[1]Woodlands Health, National Healthcare Group, Endocrinology, Singapore, Singapore, [2]Mayo Clinic, Endocrinology, Rochester, United States of America

Background and Aims: Normocalcemic hyperparathyroidism (NHPT) is an uncommon condition. Information regarding its prognosis and natural history are scarce, leading to uncertainty in management. We aimed to describe the phenotype of NHPT in relation to hypercalcemic hyperparathyroidism (PHPT) and controls, to determine risk of progression with and without parathyroidectomy, and to develop a predictive model for progression to PHPT.
Methods: We conducted a retrospective chart review of 254 patients in Mayo Clinic USA, comparing 74 with NHPT, 90 PHPT and 90 controls. NHPT was defined as 2 sets of intact parathyroid hormone (iPTH) elevated, paired with 2 sets of normal serum corrected calcium (cCa) measured >3 months apart, after excluding secondary causes of hyperparathyroidism.
Results: NHPT was intermediate in biochemical profile between controls and PHPT with respect to cCa, iPTH, intraindividual coefficient of variant of cCa, phosphorus and 25OHD. 14 (18.9%) NHPT and 55 (61.1%) PHPT patients underwent parathyroidectomy. Fewer NHPT (71.4% versus 100%, p=0.002) compared to PHPTH patients achieved cure. 2 (20%) NHPT patients who achieved immediate surgical cure recurred after 2.34 (IQR 1.64-3.04) years. Compared to PHPT, NHPT more often had non-localizing imaging or polyglandular disease (p=0.009). Parathyroidectomy improved biochemical but not BMD parameters in NHPT – calcium improved from 9.77mg/dl to 9.36mg/dl (p<0.001), PTH reduced from 106.3pg/ml to 67.8pg/ml (p=0.010). BMD remained unchanged. Out of 10 NHPT patients with nephrolithiasis and who had interval imaging after parathyroidectomy, 80% had persistent nephrolithiasis, 20% resolved after urological procedure and none resolved spontaneously after parathyroidectomy. Over median follow-up of 4.23 (IQR 1.81-5.34) years, NHPT patients who were managed expectantly experienced no change in iPTH, and cCa increased slightly from 9.62mg/dl to 9.73mg/dl (p=0.004), still well-within NR. Of 55 NHPT patients with follow-up data, progression to PHPT occurred in 5 (9.2%). Every 0.1mg/dl increase in baseline cCa was associated with 18-22% increase in combined risk of progression to PHPT or requiring parathyroidectomy; every 1pg/ml increase in iPTH was associated with a 3% increased risk. Other predictive factors for progression were the presence of nephrolithiasis, body-mass-index, 24h urinary calcium and serum phosphorus. A predictive model combining all these 6 factors had AUC 0.833 (95%CI 0.553-1.00, p=0.010) for predicting combined progression.
Conclusions: NHPT is a mild variant of PHPT. Cure was less often achieved with parathyroidectomy, which did not improve BMD parameters nor led to stone resolution. Progression risk was low with conservative management. A panel of risk factors as described may identify patients at risk of progression.

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E-Poster Discussion
E-POSTER DISCUSSION: BONE 02
02-03-2024 15:20 - 15:40

BONE FRAGILITY IS THE RESULT OF BONE LOSS FROM FRUGALLY ASSEMBLED LARGER BONES AND ROBUSTLY ASSEMBLED SMALLER BONES

Ali Ghasem-Zadeh[1], Minh Bui[2], Esther Briganti[3], Ego Seeman[1]
[1]The University of Melbourne, Endocrinology And Medicine, Melbourne, Australia, [2]University of Melbourne, Centre For Epidemiology And Biostatistics, Melbourne School Of Population And Global Health,, Melbourne, Australia, [3]Monash University, School Of Public Health And Preventive Medicine, Melbourne, Australia

Background and Aims: Introduction Bone modelling and remodelling achieve the paradoxical properties of bone strength yet lightness by assembling larger bones with relatively less material (thinner, porous cortices), and smaller bones with relatively more material (thicker, less porous cortices). These architectural features accommodate loading and mobility during young adulthood. However, as longevity is accompanied by remodelling imbalance, we hypothesised that bone loss will deteriorate bone mass and microarchitecture, compromising the frugally assembled microarchitecture of larger bones. By contrast, robustly assembled microarchitecture of smaller bones will defend against bone loss, offsetting the biomechanical disadvantage of smaller size.
Methods: In 324 twin pairs aged 26-76 years, (364 premenopausal, pre-MP), 255 postmenopausal, post-MP) we used bone densitometry to measure bone mass, high resolution peripheral quantitative computed tomography (HR-pQCT) to measure distal radial cross-sectional area (CSA), deterioration in microarchitecture (cortical porosity and trabecular density) captured by the Structural Fragility Score (SFS) and compressive strength estimated using finite element analysis. Associations are presented as correlation coefficients.
Results: As shown in the table, univariate correlations included: (1) estimated strength increased slightly across age in pre-MW but decreased across age in post-MW. (2) The SFS was unchanged across age in pre-MW but increased across age in post-MW and (3) was higher in pre-MW and post-MW with a larger total CSA. (4) However, larger CSA was associated with greater strength in pre-MW, not in post-MW but (5) a higher SFS was associated with lower strength. In a multivariate analysis adjusting for SFS (6) larger CSA was associated with greater strength in both pre-MW and post-MW independent of SFS, (7) SFS was associated reduced strength independent of CSA and (8) age remained a predictor of strength independent of SFS and CSA in pre-MW, not post-MW.
Conclusions: Conclusion Bone fragility is likely to be accounted for by microstructural deterioration due to loss of minimised mass assembled during growth and compromise of the biomechanical advantage of larger bone size. Bone microarchitecture deterioration is a pivotal determinant of bone fragility, is quantifiable noninvasively and can be prevented or reversed if detected

early.

Trait correlations Univariate	Premenopausal Women	P value	Postmenopausal women	P value
1. Strength vs. Age	12.1 (3.96)	0.002	-16.3 (5.15)	0.002
2. SFS vs. Age	-0.20 (0.13)	NS	0.85 (0.17)	<0.001
3. SFS vs. CSA	0.15 (0.02)	<0.001	0.12 (0.03)	<0.001
4. Strength vs CSA	1.97 (0.60)	0.001	-0.46 (0.80)	0.56 (NS)
5. Strength vs. SFS	-15.3 (1.30)	<0.001	-20.3 (1.5)	<0.001
Multivariate				
6. Strength vs. CSA	5.72 (0.38)	<0.001	2.39 (0.69)	0.001
7. Strength vs. SFS	-24.1 (1.40)	<0.001	-21.3 (1.47)	<0.001
8. Strength vs. Age	5.19 (2.23)	0.02	1.96 (3.96)	0.62 (NS)

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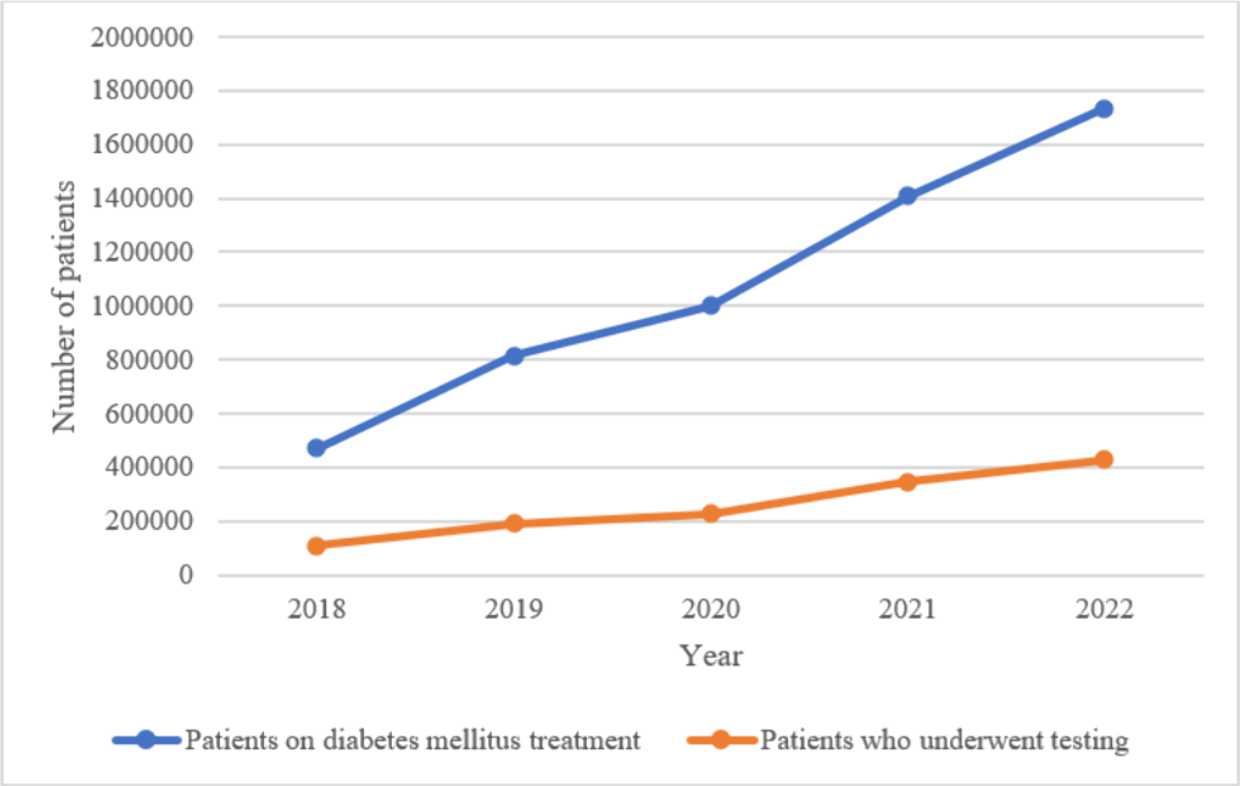
E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 07
02-03-2024 15:20 - 15:40

DKD SCREENING – REAL WORLD EVIDENCE – A WAY TO PREVENT FUTURE COMPLICATIONS

Banshi Saboo[1], Amit Gupta[2], Deepak Dalal[3], Krishna Vijaykumar Patil[4], Garima Verma[5]
[1]Diacare, Diabetology, Ahmedabad, India, [2]Centre for Diabetes Care, Diabetes And Metabolism, Greater Noida, India, [3]Bharti Arogya Nidhi Hospital, Department Of Diabetes, Mumbai, India, [4]KIMS Hospital, Nephrology, Hyderabad, India, [5]HealthPlix, Department Of Clinical Insights, Bangalore, India

Background and Aims: The burden of the diabetes mellitus is increasing across the orb, and in developing nations like India majorly due to prevalence of obesity, and unhealthy lifestyle adoption. Uncontrolled diabetes usually leads to microvascular complications affecting cardiovascular system, and microvascular complications like DKD, diabetic retinopathy, and neuropathy. DKD, characterized by accumulation of extracellular matrix, hypertrophy and fibrosis in kidney glomerular and tubular cells is known to be majorly driven by hyperglycemia. ADA and NKF recommend eGFR monitoring on an annual basis for diabetic patients.
Methods: Considering the recommended testing, we studied the data (retrospective data from HealthPlix EMR - https://healthplix.com/) of patients on treatment for diabetes mellitus to see if these patients are getting themselves religiously screened for renal function to save themselves from future complications.
Results: showed that there is a significant gap between the number of patients on diabetes mellitus treatment, and the ones who underwent testing for the parameters critical to limit the development and progression of DKD, and this gap kept on widening across years (2018-2022 – data from EMR records). Gap between the expectations and reality is presented in Figure 1 below. Recent data from 2022 shows that 75% of the patients receiving diabetic treatment didn't get themselves evaluated for renal function.
Figure 1: Gap between the expectations (all those who should get themselves tested) and the reality (who are getting themselves tested)



Conclusions: A clear inference that can be drawn from the data is that there is a severe dearth of testing for the parameters responsible for development and progression of DKD among the diabetic patients. This necessitates the need to create awareness amongst patients and the health care providers that timely tests can save patients from future complications.

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E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 07
02-03-2024 15:20 - 15:40

DIFFERENTIAL CYS34 ALBUMIN DI/TRI-OXIDATION AND PROGRESSIVE RENAL DYSFUNCTION IN TYPE 2 AND TYPE 1 DIABETES: NOVEL BIOLOGICAL AND CLINICAL INSIGHTS

Madhumati Vaishnav[1,2], Namita Kumari[3], Kavitha Muniraj[4], Sathyanarayana Srikanta[5], Vinaya Simha[6], Patnam R Krishnaswamy[3], Padmanabhan Balaram[7], Navakanta Bhat[3]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [4]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [6]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [7]National Center for Biological Sciences, Molecular Biophysics, Bangaiore, India

Background and Aims: Cys34 albumin redox modifications (“cysteinylation” and “di/tri-oxidation”) besides being just oxidative stress biomarkers may have a primary pathogenetic role to initiate and/or aggravate cell, tissue and vascular damage in diabetes. We aimed to further examine the profiles, interrelationships and potential significance of albumin oxidative modifications in diabetes and associated renal dysfunction.
Methods: Mass spectrometric analysis was utilised to monitor human serum albumin (HSA) post-translational modifications [glycation, cysteinylation (HNA1; Human Non-Mercaptalbumin-1; reversible), di/tri-oxidation (HNA2; Human Non-Mercaptalbumin-2; irreversible) and truncation] and to relate them to renal dysfunction in diabetes. In this “proof of concept” longitudinal therapy study, five informative subject groups were evaluated [type 1 diabetes, type 2 diabetes, prediabetes-obesity and healthy; diabetes chronic kidney disease (DCKD: estimated glomerular filtration rate- eGFR <60 ml/min/1.72m2)], over a follow up period upto 280 days.
Results: Among the groups with “normal” renal function (eGFR >60ml/min/1.72m2), T2DM had significantly higher HNA2, compared to T1DM (P= 0.005). Highest HNA2 was associated with DCKD. HNA2 and HNA1 exhibited “mirror image” longitudinal trends and inverse relationships in DCKD (R= -0.47, P= 0.018) (Figure 1). HNA2 correlated negatively with eGFR, across entire range of renal function, beginning at earliest stage of glomerular hyperfiltration (R= -0.61, P= 0.001) (Figure 2). HNA2/eGFR index, as defined, showed potential as an additional biomarker of declining renal function in diabetes.
Conclusions: Differential Cys34 albumin oxidative modifications characterise progressive renal dysfunction in diabetes, with the observed differences between type 2 and type 1 diabetes being likely insulin resistance mediated. Further in-depth examination at clinical, cellular and molecular levels, can facilitate earlier diagnosis and better therapeutic approaches targeting kidney-specific disease mechanisms. Figure 1: Longitudinal Trends of Albumin Oxidation During Study: Relationship Between “Cysteinylation” (HNA1) and “Di/Tri-Oxidation” (HNA2) in Subjects with Diabetes Chronic Kidney Disease (eGFR
<60ml/min/1.73m2).

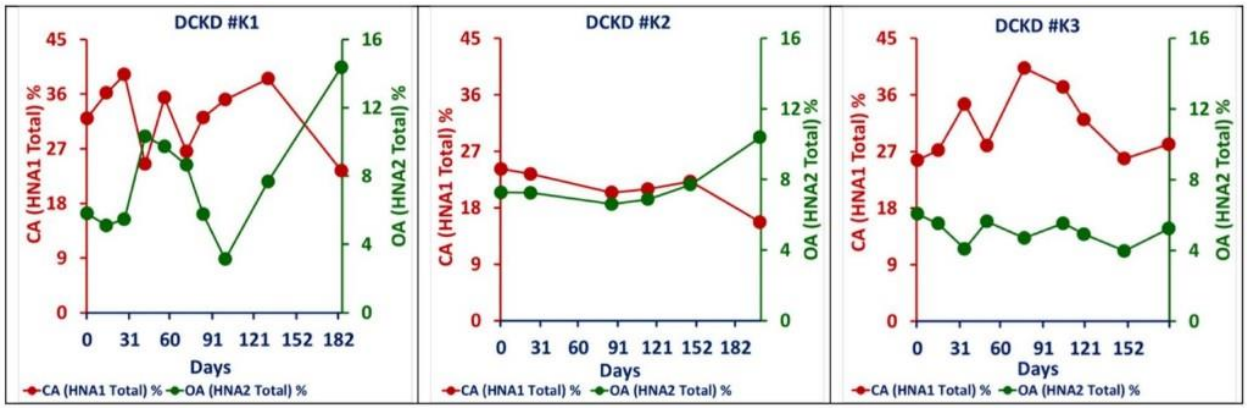
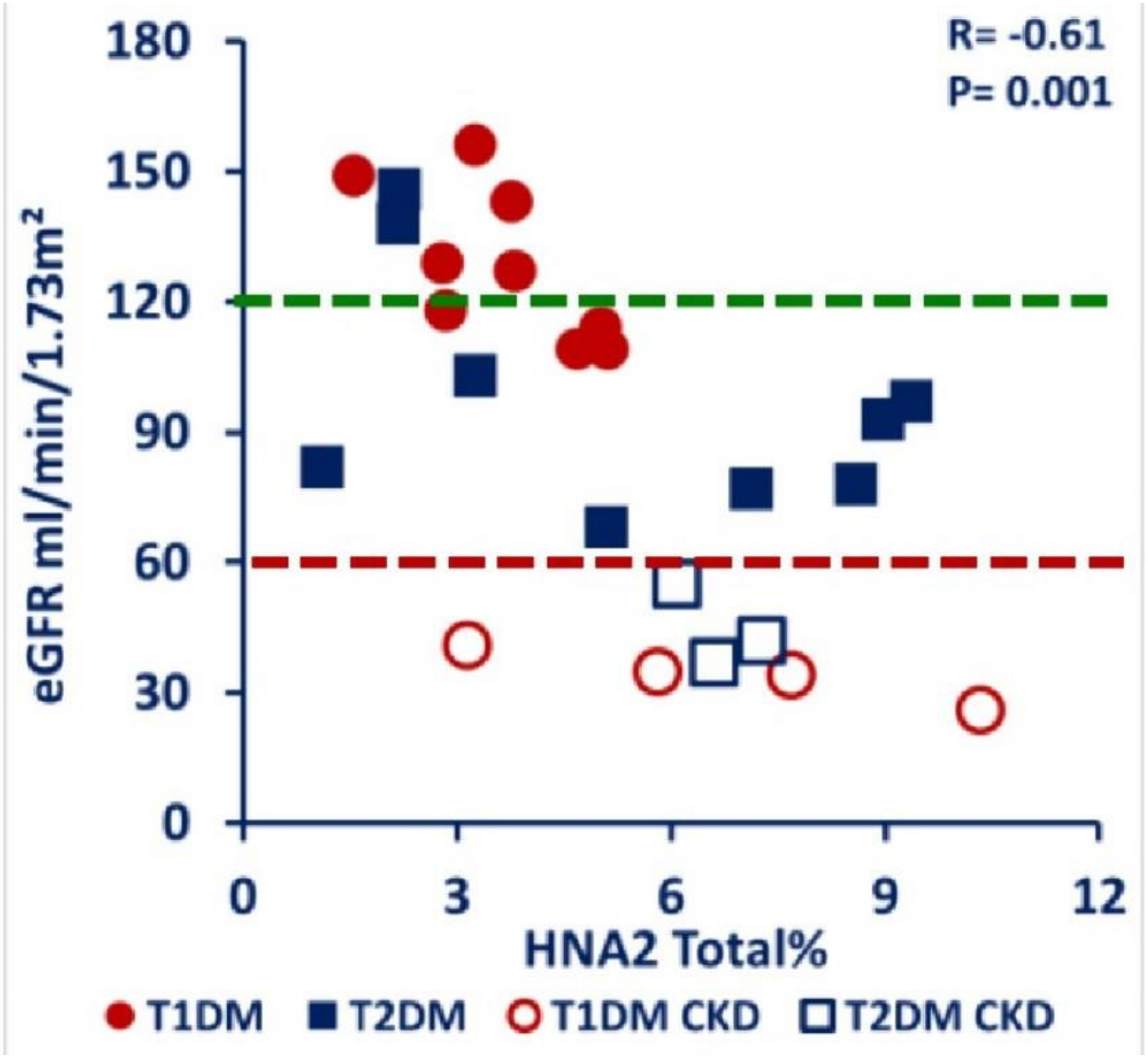


Figure 2: Albumin di/tri-oxidation (HNA2) and renal function (eGFR) correlations in diabetes T1DM (red closed circles); T2DM (blue closed squares); DCKD+T1DM (red open circles); DCKD+T2DM (blue open squares). eGFR <60 ml/min/1.73m2 in

DCKD.


R= -0.61
P= 0.001
eGFR ml/min/1.73m²
180
150
120
90
60
30
0
0
3
6
9
12
HNA2 Total%
T1DM
T2DM
T1DM CKD
T2DM CKD

PD041 / #1460

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 07
02-03-2024 15:20 - 15:40

HOSPITAL BASED MULTI CENTRIC DIABETES REGISTRY FROM INDIA

Pramila Kalra[1], Gurinder Mohan[2,3], Dr. K.R. Raveendra[4], Mala Dharmalingam[5], Prasanta Bhattacharya[6], Ravi M[7], Sreejith. Kumar[8], Sujoy Ghosh[9], Chitra S[10], Iada Tiewsoh[6], M D Jamil[11], Monaliza Lyngdoh[6], Kaushik Pandit[12], Pradip Mukhopadhyay[13], Vedantha J[14], Smitha Jain[15], Sundararaman R[15], Dr. Veena Sreejith[8], Richa Thaman[16], Dr. Manish Chadney[3], Sivaranjani Holigi[4], Reetu Singh[17], Theertha Sekhar[17], R Mercy Elizabeth[18], Karan Odedra[18], Sreelakshmi P R[17]
[1]Ramaiah Medical College and Hospitals, Endocrinology, BENGALURU, India, [2]Sri Guru Ram Das University of Health Sciences, Amritsar, Punjab, India, General Medecine, Punjab, India, [3]Sri Guru Ram Das University of Health Sciences, Amritsar, Punjab, India, General Medecine, Amritsar, India, [4]Victoria Hospital (Bangalore Medical College), Bengaluru, Karnataka, India, General Medecine, Bangalore, India, [5]Endocrinologist, Bangalore Endocrinology and Diabetes Research Center, Malleshwaram, Bangalore, Karnataka, India, Endocrinology, Bangalore, India, [6]North Eastern Indira Gandhi Regional Institute Of Health And Medical Sciences, Shillong, Meghalaya, India, General Medecine, Meghalaya, India, [7]SIMS-SRM Institutes for Medical Science, Vadapalani, Chennai, Tamil Nadu, India, Endocrinology, Chennai, India, [8]Noorul Islam Institute of Medical Science and Research Foundation (NIMS Medicity), Trivandrum, Kerala, India, Endocrinology, Trivandrum, India, [9]Institute Of Post Graduate Education and Research SSKM Hospital, Kolkata, West Bengal., Endocrinology, kolkata, India, [10]M.S. Ramaiah Medical College and Hospitals, Bengaluru, Karnataka, India, Endocrinology, Bangalore, India, [11]AIIMS, Guwahati, India, General Medecine, Guwahati, India, [12]nstitute Of Post Graduate Education and Research SSKM Hospital, Kolkata, West Bengal, India, Endocrinology, kolkata, India, [13]Institute Of Post Graduate Education and Research SSKM Hospital, Kolkata, West Bengal, India, Endocrinology, kolkata, India, [14]SIMS-SRM Institutes for Medical Science, Vadapalani, Chennai, Tamil Nadu, India, Community Medecine, Chennai, India, [15]SIMS-SRM Institutes for Medical Science, Vadapalani, Chennai, Tamil Nadu, India, Internal Medicine, Chennai, India, [16]Sri Guru Ram Das University of Health Sciences, Amritsar, Punjab, India, Physiology, Amritsar, India, [17]M.S. Ramaiah Medical College and Hospitals, Bengaluru, Karnataka, India, Bangalore, India, [18]M.S. Ramaiah Medical College and Hospitals, Bengaluru, Karnataka., Bangalore, India

Background and Aims: In India, 101 million people have type 2 diabetes, and nearly 136 million have prediabetes. The goal of the registry was to create a database of individuals with Diabetes mellitus to provide information on how the condition is monitored and managed across various regions within India. This was also done to create a data set of patients for future clinical trials.
Methods: The study was a hospital based cross-sectional observational study. The collaborating sites included private and public sectors, with participants from urban and rural areas. The patients with type 2 diabetes mellitus visiting the OPD of the hospitals of all the collaborating sites were included in the registry. Demographic details, medical history, physical examination, personal history, complications of Diabetes, if any, laboratory investigations, and treatment history of the subject were captured. Data collected was entered into an electronic database, and each site was provided with a unique user ID and password to log in online and complete the data entry through a web-based data entry platform.
Results: A total of 20509 patients were registered over two years. Among the recruited participants, 51.1% were males, 48.9% were females, 55.2% were from urban areas, and 44.8% were from rural areas. The HbA1C was more than 7% in 43% of participants enrolled. The most common microvascular complications identified among patients were retinopathy (7.2%), neuropathy (7%), and nephropathy (2.1%). The macrovascular complications identified were ischemic heart disease (2%), stroke (1.4%), and

peripheral arterial disease (0.2%). Hypertension (29.9%) and dyslipidemia (23.1%) were common comorbidities. This registry gives us an idea about the management pattern and complication status of patients with Diabetes in India. Among the total participants enrolled, 63.6% were employed, and 36.4% were unemployed. Almost 44.9% of participants considered Diabetes a burden to their family. This diabetes registry has public and private sector data and representation of urban and rural populations.
Conclusions: This diabetes registry has given us insight into the multifarious structure of Diabetes Mellitus, which can be used by healthcare planners, researchers, and government officials in developing primary and secondary intervention strategies. It can also help in devising the best management strategies for these patients. The registry has also given us a ready data set of patients for future clinical trials.

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PD042 / #1027

E-Poster Discussion
E-POSTER DISCUSSION: CARDIOMETABOLIC 02
02-03-2024 15:20 - 15:40

PREMATURE ATHEROSCLEROTIC CARDIOVASCULAR DISEASE IN PAKISTAN

Saad Bin Zafar Mahmood, Aysha Almas
Aga Khan University Hospital, Medicine, Karachi, Pakistan

Background and Aims: Premature Atherosclerotic cardiovascular disease (ASCVD) represents a growing challenge. It is prudent to identify such adults at an earlier age and devise preventive strategies. We aimed to determine the frequency of premature ASCVD and their modifiable risk factors from primary care clinics in Karachi, Pakistan.
Methods: A cross-sectional study was conducted at four primary care clinics from 1st September 2022 to 15th February 2023. Participants were randomly included if they were aged between 18 to 50 for males or 18 to 60 for females and had at least one of the known risk factors of ASCVD. Data was collected using the WHO ASCVD questionnaire, Patient Health Questionnaire-9, and Short International Physical Activity Questionnaire and patients who underwent testing for fasting lipid profile and fasting plasma glucose. Data was analyzed using SPSS v22.0.
Results: A total of 614 participants were recruited with majority being female 373 (60.7%). Mean age was 41.9 ± 9.2. Majority 513 (83.6%) were classified as obese, with 324 (52.8%) females having a waist circumference of >89 cm. Hypertension was the most prevalent comorbidity 213 (34.7%) followed by dyslipidemia 210 (34.2%) and diabetes 105 (17.1%). 151 (24.6%) participants were either smokers or had used some form of tobacco. Moderate-Severe depression was seen in 112 (18.2%) while only 47 (7.7%) people were doing moderate-vigorous physical activity. The family history of ASCVD was seen in 136 (22.1%) participants. Premature ASCVD was found in 24 (3.9%) participants with 11 (45.8%) cases of cerebrovascular attack, 10 (41.6%) cases of myocardial infarction and 3 (12.5%) cases of angina.
Conclusions: The findings from the study show that premature ASCVD and its risk factors are prevalent in the population and urgent action needs to be taken to control this rising epidemic.

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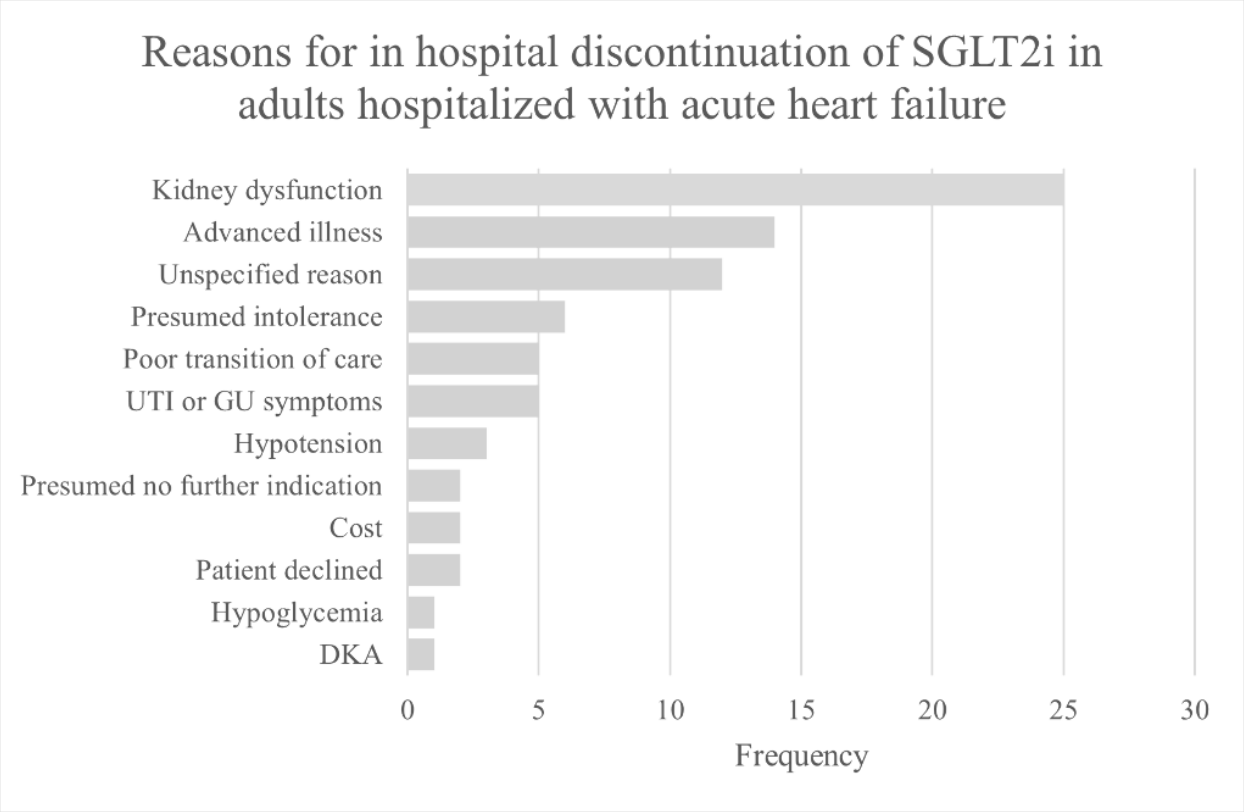
E-Poster Discussion
E-POSTER DISCUSSION: CARDIOMETABOLIC 02
02-03-2024 15:20 - 15:40

SODIUM-GLUCOSE COTRANSPORTER-2 INHIBITOR (SGLT2-I) USE FOLLOWING HOSPITALIZATION FOR ACUTE HEART FAILURE: PREDICTORS OF ACTIVE PRESCRIPTION AT 6 MONTHS

Abinet Aklilu, Angela Victoria-Castro, F Perry Wilson
CTRA - Yale University School of Medicine, Internal Medicine, New Haven, United States of America

Background and Aims: SGLT2i have consistently reduced hospitalizations and mortality in randomized clinical trials of stable and acute heart failure (HF). However, their uptake in this setting remains limited. We assessed predictors of long-term SGLT2i prescription among patients prescribed an SGLT2i during an acute heart failure (AHF) admission.
Methods: This includes a retrospective cohort of adults (≥ 18 years) hospitalized with AHF (defined as NT-proBNP >300pg/mL and receipt of an intravenous loop diuretic within 24 hours of their admission) in a large US hospital system of 6 hospitals between 9/1/2022 – 4/1/2023 who received an SGLT2i during their hospitalization. We examined predictors of SGLT2i prescription at 6 months from hospital discharge using multivariable logistic regression adjusting for age, sex, prescription at discharge, diabetes history, baseline eGFR, preserved vs reduced EF, HF diagnosis duration, discharging provider service, 1-month cardiology follow-up, readmission in 6 months, and prescription of other guideline HF therapy at 6 months.
Results: Of 1963 encounters of adults hospitalized with AHF, an SGLT2i was prescribed during hospitalization in 586(29.9%) which were further assessed. These represented 532 unique individuals and 304 unique discharge providers. Median(IQR) age was 72.2(61.9-82.8) years. 45.9% were women, and 56.7% had diabetes. In 224/586 (38.2%) of the encounters, the discharging provider was a cardiologist. SGLT2i was a new in-hospital initiation in 361(61.6%) of encounters. In addition, 428/532 individuals (80.5%) were initiated during the index or a prior hospital encounter. In 511/586 (87.5%) encounters, the SGLT2i was prescribed on discharge. The most common causes of in hospital discontinuation are shown in Figure 1. Of those who survived to 6 months after discharge, 398/505 (78.8%) remained on SGLT2i at 6 months. The strongest predictor SGLT2i prescription at 6 months was being discharged on SGLT2i (adjusted OR:12.7, 95% CI 6.9-28.9, p < 0.001). Follow up with a cardiologist within 1-month of discharge (OR:1.69, 95%CI 1.02-2.8, p =0.042), being on a mineralocorticoid-receptor antagonist (OR:2.2, 95%CI 1.30-3.85, p =0.004) at 6 months or renin-angiotensin inhibitor or angiotensin-receptor-neprilysin inhibotor at 6 months (OR:1.94, 95%CI, p =0.044) were associated with higher odds of SGLT2i prescription at 6 months while history of in-hospital initiation (OR:0.40, 95%CI 0.17-0.85, p =0.023) and readmission for AHF (OR:0.44, 95% CI 0.22-0.89, p =0.021) were associated with lower odds of SGLT2i prescription at 6 months.



Conclusions: Most patients exposed to SGLT2i during an AHF hospitalization were initiated during a hospital admission. Most patients hospitalized with AHF tolerate in-hospital initiation of SGLT2i.

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PD044 / #767

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 08
02-03-2024 15:20 - 15:40

TYPE 2 DIABETES MELLITUS AND NON-ALCOHOLIC FATTY LIVER DISEASE: CAN THERE BE A POSSIBLE ASSOCIATION BETWEEN ELASTOGRAPHY AND METABOLIC PARAMETERS?

Jayshree Swain, Sidharth Panigrahi, Vejendla Soma Srinivas, Brij Teli, Kasukurti Lavanya, Pooja Jadhao, S. L. Sravya
Institute of Medical Sciences and Sum Hospital, Endocrinology, Bhubaneswar, India

Background and Aims: Type 2 Diabetes Mellitus (T2DM) is an important cause of non-alcoholic fatty liver disease (NAFLD) and is the hepatic manifestation of metabolic syndrome. The diagnosis of NAFLD requires the demonstration of increased liver fat in the absence of alcohol consumption, chronic hepatitis, etc. A liver biopsy is the gold standard for diagnosis, but it is risky. Fibroscan is a non-invasive tool, that measures hepatic stiffness (liver stiffness measurement LSM) and steatosis (controlled attenuation parameter CAP). There is paucity of studies correlating metabolic parameters with elastography. Aim- To assess the correlation of various anthropometric and biochemical parameters of metabolic syndrome with CAP and LSM in T2DM patients.
Methods: This cross-sectional study included 215 T2DM patients (age>18yrs) after exclusion of individuals with significant alcohol intake, history of jaundice or hepatitis, renal or heart failure, morbid obesity, and culprit drugs. Anthropometric measurements like Weight (wt), Height (Ht), body mass index (BMI), Waist (WC) and Hip Circumferences (HC), waist hip ratio (WHR), and waist height ratio (WHtR) were assessed. Biochemical parameters like fasting (FPG), postprandial plasma glucose (PPBG), HbA1C, and lipid profile were tested. Fibro-scan was done by single observer (Fibro Scan Mini Plus 430 by Echosens, Paris). The optimal cutoff for CAP was taken as > 237 dB/m (high CAP) for steatosis and LSM >7 kPa (high LSM) for fibrosis.
Results: The mean age was 54.87 ± 12.4 years, 42.2% female and 57.8% male. A total of 78% patients have steatosis CAP >237, 38% patients have fibrosis LSM>7. The mean Wt, WC, HC, WHtR and BMI were higher in patients with high CAP. Positive correlation was seen with high CAP and Wt ($r=0.3$, $p<0.001$), WC ($p<0.001$, $r=0.34$), BMI ($p<0.001$, $r=0.25$), WHtR ($p<0.04$ $r=0.14$) and HC ($p<0.01$, $r=0.17$). No significant corelation was seen between CAP and glycaemic or lipid parameters. Likewise, the mean weight, WC, and BMI were higher in patients with high LSM. LSM showed a positive correlation with weight ($p<0.001$, $r=0.22$), WC ($p<0.003$, $r=0.21$) and BMI ($p<0.001$, $r=0.16$), negative correlation with WHR ($p<0.005$, $r=-0.19$). LSM did not show significant correlation with HC, blood pressure and biochemical parameters. Neither of elastography parameters correlated with duration of diabetes, or age.
Conclusions: Hepatic steatosis is associated with weight, WC, HC, and WHR, whereas stiffness is associated with WC, BMI, Wt irrespective of biochemical parameters, duration of diabetes, age. Hence, T2DM patients with abdominal obesity should be screened for NAFLD and encouraged weight loss.

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PD045 / #1532

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 08
02-03-2024 15:20 - 15:40

INVESTIGATING THE ROLE OF BECLIN-1 AND C-FOS AS BIOMARKERS OF HYPOGLYCEMIA-ASSOCIATED AUTONOMIC FAILURE

Bashair M Mussa, Alizeh Ashfaq, Salah Abusnana
Unverity of Sharjah, College Of Medicine, Sharjah, United Arab Emirates

Background and Aims: Recurrent episodes of hypoglycemia can lead to hypoglycemia-associated autonomic failure (HAAF) which is a complication of Type 1 diabetes mellitus (T1DM). HAAF causes dysregulation of the counter-regulatory response (CRR) to hypoglycemia, and this leads to further complications including hypoglycemia unawareness in T1DM patients. Although the outcomes of the latter are very serious, the exact pathogenesis of HAAF is yet to be identified and no biomarkers of hypoglycemia unawareness have been studied, previously. Therefore, the present project aims to identify the mechanisms that are involved in the pathogenesis of the HAAF in T1DM with a focus on c-FOS expression and Beclin- 1-induced autophagy as previous research correlated the latter with the central glucose variability.
Methods: The present study was conducted according to the guidelines of the Research and Ethics Committee of University Hospital Sharjah (UHS) with approval reference of UHS-HERC-075-27102021. Thirty-one T1DM patients were recruited from UHS, aged 18-60 years old. Blood samples were collected and processed into cDNA for measuring the gene expression of c-FOS and Beclin-1 by quantitative polymerase chain reaction (qPCR) in patients with (i) no history of hypoglycemia, (ii) hypoglycemia unawareness and (iii) hypoglycemia awareness.
Results: The results of the present study demonstrate a significant and positive association between Beclin-1 expression and patients with no hypoglycemia ($p < 0.05$). It was also reported that expression of Beclin-1 was higher among patients with hypoglycemia unawareness as compared to patients with hypoglycemia awareness ($p < 0.01$) suggesting a relationship between Beclin-1 and neuronal response to hypoglycemia. In addition, c-FOS was highly expressed among individuals with hypoglycemia awareness ($p < 0.05$) as compared to the other two groups. The present findings suggest an association between impaired neuronal activity and autophagic activity indicated by the reduction in c-FOS and the increase in Beclin-1, respectively. This study has indicated that hypoglycemia unawareness is associated with manipulated neuronal and autophagic activity in patients with T1DM and suggested that FOS and Beclin-1 represent potential biomarkers of hypoglycemia unawareness. As FOS is expressed during stressful conditions and Beclin-1 is an autophagy regulator, their expression can be correlated with the progression of HAAF
Conclusions: The present findings suggest a decrease in c-FOS expression with an increase in Beclin-1 among patients with hypoglycemia unawareness. These findings suggest an association between impaired neuronal activity and autophagic activity indicated by the reduction in c-FOS and the increase in Beclin-1, respectively. This eventually leads to impaired response to hypoglycemia, leading to dysregulation of CRR and HAAF.

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E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 08
02-03-2024 15:20 - 15:40

REAL-WORLD EVIDENCE-BASED COMPARATIVE STUDY ON THE EFFECTIVENESS OF DIFFERENT CLASSES OF SGLT2 INHIBITORS ON TYPE 2 DIABETES MELLITUS PATIENTS

Sambit Das[1], Mahesh Rath[2]
[1]Kalinga Institute of Medical Sciences, Endocrinology, Bhubaneswar, India, [2]Hitech Medical College and Hospital, Endocrinology, Bhubaneswar, India

Background and Aims: Type 2 Diabetes Mellitus (T2DM) is a prevalent and challenging chronic condition with diverse treatment options available, including Sodium-Glucose Cotransporter 2 Inhibitors (SGLT2i). While the efficacy of SGLT2i has been established, a comparative assessment of different classes within this medication group in real-world settings is essential to optimize treatment strategies and patient outcomes.
Methods: This comprehensive study aims to evaluate and compare the real-world effectiveness of distinct classes of SGLT2 inhibitors in the management of T2DM. We conducted a comparative analysis of outcomes of the FBS, PPBS, HBA1C, UACR AND WEIGHT of 700 patients at baseline, 90 days and 180 days among T2DM patients prescribed various SGLT2i classes.
Results: In Canagliflozin (n = 198), Dapagliflozin (n = 220) and Empagliflozin (n = 282) groups respectively, mean changes in the baseline fasting plasma glucose at 12 weeks follow up were 20.7mg/dl, 15.4mg/dl and 25.15mg/dl (p=0.002) whereas at 26 weeks follow up, the mean changes were 34.46mg/dl, 37.87mg/dl and 34.59mg/dl (p=0.49). Mean changes in the baseline post prandial plasma glucose at 12 weeks follow up were 57.92mg/dl, 35.62mg/dl and 41.79mg/dl (p=0.001) whereas at 26 weeks follow up, the mean changes were 85.04mg/dl, 82.00mg/dl and 89.22mg/dl (p=0.092). Mean changes in the baseline HbA1C at 12 weeks follow up were 1.07%, 0.63% and 0.85% (p=0.002) whereas at 26 weeks follow up, the mean changes were 1.22%, 0.94% and 1.20% (p=0.088). Mean changes in the baseline weight at 12 weeks follow up were 0.74kg, 1.37kg and 1.15kg (p=0.001) whereas at 26 weeks follow up, the mean changes were 7.26kg, 2.39kg and 2.85kg (p=0.197). Mean changes in the baseline UACR at 12 weeks follow up were 18.08mg/g, 20.62mg/g and 17.86mg/g (p=0.789) whereas at 26 weeks follow up, the mean changes were 32.41mg/g, 34.91mg/g and 32.32mg/g (p=0.116).
Conclusions: This real world study showed effective glycaemic control, weight and improvement in UACR with the use of SGLT2 inhibitors . However, comparative study highlights the varying effectiveness of different classes of SGLT2 inhibitors in managing T2DM patients beyond controlled clinical trials. The findings suggest that the choice of SGLT2i class may have a substantial impact on patient outcomes, including glycaemic control, weight reduction and renal function preservation. These insights underscore the importance of individualized treatment approaches in optimizing T2DM management. Further research is needed to elucidate the underlying mechanisms driving these class-specific differences and to guide clinical decision-making for healthcare providers.

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E-Poster Discussion
E-POSTER DISCUSSION: ADRENAL 02
02-03-2024 15:20 - 15:40

HEALTH-RELATED QUALITY OF LIFE AND ASSOCIATIONS WITH SOCIAL DEMOGRAPHIC AND MEDICAL/TREATMENT-RELATED FACTORS AMONG CHILDREN AND ADOLESCENTS WITH CONGENITAL ADRENAL HYPERPLASIA IN A LOWER-MIDDLE INCOME COUNTRY

Sumudu Seneviratne[1,2], Shamaali Gunawardana[2], Jananie Jayasinghe[1], Thabitha Hoole[2], Anfa Anverdeen[2], Sathsarani Thilakarathne[2], Madushika Dewasurendra[2]
[1]Faculty of Medicine, University of Colombo, Paediatrics, Colombo, Sri Lanka, [2]Professorial Paediatric Unit, Lady Ridgeway Hospital, Colombo, Sri Lanka

Background and Aims: Congenital adrenal hyperplasia(CAH) is a lifelong medical condition associated with long-term medical and psychosocial challenges. However, there is a dearth of comprehensive data on the health-related quality of life (QoL) of children and adolescents living with CAH. This cross-sectional, case-control study aimed to compare self-reported(SR) QoL of children/adolescents with CAH with that of healthy controls, and with parent-reported (PR) QoL, and to explore associations between SR-QoL and socio-demographic characteristics/medical/treatment related factors.
Methods: Following ethical approval and informed consent, PedsQL-4.0-Generic-Core scales (child:8-12y, adolescent:13-18y) were administered to patients, their parents, and age and gender-matched controls, to evaluate total QoL and physical, social, school and emotional domains. Sociodemographic data and medical/treatment-related information were extracted from electronic patient-registry records. Data analysis was conducted using independent-sample and paired-sample t-tests and one-way ANOVA tests.
Results: The study included 28 individuals with CAH (20 females), their parents and 28 healthy controls. Children/adolescents with CAH self-reported lower total QoL scores compared to healthy controls (87.4±9.6 vs 92.5± 4.6,p=0.03), with greater difference observed between girls (MD -4.7, p=0.036) and in the school QoL domain (MD -18.8,p=0.001). Further, PR-QoL was lower than SR-QoL for total QoL (77.5±10.3 vs 87.4±9.6, p<0.001), with a marked difference seen for girls with CAH (MD 11.0,p<0.001), and greatest difference seen in the social domain (MD 21.5,p=0.001). When considering factors associated with QoL in CAH, lower total QoL was seen in patients from ethnic minority groups (p=0.008)(also lower social and school QoL), and those with poor medication compliance (p=0.044) (also lower social, school and emotional QoL). Additional factors included skin pigmentation and parental consanguinity negatively affecting social and school domains and a greater degree of virilisation and genital surgery affecting the social domain in girls with CAH.
Conclusions: Our study found that children and adolescents with CAH experienced significantly lower health-related QoL compared to their peers, with parents consistently reporting lower QoL scores than affected children, especially in the case of female children/adolescents with CAH. Patients from ethnic minority groups, those with poor compliance, skin pigmentation, and girls with a greater degree of virilisation appear to be at higher risk of impaired QoL. These findings emphasize the necessity of personalized interventions and support systems, taking into account sociodemographic factors, to improve the overall well-being of individuals with CAH.

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E-Poster Discussion
E-POSTER DISCUSSION: ADRENAL 02
02-03-2024 15:20 - 15:40

SPARING CONFIRMATORY TESTING IN PRIMARY ALDOSTERONISM (SCIPA): A MULTICENTER DIAGNOSTIC ACCURACY STUDY

Albert Macaire Ong Lopez[1], Leo Tiu Jr.[2], Diana Collen Dimayuga[3], Oliver Allan Dampil[1], Erick Mendoza[1], Michael Villa[4], Andrea Marie Macabuag-Oliva[2]
[1]St. Luke's Medical Center-Quezon City, Section Of Endocrinology, Diabetes And Metabolism, Quezon City, Philippines, [2]Makati Medical Center, Section Of Endocrinology, Diabetes And Metabolism, Makati City, Philippines, [3]St. Luke's Medical Center- Global City, Section Of Endocrinology, Diabetes And Metabolism, Bonifacio Global City, Philippines, [4]St. Luke's Medical Center- Global City, Section Of Endocrinology, Diabetes And Metabolism, Quezon City, Philippines

Background and Aims: The diagnosis of primary aldosteronism (PA) is comprehensive, which includes case-detection testing, case confirmation followed by subtype classification. In certain instances, such as in the setting of spontaneous hypokalemia, suppressed renin activity (PRA) plus plasma aldosterone concentration (PAC) of > 15 ng/dL, one may not proceed with confirmatory tests. However, the quality of evidence behind this approach is very low. This study sought to evaluate the proposed "simplified confirmatory pathway" that can spare confirmatory testing for primary aldosteronism by evaluating the diagnostic performances of the various pre-specified PAC thresholds in combination with findings of suppressed renin and spontaneous hypokalemia.
Methods: This is a multi-center, retrospective diagnostic accuracy cohort-selected cross-sectional study. A total of 120 participants aged 18 years and above underwent saline infusion test between January 2010 to July 2023. The outcome measures comprise of the diagnostic performances of the different index test combinations (baseline PAC, baseline PRA and presence of spontaneous hypokalemia): sensitivity, specificity, negative predictive value, positive predictive value, positive likelihood ratio, negative likelihood ratio, and diagnostic accuracy. Data analysis was performed using SPSS 29.0.1.0 & MedCalc 20.218.
Results: Of the 120 patients who underwent saline infusion test, 79 (65.83%) were diagnosed with PA. A PAC of > 25 ng/dL plus PRA < 1.0 ng/dL/hr with spontaneous hypokalemia showed the highest specificity at 100% (95% CI 89.42%, 100.00%) and positive predictive value at 100%. The minimum acceptable combination criteria were determined to be a PAC of > 20 ng/dL plus PRA < 0.6 ng/dL/hr, and presence of spontaneous hypokalemia. It has high specificity (93.94%; 95% CI 79.77%, 99.26%), positive predictive value (92.86%, 95% CI 76.61%, 98.10%), and moderate positive likelihood ratio (LR+) (5.72, 95% CI 1.44, 22.71)
Conclusions: A hypertensive patient with spontaneous hypokalemia and screening findings of PAC > 20 ng/dL and suppressed PRA of < 0.6 ng/ml/hr, can be classified as "overt primary aldosteronism confirmed" and may not need to proceed with dynamic confirmatory testing.

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E-Poster Discussion
E-POSTER DISCUSSION: ADRENAL 02
02-03-2024 15:20 - 15:40

ENDOCRINE EVALUATION OF PATIENTS HOSPITALIZED WITH COVID 19 INFECTION, A CROSS SECTIONAL ANALYSES IN TERTIARY LEVEL HOSPITAL

Tahir Ghaffar[1], Shaista Kanwal[2], A. H. Aamir[2]
[1]Hayatabad Medical Complex, Diabetes And Endocrinology, peshawar, Pakistan, [2]Hayatabad Med Complex, Dept Of Diabetes And Endocrinology, Peshawar, Pakistan

Background and Aims: Worldwide, patients that are infected with SARS-COV2 and need hospitalization are referred to specialized isolation units for evaluation and management. Being the territory level hospital, having super specialties and Intense Care Units (ICU) along with isolated COVID Out Patient Department (OPD) in this part of the country, patients with positive PCR for SARS-COV2 were referred from all over the province for evaluation and management. We designed this study to find out SARS-COV2 patients stress response on thyroid and adrenal organs to the severity of illness. The current study will add to and improve the existing knowledge of medical physicians and endocrinologists on thyroid and adrenal system involvement and response in COVID infected patients especially in this region, thus improving the general health and quality of life of the population being affected by this pandemic disease.
Methods: The sample included 66 patients having age 18 years and above with positive COVID 19 PCR, who were reported in COVID OPD for hospitalized in Isolation Units and Intensive Care Unit of Hayatabad Medical Complex Peshawar between 15 June 2020 and 15 December 2020. Exclusion criteria excluded patients who were pregnant or lactating, patients with already diagnosed liver or kidney disease and patients who had started steroid treatment before blood sampling. Baseline investigations were measured that included clinical examination, PCR, laboratory investigations like C- reactive protein CRP, CBC, TFTS, Cortisol levels were also assessed.
Results: Most of the patients under study were 54 years of age (54.38+ 15.81). At baseline, 75%, 17%, and 3% patients had mild, moderate, and severe COVID-19, respectively. Thyroid Stimulating Harmons (TSH) levels were suppressed in 25% of patients, more significant in those with more severe infection. Raised cortisol levels were found in 94% of patients at admission without any prior dose of steroids. As per clinical outcome is concern, mortality occurred in 20% of patients while 80% recovered healthy.
Conclusions: The findings of the results suggest appropriate response of endocrine system to covid infection. The amount of cortisol and TSH changes were also associated with the severity of sickness.

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E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 03
03-03-2024 09:40 - 10:00

ORAL SEMAGLUTIDE VS. METFORMIN IN WOMEN WITH POLYCYSTIC OVARY SYNDROME: A RANDOMIZED CONTROLLED CLINICAL TRIAL

Sharvil Gadve[1], Sneha Chavanda[2], Shriya Gadve[3], Satish Hanamshetti[1]
[1]Excel Endocrine Centre, Kolhapur, India, [2]D.Y Patil Medical College, Medicine, Kolhapur, India, [3]APPLE SARASWATI MULTISPECIALITY HOSPITAL, Internal Medicine, KOLHAPUR, India

Background and Aims: Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorder. Metformin is a commonly used medication for PCOS. GLP-1 agonist semaglutide is now extensively used for the indication of type 2 diabetes and obesity ; however its possible use in PCOS needs to be studied.
Methods: We did a randomized controlled trial (RCT) comparing oral semaglutide with metformin in PCOS. This was an open-label six-month RCT in women with PCOS (n = 52) with interventions oral semaglutide 3 mg/day or metformin 2 g/day. Primary outcome was the weight, cycle length, hirsutism scores. Secondary outcomes were homeostasis model assessment of Insulin resistance (HOMA-IR), fasting glucose, testosterone, adverse effects, quality of life, and depression scores.
Results: Median age was 24.4 years. Median Body mass index was 30.1 kg/m2. Median weight changed − 6.2 kg during semaglutide (p = 0.004) and − 3.0 kg during metformin (p = 0.02) (semaglutide vs. metformin, p = 0.002). Median cycle length decreased 19 days during semaglutide (p = 0.01) and 11 days during metformin (p = 0.03) (semaglutide vs. metformin, p = 0.004). Hirsutism score changed - 0.8 during semaglutide (p = 0.12) and - 1.1 during metformin(p = 0.09) (semaglutide vs. metformin, p = 0.93). HOMA-IR changed -1.2 during semaglutide (p = 0.002) and -1.3 during metformin (p = 0.001) (semaglutide vs. metformin, p = 0.12). Median fasting glucose changed -5.4 mg/dl during semaglutide (p = 0.07) and −6.1 mg/dl during metformin(p = 0.06) (semaglutide vs. metformin p = 0.14). All other parameters including testosterone and scores of quality of life and depression remained unchanged during semaglutide and metformin (all p > 0.07) (semaglutide vs. metformin, all p > 0.31). Adverse effects appeared in 9 women during semaglutide (n=26) and 6 women during metformin (n=26) (semaglutide vs. metformin, p = 0.001).
Conclusions: In conclusion there was more significant weight loss and improvement in cycle length with oral semaglutide compared to metformin for PCOS. The effect on hirsutism, HOMA-IR, fasting glucose were comparable with oral semaglutide and metformin. All other parameters including testosterone and scores of quality of life and depression remained for both semaglutide and metformin. Adverse effects were more frequent with oral semaglutide compared to metformin. Semaglutide can be considered as a potential treatment option for PCOS.

PD051 / #904

E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 03
03-03-2024 09:40 - 10:00

METABOLOMIC ANALYSIS OF BISPHENOL AP ON MULTIGENERATIONAL OUTCOMES OF FEMALE RATS AND THEIR FEMALE OFFSPRING IN ADULTHOOD.

Roshan Borkar[1], Jaya Singh[2]
[1]National Institute of Pharmaceutical Education and Research-Guwahati (NIPER-G) (Dept. of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Govt. of India) Guwahati-781101, Assam, Department Of Pharmaceutical Analysis, Guwahati, India, [2]Department of Pharmaceutical Analysis National Institute of Pharmaceutical Education and Research-Guwahati (NIPER-G) (Dept. of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Govt. of India) Guwahati-781101, Assam, Department Of Pharmaceutical Analysis, Guwahati, India

Background and Aims: Bisphenol A (BPA) and its analogs, including Bisphenol AP (BPAP), are pervasive in consumer products and are known endocrine disruptors with adverse effects on reproductive and developmental health. However, the multigenerational health impacts of these substitutes still need to be better understood. Analyzing the metabolomic profiles resulting from BPAP exposure in female rats and their female offspring offers critical insights into multigenerational metabolic effects and potential health consequences. This study conducts an extensive metabolomic analysis to evaluate the multigenerational effects of BPAP exposure in female rats and their female offspring during adulthood. Our objectives are to (a) assess the impact of BPAP on body composition, biochemical parameters, behavior, and hormonal profiles in F 0 mother rats and their F 1 & F 2 female offspring and (b) examine alterations in the urine metabolome of F 0 mothers and their F 1 & F 2 female offspring.
Methods: The study adhered to ethical protocols defined by the Institutional Animals House Ethics Committee. Adult female Sprague Dawley rats (F0) were divided into exposed and control groups. These rats were mated with unexposed males to produce two sets of offspring, F1 (exposed and control). Subsequently, F1 females (exposed and control) were bred to generate F2 offspring. Gestational day (GD) 1 marked the appearance of a vaginal plug, and female rats, referred to as dams, were exposed to BPAP from GD 7 until the end of lactation. The study involved comprehensive assessments of body composition, behavior, biochemistry, and hormonal profiles for F0, F1, and F2 rats.
Results: We conducted Oral Glucose Tolerance Tests and Insulin Tolerance Tests and assessed the timing of vaginal opening to evaluate potential delays in sexual maturation. Echocardiography was performed to examine cardiovascular parameters, revealing significant alterations in heart rate, stroke volume, cardiac output, and increased left ventricular mass, suggesting potential cardiovascular implications of BPAP exposure. Metabolomics analysis identified significant changes in tryptophan metabolism, vitamin B6 metabolism, and arginine biosynthesis, indicating potential links to diabetes mellitus.
Conclusions: In conclusion, this study sheds light on the multigenerational effects of BPAP exposure on the metabolic health of female rats and their female offspring. Disruptions in glycemic regulation, delayed sexual maturation, cardiovascular alterations, and metabolic changes highlight the importance of investigating the health implications of BPA alternatives like BPAP. Understanding the mechanisms behind these effects and exploring potential interventions is crucial for safeguarding public health and promoting safer alternatives in consumer products.

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E-Poster Discussion
E-POSTER DISCUSSION: REPRODUCTIVE HEALTH 03
03-03-2024 09:40 - 10:00

MODIFIED FERRIMAN-GALWAY SCORE IN MIDDLE EASTERN WOMEN; POPULATION STUDY

Misk Alsubaie, Sulaiman Hajji, Khaled Aljenaee
Adan Hospital, Internal Medicine, Kuwait city, Kuwait

Background and Aims: Hirsutism is defined as excessive growth of terminal hair in androgen-dependent areas of the body in women. The most widely used scoring system for hirsutism was first developed by Ferriman and Gallwey in 1961, the system was derived from a population study of white women in England and a cutoff point of > 8 defines hirsutism and consider to be abnormal. Unfortunately Ferriman and Gallwey score carries many limitations. One of the main limitations is the racial impact on hair growth. Different races have different degree of hair growth even with the same androgen levels, for example most East Asian women have little body hair while Middle Eastern women have greater quantities of body hair. By reviewing the literature there is no strong evidence defines hirsutism in Middle Eastern women using modified Ferriman and Gallwey (mFG) score. Wide population study to define hirsutism and establish a cutoff point using mFG for Middle Eastern women highly valid and will lead to improve diagnostic approach for these patients.
Methods: An online survey was launched through social media applications in Middle East targeting women age 13 and above in the period of 1-31 January 2018. Data were collected regarding self-assessment of hirsutism based on mFG score.
Results: 21,445 responses were received, 14,411 (67.2%) completed the survey. Main completed responses were from Saudi Arabia and Kuwait 10,323 (72%). 10,513 (73%) women has not known to have any hormonal problems, not on anti-androgens or oral contraceptive pills and their cycles were regular. The 95th percentile of mFG score of those women was 13. 3,555/8,637 (41.2%) women with mFG score >13 they think they have hirsutism while 391/435 (89.9%) women with mFG <13 they think they have hirsutism.
Conclusions: Middle Eastern women have greater quantities of body hair growth in comparison to women from other populations. A cut off point of >13 using mFG score can be used to define hirsutism in the Middle East area in which it requires further evaluation.

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PD053 / #521

E-Poster Discussion
E-POSTER DISCUSSION: HEALTH CARE SYSTEMS
03-03-2024 09:40 - 10:00

CIRCADIAN RHYTHM OF STRESS AND SLEEP HORMONES AND ITS ASSOCIATION WITH 24 HOURS CHRONOMICS OF AMBULATORY BLOOD PRESSURE/ HEART RATE IN NIGHT SHIFT NURSING PROFESSIONALS

B Anjum[1], Qulsoom Naz[2], Narsingh Verma[3], Sandeep Tiwari[4], Ranjana Singh[1], Abbas Ali Mahdi[1], Mohammad Kaleem Ahmad[1]
[1]King George's Medical University, Biochemistry, Lucknow, India, [2]King George's Medical University, Medicine, Lucknow, India, [3]King George's Medical University, Department Of Physiology, Lucknow, India, [4]King George's Medical University, Trauma And Surgery, Lucknow, India

Background and Aims: Rotating night shift and sleep loss may be a major risk factors for endocrinal disruption, type 2 diabetes, Hypertension and other cardiovascular disorders due to interference with diet, circadian metabolic rhythms, and lifestyle including feeding/fasting cycles. The aim of the present study is to find out the circadian rhythm of stress and sleep hormones and its association with 24 hours chronomics of BP/HR in terms of Acrophase and Hyperbaric index in rotating night shift nursing professionals and actual day workers.
Methods: 56 rotating night shift nursing professionals, aged 20–40 years, performing day and night shift duties were recruited from the Trauma Center, KGMU, India, and 56 age sex matched actual day workers were also enrolled as controls. BP and HR were recorded by 24 Ambulatory blood pressure and heart rate monitoring at every 30 min intervals in day time and each hour in night time during their shift duties. we have collected saliva and urine samples at 4 different time intervals. Stress hormone Cortisol and Sleep hormone Melatonin were tested in saliva and urine samples respectively. Cortisol and melatonin hormones were tested by ELISA method.
Results: Highly significant difference was found in double amplitude (2DA) of among between night (23.10 ± 14.68) and day shift (34.27 ± 16.44) ($p < 0.0005$). In night shift, hyperbaric index (HBI) of mean SBP was found to be increased at 00–03 am (midnight) while during day shift, peak was found at 06–09 am. HBI of mean HR was found to be increased at 18–21 pm during night shift while in controls, peak was found at 09–12 & again 15–18 pm of SBP, DBP & HR. Alterations in Acrophase of BP/HR were very common among night shift workers and Ecphasia was found in few nights shift workers. Difference was found in night cortisol levels among night (4.08 ± 3.28) vs day shift (2.62 ± 2.37), while in comparison to night shift or day shift with controls (1.82 ± 1.18) these difference was significant ($p < 0.05$).
Conclusions: Alteration in mean morning melatonin level was also found during night shift. Reverse pattern of Acrophase and HBI of BP & HR along with salivary cortisol during night shift represents desynchronization. It indicates that the circadian rhythm was disrupted during night shift and recovery occurs during day shift.

PD054 / #1713

E-Poster Discussion
E-POSTER DISCUSSION: HEALTH CARE SYSTEMS
03-03-2024 09:40 - 10:00

DESIRE AND PREFERENCE OF PATIENTS WITH DIABETES AND DYSLIPIDEMIA FOR PROVISION OF INFORMATION TOWARD GREATER INVOLVEMENT IN SHARED CARE

Ali Alhaqwi
King Abdul-Aziz Medical City, Family Medicine, RIYADH, Saudi Arabia

Background and Aims: Objectives: To determine the perceptions of patients with diabetes, dyslipidemia and other chronic diseases, on whether they receive sufficient information about their medical problems, their preferences to obtain information, and factors that may influence their preferences.
Methods: . Design and Settings: Cross-sectional, questionnaire-based study conducted in a primary health-care center affiliated with the National Guard Hospital, Riyadh, Saudi Arabia.
Results: Results: A total of 245 patients participated in the study. The mean (±standard deviation) age of the participants was 43 (±16) years. Reported cases of dyslipidemia, diabetes mellitus, and hypertension among participants were 42%, 39%, and 31%, respectively. A minority of the participants indicated that they had a sufficient knowledge of their medical problems. The vast majority of the patients (92%) indicated that their preference to be informed about available treatment options and the plan for their future treatment. However, only 38% indicated that they had been told about the available treatment options, and less than half (48%) were informed about their future treatment plan. The proportion of male patients who preferred to know the treatment plan for their medical problems was significantly more than that of females ($P < 0.001$); nevertheless, female participants perceived that they had been better informed about their treatment plan than the male participants ($P = 0.003$).
Conclusions: Conclusion: This study demonstrates that patients receive information about their medical problems much less than their expectations. Measures to promote patient education and their involvement in shared care process should be considered and implemented to minimize serious health outcomes.

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PD055 / #1476

E-Poster Discussion
E-POSTER DISCUSSION: ENDOCRINE CANCERS/THYROID
03-03-2024 09:40 - 10:00

EVALUATION OF MTOR PATHWAY IN PANCREATIC NEUROENDOCRINE NEOPLASMS

Rajni Yadav[1], Salma F U Khan[1], Priyanka Singh[1], Shamim A Shamim[2], Sameer Rastogi[3], Prasenjit Das[1], Shipra Agarwal[1], Sujoy Pal[4], Nihar R Dash[5], Anand N Singh[5], Viveka P Jyotsna[6], Mehar C Sharma[1]
[1]All India Institute of Medical Sciences, Pathology, New Delhi, India, [2]All India Institute of Medical Sciences, Nuclear Medicine, New Delhi, India, [3]All India Institute of Medical Sciences, Medical Oncology, New Delhi, India, [4]AIIMS, Gastrointestinal Surgery, New Delhi, India, [5]All India Institute of Medical Sciences, Gastrointestinal Surgery, New Delhi, India, [6]All India Institute of Medical Sciences, Endocrinology, New Delhi, India

Background and Aims: Pancreatic neuroendocrine neoplasms (PanNENs) are rare, heterogenous group of neoplasms with an annual incidence of 0.48/100,000 population in the world. There are various established adverse prognostic factors. Moreover, recent advancements in molecular techniques have shed light on newer prognostic and predictive markers. The present study was planned to evaluate the role of mTOR pathway in PanNENs.
Methods: An ambispective study was performed over a period of 7 years and a total of 73 cases were included. Hematoxylin and eosin stained slides were retrieved and evaluated for histopathological parameters including staging and grading based on AJCC eighth edition and WHO 2017 classification. Formalin fixed paraffin embedded blocks were selected and immunohistochemical (IHC) staining with antibodies against pmTOR, pS6 and p4EBP1 was done. Pattern, intensity and percentage distribution of expression were evaluated to calculate the IHC score. Data was analysed using STATA version SE14.
Results: The mean age of patients was 41 years and male predominance was noted with a male to female ratio of 1.43:1. Majority of the tumors were non-functional (63.01%) with G2 NEN constituting the major proportion (49.32%). Tumors size >4 cm, infiltrative tumor border, presence of adjacent organ infiltration, lymph node metastasis, tumor necrosis, distant metastasis, high mitotic activity, high Ki67 labelling index and advanced tumor grade had significant association with higher incidence of recurrence/metastasis/death. High expression for pmTOR, pS6 and p4EBP1 was observed in 34.29%, 24.66%and 16.44% cases respectively. High pmTOR expression was more frequent among non-functional tumors and in tumors with lymph node metastasis, lymphovascular invasion and perineural invasion. Tumors with high expression for p4EBP1 were seen to be located more frequently in the body and neck of pancreas and high expression was seen to be associated with lower pathological tumor stage, group stage and low mitotic activity. The high expression of pS6 was associated with favorable clinicopathological parameters.
Conclusions: mTOR pathway plays an important role in pathogenesis of PanNENs. Expression of various mTOR pathway markers can be useful for patient prognostication. Therapy with mTOR inhibitors can serve as valuable option.

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PD056 / #1025

E-Poster Discussion
E-POSTER DISCUSSION: ENDOCRINE CANCERS/THYROID
03-03-2024 09:40 - 10:00

A COMPARISON OF OUTCOMES IN THYROID CANCER PATIENTS WHO RECEIVE MODERATE VS. HIGH DOSES OF RADIOACTIVE IODINE (RAI) THERAPY

Patricia Nguyen[1], Fawziyah Ibrahim[2], Afshan Zahedi[3]
[1]Women's College Hospital, Peter Gilgan Centre For Women's Cancers, Toronto, Canada, [2]Women's College Hospital, Wcri, Toronto, Canada, [3]Women's College Hospital, Thyroid, Toronto, Canada

Background and Aims: Over 7000 Canadians are newly diagnosed with thyroid cancer yearly and it is the 5th most common cancer amongst Canadian women. With effective treatment, the 5-year survival rate for thyroid cancer is one of the highest at 98%. Standard surgical treatments include partial thyroidectomy or total thyroidectomy. For patients with moderate or high risk of recurrence, or residual or metastatic disease, adjuvant radioactive iodine (RAI) therapy is also standard of care. Higher RAI dosages are often used with the assumption of an improved response; however, high dosages are often associated with potential increase of short- and long-term side effects for patients. It is of interest to explore the outcomes of administration of more moderate RAI dosing. The primary objective was to examine outcomes of thyroid cancer patients who receive moderate RAI doses (50-99 mci) compared to patients who receive high doses (100 mci or greater).
Methods: As an observational retrospective study, data was collected on thyroid cancer patients who had follow-up visits at Women's College Hospital (Canada) between 2019 and 2022, and received RAI therapy. Data was retrieved from electronic medical records, inputted into a REDCap database, and then exported for analysis. Our primary outcomes were prevalences of complete response to therapy, recurrence, and persistent disease.
Results: Within our cohort of 580 thyroid cancer patients, 308 (53%) patients received adjuvant RAI therapy. Among this sample of 308 patients, the majority were female (74%, n=228) and the overall mean age at diagnosis was 43 years. Nearly all (97%, n=300) were diagnosed with papillary carcinoma, and most were classified with T2 (36%, n=111), Nx/N_0 (53%, n=163), and Mx/M_0 (95%, n=293). Based on RAI doses, 62 patients (20%) received moderate doses (50-99 mci) and 142 patients received high doses (≥100 mci) of RAI therapy. Among patients on moderate doses, most (76%, n=47) had complete response to therapy, there were only 9 cases of persistent disease (15%) and no cases of recurrence. Among the 142 patients who received high doses of RAI therapy, 39% (n=56) had complete response to therapy, 31% (n=44) had persistent disease, and there were 10 cases of recurrence (7%).
Conclusions: Thyroid cancer patients who received moderate RAI doses (50-99 mci) showed favorable response, including 76% with complete response to therapy. Moderate RAI dosing in the range of 50-99 mCi could be considered as an effective initial ablation dose post total thyroidectomy in patients with no evidence of gross residual or metastatic disease.

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PD057 / #1201

E-Poster Discussion
E-POSTER DISCUSSION: ENDOCRINE CANCERS/THYROID
03-03-2024 09:40 - 10:00

IMMUNE-MODULATING EFFECT OF MYCOPHENOLIC ACID, AND/OR RAPAMYCIN, ON TH1 AND TH2 CHEMOKINES SECRETION, IN RETRO-ORBITAL CELLS OF PATIENTS WITH GRAVES' OPHTHALMOPATHY

Silvia Martina Ferrari[1], Giusy Elia[2], Francesca Ragusa[2], Eugenia Balestri[2], Chiara Botrini[2], Valeria Mazzi[2], Armando Patrizio[3], Alessandro Antonelli[2], Poupak Fallahi[4]
[1]University of Pisa, Department Of Clinical And Experimental Medicine, Pisa, Italy, [2]University of Pisa, Department Of Surgical, Medical And Molecular Pathology And Critical Area, Pisa, Italy, [3]Azienda Ospedaliero-Universitaria Pisana, Department Of Emergency Medicine, Pisa, Italy, [4]University of Pisa, Department Of Translational Research And Of New Technologies In Medicine And Surgery, Pisa, Italy

Background and Aims: Background and aims: Cytokines and chemokines are very important in the pathogenesis of Graves' Ophthalmopathy (GO). A Th1 immune-preponderance has been shown in the immunopathogenesis of Graves' disease and GO, in which the Th1-chemokines (CXCL9, CXCL10, CXCL11), and their (C-X-C)R3 receptor, have a crucial role. In particular, a dominant Th1 profile has been shown by lymphocytes obtained from thyroid tissue of patients with GD, or orbital tissues of patients affected by GO, during the early active phase. While in patients with remote-onset, inactive GO, most of lymphocytes have a Th2 profile. Indeed cytokines stimulate the T helper (Th)1 and Th2 chemokines release from retro-orbital cells (fibroblasts, preadipocytes and myocytes). In this study we aimed to investigate the effects of rapamycin, or mycophenolic acid, on the secretion of Th1 and Th2 chemokines in GO orbital cells.
Methods: We established primary cell cultures of fibroblasts, preadipocytes and myoblasts from the orbits of 5 GO patients, and we tested increasing concentrations of rapamycin and/or mycophenolic acid evaluating the secretion of the prototype Th1 [chemokine (C-X-C motif) ligand 10 (CXCL10)] and Th2 [chemokine (C-C motif) ligand 2 (CCL2)] chemokines.
Results: We observed that CXCL10 secretion in the retro-orbital cells of GO was undetectable in the supernatants. Interferon (IFN)-gamma induced its release in a dose-dependent manner, whereas tumor necrosis factor (TNF)-alpha alone had no effect. However, treating primary GO cells with the combination of both cytokines had a significant synergistic effect on CXCL10 secretion. As regards the effect on the CCL2 secretion, it was released in low amounts in basal condition; TNF-alpha dose-dependently induced its release, while IFN-gamma alone had no effect. The combination of TNF-alpha plus IFN-gamma had a significant synergistic effect on CCL2 secretion. By adding mycophenolic acid, or rapamycin, (in a pharmacological range) at the time of IFN-gamma and TNF-alpha stimulation, we observed a dose-dependent inhibitory effect on the chemokines release in the retro-orbital cells of GO. Moreover, the treatment with mycophenolic acid plus rapamycin had a synergistic inhibitory effect on the release of chemokines.
Conclusions: Our data showed an immune-modulating effect of mycophenolic acid and/or rapamycin on the Th1 and Th2 chemokines secretion, in GO orbital cells. These data suggest a synergistic therapeutic role of these drugs that could be exercised, at least in part, through the secretion of these chemokines.

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PD058 / #513

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 10
03-03-2024 09:40 - 10:00

EFFICACY OF PLATELET-RICH PLASMA (PRP) IN CLEAN DIABETIC FOOT ULCERS TREATMENT: A RANDOMIZED CONTROLLED TRIAL

Mahsa Arabzadeh[1], Aidin Arabzadeh[2]
[1]Pharmaceutical Sciences Research Center, Tehran University of Medical Sciences, Medicine, Tehran, Iran, [2]Imam Khomeini Hospital, Tehran University of Medical Sciences, Orthopedic Surgery, Tehran, Iran

Background and Aims: Diabetic foot ulcers (DFUs) represent a substantial clinical challenge due to their chronicity and propensity for complications. Platelet-Rich Plasma (PRP) has garnered attention as a potential therapeutic modality due to its ability to accelerate wound healing by releasing growth factors. This study aimed to investigate the effectiveness of PRP, delivered via two distinct regimens, in treating clean diabetic foot ulcers when combined with collagen matrix dressing.
Methods: Eighty-one patients of both gender, aged between 40 and 80 years, were randomly and equally divided into three groups. Group A (n=27) received injected PRP every two weeks, totaling three injections and collagen matrix dressing. Group B (n=27) received PRP gel twice weekly with collagen matrix dressing. Group C (n=27) served as the control group, receiving standard care with collagen matrix dressing alone. Patients were monitored for wounds on days 0, 14, 28, and 90 based on Wagner's classification of wounds to assess efficacy.
Results: The study demonstrated noteworthy improvements in wound healing outcomes across both PRP-treated groups compared to the control group. Group A exhibited a complete wound closure rate of 48.1%, while Group B achieved 44.4%, surpassing the control group's rate of 29.6%. Reductions in wound area were significant in both Group A (62.3%) and Group B (58.8%) compared to Group C (34.9%) ($p < 0.01$). Additionally, enhanced granulation tissue formation was observed in Group A (75.2%) and Group B (72.6%) compared to Group C (57.3%) ($p < 0.05$). Notably, no adverse events or complications were reported in any treatment group.
Conclusions: This randomized controlled trial demonstrates the efficacy of Platelet-Rich Plasma (PRP) as a promising adjunctive treatment in the management of clean diabetic foot ulcers. When combined with collagen matrix dressing, both the injected PRP regimen and the PRP gel regimen exhibited superior wound healing outcomes compared to the control group. The injected PRP regimen notably demonstrated a slightly higher complete wound closure rate. These findings underscore the potential of PRP in optimizing wound healing, and further investigation is warranted to elucidate the underlying mechanisms and refine treatment protocols for enhanced therapeutic benefit.

PD059 / #1032

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 10
03-03-2024 09:40 - 10:00

PREVALENCE OF OVERWEIGHT AND OBESITY AMONG CHILDREN NEWLY DIAGNOSED WITH TYPE 1 DIABETES IN KUWAIT

Dalia M Al-Abdulrazzaq[1], Abdulla Al-Kandari[2], Hessa Al-Kandari[2]
[1]Kuwait University, Pediatrics, Kuwait City, Kuwait, [2]Dasman Diabetes Institute, Population Health, Kuwait City, Kuwait

Background and Aims: Aims: To investigate the prevalence of overweight and obesity as a modifiable risk factor for cardiovascular disease (CVD) in children newly diagnosed with Type 1 Diabetes (T1D) in Kuwait.
Methods: Children registered to have T1D in the Childhood-Onset electronic Registry (CODeR) between the period 2017 till 2022 in Kuwait were included in the study. Overweight and Obesity were defined as per the World Health Organization (WHO) child growth standards.
Results: During the study period, 2066 children were registered to have T1D in CODeR out of which 157 (12.5%) were overweight with a mean Body mass index (BMI) z score of 1.6 (±0.41) and 220 (17.5%) were obese with a BMI z score of 3.1 (±1.1) (combined 377 (30%)). From 2017 till 2022, there was no significant change in the prevalence of overweight or obesity among the subjects (p=ns). Male children were more likely to be obese (129 (21.4%) vs 91 (13.8%), p=0.002). There was no clinical significance in the level of HbA1C in overweight children (11.0%±2.0) vs obese children (10.8%±1.8) vs children with normal BMI (11.2%±2.3). Overweight and obese children were less likely to present with Diabetic Ketoacidosis (DKA) (11.6% and 13.4% respectively) compared to children with normal BMI (60.1%) (p<0.0001) however, there was no significant difference in DKA severity. There was also no significant difference among the groups with regards to thyroid and celiac screen.
Conclusions: Conclusion: Children with T1D have a high percentage of overweight and obese at the time of diagnosis. This puts them at a disadvantage early in the course of the disease with regards to CVD risk. Our results stress the importance of early detection and intervention in those children.

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PD060 / #1311

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 10
03-03-2024 09:40 - 10:00

A QUALITY IMPROVEMENT PROJECT TO PREVENT INPATIENT HYPOGLYCEMIA IN MEDICAL WARDS AT A TERTIARY HOSPITAL IN MALAYSIA

Siow Ping Lee, Chin Voon Tong
Malacca Hospital, Medical Department, Malacca, Malaysia

Background and Aims: Hypoglycemia is associated with increased mortality and morbidity. The goal of this project is to assess the incidence and causes of inpatient hypoglycemia in our facility, develop and implement remedial measures to mitigate the risk, and to determine the impact of remedial measures through a follow-up assessment.
Methods: The initial phase involved prospective review of hypoglycemic events which took place from January till February 2023 in four largest medical wards for non-critically ill patients. This led to the review of local hypoglycemia management protocol, providing hypoglycemia kits to wards, and education to providers on inpatient glycemic management. Post remedial phase was carried out from June till July 2023. In both phases, universal sampling of all hypoglycemic episodes was carried out. Data on patient's demography, disease information, severity of hypoglycemia and causes of hypoglycemia were collected.
Results: The initial phase captured 71 patients with inpatient hypoglycemia out of 1397 admissions (5.1%). The mean age of the patients was 62 years and most of the patients (66.2%) were female. About 69% of the patients had level 1 hypoglycemia and 2.8% of them experienced severe hypoglycemia. 46% of hypoglycemia were related to failure to adjust the insulin dose in patients with poor oral intake. Improper insulin administration or dosing in renal impairment was linked to 14.9% of hypoglycemia events. The third most common cause was the use of sulfonylureas or premixed insulin (9.2%). In the post remedial phase, out of a total of 1513 admissions, 58 patients experienced inpatient hypoglycemia. The incidence has reduced from 5.1% to 3.8%. Most of the patients (81%) experienced level 1 hypoglycemia, followed by level 2 hypoglycemia (10.3%), and severe hypoglycemia (8.6%). The mean age of the patients was 64 years and most of the patients were female (65.5%). The most common cause of inpatient hypoglycemia, 63.8%, once again was failure to adjust the insulin dose in patients with poor oral intake. The second most common factor, linked to 12.1% of hypoglycemia, was improper insulin administration or dosing in renal impairment.
Conclusions: Our data highlights the ongoing issue of hypoglycemia in non-critically ill patients. Factors leading to hypoglycemia such as failure to adjust insulin dose are potentially preventable. Regular review and update of local management protocol and dissemination of this knowledge to healthcare providers are important to minimize inpatient hypoglycemia.

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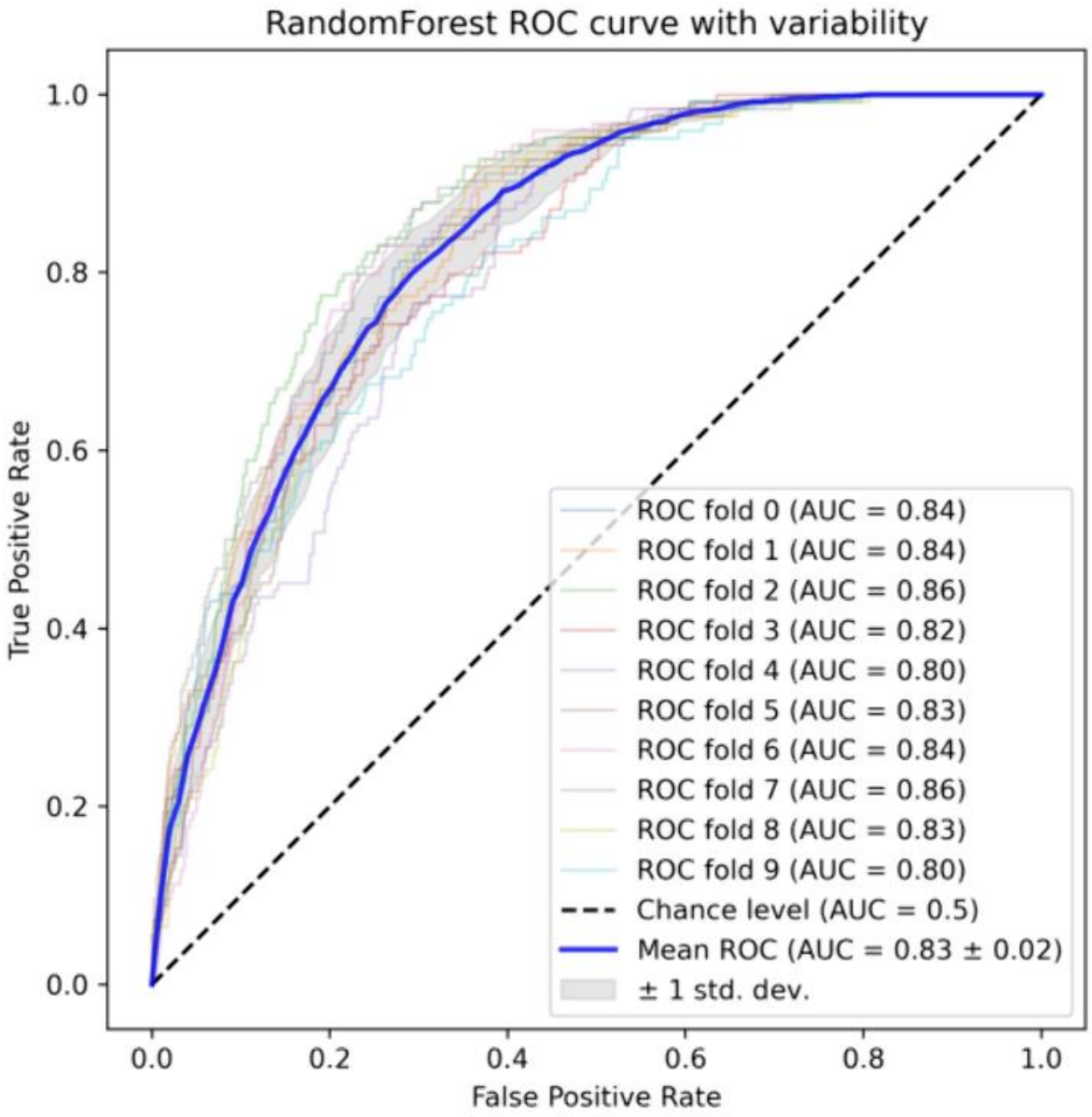
PD061 / #622

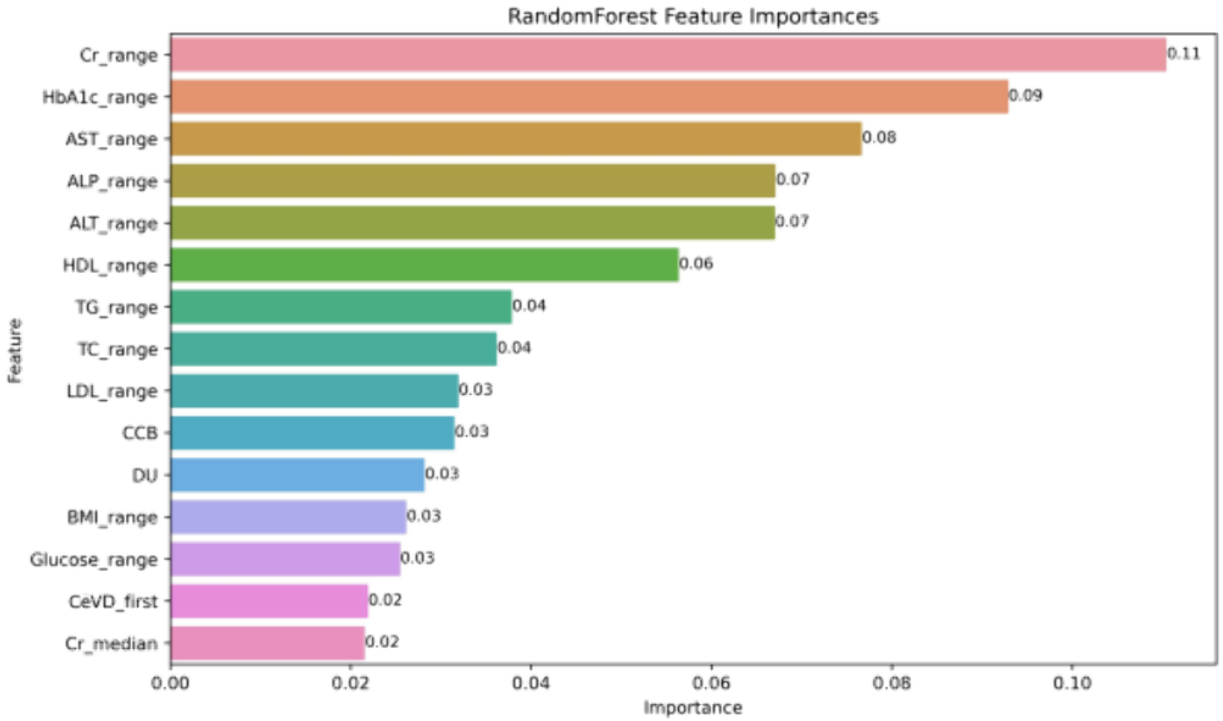
E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 11
03-03-2024 09:40 - 10:00

MACHINE LEARNING-BASED PREDICTION MODEL FOR CARDIOVASCULAR DISEASE IN PATIENTS WITH DIABETES: DERIVATION AND VALIDATION IN TWO INDEPENDENT KOREAN COHORTS

Hyunji Sang[1], Hojae Lee[2], Myeongcheol Lee[2], Jaeyu Park[2], Sunyoung Kim[3], Ho Geol Woo[4], Sihoon Lee[5], You-Cheol Hwang[6], Tae Sun Park[7], Hyunjung Lim[8], Dong Keon Yon[2], Sang Youl Rhee[9]
[1]Kyung Hee University Medical Center, Department Of Endocrinology And Metabolism, Seoul, Korea, Republic of, [2]Medical Science Research Institute, Kyung Hee University Medical Center, Kyung Hee University College of Medicine, Center For Digital Health, Seoul, Korea, Republic of, [3]Kyung Hee University Medical Center, Kyung Hee University College Of Medicine, Department Of Family Medicine, Seoul, Korea, Republic of, [4]Kyung Hee University Medical Center, Kyung Hee University College Of Medicine, Department Of Neurology, Seoul, Korea, Republic of, [5]Gachon University College of Medicine, Department Of Internal Medicine, Incheon, Korea, Republic of, [6]Kyung Hee University Hospital At Gangdong, And Kyung Hee University School Of Medicine, Division Of Endocrinology And Metabolism, Seoul, Korea, Republic of, [7]Jeonbuk National University Hospital, Division Of Endocrinology And Metabolism, Department Of Internal Medicine, Jeonju, Korea, Republic of, [8]Graduate School Of East-West Medical Science, Kyung Hee University, Department Of Medical Nutrition, Seoul, Korea, Republic of, [9]Kyung Hee University Medical Center, Kyung Hee University College Of Medicine, Department Of Endocrinology And Metabolism, Seoul, Korea, Republic of

Background and Aims: Various machine learning (ML) prediction models have recently been developed for cardiovascular disease (CVD) in type 2 diabetes mellitus (T2DM); however, the lack of multiple risk factors limits their predictive power. This study aimed to evaluate the validity and usefulness of an ML model for predicting the 3-year incidence of CVD in patients with T2DM.
Methods: We used data from two independent cohorts, the discovery cohort (one hospital; n=12,809) and the validation cohort (two hospitals; n=2019), to predict CVD. The outcome of interest was the presence/absence of CVD at 3 years. We selected various ML-based models with hyperparameter tuning in the discovery cohort and performed an area under the receiver operating characteristic curve (AUROC) analysis in the validation cohort.
Results: The study dataset included 12,809 (discovery) and 2,019 (validation) patients with T2DM recruited between 2008–2022. CVD was observed in 1,238 (10.2%) patients in the discovery cohort. The random forest (RF) model had a mean AUROC of 0.830 (95% confidence interval 0.816–0.845) in the discovery dataset. Applying this result to the extra-validation dataset revealed the best performance among the models, with an AUROC of 0.72 (accuracy of 65.4%, sensitivity of 66.0%, specificity of 65.4%, and balanced accuracy of 65.7%). Creatinine and glycated hemoglobin levels were the most influential factors in the RF
model.


RandomForest ROC curve with variability
True Positive Rate
False Positive Rate
0.0
0.2
0.4
0.6
0.8
1.0
ROC fold 0 (AUC = 0.84)
ROC fold 1 (AUC = 0.84)
ROC fold 2 (AUC = 0.86)
ROC fold 3 (AUC = 0.82)
ROC fold 4 (AUC = 0.80)
ROC fold 5 (AUC = 0.83)
ROC fold 6 (AUC = 0.84)
ROC fold 7 (AUC = 0.86)
ROC fold 8 (AUC = 0.83)
ROC fold 9 (AUC = 0.80)
Chance level (AUC = 0.5)
Mean ROC (AUC = 0.83 ± 0.02)
± 1 std. dev.



Conclusions: This study demonstrates the usefulness and feasibility of ML for assessing CVD incidence in patients with T2DM and suggests its potential for use in patient screening. Further international studies are required to validate our findings.

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PD062 / #1409

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 11
03-03-2024 09:40 - 10:00

FATTY LIVER DISEASE IN NEWLY DETECTED YOUTH-ONSET DIABETES

Kishore-Kumar Shil, Mashfiqul Hasan, Nusrat Sultana, Sayad Bin Abdus-Salam, Muhammad Abul Hasanat
Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Insulin resistance is the key pathogenic factor for both metabolic dysfunction-associated steatotic liver disease (MASLD) and type-2 diabetes mellitus (T2DM). The aim of the study was to assess the presence of fatty liver disease by ultrasonography (USG) and to find out its predictors in persons with newly diagnosed youth-onset T2DM.
Methods: This cross-sectional study enrolled 84 newly-diagnosed youth-onset phenotypical T2DM (age range 13-29 years, 58.4% female) during March-December 2022 in the Endocrinology department, BSMMU. Abdominal USG was done for the detection of fatty change in liver whereas insulin resistance was estimated by C-peptide-based homeostatic model assessment – insulin resistance (HOMA-IR) and lipid accumulation product (LAP).
Results: Out of 84 persons with DM, 47 (56.0%) had fatty liver. The participants with fatty liver had higher age, HOMA-IR, and LAP [fatty liver vs no fatty liver: age 28.0 (24-29) vs 24.0 (19-27) years; p=0.004; HOMA-IR 0.7 (IQR 0.5-1.1) vs 0.4 (IQR 0.3-0.8), p=0.002; LAP 72.6 (55.3-113.7) vs 54.5 (30.7-87.3), p=0.002; median (IQR)]. They also had a higher frequency of raised body mass index (BMI) [42 (89.3%) vs 5 (10.7%); p<0.001], waist circumference (WC) [38 (80.8%) vs 9 (19.1%); p=0.002) and waist-hip ratio (WHR) [46 (97.8%) vs 1 (2.1%); p=0.009]. In logistic regression, adjusted for BMI, total cholesterol (TC), and LAP, only age (OR 1.1, 95% CI: 1.0-1.3; p=0.017), HbA1c (OR 0.6, 95% CI 0.5-0.9; p=0.019), WC (OR 1.21, 95% CI 1.05-1.39; p=0.007), and HOMA-IR (OR 20.4 (95% CI 2.1-189.8; p=0.008) showed a significant predictivity with an impact between 41.4% to 55.5% on developing fatty liver and correctly defined 76% of the whole impact.
Conclusions: The frequency of fatty liver is alarmingly high in youth-onset T2DM at diagnosis. Age, HbA1c, WC, and HOMA-IR are strong predictors of fatty liver in this group.

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PD063 / #1191

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 12
03-03-2024 09:40 - 10:00

POSTPRANDIAL GLUCOSE, INSULIN RESPONSE TO MEAL SEQUENCE AMONG HEALTHY UAE ADULTS: A RANDOMIZED CONTROLLED CROSSOVER TRIAL

Ayah Shaheen[1,2], Amena Sadiya[1], Bashair M Mussa[1], Salah Abusnana[1]
[1]Unverity of Sharjah, College Of Medicine, Sharjah, United Arab Emirates, [2]Emirates Health services, Nutrition, Dubai, United Arab Emirates

Background and Aims: Dietary patterns that lower postprandial glycemia have been effective in preventing type 2 diabetes. Consuming macronutrients in a specific sequence within a meal has been considered a novel strategy to reduce post-meal glucose spikes. Therefore, this study aimed to investigate the effect of meal sequence on postprandial glucose and insulin response among healthy adults in the United Arab Emirates.
Methods: Eighteen healthy adults participated in a cross-over randomized controlled trial. Two isocaloric meals were consumed separately in a different order: a standard mixed meal (SMM) vs. vegetables and protein first followed by carbohydrates (VPF) meal. The postprandial glucose and insulin levels were determined at Fasting,30,60, and 120 min. Visual Analog Scale (VAS)rating was used to assess hunger at similar frequencies.
Results: The mean glucose and insulin levels significantly reduced (p=0.001) following VPF meal compared to SMM at 30 min. The incremental area under the curve (iAUC0–120) for glucose following the VPF meal sequence was 40.9 % lower (p=0.03) compared with the SMM (572.83; 95 % CI 157.3 to 988.2) vs. (968.5; 95 % CI 692.4 to 1244.8 mg/dL). Furthermore, the iAUC0–120 for insulin following the VPF meal sequence was 31.7% lower than the SMM meal sequence. (2184; 95 % CI 1638.30 to 2729) vs. (3196.94; 95 % CI 2328.19 to 4065.69) mIU/mL × 120 min, P = 0.023). The feeling of fullness measured by the hunger scale showed that the feeling of fullness was higher after 60 and 120 minutes (p=0.05, p=0.04) with the VPF meal sequence compared to the SMM sequence. Although, there is no significant difference in the Area under the curve (AUC) for hunger rating between the two meals.
Conclusions: The VPF meal sequence could significantly reduce postprandial glucose and insulin levels and sustain fullness after a meal. Meal sequencing could be an effective dietary strategy for improving the postprandial glucose and insulin response in healthy adults.

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PD064 / #683

E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 12
03-03-2024 09:40 - 10:00

TIRZEPATIDE REDUCES THE PREDICTED RISK OF DEVELOPING TYPE 2 DIABETES: SURMOUNT-1 POST-HOC ANALYSIS BY PREDIABETES STATUS

Emily R. Hankosky[1], Hui Wang[2], Lisa M. Neff[3], Hong Kan[1], Fangyu Wang[4], Nadia Nazir Ahmad[5], Adam Stefanski[6], W. Timothy Garvey[7], Pressilla Khajadourian[8]
[1]Eli Lilly and Company, Value Evidence Outcomes, Indianapolis, United States of America, [2]Tech Data Service, Tech Data Service, PA, United States of America, [3]Eli Lilly and Company, Trulicity And Tirzepatide Medical Affairs- Obesity/nilex, Indianapolis, United States of America, [4]Eli Lilly and Company, Statistics, Indianapolis, United States of America, [5]Eli Lilly and Company, Chronic Weight Management Development, Indianapolis, United States of America, [6]Eli Lilly and Company, Clinical Research, Indianapolis, United States of America, [7]University of Alabama, Uab Nutrition Obesity Research Center, Birmingham, United States of America, [8]Eli Lilly and Company, Medical Liaison, Dubai, United Arab Emirates

Background and Aims: The effect of tirzepatide (TZP) on the risk of developing type 2 diabetes (T2D) in people with obesity or overweight is unknown. This study assessed the effect of tirzepatide (TZP) on the 10-year risk of developing type 2 diabetes (T2D) in people with overweight or obesity with and without prediabetes.
Methods: The Cardiometabolic Disease Staging model was applied to the SURMOUNT-1 trial to derive T2D risk scores at baseline, 24, and 72 weeks. Mean change from baseline to week 72 was derived for participants with and without prediabetes at baseline.
Results: Age, sex, BMI, and other cardiometabolic factors were significantly different between participants with (n=987) and without prediabetes (n=1552). Mean baseline 10-year diabetes risk scores of participants with and without prediabetes were 29–32% and 19–20%, respectively, and did not differ by treatment group. Mean absolute reductions from baseline in the risk score at week 72 for TZP 5/10/15 mg were greater in participants with prediabetes (16–20%) vs those without prediabetes (10–11%), and both were greater than placebo (PBO). Mean change in 10-year risk vs PBO in the TZP 5/10/15 mg groups was -13%, -17%, and -18% respectively in those with prediabetes and -11%, -12%, and -12% in those without; the reduction was greater in participants with prediabetes (interaction $p<0.001$).
Conclusions: TZP significantly reduced the predicted risk of developing T2D compared to PBO regardless of prediabetes status. Risk reduction was greater in participants with prediabetes.

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E-Poster Discussion
E-POSTER DISCUSSION: DIABETES 12
03-03-2024 09:40 - 10:00

PROFILE AND UTILITY OF C-PEPTIDE DERIVED HOMA INDICES IN TYPE 2 DIABETES (T2D) ON INSULIN THERAPY

Yug Garg[1], Madhumati Vaishnav[2], Varenya Badarinath[3], Kavitha Muniraj[4], Rajeshwari Ashok[5], Nidhi Garg[6], Reshma Bv[7], Leena Lekkala[4], Apoorva Govind[8], Sathyanarayana Srikanta[9], Samatvam Diabetes Collaborative Study Group[10]
[1]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [2]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [3]Samatvam Research Center, Endocrinology, Bangaiore, India, [4]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [5]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [6]Samatvam Endocrinology Diabetes Center, Endocrinology, Bangaiore, India, [7]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [8]Samatvam Research Center, Pediatric Endocrinology, Bangaiore, India, [9]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [10]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Insulin resistance (IR) and beta-cell dysfunction (BCD) (contributing in varying proportions in different individuals), both genetic and environment determined, are the core defects of type 2 diabetes. Simple and practical quantitation of IR and BCD could potentially facilitate pathophysiology directed pharmacotherapy in T2D subjects, especially those already on insulin therapy.
Methods: Relevant clinical data were reviewed for a series of 135 T2D patients on insulin therapy, for whom practicing clinicians had ordered serum C-peptide levels [fasting and stimulated (in selected cases, with 75-gram glucose)] to aid T2D clinical management in a speciality diabetes center in Bangalore, India. C-peptide derived IR and beta-cell function were calculated using HOMA2 (University of Oxford, UK). Normal reference ranges: Fasting C-peptide derived: (Ranges) FPG mg/dL= 70 to 99; Fasting C-peptide ng/ml= 0.78 to 1.89; HOMA2 IR= 0.5 to 1.4; HOMA2 %B= 99 to 108; HOMA2 %S= 71 to 192.
Results: T2D on insulin Therapy (N=135; Age at study years= 58±15): Fasting serum C-peptide ranged from 0.380 to 9.660 ng/ml (Figure 1; tertiles; Green rectangle indicating normal ranges). There was a strong correlation between fasting and stimulated C-peptide levels (R= 0.92; P= 1E-07). HOMA ranges indicated extremes of insulin resistance (HOMA-IR= 0.34 to 9.43) and insulin sensitivity (HOMA%S= 293 to 11), as well as, extremes of beta cell function (HOMA%B= 233 to 9). There was no correlation between HOMA-IR and HOMA%B (R= 0.07; P= 0.6), indicating virtual independence of the two T2D pathologies: IR and BCD. All these highlight the pathogenetic heterogeneity of T2D, and the resulting multiple clinical phenotypes, which deserve different therapeutic approaches (Figure 2; Green rectangle indicating normal ranges). “Insulin sensitising”: for predominant insulin resistance (weight reduction, increased physical activity, metformin, bromocriptine, GLP-1 agonists, SGLT2 inhibitors), versus “Insulin enhancing”: for predominant insulin deficiency (DPP-4 inhibitors, sulfonylureas, GLP1 agonists and insulin dose upgrade: basal and basal-bolus). This “C-peptide and HOMA supported” approach for T2D management led to discontinuation of insulin therapy in 57% of subjects. 65% received GLP1 agonists, 50% SGLT2 inhibitors and 15% bromocriptine.
Conclusions: Quantitation of C-peptide derived insulin resistance and beta-cell function indices can facilitate and optimise pathophysiology directed pharmacotherapy (“precision medicine”) in T2D subjects already taking insulin injections. Figure

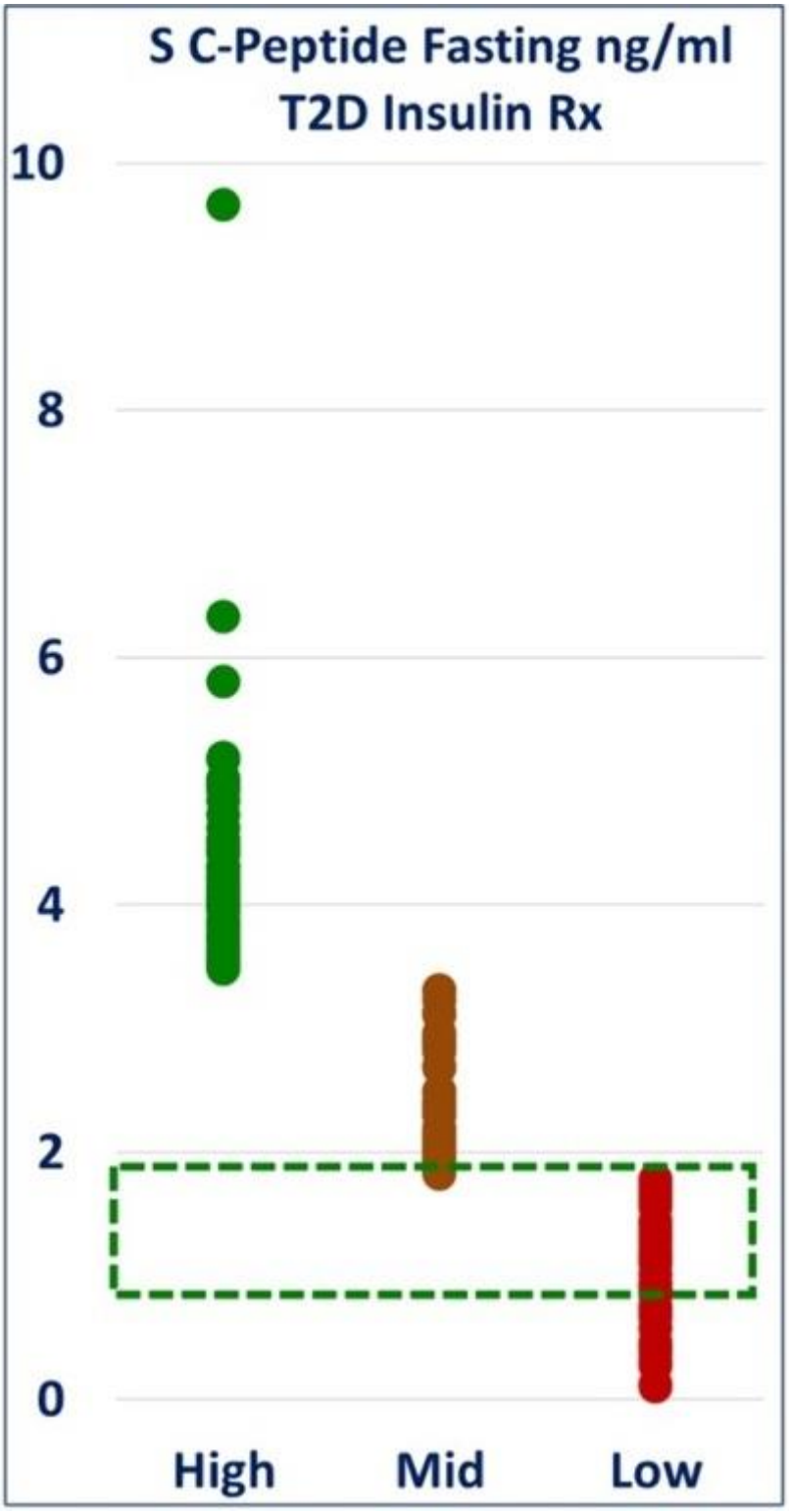
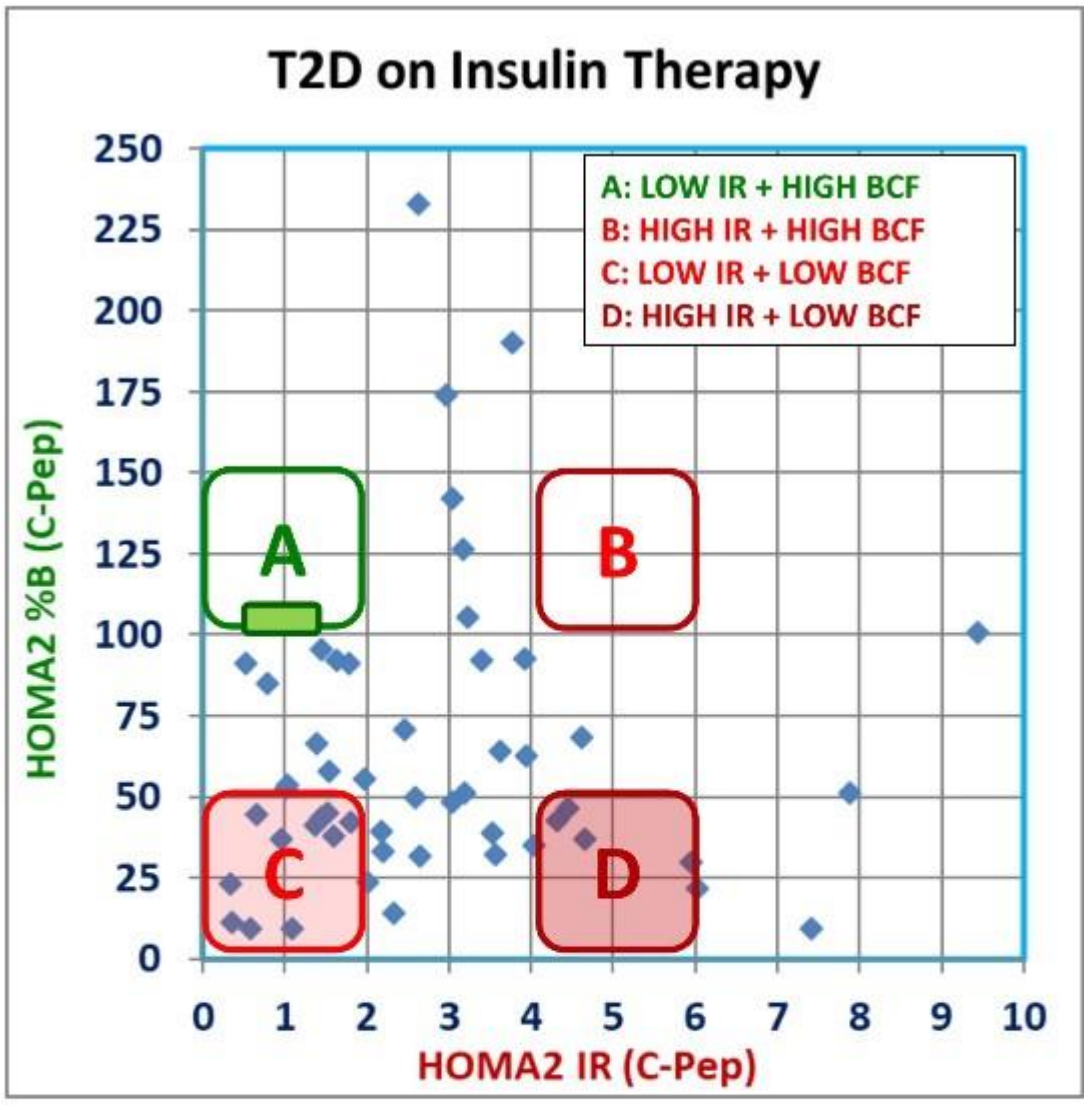


Figure 1:



2:

Pathophysiology Directed Pharmacotherapy				
IR= Insulin Resistance		BCF= Beta Cell Function		
	T2D Phenotype	Treatment Emphasis		
		Sensitiser	Secretagogue	Insulin
A	LOW IR + HIGH BCF			
B	HIGH IR + HIGH BCF	++++	?	?
C	LOW IR + LOW BCF	+	++	+++
D	HIGH IR + LOW BCF	++++	++	++++

E-Poster Viewing

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E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

CLINICAL AND BIOLOGICAL STUDY OF ADRENAL INCIDENTALOMA

Hayfa Farid[1], Mohamed Taieb Ach[2], Takwa Issaoui[2], Asma Ben Abdelkarim[1], Molka Chadli Chaieb[1], Koussay Ach[2]
[1]Hospital Farhat Hached Sousse, Department Of Endocrinology And Diabetology, Sousse, Tunisia, [2]Hospital Farhat Hached Sousse, Department Of Endocrinology And Diabetology, sousse, Tunisia

Background and Aims: The adrenal incidentaloma is an asymptomatic tumor measuring at least one centimeter, discovered incidentally during a medical imaging examination. The adrenal incidentaloma continues to grow with technological advances and improved radiological examinations. Any adrenal incidentaloma involves the search for a secretion or malignant character.
The objective of our study is to study the clinical, biological and etiological aspects of adrenal incidentalomas.
Methods: This was a retrospective, descriptive study carried out in an Endocrinology department, on records of patients in whom an adrenal incidentaloma has been discovered.
The following parameters were identified: Clinical and biological presentation, etiological profile, diagnosis and therapeutic means.
Results: Our study covered 22 patients: 2 men and 20 women, aged between 29 years and 76 years with an average of 52±14 years.
Family history in these patients was familial hypertension in 18 patients (81.8%), 3 had a history of early stroke and 1 had a history of myocardial infarction.
Beyond them, 6 patients had type 2 diabetes with an average duration of 4±3 months. Only one patient was smoking and only one was dyslipidemic under statin.
Hypertension was found in 12 patients (54.5. Of these patients, 4 had a refractory hypertension (18.2%), 2 had a malignant hypertension (9.1%). The mean systolic blood pressure was 16.1±2.1 mmHg and the average diastolic blood pressure was 9.1±1.3 mmHg.
The mean weight of the population was 79.8±15.06 Kg, the mean size of 159.19±7.6 cm, an average BMI of 31.13 kg/m² and an average waist of 105±26.6 cm.
Biologically, the mean blood glucose was 6.57 mmol / L, the mean serum potassium level was 3.8±0.57 mmol / L. 10 patients had proven hypokalemia.
An adrenal-centered scan showed an incidentaloma of an average size of 21.5±19.21 mm. The etiologic diagnosis was a pheochromocytoma in 7 patients (31.8%) attested by an elevation of the metanephrine blocks, clinical and biological hypercorticism in 9 cases (27.3%) including 6 adenomas, 1 case Of adrenal cortex and 2 cases of bilateral adrenal hyperplasia, 4 cases of primary hyperaldosteronism (18.2%). 2 patients had no hormonal secretion.
For etiological treatment, 18 patients had unilateral adrenalectomy in (81.8%). 4 patients received medical treatment (18.2%).
Conclusions: The adrenal incidentaloma continues to grow with technological advances and increased abdominal radiological examinations. In the majority of cases, it will be a non-secreting benign adenoma. However, the clinician must ensure that there is no disease requiring specific management by performing a baseline hormonal assessment.

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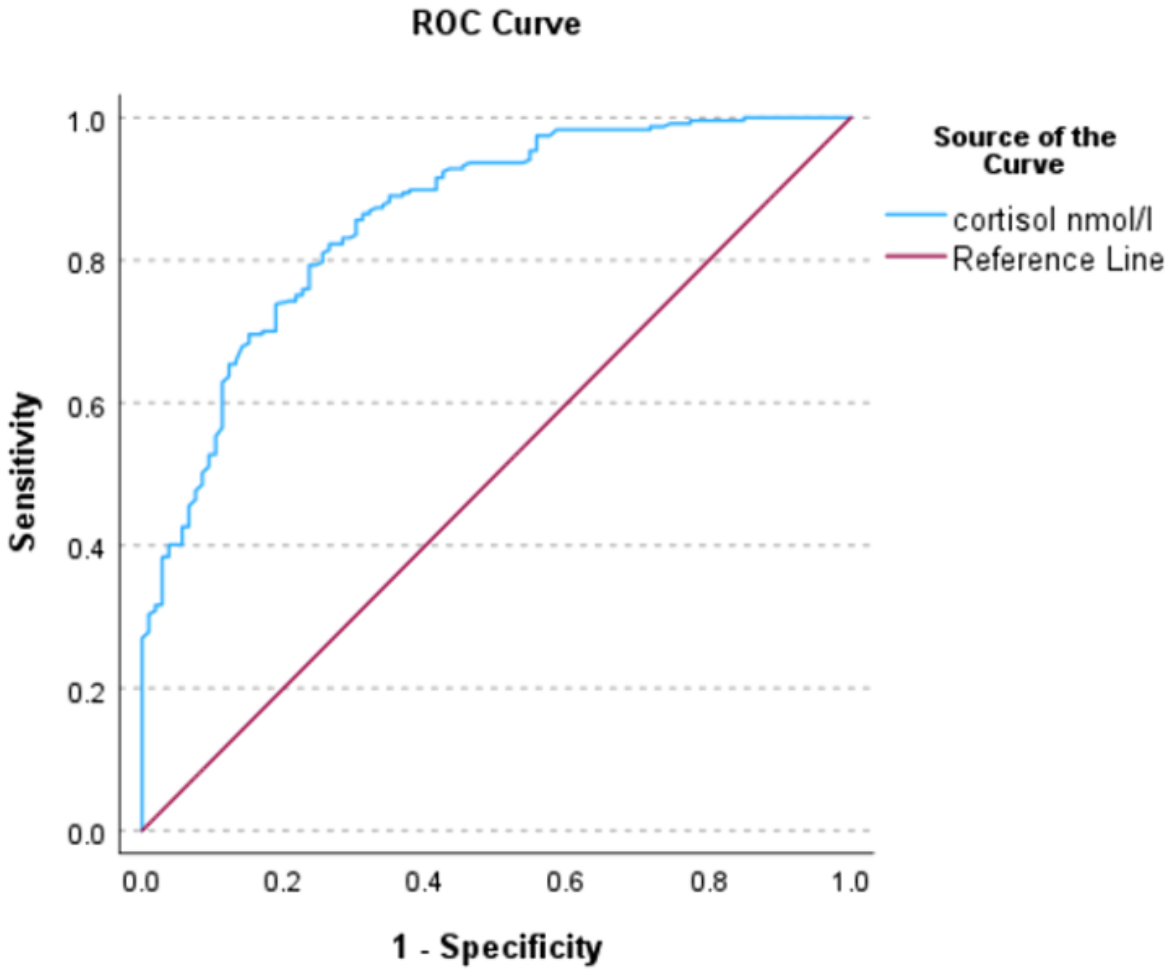
E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

DIAGNOSTIC PERFORMANCE OF MORNING SERUM CORTISOL FOR ASSESSING ADRENAL RESERVE IN LOCAL POPULATION: A SINGLE CENTRE EXPERIENCE

Raya Al Mazrouei[1], Jawaher Alshamsi[2], Mohamed Abdelsalhen[3], Fatima Alkaabi[1], Adnan Agha[4]
[1]Tawam Hospital, Department Of Endocrinology, Al Ain, United Arab Emirates, [2]Tawam Hospital, Internal Medicine Department, Al Ain, United Arab Emirates, [3]Tawam Hospital, Department Of Internal Medicine, Al Ain, United Arab Emirates, [4]College of Medicine and Health Sciences. UAE University, Internal Medicine Department, Al Ain, United Arab Emirates

Background and Aims: Adrenal insufficiency, primary or secondary is a potentially life threatening due to lack of inherent cortisol peak/rise in times of illness or stress and cosyntropin/short Synacthen test (SST) is the commonest test used to diagnose adrenal insufficiency. Recent studies have shown that morning cortisol cut-off can help identify adrenal reserve without the need for SST but there are no studies in Emirati population to identify a cut-off locally. The aim of our study was to assess the diagnostic performance of morning cortisol to peak cortisol during SST, to identify a morning cortisol threshold that can safely rule out adrenal insufficiency with more than 90% sensitivity in local population.
Methods: We retrospective analysed charts of adult patients who underwent morning cortisol as well as SST to assess adrenal reserve between August 2012 to August 2022.
Results: We identified 344 patients (201 females) with mean age 49.1 (+ SD 22.6), 222 Emiratis (64.5%). Using the kit-specified previously published cut-off for SST peak value at 30 minutes (408 nmol/L for Beckman-Access used from 2012 to 2017 and 402 nmol/L for Rohce-Cobas Generation-II from 2018 onwards), as a gold standard to identify patients with adequate adrenal reserve, we identified 106 patients (30.8%) to have adrenal insufficiency while 238 (69.2%) has adequate adrenal reserve. We analysed the performance of morning cortisol using receiver operator characteristics (ROC) curve and identified a cut off of 332 nmol/L that can correspond to adequate adrenal reserve with normal SST with 100% sensitivity and specificity (see ROC Curve
Analysis).



Conclusions: We hence propose, while keeping in relevance to clinical context, that morning cortisol of >332 nmol/L can help identify patient with adequate adrenal reserve and thus avoid unnecessary SST procedures.

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E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

CUSHING'S SYNDROME PRESENTING AS AMENORRHEA: AN UNSUAL PRESENTATION

Khaled Aljenaee[1], Sulaiman Hajji[2]
[1]Adan Hospital, Endocrine Department, Kuwait city, Kuwait, [2]Adan Hospital, Endocrine Department, hawally, Kuwait

Background and Aims: Menstrual cycle abnormalities are common in premenopausal females with Cushing's syndrome, although the underlying mechanism is poorly understood. Signs and symptoms of Cushing's syndrome often overlap with those of polycystic ovarian syndrome (PCOS). The patient is a 33-year-old female who had previously been diagnosed with PCOS by a gynecologist and had been treated with oral contraceptive pills (OCPs) for two years. She then discontinued her OCPs without consulting a clinician, which resulted in amenorrhea for six months, leading her to seek medical attention. Additionally, she exhibited symptoms of depression and anxiety but showed no other signs or symptoms of Cushing's syndrome, except for a plethoric face. Initial laboratory tests indicated evidence of central hypogonadism (low levels of Luteinizing Hormone (LH), Follicle-Stimulating Hormone (FSH), and estrogen). As a result, a complete anterior pituitary hormone workup was performed. Her Thyroid-Stimulating Hormone (TSH) was found to be suppressed, with a normal prolactin level. Surprisingly, her morning cortisol level was elevated. Further investigation for Cushing's syndrome revealed non-suppressed cortisol levels after a 1mg dexamethasone suppression test and positive 24-hour urine cortisol, along with suppressed Adrenocorticotrophic Hormone (ACTH). A CT scan of her adrenal glands revealed a left adrenal adenoma. Subsequently, she underwent a left adrenalectomy, after which her menstrual cycles returned to regularity, and pituitary function was restored. Amenorrhea, defined as the absence of menstruation, can be categorized as primary (absence of menarche in females aged 15 or older) or secondary (absence of menstruation for at least three months after regular menstruation has been established). It can be further classified based on the anatomic location of disturbance (hypothalamus, pituitary, uterus, or vagina). Testing for the presence of hyperandrogenism can aid in narrowing down potential diagnoses. In females with Cushing's syndrome, experiencing menstrual disturbances is a common occurrence. In conclusion, we report a case of amenorrhea due to hypogonadotropic hypogonadism as a presenting symptom of Cushing's syndrome. Physicians should consider the possibility of Cushing's syndrome as a rare cause of hypogonadotropic hypogonadism.
Methods: It is a clinical case
Results: It is a clinical case
Conclusions: It is a clinical case

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E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

COMPARING HEALTH-RELATED QUALITY OF LIFE (HRQOL) OUTCOMES OF SURGICAL INTERVENTION VERSUS MEDICAL THERAPY IN PRIMARY ALDOSTERONISM: A SYSTEMATIC REVIEW

Aldons Chua[1], Martin Cartwright[2], Patrick Oyibo[2], William Drake[1], Sofia Llahana[2]
[1]St. Bartholomew's Hospital, Endocrinology, London, United Kingdom, [2]City, University of London, London, United Kingdom

Background and Aims: Primary aldosteronism (PA), also known as Conn's syndrome, is caused by overproduction of aldosterone hormone causing to excessive reabsorption of sodium and loss of potassium in the urine, leading to hypertension and, frequently but not invariably, hypokalaemia. Left untreated or delayed diagnosis, risk for cardiovascular and renal damage increases, resulting to impaired quality of life and even a high risk of mortality. This review critically appraise and compare the health-related quality of life (HRQoL) outcomes among patients with primary aldosteronism (PA) who underwent unilateral adrenalectomy versus on medical therapy.
Methods: In line with the PRISMA guidelines, we performed a quantitative systematic review on the available studies evaluating HRQoL on patients with PA. A systematic literature search was performed from the six main electronic databases with no limitation on publication date. Grey literature was also searched, and a hand search was conducted by the main author from the references in the included studies. Search strategy was developed with the guidance of an expert librarian. The search generated 1255 studies after electronic de-duplication. The main author initially screened the studies using titles and abstracts, blind cross checked by one of the co-authors using Rayyan software, which then boiled down to 27 studies. Full text has been retrieved, and after review using the eligibility criteria, 11 studies were included for the analysis.
Results: A narrative synthesis was conducted for analysis due to heterogeneity of the studies. There was wide variety of tools used in the included studies to evaluate HRQoL and mental health component summary scale (MCS). Overall, PA patients demonstrated a decreased HRQoL and MCS compared to healthy subjects. Although, HRQoL for patients on MRA increased in a year, improvement on the ADX group were seen as early as 3 months. However, physical components on HRQoL decreased at 24 months among patients >60 years old compared to younger counterparts.
Conclusions: Both ADX and MRA improve HRQoL in PA, but ADX showed better outcomes compared to the latter. Dose optimisation is required in patients on medical therapy with an aim to depress renin levels and consider the specific HRQoL aspects that need addressing. More studies are needed to understand in-depth what impacts the different domains in QoL, especially the MCS in PA.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

PHEOCHROMOCYTOMA IN PREGNANCY – A CLINICAL CHALLENGE

Patrícia Cunha Brito[1], Valentim Lopes[1], Rita Pinto Ribeiro[1], Sara Lopes[1], Catarina Machado[1], Maria José Monteiro[2], Rita Medeiros[2], Luísa Cardoso[2], Almerinda Pereira[3], Fernando Manso[4], José Pedro Pinto[4], Maria Lopes Pereira[1], Olinda Marques[1], Ana Catarina Matos[1]
[1]Hospital de Braga, Endocrinology, Braga, Portugal, [2]Hospital de Braga, Gynecologist And Obstetrician, Braga, Portugal, [3]Hospital de Braga, Pediatrics, Braga, Portugal, [4]Hospital de Braga, Surgery, Braga, Portugal

Background and Aims: Pheochromocytoma in pregnancy is extremely rare and it can result in adverse maternal-fetal outcomes.
Methods: A 36-year-old woman with history of hypertension since the age of 30 and poor therapeutic compliance, presented to the ER at six weeks of gestation (WG) with headaches and hypertension. She had a previous pregnancy complicated with pre-eclampsia and gestational diabetes. The current pregnancy did not have preconception care. The diagnosis of chronic hypertension was made, and she was started on methyldopa and acetylsalicylic acid and referred to an Obstetrics specialist. Despite the increasing dose of methyldopa and after combining nifedipine, the patient continued to have difficult-to-control hypertension, raising suspicion of secondary hypertension. A doppler ultrasound was performed and showed a nodular area in the upper pole of the right kidney. The gadolinium-free MRI confirmed an irregular lesion with extension to the renal hilum, without an apparent cleavage plane from the right adrenal gland. Urinary metanephrines and catecholamines were markedly elevated (noradrenaline 23,5 times the upper limit). At 24 WG, due to the likely diagnosis of paraglioma/pheochromocytoma, she was transferred to our center for better management with a multidisciplinary team.
Results: She was started on phenoxybenzamine with slow titration to 80mg/day followed by propranolol, kept nifedipine and discontinued methyldopa. The patient, however, continued to have very difficult-to-control blood pressure and due to non-reassuring fetal status, an urgent cesarean section was performed at 29 WG. The delivery was uneventful, and the newborn was admitted to the neonatal intensive care unit. The decision was made to continue medical therapy and postpone surgical treatment until after delivery. Five months post-partum, a laparoscopic adrenalectomy was scheduled. During surgery, there was the need to convert it to laparotomy and to perform a nephrectomy as well.
Conclusions: The diagnosis and management of pheochromocytoma during pregnancy are challenging. On one hand, clinical presentation is often attributed to more common conditions associated with hypertension in pregnancy. On the other hand, the treatment during pregnancy is not standardized, and it is crucial to ensure adequate adrenergic blockade of the pregnant woman without causing placental hypoperfusion and fetal demise. Another non-linear aspect is the decision to administer corticosteroids for fetal lung maturation, taking into consideration the risk of precipitating an adrenergic crisis. There are not many cases described in the literature, especially regarding the pre- and postpartum approach, making multidisciplinary evaluation and dissemination of such cases essential for better management of these unique situations in the future.

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E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

UNCOVERING THE ROLE OF EXOSOME SIGNALING IN EXTRA-ADRENAL STEROIDOGENESIS

Bobby Fokidis, Nicole Rodriguez-Martinez
Rollins College, Biology, Winter Park, United States of America

Background and Aims: Exosomes are nanosized extracellular vesicles secreted by all cells into blood plasma that carry biomolecules that can alter phenotypes and transcriptome of recipient cells. Able to inform about the functions and status of their origin, exosomes are known widely used as biomarkers and therapeutic vehicles with a prominent emerging role in medicine. Exosomes are well documented as carriers of endocrine related cargo, such as receptor and enzyme proteins and mRNA, and have been shown to play a key role in regulating prostate and breast cancer tumorigenesis and promoting metastasis. Exosomes may serve to upregulate intracellular steroid machinery in typically non-endocrine tissues, otherwise known as local steroidogenesis. However, the relationship between exosomes and the synthesis of bioactive steroids has not been explicitly studied. Using a novel Anolis model system, this research tested the hypothesis that exosomes are necessary for fast-induced extra-adrenal steroid synthesis.
Methods: Plasma exosomes were isolated using immunoprecipitation and then visualized and quantified using a nanoparticle tracking system. Steroid concentrations were measured using commercial enzyme linked immunoassays.
Results: Fasting induced the expected declines in weight and increased both plasma dehydroepiandrosterone (DHEA) and corticosterone, but not cortisol concentrations relative to controls fed ab libitum. More importantly elevated levels of these adrenal steroids in multiple organs exceeded amounts observed in blood supporting the likelihood of local steroid synthesis as these organs are known to express some steroidogenic enzymes. Fasting also increased circulating exosomes with some moderate correlations with steroid concentrations in some tissues being observed. Furthermore, a pharmacological inhibitor of exosome synthesis GW4869, had a partial significant suppression effect on the glucocorticoid corticosterone, but not cortisol or DHEA.
Conclusions: Together these are the first evidence available supporting a potential role for exosomes in the regulation of extra-adrenal steroid synthesis. Continued research will examine the possibility that the exosome transfer of mRNA for steroidogenic enzymes between tissues by isolation and identifying mRNA cargo. This study may represent the first findings for a unifying and ubiquitous mechanism for the activating steroidogenic machinery of distant cells and can lead to new understanding of steroid-mediated cancers and other endocrine-mediated conditions.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

A NOVEL NR5A1 GENE MUTATION IN A NEONATE WITH SEVERE ADRENAL INSUFFICIENCY AND SKIN PIGMENTATION

Reham Ghanim, Manal Mustafa
Al Jalila Children's Speciality Hospital, Pediatric Endocrinology, Dubai, United Arab Emirates

Background and Aims: The NR5A1 gene, also known as steroidogenic factor 1 (SF-1), located on chromosome 9q33.3, is a crucial transcription factor that plays a vital role in the development and function of the adrenal glands and gonads. Mutations in the NR5A1 gene, following recessive or dominant inheritance patterns, have been associated with a wide range of disorders, including, most commonly, disorders of sex development (DSD) and primary ovarian insufficiency and few NR5A1 mutations were associated with adrenal failure Understanding the impact of NR5A1 gene mutations is of utmost importance, as it provides valuable insights into the underlying genetic mechanisms and aids in the diagnosis and management of these conditions.
We present a case of a neonate with skin pigmentation and failure to thrive, ultimately diagnosed with adrenal insufficiency due to a novel mutation in the NR5A1 gene.
Methods: The patient was a premature baby, born at 36 weeks gestational age, referred to the Endocrinology team due to failure to thrive and skin pigmentation. Clinically, baby's growth parameters were all less than 3rd percentile for her age. She was not dysmorphic, with generalized severe skin hyperpigmentation and normal external female genitalia. The parents were first cousins. An ACTH stimulation test confirmed primary adrenalinsufficiency, and other tests revealed electrolyte disturbances, including hyperkalemia (6 mmol/L), high renin levels (290 uIU/mL), elevated DHEA-S (32 ug/dL), but normal 17-hydroxyprogesterone (1.3 nmol/L). Adrenal antibodies were negative. [MM1] Pelvic ultrasound showed normal female internal genitalia. A novel missense change (c.764G>A) was detected in heterogenous state in the NR5A1 gene, resulting in a protein change (p.Arg255His). Treatment with hydrocortisone, initially at a dose of 10 mg/m2/day, and fludrocortisone 100 mcg daily with oral sodium was initiated. Over the years, the patient's hydrocortisone dose was adjusted to 16 mg/m2/day, and she continues to receive 100 mcg of oral fludrocortisone.
Results: NR5A1 encodes the steroidogenic factor 1, a transcription factor involved in adrenal and reproductive development and function. Understanding the impact of NR5A1 gene mutations is essential for accurate diagnosis, appropriate management, and genetic counseling. Further research is needed to elucidate the underlying molecular mechanisms and develop targeted therapies for individuals affected by NR5A1 gene mutations.
Long-term management with appropriate hormone replacement therapy is crucial for the well-being and growth of patients with NR5A1 gene mutations.
Conclusions: This case emphasizes the importance of genetic testing in diagnosing rare genetic disorders and highlights a novel mutation in the NR5A1 gene.

PV008 / #1073

E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

THE PUZZLE OF HYPOKALEMIA IN ADRENAL INSUFFICIENCY: A CASE OF AUTOIMMUNE POLYGLANDULAR SYNDROME TYPE 2

Sharjeel Hassan, Gagandeep Kaur, Nadeen Hosein
Scripps, Gme - Internal Medicine, San Diego, United States of America

Background and Aims: A 38-year-old cachectic woman with premature ovarian failure at age 32 was admitted to the intensive care unit due to encephalopathy and hypotension as low as 55/43 mmHg, following a brief cardiac arrest in the emergency department. A Brugada pattern was discovered on her electrocardiogram. She had hypokalemia to 2.8 mmol/L (reference range 3.5-5.1). Family members reported that she had a 4 month history of unexplained weight loss, nausea, vomiting, generalized pain, worsening skin hyperpigmentation, and anorexia.
Methods: Stress dose dexamethasone was initiated for empiric steroid treatment and suspected adrenal crisis. Serum cortisol and morning aldosterone levels were undetectable, with a plasma renin activity level elevated at 29 ng/mL/hr (reference range 0.2-1.6, supine). While on stress dose steroids, she developed significant hyperglycemia to 396 mg/dL, necessitating the use of an insulin drip. Once her steroid doses were weaned down, her hyperglycemia resolved, and she no longer required insulin. TSH was elevated, with a normal free T4 level.
Results: Subsequent investigations revealed markedly elevated 21-hydroxylase, thyroid peroxidase (TPO), and glutamic acid decarboxylase (GAD) antibodies. She was diagnosed with primary AI, Hashimoto's thyroiditis, and latent autoimmune diabetes mellitus. These findings were collectively indicative of polyglandular autoimmune syndrome type 2. Computed tomography of the adrenal glands was normal. Her dexamethasone was changed to hydrocortisone, and fludrocortisone was added. Her blood pressures normalized, and pressors were discontinued. Genetic testing returned positive for an abnormal cardiac sodium channel gene, and an implantable cardioverter-defibrillator (ICD) was placed for secondary prevention of sudden cardiac death.
Conclusions: Traditionally, primary AI is associated with hyperkalemia, but in this case, it coexisted with hypokalemia. Severe anorexia, resulting in a prolonged malnourished state causing body depletion of potassium stores, is believed to have played a significant role, likely compounded by gastrointestinal potassium losses due to vomiting. In patients with primary AI, negative feedback causes the release of high levels of corticotropin releasing hormone (CRH), which then causes increased production of a prohormone proopiomelanocortin (POMC). POMC is then cleaved into melanocyte stimulating hormone (MSH) and adrenocorticotropin (ACTH). High levels of MSH cause progressive skin darkening, and high levels of POMC and its derived peptide MSH both cause significant appetite suppression via anorexic effects in the brain. This case underscores the importance of not disregarding the possibility of primary AI in the setting of hypokalemia, and reviews the anorexic effects of the hypothalamic POMC/MSH system.

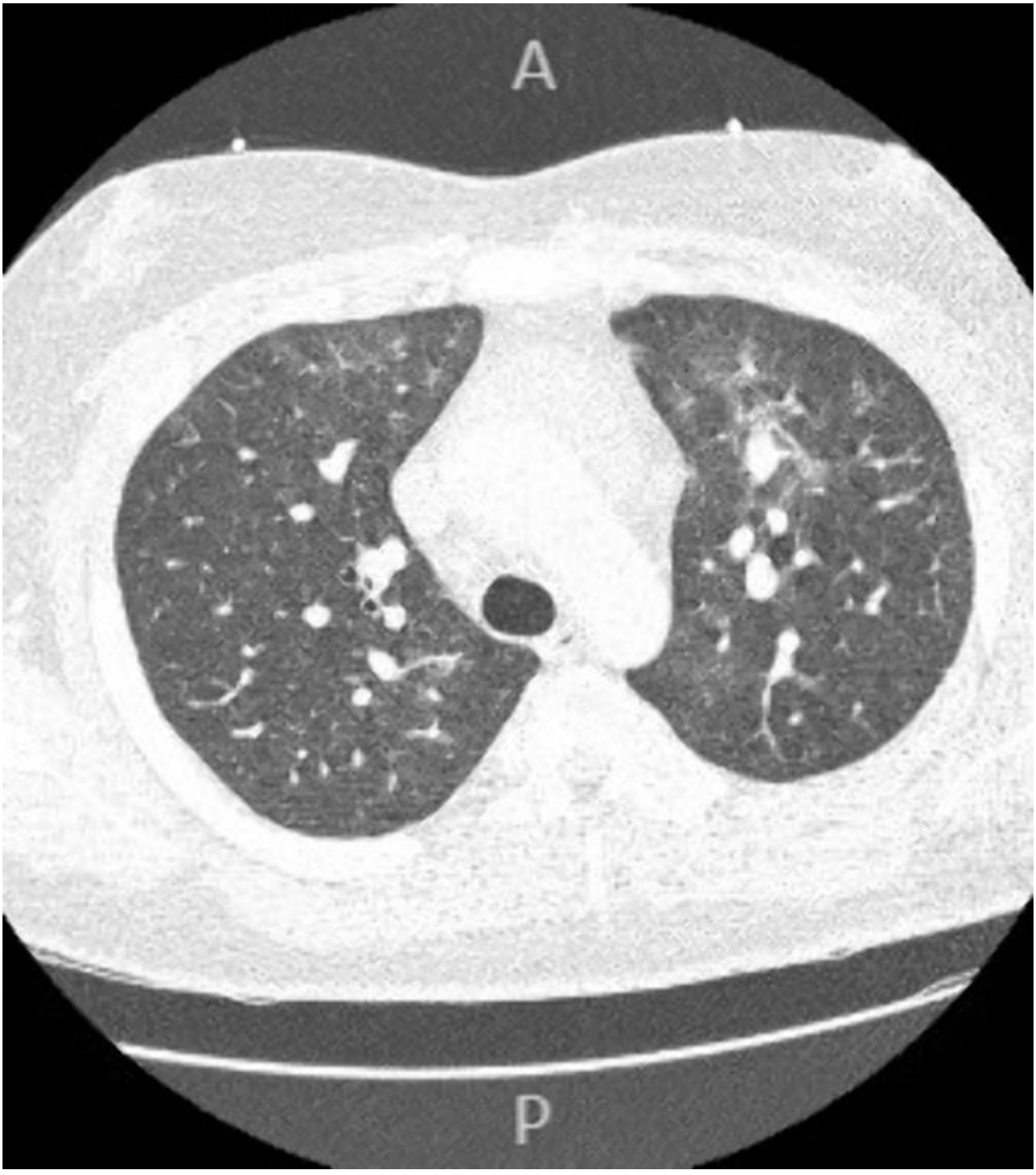
PV009 / #1063

E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

HYPERTENSIVE CRISIS IN ADRENOCORTICAL CARCINOMA-INDUCED ECTOPIC CUSHING'S SYNDROME: THE ROLE OF ETOMIDATE INFUSIONS

Syed Hussain
Ochsner, Internal Medicine, New Orleans, United States of America

Background and Aims: Hypertensive crises can be triggered by hypercortisolism, a severe manifestation of ectopic Cushing's syndrome, necessitating immediate and effective therapeutic interventions to prevent further organ damage. We herein report a case that highlights the successful utilization of Etomidate infusion in a hypercortisolism-induced hypertensive emergency secondary to ectopic Cushing's syndrome from a rare diagnosis of adrenocortical carcinoma.
Methods: 20-year-old male with no previous medical history presented with shortness of breath, significant lower extremity edema, and alarmingly high systolic blood pressure (>250 mmHg). -Initial exam noted signs suggestive of ectopic Cushing's syndrome such as abdominal striae and supraclavicular adiposity. -Labs noted undetectable potassium levels, troponinemia and BNP elevations. Hormonal profile noted elevated 24-hour urine cortisol level of 630 mcg. 8am serum cortisol elevated to 22 µg/dL and trending levels with loss of diurnal cortisol rhythm, concerning for early biochemical manifestation of hypercortisolemia. -CT imaging concerning for multiple pulmonary nodules, liver masses, and significant left adrenal mass, strongly suggesting a metastatic pathology likely originating from the adrenal or renal
region.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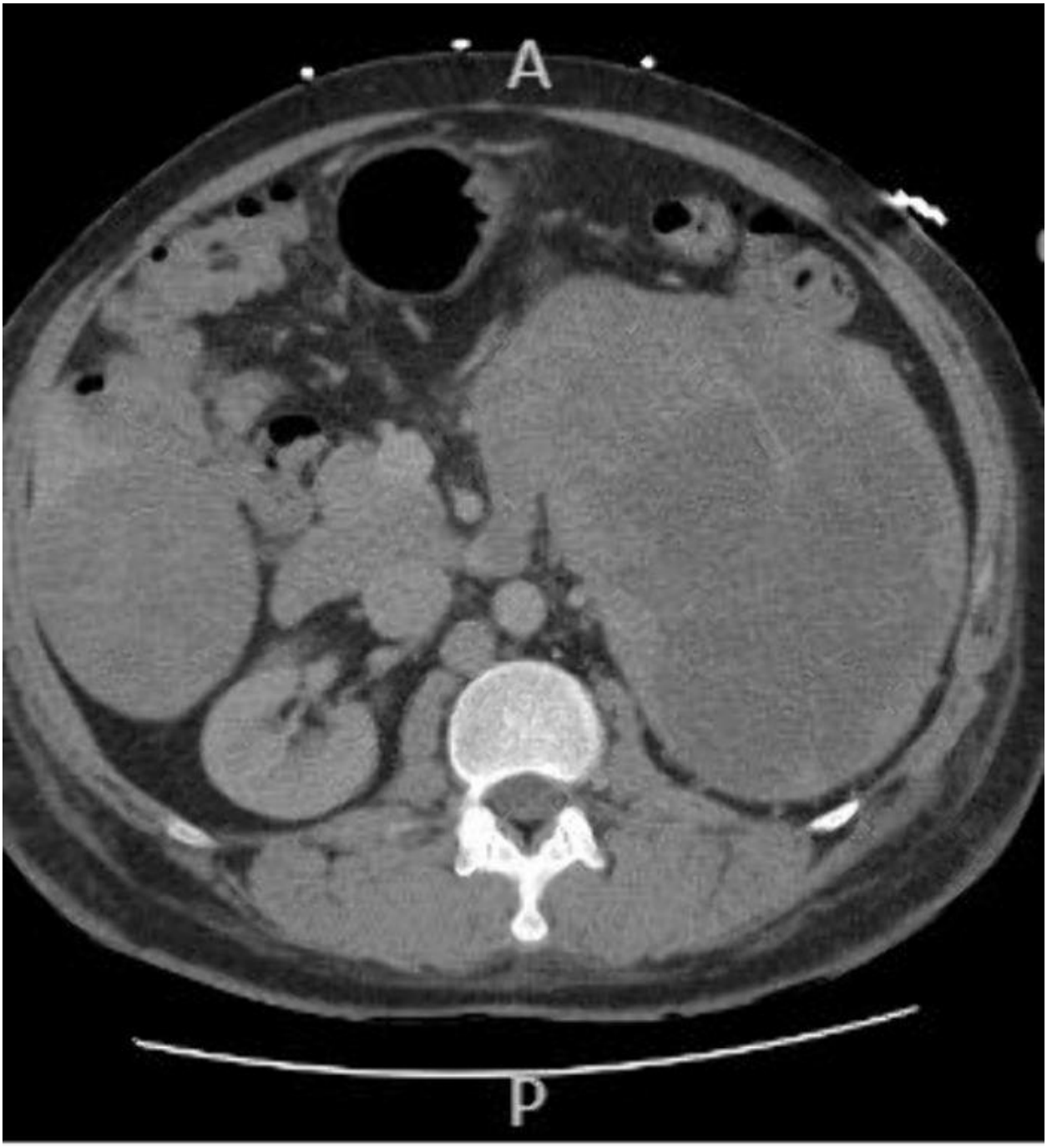
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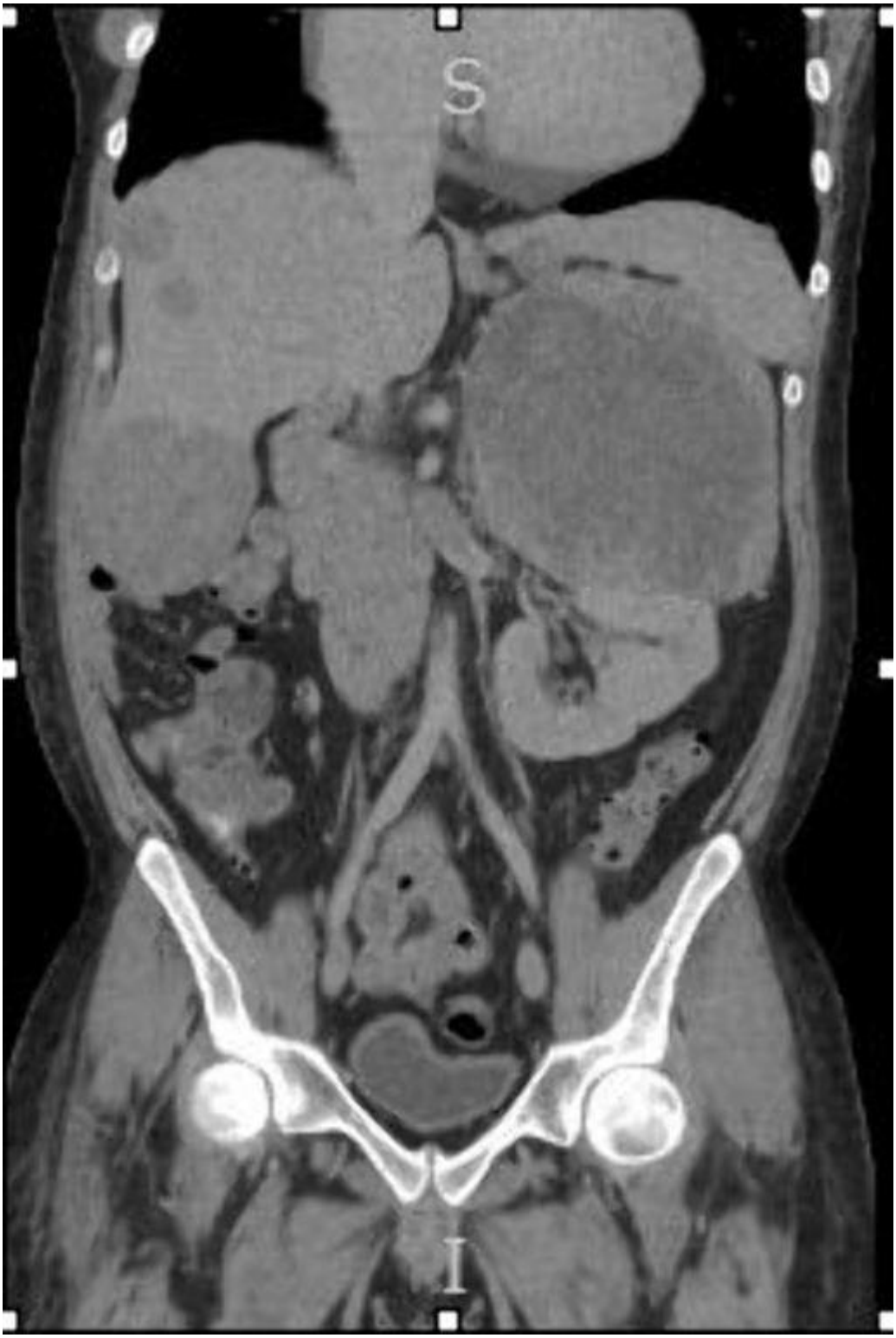

-Evaluation of abnormal cardiac biomarkers with Echocardiography noted a significant decline in the ejection fraction to 30%, and grade III left ventricular diastolic dysfunction. -Initial treatment strategy included

antihypertensives, diuresis and heparin drip considering NSTEMI and heart failure symptoms. Hypertensive emergency concerns persisted despite multiple IV and oral antihypertensives. Due to persistent hypertension with abnormal labs and imaging concerning for hypercortisolism, etomidate infusion was initiated alongside ketoconazole suppression. -Outcome: Remarkable reduction in cortisol levels from 22 to 2.4 µg/dL which correlated with BP stabilization over the next 2 days. -After successful inpatient cortisol suppression with etomidate, ketoconazole regimen coupled with hydrocortisone was prescribed. Pathology results of biopsy from liver lesions confirmed initial suspicions of metastatic adrenal cortical carcinoma.

Results: The hypercortisolism-induced hypertensive emergency in this young adult was managed successfully using an etomidate infusion, a potent 11-beta-hydroxylase inhibitor which interrupts the biosynthesis of cortisol in the adrenal glands, a pathway central to cortisol synthesis, effectively reducing the circulating cortisol levels and thereby controlling the severe hypertension. Beyond symptomatic relief, this intervention played a crucial role in stabilizing the patient's hemodynamic profile, offering a therapeutic window to introduce ketoconazole, a steroidogenesis inhibitor, for long-term management.

Conclusions: This case demonstrates the potential role of etomidate as a critical therapeutic agent in urgent care settings for hypercortisolism-induced hypertensive emergencies. Further research and clinical trials would benefit to validate its effectiveness and potentially incorporate it into standard emergency care protocols.

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01-03-2024 07:00 - 18:00

ADRENOCORTICAL CARCINOMA: EXPERIENCE IN A MALAYSIAN TERTIARY CENTRE

Vanusha Devaraja, Azraai Bahari Nasruddin, Zanariah Hussein
Hospital Putrajaya, Endocrinology, Putrajaya, Malaysia

Background and Aims: Adrenocortical carcinoma (ACC) is a rare endocrine related malignancy with guarded prognosis. The aim of this study is to evaluate the clinical characteristics and prognostic factors in patients with ACC followed up at Hospital Putrajaya, a tertiary centre in Malaysia.
Methods: Retrospective analysis of clinical records of patients with clinical or histopathological diagnosis of ACC between years 2000 and 2023 was performed. Statistical analyses were conducted using chi-square test, Mann Whitney U test and Fischer's exact test. In addition, Cox proportional hazard model and log-rank test were used to evaluate prognosis.
Results: 28 patients were reviewed, with a median follow-up duration of 24 months (IQR 6-36 months). The median age at diagnosis was 45 years (IQR 39 – 64 years), and ACC was prevalent in women (n=20, 71.4%). Abdominal fullness was the most frequent clinical symptom (n=16, 57.1%) reported and 21.4%of patients presented as adrenal incidentaloma. ENSAT Stage 4 was most common (n=23, 82.1%) at the time of diagnosis. Ten patients (35.7%) had cortisol producing tumours, out of which eight patients had co-secretion of DHEAS as well. Median tumour size was 11.3cm (IQR 7.9 -15.5). Twenty patients (71.4%) underwent open adrenalectomy, and the remaining eight patients were palliated due to advanced tumour or patient preference. Postoperative pathology revealed a median mitotic count of 10/50 HPF. Immunohistochemically, 53.6% of the tumour stained positive for synaptophysin followed by 39% for vimentin. Fifteen patients (53.6%) had adjuvant mitotane treatment and one had mitotane with etoposide, cisplatin, and doxorubicin chemotherapy. Maximum mean dose of mitotane achieved was 3.3g ± 1.4. The most common adverse effect of mitotane experienced was adrenal insufficiency (n=5, 29.4%) followed by gastrointestinal intolerance (n=4, 23.5%). Eight patients (28.6%) remained in remission and twenty patients (71.4%) had succumbed due to progressive or recurrent adrenocortical carcinoma. Mortality rates were higher in older patients (p=0.0038) and patients with IVC thrombus on initial imaging (p=0.002). The median overall survival (OS) of total cohort was 24 months (95% CI 12-35.9) and estimated 3-year OS rate was 32.1%.
Conclusions: This research contributes valuable insights into the epidemiology and prognosis of ACC in the South-east Asian population, emphasizing the need for further studies, increased multidisciplinary involvement and improved treatment strategies for this rare and challenging malignancy.

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GIANT ADRENAL CYST– AN UNCOMMON CAUSE OF ADRENAL INCIDENTALOMA

Mohammad Jeeyavudeen, Ganesh Arunagirinathan
Western General Hospital, Metabolic Unit, Edinburgh, United Kingdom

Background and Aims: Giant adrenal cysts exceeding 10 cm in size are rare, accounting for less than 0.1% of all adrenal incidentalomas. With the increasing prevalence of these incidentalomas due to more frequent abdominal imaging, their diagnosis is becoming more common. However, the evidence base for their management remains limited. In this report, we present an intriguing case of a giant adrenal cystic incidentaloma and outline our approach to its management.
Methods: A 63-year-old woman was referred for evaluation of sudden-onset shortness of breath. She did not exhibit symptoms or signs of thyrotoxicosis or adrenal hormonal excess syndromes. Abdominal examination was normal, with no palpable abdominal mass. She underwent computed tomography (CT) pulmonary angiography due to an elevated D-dimer and was found to have a non-obstructing, large multinodular retrosternal goiter causing tracheal narrowing, which accounted for her breathlessness.
Results: During the CT evaluation, the scan also incidentally revealed a homogeneous, unilocular giant cyst measuring 19 x 11 x 17 cm in the left adrenal gland, with rim calcification. A comprehensive functional assessment indicated no hormonal overactivity, including a normal adrenal androgen profile. A final diagnosis of a non-functioning giant adrenal simple cyst was established in this case.
Conclusions: Giant adrenal cysts can be broadly classified as true cysts or pseudocysts. Pseudocysts result from the cystic transformation of a normal adrenal gland or adenoma due to factors such as hemorrhage, infarction, or infection, and are more common than true cysts. True cysts are generally benign and have an epithelial or endothelial tissue capsule, differentiating them from pseudocysts. Endothelial true cysts, which are more common than epithelial cysts, arise from lymphatics or vascular tissue. Epithelial cysts are either developmental anomalies or, in some cases, true cystic adenomas that are lined by ciliated cells contributing to the cyst fluid. All cases of adrenal cyst should undergo a functional evaluation, especially for catecholamine excess, as pheochromocytoma can present as a cystic adenoma. Asymptomatic, non-functioning adrenal cysts do not necessitate treatment. Surgical intervention becomes relevant when the lesion exhibits functional activity or raises clinical suspicion of malignancy. In our patient's case, the absence of symptoms, obstruction, or pressure effects led to a multidisciplinary decision to maintain observation unless symptomatic manifestations arise

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MOLECULAR AND FUNCTIONAL CHARACTERIZATION OF CLINICAL CANDIDATE MIRICORILANT, A SELECTIVE GR MODULATOR, IN PRECLINICAL MODELS FOR NASH

Tijmen Moll[1], Eva Viho[1], Max Gentenaar[1], Hazel Hunt[2], Onno Meijer[1], Jan Kroon[1]
[1]Leiden University Medical Center, Department Of Endocrinology, Leiden, Netherlands, [2]Corcept Therapeutics, Inc, Menlo Park, United States of America

Background and Aims: Miricorilant (or CORT118335) is a selective glucocorticoid receptor modulator that is under clinical development for the treatment of non-alcohol steatohepatitis (NASH). It was previously shown that miricorilant treatment effectively lowers hepatic lipid content in mouse models of NASH. The aim of this study is to characterize the molecular and functional effects of miricorilant using mouse models of NASH and human liver tissue.
Methods: To assess miricorilant properties in mouse liver tissue, eight-week-old male C57BL/6J mice were used in a series of experiments performed at Leiden University Medical Center, the Netherlands. I) To assess the agonistic and antagonistic properties of miricorilant on glucocorticoid receptor activity, mice were fed with control diet or miricorilant-supplemented diet (resulting in 60 mg/kg/day exposure) for 6 days after which mice were injected with 1.5 mg/kg corticosterone or solvent, and RNA was isolated from bulk liver tissue. II) To assess the time-dependency of the hepatic lipid-lowering effects of miricorilant, mice were fed with a high-fat, high-fructose diet (HFHFD) for 3 weeks before treatment with 60 mg/kg/day miricorilant one, three or six times by oral gavage; or before treatment with 60 mg/kg/day miricorilant for one, two or three weeks. Triglyceride content in the liver was measured at endpoint. III) Miricorilant properties in human liver tissue were investigated in an experimental study performed at FibroFind, Newcastle, United Kingdom. Precision-cut liver slices (PCLS) were generated from human liver tissue with pre-existing steatosis and cultured for a total of 168 hours in the presence of 100 nM hydrocortisone. PCLS were treated with or without an exogenous lipid challenge, and exposed to 200-600 nM miricorilant for 96 hours before triglyceride content was measured.
Results: I) In the mouse liver, miricorilant exhibits a unique combination of agonist and antagonist properties on glucocorticoid receptor signaling. II) Miricorilant effectively lowered HFHFD-induced lipid accumulation in mice as soon as three days after treatment initiation and this effect was maintained after three weeks. III) In the PCLS model, miricorilant treatment lowered triglyceride content in two independent donors.
Conclusions: Miricorilant rapidly and effectively lowers hepatic lipid content in a mouse model for NASH and in a human PCLS model.

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VARIABLES INFLUENCING THE ACCURACY OF POSTURAL STIMULATION TESTING IN PATIENTS WITH PRIMARY ALDOSTERONISM

Yu Cheng Liang[1], Hung-Tsung Wu[2], Horng-Yih Ou[1]
[1]National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Department Of Internal Medicine, Tainan, Taiwan, [2]National Cheng Kung University, Department Of Internal Medicine, School Of Medicine, College Of Medicine, Tainan, Taiwan

Background and Aims: Primary aldosteronism (PA) encompasses a range of disorders characterized by an excessive production of aldosterone relative to suppressed plasma renin levels. PA is linked to an elevated risk of cardiovascular, metabolic, and renal comorbidities, as well as electrolyte imbalances such as hypokalemia. Once PA is confirmed, subtype classification is needed because unilateral diseases are potentially curable by unilateral adrenalectomy, whereas bilateral diseases require lifelong treatment with mineralocorticoid receptor antagonists. Despite being the least invasive and most convenient among subtyping tools, postural stimulation testing (PST) is limited by its variable protocols and different sensitivity and specificity. However, factors affecting the accuracy of PST remain obscure. In this study, we retrospectively reviewed the patients receiving PST and conducted a review of the related literature.
Methods: We reviewed a retrospective observational study of patients confirmed with PA from 2012 to 2023 in a medical center in Southern Taiwan. The screening, confirmation, subtype classification, and treatment were all based on Endocrine Society Clinical Practice Guideline. Final subtyping primarily relied on adrenal vein sampling (AVS), the gold standard, and NP-59 SPECT/CT when AVS was unfeasible. Every patient underwent a 4-hour PST. After an overnight supine, the plasma aldosterone was measured at 8 o'clock in the morning and after 4 hours (at noon) of continued erect posture. The optimal cutoff for aldosterone percentage change to diagnose unilateral PA was determined using receiver operating characteristics analysis. Baseline characteristics and laboratory data were compared between the PST correctly subtyping and wrong subtyping groups.
Results: A cohort of 36 patients comprised 25 with unilateral PA and 11 with bilateral PA. The optimal threshold for the percentage change in aldosterone was determined at -29%, yielding the highest Youden index. Utilizing this criterion, PST demonstrated 60% sensitivity and 82% specificity for identifying unilateral cases (area under the curve, 0.735; 95% CI, 0.549-0.920; $p = 0.027$). Within this cohort, 24 patients were accurately classified, while 12 were misclassified. Notably, significantly higher serum potassium levels were observed in the accuracy group compared to the error group (3.2 vs 2.7 mmol/L, $p = 0.015$).
Conclusions: Lower serum potassium levels were significantly linked to incorrect PST subtyping, potentially due to suppressive effect of hypokalemia on aldosterone secretion. This study is the first to illuminate the interplay between potassium levels and PST accuracy. Our findings support adequate potassium supplementation before PST to improve diagnostic accuracy.

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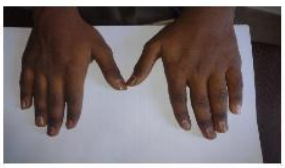
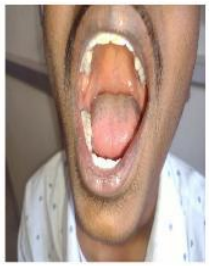
A NOVEL SGPL1 MUTATION AS A CAUSE OF PRIMARY ADRENAL INSUFFICIENCY AND NEPHROTIC SYNDROME

Beatrice Louis[1], Sumana Kunnuru[1], Glady Thomas[1], Divyasri Namburi[1], Sree Bhushan Raju[2], Shagun Aggarwal[3]
[1]Nizams institute of Medical Sciences, Endocrinology, Hyderabad, India, [2]Nizams institute of Medical Sciences, Nephrology, Hyderabad, India, [3]Nizams institute of Medical Sciences, Genetics, Hyderabad, India

Background and Aims: Loss of function mutations of Sphingosine-1-phosphate lyase 1 (SGPL1) gene mutations have been recently recognized as cause of sphingolipidosis with steroid-resistant nephrotic syndrome type 14 (NPHS14) and multisystem manifestations, including primary adrenal insufficiency (PAI). We hereby report the first case of a novel SGPL1 mutation from India,presenting with nephrotic syndrome,primary hypothyroidism,primary adrenal insufficiency and primary hypogonadism.
Methods:





We report an 18 year old Indian male, who presented with subnephrotic proteinuria and deranged renal function to the nephrologist which was proved to be focal segmental glomerulosclerosis on renal biopsy. He was diagnosed with primary hypothyroidism at the age of 12 years and had been on levothyroxine supplementation. Although there were no frank features of adrenal insufficiency, skin and mucosal pigmentation was noticed during clinical examination. On probing, the patient did reveal easy fatiguability. His height was in the 50th centile and weight in the 25th centile. He had secondary sexual characters with a testicular volume of 15 ml each.

Results: Laboratory evaluation showed ACTH >1250 pg/ml, 8 am serum cortisol -4.3 ug/dl, LH -142 uIU/ml, FSH – 30 uIU/ml, serum testosterone – 4.4 ng/ml, TSH – 5.38 uIU/ml (0.35-5.5),anti thyroid peroxidase antibody- negative, serum sodium – 140 mmol/l (135-145),potassium -4.73mmol/l (3.5-5.5)and serum creatinine-1.39 mg/dl(0.5-1.3). A whole exome sequencing revealed a novel compound heterozygous mutation in the SGPL1 gene (Chr 10:70729294 c.1175T>A).
Conclusions: The case highlights the emerging phenotype of this novel disorder and is the first to be reported in the Indian subcontinent. Multiple endocrinopathies associated with nephrotic syndrome should prompt the clinician to get a genetic diagnosis for earlier recognition and appropriate management of these cases.

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CONGENITAL ADRENAL HYPERPLASIA WITH INFERTILITY,REGULAR CYCLES AND HYPERTENSION

Dudi Nikitha[1], Sunil Epuri[2], Kanukuntla Jagadeesh[1]
[1]Continental hospitals, Internal Medicine, Hyderabad, India, [2]Continental hospitals, Endocrinology, Hyderabad, India

Background and Aims: A 26year old female born to a first degree consanguinous parents and eldest of four siblings attained menarche at 16years with regular cycles and no history of hirsuitism. At age of 16 she was evaluated for fever at a local hospital where she incidentally found to have high blood pressures for which she used some medications for an year and stopped on her own.further she got married and failed to conceive naturally since 7years ,hence visited a ivf clinic where she had high blood pressure[240/120mmhg] ,she was started on calcium channel blockers and beta blockers but her high blood pressure was not responding,Hence she was referred to our hospital.In view of infertility,regular cycles ,young hypertension and history of consanguinity she was referred to endocrinology dept. on examination patient had grade1-2 acne, no hirsuitism,normal hair pattern,breast development is normal[b5 and p5],no clitoromegaly [size-1x0.5cm],no striae and no mucosal pigmentation.Her blood pressure is 190/120mmhg in right upper limb ,no postural drop ,no right and left differentiation of blood pressures
Methods: Relevant investigations like cardiac work-up ,renal parameters, renal doppler, imaging ,serum electrolytes were within normal limits. Fundoscopy revealed grade-2 retinopathy .As patient was on beta blockers with no episode of crises,pheochromocytoma was not evaluated biochemically
Results:

Investigation name	Observed range	Reference range	Method and s
Thyroid profile	TSH-1.11micro IU/ml T3 Total -100.2ng/dl T4 Total -8.69micro gm/dl	0.51-5.0 micro IU/ml 80-200ng/dl 4-12micro gm/dl	Serum CLIA
Renin[direct]	<0.50 micro IU/ml	Upright posture -4.4-46.10micro IU/ml Supine posture-2.8-39.9micro IU/ml	EDTA Plasma
Serum Aldosterone	<0.970	Upright posture--0-2.52-39.2ng/dl Supine posture--1.76-23.2ng/dl	Serum CLIA
Urine volume in 24hrs 24hrs Urine Cortisol	3000ml 177.60ug/day	39-348ug/day	Urine CLIA
17 OH progesterone	Pre-synacthen-4.08ng/ml Post-synacthen-14ng/ml	Depends on age and phase of cycle	Serum CLIA
Total Testosterone	2.18ng/ml	0.084-0.481ng/ml	Serum ,ECLIA
11-deoxy cortisol	112.72ng/ml	Children and adult -0.2-1.58	Serum and Lc

Ct abdomen was suggestive of bilateral adrenal gland hyperplasia .Genetic analysis

which revealed 11 beta-hydroxylase deficiency was positive

DISEASE	GENE (TRANSCRIPT)	INHERITANCE	VARIANT (PROTEIN)
Congenital adrenal hyperplasia due to steroid 11-beta hydroxylase deficiency (OMIM *610613)	*CYP11B1* (NM_000497.4)	Autosomal Recessive	c.623G>A (p.Arg208Gln)

Conclusions: In a case of female patient with history of infertility ,regular cycles and hypertension, congenital adrenal hyperplasia cannot be ruled out

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PRIMARY HYPERALDOSTERONISM PRESENTING AS BARTTER/GITELMAN SYNDROME MIMIC IN A PATIENT WITH UNCONTROLLED DIABETES

Martin Emmanuel Pe Benito[1], Bernadette Diane Vista[2,3], Erick Mendoza[2]
[1]St. Luke's Medical Center, Internal Medicine, Quezon City, Philippines, [2]St. Luke's Medical Center-Quezon City, Section Of Endocrinology, Diabetes And Metabolism, Quezon City, Philippines, [3]St. Luke's Medical Center - Quezon City, Section Of Endocrinology, Diabetes And Metabolism, Quezon City, Philippines

Background and Aims: Primary hyperaldosteronism is a well-established cause of normokalemic to hypokalemic hypertension with metabolic alkalosis. However, it does not commonly present with prolonged state of hypomagnesemia and hypocalcemia.
Methods: This is a case of a 30-year old male who presented with a four-year history of recurrent bilateral lower extremity weakness associated with numbness and paresthesia precipitated by episodes of diarrhea. He has no family history of periodic paralysis and denied any intake of diuretics, steroids, or licorice. He has hypertension and diabetes with poor glycemic control (HbA1c 13.6%). Previous laboratory results showed low potassium levels with normal sodium; magnesium and calcium levels were not previously determined. On physical examination, he was normotensive and afebrile, with negative Chvostek sign and Trousseau sign. Neurologic examination was unremarkable.
Results: Laboratory tests revealed hypokalemia (K 2.1 mmol/l), hypomagnesemia (1.3 mg/dL), hypocalcemia (iCa 0.97 mmol/L) and normal anion gap hypochloremic metabolic alkalosis (HCO3 39 mmol/L; anion gap of 10.3). Urine studies showed renal potassium wasting. Intravenous and oral electrolyte correction were done which improved his lower extremity weakness, however normal levels of potassium, magnesium and calcium could not be achieved. An initial assessment of Bartter/Gitelman syndrome was considered. However, further workup revealed an elevated plasma aldosterone concentration (PAC 97.35 ng/dL) and suppressed plasma renin activity (PRA <0.07 ng/ml/hr), with an Aldosterone-renin ratio of 38 578.43. Whole abdominal CT scan with adrenal protocol was done which demonstrated a well-defined hypodense nodule in the left adrenal gland reflective of adenoma. Low dose dexamethasone suppression test yielded negative results.
Conclusions: Primary hyperaldosteronism does not commonly present with prolonged state of hypomagnesemia and hypocalcemia. The probable mechanism is thought to be related to expansion of the extravascular space, resulting in decreased proximal tubular reabsorption and thereby increased distal delivery of Mg2+ and Ca2+. Though primary hyperaldosteronism has been associated with increased risk of developing diabetes mellitus, a chronic state of hypokalemia through decrease in insulin secretion, and hypomagnesemia by affecting the insulin signaling pathway may contribute to worsening glycemic control. The patient was eventually started on Spironolactone 25mg daily, and was planned for unilateral adrenalectomy. He then remained in normotensive normokalemic, normomagnesemic, normocalcemic state with decreased electrolyte supplementation requirement. Patient also had improved glycemic control now only requiring one oral hypoglycemic agent. Hence, in patients with uncontrolled diabetes presenting with renal potassium wasting, hypokalemia, hypocalcemia, hypomagnesemia and severe hypochloremic metabolic alkalosis, primary aldosteronism should be considered.

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E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

ADRENAL ADENOMA SECRETING CORTISOL, WITH INITIAL PRESENTATION OF HEART FAILURE AND OSTEOPOROSIS

Rahaf Qari[1], Ameera Alzahrani[2]
[1]king abdullah medical complex, Internal Medicine, Endocrinology, jeddah, Saudi Arabia, [2]king abdullah medical complex, Internal Medicine, Endocrinology, Jeddah, Saudi Arabia

Background and Aims: Background Cortisol elevation due to adrenal adenoma or ACTH hypersecretion, can lead to various features in the body. [1] Mortality goes up to fourfold when the cardiovascular system is affected, [2] Treatment of hypercortisolism usually improves Left ventricular ejection fraction. [4, 5] osteoporosis, with or without vertebral fractures and hypertension at early onset should be considered for screened for Cushing syndrome. [8] osteoporosis usually improves over time but does not resolve completely. [9, 10] Objectives To emphasis on the importance of screening of secondary causes of heart failure, and osteoporosis
Methods: data was retrieved from the database of the hospital.
Results: A 30 years old male, was admitted as a case decompensated heart failure, his examination was showing features of Cushing, moon face, central obesity, bilateral thin limb, buffalo hump, wide purple stria in abdomen, bruising, proximal myopathy, smoker and had preexisting Hypertension controlled on 3 medications. Admission as decompensated heart failure, and further workup Echocardiography on presentation showed ejection fraction <30%. preceding disease to cause Heart failure with reduced ejection fraction were considered and investigated, Screening for Cushing syndrome was positive for hypercortisolism. Computed Tomography showed Right lipid-poor adrenal adenoma. Bone Mineral Density (BMD) showed features of osteoporosis. Patient was referred for adrenalectomy and was successfully resected. Post adrenalectomy period patient received glucocorticoid replacement therapy, with a long tapering period over 3 months, upon follow 3 months after patient dramatically improved post resection and was euvolemic, no symptoms of overload, proximal myopathy he was on wheelchair before resection on follow up he was using cane, depression and psychiatric symptoms resolved.
Conclusions: Any patient presenting with unexplained heart failure, or osteoporosis should be secondary causes especially screened for Cushing syndrome. More studies need to be done to follow the outcome of such patients post resection of the adrenal adenoma.

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E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

ALDOSTERONE PRODUCING ADENOMA VS BILATERAL ADRENAL HYPERPLASIA AS A CAUSE OF PRIMARY ALDOSTERONISM: THE DIAGNOSTIC DILEMMA - A CASE REPORT

Fatima Qayyum, Sarwar Malik
Capital Development Authority hospital Islamabad, Endocrinology, Islamabad, Pakistan

Background and Aims: Abstract: Primary Aldosteronism (PA) is a cause of endocrine hypertension. Aldosterone producing adenoma (APA) is next to bilateral adrenal hyperplasia (BAH) as a cause of PA. Since the two subtypes of PA are treated differently, distinction between them is vital but can be challenging. We report a case of resistant hypertension due to APA with a diagnostic challenge. This case indicates while we are deciphering PA subtype, discordance can exist between the results of diagnostic tools. Also visualization on imaging can be different from the histopathological lesion.
Methods: Case presentation: The patient had higher aldosterone, low renin, high ARR and low K^+.He was diagnosed as PA.CT scan abdomen revealed a well-defined nodule in right adrenal gland with nodular hyperplasia of left adrenal gland. Left laparoscopic adrenalectomy was successfully performed.Histopathology report confirmed left adrenal adenoma.Postoperatively he remained normotensive 5mg amlodipine and remission of symptoms...Figure 1 Abdominal Computed tomography showed 3x 2.7mm well defined fat attenuation lesion in the medial limb of right adrenal gland (blue arrow) and mild nodular thickening of medial limb of left adrenal gland measuring about 8.8mm (red arrow) Table 1 AVS.

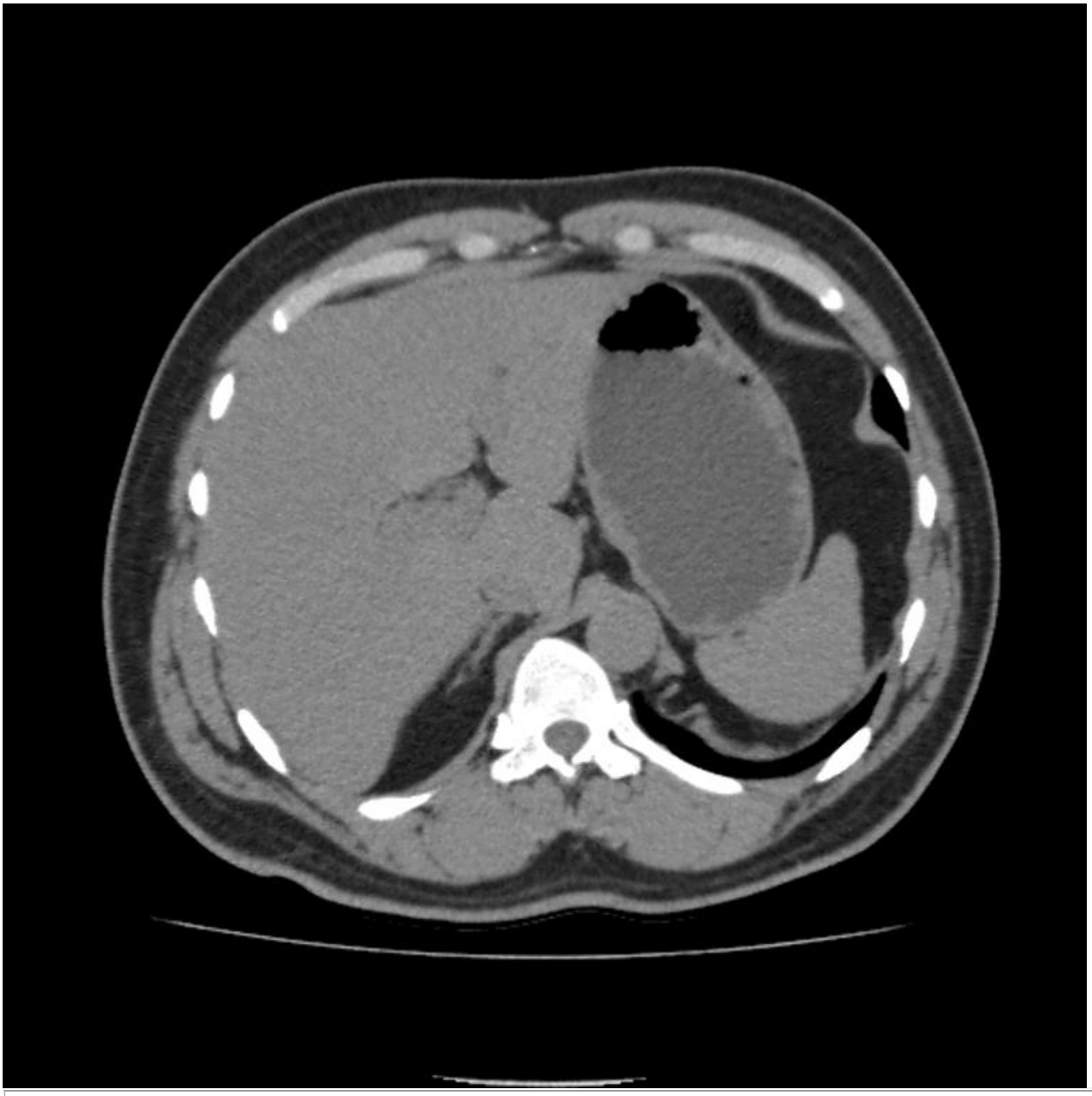
SITE	ALDOSTERONE ng/dl	CORTISOL mcg/dl
LEFT ADRENAL VEIN	>100	27.60
RIGHT ADRENAL VEIN	9.57	24.40
INFERIOR VENA CAVA	22.20	22.10

Table 2 Repeat AVS

SITE	ALDOSTERONE pmol/l	CORTISOL nmol/l
LEFT ADRENAL VEIN	7342	775
RIGHT ADRENAL VEIN	18	525
INFERIOR VENA CAVA	687	327

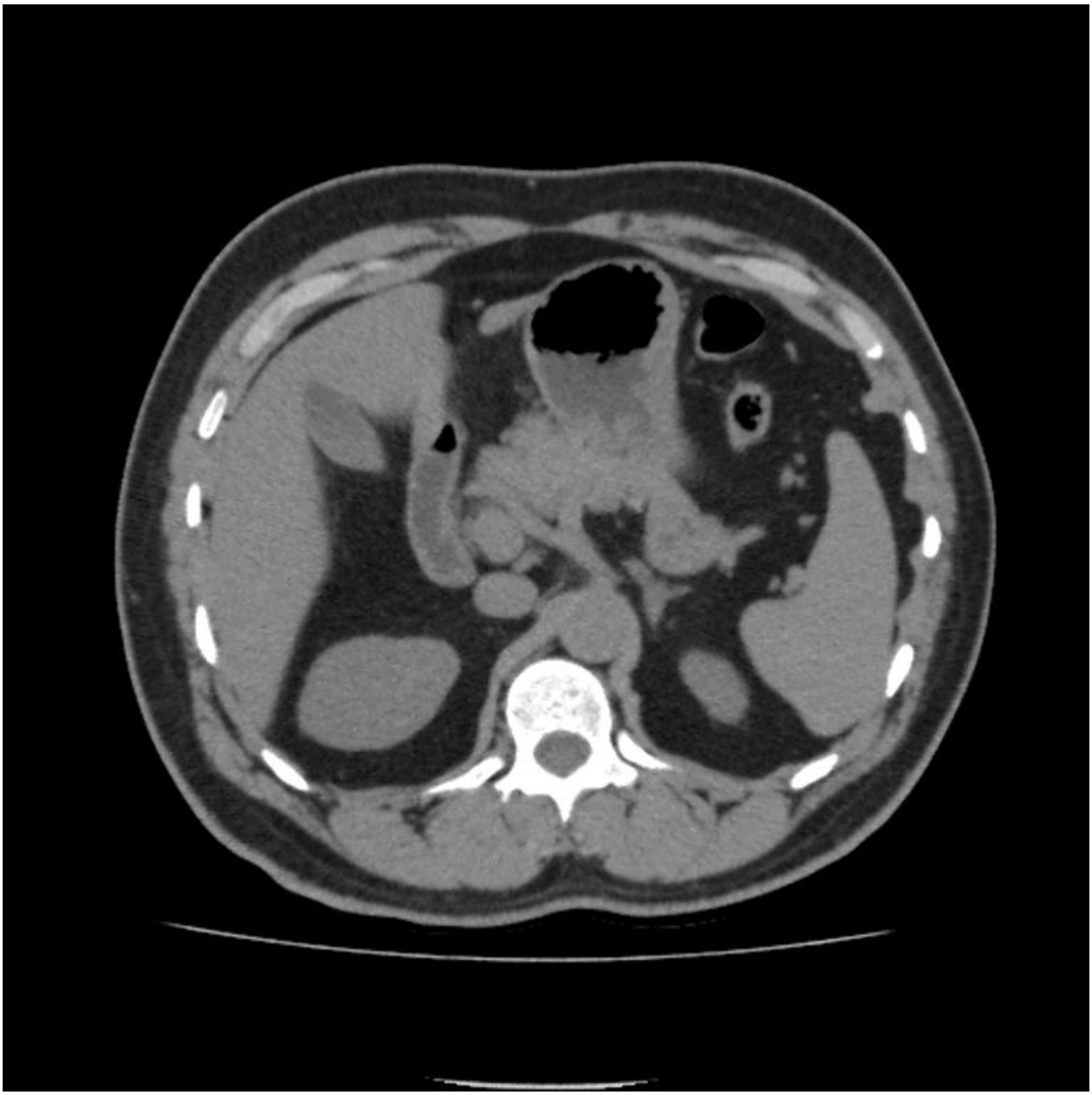
.

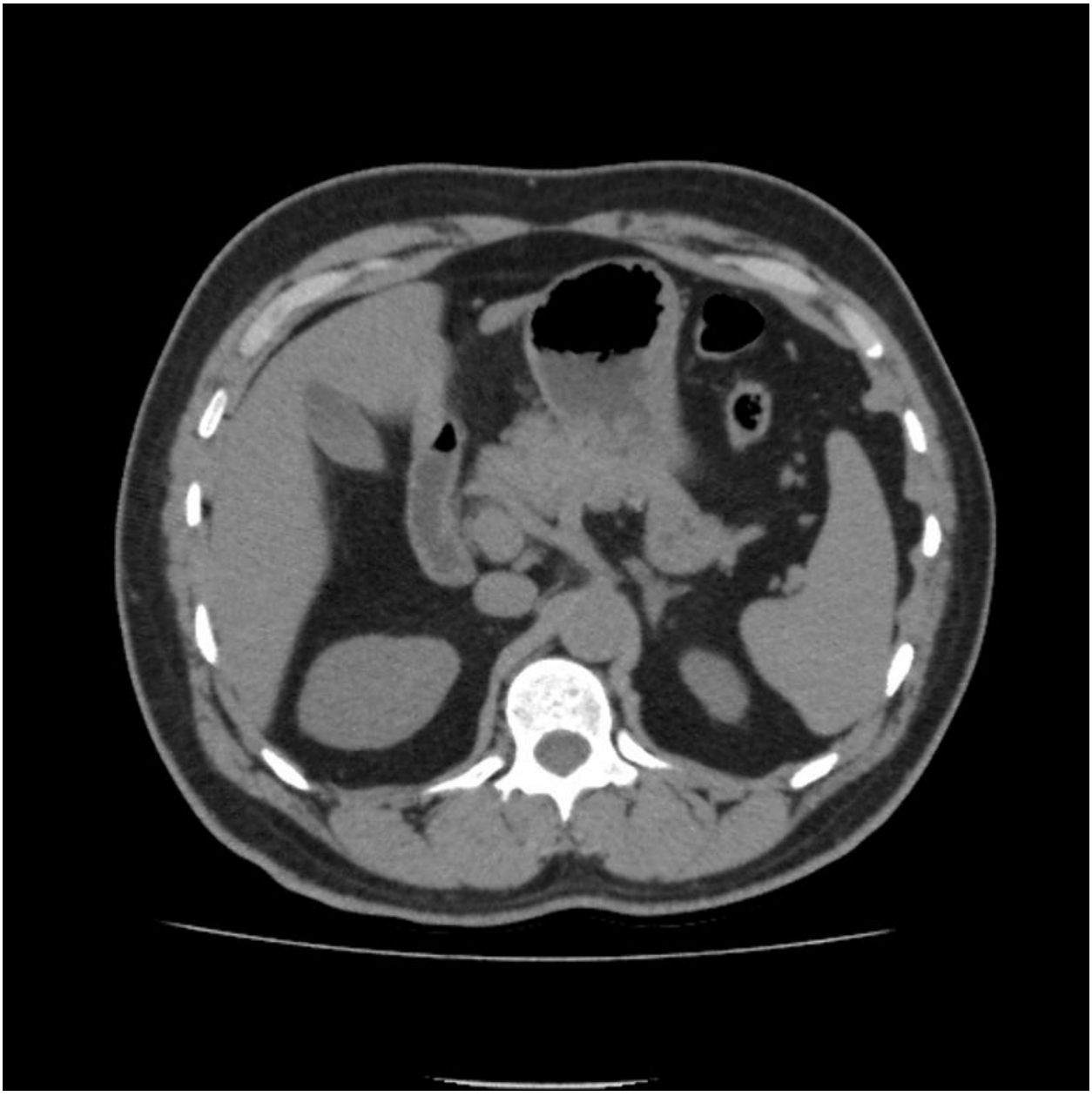
Results:



2023	
Parameter	Test Value Reference range
WBC	6,900/µl (4-11)
Hb	15.4g/dl (14-18)
MCV	88fl (80-100)
MCH	30pg/cell (27-31)
PLT	170,000/µl (150-300,000)
Na^+	139mmol/l (136-145)
K^+	3.4mmol/l (3.5-5.3)

ALT	38u/l (31-40)
Total Bilirubin	0.9mg/dl (< 1)
Creatinine	0.9mg/dl (0.7-1.2)
Urea	20mg/dl (7-30)
RBS	98mg/dl (80-140)
Cholesterol	180mg/dl (<200)
Triglycerides	120mg/dl (<150)
LDL-C	80mg/dl (< 130)
HDL-C	44 mg/dl (<60)
TSH	2.09µIU/ml (0.4-4.5)
Renal Doppler ultrasound	Average 28.6cm/sec Normal
24 hrs urinary VMA levels	5.56/24hrs urine Normal
Serum aldosterone	566pmol/L (ERECT61.3-979)
Plasma renin concentration	0.9µIU/ml (ERECT4.4-46.1)
ARR	629 (< 100)
Echocardiography	Concentric LVH. EF=60%
Stress echocardiography	Negative for ischemia





Conclusions: At this time, adrenal venous sampling combined with CT scan adrenals are amongst the methods to select patients with primary aldosteronism for adrenalectomy. However, none can be used alone for safe categorization of the patients who can benefit from adrenelectomy. Newer tests may be devised to aid the diagnostic process and make it easier.

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01-03-2024 07:00 - 18:00

HYPOKALEMIC PARALYSIS PROBLEM: REFLUX NEPHROPATHY WITH INCOMPLETE DISTAL RTA

Sriraam Rajagopal[1], Avivar Awasthi[2], Sahana Shetty[2], Anudeep Gaddam[3]
[1]Kasturba Hospital, Manipal, Internal Medicine, Manipal, India, [2]KASTURBA MEDICAL COLLEGE, MANIPAL, MANIPAL ACADEMY OF HIGHER EDUCATION, MANIPAL, Endocrinology, Manipal, India, [3]KASTURBA MEDICAL COLLEGE, Endocrinology, MANIPAL, India

Background and Aims: Distal renal tubular acidosis (dRTA) is a renal disorder characterized by impaired acid secretion in the distal tubules, leading to metabolic acidosis. dRTA presents with a myriad of clinical features, including nephrocalcinosis/nephrolithiasis, polyuria, and osteoporosis. Rarely, a distinct entity known as incomplete dRTA (idRTA) may present with hypokalemic paresis, characterized by normal arterial bicarbonate. In this case report, we describe a middle-aged gentleman who presented with hypokalemic quadriparesis secondary to idRTA due to chronic reflux nephropathy.
Methods: A 32-year-old Indian male from the coastal district of Karnataka presented to our tertiary care center with complaints of acute onset quadriparesis. Routine evaluation showed severe hypokalemia (K: 1.8 mmol/L) with arterial blood gas (ABG) showing uncompensated normal anion gap metabolic acidosis. Initial potassium correction was administered, and hypokalemia workup showed urinary losses of potassium, along with a lack of urine acidification. His ABG normalized after a week, and potassium supplements were discontinued. A diagnosis of idRTA was suspected, and the acid loading test with ammonium chloride suggested a distal tubular acid secretory defect. Etiological workup for idRTA revealed bilateral dilated pelvicalyceal system, moderate hydroureteronephrosis, along with left nephrocalcinosis on NCCT. There was a history of recurrent urinary tract infections for the past 8 years. A possibility of chronic reflux nephropathy was considered. A 99m Technitium DMSA scan revealed a hypofunctioning left kidney with left renal parenchymal scarring.
Results: In our patient, distal RTA was attributed to the structural nephron damage caused by chronic reflux nephropathy. The initial presentation of rapidly progressive quadriparesis, while alarming, served as a diversion from the primary diagnosis, highlighting the intricate clinical spectrum of renal tubular acidosis. The presence of nephrocalcinosis was a clue to the diagnosis of distal RTA.
Conclusions: All cases of dRTA should undergo a holistic approach to diagnosis and management, recognizing potential underlying causes that may not always present with typical symptoms. Addressing and managing recurrent childhood urinary tract infections are crucial to prevent future complications associated with chronic reflux nephropathy. A diagnosis of idRTA should be considered in subjects with hypokalemia and a normal ABG, prompting further tests to assess renal tubular acid secretion status.

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01-03-2024 07:00 - 18:00

PARAGANGLIOMA: DIAGNOSIS AND MANAGEMENT DURING PREGNANCY: CASE REPORT AND REVIEW OF LITERATURE

Imane Ziani[1], Fatimzahra Bentebbaa[1], Lamiae Zarraa[1], Siham Rouf[2], Hanane Latrech[2]
[1]University Hospital Mohammed VI center, Endocrinology-diabetology And Nutrition Department, oujda, Morocco, [2]Mohammed VI University hospital center, Faculty of Medicine and Pharmacy Mohammed First University Oujda, Morocco, Endocrinology Diabetology And Nutrition, Laboratory Of Epidemiology, Clinical Research And Public Health, Oujda, Morocco

Background and Aims: Paraganglioma during pregnancy is a rare and a serious entity, engaging the maternal and foetal prognosis, Its management requires a multidisciplinary collaboration, and it must be precocious and appropriate.we describe the case of management of paraganglioma during pregnancy
Methods: case report
Results: We report in this paper a case of a 34 year old female patient, with a history of 3 spontaneous abortions at 8 weeks' gestation, The history goes back to the age of 33years, by the fortuitous discovery of a systolic hypertension at 170mmHg during a pregnancy consultation. Currently the patient was presented in our department at 19 week and 5 days of amenorrhea, through the emergency department, for the management of her uncontrolled hypertension. On examination patient reported menard's triad , and had diabetes and poorly controlled hypertension. A fastidious etiological exploration was conducted and the diagnosis of paraganglioma was adopted ; Without other other evident localizations. Our patient benefites from a multidisciplinary management including a medical preparation with blood pressure and diabetic control with a short and long follow up. The immediate postoperative evolution was characterized by spontaneous normalization of both of blood pressure and the blood glucose levels. The measurement of urinary methoxylated derivatives at the 15th postoperative day were normal.
Conclusions: Paraganglioma in pregnancy is a very rare entity. High blood pressure is the most frequent clinical symptom, accounting for 77% according to the systematic review by Bancos et al. Plasma/urinary methoxylate assays can be used to detect catecholamine-secreting tumours with relatively low sensitivity and very high specificity. MRI is the reference topographical imaging technique in pregnant women. Medical preparation before surgery is the mainstay of paraganglioma management in pregnant women, with the aim of avoiding hypertensive crises during delivery by caesarean section or during resection of the tumour mass, A multidisciplinary management (endocrinologist, visceral surgeon, obstetrician, anaesthesiologist) is strongly recommended to have good results for both the mother and the fœtus ; and limit materno-fetal mortality.

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01-03-2024 07:00 - 18:00

COMPARISON OF QUALITY OF LIFE BETWEEN PATIENTS WITH PRIMARY AUTOIMMUNE ADRENAL INSUFFICIENCY AND HEALTHY CONTROLS: A PILOT STUDY

Jayaprakash Sahoo[1], S. Venkatesh[1], Dukhabandhu Naik[1], Sadishkumar Kamalanathan[1], Sitanshu Sekhar Kar[2,3]
[1]Jawaharlal Institute of Postgraduate Medical Education & Research, Endocrinology, Puducherry, India, [2]Jawaharlal Institute of Postgraduate Medical Education & Research, Psm, Puducherry, India, [3]Jawaharlal Institute of Postgraduate Medical Education & Research, Dept. Of Preventive And Social Medicine, Puducherry, India

Background and Aims: Primary autoimmune adrenal insufficiency(PAAI) is a chronic endocrine condition characterized by glucocorticoid deficiency with or without concomitant mineralocorticoid deficiency. The patients with PAAI continue to experience impaired quality of life(QoL) despite glucocorticoid replacement therapy. To the best of our knowledge, the information on the QoL in Indian PAAI patients is not available in the literature. The objective of our study was to compare the QoL between subjects with PAAI and healthy controls (HC).
Methods: A total of 62 subjects (31 cases and 31 HC) were recruited in this study. The PAAI was defined as any patient having low serum cortisol, plasma ACTH > 100 pg/ml, normal or reduced adrenal volume without calcification on non-contrast computerized tomography scan & absence of secondary conditions causing primary adrenal insufficiency. The QoL was evaluated using Short Form-36(SF-36) questionnaires in both the patients and HC.
Results: Out of 31 subjects with PAAI, 23 (74.2%) were female. The mean age of the patients was 39.2 + 11.2 years and 74% patients were younger than 50 years. The mean duration of the illness was 5 years and 17 (55%) subjects had additional autoimmune diseases like hypothyroidism, hyperthyroidism & premature ovarian failure. The age, gender, weight, body mass index, and waist circumference were similar across the two groups (PAAI & HC). But the PAAI patients were found to have lower scores in all the 8 domains of SF-36 compared to HC subjects.
Conclusions: The patients with PAAI have markedly impaired physical, emotional and social well-being despite glucocorticoid replacement therapy.

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E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

STEROID HORMONE DEFICIENCY AS A CAUSE OF PSORIASIS

Olga Samburskaya, Svetlana Kalinchenko, Daria Gusakova, Leonid Vorslov
Professor Kalinchenko's clinic, Moscow, Russian Federation

Background and Aims: Relevance. A new direction in the treatment of psoriasis is the correction of hormonal imbalance, which has a beneficial effect not only during the course of the disease, but also on the body as a whole. Objective. To evaluate endocrine disorders in patients with psoriasis.
Methods: The study included 30 patients with psoriasis, aged from 15 to 75 years, average age – 47.87±14.76 years, gender distribution: men 17 (57%), women 13 (43%). Criteria for inclusion in the study: patients diagnosed with psoriasis of varying severity (MCD-10), both sexes, from 15 years old. PASI, vitamin D level in the blood and hormonal status assessment by the steroid profile of saliva were determined in each patient before and after treatment.
Results: As a result, the average value of vitamin D before treatment indicates its deficiency of 23.52±6.87 ng/ml; hormonal imbalance before treatment was observed in all patients: progesterone and estradiol were within the reference range, the remaining hormones (17OH-progesterone, androstenedione, cortisone, cortisol, testosterone) were in insufficiency. Against the background of the treatment based on the correction of vitamin D deficiency and endocrine-metabolic disorders, the levels of progesterone, cortisol, testosterone and estradiol increased in patients, and there was also a leveling of clinical symptoms of psoriasis, which was reflected in the positive dynamics of PASI. A noticeable high correlation was found between the increase in vitamin D and the change in PASI – r 0.702 ($p<0.05$); a high direct correlation between the increase in vitamin D and progesterone – r 0.705 ($p<0.05$); a high direct correlation between the increase in vitamin D and cortisone – r 0.76 ($p<0.05$); a noticeable direct correlation between the increase in vitamin D and cortisol – r 0.51 ($p<0.05$); moderate direct correlation between vitamin D gain and estradiol – r 0.42 ($p<0.05$).
Conclusions: Patients with psoriasis not only have an imbalance of the immune system, but there is also a hormonal imbalance. The study shows the positive effect of correction of immuno-hormonal status, based on correction of vitamin D deficiency, on the course of the disease.

PV023 / #619

E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

MANAGEMENT OF PRIMARY ALDOSTERONISM DURING PREGNANCY

Cherng Jye Seow
Tan Tock Seng Hospital, Endocrinology, Singapore, Singapore

Background and Aims: Less than 80 cases of pregnant women with Primary Aldosteronism (PA) have been reported suggesting that PA is likely underdiagnosed during pregnancy. Blood Pressure (BP) control and hypokalemia may worsen during pregnancy leading to complications to the mother and fetus. We described our experience in the management of a patient with PA during pregnancy.
Methods: The clinical course and management of the patient during pregnancy was described
Results: A 36 years old female with hypertension for more than 10 years was referred for hypokalemia and poorly controlled hypertension despite being on ACE inhibitor, calcium channel blocker and potassium supplementation. Evaluation revealed an elevated aldosterone level with suppressed renin level and adrenal vein sampling confirmed the diagnosis of bilateral adrenal hyperplasia. She achieved good BP control and normalisation of hypokalemia with Eplerenone 75mg daily. She returned 2 years later 9 weeks pregnant. Eplerenone was discontinued and she was started on Nifedipine LA 30mg twice daily. Potassium supplementation needed to be increased to 1800mg thrice daily rapidly to achieve normokalemia. Aspirin was started at week 12. As she was normotensive and normokalemia was achieved, eplerenone was not restarted in the second and third trimester. There were no cardiac or renal complications. An uncomplicated Caesarian Section was carried out at 36 weeks to a healthy baby girl with normal birth weight.
Conclusions: Although there are no formal guidelines on the management of PA during pregnancy, the 2 main aims include controlling BP and maintaining normokalemia. Eplerenone crosses the placenta and data related to its use in pregnancy are limited. It is recommended that Eplerenone be stopped 4-6 weeks before conception and restarted in the second or third trimester if PA is not controlled. Amiloride is another alternative to eplerenone. The severity of PA during pregnancy is unpredictable.Pre eclampsia affect almost one third of patients with PA sometimes leading to pre term delivery. Aspirin should be considered. In patients with an unilateral aldosterone producing adenoma, adrenalectomy in the second trimester may be considered. Regular communication with the obstetrician and close monitoring for fetal growth abnormalities and maternal complications are important for a successful outcome.

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BILATERAL PHEOCHROMOCYTOMA AS PRESENTING FEATURE IN A PATIENT WITH MULTIPLE ENDOCRINE NEOPLASIA TYPE 2A

Sheeba Shaikh[1], Jan Hoong Ho[1], Waseem Majeed[2], Aziz Gulamhusein[2], Noel Clarke[2], Safwaan Adam[1]
[1]The Christie NHS Foundation Trust, Endocrinology, Manchester, United Kingdom, [2]Salford Royal Infirmary, Salford, United Kingdom

Background and Aims: We report the case of a previously fit, lean and well 36-year-old patient. As part of his employment procedures, he underwent an occupational health check and was found to be hypertensive. Due to his age and otherwise excellent health, this resulted in a focused history and investigations to screen for endocrine causes of hypertension: the patient had experienced intermittent symptoms of palpitations, shortness of breath and chest pain. Plasma metanephrines (63457 pmol/L [0-510]) and normetanephrines (107200 pmol/L [0-1180]) were both raised; 3-methoxytyramine (<75 pmol/L) was normal. A computed tomography scan of his abdomen revealed bilateral adrenal masses, 12.8 cm and 3.8 cm in maximal diameter on the left and right side respectively. A fluorodeoxyglycose positron emission tomography (FDG-PET) scan showed heterogenous uptake on the left side (SUV 6.1) and intense uptake on the right (SUV up to 3). There was no other abnormal uptake. An Iodine 123 meta-iodobenzylguanidine (MIBG) scan showed uptake in both adrenal lesions. He underwent bilateral adrenalectomy with glucocorticoid cover after careful pre-operative alpha and beta blockade with titrating doses of phenoxybenzamine and bisoprolol. His post-operative recovery was uneventful. Histology confirmed bilateral phaeochromocytoma with positive staining for chromogranin A, synaptophysin and S-100; Melan and SF-1 were negative. There was no evidence of local lymph node invasion. The Ki67 index was <2% and succinate dehydrogenase B was retained. He was discharged on replacement doses of hydrocortisone and fludrocortisone.
Methods: not applicable
Results: of pre-operative genetic screening were received post-operatively and these revealed a heterozygous mutation in a pathogenic variant of the RET gene (c.1832G>A p.[Cys611Tyr]). conferring a genetic diagnosis of Multiple Endocrine Neoplasia (MEN) Type 2. On further review, there was no family history of medullary thyroid cancer or other conditions associated with MEN2. An ultrasound scan of his thyroid did not reveal any abnormal pathology and his serum calcitonin was measured as normal (5.91 ng/L [0-8.4]). After careful discussion, he is awaiting a prophylactic thyroidectomy after the discussions of the risks against perceived benefit. Both serum adjusted calcium (2.39 mmol/L [2.20-2.60]) and parathyroid hormone levels (3.5pmol/L [1.5-7.6]) were normal.
Conclusions: This case demonstrates, unusually, the first presentation of a patient with MEN2A with bilateral phaeochromocytoma. This highlights the need for comprehensive genetic screening in patients with phaeochromocytoma (especially bilateral) even in the absence of syndromic manifestations.

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E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

CALCITONIN-PRODUCING PHEOCHROMOCYTOMA: CASE REPORT

Dina Rebrova[1], Vladimir Rusakov[1], Elisey Fedorov[1], Leonid Krasnov[1], Roman Chernikov[1], Ilya Sleptsov[2], Igor Chinchuk[1], Arseny Semenov[3], Shamil Shikhmagomedov[3], Ekaterina Zgoda[3], Mikhail Alekseev[3], Tatyana Savelyeva[3], Olga Loginova[3]
[1]Saint Petersburg State University, Saint Petersburg State University Hospital, Saint Petersburg, Russian Federation, [2]St.Petersburg University Hospital, Endocrine Surgery, St.Petersburg, Russian Federation, [3]Saint Petersburg State University, Saint Petersburg, Russian Federation

Background and Aims: Pheochromocytoma (PHEO) is a neuroendocrine tumor from the adrenal medulla cells. PHEO is a hormone-active tumor with hypersecretion of catecholamines (adrenaline, norepinephrine, dopamine). Rare cases of ectopic hypersecretion other peptide hormones by PHEO are described. In available in the pubmed base articles we found only four cases describing the secretion of calcitonin by PHEO.
Methods: Clinical Case Description
Results: 38-year-old female patient with a two years history of arterial hypertension with sympathoadrenal crises against a background of constantly elevated blood pressure is presented. The examination revealed a large tumor of the right adrenal gland up to 78 mm in size. Detailed radiation characteristics of the tumor according to US, CT, MRI and PET/CT 18-FDG are presented. By the results of laboratory tests an overproduction of catecholamines by the tumor was established. In addition, a repeated increase in the level of calcitonin in the blood was revealed, which was suspicious for MEN 2 syndrome. After surgical treatment, the level of calcitonin in the blood decreased to undetectable, which suggested the hyperproduction of calcitonin by PHEO. This hypothesis was confirmed by the results of histological and immunohistochemical studies, genetic study (wild type of RET-protooncogene).
Conclusions: An ectopic production of calcitonin by PHEO is extremely rare but it is possible. Such case is a challenge in differential diagnosis with MEN 2 syndrome, especially with an absence of genetic testing. Preoperative genetic study of patients with PHEO in such cases greatly facilitates the diagnostic search and reduce the risk of false diagnosis of medullary thyroid carcinoma.

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01-03-2024 07:00 - 18:00

COMPARISON OF OPERATION LENGTH PREDICTORS IN PATIENTS UNDERGOING ENDOSCOPIC ADRENALECTOMY FOR PHEOCHROMOCYTOMA VS HORMONALLY INACTIVE ADRENAL TUMORS

Dina Rebrova[1], Elisey Fedorov[1], Igor Chinchuk[1], Roman Chernikov[1], Ilya Sleptsov[2], Shamil Shikhmagomedov[3], Vladimir Rusakov[1], Leonid Krasnov[1], Arseny Semenov[3], Viktor Makarin[3], Ilya Sablin[2], Ekaterina Zgoda[3]
[1]Saint Petersburg State University, Saint Petersburg State University Hospital, Saint Petersburg, Russian Federation, [2]St.Petersburg University Hospital, Endocrine Surgery, St.Petersburg, Russian Federation, [3]Saint Petersburg State University, Saint Petersburg, Russian Federation

Background and Aims: Surgery duration estimation is essential for efficient use of operating theatres and the scheduling of patients. This study focuses on predictive factors for the length of endoscopic adrenalectomy (EAE).
Methods: We included 259 patients with pheochromocytoma (PHEO) and 534 with hormonally inactive adrenal tumors (HIAT), admitted to the hospital for unilateral EAE (laparoscopic or posterior retroperitoneoscopic).
Results: The length of operation counted 85 [65; 120] min in patients with PHEO and 75 [60; 100] min in HIAT group ($p<0.001$, Mann-Whitney U Test [MWUT]). Correlation analysis revealed a positive statistically significant correlation of length of operation in both groups with weight ($r=0.375$, $r=0.420$), and tumor size ($r=0.335$, $r=0.255$). Meanwhile, patients with HIAT had higher body weight and bigger tumors ($p<0.001$, MWUT). Length of operation statistically significantly depended on sex (higher in males), and hyperglycemia, and didn't depend on sidedness of the tumor or surgery type. Use of vasoactive drugs was associated with longer operations ($p<0.001$, MWUT). It's frequency was significantly higher in patients with PHEO (50.6% vs 2.1% for esmolol, 62.2% vs 4.9% for nitrates, 30.1% vs 1.1% for epinephrine, 44.4% vs 6.2% for norepinephrine, 29.7% vs 3.9% for dopamine, $p<0.001$, Yates' chi-square test) which implies more cases of hemodynamic instability.
Conclusions: Diagnosis of PHEO was independent predictor of length of EAE. Body weight, tumor size, sex, and hyperglycemia were shown to be non-specific operation length predictors. The difference in EAE duration in patients with PHEO compared to HIAT is likely to be determined by intraoperational hemodynamic instability.

PV027 / #1598

E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

PRIMARY ALDOSTERONISM (PA) SCREENING IN RESISTANT HYPERTENSION (RH): EXPERIENCES FROM A SPECIALITY ENDOCRINOLOGY DIABETES CLINIC (SHOULD WE MARK "PRE-PRIMARY" ALDOSTERONISM?)

Siddhartha Dinesha[1], Kavitha Muniraj[2], Yug Garg[3], Reshma Bv[4], Leena Lekkala[2], Rajeshwari Ashok[5], Madhumati Vaishnav[6], Sathyanarayana Srikanta[7]
[1]Sri Chamundeshwari Medical College Hospital and Research Institute, Internal Medicine, Bangalore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [3]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [4]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [5]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [6]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India

Background and Aims: Once thought to be rare, PA is now known to be the most common cause of secondary hypertension, with a prevalence of 20% among patients with resistant hypertension (RH), 10% in those with severe hypertension and 6% in those with otherwise uncomplicated hypertension (Circulation. 2018;138(8):823-835). Only a small fraction of the patients with PA are diagnosed and treated. Screening rate for primary aldosteronism in persons with RH has been reported to be only 2.1% (Hypertension. 2020;75(3):650-659). Also importantly, the pathophysiologic continuum nature of PA has been recently highlighted (Circulation. 2018;138(8):823-835) ["(a) PA pathology spans wide spectrum that includes bilateral adenomas, unilateral hyperplasia, micronodules, and microscopic aldosterone-producing cell clusters (APCCs) in various combinations; (b) PA is not a yes/no dichotomy in hypertensive patients, but rather a spectrum of MR antagonist–responsive disease, particularly in patients with RH and mildly elevated or even ostensibly normal aldosterone levels"].
Methods: Towards better identification and treatment of PA, aldosterone: renin ratio (ARR) was measured in 90 consecutive patients with "resistant hypertension" in a speciality endocrinology diabetes clinic [Reference range: Serum aldosterone ng/dL(CLIA) Upright: 2.52-39.2; Supine: 1.76-23.2; Plasma renin activity ng/ml/hr(CLIA) Lying Position: 0.15-2.33; Standing Position: 0.10-6.56; ARR= <20; blood drawn always while standing, after 30 minutes walking].
Results: Age at evaluation: 21-93 years; Female 55%; ARR values during screening: 0.4 to 227. The characteristics of different ARR ranges are illustrated (Table 1). The prevalence of ARR >20 was 54%. CT/MRI of adrenals were performed for ARR >20, which were reported as "normal" or bilateral adrenal hyperplasia (with or without nodules). Hypokalemia was the presenting symptom of PA is additional four patients: two with acute quadriparesis [adrenal carcinoma (1); familial PA (1)]; hypokalemia with accelerated hypertension (1); sepsis, hyperlactatemia, paradoxical metabolic alkalosis, with adrenal adenoma (1). Adrenal incidentaloma was the presenting symptom of PA in two additional patients.
Conclusions: Given the continuum nature of PA pathology and hence the arbitrariness of currently used ARR thresholds (positive screening= 20 to 30 ng/dL: ng/mL/hour using PRA for calculation), it may be possibly worthwhile to mark lower ARR thresholds (eg: 11 to 20 or 16 to 20; especially with suppressed renin) as "pre-primary" aldosteronism (akin to prediabetes and prehypertension). This will enable flagging of patients at future risk of disease progression to "overt" PA, for periodic ARR rescreening and/or incorporating empirical additional MRA therapy for

hypertension.

ARR	%	Age	SBP	DBP	S Na	S K	S Creatinine
0-10	29	54±16	140±16	82±11	137.4±2.7	4.6±0.4	0.81±0.17
11-20	17	58±14	162±20	96±14	138.3±3.1	4.7±0.6	0.85±0.27
21-40	35	65±11	155±19	89±18	135.9±5.9	4.7±0.6	0.88±0.30
>40	19	60±12	143±20	90±11	139.2±4.6	4.4±0.5	0.95±0.33

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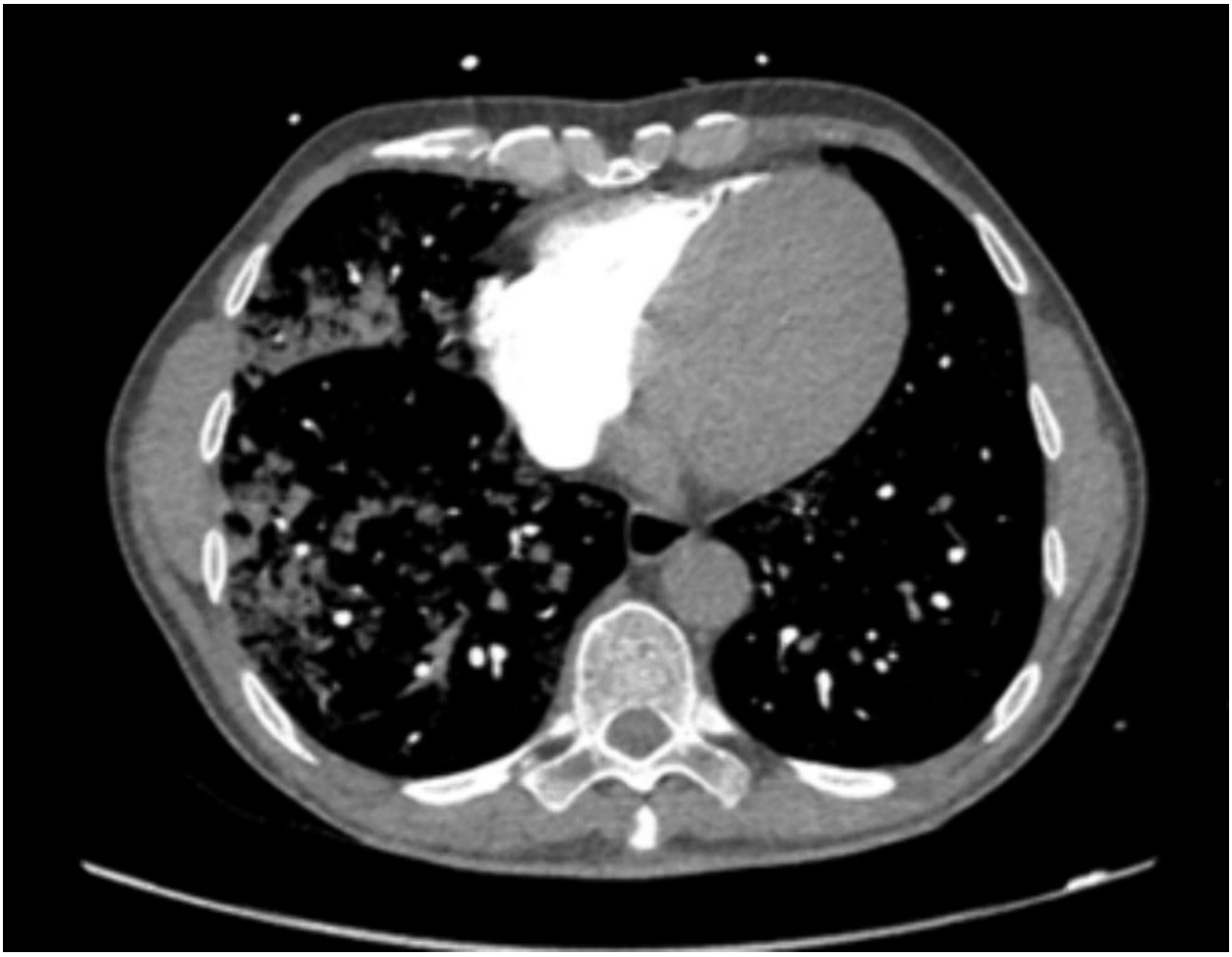
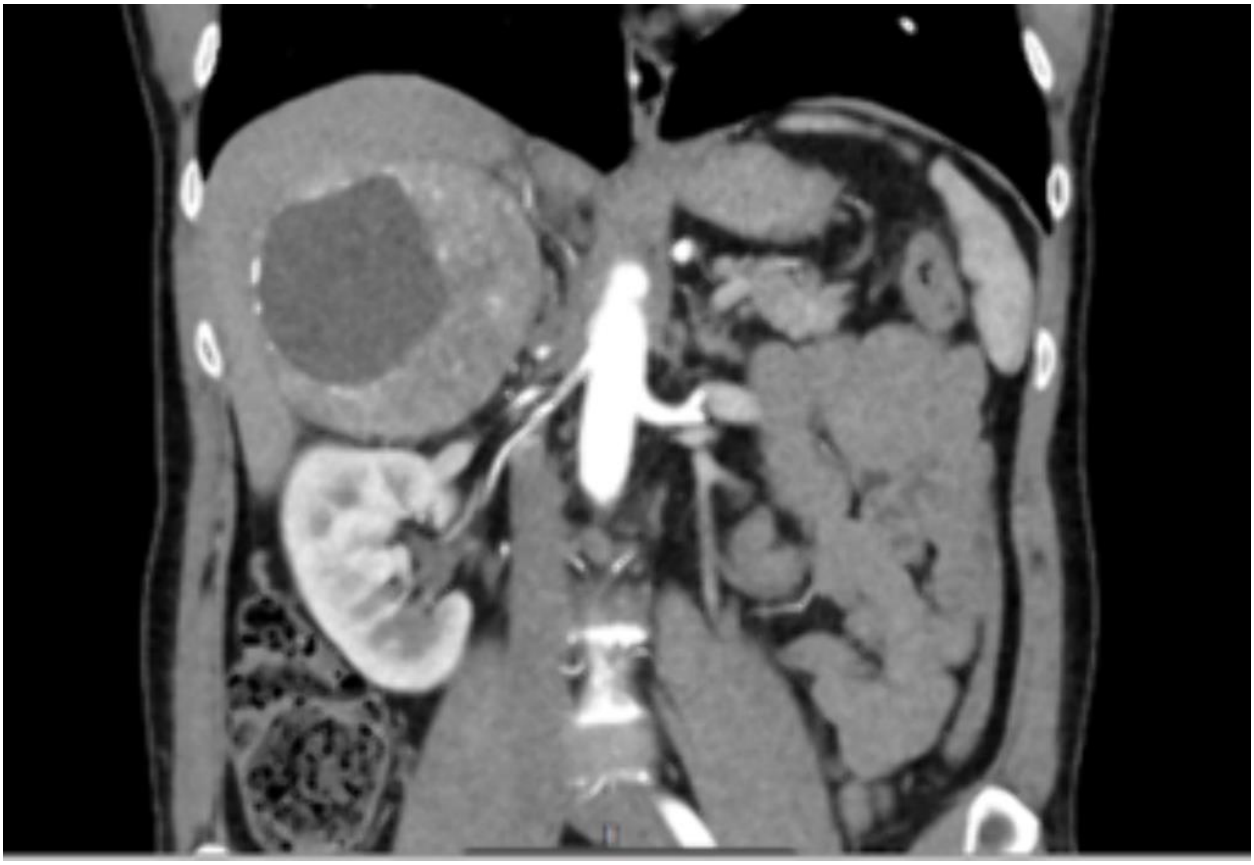
HYPERTENSIVE CRISIS - UNMASKING THE UNCOMMON

Muha Hassan, Puja Thadani, Ranganatha Rao
University Hospital of Coventry and Warwickshire, Endocrinology And Diabetes, Coventry, United Kingdom

Background and Aims: Pheochromocytoma crisis is a life-threatening condition with a high mortality rate. It is characterized by hypertension, pulmonary oedema, and encephalopathy, making rapid diagnosis and treatment challenging. This case reviews an atypical presentation of phaeochromocytoma crisis.
Methods: Case was compiled using electronic medical records.
Results: A fifty-three-year-old male with a three-year history of hypertension and anxiety presented to the emergency department with haemoptysis, vomiting and breathlessness. He was intermittently taking propranolol for anxiety and had no significant family history. On admission, he was hypertensive (BP 179/136 mmHg), hypoxic (SpO2 93% on 15 L/min oxygen via non-rebreather mask), and tachycardic (95bpm). Examination revealed bilateral crackles with reduced air entry in both lungs, with normal cardiovascular and abdominal examination. Baseline investigations demonstrated normal full blood count, normal serum electrolyte levels with metabolic acidosis and widespread T-wave inversion on ECG. CTPA and CTAP demonstrated extensive bilateral pulmonary haemorrhage and a large heterogeneously enhancing well-defined mass of approximately 11 cm with cystic changes and calcification arising from the right adrenal gland (Figure 1, Figure 2). He was referred to the Endocrine Team. Additional investigations were performed. Plasma metanephrines (59,013pmol/L, range <510pmol/L), plasma normetanephrines (77,393pmol/L, range <1180pmol/L) and plasma 3-methoxytyramine (678pmol/L, range <180pmol/L) were significantly raised, suggestive of pheochromocytoma. MIBG scan showed positive uptake in the right adrenal lesion. Following preoperative blockade with Phenoxybenzamine and Propranolol, the patient underwent open right adrenalectomy, partial right nephrectomy and hepatic resection of segment 5 and 6. Postoperatively, he developed a right-sided pneumothorax and pleural effusion, which was managed with thoracostomy. Histology confirmed pheochromocytoma with a GAPP score of 3 and PASS of 4. Genetic tests were negative for MEN-2 mutations. The patient was discharged in stable condition. Three weeks after surgery, plasma metanephrines normalised (Table 1), and the patient's condition has remained stable. Due to the moderate risk of recurrence, he has regular follow-up appointments at six-month
intervals.





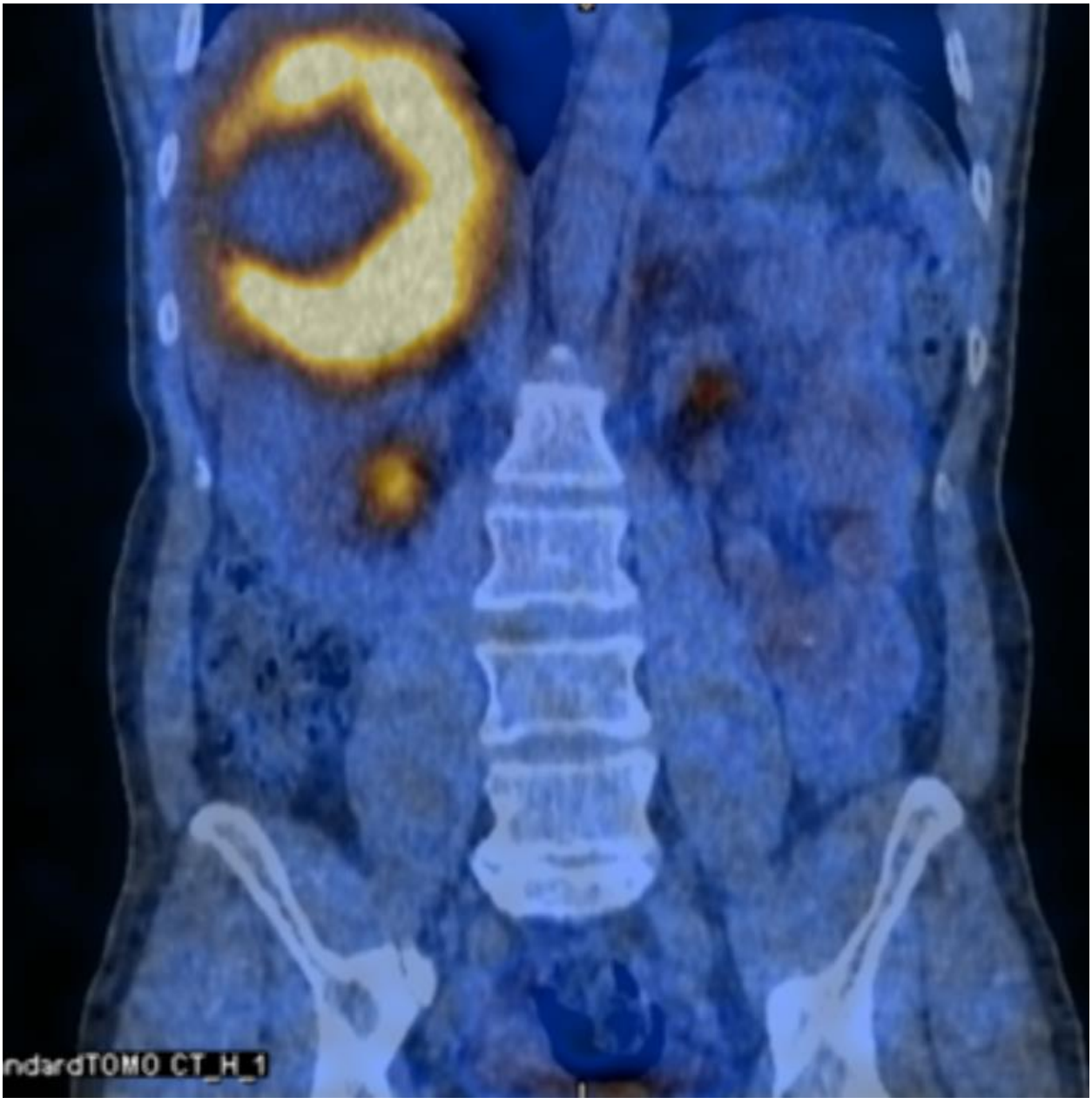


Table 1. Metanephrine levels pre- and post-adrenalectomy

	Admission Day	One week pre-surgery	3 weeks post-surgery
Plasmametanephrines (pmol/L)	59,013	54,306	111.1
Normetanephrines (pmol/L)	77,393	66,249	873.1
Plasma 3-methoxytyramine (pmol/L)	678	420	<75

Conclusions: Our case highlights that pheochromocytoma crisis can occur spontaneously in an undiagnosed patient and present atypically as a hypertensive emergency with massive pulmonary haemorrhage. A high clinical suspicion and appropriate investigation are essential for prompt intervention. Management of pheochromocytoma crisis should include initial stabilization of the acute crisis, followed by sufficient α-blockade before surgery.

PV029 / #1620

E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

RESISTANT METABOLIC ALKALOSIS AND HYPOKALEMIA DURING SEVERE SEPSIS WITH HYPERLACTATEMIA AS THE FIRST CLUE TO PRIMARY ALDOSTERONISM (PA)

Sathyanarayana Srikanta[1,2], Jayalakshmi Thimmaiah[3], Reshma Bv[4], Kavitha Muniraj[5], Lakshmi Reddy[6], Siddhartha Dinesha[7], Yug Garg[8], Samatvam Diabetes Collaborative Study Group[9]
[1]Samatvam Research Center, Endocrinology, Bangalore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [3]Manipal Hospital, Endocrinology, Bangaiore, India, [4]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [6]Sparsh Hospital, Endocrinology, Bangaiore, India, [7]Sri Chamundeshwari Medical College Hospital and Research Institute, Internal Medicine, Bangalore, India, [8]Samatvam Trust, Endocrinology, Bangalore, India, [9]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Patients with severe sepsis or septic shock admitted to the intensive care unit (ICU) present a wide variability of acid-base disorders, with metabolic acidosis being one of the most frequently observed. Some of these patients suffer from abnormalities with co-existing metabolic acidosis and alkalosis. We present a patient with paradoxical, resistant and enigmatic hypokalemia and alkalosis during severe septicaemia and hyperlactatemia, leading to diagnosis of primary aldosteronism, in an intensive care unit.
Methods: An otherwise healthy 50-year male, with hypertension, presented with acute septicaemia (ESBL E.coli) and septic shock 2-3 hours after an outpatient urethral dilatation procedure (for chronic urethral stricture, with recent acute urinary retention). Day 1: BP 100/60, PR 109, SPO2 96, ABG pH 7.49, pCO2 30.9, pO2 53.8, HCO3 23, serum lactate 123 mmol/L (0.5-1), sodium 141-144, potassium 2.7-2.9, chloride 109, s creatinine 1.2 mg/dl, WBC count 1610, CRP 7.3 mg/dl (0.3-1). He was resuscitated with IV fluids, triple inotropes, oxygen, IV antibiotics, IV potassium.
Day 2-4: pH 7.34-7.48, pCO2 22.4-29.7, pO2 25-76, HCO3 15.6-16.6, procalcitonin 33.8-64.2 ng/ml (<0.1), s creatinine 1.39-1.89, sodium 138-141, potassium 3.5-3.8, WBC 22900, platelets 0.35, CRP 301, T bilirubin 3.9 mg/dl (multi-organ failure with acute kidney injury).
Results: Management of the mixed acid-base imbalance (dominant metabolic alkalosis) with severe resistant hypokalemia was very confounding with regard to simultaneous correction of alkalosis and hyperlactatemia. This led to the first clinical suspicion of undiagnosed primary aldosteronism in the ICU, as a possible underlying explanation for the confounding hypokalemia and alkalosis, in the setting of severe sepsis. Abdominal CT/MRI scan revealed left adrenal adenoma 20x19mm. He improved with supportive care and prior to hospital discharge on day 10, needed reinstitution of antihypertensive medications. Post-hospitalisation: Endocrine evaluation confirmed PA: Plasma renin activity ng/ml/hr= 0.62; Serum aldosterone ng/dL= 43.2; Aldosterone: Renin Ratio= 69.7; s creatinine= 0.77, sodium= 135.0, potassium= 3.30. After initiation of spironolactone, BP dramatically improved to 106/81.
Conclusions: Recommendations for PA screening include: (a) Sustained hypertension; (b) Resistant hypertension (b) Hypertension and spontaneous or diuretic-induced hypokalaemia; (c) Hypertension and adrenal incidentaloma; (d) Hypertension and sleep apnoea; (e) Hypertension and a family history of early-onset hypertension or CVA at a young age (<40 years); (f) Hypertensive PA first-degree relatives. A growing new school of thought is also suggesting universal screening for every case of newly diagnosed

hypertension, since treatment with MRA has salutary beneficial effects, both short- term and long-term (cardiac and renal protection).

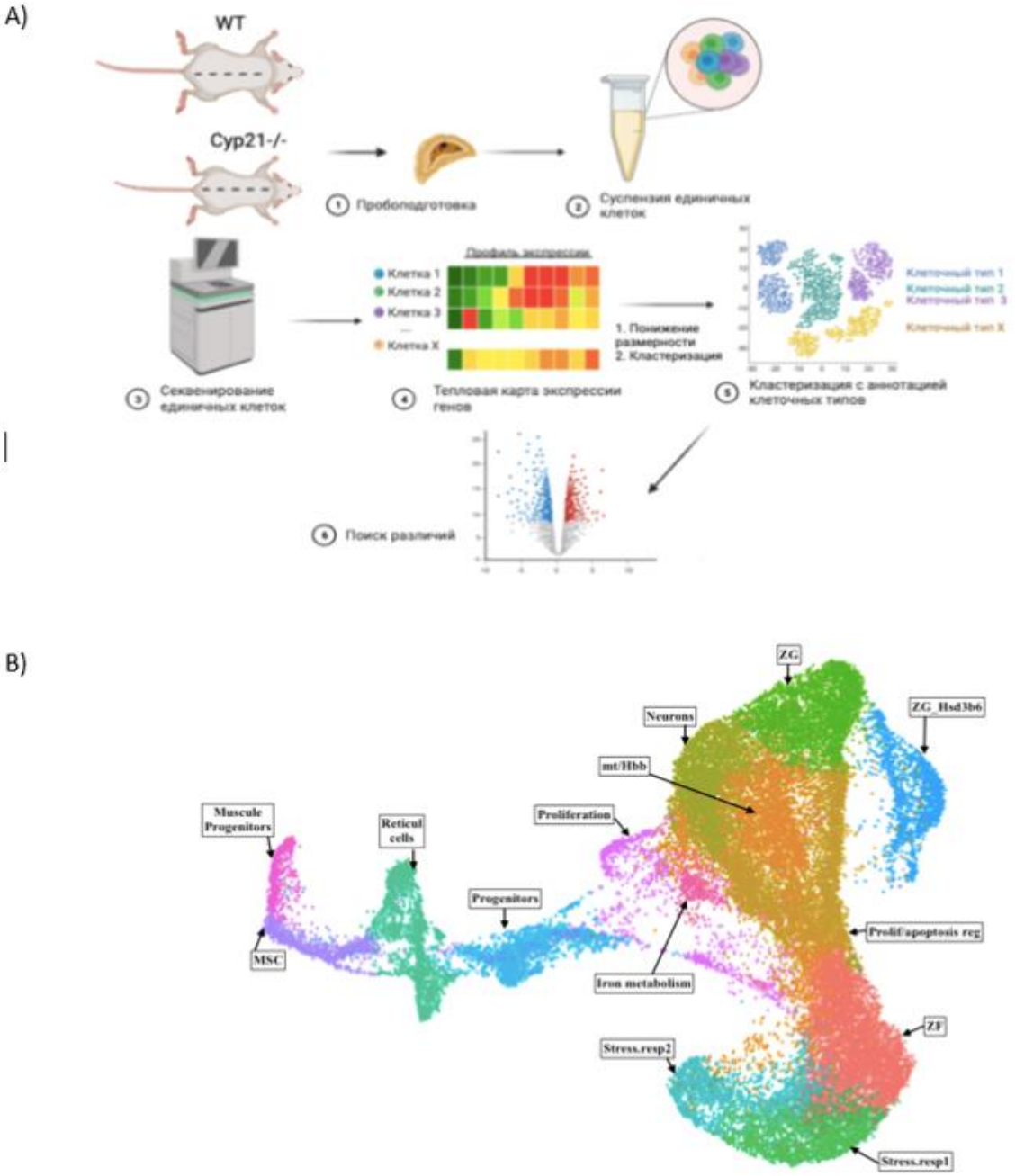
PV030 / #1531

E-Poster Viewing
E-POSTER VIEWING: AS01. ADRENAL
01-03-2024 07:00 - 18:00

DETECTION OF TRANSCRIPTOMIC TRANSFORMATIONS IN POPULATIONS OF MICE ADRENOCORTICAL CELLS IN NORMAL CONDITIONS AND WITH CYP21A1 GENE KNOCKOUT

Maria Vorontsova, Olga Glazova, Pavel Volchkov, Samira Kaziakhmedova
MIPT, Dolgoprudny, Russian Federation

Background and Aims: Congenital adrenal hyperplasia (CAH) is a group of autosomal recessive diseases, more than 90% of cases of which are caused by mutations in CYP21A2, which encodes the steroid 21-hydroxylase. Despite current knowledge on the pathogenesis of this disease, the cellular and molecular pathogenesis is still unclear to a large extent. Identification of differences in the transcriptional profile of adrenocortical cells in normal vs. pathological conditions will help study the course of the disease at a deeper, molecular level, which is feasible due to the rapid development of omics technologies. The purpose of our research is to determine significant differences in the cell populations of adrenocortical cells in wild-type mice vs. mice with mutations in the Cyp21a1 gene.
Methods: Mice strain CD1-c57bl/10snslc-h-2aw18/h-2b was used as a CAH model. The total adrenal glands from four groups (n=5) were prepared as a cell suspension and then used for library preparation and 3` single cell sequencing (10xGenomics) (Fig 1).
Results:



Bioinformatics analysis demonstrated significant differences in Cyp21a1-deficient adrenal glands in cellular composition and cell transcriptional profiles. In particular, zona glomerulosa (ZG), zona fasciculata (ZF), and mesenchymal stem cells are significantly overrepresented in the adrenal glands of Cyp21a1-/- mice (Fig.2) In addition, there is increased expression of the Cyp11b2 gene, which is associated with aldosterone synthesis precursors accumulation, dysregulation of blood pressure and increased angiotensin II signaling. As a consequence, there is a pattern of changes in the expression of other genes associated with the renin-angiotene-aldosterone chain and genes regulated by the level of potassium in the cell (Ren1, Slc6a5) (Fig.3). Moreover, there is a decrease in the expression of progenitor markers

such as Shh and Gli1. An expression level decrease in these genes may indicate an increase in progenitors proliferation and, as a consequence, a decrease in the detectable number of cells in the progenitor state.

Conclusions: In this work, we sequenced the transcriptomes of adrenal glands' single cells of both wild-type mice and mice with a Cyp21a1 gene mutation. A bioinformatics analysis of the obtained data was carried out, and a number of significant differences in the composition and molecular organization of the organ in pathology were identified. The data obtained is a good foundation to broaden our understanding of the pathological processes under study at the molecular and cellular levels.

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OVARIAN STEROID CELL TUMOUR MIMICKING CONGENITAL ADRENAL HYPERPLASIA WITH VERY HIGH 17OHP.

Ashani Wickramarachchi[1], Aloka Rathnayaka[2], Probhodana Ranaweera[2], Thanikai Sasikanth[1], Prasad Katulanda[3]
[1]National Hospital of Sri Lanka, Diabetes And Endocrinology Unit, Colombo, Sri Lanka, [2]National Hospital of Sri Lanka, University Obstetrics And Gynaecology Unit, Colombo, Sri Lanka, [3]Diabetes Research Unit, Department Of Clinical Medicine, Faculty Of Medicine, University Of Colombo, Colombo, Sri Lanka

Background and Aims: Introduction Ovarian steroid cell tumors are rare sex cord stromal tumors of the ovary and has been reported to coexist with congenital adrenal hyperplasia. We report a rare case of an ovarian steroid cell tumor secreting very high levels of 17OHP and mimicking CAH that was cured following unilateral oophorectomy.
Methods: Case presentation 17 years old girl presented to the clinic with acute onset, rapidly progressing symptoms of virilization including voice change for 1 year duration. Though she had regular menstruation since menarche she was amenorrhoic for the past 8 months and has gained 13 kg during this period. Examination revealed a severely hirsute girl (FGS – 27/36) with androgenic alopecia, anabolic body habitus and clitoromegaly. Investigations revealed a serum Testosterone of 5.4nmol/l (0.52-2.43 nmol/l) and this value increased to 15.83nmol/L in 1 month. 17 hydroxy progesterone (17OHP) was 5467 ng/dl (3-90). Her FSH, LH, TSH, DHEAS were all within normal values. Her ACTH was 6.56pg/ml and short synacthen test revealed a cortisol of 841nmol/L. ODST and LDDST were both suppressed. She was started on a course of oral steroids in the form of prednisolone 10mg daily and after 6 weeks 17OHP rose to 6867 ng/dl. Due to the rapid progression of the disease a neoplasm was suspected. USS revealed a solid lesions with increased vascularity in bilateral ovaries largest in the R ovary measuring 3.8x4.9cm (2.2cm lesion in L ovary). CECT abdomen and MRI abdomen both revealed bilateral lesions with higher likelihood of stromal origin neoplasm in right ovary. bilateral adrenal glands appeared normal in imaging. Adrenal and ovarian venous cannulation was done which successfully cannulation of L adrenal and bilateral ovaries. Right ovarian testosterone secretion was 4 times that of the left ovary and that of adrenals. Right oophorectomy and left sided cyst excision was done without complications. Histology revealed a steroid cell tumor of the right ovary and a serous cystadenoma of the left ovarian cyst.
Results: Her menstruation resumed in 3 months and hirsutism improved 1 year after surgery. Serum testosterone, 17 OHP remained low at 1 year and 2 year follow up visits.
Conclusions: This case highlights the importance of having high clinical suspicion of neoplasm when patients present with rapidly progressing hirsutism and virilization even when biochemical findings point towards conditions like congenital adrenal hyperplasia.

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PV032 / #1062

E-Poster Viewing
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01-03-2024 07:00 - 18:00

VITAMIN D STATUS OF ASYMPTOMATIC YOUNG HEALTH CARE PROFESSIONALS OF A TERTIARY CARE HOSPITAL AND ITS ASSOCIATION WITH QUALITY OF LIFE. VIDQOL-PAK STUDY

A. H. Aamir, Shaista Kanwal, Azmat Ali Khan
Hayatabad Med Complex, Dept Of Diabetes And Endocrinology, Peshawar, Pakistan

Background and Aims: The use of supplemental vitamin D has increased dramatically over the past few years due to the enthusiastic expectation that vitamin D is extremely important in nearly all bodily functions. This has been challenged recently by several trials and metanalysis suggesting that the effect of vitamin D if any could be trivial. The objective of this study was to evaluate the vitamin D status of asymptomatic young health care workers of a tertiary care hospital in Pakistan and to find out its association with health-related quality of life.
Methods: A total of 319 asymptomatic self-reported healthy health care workers (HCW) between 20-40 years of age were enrolled. Demographic and clinical details were obtained from the participants. Health related quality of life (HRQoL) was measured by employing the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36). The association between vitamin D status and physical component score (PCS), mental component score (MCS) and total SF 36 score was analyzed. A p- value < 0.05 was considered as significant.
Results: Out of the 319 participants, there were 230 (72.1%) males and 89 (27.9%) females. The mean age of the participants was 28.2 ± 4.96 years. The mean serum 25-hydroxyvitamin D concentration was 24.9 ± 9.55 ng/ml. 82.1% of the study population was either Vitamin D deficient or insufficient. The mean PCS, MCS and total SF 36 score were 81.2 ± 11.4, 77.9 ± 12.9 and 79.6 ± 11.1 respectively. There was no statistically significant difference between the vitamin D status and the PCS, MCS and total SF 36 score (p value < 0.05).
Conclusions: More than 80% of the asymptomatic young health care workers were either vitamin D deficient or insufficient as per recommendation of Endocrine society. More than 95% of the participants had mean PCS, MCS and total SF 36 scores of more than 50 without any physical or biochemical evidence of disease related to Vitamin D defeciency. There was no association between Vitamin D status and quality of life in the healthy Pakistani population.

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01-03-2024 07:00 - 18:00

A DIAGNOSTICALLY CHALLENGING CASE OF HYPERCALCEMIA CAUSED BY A NOVEL HOMOZYGOUS VARIANT MISSENSE MUTATION IN CYP24A1 GENE

Muhammad Yahya[1], Tasnim Ahsan[2,3], Roomana Siddiqui[4]
[1]Medicell Institute of Diabetes, Endocrinology and Metabolism (MIDEM), Internal Medicine & Endocrinology, Karachi, Pakistan, [2]Medicell Institute of Diabetes Endocrinology & Metabolism (MIDEM), Endocrine, Karachi, Pakistan, [3]Medicell Institute of Diabetes, Endocrinology and Metabolism, Internal Medicine, Karachi, Pakistan, [4]OMI Hospital, Internal Medicine And Endocrinology, Karachi, Pakistan

Background and Aims: CYP24A1 gene encodes an enzyme 24-hydroxylase, which is involved in catabolism and inhibition of activation of Vitamin D; and its mutation results in vitamin D-dependent hypercalcemia. Large body of literature is available on association of various variants of this gene mutaions but the aim of this case is to report a novel homozygous variant of missense mutation in a person with otherwise unexplained hypercalcemia
Methods: We present a case of a 26-years male, known case of thalassemia minor, and epilepsy since the age of 3 years. He was recently diagnosed to have hypertension and presented in the endocrine clinic with complains of generalized headache for last 4 months, dull in character and of mild to moderate severity, which started after oral intake of nine ampules of Vitamin D (200,000 IU each) for the purpose body building in duration of less than a month. His parents were first cousins. His father is diagnosed to have diabetes mellitus, hypertension and stroke, while mother has hypertension. On examination he was vitally stable with no significant finding on systemic examination except for lipoma on forearm and thigh (biopsy proven).
Results: Extensive workup was done to know the cause behind hypercalcemia but was inconclusive (Table 1). Apart from a small calculus in the left kidney all the imaging reports were normal (Table 2). He then finally underwent genetic testing and tested positive for the variant homozygous mutation in CYP24A1 gene (c.1390G>C [p.Gly464Arg]). Familial screening for this gene mutation has been advised.

Table 1		
Investigations	**Results**	**Reference Range**
Serum Calcium	13.17	8.6 – 10.3 mg/dL
Ionized Calcium	5.7	4.5 – 5.3 mg/dL
Albumin	4.5	3.5 – 5.4 g/dL
Phosphate	3.43	3.0 – 4.5 mg/dL
Urinary Calcium	Spot: 9.52 24-H: 312.4	Spot: 6.7 – 21.3 24-H: 25 – 300
Parathyroid Hormone (PTH)	< 3.0	16 – 87 pg/mL
25 Hydroxy Vitamin D	35.4	20 – 40 ng/mL
1, 25 Dihydroxy Vitamin D	65.7	19.9 – 79.3 pg/mL
Creatinine	1.2	0.7 – 1.3 mg/dL
Angiotensin Converting Enzyme (ACE)	32	08 – 65 ug/L
Plasma Free Metanephrines	141.22	0 – 90 pg/mL
Normetanephrines	139.63	0 – 190 pg/mL
Immunoglobulin M (IgM)	1.10	0.5 – 3.0 g/L
Serum Protein Electrophoresis & Immunofixation	Normal	
Tissue Transglutaminase (TTG) IgA & IgG	Normal	
Thyroid Stimulating Hormone (TSH)	1.83	0.4 – 4.2 mIU/L
Serum Free Kappa Light Chain	14.4	3.3 – 19.4 mg/L
Serum Free Lambda Light Chain	15.2	5.71 – 26.3 mg/L
Kappa / Lambda Free Light Chain Ratio	0.95	0.26 – 1.65
Parathyroid Hormone Related Protein (PTHrP)	< 2.0	< 2.0 pmol/L

Table 2	
Investigations	**Results**
Ultrasound Abdomen + KUB	Non-obstructing calculus (0.5cm) @ lower pole of L kidney
Renal Artery Doppler	Normal
Echocardiography	Mild PAH (30 mmHg), Rest of it normal EF = 65%
Ultrasound Neck	Normal
MRI Neck	Normal
MRI Brain	Normal
CT Chest, Abdomen & Pelvis	Normal, except for calculus in L Kidney
Parathyroid scintigraphy	Negative
FDG PET/CT Whole Body	Negative study for any hyper-metabolic abnormality

Conclusions: While dealing with unexplained cases of hypercalcemia, the differential diagnosis of genetic mutation in CYP24A1 gene should be considered. Though various variants of this gene mutation have previously been found to be associated with vitamin D dependent hypercalcemia but its association with novel missense mutation (c.1390G>C [p.Gly464Arg]) has never previously been reported. Further research is warranted to establish the causal relationship of this novel variant mutation and hypercalcemia.

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01-03-2024 07:00 - 18:00

PLACE OF CALCIMIMETICS IN THE MANAGEMENT OF PRIMARY HYPERPARATHYROIDISM: THREE ILLUSTRATIVE CASES.

Sabrina Ayari[1], Najla Bchir[1,2], Anaam Ben Chhida[2], Chadia Zouaoui[2], Haroun Ouertani[1]
[1]Hopital militaire de tunis, Endocrinology, Tunis, Tunisia, [2]Hopital militaire de tunis, Endocrinology, tunis, Tunisia

Background and Aims: The curative treatment of primary hyperparathyroidism (PHPT) is surgical removal of the hyperactive gland(s). Face of altered underlying medical conditions, this therapy may be contraindicated in some patients. Medical treatments, particularly calcimimetics, have been attempted as another alternative. We report the case of three female patients in which the indication of cinacalcet differed.
Methods: We report the case of three patients in which calcimimetics were indicated.
Results: We describe a case of a 63-year-old female with a medical history of diabetes, hypertension, osteoporosis, hyperthyroidism and rheumatoid arthritis associated to interstitial lung disease.She consulted for hypercalcemia at 2.87 mmol/l.(2.2-2.6 mmol/L)A primary hyperparathyroidism was confirmed by the association of moderate hypercalcemia and elevated PTH level. The patient was inoperable because of the respiratory insufficiency. Thus, she was started on cinacalcet to control the calcemia. The second patient was a 64-year-old patient with diabetes, hypertension and severe heart failure. She was diagnosed with PHPT based on severe hypercalcemia associated with high PTH level. The topographic localization was not concordant between ultrasound and scintigraphy. Cinacalcet was used because the patient refused to be operated. The third patient was a 72-year-old patient with diabetes, heart failure, asthma and chronic kidney disease. PHPT was complicated with severe hypercalcemia causing ventricular tachycardia. After two cures of bisphosphonate we opted for cinacalcet to lower calcium levels.
All patients were started with cinacalcet 30 mg 1*2/j. Corrected calcium levels were reduced and stabilised to 2.74mmol/l for the first patient, 2.52mmol/l for the second patient and 2.71 mmol/l for the third patient.
Conclusions: The primary therapy of PHPT remains surgical. However, considering the risk of anesthesia some patients need other therapeutic alternatives. Medical treatment with calcimimetics should be restricted to patients who meet the criteria for surgical removal of parathyroid glands and are otherwise unable to be operated or to patients who present with untractable or recurrent disease.

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CARE OF PATIENTS WITH VITAMIN D DEFICIENCY AND MYASTHENIA GRAVIS

Yuk Fun Chan, Kirtan Ganda
Concord Repatriation General Hospital, Endocrinology, Sydney, Australia

Background and Aims: Vitamin D is a hormone, and a fat–soluble vitamin which has two forms: Vitamin D2(ergocalciferol) and D3(cholecalciferol) can be sourced from food/supplements, and is produced in the skin from ultraviolet light after sun exposure respectively. These days, cholecalciferol is mainly used in supplements. Cholecalciferol is converted to 25-OH-vitamin D in the liver, which is then converted to it's active form, 1,25-OH-vitamin D(1,25D) via the 1-a-hydrolase enzyme primarily in the kidney as well as immune cells. Vitamin D plays an important role in maintaining physiologic process such as calcium and phosphate homeostasis, as well as adaptive and innate immunity. In the human immune system, the vitamin D receptor (VDR) and the vitamin D-activating enzyme (1α-hydroxylase) appear in T lymphocytes (T cells), dendritic cells and macrophages. The interaction of 1,25 D with VDR promotes transcriptional and epigenomic responses, which attenuates inflammatory T cell adaptive immunity. Vitamin D deficiency can cause metabolic bone diseases and may have major impact on extra-skeletal conditions such as diabetes, inflammatory and autoimmune disorders. Myasthenia gravis (MG) is a chronic autoimmune neuromuscular disorder. The pathophysiology involves functional impairment of the T regulatory(Treg) cell which is vital in controlling the activation of T cells and inhibiting the autoimmune response. Vitamin D3 has been shown to increase the number and function of Treg cells in the peripheral blood resulting suppression of T cell activation. Studies examining the relationship between Vitamin D deficiency and Ms are controversial and limited. A Systemic Review and Meta –analysis (Bonaccorso G. 2022), showed that there were significantly lower levels of Vitamin D (mean difference 13.5nmol/L) in MG cohorts compared to controls. Therefore, regular monitoring of 25-OH-vitamin D levels in MG patients is recommended.
Methods: The following case describes a patient with MG and vitamin D deficiency: A female patient (DRMe) aged 64 years old was referred by Neurological Team for the management of vitamin D deficiency. Past medical history includes: myasthenia gravis, vitamin D deficiency, COVID pneumonitis, and osteopenia. Medications includes: Prednisone, Mestinon SR, Lipidil, Esomeprazole, Vitamin D replacement, Actonel/Zoledronic Acid, Chinese herbal medicines, and Caltrate. Patient had 30-60 minutes of sunlight exposure daily.
Results: Patient's bone health has improved under the care of the endocrine team.
Conclusions: The Endocrine nurse plays a crucial role in the multidisciplinary team, and should have good understanding the complexity of this neuromuscular disorder and bone health so as to provide best care for the patient to improve patient's quality of life.

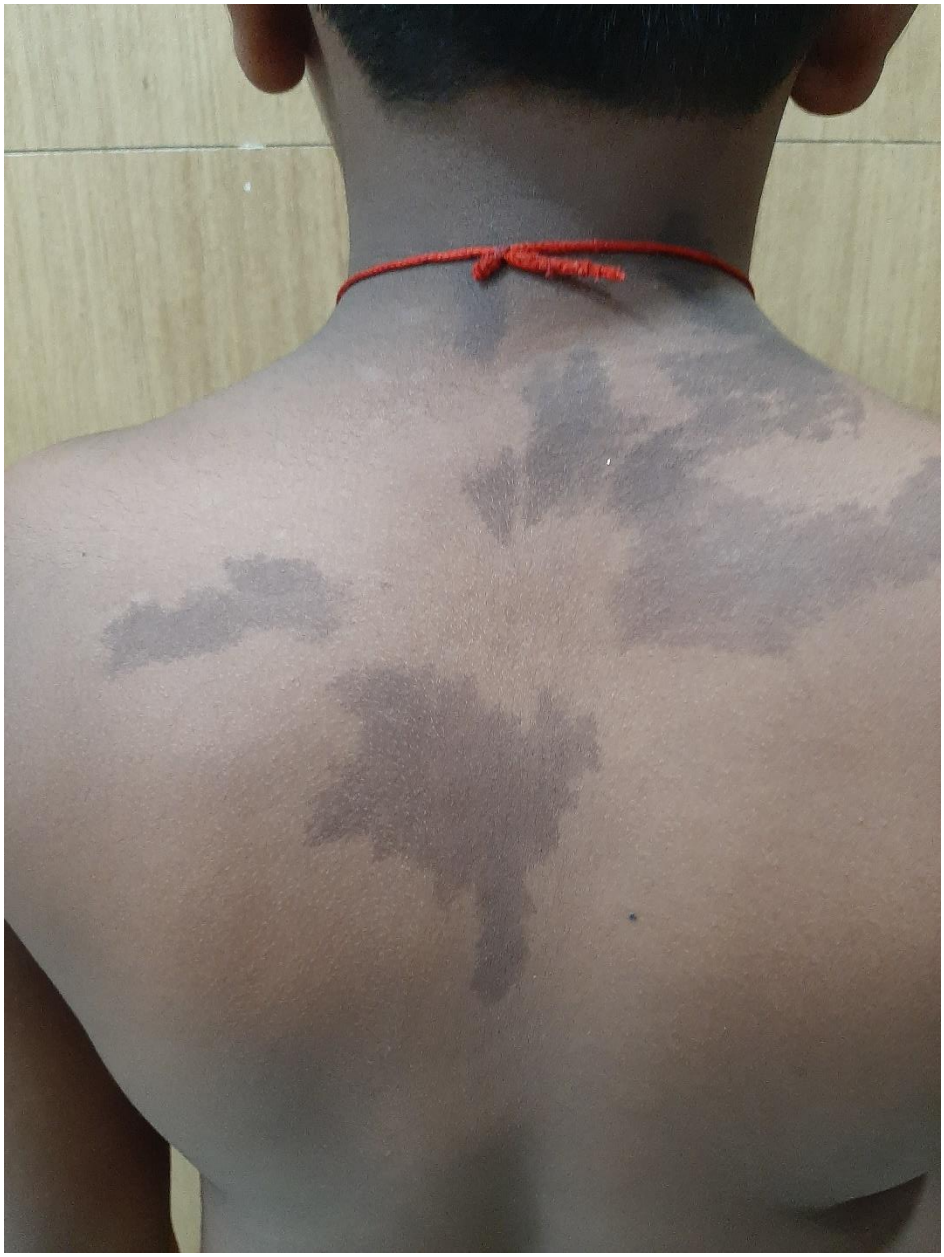
PV036 / #665

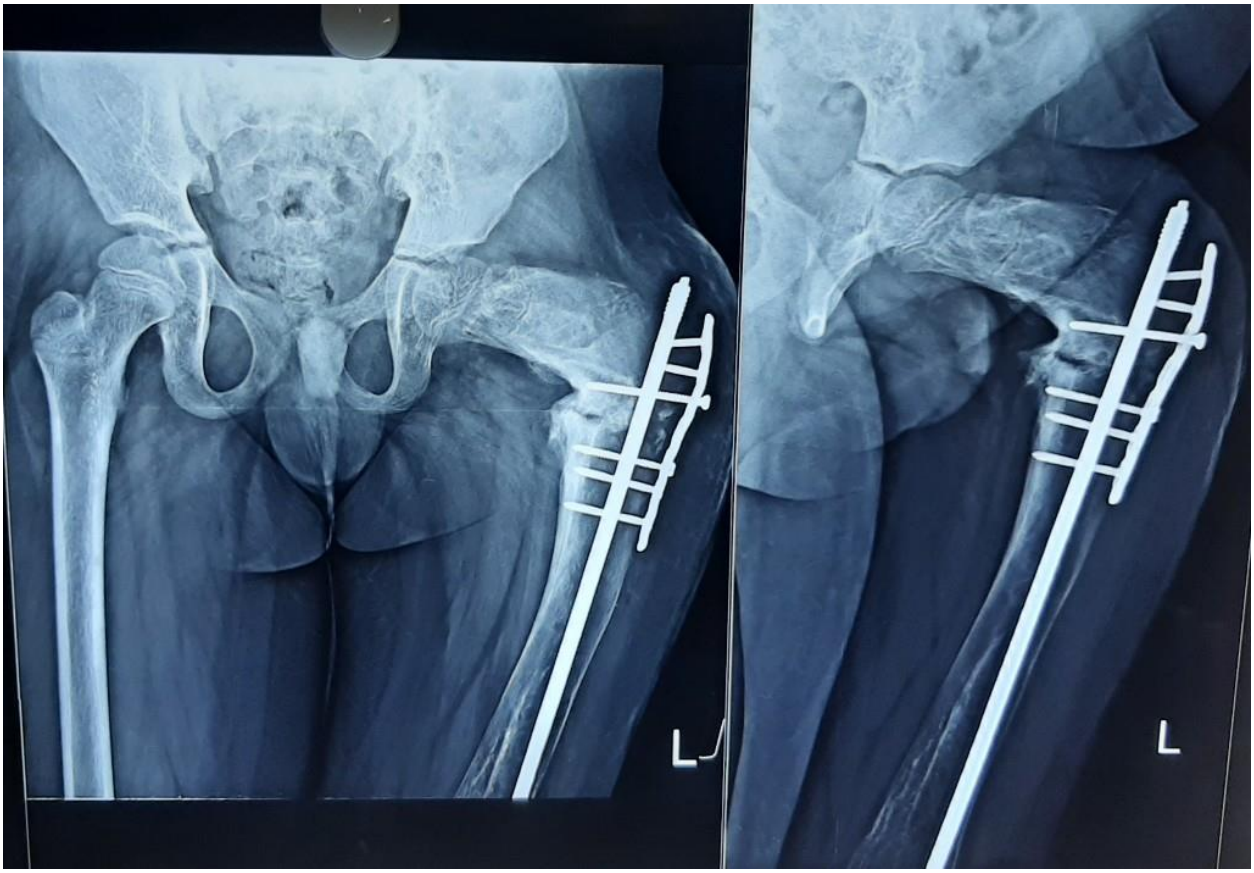
E-Poster Viewing
E-POSTER VIEWING: AS02. BONE
01-03-2024 07:00 - 18:00

A CASE OF MCCUNE ALBRIGHT SYNDROME PRESENTING WITH MULTIPLE PATHOLOGICAL FRACTURES.

Sambit Das, Vishal Agarwal
Kalinga Institute of Medical Sciences, Endocrinology, Bhubaneswar, India

Background and Aims: McCune Albright syndrome (MAS) is a rare non-inherited condition caused by constitutive activation of G protein subunit Gs(alpha). It presents with café-au-lait macules, precocious puberty and polyostotic fibrous dysplasia (FD). Besides this classic triad, it can also present with history of multiple fractures and bony deformity. These manifestations can present at different time points; hence, meticulous screening evaluation of a patient with history of multiple fractures due to trivial trauma needs to be done.
Methods: A 9-year-old boy presented with complaints of pain over his left lower limb for the past 1 year. He had similar complaints in the past with history of multiple fractures (twice) in left femur and had undergone surgery in his left femur at age of 4 years and at age of 5 years respectively. He also had history of fracture of left humerus which was operated 1 year back. There was no history of trauma, or growth failure. On examination, he had hyperpigmented macules with irregular margins over the posterior aspect of his trunk (figure 1). His height was 133.4 cm (height SDS -0.21) and weight was 40.5 kg (weight SDS + 1.31 SDS). Blood biochemistry showed normal total calcium of 9.8 (N: 8.3–10.4) mg/dL, phosphate of 5.8 (N: 2.5–4.6) mg/dL and high alkaline phosphatase of 216 (N: 40–125) U/L. His thyroid function tests showed a thyroid stimulating hormone (TSH) of 0.929 (normal: 0.3–4.5) uIU/mL, with free T4 of 1.16 (N: 0.8–2) ng/dL and T3 of 146 (N: 90–190) ng/dL. X-ray pelvis (figure 2) showed loss of normal trabecular pattern in the femur with typical ground glass appearance with nail plating (post-operative), technetium- 99m methylene diphosphonate (MDP) bone scan showed increased osteoblastic activity in left hemicranium, left orbit, maxilla and femur (figure 3). A diagnosis of McCune Albright syndrome was

made. 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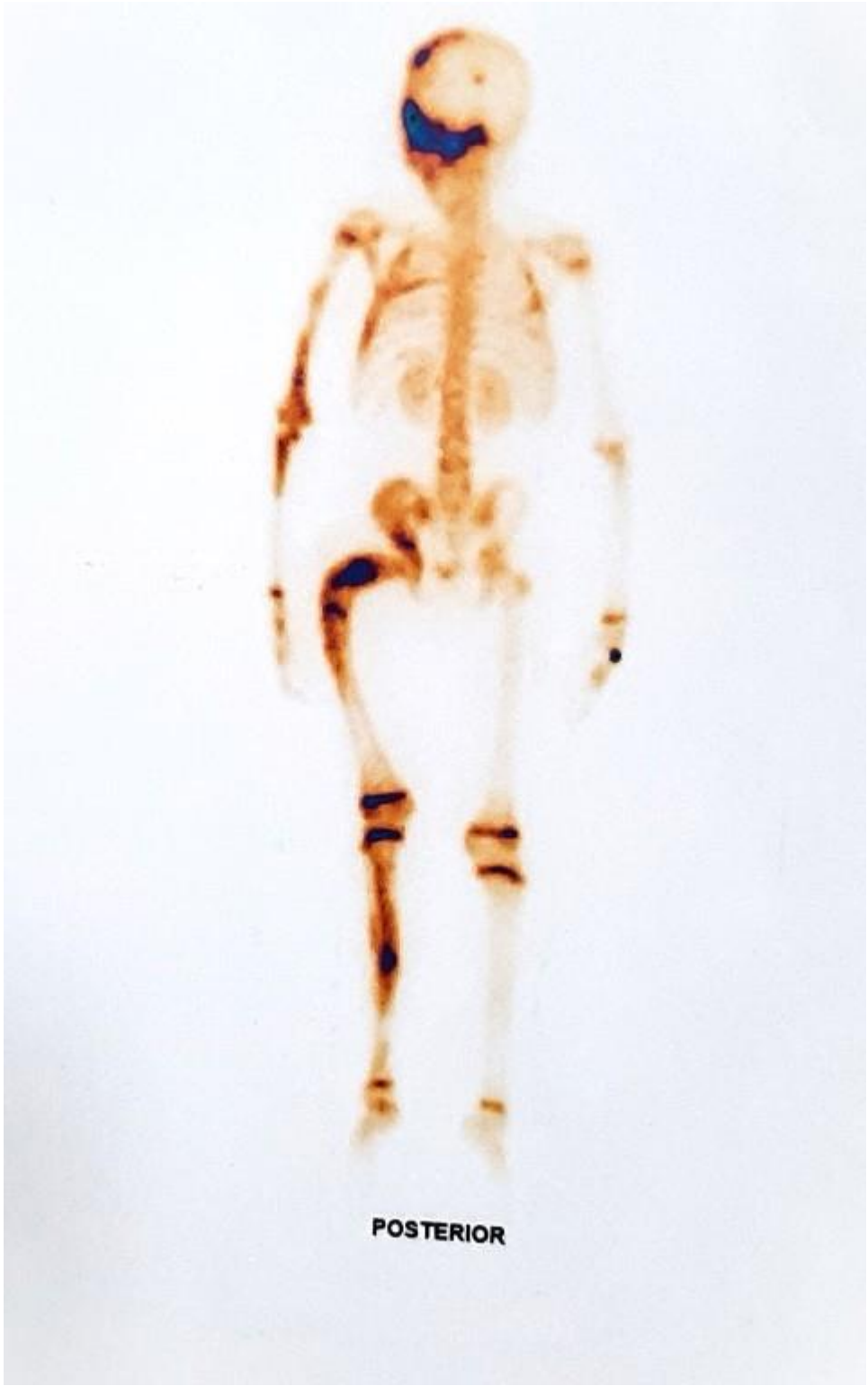

Results: He was planned for follow-up every 6 months. He received 3 doses of IV Zolendronic acid in past 3 years and has been responding well both clinically and biochemically with no recent history of

episodes of fractures or bone pain and normal calcium profile.
Conclusions: Learning Points: 1) McCune Albright syndrome (MAS) is a rare non-inherited disorder due to activating mutations of Gsa. 2) It is characterised by the triad of precocious puberty, café-au lait macules and polyostotic fibrous dysplasia. 3) Patient's with MAS have varied presentation, a meticulous and long-term follow-up is required.

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REGULATORY EFFECT OF HUMAN UMBILICAL CORD MESENCHYMAL STEM CELLS-DERIVED EXOSOMES ON GROWTH PLATE CELL LINES IN VITRO

Simge Eren[1], Bilge Kabataş[2], Naz Ünsal[3], Merve Yıldırım[3], Olcay Eren[4]
[1]Şişli Hamidiye Etfal Training And Research Hospital, Pediatric Endocrinology Department, İstanbul, Turkey, [2]Yeditepe University, Biotechnology Department, istanbul, Turkey, [3]Yeditepe University, Biotechnology Department, İstanbul, Turkey, [4]Yeditepe University, Orthopaedics, Biotechnology ,department, İstanbul, Turkey

Background and Aims: Growth plates are the areas of new bone growth in children and teens. Chondrocyte cells in the growth plate respond to physiological stimuli and mechanical loads. Nutrition, sunlight, hormones, circadian rhythm, genetic factors and intercellular communication are the main factors that cause changes in the growth plate. These factors cause cell proliferation, maturation, mineralization, extracellular vesicle release and cell death. These interactions show a complex structure in the growth plate, which is under the influence of many factors. There are many genes involved in this interaction and their effects on the cell and their roles in intercellular communication continue to be investigated. Exosomes change the recipient cells biochemical features through biomolecules delivery and play a role in cellular communication. In this study, we aimed to investigate the effects of human umblical cord mesenchymal stem cell-derived exosomes on the growth plate.
Methods: To assess cytotoxicity-cell viability on days 1, 2 and 3 using an MTS assay, cultured growth plate chondrocytes were incubated with exosomes and the effective dose was determined. As a result of MTS analysis, 100 mg/dl was found to be optimum. In vitro scratch experiments were performed to analyze the effects of exosomes on the migratory capacity of chondrocytes. Cell cycle progression for different doses of exosomes in growth plate chondrocytes was assessed by flow cytometry. Total RNA isolation, cDNA and PCR analyzes were performed. Expression of cartilage extracellular matrix components (Types I and II collagen and aggrecan) was assessed using reverse transcription coupled polymerase chain reaction (RT-PCR). As a result of PCR experiments, the amount of increase and decrease in gene expressions were analyzed.
Results: The effects of exosome application on growth plate cells were analyzed by MTS, Scratch assay, cell cycle and PCR techniques. After determining the optimum dose with MTS analysis, genes and expressions specific to chondrocytes and extracellular matrices such as aggrecan, type I and II collagen, MMP-1, Sox-9 were analyzed by PCR. Exosomes activated signaling associated with extracellular matrix production of chondrocytes, a key signaling event in chondrocyte metabolic activities. It also increased expression of genes specific for growth, extracellular matrix secretory function and survival of cartilage cells. Finally, exosomes significantly increased chondrocyte proliferation at a concentration of 100 mg/ml and no toxic effects were observed.
Conclusions: In conclusion, our data identified human umblical cord mesenchymal stem cell-derived exosomes as a crucial regulator of chondrogenesis and may provide a promising therapeutic strategy for growth plate diseases

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VERTEBRAL FRACTURES AND ASSOCIATED FACTORS AMONG OLDER ADULTS: RESULTS FROM THE BUSHEHR ELDERLY HEALTH (BEH) PROGRAM

Alireza Raeisi[1], Noushin Fahimfar[2], Elahe Hesari[2], Sepideh Hajivalizadeh[2], Mahnaz Sanjari[2], Fatemeh Esfahanian[3], Mohammad Javad Mansourzadeh[2], Kazem Khalagi[2], Alireza Esteghamati[4], Afshin Ostovar[5]
[1]Tehran university of medical science, Department Of Internal Medicine, Tehran, Iran, [2]Tehran university of medical science, Osteoporosis Research Center,endocrinology And Metabolism Clinical Sciences Institute, Tehran, Iran, [3]Tehran university of medical science, Endocrinology Department, Vali-asr Hospital, Tehran, Iran, [4]Tehran university of medical science, Endocrinology And Metabolism Research Center, Vali-asr Hospital, Tehran, Iran, [5]Endocrinology and Metabolism Clinical Sciences Institute, Tehran university of medical science, Osteoporosis Research Center, Tehran, Iran

Background and Aims: Vertebral fracture is a serious complication of osteoporosis. Using vertebral fracture assessment, this study examined the prevalence and risk factors of vertebral fractures (VF) in a population-based sample and aimed to provide insights for prevention and treatment.
Methods: This is a cross-sectional analysis based on the baseline data from the Bushehr Elderly Health (BEH) program, which included 2,000 participants who were 50 years old or older. We used dual X-ray absorptiometry (DXA) technique to measure bone mineral density (BMD) and vertebral assessment fracture (VAF) method to detect vertebral fractures at the same time as DXA. Osteoporosis was diagnosed when the T-score was -2.5 or lower in any of the hip regions or lumbar spine. We also measured trabecular bone score (TBS) in the lumbar spine (L1-L4) using the latest version of TBS iNsight™ software. We collected the data of risk factors by interviewing the participants with a specific standardized questionnaire. We calculated the direct age-standardized prevalence using the Iranian census data in 2015. Multiple logistic regression models were used to examine the relationship between vertebral fracture and the potential risk factors. The analyses were performed using Stata statistical software.
Results: The study included 1976 participants [1143 (57.15%) women], who underwent vertebral fracture (VF) assessment. Out of 811 VFs detected, 545(67.1), 253(31.1), and 13(1.6) were classified as mild, moderate, and severe, respectively. The types of VF were wedge (714, 87.9), biconcave (44, 5.4), and crush (53, 6.5). The crude prevalence of VF was similar between men (239, 27.9%) and women (354, 29.8%) (P=0.365). The age-standardized prevalence of having at least one VF in both sex, men and women were 0.29, 0.28, and 0.31, respectively. Moreover, the prevalence of VF was higher among the participants with abnormal trabecular bone score (TBS) (297, 33.5 %) than those with normal TBS (276, 25.5%), and among those with high fracture risk assessment tool (FRAX) score (170, 40%) than those with normal FRAX score (404, 26%). The main predictors of VF were age (OR=1.03), body mass index (OR=0.9), and high fracture risk (OR=1.8), for women and age (OR=1.02), history of osteoporosis (OR=2.3), and systolic blood pressure (OR=1.08) for men.
Conclusions: Many older adults had vertebral fractures even if their bone density was normal or their fracture risk was low. This study recommends doing vertebral fracture assessment for osteoporosis care in the elderly regardless of their BMD value and fracture risk.

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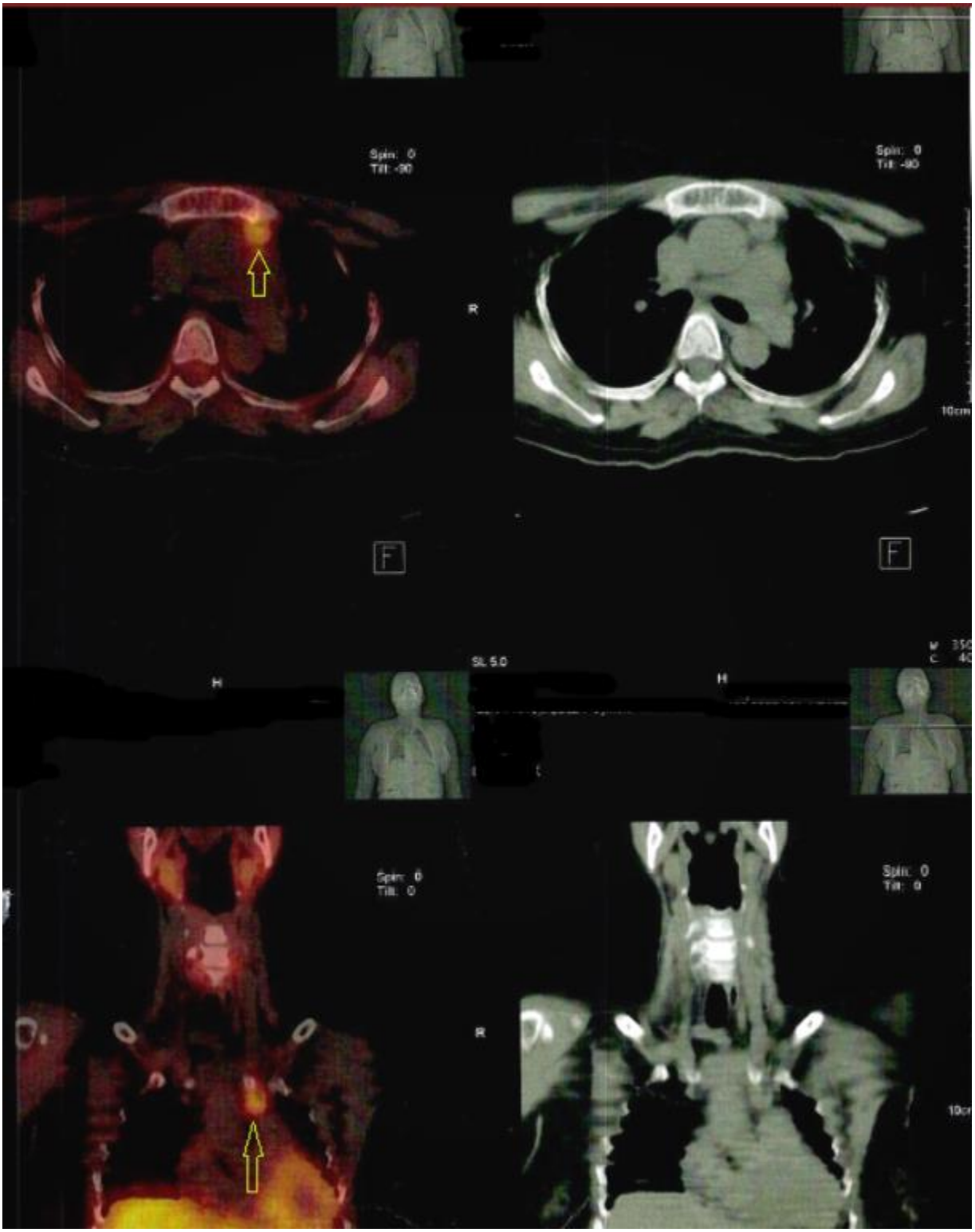
PRIMARY HYPERPARATHYROIDISM CAUSED BY AN ECTOPIC PARATHYROID ADENOMA IN AN UNUSUAL ANATOMIC LOCATION

Anudeep Gaddam, Avivar Awasthi, Sahana Shetty
KASTURBA MEDICAL COLLEGE, Endocrinology, MANIPAL, India

Background and Aims: Primary hyperparathyroidism is a common endocrine condition with a prevalence of 1 to 7 cases per 1000 adults most of which is due to a solitary parathyroid adenoma. Ectopic parathyroid adenomas are extremely rare and occur in multiple anatomic locations. Ectopic inferior parathyroid glands are most frequently found in the anterior mediastinum, in association with the thyroid gland or the thymus, while the most common location for ectopic superior parathyroid gland is the tracheoesophageal groove and retroesophageal region. Neck ultrasonogram and 99mTc Sestamibi scan are first-line imaging modalities. However, combination with modern techniques, such as single photon emission computed tomography (SPECT) alone or in combination with CT (SPECT/CT) increases the diagnostic accuracy.
Methods: Case presentation 48-year-old female, nil premorbid, presented with bilateral lower limb pain and constipation for 4 months. On evaluation her blood investigations revealed: calcium (Serum):12.1 mg/dL(normal (N 8.6–10), phosphorus – 1.7 mg/dL (N 2.5-4.5), creatinine 0.56(N 0.5–0.9), 25(OH)-vitamin-D 13.8 ng/mL and intact parathyroid hormone (iPTH) 1835 pg/mL (N 15–65).albumin (Serum):4.70 g/dL(N 3.5–5.2);alkaline phosphatase (Serum):894 U/L(N 35-105);amylase (Serum):59 U/L(N 28-100). The ultrasonography of the neck did not show any parathyroid adenoma. Patient underwent a technetium-99m (^{99m}Tc) sestamibi scan as well as a single photon emission CT (SPECT), which revealed an ectopic parathyroid adenoma in the superior mediastinum at the level of D4 vertebra. BMD assessment using DXA scan suggestive of severe osteoporosis.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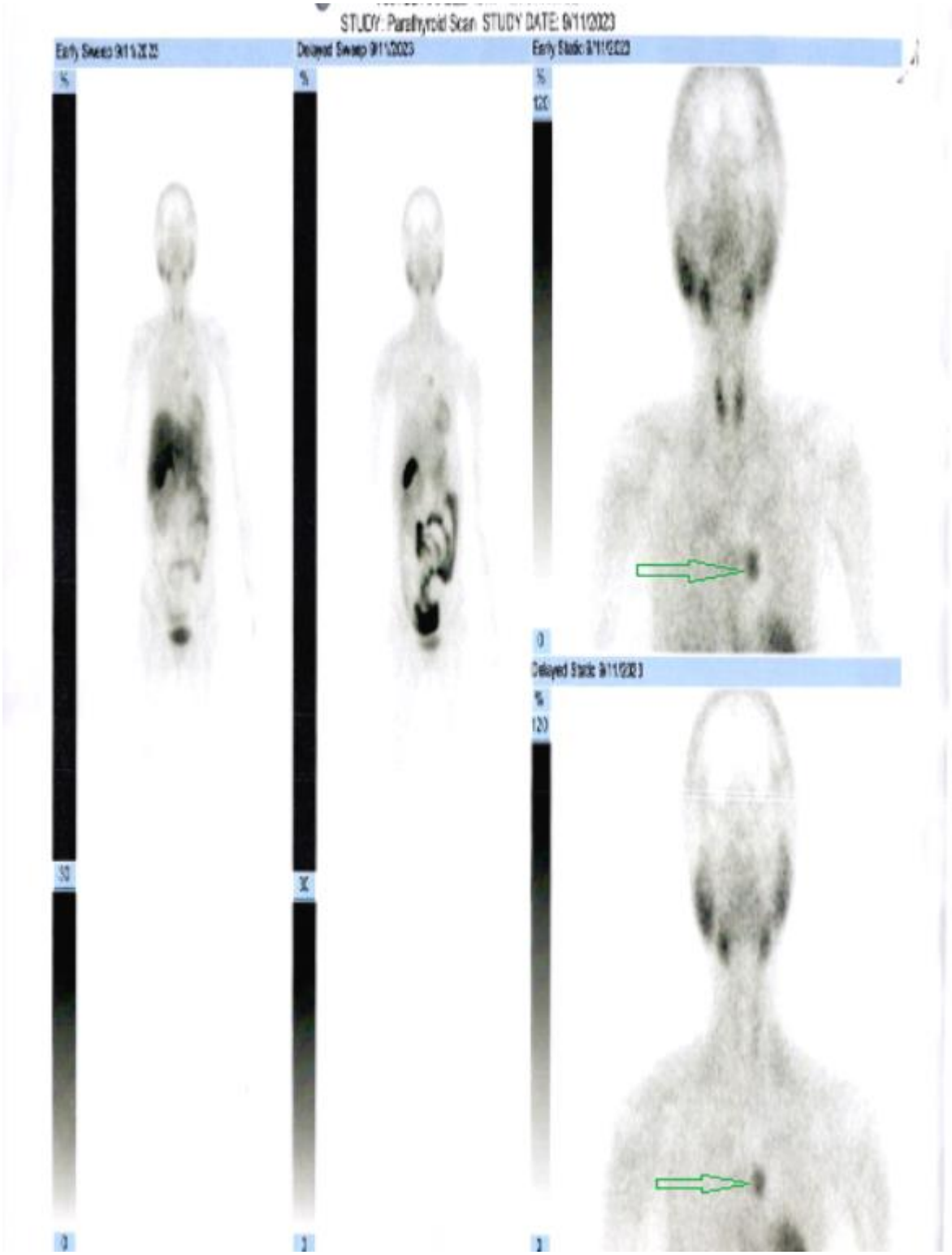
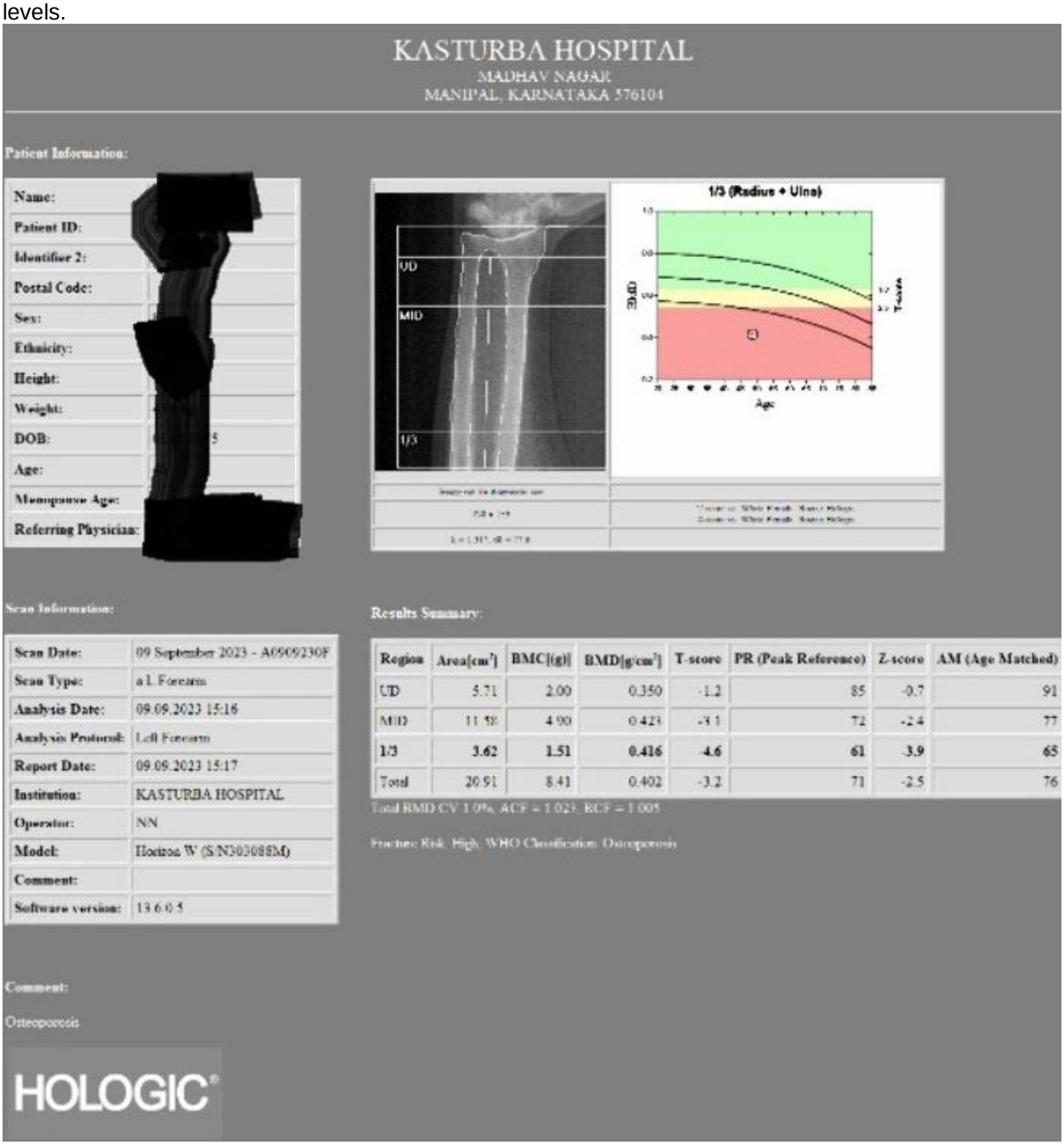


Results: Patient underwent excision of parathyroid adenoma via median sternotomy approach by the cardiothoracic surgeon. Post operatively her iPTH levels dropped to 15.1 pg/ml and patient developed

hypocalcaemia secondary to hungry bone syndrome, which was managed with intravenous calcium followed by oral calcium & calcitriol supplementation. At the time of discharge patient calcium was 8.6 mg/dL on oral calcium & calcitriol supplementation and advised for follow-up after one week with serum calcium
levels.



KASTURBA HOSPITAL
MADHAV NAGAR
MANIPAL, KARNATAKA 576104

Patient Information:

Name:	
Patient ID:	
Identifier 2:	
Postal Code:	
Sex:	
Ethnicity:	
Height:	
Weight:	
DOB:	
Age:	
Menopause Age:	
Referring Physician:	

Scan Information:

Scan Date:	09 September 2023 - A0909230F
Scan Type:	a L Forearm
Analysis Date:	09.09.2023 15:16
Analysis Protocol:	Left Forearm
Report Date:	09.09.2023 15:17
Institution:	KASTURBA HOSPITAL
Operator:	NN
Model:	Horizon W (S/N303088M)
Comment:	
Software version:	13.6.0.5

Results Summary:

Region	Area[cm²]	BMC[g]	BMD[g/cm²]	T-score	PR (Peak Reference)	Z-score	AM (Age Matched)
UD	5.71	2.00	0.350	-1.2	85	-0.7	91
MID	11.58	4.90	0.423	-3.1	72	-2.4	77
1/3	**3.62**	**1.51**	**0.416**	**-4.6**	**61**	**-3.9**	**65**
Total	20.91	8.41	0.402	-3.2	71	-2.5	76

Total BMD CV 1.0%, ACF = 1.023, RCF = 1.005

Fracture Risk: High, WHO Classification: Osteoporosis

Comment:

Osteoporosis

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Conclusions: Primary hyperparathyroidism due to solitary adenoma is a curable disease. Localization of ectopic parathyroid adenomas is challenging. Hence preoperative localization plays vital role in the management in terms of better surgical outcomes and provide permanent cure for the patient.

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DECREASED EFFICACY OF VITAMIN D3 THERAPY IN PATIENTS WITH GENETIC POLYMORPHISM IN THE CYP27B1 GENE

Daria Gusakova[1], Olga Samburskaya[1], Svetlana Kalinchenko[1], Tatyana Shekeleva[2], Leonid Vorslov[1]
[1]Peoples' Friendship University of Russia named after P. Lumumba, Department Of Endocrinology With A Course Of Holistic Medicine, Moscow, Russian Federation, [2]Allel Center for Innovative Biotechnologies, Moscow, Russian Federation

Background and Aims: Vitamin D exerts its effect by converting into the hormone calcitriol (1,25(OH)2D). This reaction is catalyzed by the enzyme 1-alpha-hydroxylase (CYP 27B1 gene) in the kidneys under the influence of parathyroid hormone. Vitamin D circulates in the blood in the form of the 25(OH)D. The conversion of 25(OH)D to 1,25(OH)2D is reduced in individuals with genetic polymorphisms in the CYP27B1 gene. The variant g.57764205A>G of the CYP27B1 gene is associated with reduced enzyme activity and increased susceptibility to vitamin D deficiency. In such patients, especially with a homozygous polymorphism, the effectiveness of using vitamin D in the form of cholecalciferol is questionable, and the assessment of vitamin D status based on the concentration of 25(OH)D is not informative. To identify a group of patients who require therapy with active metabolites of vitamin D due to the ineffectiveness of vitamin D3 therapy caused by reduced activity of 1-alpha-hydroxylase due to genetic polymorphism in the CYP27B1 gene.
Methods: The study included 30 individuals, aged 15 to 77 years (12 males and 18 females). The inclusion criterion for the study was a high-normal and elevated concentration of parathyroid hormone in the blood (above 40 pg/ml). For each patient the concentration of 25(OH)D, parathyroid hormone, total calcium corrected for plasma albumin content, and genetic analysis of the 1-alpha-hydroxylase gene polymorphism (CYP27B1, g.57764205A>G; rs4646536) were determined through direct sequencing.
Results: The average value of 25(OH)D was 36.4±9.66 ng/ml, parathyroid hormone was 59.7±8.87 pg/ml. Calcium concentration was within normal range (2.25±0.08 mmol/L). Genetic analysis revealed homozygous polymorphism (A/A genotype) in 87% of samples and heterozygous polymorphism (A/G genotype) in 13%. According to the statistics of Professor Kalinchenko Clinic for the period from January 2, 2023, to November 13, 2023, in a sample of 2846 individuals who underwent genetic testing for the CYP27B1 gene, the number of subjects with homozygous polymorphism was significantly lower, accounting for 39% (1115 individuals). Heterozygous polymorphism was present in 48% (1375), and 13% (381) had the normal G/G genotype of this gene. This indicates a higher prevalence of homozygous polymorphism of the CYP27B1 gene in individuals with high-normal and elevated parathyroid hormone concentrations.
Conclusions: Genetic testing for the CYP 27B1 gene polymorphism is indicated for all patients with reduced susceptibility to vitamin D, which manifests as high-normal or elevated parathyroid hormone concentrations in the blood. In such clinical situations, the choice of drug falls on active analogs (metabolites) of vitamin D, such as alfacalcidol and calcitriol.

PV041 / #705

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01-03-2024 07:00 - 18:00

GENETIC CAUSALITY OF BONE MINERAL DENSITY WITH BLOOD CELL TRAITS: A MENDELIAN RANDOMIZATION ANALYSIS

Shun Cheong Ho[1], Gloria Hoi-Yee Li[2], Chor-Wing Sing[1], Anskar Yu Hung Leung[3], Kathryn Choon-Beng Tan[3], Ching Lung Cheung[1]
[1]The University of Hong Kong, Pharmacology And Pharmacy, Hong Kong, Hong Kong PRC, [2]The Hong Kong Polytechnic University, Health Technology And Informatics, Hong Kong, Hong Kong PRC, [3]The University of Hong Kong, Medicine, Hong Kong, Hong Kong PRC

Background and Aims: Osteoblast was shown to regulate hematopoiesis according to preclinical studies. However, the causal relationship in humans remains uncertain. Several epidemiological studies investigated the relationship between bone mineral density (BMD) and blood cells but were limited by the cross-sectional nature. Mendelian randomization (MR) is an epidemiological approach to evaluate the causal relationship between an exposure and an outcome using genetic instruments, which are less subjected to reverse causation and unmeasured confounding in observational studies.
Methods: A two-sample MR study was conducted to evaluate the causal relationship using the genome-wide significant and independent genetic instruments of Dual-energy X-ray absorptiometry (DXA)-derived BMD. Genetic data with predominantly European ancestry of DXA-derived BMD including total body BMD (TBBMD), lumbar spine BMD (LSBMD) and femoral neck BMD (FNBMD) and blood cell traits including red blood cells, white blood cells and platelet were retrieved from publicly available genome-wide association study for the analysis. Statistical methods such as inverse-variance weighted (IVW), weighted median and contamination mixture were applied. Multiple testing correction was performed on the IVW analysis using false discovery rate.
Results: We found a positive causal relationship between the DXA-derived BMD and reticulocyte-related traits including high light scatter reticulocyte count and percentage, immature reticulocyte fraction, reticulocyte count and percentage. Causal estimate beta, representing changes in blood cells in standard deviation (SD) per SD increased in BMD, ranged from 0.023 to 0.064. Results across TBBMD, LSBMD and FNBMD were consistent and remained significant after multiple testing correction. Conversely, an inverse association between BMD and erythrocyte-related traits including hematocrit, hemoglobin and red blood cell count (beta ranged from -0.038 to -0.019) was observed. Among the white blood cell traits, BMD was inversely associated with neutrophil count and white blood cell count. No evidence of association with other white blood cells nor platelet traits was found.
Conclusions: Current study revealed the causal relationship between BMD and blood cell traits in humans, suggesting the potential role of bone metabolism on hematopoiesis, especially in red blood cell production and immune cell. Further study to examine whether improving bone health can reduce risk of haematological disorders is warranted.

PV042 / #76

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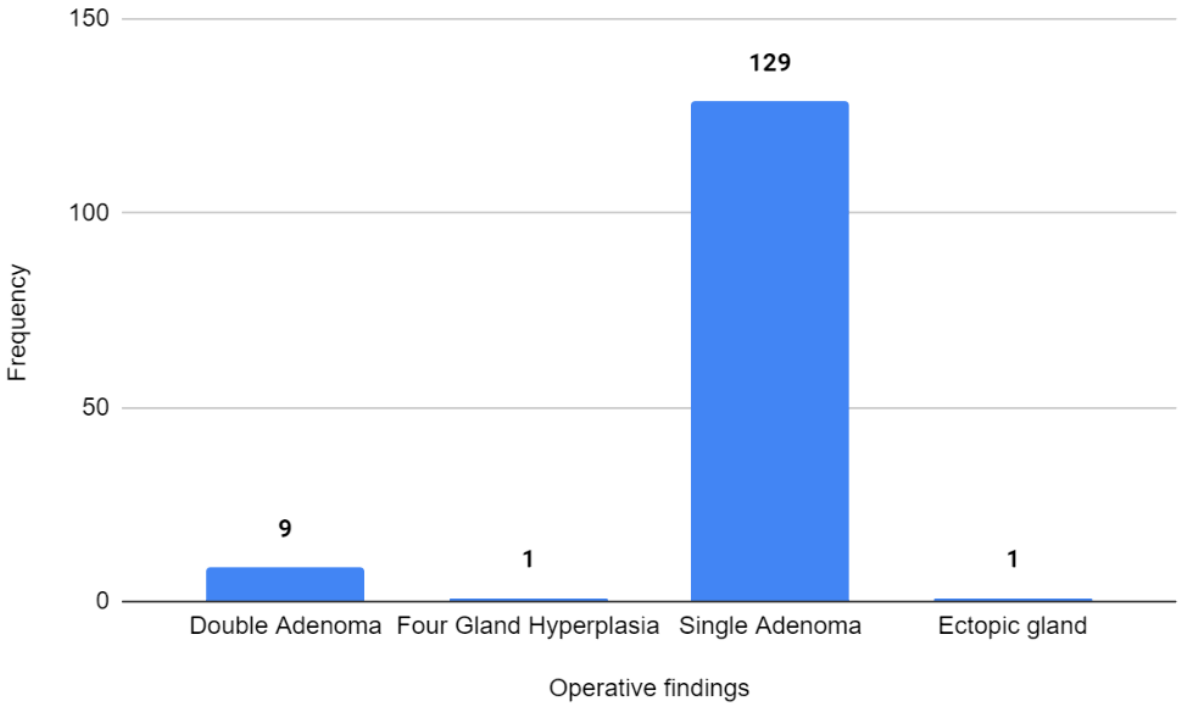
01-03-2024 07:00 - 18:00

CORRELATION OF PREOPERATIVE LOCALIZATION OF PARATHYROID ADENOMA WITH IMAGING FINDINGS AND SURGICAL OUTCOME

Asifa Jamali[1], Nanik Ram[2], Ujalla Kumari[3], Farah Khalid[4], Najmul Islam[2]
[1]Aga Khan University Hospital Karachi, Internal Medicine, Section Of Diabetes Endocrine And Metabolism, KARACHI, Pakistan, [2]Aga Khan University Hospital, Internal Medicine, Section Of Diabetes Endocrine And Metabolism, KARACHI, Pakistan, [3]Aga Khan University Hospital, Internal Medicine, KARACHI, Pakistan, [4]Aga Khan University Hospital, Internal Medicine (Endocrine), KARACHI, Pakistan

Background and Aims: Primary hyperparathyroidism (PHPT) is the third most common endocrine disorder, and it is often responsible for hypercalcemia. 80% of PHPT cases are caused by a single adenoma, while the remainder can be attributed to multiple gland diseases which can arise from hyperplasia or multiple adenomas. The aim of this comprehensive study was to assess the consequences of parathyroidectomy, with or without preoperative imaging, and their association.
Methods: During the period between August 2022 and January 2023, a study was conducted at Aga Khan University Hospital's endocrinology department. The study included all adult patients with primary hyperparathyroidism while excluding those who had secondary or tertiary hyperparathyroidism or underwent re-operative parathyroid surgery. Information such as patient demographics, preoperative imaging results, intraoperative strategy and findings, complications, and outcomes were recorded on a predetermined form. The main focus of the research was to determine the cure rate among dual localized patients.
Results: A total of 140 participants were included. The majority of these were women; 100 (71.4%). The mean age of patients was 48.23 ± 15.1 years. There were 9 (6.4%) cases of double adenoma, one case of four-gland hyperplasia, 129 (92.1%) cases of single adenoma, and one case of the ectopic gland. The cure rate of dual localized patients was 90.3% (both US and MIBI positive), compared to 70.7% in MIBI localized group and 89.7% in US positive localized group (p = 0.043). Unilateral neck exploration was the chosen approach in 134 (95.7%)
patients.



Correlation between concordance with preoperative imaging and outcome

Cure	Not Done	US Positive	MIBI Scan Positive	Both Positive	Both Negative	Total	p-value
No	0	3 (10.3%)	12 (29.3%)	6 (9.7%)	0	21 (15%)	0.043
Yes	6 (100%)	26 (89.7%)	29 (70.7%)	56 (90.3%)	2 (100%)	119 (85.0%)	
Total	6 (100%)	29 (100%)	41 (100%)	62 (100%)	2 (100%)	140 (100%)	

Conclusions: The highest cure rates were related to both preoperative ultrasonography and MIBI scan. Therefore, patients should undergo dual imaging to localize the lesion prior to parathyroidectomy for a better prognosis.

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01-03-2024 07:00 - 18:00

A NOVEL VARIANT (P.HIS463ARG) OF CALCIUM SENSING RECEPTOR ASSOCIATED WITH FAMILIAL HYPOCALCIURIC HYPERCALCAEMIA

Minuri Fernando[1], V Vinitharan[1], Amalka Premadasa[1], Kawmadi Gunawardena[2], Mohamed Thowfeek Zeenath Thaneefa[2], Gaya Katulanda[2], Vajira Dissanayake[3], Prasad Katulanda[1]
[1]National Hospital of Sri Lanka, University Medical Unit, Colombo, Sri Lanka, [2]Ministry of Health, Sri Lanka, National Hospital Of Sri Lanka, colombo, Sri Lanka, [3]University of Colombo, Faculty Of Medicine, colombo, Sri Lanka

Background and Aims: Familial hypocalciuric hypercalcaemia (FHH) is an autosomal dominant condition resulting from loss of function mutations in CASR, GNA11, and AP2S1 genes, involved in calcium sensing mechanism in parathyroid gland and kidney. Calcium set point is shifted to right, leading to mild elevation of serum calcium and reduced urinary calcium excretion.
Methods: A 63-year-old woman having a non-progressive, non-functioning pancreatic lesion for 4 years was found to have hypercalcaemia and elevated parathyroid hormone (PTH) levels when screened for MEN 1 syndrome. Her serum calcium ranged from 10.98 – 11.4 mg/dl (8.4 – 10.2 mg/dl), PTH - 124 pg/ml (15 – 68 pg/ml), serum phosphate 2.5mg/dl (2.3 – 4.7 mg/dl), Vitamin D3 35ng/ml (30 – 100 ng/ml) and calcium to creatinine clearance ratio 0.003 (<0.01). Her neck ultrasound and 4D CT were normal. A possible superior parathyroid adenoma was suspected in the Sestemibi scan. Her DXA scan revealed osteopenia only in distal forearm. Renal functions and imaging were normal. Her genetic testing was negative for MEN 1 and 2 genes but a novel variant in CASR gene (p.His463Arg) was detected. Due to the diagnostic dilemma, she underwent superior parathyroidectomy without an effect on PTH or calcium levels. Currently family is being screened for hypercalcaemia.
Results: History of non-progressive, non-functioning pancreatic lesion, with PTH dependent hypercalcaemia was posing a diagnostic dilemma on MEN 1 syndrome. However asymptomatic and mild hypercalcaemia, hypocalciuria, without obvious parathyroid adenoma was suggestive of FHH. Identification of a novel CASR mutation along with clinical criteria makes FHH the most likely diagnosis.
Conclusions: Differentiating FHH from primary hyperparathyroidism is a diagnostic challenge. Genetic testing can be helpful in family screening and understanding underlying mechanisms. We report a possible novel mutation in the CASR gene associated with FHH which would assist in diagnosing more cases of FHH associated with this mutation in the future.

PV044 / #1803

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DEVELOPMENT OF MONOCLONAL ANTI-OSCAR ANTIBODIES FOR THE TREATMENT OF OSTEOARTHRITIS

Gyeongmin Kim, Sooyoung Lee
Ewha Womans University, Life Science, SEOUL, Korea, Republic of

Background and Aims: Osteoarthritis (OA) is the most common degenerative joint disease that causes local inflammation and pain, significantly reducing the quality of life and normal social activities of patients. Currently, there are no disease-modifying OA drugs (DMOADs) available, and treatment relies on pain relief agents or arthroplasty. In recent study, osteoclast-associated receptor (OSCAR) has been revealed as a novel catabolic regulator that induces chondrocyte apoptosis and accelerates articular cartilage destruction in OA pathogenesis. In this study, we aimed to develop monoclonal antibodies that most efficiently neutralize the function of OSCAR and demonstrate the effect of blocking OSCAR on cartilage destruction in OA.
Methods: Anti-OSCAR antibodies were isolated from synthetic human single-chain variable fragment (scFv) libraries by phage display biopanning and subsequent ELISA screening. We designed in vitro functional assays to identify which of anti-OSCAR antibody clones could inhibit the pro-catabolic activities of OSCAR. The selected antibodies were enforced further optimization by affinity maturation. The efficacy of the affinity-matured anti-OSCAR antibodies was measured in destabilization of the medial meniscus (DMM)-induced OA model.
Results: The seven anti-OSCAR antibody clones isolated from phage display were tested the effect of inhibiting the pro-catabolic activities of OSCAR. Five of the seven antibodies inhibited OSCAR-mediated expression of the OA marker genes (Mmp3, Mmp13, and Epas1) in mouse chondrogenic ATDC5 cell line. Only B4 and D11 were selected for further engineering by affinity maturation based on their higher expression levels and better stability. B4K-C11, B4L-E2, D11-B9, and their parent antibodies markedly reduced OARSI grades, subchondral bone plate sclerosis and loss of hyaline cartilage in DMM-induced OA. In addition, TUNEL assays of the cartilage tissues showed that the anti-OSCAR antibodies significantly reduced chondrocyte death.
Conclusions: The affinity maturated antibodies were significantly ameliorated OA than a soluble OSCAR decoy receptor. These antibodies bind to and directly neutralize OSCAR, unlike the decoy receptor, which binds to the ubiquitously expressed collagen and may result in reduced efficacy or deleterious off-target effects. Hence, blocking OSCAR with a monoclonal antibody could be a promising treatment strategy for OA.

PV045 / #990

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THE EFFECT OF HYPOPHOSPHATEMIA ON LABORATORY FINDINGS AND PRESENCE OF RENAL STONE IN PRIMARY HYPERPARATHYROIDISM: A NATIONWIDE RETROSPECTIVE OBSERVATIONAL STUDY

Muhammed Kizilgul[1], Naim Ata[2], Bekir Ucan[1], Mustafa Sahin[3], M. Mahir Ulgu[2], Suayip Birinci[4]
[1]Ankara Etlik City Hospital, Endocrinology And Metabolism, Ankara, Turkey, [2]Turkish Ministry of Health, General Directorate Of Health Information System, Ankara, Turkey, [3]Ankara University, Faculty of Medicine,, Endocrinology And Metabolism, Ankara, Turkey, [4]Turkish Ministry of Health, Vice President, Ankara, Turkey

Background and Aims: The levels of serum phosphorus are low or low-normal in primary hyperparathyroidism (PHPT). However, when considering the diagnostic and surgical indication criteria of PHPT, serum phosphorus levels are generally ignored. We aimed to retrospectively investigate the potential relationship between serum phosphorus levels and the clinical outcomes of PHPT.
Methods: We utilized the comprehensive National Electronic Database of the Turkish Ministry of Health, which provided us with data encompassing the entire population of Turkey from January 1, 2017, to December 31, 2022. The identification of PHPT cases (n=126.793) was accomplished using the International Classification of Diseases-10 (ICD-10) codes and laboratory data.
Results: A total of 126.793 patients with PHPT (mean age of 58.9±15.6 years, 96.939 (76.3%) females) were retrospectively analyzed. The mean phosphorus level of the whole study population was 3.29±0.84 mg/dl. Male patients had significantly lower levels of phosphorus when compared to female patients (3.24±0.93 to 3.31±0.8, p<.0001). Patients with kidney stones, those with vitamin D levels <20 µg/l, calcium levels≥11.2 mg/dl, and those younger than 50 years old also had lower levels of phosphorus (p<.0001). Hypophosphatemia (HypoP) was determined in 20.059 of 126.793 patients (15.8%). Patients with hypoP were determined to have higher serum PTH, calcium, and ALP levels and lower creatinine, and vitamin D levels (p<.0001). HypoP was significantly more common in male patients (29.9% to 22.5%, p<.0001). The patients with hypoP also had higher rates of kidney stones (16% to 10.3%, p<.0001). Kidney stone prevalence was higher in the moderate hypoP group when compared to the mild hypoP group (17.6% to 15.2%, p<.0001). Phosphorus levels were negatively associated with PTH, alkaline phosphatase, and serum total Ca level, and positively correlated with creatinine and vitamin D levels (p<.0001) (Table 1).

Table 1: Comparison between PHPT patients with and without hypophosphatemia

	P > 2.5 mg/dL (n =106.734)		P ≤ 2.5 mg/dL (n =20.059)		p
	Mean	**SD**	**Mean**	**SD**	
Age (y)	59.05	15.67	58.68	15.59	**0.002**
PTH (ng/L)	121.65	102.44	205.62	201.99	**<.0001**
Total serum Ca (mg/dL)	10.89	0.78	11.19	0.86	**<.0001**
Creatinine (mg/dL)	0.94	0.44	0.87	0.36	**<.0001**
25OHD (µg/L)	18.10	14.05	15.90	12.51	**<.0001**
ALP	92.20	46.03	106.23	58.76	**<.0001**
Female Gender, n (%)	82.750 (77.5)		14.043 (70.01)		**<.0001**
Renal stones, n (%)	10.997 (10.3)		3180 (16)		**<.0001**

Conclusions: The current study results show that hypoP is associated with lower creatinine levels and a higher risk of kidney stones in PHPT patients. Male patients tend to have lower levels of phosphorus. Patients with kidney stones, those with calcium levels≥11.2 mg/dl, and those younger than 50 years old had lower levels of phosphorus. Patients with hypoP have higher serum PTH, calcium, and ALP levels and lower vitamin D levels. All of these findings may suggest that lower phosphorus levels may be associated with more severe disease.

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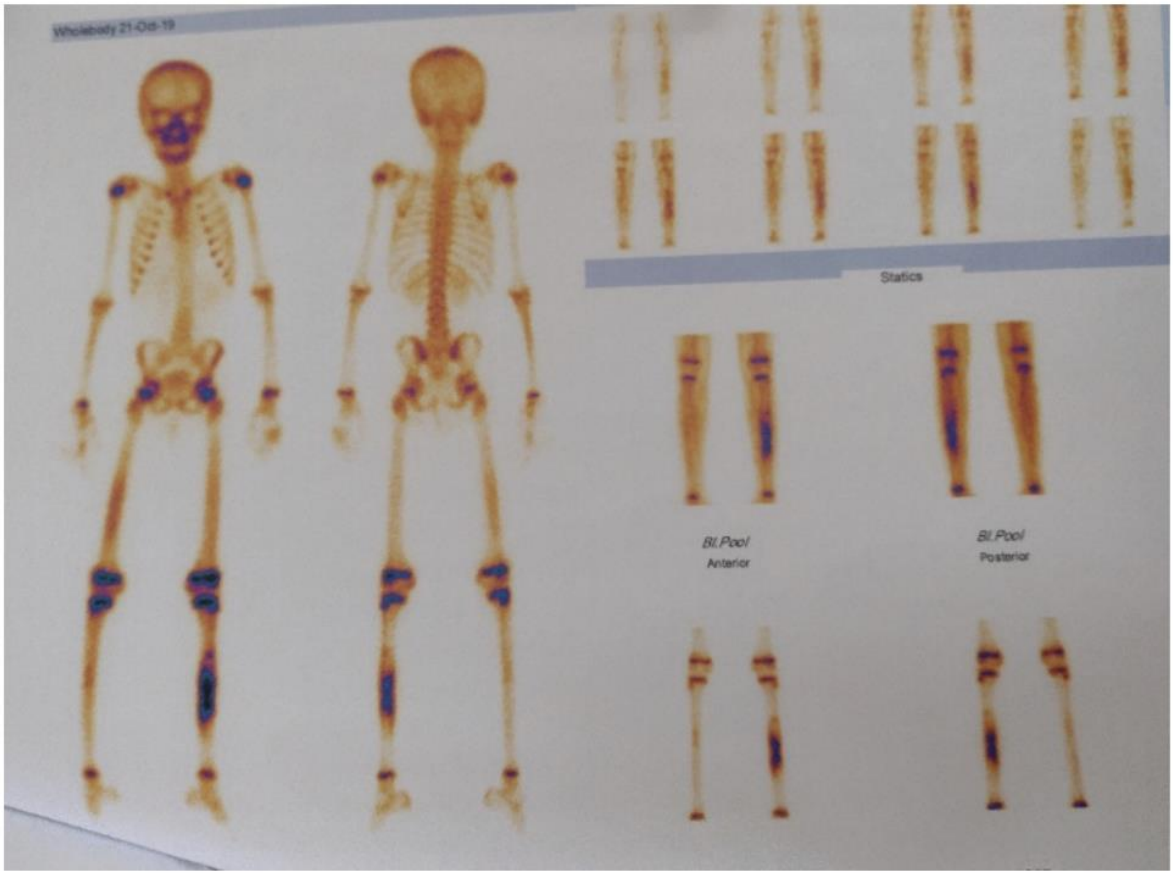
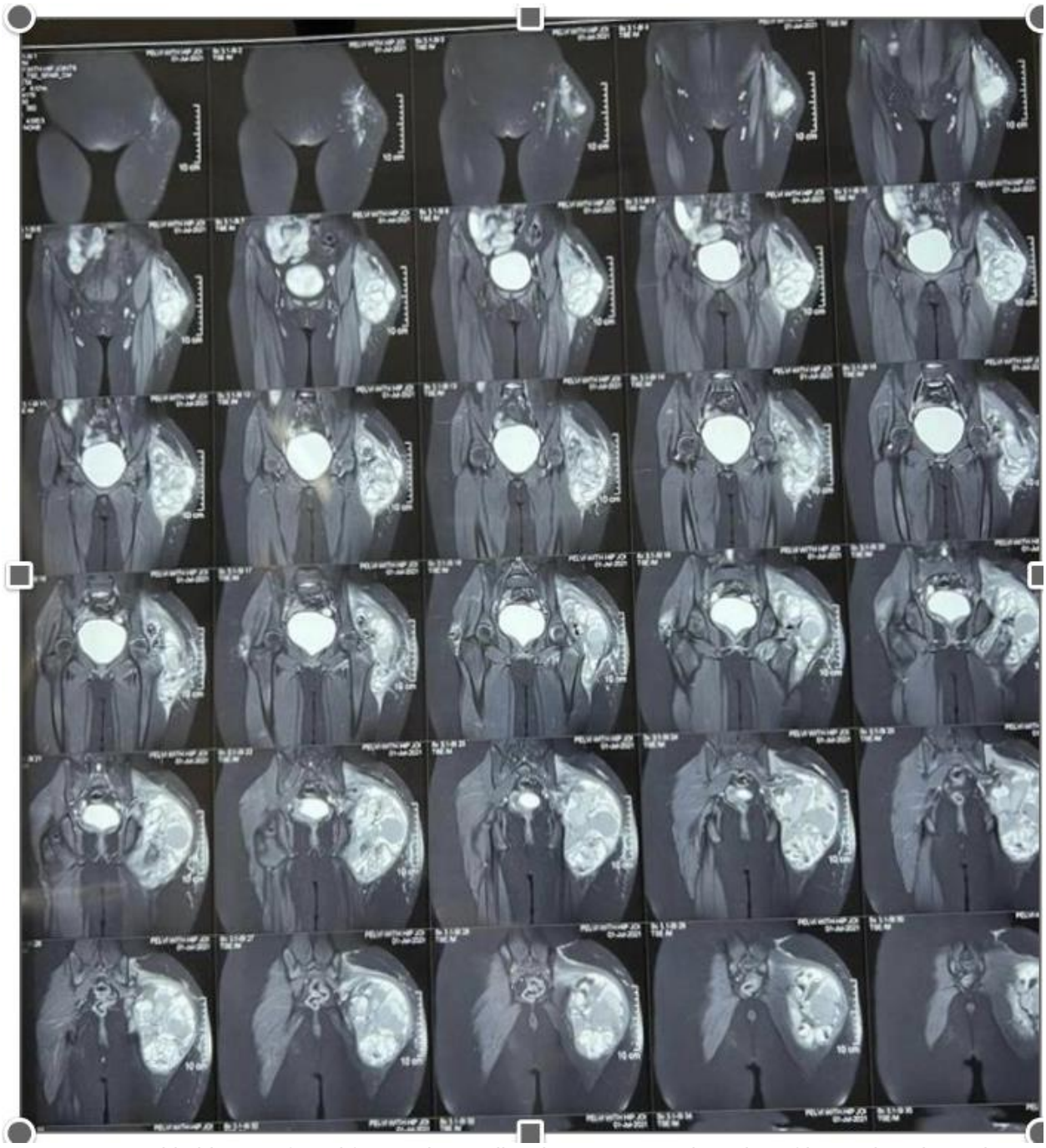
TWO CASES OF HYPERPHOSPHATEMIC TUMORAL CALCINOSIS IN INDIAN PATIENTS WITH VARIED ETIOLOGY AND UNIQUE PRESENTATIONS

Sumana Kunnuru[1], Beatrice Louis[1], Glady Thomas[1], Prajnya Ranganath[2]
[1]Nizams institute of Medical Sciences, Endocrinology, Hyderabad, India, [2]Nizams institute of medical sciences, Medical Genetics, hyderabad, India

Background and Aims: Hyperphosphatemic tumoral calcinosis(HFTC) is a rare disorder caused by FGF 23 deficiency or resistance resulting in elevated serum phosphorus levels in blood. Predominant clinical manifestations observed are ectopic calcification and hyperosteosis .It exhibits autosomal recessive inheritance and is associated with mutations in three genes: FGF 23, GALNT3, KLOTHO. Recently, an acquired autoimmune variant has also been reported. We describe two girls born out of consanguineous marriages with features of HFTC in this report.
Methods:





Case 1: A 9 yr old girl was referred from orthopaedics department on detection of hyperphosphatemia during preoperative evaluation for slipped capital femoral epiphysis .On further inquiry, she gave a history of having had pain and swelling over right shin three years ago. CT imaging of the lesion was suggestive of osteoid osteoma but there was only minimal periosteal reaction on MRI. Excision biopsy was done and histopathological examination findings were suggestive of chronic osteomyelitis. Cultures were negative. She had received a course of antibiotics. Child developed recurrent pain and swelling over the same site. A Technetium 99 bone scan showed features of chronic multifocal osteomyelitis with increased uptake in

right tibia and midshaft of right femur . There were no palpable calcifications, eye or dental involvement. Case 2 A 10year old girl presented with history of progressive pain in both hips associated with limping and difficulty in sitting down since 4 years. A hard swelling in the left gluteal region was detected on examination and was excised. MRI showed a well defined mass with heterogeneous signal in intra and inter muscular planes of left gluteal region . Histopathology showed features of tumoral calcinosis
Results: Both the girls had high phosphorus and FGF 23 levels.Genetic evaluation revealed a homozygous missense variation c.505G>C in exon 2 of the GALNT3 gene (chr2:g.165770196G>C; Depth: 88x) in first patient . However no mutation could be identified in second patient . We are entertaining an autoimmune possibility for this patient. However, FGF23 autoantibodies could not be assessed due to lack of facility. Both were initiated on phosphate restricted diet, sevalmer , acetazolamide and showed reasonably good clinical response.
Conclusions: It is crucial for clinicians to be aware of this rare condition and HFTC should be suspected particularly when high phosphate levels occur alongside recurrent bone lesions and calcifications to ensure appropriate management. One should be aware that HFTC could present with a rare manifestation such as chronic recurrent osteomyeltis

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VITAMIN D TOXICITY – A RARE CAUSE OF SEVERE HYPERCALCEMIA

Kevin Kwek, Chee Kian Chew
Tan Tock Seng Hospital, Endocrinology, Singapore, Singapore

Background and Aims: With increasing awareness of Vitamin D deficiency, use of vitamin D supplements has become commonplace. We present a rare case of exogenous vitamin D toxicity refractory to conservative management which required glucocorticoid therapy to achieve normocalcemia.
Methods: Our patient was referred to our Endocrinology service for evaluation of severe non-PTH mediated hypercalcemia. Further diagnostic evaluation revealed elevated 25OHD with normal PTH-rp and calcitriol levels. Cross-sectional imaging was negative for malignancy. Radio-isotope bone scan did not reveal any lytic bony disease. Further history taking revealed that she was using 5 drops/day of Vitamin D Emulsion (1000IU/drop) for general health. Table 1: Initial Biochemistry

Calcium (adjusted)	3.32	m
Phosphate	1.0	m
Parathyroid Hormone (PTH)	1.0	p
PTH–related peptide (PTH-rp)	1.2	p
25-hydroxy Vitamin D (25OHD)	>120	u
1,25-Dihydroxy Vitamin D (Calcitriol)	46	p

Results: Despite conservative management with intravenous and oral hydration, dietary calcium restriction and 6 doses of 4IU/kg subcutaneous calcitonin, our patient's serum calcium remained persistently elevated. Hence, pharmacotherapy was commenced to prevent complications of prolonged hypercalcemia such as urinary calculi. We favoured steroids over bisphosphonates due to the presence of stage 3B chronic kidney disease (eGFR 33/ml/min/1.73m^2). We commenced oral prednisolone at 30mg/day with good effect. To minimize complications from steroid therapy, we opted to monitor calcium closely and taper prednisolone dose gradually to maintain normocalcemia. Table 2: Response to prednisolone therapy

Date	7/12/22	27/12/22
Adjusted Calcium (mmol/L)	2.87	2.34
Ionized Calcium (mmol/L)	1.46	1.22
25-hydroxy Vitamin D (ug/L0	>120	>120
Prednisolone (mg)	30	25

Conclusions: Acute Vitamin D toxicity occurs at doses of at least 10,000 IU/day, while chronic toxicity occurs at doses of 4000IU/day for longer periods. Although our patient was only consuming 5000IU/day of Vitamin D for a year, we were concerned whether use of droplet formulations may lead to inconsistent dose administration. As hypervitaminosis D is rare, no consensus evidence-based guidelines are available. The majority of cases may be managed with hydration and a low calcium diet. Severe hypervitaminosis D is associated with severe hypercalcemia, hypercalciuria and nephrolithiasis, which requires pharmacotherapy. Glucocorticoids increase vitamin D catabolism by modulating hepatic metabolism of cholecalciferol and lower 25OHD levels by reducing 25-hydroxylation of cholecalciferol and increasing conversion to inactivate metabolites. As prednisolone also reduces intestinal calcium absorption, it is the glucocorticoid of choice.

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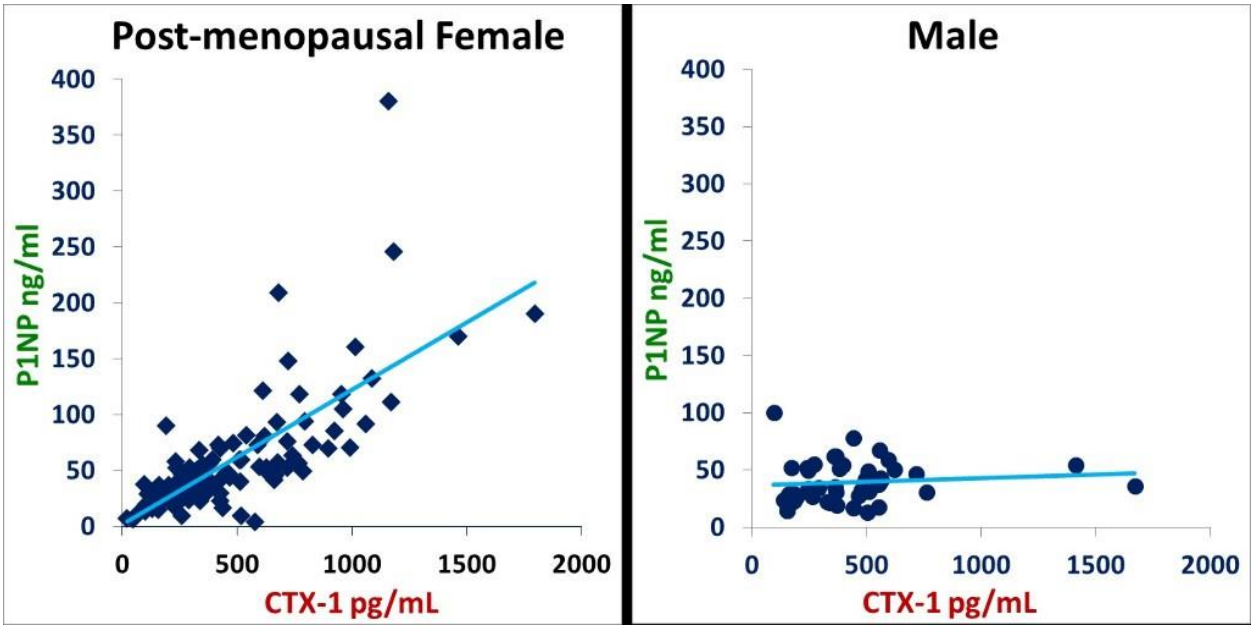
BONE TURNOVER MARKER (BTM) MEASUREMENTS IN SUPPORTING OSTEOPOROSIS TREATMENT: EXPERIENCE FROM A SPECIALITY ENDOCRINOLOGY CENTER FROM INDIA

Leena Lekkala[1], Rajeshwari Ashok[2], Sathyanarayana Srikanta[3], Nandini Jayaram[4], Madhumati Vaishnav[5], Kavitha Muniraj[1], Reshma Bv[6], Siddhartha Dinesha[7], Pushpa Ravikumar[8], Chandraprabha Siddalingappa[9], Samatvam Diabetes Collaborative Study Group[10]
[1]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [2]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [3]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [4]Jnana Sanjeevini Medical Center, Diabetes Counselling And Education, Bangalore, India, [5]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [6]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [7]Sri Chamundeshwari Medical College Hospital and Research Institute, Internal Medicine, Bangalore, India, [8]Jnana Sanjeevini Medical Center, Diabetes Counselling And Education, Bangaiore, India, [9]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangaiore, India, [10]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangaiore, India

Background and Aims: In current state-of-art, bone turnover markers (BTMs) are not used for diagnosis of osteoporosis and do not improve prediction of bone loss or fracture within an individual (Lancet Diabetes Endocrinol. 2017 Nov;5(11):908-923). High levels of BTMs may predict fracture risk independently from bone mineral density (BMD) in postmenopausal women. Treatment-induced changes in specific BTMs (which are more rapid compared with changes in BMD, and provide pharmacodynamic information on response to osteoporosis treatment) account for a substantial proportion of fracture risk reduction. In untreated women, very high BTM concentrations suggest secondary causes of high bone turnover (eg, bone metastases or multiple myeloma).
Methods: Serum C-telopeptide of type I collagen (CTX-I; bone resorption) and N-terminal propeptide of type I procollagen (PINP; bone formation) were measured in a clinical series of postmenopausal women and men as part of management of osteoporosis (confirmed by BMD-DEXA) [Normal reference ranges: (a) CTX-1 pg/mL= Premenopausal: <573; Post menopausal: <1008; Male <704; Assay= Serum, ECLIA; (b) P1NP ng/mL= Postmenopausal-on HRT: 14.3-58.9; Postmenopausal-no HRT: 20.3-76.3; Premenopausal: 15.1-58.6; Male: 13.9-85.5; Assay= Serum, ECLIA]. Bisphosphonate (Oral ibandronate or IV zoledronic acid) and teriparatide therapy were chosen as per guidelines and prevailing social circumstances.
Results: Females postmenopausal (N=124; age= 48 to 89 years; none received HRT): CTX-1= 22 to 1797; P1NP= 4.0 to 380.8; Strong correlation of CTX-1 and P1NP: R= 0.75, P= 2E-23 (Figure 1). Treatment: Bisphosphonate 83% and teriparatide 17%; Combination 9%. [Bisphosphonate induced atypical femur fracture(1), along with polymyositis and glucocorticoids]. Special situation: 26-year female with Progeria and osteoporosis: CTX-1= 345; P1NP= 42.3. Males (N=46; age= 29 to 95 years): CTX-1= 96 to 1670; P1NP= 12.9 to 100; Absent correlation of CTX-1 and P1NP: R= 0.11, P= 0.49 (Figure 1). Treatment: Bisphosphonate 70% and teriparatide 30%. (Thiazides for hypercalciuria) Secondary osteoporosis identified: Hypogonadism(3), hypercalciuria and nephrolithiasis(4), glucocorticoid-induced(2), rheumatoid arthritis(1), multiple myeloma(2), type 1 diabetes(1), progeria(1). The observed gender-based CTX-1 versus P1NP correlation discordance (Figure 1) needs biological explanation.

Conclusions: During osteoporosis therapy, BTMs might be useful to: assess response to anabolics and antiresorptives assess compliance improve adherence make drug regimens and drug holiday decisions (?BTM thresholds for efficacy and restarting), and indicate possible secondary osteoporosis. Further socioeconomically relevant and cost-effective new approaches to osteoporosis pharmacotherapy need to be seriously investigated (Eg:? drug frequency/ dose titration; lowest doses inducing largest benefit; once weekly teriparatide; Osteoporos Sarcopenia. 2019 Jun;5(2):27-28), to facilitate better global bone health.
Figure
1:



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ECTOPIC PARATHYROID CARCINOMA PRESENTING AS A RARE CASE OF RECURRENT FRACTURES

Saad Bin Zafar Mahmood[1], Aisha Jamal[1], Muhammad Zain Mushtaq[1], Muhammad Masood[2]
[1]Aga Khan University Hospital, Medicine, Karachi, Pakistan, [2]The Aga khan university hospital, Diabetes, Endocrinology And Metabolism, Karachi, Pakistan

Background and Aims: Parathyroid carcinomas are an unusual cause of hypercalcemia, leading to poor outcomes and are preferably managed by surgical resection. Ectopic parathyroid tumors are uncommon, accounting for only 6% of parathyroid adenomas, and even fewer cases are attributed to parathyroid carcinomas. While ectopic parathyroid carcinoma in the anterior mediastinum is a rare condition, the occurrence of recurrent skeletal fractures in the presence of mild hypercalcemia is even rarer.
Methods: In this report, we present the case of a 52-year-old man with a medical history of hypertension, chronic kidney disease, and a previous right-sided intertrochanteric fracture of the femur one year ago. He presented to the emergency room with left-sided hip pain and shortness of breath due to volume overload. Laboratory tests revealed mild hypercalcemia and hyperparathyroidism, with normal vitamin D levels. An X-ray showed a left neck of femur fracture. Further evaluation with a three-phase skeletal scintigraphy indicated the presence of metabolic bone disease. A contrast-enhanced computed tomography of the chest revealed a solitary soft tissue nodule in the anterior mediastinum, representing an ectopic parathyroid adenoma. The lesion was successfully removed using video-assisted thoracic surgery (VATS), and the histopathological analysis confirmed the diagnosis of parathyroid carcinoma. He made an uneventful recovery and was followed up in clinic after 1 month. He had no active complaints and had resolution of hypercalcemia, hyperphosphatemia, and fasting PTH.
Results: .Case report study
Conclusions: The combination of mild hypercalcemia and recurrent fractures is an unusual presentation of ectopic parathyroid carcinoma, underscoring the importance of considering this condition as a potential cause in similar cases to ensure timely and appropriate treatment. Due to the rarity of the disease, these carcinomas can be easily missed however early detection with laboratory tests and imaging (MIBI scintigraphy combined with CT scan or MRI) can affectively help physicians diagnose and early intervention can be curative.

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EFFECT OF BISPHOSPHONATES ON PARATHYROID ADENOMA IN PATIENTS UNDERGOING FOCUSSED PARATHYROIDECTOMY FOR PRIMARY HYPERPARATHYROIDISM

Sabaretnam Mayilvaganan, Spandana Jagannath, Sushil Gupta
SGPGIMS, Endocrine Surgery, Lucknow, India

Background and Aims: Patients with large adenoma and hyperparathyroidism induced hypercalcemic crisis are managed with bisphosphonates and mostly operated in the same sitting. The use of bisphosphonates provides the knife happy endocrine surgeon valuable time for imaging and also protects the patient from cardiac effects of hypercalcemia. The effect of bisphosphonates on parathyroid gland is not clearly understood. In this study, we describe the texture of parathyroid gland after giving zoledronic acid.
Methods: Prospectively maintained surgical data (October 2022 – October 2023) of a single experienced endocrine surgeon in the department of Endocrine and Breast Surgery, SGPGIMS Lucknow was reviewed. All patients who underwent focused parathyroidectomy for PHPT in hypercalcemic crisis who received bisphosphonates preoperatively were included in the study. Patient demographics, Serum Calcium, PTH, Vitamin D, size and weight of the gland ex vivo and percentage fall in IOPTH value were noted. All patients received Zoledronic acid 4mg and the duration between administration of bisphosphonate and surgery recorded. Histopathology of all adenoma was reviewed by a single pathologist trained in Endocrine pathology. Data was statistically analysed using SPSS 15.
Results: Among 10 studied patients (mean age: 45.0 ± 15.02 years, M:F ratio 2:3), mean S.PTH was 75.60 ± 50.09 pmol/L, S.Calcium 14.28 ± 0.74 mg/dL, and ex vivo weight 5.14 ± 6.92 g. One patient had parathyroid carcinoma; most had parathyroid adenomas. Intraoperatively, adenomas showed reduced vascularity and increased peri-gland adhesions.
Conclusions: While the effect of bisphosphonates on spinal metastasis is documented, their mechanism in lowering hypercalcemia remains unproven. The observed reduced vascularity and increased adhesions suggest a potential direct impact on enlarged parathyroid glands. Notably, zoledronic acid rapidly lowered calcium levels within 48 hours, persisting for over 2 weeks in some patients, with added cardioprotective benefits during anesthesia. Larger cohort studies are warranted to establish bisphosphonates' effects on parathyroid adenomas in PHPT.

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E-Poster Viewing
E-POSTER VIEWING: AS02. BONE
01-03-2024 07:00 - 18:00

UNEXPECTED MIMICS OF CRONIC NONBACTERIAL OSTEOMYELITIS (CNO): A CASE SEIRES

Aisha Mirza[1], Khayriah Al Sufyani[1], Amer Khojah[2]
[1]Maternity and Children Hospital, Pediatric Rheumatology, Makkah, Saudi Arabia, [2]Umm Al Qura University, Pediatric Immunology & Rheumatology, Makkah, Saudi Arabia

Background and Aims: Chronic Nonbacterial Osteomyelitis (CNO) is the most common inflammatory bone disorder in childhood. Generally affecting all age groups but most common in pediatrics. CNO remains a rare condition with an underestimated prevalence; However; incidence showed an upward trend. The etiology of this inflammatory bone disease remains unclear but it is likely multifactorial, with genetics playing a significant role in selected patients. This case series highlights the atypical presentation of four patients with CNO, all found to have hyperphosphatemia, leading to the diagnosis of Hyperostosis-Hyperphosphatemia Syndrome (HHS) attributable to a GALNT3 mutation
Methods: Case 1:A 10-year-old girl presented to our rheumatology clinic with a five-year history of worsening pain in her left leg, subsequently involved the right leg. She reported missing school days and experiencing nocturnal awakening due to pain. There was no identifiable trigger for the pain. Her medical history was unremarkable for trauma, fever, weight loss, or rash. Physical examination revealed tenderness on palpation of the middle third of her left tibia without swelling. The initial radiograph (X-ray) of the left tibia showed a periosteal reaction and hyperostosis with osteopenia. MRI study multifocal pathological process involving middle third of dyaphysis of both tebiae. Blood work revealed normal CBC and inflammatory markers, elevated serum phosphorus 7.24 mg/dl. A bone biopsy ruled out malignancy and infection. Her elder sister who suffers from CNO and focal bone pain, underwent a similar laboratory evaluation. She was found to have an elevated phosphorus level of 5.81 mg/dl. Considering the history of consanguinity and family history of CNO, further genetic testing is undergone which revealed a homozygous GALNT3 variant (c.1524+1G>A). This variant has been reported in multiple patients with Hyperphosphatemic Familial Tumoral Calcinosis- 1 (HFTC1). Given these similarities, the elder sister is suspected to have the same diagnosis, and genetic testing confirmed GALNT 3 mutation Case 2:Another 8- year-old girl, presented with chronic multifocal bone pain and have the final diagnosis of CNO with Hyperostosis- Hyperphosphatemia. The patient's elder brother has similar disease. The patient and her brother underwent for genetic testing which revealed GALNT3 mutation
Results: Genetic test revealed GALNT 3 mutation predicted to mediate HFTC1
Conclusions: This case series underscores the importance of considering genetic etiology, particularly GALNT3 mutations as underlying association with CNO, especially in cases associated with hyperphosphatemia. Early recognition and genetic testing play a crucial role in providing targeted management strategies, optimizing treatment outcomes, and understanding the underlying pathophysiological mechanisms of HFTC

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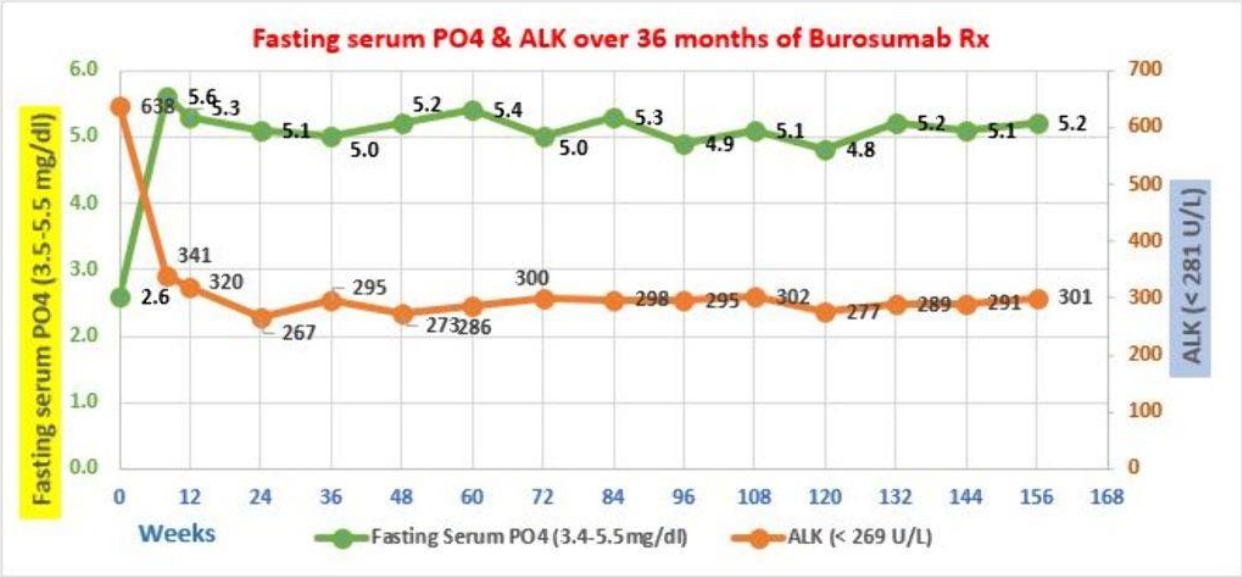
E-POSTER VIEWING: AS02. BONE
01-03-2024 07:00 - 18:00

THREE YEARS OF BUROSUMAB TREATMENT IN A CHILD WITH CUTANEOUS SKELETAL HYPOPHOSPHATEMIA SYNDROME: A CASE REPORT

Manal Mustafa[1], Zulf Mughal[2]
[1]Al Jalila Children's Speciality Hospital, Pediatric Endocrinology, Dubai, United Arab Emirates, [2]Manchester University Hospital's NHS Trust, Pediatric Endocrinology, Manchester, United Kingdom

Background and Aims: Cutaneous skeletal hypophosphatemia syndrome (CSHS) is a rare mosaic disorder caused by somatic gain-of-function RAS mutations. It is characterized by segmental epidermal nevi and fibroblast growth factor-23 (FGF23) mediated hypophosphatemic rickets. These patients also have dysplastic cortical skeletal lesions. Burosumab, a fully human immunoglobulin G1 monoclonal antibody to FGF23, has been approved for treating children with X-linked hypophosphatemia (XLH), a multisystem disorder caused by increased expression of FGF23.
Methods: We report a case of an Emirati girl with CSHS whose FGF23-mediated hypophosphatemic rickets, osteomalcic pseudofractures, and dysplastic cortical skeletal lesions failed to heal with conventional treatment of oral phosphate and alfacalcidol (1α-hydroxycholecalciferol). The diagnosis of CSHN with FGF23-mediated hypophosphataemic rickets was made in our patient due to increased urinary phosphate excretion and hypophosphatemia in the face of normal serum PTH levels and inappropriately elevated plasma FGF23 levels. The whole-exome sequence on cells from nevoid skin biopsy revealed a somatic missense variant c.182A>G p.(Gin61Arg) (chr11:533874;hg19) in the HRAS gene (OMIM *190020; chromosome 11p15.5). Our treatment protocol was based on the Burosumab SmPC for the treatment of XLH, which recommends starting dose in children and adolescents of 0.8 mg/kg body weight, administered every two weeks. We had to de-escalate the dose to 0.3 to 0.4 mg/kg every 2 weekly. We speculate that this may be due to reduced production of FGF23 from focal dysplastic cortical bone lesions in CSHC, in comparison to children with XLH. Based on this experience, we would recommend that burosumab in children with CSHS should be started at the dose of 0.4 mg/kg, subcutaneously, every two weeks. The dose titration should be performed with the aim of maintaining fasting serum P levels around the lower end of the reference range for the age of the child.
Results: The patient was treated with burosumab for 36 months, which led to normalization of serum inorganic phosphate and alkaline phosphatase levels, radiographic healing of rickets, partial healing of the pseudofractures, improvement in 6-minute-walk test, linear growth, symptoms of myopathy and physical scale of the Pediatric Quality of Life Inventory. Table 1: Fasting serum levels of phosphate (iP) and alkaline phosphatase (ALK) for 36-months of treatment with burosumab.



Conclusions: In summary, we report the successful long-term treatment of hypophosphatemic rickets in CSHS with Burosumab over 36 months. Burosumab showed promising efficacy and safety profile in our patient, without any side effects. This success may help in the approval of this targeted therapy for CSHS.

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01-03-2024 07:00 - 18:00

ASSESSMENT OF BONE MINERAL DENSITY, TRABECULAR BONE SCORE AND FRACTURES IN SLE -A CROSS-SECTIONAL STUDY

Dukhabandhu Naik[1], Aravind Prasad[1], Sadishkumar Kamalanathan[1], Jayaprakash Sahoo[1], Chengappa K.G[2], Ramkumar G[3]
[1]Jawaharlal Institute of Postgraduate Medical Education & Research, Endocrinology, Puducherry, India, [2]Jawaharlal Institute of Postgraduate Medical Education & Research, Clinical Immunology, Puducherry, India, [3]Jawaharlal Institute of Postgraduate Medical Education & Research, Radiology, Puducherry, India

Background and Aims: Systemic lupus erythematosus (SLE) is associated with adverse skeletal outcomes, which include low bone mineral density (BMD) and fractures. SLE is also associated with bone microarchitecture deterioration as measured by trabecular bone score (TBS). In Indian settings, the literature on BMD, TBS and fracture risk is limited among SLE patients. The study's primary aim is to evaluate the prevalence of low BMD and TBS among SLE patients compared to age and BMI-matched healthy controls. We also assessed the prevalence of vertebral and non-vertebral fractures and hip structural analysis (HSA) in both the groups.
Methods: The study was conducted at a tertiary care centre in southern India between July 2021 to May 2023. The demographic, clinical and biochemical investigations, including renal function test, liver function test, fasting calcium profile, 25 (OH) vitamin D and intact parathyroid hormone were assessed in all participants. BMD of lumbar spine (LS), total hip (TH) and neck of the femur (NOF) was evaluated using a DXA (Hologic discovery Wi) scan. The TBS of the LS spine was analysed using TBS iNsight software v 3.1.1. The vertebral fracture was assessed by Genant's semi-quantitative method from the lateral dorsolumbar spine radiographs. Low TBS was defined as TBS ≤ 1.31 and Low BMD was defined as Z score < -2.
Results: A total of 177 cases and 177 age and BMI-matched healthy controls were recruited. The mean BMD (gm/cm^2) at LS (0.878 ± 0.130 vs 0.919 ± 0.132, p=0.004), TH (0.828 ± 0.115 vs 0.872 ± 0.122, p <0.001) and median BMD at NOF (0.706(0.139) vs 0.754 (0.158), p< 0.001) were found to be lower in SLE compared to controls. Low bone mass at any site was seen in 42 (23.7%) SLE and 23 (13%) controls, p=0.009. TBS was found to be lower in SLE than controls (1.304 (0.122) vs 1.342(0.124), p <0.001). However, there was no difference in the prevalence of vertebral or non-vertebral fractures between cases and controls. In HSA, the buckling ratio was higher and the cross-sectional area was lower at the narrow neck, intertrochanteric region, and femoral shaft in SLE cases compared to healthy controls.
Conclusions: The prevalence of both low BMD and low TBS at any site was higher in SLE subjects compared to controls. The HSA parameters were also suggestive of increased fracture risk at the hip in SLE.

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01-03-2024 07:00 - 18:00

DETERMINANTS OF BONE MINERAL CONTENT IN INDIAN PRETERM NEONATES

Ruchira Singh[1], Dhvani Raithatha[2], Vibha Yadav[2], Alapan Mahapatra[2], Rashmi Kapoor[1], Anurag Bajpai[2]
[1]Regency Healthcare, Paediatrics, Kanpur, India, [2]Regency CDER, Pediatric Endocrinology, kanpur, India

Background and Aims: Introduction: Compromised bone health in preterm neonates has significant short- and long-term implications. An understanding of the determinants of bone mass in preterm neonates is expected to help design strategies to improve bone health in them. We conducted this study to determine the bone mineral content and its predictors in Indian preterm neonates. Aim: To evaluate bone mineral content and its determinants in premature neonates (gestation less than 33 weeks).
Methods: Method: Bone mineral density (Lunar GE DPX pencil beam machine with Pediatric Software) and biochemical parameters (calcium, phosphorus, vitamin D, and alkaline phosphatase levels) were assessed at six weeks of age in 44 pre-term neonates (25 boys; gestational age 29.8 ± 1.7 weeks) delivered at our hospital. Determinants of total body less head (TBLH) bone mineral content were identified using uni and multivariate analysis.
Results: The mean TBLH bone mineral content (BMC) and bone mineral density (BMD) at six weeks were 15.0 ± 6.4 grams and 0.52 ± 0.7 g/cm^2 respectively. TBLH BMC positively correlated with birth length (r=0.45, p=0.01), serum calcium (r=0.38, p=0.02), serum phosphorus levels (r=0.67, p<0.001) and negatively correlated with serum alkaline phosphatase level (r=0.59, p<0.001), duration of total parenteral nutrition (r=0.65, p<0.001), mechanical ventilation (r=0.4, p=0.02), and steroid use (r=0.3, p=0.05) after correction for birth weight. No correlation was observed with the period of gestation. The mean TBLH BMC in those with necrotizing enterocolitis (NEC) (8.2 ±5.7 grams versus 16.5 ±5.3 grams, p<0.001) and culture-positive sepsis (9.1 ± 5.2 grams versus 16.2 ±5.7, p<0.001) was significantly lower than those without these complications. Birth length (beta=0.55, p=0.006), duration of TPN (beta=-0.9, p=0.005), and mechanical ventilation (beta=0.48, p=0.01) and a delay in fortification of milk (beta=-0.53, p=0.002) were the key determinants of TBLH BMC on linear regression with an R^2 of 91.9%. Increasing the duration of total parenteral nutrition, and mechanical ventilation for a week was expected to reduce TBLH BMC by 3.85 grams (25.6%) and 2.0 grams (13.3%) respectively while initiating fortified milk one week earlier was expected to increase it by 3.7 gram (24.7%).
Conclusions: Conclusion: Duration of total parental nutrition, mechanical ventilation, and nonfortified milk are the major modifiable determinants of TBLH BMC in Indian preterm neonates. Early weaning of TPN, mechanical ventilation, and initiation of fortified feeds are expected to improve bone health.

PV055 / #442

E-Poster Viewing
E-POSTER VIEWING: AS02. BONE
01-03-2024 07:00 - 18:00

LONG TERM SURVIVOR OF DI-GEORGE SYNDROME

Fareeha Rizvi, Aravind Kanagavelu
Barts health NHS Trust, Endocrinology And Diabetes, london, United Kingdom

Background and Aims: Digeorge syndrome, also known as CATCH 22, is a common condition caused by genetic microdeletion. It occurs in about 1 in 3000-6000 births with equal prevalence among both genders. The symptoms include cardiac anomalies, short stature, learning and behaviour problems, cleft lip or palate, speech and hearing difficulties, and hormone problems like underdeveloped parathyroid glands. A case report illustrating untreated hypoparathyroidism in a 47-year-old woman with DiGeorge syndrome is presented. It is a documentation of a patient who has a single child, does not take her supplements for hypoparathyroidism and has amenorrhea. This case sheds light on one of the varied ways the syndrome might present and the management of the patient so far with no treatment for her hypoparathyroidism or amennhorea.
Methods: Clinical case report
Results: ct: Digeorge syndrome, also known as CATCH 22, is a common condition caused by genetic microdeletion. It occurs in about 1 in 3000-6000 births with equal prevalence among both genders. The symptoms include cardiac anomalies, short stature, learning and behaviour problems, cleft lip or palate, speech and hearing difficulties, and hormone problems like underdeveloped parathyroid glands. A case report illustrating untreated hypoparathyroidism in a 47-year-old woman with DiGeorge syndrome is presented. It is a documentation of a patient who has a single child, does not take her supplements for hypoparathyroidism and has amenorrhea. This case sheds light on one of the varied ways the syndrome might present and the management of the patient so far with no treatment for her hypoparathyroidism or amennhorea.
Conclusions: Unique case of Di-George syndrome

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E-Poster Viewing
E-POSTER VIEWING: AS02. BONE
01-03-2024 07:00 - 18:00

LEAN MASS IS AN IMPORTANT PREDICTOR OF POSTMENOPAUSAL OSTEOPOROSIS

Sahana Shetty[1], Thomas V Paul[2]
[1]KASTURBA MEDICAL COLLEGE, MANIPAL, MANIPAL ACADEMY OF HIGHER EDUCATION, MANIPAL, Endocrinology, Manipal, India, [2]CHRISTIAN MEDICAL COLLEGE, VELLORE, Endocrinology, VELLORE, India

Background and Aims: With age and menopause, there are differential changes in skeletal mass, lean mass and fat mass. These changes predispose to osteoporosis and fragility fracture in postmenopausal women. Both fat mass and lean mass have been shown to be important predictors of osteoporosis, however, different studies have shown variable effects. Hence we undertook this study to study the effect of lean mass and fat mass on Bone mineral density (BMD) in postmenopausal women from India.
Methods: A cross-sectional study of BMD and body composition of postmenopausal women aged ≥50 years referred for BMD assessment. DXA-derived lean mass indices, adipose tissue indices and BMD were analysed using Hologic Dual Energy X-ray Absorptiometry (DXA). The association between lean mass, fat mass and BMD was studied by correlation, independent 't-test and logistic regression analysis.
Results: The BMD and body composition were analyzed in four hundred postmenopausal women. The mean age of the study subjects was 62.7±6.2 years. The mean Body mass index (BMI) was 25.4±4.9 kg/m^2. Appendicular lean mass Index (ALMI) derived by mean Appendicular Lean/height2 and Fat mass index (FMI) measured as Fat Mass/height2 (Kg/m2) were 6.08±0.88 Kg/m2 and 10.16 ± 3.30 respectively. The prevalence of low lean mass as defined by appendicular lean mass index (ALMI) < 5.5 kg/m2 was 26.1%. BMD at the spine had a significant correlation with both ALMI(r= .36, p<0.005) and FMI(r= .29, p<0.005) similarly Femur neck (FN) BMD showed a significant correlation with both ALMI(r= .40, p<0.005) and FMI(r= .26, p<0.005). Postmenopausal women with osteoporosis at the spine and FN had significantly lower ALMI and FMI as compared to those without osteoporosis at these sites respectively. ALMI < 5.5 appeared to be a determinant of osteoporosis at the spine (OR: 2.4, CI: 1.5-3.9, p <0.005) and FN (OR: 3.2, CI: 1.9-5.2 p <0.005) on logistic regression analysis.
Conclusions: Low lean mass was seen in one-fourth of the postmenopausal women. Bone mineral density at the spine and Hip had a significant association with lean mass and fat mass. Women with osteoporosis at the spine and FN had lower ALMI and FMI. Low lean mass is an important risk factor for spine and FN osteoporosis. Addressing lean mass and sarcopenia is very important for both preventive and therapeutic aspects of osteoporosis. Further studies looking at the effect of muscle quality and performance in addition to muscle quantity on postmenopausal osteoporosis are needed to elucidate the relationship between sarcopenia and osteoporosis.

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E-Poster Viewing
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CHALLENGES IN MANAGEMENT OF CONCURRENT MULTIPLE PARATHYROID ADENOMAS

Nino Tedoradze[1], Ann Kobaidze[1], Otar Dikhaminjia[1], Lika Jajanidze[1], Nino Akiashvili[1], Irma Nikoladze[1], Meri Davitadze[2]
[1]Caucasus Medical Center, Endocrinology, Tbilisi, Georgia, [2]Iv. Javakhishvili Tbilisi State University, Faculty Of Medicine, Tbilisi, Georgia

Background and Aims: Solitary parathyroid adenoma is the most common cause of primary hyperparathyroidism whereas multiple parathyroid adenomas is an uncommon phenomenon. In case of multiple adenomas, the clinical manifestation may be more severe. Herein, we describe a challenging case of a patient with severe hypercalcemia due to two concurrent contralateral parathyroid adenomas.
Methods: Case report
Results: A 70-year-old man presented at our hospital with dehydration, fatigue, muscle weakness, and progressive somnolence. Previously, for 2 years he complained on progressive dizziness, fatigue, memory impairment, weakness, involuntary urination and defecation. Vascular dementia was diagnosed and the patient was started on relevant treatment under the supervision of a neurologist. Upon admission, GSC=11, ionized calcium=2.34mmol/L. Despite initial treatment at the intensive care unit (ICU), the patient's condition worsened and he was switched to ventilatory support. Laboratory tests revealed: serum Ca >4.0mmol/L, low phosphorus and magnesium, elevated parathyroid hormone (PTH) of 1857.8pg/mL (N=17-72) with decreased 25hydroxyvitamin-D. Renal and thyroid function tests were unremarkable. Thyroid ultrasound revealed hypoechoic nodule 16X10X21mm in size outside the left lobe suggestive of the enlarged parathyroid gland. Saline infusion was commenced followed by a 4mg zoledronic acid IV. Ca level slightly decreased but remained elevated hence cinacalcet 30mg/day was added. In two days, Ca level normalized and the patient's condition improved; he was withdrawn from ventilatory support and consequently discharged. Considering the markedly elevated PTH with severe hypercalcemia, presence of multiple parathyroid adenomas was suspected. 99mTc-Sestamibi scintigraphy was performed which revealed two parathyroid adenomas: one near the left lobe and another near the right lobe of the thyroid gland. The patient underwent surgery in another hospital. Intraoperative PTH was 61.4pg/mL (N=15-65). Details of volume of surgery and postoperative morphology reports were unavailable. During subsequent postsurgical follow-ups over 6 months, Ca remained normal ranging between 1.22-1.25 mmol/L, with gradually increasing PTH from 53 to 64 ng/mL (N=11-43). Due to consistently elevated PTH, an incomplete surgical resection was suspected and repeated parathyroid scintigraphy followed by surgery was recommended; however, the patient refused to undergo the procedures. He feels better in himself, although symptoms of mild dementia, irritability and anxiety were noted.
Conclusions: Scintigraphy seems additional valuable tool to identify multiple parathyroid adenomas, particularly in patients with severe neurological presentation due to acute hypercalcemia and markedly elevated PTH. In cases of incomplete parathyroidectomy, the recommendation is to perform repeated surgery which in itself poses additional challenges in terms of communicating with the patients and convincing them to re-do the surgery.

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E-Poster Viewing
E-POSTER VIEWING: AS02. BONE
01-03-2024 07:00 - 18:00

A MIDDLE AGED MAN WITH TUMOUR INDUCED OSTEOMALACIA

V Vinitharan[1], Minuri Fernando[1], Harsha Dissanayake[2], Prasad Katulanda[1,2]
[1]National Hospital of Sri Lanka, University Medical Unit, Colombo, Sri Lanka, [2]Diabetes Research Unit, Department Of Clinical Medicine, Faculty Of Medicine, University Of Colombo, Colombo, Sri Lanka

Background and Aims: Tumour induced osteomalacia (TIO) is a paraneoplastic syndrome caused by fibroblast growth factor-23 (FGF23) secreting, often benign, slow growing neoplasms. Resection of tumor results in cure of TIO. We present the case of a middle aged male with TIO.
Methods: 29-year-old male presented with progressive lower backache, generalized muscle and bone pain which had been progressing for two years. He also complained severe left hip pain which compromised mobility and limited the quality of life. He denied any features of connective tissue disorders or constitutional symptoms. There were no fractures or skeletal deformities.
Results: Investigations revealed persistent hypophospataemia (1.5 mg/dL), high ALP (797 U/L) elevated CPK (655 U/L), reduced 1-25-dihydoxy cholecalciferol (7 pg/mL) despite of the correction of vitamin D deficiency. Serum ionized calcium (4.8 mg/dL) and PTH (42 pg/mL) were within normal range. Very low bone mineral density in DXA imaging (Lumber spine BMD : 0.650 / Z score: -4.0) and codfish pattern of vertebra in MRI imaging of whole spine with above biochemical abnormalities suggested hypophosphataemic osteomalacia. There were no looser's zone or lytic lesions identified in the imaging studies. Low tubular maximum of phosphate for GFR (Tmp/GFR- 0.79 mmol/L) and elevated FGF23 (307 RU/mL) suggested FGF-23 mediated phosphaturic hypophosphataemia as the cause. Inherited phosphaturic osteomalacia was excluded as his identical twin brother was normal. After excluding other causes for elevated FGF 23, a final diagnosis of TIO was made. Medical treatment was started with oral phosphate and calcitriol which resulted in markedly improved symptoms, signs and quality of life with normalization of ALP. Whole body FDG PET- CT revealed a benign osseous neoplasm in the greater trochanter of left femur. The surgical removal of tumour resulted in improvement in clinical and biochemical parameters (ALP- 68 U/L, serum inorganic phosphate: 2.1 mg/dL). Histological confirmation of phosphaturic mesenchymal tumour (PMT) was made by demonstrating bland spindle-shaped cells with scanty cytoplasm and oval nuclei and by immunohistochemical studies which showed positive staining pattern for Vimentin and SMA and negative staining pattern for ERG, CD 56 and CD 34.
Conclusions: TIO should be regarded as debilitating consequence of benign tumors that is completely curable with the excision of tumour. These often benign and slow growing tumours are difficult to locate. TIO can be successfully treated medically with phosphate and calcitriol replenishment and cured if the culprit lesion is localized.

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E-Poster Viewing
E-POSTER VIEWING: AS03. CARDIOMETABOLIC
01-03-2024 07:00 - 18:00

HYPOCALCAEMIA AS A POTENTIALLY REVERSIBLE CAUSE OF HEART FAILURE WITH REDUCED EJECTION FRACTION

Andrew Jamieson[1,2], Sara Al-Mahaynii[3]
[1]Island Health Services, Edinburgh, United Kingdom, [2]Island Health Services, Hamilton, Bermuda, [3]Royal College of Surgeons of Ireland, Manama, Bahrain

Background and Aims: Hypocalcemia is an uncommon, but well documented cause of reversible dilated cardiomyopathy. Many cases are related to prior neck surgery or radiotherapy, especially for thyroid disease, or occasionally genetic disorders. Many cases may be idiopathic and a common finding in the literature is the delay to recognition of the potential for the etiology to be hypocalcemia, and then a delay in the initiation of appropriate treatment despite the clear evidence of the excellent response to treatment in these cases of heart failure. We describe a series of cases with differing etiologies where treatment of hypocalcaemia led to a significant clinical improvement in heart failure.
Methods: A review of case notes on a single pratitioners electronic medical record was undertaken using ICD-10 codes for hypocalcemia (E83.x) and heart failure (I50.2x, I50.4x). A total of 11 patients were found who had both hypocalcaemia and heart failure. Review of the patients electronic and paper records were conducted and clinical, laboratory and imaging were reviewed to confirm the diagnostic and diagnostic categories of all patients. The median age plus range were determined along with pre- and post- treatment serum corrected calcium (mg/dl), phosphorus (mg/dl) Parathyroid Hormone (PTH, pg/ml), creatinine (mg/dl), ECG findings, left ventricular ejection fraction (LVEF %). Pre- and post-treatment comparison was performed using a Student t-test with $p<0.05$ regarded as significant.
Results: Etiology of hypocalcaemia was as follows: 22q11 deletion - 1; Celiac disease with vitamin D deficiency - 3; Idiopathic hypoparathyroidism - 3; Prior neck surgery 4

	Pre-treatment	Post-treatment	
Corrected Calcium (mg/dl)	1.67 (1.45-1.88)	2.13 (2.01 - 2.23)	p<0.001
PTH (pg/ml)	19 (3 - 31)	6 (1 - 19)	p<0.01
Phosphorus (mg/dl)	5.6 (4.5 - 6.7)	3.4 (3.1 - 5.9)	p<0.001
Vitamin D (ng/ml)	37 (14 - 63)	56 (44 - 81)	p<0.001
Creatinine (mg/dl)	0.8 (0.6 - 1.20	0.8 (0.5 - 1.3	p = n.s.
LVEF (%)	31 (22 - 39)	47 (38 - 56)	p<0.001
ECG abnormal: Yes/No	11/0	6/5	p<0.001

All patients recieved treatment with oral calcitriol (median dose 750mcg once daily (500 - 1250mcg) and calcium carbonate (median dose 1000mg (750 - 1750mg).

	Pre-treatment	Post-treatment	
Kansas City Cardiomyopathy Questionnaire	31	43	p<0.001

Loop diuretic dose (mg/day)	60 (20 - 80)	0 (0-40)	p<0.001

Conclusions: Identification of hypocalcaemia and its etiology can result in implementation of specific treatment which can result in reversal of heart failiure parameters and improvement in symptoms and redution in the need for other medications.

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E-Poster Viewing
E-POSTER VIEWING: AS03. CARDIOMETABOLIC
01-03-2024 07:00 - 18:00

FACTEURS ASSOCIÉS À LA MORTALITÉ DES PATIENTS COVID-19 HOSPITALISÉS DANS LES CT-EPI DE CONAKRY, DE 2020 À 2022

Mamadou Alpha Diallo[1], Sadou Sow[2], Amadou Kake[1]
[1]Programme National de Lutte contre les Maladies Non Transmissibles, Ministère De La Santé Et De L'hygiène Publique, Conakry, Guinea, [2]OMS, Renforcement Du Système De Santé, Conakry, Guinea

Background and Aims: Contexte La maladie à coronavirus (COVID-19) est une pandémie qui a initialement commencé à Wuhan, en Chine, et s'est propagée depuis décembre 2019 à l'échelle mondiale. Cette pandémie a totalisé plusieurs milliers de cas confirmés et de décès. Il a été démontré que les comorbidités sont fréquemment associées au Covid-19 et constituent des facteurs de risque de sévérité de la maladie. Malgré les preuves de l'association entre les comorbidités et la survenue de la morbidité et la mortalité des patients infectés la Covid19, on sait peu de choses sur la mortalité des patients infectés par le COVID-19 avec les comorbidités en Guinée de 2020 en 2022. Objectif général: Analyser les facteurs associés à la mortalité des patients atteints de la Covid19 hospitalisés dans les CT-Epi de Conakry en Guinée de mars 2020 à décembre 2022.
Methods: Notre population d'étude était constituée des patients hospitalisés dans les CT-Epi de Conakry, de tous âges identifiés dans la base de prise en charge. Il s'agissait d'une étude transversale analytique faite à partir de la base des données des personnes hospitalisées infectées de covid-19 dans les CT-Epi de Conakry en Guinée en 2022. Il a été réalisé une régression logistique binaire pour identifier les facteurs associés à la mortalité des patients atteints de Covid-19 vivant avec des comorbidités et hospitalisés dans les CT-Epi de Conakry.
Results: Au total, 10 404 patients atteints de covid-19 ont été inclus dans l'etude. Les patients vivant avec le diabète seul avaient 5 fois de plus le risque de décéder comparer à ceux qui n'avaient pas de diabète, en maintenant les autres constates dans le modèle. Les patients vivant avec plusieurs comorbidités avaient un risque de décès 2 fois plus élevé Tableau : Facteurs associés à la survenue des décès chez les patients infectés de COVID-19 en analyse multivariée

Caractéristiques	Odds ratio ajusté (IC 95%)	p
Diabète seul Non Oui	Ref. 5,20 (2,45 - 11,04)	< 0,001
VIH seul Non Oui	Ref. 6,59 (2,50 - 17,40)	< 0,001
Comorbidités associées Non Oui	Ref. 2,57 (1,66 - 4,00)	< 0,001

Conclusions: La proportion des décès due aux comorbidités était de 43,7%. Les facteurs qui déterminent la morbidité et la mortalité sont l'âge, le diabète, le VIH et la présence de plusieurs comorbidités chez un même patient.

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E-Poster Viewing
E-POSTER VIEWING: AS03. CARDIOMETABOLIC
01-03-2024 07:00 - 18:00

CHANGES OF CARDIOVASCULAR DISEASE RISK SCORES IN RURAL AND URBAN AREAS IN IRAN DURING THE PAST DECADE

Noushin Fahimfar[1], Samaneh Asgari[2], Karim Kohansal[3], Afshin Ostovar[4], Alireza Mahdavi[5], Farzad Hadaegh[3], Davood Khalili[3]
[1]Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran, [2]Prevention of Metabolic Disorders Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medica, Prevention Of Metabolic Disorders Research Center, Research Institute For Endocrine Sciences, Shahid Beheshti University Of Medica, Tehran, Iran, [3]Prevention of Metabolic Disorders Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medica, Tehran, Iran, [4]Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, [5]Center for Non-Communicable Disease Control & Prevention, Deputy of Public Health, Ministry of Health and Medical Education, Tehran, Iran

Background and Aims: Background and aims Cardiovascular disease (CVD) is a leading cause of morbidity and mortality worldwide. A CVD risk score is used as a surrogate for all related risk factors to show the mean CVD risk rather than to examine each factor separately. We investigated the changes in the laboratory-based and non-laboratory-based World Health Organization (WHO) CVD risk scores over the last decade in rural and urban individuals in Iran.
Methods: Data from five rounds of the World Health Organization (WHO) STEPwise approach to surveillance surveys conducted in Iran between 2007 and 2016 were used in this study. Laboratory information was available in three rounds (2007, 2011, and 2016). The absolute cardiovascular disease (CVD) risk was calculated following the algorithm of the original prediction model. A linear regression model was used to assess the trend of CVD risk by urban and rural residence. The significance of changes during time, and between rural and urban places was assessed using P-trend and P-interaction, respectively.
Results: In all, 62076 (31660 women) participants aged 40-65 years were included; of them 38856 (62.6%) individuals were urban. A significant declining trends in the mean laboratory-based CVD risk was detected in urban [from 9.6% (9.4-9.7) in 2007 to 8.3% (8.2-8.4) in 2016, p-trend <0.001] and in rural participants [from 9.1% (8.9-9.3) in 2007 to 8.1 (8.0-8.3) in 2016, p-trend=<0.001]. CVD risk showed a borderline significant greater decrease in urban (percent change: 12.5%) than rural participants (percent change: 11%) [p-interaction= 0.086]. For non-laboratory based model, a decreasing trend was showed in both urban [from 9.3% (9.1-9.4) in 2007 to 8.7% (8.6-8.8) in 2016, p-trend <0.001] and in rural participants [from 9.1% (8.9-9.2) in 2007 to 8.8% (8.6-8.9) in 2016, p-trend <0.001], while there was no difference between rural and urban areas (p-interaction=0.336).
Conclusions: CVD risk showed a significant decrease in both rural and urban areas, especially based on laboratory-based models. Although the estimated risk in the two models were largely similar, the difference between the trends over time could be due to the patterns of the risk factors in the models. Specifically, blood cholesterol levels have decreased during the last decade, while the rate of obesity has almost increased. A marginal greater decrease was detected in urban (12.5% reduction over 10 years) than rural areas (11% reduction over 10 years). Further research are needed to identify potential factors that may contribute to the changes in CVD risk scores over time.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

STATIN'S HARMS AND BENEFITS AND THE OPTIMAL CARDIOVASCULAR RISK THRESHOLDS FOR STATIN THERAPY IN THE GENERAL POPULATIONS' AND HEALTH-CARE PROVIDERS' POINTS OF VIEWS

Davood Khalili[1], Hassan Saadati[2], Mark Woodward[3], Ewout W. Steyerberg[4], Hamid-Reza Baradaran[5], Goodarz Danaei[6], Farzad Hadaegh[1]
[1]Prevention of Metabolic Disorders Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medica, Tehran, Iran, [2]School of Health, North Khorasan University of Medical Sciences, Department Of Epidemiology And Biostatistics, Bojnord, Iran, [3]The George Institute for Global Health, University of New South Wales, Sydney, Australia, [4]Leiden University Medical Center, Leiden, Department Of Biomedical Data Sciences, Leiden, Netherlands, [5]School of Public Health, Iran University of Medical Sciences, Department Of Epidemiology, Tehran, Iran, [6]Harvard TH Chan School of Public Health, Department Of Global Health And Population, Boston, United States of America

Background and Aims: The use of statins for the primary prevention of cardiovascular diseases (CVD) is associated with several favourable but some undesirable outcomes. We aimed to find how important these outcomes are for people and identify optimal CVD risk thresholds above which statins provide net benefit considering people's preferences.
Methods: A preference-eliciting survey was conducted applying the best–worst scaling method for the Iranian population aged 40-75 years old without a history of CVD. The relative importance of different harmful and useful statin-related outcomes was assessed on a sample of 1085 participants, including 913 (486 women) general population, and 172 healthcare providers from urban and rural primary healthcare centres. Then a quantitative benefit–harm balance modelling was applied using preferences for our population, statin effect estimates from a meta-analysis, and baseline incidence of harm outcomes for Iran from the Global Burden of Disease study. A CVD outcome was defined as angina, myocardial infarction, fatal coronary heart disease, fatal or non-fatal stroke or heart failure. Benefit–harm balance indices were calculated for combinations of age, sex, and 10-year CVD risk.
Results: The preference-eliciting survey showed that Myopathy was consistently rated as the least worrisome outcome. Thus the importance of each outcome was assessed relative to Myopathy. The results discovered that severe stroke, severe myocardial infarction (MI), and cancer, which were the most worrisome outcomes associated with statin use, were roughly 900, 350, and 300 times as worrisome as myopathy, respectively. Preferences were similar among the general population and health care providers and between rural and urban areas. The benefit–harm balance modelling showed that the use of statins was beneficial at a lower 10-year CVD risk in men (18-23%) than in women (24-28%). People in the age group of 40-45 years had a lower risk threshold (18% in men and 24% in women) than people in the age group of 70-75 years (23% in men and 28% in women).
Conclusions: According to the preferences of the general population and healthcare providers, desirable 10-year risk thresholds to prescribe statins for the primary prevention of CVD for different ages and genders was from 18% to 28%, as CVD is defined in a broad spectrum from angina to CVD death. These risk thresholds can be translated to the risk thresholds of around 10% for hard CVD outcomes i.e. MI, stroke or CVD death which is usually used in clinical guidelines.

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EFFICACY OF DAPAGLIFLOZIN IN HEART FAILURE WITH PRESERVED EJECTION FRACTION IN FEMALES WITH PREDIABETES

Iryna Kostitska, Lileia Petrovska
Ivano-Frankivsk National Medical University, Endocrinology, Ivano-Frankivsk, Ukraine

Background and Aims: Nowadays dapagliflozin have emerged as a key pharmacotherapy in chronic heart failure (HF) with preserved ejection fraction. The benefit of other HF therapies may be modified in gender criteria, but whether the choice treatment effect and safety of sodium-glucose cotransporter-2 inhibitors in female with prediabetes remains unclear. The aim of this study was detect efficacy of dapagliflozin in female with prediabetes depending on body mass index (BMI) and HF with preserved ejection fraction.
Methods: The female with prediabetes were divided into two groups: Group A (Gr A, n=15) body mass index (BMI) 25,0-34,9 kg/m^2 and Group B (Gr B, n=15) BMI – 35,0-40 kg/m^2. The mean age of the females were 40,5±3,9 years in Gr A and 43,6±3,7 years in Gr B. The chronic HF with preserved ejection fraction was diagnosed in 8 females of Gr A and 13 patients with Gr B. The prevalence of HFwith preserved ejection fraction was higher in Gr B compared to Gr A (86,7 % vs 53,3%). The mean waist circumference was higher in Gr B (119,5±4,2 cm vs 121,8±3,9 cm). The dysglycaemic range is defined as fasting plasma glucose level between 5,6 mmol/L to 6,9 mmol/L and/or two hours after themeal 7,8 mmol/L to 11,1 mmol/L and glycated hemoglobin (HbA_1C) - 5,7%-6,4%. Mean value of HbA_1C - 6,2±0,2% in all participants. The patients were treated metformin XR (daily dose - 500-1500 mg) combination dapagliflozin (daily dose – 10 mg) during 3 months.
Results: There was a statistically significant improvement in glycemic parameter, HbA_1C. On comparing with the baseline the mean difference of HbA_1C after combination therapy (metformin XR and dapagliflozin) were 1,2% in Gr A and 1,6% in Gr B without symptoms of hypoglycemia. There was a reduction in weight, BMI with females with prediabetes. Significant reductions in BMI and waist circumference were observed with combination therapy in Gr B (112,4±3,2 cm) relative to Gr A (118,9±4,1 cm) at 3 months. A similar benefit was observed in Gr B HF with preserved ejection fraction.
Conclusions: Dapagliflozin have been shown to improve the lives in females with prediabetes and resulted in lower risk of worsening HF due to depending on significant reductions in BMI and waist circumference.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

N-GLYCOSYLATION-MEDIATED CD147 ACCUMULATION INDUCES CARDIAC FIBROSIS IN THE DIABETIC HEART THROUGH ALK5 ACTIVATION

Mingchuan Liu, Tingwei Peng, Yan Li
fourth military medical university, Department Of Cardiology, Xi'an, China

Background and Aims: Emerging evidence has implicated the important role of fibrosis in diabetic cardiomyopathy (DCM), while the underlying mechanism remains unclear. Considering the distinct and overlapping roles of Cluster of Differentiation 147 (CD147) in the pathogenesis of fibrotic diseases, we aim to investigate the role of CD147 in the fibrosis of DCM and explore its underlying mechanism.
Methods: Streptozotocin (STZ) was injected into mice to induce diabetes. Neonatal rat cardiac fibroblasts (CFs) were cultured in a high- glucose medium (HG, 33 mmol/L glucose) to establish cell models of diabetes. LCMS /MS analysis and functional experiments were used to explore the underlying molecular mechanisms.
Results: AAV9-mediated cardiac-specific CD147 silencing attenuated cardiac fibrosis and cardiac function in diabetic mice. CD147 knockdown significantly inhibited high glucose (HG)-induced activation of CFs. Mechanistically, CD147 directly bound to type I transcription growth factor β (TGF-β) receptor I (ALK5), promoting ALK5 activation and endocytosis to induce SMAD2/3 phosphorylation and nuclear translocation. In addition, HG prevented the ubiquitin-proteasome-dependent degradation of CD147 by promoting GNT-V-mediated N-glycosylation. As a result, cardiac-specific CD147 overexpression in control mice mimicked diabetes-induced cardiac fibrosis, aggravating cardiac function. Importantly, CD147 was also upregulated in serum and myocardial specimens from patients with diabetes compared with non-diabetes, accompanied by echocardiographic indices of cardiac dysfunction and excessive collagen deposition.
Conclusions: Our study provides the first evidence that CD147 acts as a pivotal factor to promote diabetic cardiac fibrosis, and may contribute to the development of future CD147-based therapeutic strategies for DCM.

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DOSE-DEPENDENT EFFECTS OF LIPID LOWERING AGENT, SIMVASTATIN ON THE ENDOGENOUS LEVELS OF COENZYME Q: ASSOCIATED MYOCARDIAL DAMAGE

Sinenhlanhla Mthembu[1], Sithandiwe Mazibuko-Mbeje[2], Sonia Silvestri[3], Chrsito Muller[1], Bongani Nkambule[4], Phiwayinkosi Dludla[5]
[1]South African Medical Research Council, Biomedical Research And Innovation Platform (brip), Cape Town, South Africa, [2]North-west university, Biochemistry, Mafikeng, South Africa, [3]Polytechnic University of Marche, Life And Environmental Science, Ancona, Italy, [4]University of KwaZulu Natal, College Of Health Science, Durban, South Africa, [5]South African Medical Research Council, Cochrane South Africa, Cape town, South Africa

Background and Aims: Coenzyme Q9/10 (CoQ) is a critical component of the mitochondrial electron transport chain that is involved in cellular bioenergetics and is vital for protecting against oxidative stress. Although simvastatin is considered an important lipid-lowering drug with some cardioprotective effects, its long-term use has been associated with myocardial toxicity, which is in part facilitated by the detrimental effects of oxidative stress. Therefore, our aim was to understand the implicated pathological mechanisms of long-term use of simvastatin in both normal and palmitic acid exposed H9c2 cardiomyoblasts.
Methods: The current study explored the dose (0.3, 0,6, 1.25, 2.5, 5, 10, and 20 µM) and time (24, 48 and 72 hours)-dependent effects of simvastatin on cultured cardiomyoblasts. Endpoint measurements included viability of cells, mitochondrial respiration, production of mitochondrial superoxide and cellular reactive oxygen species (ROS) as well as assessing CoQ content and oxidative status. Commecial kits were used to conduct and quantifiy this endpoints measurements.
Results: Our fundings suggests that low doses of simvastatin (≤ 0.6 µM) can maintained cellular viability of cardiomyoblasts, in part by improving CoQ status, decreasing cellular ROS and enhancing mitochondrial respiration. Alternatively, exposure to higher simvastatin doses (between 1.25 and 5 µM) significantly increased ROS production and reduced CoQ content, albeit did not affect cell viability or mitochondrial respiration. However, exposure to simvastatin doses > 5 µM significantly reduced cell viability and altered CoQ status, while also accelerating ROS production. Notably, the detrimental effect of simvastatin on these cardiomyoblasts was worsened when exposed for 48 and 72 hours compared to 24 hours.
Conclusions: Through this in vitro based work, our findings suggests that optimal doses and exposure times are crucial aspect in prolong beneficial effects of simvastatin and further provide an insight to the pathophysiological mechanisms associated with statins-induced oxidative stress, which can be targeted for therapeutic intervention intending to improve the efficacy of statins and there for improving cardiovascular complications.

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01-03-2024 07:00 - 18:00

FROM UNDERWEIGHT TO OBESITY, RELATIONS BETWEEN COGNITIVE IMPAIRMENT WEIGHT STATUS AND COMORBID CHRONIC CONDITIONS IN HOSPITALIZED ADULTS OF 55 YEARS AND OVER IN GUADELOUPE.

Livy Nicolas[1], Jean Pierre Clotilde[1], Valerie Bassien Capsa[2], Olivier Galantine[2], Rosan Fanhan[1], Lydia Foucan[3]
[1]Medical Centre Lucien NICOLAS. 97160 Le Moule, Guadeloupe, France, Medical Unit, Le Moule, Gouadeloupe, [2]Research Team on Cardiometabolic Risk ECM/LAMIA 4540,, University Hospital, University Of The Antilles, Guadeloupe, France, Pointe -à-Pitre, Gouadeloupe, [3]Medical Centre Lucien NICOLAS. 97160 Le Moule, Guadeloupe, France, Clinicat Research, Le Moule, Gouadeloupe

Background and Aims: Prevalence of both cognitive decline and chronic conditions increase with age. Emerging data suggest an association between cognitive impairment and chronic conditions. Additionally, conflicting results have been reported concerning the relationship between dementia and obesity which was considered as a risk factor or as a protective factor for dementia according to studies. In hospitalized adults of 55 years and over in Guadeloupe, we aimed to (i) estimate the prevalence of cognitive decline according to weight status (ii) identify the factors associated with cognitive decline.
Methods: Cognitive impairment included memory loss, symptoms of confusion, Alzheimer disease and dementia. Weight status: the individuals were classified according to their body mass index (BMI) in four categories: < 23 (underweight), [23 – 25[(normal weight), [25 – 30[(overweight) and ≥ 30 kg/m2 (obesity). Chronic conditions were the following (i) hypertension; (ii) diabetes; (iii) stroke; (iv) chronic renal failure and (v) prealbumin level < 0.20 g/L (as a biomarker of undernutrition). A logistic regression for cognitive impairment was performed.
Results: Overall, data of 593 individuals were analyzed. Mean age was 75.9 ± 10.0 years (range 55 to 99 years) and 54.8 % were women. Prevalence of cognitive impairment was 21.4% in the whole study population and 28.4 %, 26.9%, 20.3% and 10.1%, in individuals with underweight, normal weight, overweight and obesity, respectively (P = 0.001). No significant differences were found between individuals with and without cognitive impairment for gender distribution, prevalence of hypertension, diabetes, chronic renal failure. Those with cognitive impairment were more likely to have age ≥ 75 years (P = 0.001), a history of stroke (P = 0.019), prealbumin level < 0.20 g/L (P = 0.009) and less likely to be obese (P = 0.001). With the multivariate logistic regression, factors associated with cognitive impairment were age ≥ 75 years, history of stroke and weight status. Underweight individuals had a higher odds for having cognitive impairment than the obese individuals OR 2.8 (95% IC 1.4 –5.9); P = 0.005.
Conclusions: Obesity appears as a protective factor against cognitive impairment in this study population. In middle-aged and older adults, signs of cognitive decline should be sought in certain chronic diseases as in underweight subjects and included in care planning.

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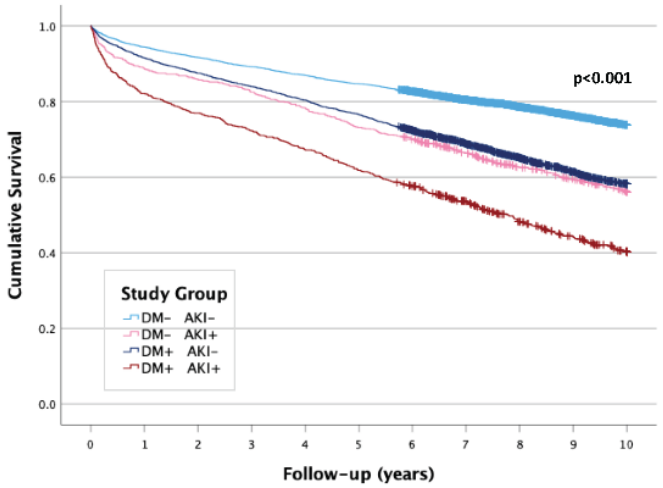
LONG-TERM MORTALITY POST MYOCARDIAL INFARCTION AND ACUTE KIDNEY INJURY AMONG PATIENTS WITH AND WITHOUT DIABETES MELLITUS

Ygal Plakht[1,2], Mashav Romi[2,3], Arthur Shiyovich[4,5], Keren Skalsky[4,5]
[1]Soroka University Medical Center, Emergency Medicine, Beer-Sheva, Israel, [2]Ben-Gurion University of the Negev, Nursing, Beer-Sheva, Israel, [3]Sheba Medical Center, Neonatal Intensive Care Unit, Ramat Gan, Israel, [4]Rabin Medical Center, Cardiology, Petah Tikwa, Israel, [5]Tel-Aviv University, Faculty Of Medicine, Tel Aviv, Israel

Background and Aims: Patients with type 2 diabetes mellitus (DM) and acute myocardial infarction (AMI) are at increased risk for complications, including acute kidney injury (AKI) and mortality. However, data evaluating the extended consequences of AKI in patients with and without DM is sparse. We aimed to examine the effect of AKI following AMI on long-term all-cause mortality among patients with and without DM.
Methods: The study is based on a retrospective analysis of adult patients admitted with AMI to a tertiary center, 2002-2017. Patients included in the analysis had normal kidney function at baseline. Two strata were defined: DM and non-DM. Within each strata, two study groups were defined: patients who developed AKI during their hospitalization and those who did not. AKI was defined as an increase in the serum creatinine level of ≥0.3 mg/dL /≥50% from baseline within 48h. Primary outcome: all-cause mortality in up-to 10 years of follow-up. Patients characteristics, laboratory results, imaging and coronary interventional details were retrieved from the hospital's computerized databases. Statistical analysis included multivariate interactive survival model.
Results: Overall, 25,240 hospitalizations of 17,656 patients were reviewed. Out of them, 10,477 patients were included in the analysis; 3,803 (36.3%) patients with DM. Mean age was 62.06±13.30 years and 23.9% of the patients were women. Of the study population, 1,592 (15.2%) developed AKI during hospitalization: 778 (20.5%) and 814 (12.2%) in the DM and non-DM strata respectively, p<0.001. During a median follow up of 9.7 years, all-cause mortality was recorded in 3,455 (32.9%) patients: 43.1% and 27.1% among DM and non-DM respectively, p<0.001. Higher cumulative mortality was found between AKI and non-AKI groups, both among DM (0.597 vs.0.418, p<0.001) and non-DM patients (0.439 vs. 0.261, p<0.001), see Figure. After adjustment for potential confounders, both DM and AKI were significantly related to mortality: AdjHR=1.387 (95%CI: 1.294-1.487; p<0.001) and AdjHR=1.349 (95%CI: 1.235-1.474; p<0.001) respectively. The strength of the relationship between AKI and mortality risk tended to be higher among DM vs. non-DM patients: AdjHR=1.470 (95%CI: 1.299-1.664; p<0.001) vs. AdjHR=1.249 (95%CI: 1.097-1.422; p<0.001); p-for-interaction=0.207.

Figure. Cumulative long-term survival functions among post-Acute Myocardial infarction (AMI) patients, by Type 2 Diabetes Mellitus (DM) status and the occurrence of Acute Kidney Injury (AKI)



Conclusions: AKI was identified as an independent risk factor for mortality among all patients after AMI; the strength of the relationship between AKI and mortality risk tended to be stronger among patients with DM. These results may assist in identifying patients at higher risk of mortality, facilitating the monitoring of DM patients and the implementation of preventative and therapeutic measures to improve prognosis.

PV068 / #1240

E-Poster Viewing
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01-03-2024 07:00 - 18:00

SIGNS OF DIABETIC KIDNEY DISEASE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AND HEART FAILURE

Yanina Rebrova, Yanina Saienko, Yevhen Marushko, Borys Mankovsky
Ukrainian Children's Cardiac Center,, Cardiometabolic Disorders Department, Kyiv, Ukraine

Background and Aims: Background: A growing body of evidence suggests that type 2 diabetes mellitus (T2DM) may contribute to the the development and deterioration of heart failure (HF) with either reduced or preserved ejection fraction. On the other hand, diabetic kidney disease (DKD) is associated with a high risk and worse outcomes of HF. However, the relationship between DKD and various types of HF hasn't been fully investigated. The aim of this study was to assess the association between the signs of DKD and different types of HF in patients with T2DM.
Methods: Three groups of patients with T2DM were examined. The first group included 20 patients with T2DM and no HF. (age - 62.6 ± 10.0 years, mean diabetes duration - 3.9 ± 2.5 years, HbA1c - 7.0 ± 1.2%, creatinine - 99.0 ± 19.0 µmol/L, estimated glomerular filtration rate (eGFR) - 64.0 ± 16.0 mL/min/1.73m², albumin/creatinine ratio (ACR) - 25.0 ± 21.0 mg/g, ejection fraction (EF) - 58.0 ± 4.0%.(data are presented as mean ± SD). The second group included 15 patients with T2DM and HF with reduced EF (HFrEF). (age 66.0 ± 7.0 years, mean diabetes duration - 4.0 ± 2.0 years, HbA1c - 6.9 ± 0.7%, creatinine - 122.0 ± 26.0 µmol/L, eGFR - 48.0 ± 9.0 mL/min/1.73m², ACR - 76.0 ± 73.0 mg/g, EF - 34.0 ± 10.0%). The third group included 15 patients with T2DM and HF with preserved EF (HFprEF). (age - 67.0 ± 9.0 years, mean diabetes duration - 5.0 ± 2.0 years, HbA1c - 7.0 ± 2.0%, creatinine - 130.0 ± 52.0 µmol/L, eGFR - 48.0 ± 18.0 mL/min/1.73m², ACR - 115.0 ± 110.0 mg/g, EF -55.0 ± 3.0%). The ACR in urine and eGFR were recorded and compared among these three groups using Student's t-test.
Results: We found that the eGFR levels were significantly lower in patients with T2DM and HFprEF compared to patients without HF and patients with HFrEF (48.0 ± 18.0; 64.0 ± 16.0; 48.0 ± 9.0, – respectively, $p<0.05$). Also the ACR was significantly higher in patients with T2DM and HFprEF compared to patients without HF and patients with HFrEF (115.0 ± 110.0; 25.0 ± 21.0; 76.0 ± 73.0, – respectively, $p<0.05$)
Conclusions: We found that the signs of DKD were the most pronounced in the group of patients with T2DM and HFprEF, which could suggest an important role of DKD in the pathogenesis of HFpEF in patients with T2DM.

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E-Poster Viewing
E-POSTER VIEWING: AS03. CARDIOMETABOLIC
01-03-2024 07:00 - 18:00

VITAMIN E LEVELS IN HYPERCHOLESTEROLEMIC PATIENTS

Hatri Sihem
hospital AIN NAADJA, Pharmacie, Algiers, Algeria

Background and Aims: Cardiovascular disease is one of the leading causes of morbidity and mortality in developed countries. This makes them a major public health problem. most of these diseases are the consequence of complications of atherosclerotic lesions. They also have a large number of risk factors that come into play in the formation of atherosclerotic plaque, including hypercholesterolemia. It is currently well established that free radicals and more specifically oxidative stress are involved in the etiopathogenesis of several pathologies, the most vitamin E exists in 08 forms, 4 tocopherols and 4tocotrienols. In the blood, it is transported by LDL, at the cellular level is present at high concentration in the membranes and mitochondria. It facilitates to react with radical intermediates of lipid peroxidation.frequent of which are atherosclerosis, cancer and diabetes. Cholesterol is an important parameter for screening for cardiovascular risk (RCV); *3.23 mmol/l< CT < 5.43 mmol/l…..→normal CT, no RCV *5.43 mmol/l < CT <6.20 mmol/l……→high CT, average RCV *CT> 6.20 mmol/l……→Very high CT, high RCV normal values of vitamin E=11,6 à 46,4 micromoles/L the aim of our work was to evaluate the level of vitamin E in hypercholesterolemic patients and to seek a relationship between its two parameters.
Methods: This is a retrospective study, conducted in a hypercholesterolemic (sick population) and normocholesterolemic (healthy population) population, in whom we measured total cholesterol by enzymatic method on cobas 501 ROCHE and vit E (as an antioxidant marker) by HPLC with fluorescence detection.
Results: The results obtained are summarized in the attached table:

	Controls (n=52)
CT mmol/l	4.302±0.6
Vit E µmol/l	10.17±3.73

There is a significant increase in vit E in patients compared to controls. A strong (r=0.62) and statistically significant (p=0.008) correlation was found between cholesterol and vitamin E in the sick population.
Conclusions: Tocopherolemia increases in hypercholesterolemics due to the increase in the level of circulating lipoproteins, despite its antioxidant activity

PV070 / #1749

E-Poster Viewing
E-POSTER VIEWING: AS03. CARDIOMETABOLIC
01-03-2024 07:00 - 18:00

THE ASSOCIATION BETWEEN NEUTROPHIL COUNT AND THE RISK OF CARDIOVASCULAR DISEASE: A COMMUNITY-BASED COHORT STUDY IN TAIWAN

Tzu Lin Yeh
Hsinchu MacKay Memorial Hospital, Hsinchu City, Taiwan

Background and Aims: The association between neutrophil count and the risk of cardiovascular disease (CVD) had been discussed. However, previous studies were rare. We aimed to investigate the association between neutrophil count and the risk of CVD in Taiwan.
Methods: Community indwellers with neutrophil count data were enrolled from the Chin-Shan Community Cardiovascular Study (n=3,039). The neutrophil counts were classed as quartiles. The CVD was defined as fatal and non-fatal carotid artery disease and ischemic stroke ascertained by hospital-based medical records and official death registry database. Cox regression models were applied to determine the association between the quartile neutrophil counts and the incidence of CVD. Subgroup analysis by sex and age (cut-off point 65 years) were applied.
Results: A total of 2,955 participants with the mean age 54.2 (12.2) years and 53.5% women were included. Compared with the lowest Q1 neutrophil counts group, the Q2 group had an insignificantly higher CVD risk (hazard ratio [HR]= 1.18; 95% confidence interval [CI], 0.86-1.62), whereas the Q3 group had a significantly higher CVD risk of 1.40 (1.03-1.92) and the Q4 group had the highest CVD risk of 1.42 (1.03-1.94). Among the neutrophil Q4 group, the CVD risk was higher in the aged 35–64 years of 1.54 (1.03-2.31) than the aged ≥65 years group of 1.12 (0.67-1.87), men had a higher CVD risk than women [1.67 (1.05-2.66) vs. 1.28 (0.82-2.00)].
Conclusions: The fatal and non-fatal CVD risks were significantly higher in the higher quartile neutrophil counts in Taiwan community, age and sex were effect modifiers.

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E-Poster Viewing
E-POSTER VIEWING: AS03. CARDIOMETABOLIC
01-03-2024 07:00 - 18:00

THE ASSOCIATION OF LDL CHOLESTEROL ON CARDIOVASCULAR DISEASE AND MORTALITY IN OLDER DIABETIC PATIENTS: POPULATION-BASED COHORT STUDY

Sung Hoon Yu[1], Sangmo Hong[1], Jung Hwan Park[1], Kyungdo Han[2], Dong Sun Kim[1], Changbeom Lee[1]
[1]Hanyang University Guri Hospital, Department Of Internal Medicine, Guri-si, Korea, Republic of, [2]Soongsil University, 2. department Of Statistics And Actuarial Science, Seoul, Korea, Republic of

Background and Aims: Low-density lipoprotein cholesterol (LDL-C) is a well-established causal risk factor for cardiovascular disease (CVD). However, there is controversy regarding the relationship between LDL cholesterol and mortality in elderly diabetic patients. We evaluated the associations between LDL-C and cardiovascular disease or mortality in national cohort study.
Methods: We performed a retrospective observational cohort study of 249,903 older (≥65 years old) diabetes patients without CVD from 2009 to 2017 using the NHID. We divided the subjects by LDL-C category. Primary composite outcomes were stroke, myocardial infarction, and all-cause death. All outcomes were analyzed by Cox proportional hazards regression analysis while controlling for baseline covariates.
Results: During a median follow-up of 7.26 years, the incident rate of composite primary outcomes was 30.95 per 1,000 person-years. In Cox proportional hazard modeling, the risk of the primary outcome associated with a linear association with CVD. In multivariable Cox proportional hazard models with the LDL-C reference group (<85 mg/dL), the risk of primary composite outcomes was increased 1.067 times (95%CI: 1.035-1.100), 1.149 times (95%CI: 1.115-1.183) and 1.222 (95%CI: 1.185-1.261) with increasing LDL-C of respectively, ≥85 & <108 / ≥109 & <134, ≥134 (mg/dL) and had a linear association with LDL-C. And, these finding was consistent regardless of age, sex, smoking, chronic kidney disease, regular exercise, diabetic medications, insulin and statin. But mortality rate had inverse correlations.
Conclusions: In older patients with diabetes, increased LDL-C levels were associated with higher CVD risk, not with mortality rate.

PV072 / #1483

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

AVERAGE CARBOHYDRATE AND CALORIC INTAKE OF PATIENTS WITH TYPE 2 DIABETES AT A TERTIARY CARE HOSPITAL IN PAKISTAN: ACCLIP STUDY.

A. H. Aamir, Kiran Habib, Shumaila Gul
Hayatabad Med Complex, Dept Of Diabetes And Endocrinology, Peshawar, Pakistan

Background and Aims: Type 2 Diabetes Mellitus (T2DM) is one of the most common chronic non-communicable diseases and a serious health issue worldwide because of its rising prevalence amongst the young adults. The prevalence of type 2 diabetes mellitus is 16.98% in Pakistan, and the prevalence of prediabetes is 10.91%. Dietary diversity, rapid economic development and sedentary lifestyle are amongst the common factors contributing for the rapid rise of Diabetes. In Pakistan, patients with T2DM generally lack enough information on the important role of lifestyle and dietary changes in glycemic control primarily due to shortage of trained dieticians, and diabetes educators in the primary or secondary health care systems. There is an utmost need to educate people in Pakistan regarding the disease and the different management options available particularly, lifestyle changes and dietary changes required for a patient with type 2 diabetes. This study aims to assess the average carbohydrate (CHO) and caloric consumption and its association with obesity and disease status in patients with type 2 diabetic patients in an outpatient setting.
Methods: Patients with T2DM were interviewed from the outpatient department who completed dietary assessment and clinical evaluation using a standard Performa. For assessing dietary intake, 24-hour dietary recall method was used. Participants were asked to recall what they ate during the last 24-hours from the previous morning till the morning of interview. They were asked to mention portion sizes of food by showing them photos of different measured plates, cups, and spoons. The data gathered from 24-hr dietary recall was converted to grams and then the total intake of calories and CHO intake was calculated. The nutritional composition of ingredients was computed by using the food composition table for Pakistan 2001
Results: A total of 150 patients with type 2 diabetes were interviewed. The mean carbohydrate intake was 400.3±106 mg/day, out of which 43.3 % participant's had carbohydrate intake above recommendations. The mean energy intake for all participants was 2504.5±587.4 Kcal/day. Majority of the participants were overweight and obese with mean BMI of 28 kg/m^2 ± 4.4. There was no significant difference in energy and carbohydrate intake between male and female participants.
Conclusions: Majority of Pakistani patients with type 2 diabetes consume foods rich in carbohydrate as well as high calories. This may be a major contributory factor in poor control of Diabetes Mellitus. These finding were more in patients with no formal education compared to those who were well educated with a degree.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

PREVALENCE OF MICROVASCULAR COMPLICATIONS IN TYPE 2 DIABETES PATIENTS IN THE GULF REGION: RESULTS FROM THE PACT-MEA STUDY

Jehan Abdulla[1], Tarek Alhadd[2], Guruprasad Subbarao[3], Doaa Khalifa Hussein[4], Shashikanth Chetty Chetty[3], Hessa Al Kandari[5], Hisham Mohammedi[6], Naji Alamuddin[7], Rayaz A Malik[8], Saeed Khalaf[9], Sara Alwazaq[10], Usama Alalami[3]
[1]Bahrain defense force Hospital, Internal Medicince, Riffa, Bahrain, [2]55091270, Internal Medicince, doha, Qatar, [3]Novo Nordisk, Medical Affairs, Kuwait, Kuwait, [4]Yarmouk Healthcare Centre, Kuwait, Internal Medicince, Kuwait, Kuwait, [5]Dasman Diabetes Institute, Kuwait, Diabetes, kuwait, Kuwait, [6]Farwaniya Hospital, Kuwait, Internal Medicine, Kuwait, Kuwait, [7]KHUH/RCSI Bahrain, Internal Medicince, Riffa, Bahrain, [8]Hamad Medical Corporation, Qatar, Internal Medicince, Doha, Qatar, [9]Salmaniyah Medical Complex, Bahrain,, Internal Medicince, Manama, Bahrain, [10]Jahra Hospital, Kuwait, Internal Medicince, Jahra, Kuwait

Background and Aims: Individuals with type 2 diabetes mellitus (T2DM), especially those with chronic hyperglycemia, are at increased risk of microvascular complications such as retinopathy, nephropathy, and neuropathy. These complications contribute to a higher likelihood of cardiovascular diseases (CVD). However, relatively little is known about their prevalence in T2DM patients in the Gulf region, specifically Bahrain, Kuwait and Qatar.
Methods: PACT-MEA is a noninterventional, cross-sectional, observational study conducted at 55 centers across 7 countries. The study involved 3726 individuals, with 28% (1062) from Bahrain-366(9.8%), Kuwait-350(9.4%), and Qatar-346(9.3%). Medical chart reviews were performed to identify established atherosclerotic cardiovascular disease (eASCVD) in T2DM patients and ASCVD risk, according to the ESC 2021 guidelines on cardiovascular disease (CVD) prevention. Data on medical history, demographics, clinical and laboratory findings – including the presence of microvascular disease, pharmacotherapy, and physician-reported factors were collected during scheduled visits between March and August 2022, from 13 centers.
Results: The median duration of T2DM in participants across the 3 Gulf countries was 13.3 years (Bahrain-13.4; Kuwait-13.2; Qatar-13.3 years), whereas, in the overall study, it was 10.0 years. The PACT-MEA study found that overall, 24.9% (929) of participants had neuropathy, 14.7% (549) had nephropathy, and 14.0% (523) had retinopathy. Across the 3 Gulf countries, retinopathy had the highest prevalence at 18.7% (198), followed by neuropathy at 17.5% (185) and nephropathy at 14.9% (158). The prevalence of neuropathy in Kuwait was comparable to the overall study prevalence of 24.9% but was lower in Bahrain at 13.7% and Qatar at 13.9%. Compared with the overall study prevalence, retinopathy was higher in participants from all 3 Gulf countries, with Qatar having the highest at 19.7%, followed by Bahrain at 18.3% and Kuwait at 18.1%. At 14.9%, the prevalence of nephropathy across the 3 countries was similar to the PACT-MEA study (Bahrain-15.6%; Kuwait-12.3% and Qatar-16.8%). Many participants had established risk factors for microvascular complications, including hypertension and smoking. The mean for hypertension was higher in the 3 Gulf countries at 67.3% compared with 65.0% for the overall study. While smoking was marginally lower at 13.0% compared with 14.0% in the overall study.
Conclusions: Differences in prevalence in participants from the 3 Gulf countries compared with results from the PACT-MEA study may suggest variations in screening and management for complications between countries. Understanding the burden of microvascular complications and risk factors can inform targeted interventions and improve patient care in the Gulf region.

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01-03-2024 07:00 - 18:00

EARLY WEIGHT LOSS AND LATE METABOLIC OUTCOMES IN TIRZEPATIDE-TREATED PARTICIPANTS WITH TYPE 2 DIABETES

Ildiko Lingvay[1], Francesco Giorgino[2], Luc F Van Gaal[3], Minzhi Liu[4], Ángel Rodríguez[5], Amelia Torcello-Gómez[6], Jacek Kiljanski[7], Mostafa Abouobaiia[8]
[1]University of Texas Southwestern Medical Center, Dallas, Department Of Internal Medicine/endocrinology, Texas, United States of America, [2]University of Bari Aldo Moro, Department Of Precision And Regenerative Medicine And Ionian Area, Bari, Italy, [3]Antwerp University Hospital, University of Antwerp, Department Of Endocrinology, Diabetology And Metabolism, Antwerp, Belgium, [4]Tigermed-BDM Inc, Tigermed-bdm Inc, Hangzhou, China, [5]Eli Lilly and Company, Medical, Indianapolis, United States of America, [6]Eli Lilly and Company, Global Scientific Communications-publications, Indianapolis, United States of America, [7]Eli Lilly and Company, Global Medical Affairs Portfolio Plan, Indianapolis, United States of America, [8]Eli Lilly and Company, Medical Science Liason, Dubai, United Arab Emirates

Background and Aims: Tirzepatide (TZP), a novel, once-weekly GIP/GLP-1 receptor agonist, significantly improved glycemic control with robust weight loss vs comparators in the SURPASS 1-5 trials. The aim of this analysis was to assess whether the magnitude of early weight loss with TZP (<5% or ≥5% at Week 8) would be associated with different clinical response in terms of HbA1c and weight at Week 40/42 across the SURPASS 1-5 trials.
Methods: These phase 3 trials included participants with type 2 diabetes receiving TZP as monotherapy or add-on to background antihyperglycemic medications. This post-hoc analysis used pooled data from all TZP arms (5, 10, and 15 mg) across trials.
Results: Participants achieving ≥5% early weight loss at Week 8 had lower HbA1c and weight at baseline, and experienced greater reductions in HbA1c and weight at Week 40/42 vs those achieving <5% early weight loss. Among participants achieving ≥5% early weight loss, greater proportions met HbA1c <7% and ≤6.5%, ≥10% weight loss, and the composite endpoint of HbA1c <7% and ≥10% weight loss.
Conclusions: Early weight loss with TZP predicts greater reductions of HbA1c and weight at Week 40/42. However, even the one third of participants achieving <5% weight loss early in the course of therapy are likely to meet the ADA/EASD dual treatment goals of HbA1c <7% and ≥10% weight loss.

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01-03-2024 07:00 - 18:00

INTEREST IN THE RESEARCH OF ANTITHYROID ANTIBODIES DURING THE DIAGNOSIS OF A CETOSIC ACIDIC DIABETES

Hayfa Farid[1], Mohamed Taieb Ach[2], Takwa Issaoui[2], Asma Ben Abdelkarim[1], Molka Chadli Chaieb[1], Koussay Ach[1]
[1]Hospital Farhat Hached Sousse, Department Of Endocrinology And Diabetology, Sousse, Tunisia, [2]Hospital Farhat Hached Sousse, Department Of Endocrinology And Diabetology, sousse, Tunisia

Background and Aims: Diabetic ketosis is an acute complication of diabetes that consists of an accumulation of ketone bodies in the blood, associated or not with acidosis. Ketosis is usually secondary to type 1 diabetes, which makes it necessary to look for other autoimmune diseases. The objective of our study is to investigate the interest of the determination of thyroid antibodies in the diagnosis of ketotic acute diabetes.
Methods: This is a retrospective and exhaustive study conducted in a Department of Endocrinology and Diabetology at the Farhat Hached Hospital of Sousse concerning patients diagnosed with an inaugural ketoacidosis over a period from January 2010 to August 2016. The study population was divided into 2 groups according to the presence or absence of anti-pancreatic autoimmunity evidenced by the positivity of the anti-pancreatic antibodies. Group 1: all patients with proven pancreatic autoimmunity, and group 2 patients without autoimmunity (Ac anti GAD and Ac anti IA2 negative). The search for antithyroid autoantibodies was done in both groups.
Results: These were 391 patients, the sex ratio was 266 men / 125 women, mean age 34 years with a standard deviation of 14.33 years and extremes ranging from 13 years to 77 years. Family history of type 2 diabetes, hypertension, and obesity were significantly more common in group 2. Family history of type 1 diabetes and familial autoimmunity were significantly more common in group 1. A ketosis precipitating factor was found in 77.7% of the overall study population, significantly more frequent in group 1 than in group 2. Serum autoimmune exploration performed in group 1 during hospitalization revealed a significant predominance of anti-GAD present in 90.5% of cases compared to anti-IA2 present in 39.2% of cases. Anti-celiac antibodies were also assayed with a positivity of 2%, significantly more present in group 1 than in group 2: 4.4% against 1.3%. A search for anti-thyroid antibodies showed the presence of anti-TPO and anti-TSH receptor present in 3.3% and 3.6% of cases respectively in the general population with a significant predominance in group 1: 6.3% vs 1.3% in group 2 for anti-TPO and 7.6% vs. 0.9% respectively for groups 1 and 2 for anti-RTSH.
Conclusions: Antithyroid autoantibodies were predominantly present in type 1 ketotic patients with a family and personal bundle of autoimmunity.

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01-03-2024 07:00 - 18:00

GLYCEMIC CONTROL, INFLAMMATORY, HORMONAL, AND NUTRITIONAL CHARACTERISTICS OF PATIENTS WITH POLYCYSTIC OVARY SYNDROME (PCOS): A CASE-CONTROL STUDY FROM THE SHARJAH/UAE

Raghda Adi[1], Moezalislam Ezzat Faris[1], Mohamed Madkour Madkour[1], Bashair M Mussa[1], Salah Abusnana[2]
[1]Sharjah University, Clinical Nutrition, Sharjah, United Arab Emirates, [2]Unverity of Sharjah, College Of Medicine, Sharjah, United Arab Emirates

Background and Aims: Polycystic ovary syndrome (PCOS) is a prevalent endocrine abnormality among women of reproductive age, with an incidence of 4% to 12%. The goal of the current work is to characterize the glycemic control parameters, and metabolic, inflammatory, nutritional, and hormonal markers among patients with PCOS from Sharjah University Hospital in comparison to their age-matched healthy controls.
Methods: A case-control study was conducted among females (>18, before menopausal age). Body composition analysis was accomplished by bioelectrical impedance analysis (BIA) using a TANITA®. Fasting blood samples were drawn for the study participants to measure the biochemical.
Results: The results of a study involved 135 participants (66 cases, and age-matched 69 healthy controls). Women with PCOS had significantly higher body weight, BMI (kg/m^2), fat mass, visceral fat surface area, and body fat percentage compared to their control counterparts. Although there were no statistically significant differences in serum glucose, insulin, or the HOMA-IR score between patients and controls, cases tended to have higher values compared to their controls, while significantly lower scores of QUICKI insulin sensitivity scores were found among cases compared to their controls. CRP levels were significantly higher in cases than in controls. Moreover, HDL levels were significantly lower, while TG levels, atherogenic index, VLDL levels, TC/HDL ratio, and TG/HDL ratios were significantly higher in PCOS cases than in their counterpart controls. No significant differences were reported between cases and controls in terms of vitamin D, FSH, TSH, and LH levels, with a clear tendency to have lower vitamin D and higher/lower hormones among patients with PCOS compared to their healthy controls.
Conclusions: The results of our study have shown significant differences between the case and control groups in anthropometrics, glycemic control markers, lipid profiles, and inflammatory markers. Hormonal measurements show that many women with PCOS have an elevated LH/FSH ratio. On the other hand, the study showed no significant differences between cases and controls in terms of vitamin D, FSH, TSH, LH, and LH/FSH ratio.

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THE IMPACT OF ADHERENCE TO GLUTEN-FREE DIET ON GLYCEMIC CONTROL AND QUALITY OF LIFE AMONG SAUDI ARABIAN PATIENTS WITH TYPE 1 DIABETES AND CELIAC DISEASE

Mohammed Al Dawish[1,2]
[1]Prince Sultan Military Medical City, Diabetes, Riyadh, Saudi Arabia, [2]Prince Sultan Military Medical City, Riyadh, Saudi Arabia

Background and Aims: Children and adolescents with type 1 diabetes mellitus (T1DM) are more likely to acquire autoimmune disorders, including celiac disease (CD). In this study, we aimed to assess the level of metabolic control, adherence to a gluten-free diet (GFD), and quality of life (QoL) among individuals with T1DM and CD.
Methods: We conducted a cross-sectional study on individuals with T1DM and CD who presented to our center at a major tertiary hospital in Riyadh, Saudi Arabia. Data were gathered retrospectively from the medical records of the targeted individuals before the study objectives were assessed prospectively. The level of glycemic control was assessed based on glycated hemoglobin (HbA1c) and ambulatory glucose profile metrics. The extent to which the participants adhered to a GFD was evaluated using Celiac Dietary Adherence Test (CDAT), while the Celiac Disease Quality of Life survey (CD-QoL) was used to assess the QoL.
Results: Out of the 1,095-screened patients with T1DM attending our Diabetes Treatment Center, 48 patients (4.38%) met the inclusion criteria. The mean age was 21.3 years (±6.6), and the mean HbA1c was 8.3% (± 0.8%). Time in range (TIR)% ranged from 24 to 68, with a median value of 38.5, while the mean time above range (TAR)% was 29.6 (±7.4). The median values of level 1 hypoglycemia (54–69 mg/dL), level 2 hypoglycemia (<54 mg/dL), and level 2 hyperglycemia (> 250 mg/dL) were 4, 1, and 9. The median hypoglycemic events/per month and median duration were 8 and 80 minutes. The median overall CDAT and CD-QoL scores were 20.5 and 54. We observed insignificant correlations between glucose management indicator (GMI) as well as % in target (glucose 70-180 mg/dL) and CDAT total score and CD-QoL scale (all $p<0.05$).
Conclusions: None of the favorable or adverse effects of a GFD on QoL or glycemic control were established in the current study. Further studies with large sample sizes are warranted to establish solid evidence of the effects of adherence to GFD in children with T1DM and CD and its actual impact on QoL.

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01-03-2024 07:00 - 18:00

EVALUATING THE IMPACT OF RAMADAN FASTING ON AMBULATORY GLUCOSE PROFILE AMONG PATIENTS WITH TYPE 1 DIABETES: A COMPARATIVE STUDY

Mohammed Al Dawish
Prince Sultan Military Medical City, Riyadh, Saudi Arabia

Background and Aims: Evaluating the impact of Ramadan fasting on Ambulatory Glucose Profile (AGP) among Patients with Type 1 Diabetes (T1D) using Flash Glucose Monitoring (FGM) System.
Methods: The present study is a comparative study, performed using 87 patients with T1D, whose health status permitted them to fast, based on the risk stratification adopted by Diabetes and Ramadan (DAR Guidelines). Besides the demographic data, other data connected with the glycemic profile such as the mean Time in Range (TIR), mean Time Above Range (TAR), mean Time Below Range (TBR), mean glucose level, hemoglobin A1c (HbA1c), Glucose Variability (GV), and Glucose Monitoring Indicator (GMI %), were recorded at three specific periods, namely, pre- (prior to), during and post Ramadan.
Results: The mean age of the study population was 21.3 ± 8.2 years, and 52.9% of this population was female. Compared to the pre-Ramadan data, no significant alterations ($p > 0.05$) were noted in terms of the low glucose events, percentage of glucose level below 70 mg/dL, the average duration of hypoglycemic events, and percentage of glucose level below 54 mg/dL, from the values observed during and post-Ramadan. In comparison with the pre-Ramadan data, no significant changes appeared ($p > 0.05$) concerning the GV, average glucose, GMI, percentage within target, TAR (181-250 mg/dL), and percentage >250 mg/dL), for the periods during and post-Ramadan, except scanning of FreeStyle Libre ($p = 0.042$) during Ramadan month compared to pre-Ramadan
Conclusions: Fasting during Ramadan was achievable in patients with T1D who received adequate counseling and support.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

CLINICAL EFFICACY OF ONCE-WEEKLY SEMAGLUTIDE FOR THE MANAGEMENT OF OBESE SUBOPTIMALLY CONTROLLED PATIENTS WITH TYPE 2 DIABETES IN REAL-WORLD CLINICAL PRACTICE

Mohammed Al Dawish
Prince Sultan Military Medical City, Riyadh, Saudi Arabia

Background and Aims: We aimed to assess the metabolic effectiveness and patient-reported satisfaction of once-weekly semaglutide compared to liraglutide in suboptimally controlled patients with type 2 diabetes (T2D).
Methods: We conducted this single-center cohort study at diabetes center clinics at a tertiary care hospital . We included suboptimally controlled patients with T2D who had been treated with liraglutide for at least three months at baseline, then shifted to once-weekly semaglutide and followed up for the same period. Ambulatory glucose profile (AGP) metrics (i.e. mean glucose level, glycemic variability (GV), time above range (TAR), and time in range (TIR)) for baseline and follow-up were compared. To assess the satisfaction with shifting, we used the valid Arabic version of the Diabetes Treatment Satisfaction Questionnaire status (DTSQs) and change (DTSQc) while the injection device preference was assessed using the Diabetes Injection Device Preference Questionnaire (DID-PQ).
Results: We included 52 patients (25 male and 27 female), with a mean age of 48 (±6) years and a mean DM duration of 7.27 (±3.79) years. We observed a significantly decreased mean HbA1c level following semaglutide treatment (7.79% at study end vs. 8.07% at baseline, $p<0.001$) and body weight (84.64 ± 7.68 vs. 87.15 ± 8.011, $p<0.001$). Compared to the glucometrics data at baseline, we observed a significantly improved mean average glucose, GV, TAR, and TIR (p-value<0.001). Data from the DTSQs questionnaire showed a lower level of patient-reported satisfaction with the previous liraglutide treatment, with a higher perceived frequency of hyperglycemia, with a higher level of satisfaction in males than females ($P<0.001$). At the end of follow-up, the overall patients reported a high level of satisfaction after shifting to semaglutide treatment in all of the DTSQc domains, with comparable levels of treatment satisfaction between males and females. All patients preferred/strongly preferred once-weekly semaglutide over liraglutide in the majority of DID-PQ questionnaire domains.
Conclusions: This study shows that switching once-daily liraglutide to once-weekly semaglutide led to improvements in both clinical measures of glycemic control and patient-reported satisfaction.

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01-03-2024 07:00 - 18:00

PREVALENCE OF DYSMAGNESEMIA AMONG PATIENTS WITH DIABETES MELLITUS (DM) AND THE ASSOCIATED HEALTH OUTCOMES: A CROSS-SECTIONAL STUDY

Salwa Al Harrasi[1], Juhaina Al-Maqbali[2], Abdullah Al Alawi[3], Henrik Falhammar[4]
[1]Oman Medical Specialty Board, Internal Medicine, Muscat, Oman, [2]2Department of Pharmacology and Clinical Pharmacy, College of Medicine and Health Science, Sultan Qaboos University, Muscat, Oman, Clinical Pharmacy, Muscat, Oman, [3]6Department of Medicine, Sultan Qaboos University Hospital, Medicine, Muscat, Oman, [4]Department of Endocrinology, Karolinska University Hospital, Molecular Medicine And Surgery, Stockholm, Sweden

Background and Aims: Magnesium (Mg) is a vital intracellular cation crucial for over 320 enzymatic reactions related to energy metabolism, musculoskeletal function, and nucleic acid synthesis and plays a pivotal role in human physiology. This study explores the prevalence of dysmagnesemia in patients with diabetes mellitus, evaluating correlations with glycemic control, medication use, and diabetic complications.
Methods: A cross-sectional study was conducted at Sultan Qaboos University Hospital, including 316 patients aged 18 and above with type 1 or type 2 diabetes. Data included demographics, medical history, medications, and biochemical parameters. Serum, total Mg levels, were measured, and dysmagnesemia was defined as Mg ≤0.69 mmol/L for hypomagnesemia and ≥1.01 mmol/L for hypermagnesemia.
Results: The prevalence of hypomagnesemia was 17.1%, and hypermagnesemia was 4.1%. Female gender showed an association with hypomagnesemia, while hypermagnesemia correlated with hypertension, chronic kidney disease, and elevated creatinine. Diabetes medications and insulin doses were linked to magnesium status. Multivariate analysis identified independent factors, including female gender for hypomagnesemia and adjusted calcium concentration, eGFR, and CKD presence for hypermagnesemia.
Conclusions: Hypomagnesemia is common among patients with diabetes mellitus; however, hypermagnesemia is associated with microvascular complications.

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CHARACTERISTICS, GLYCAEMIC CONTROL AND OUTCOMES OF CHILDREN AND ADOLESCENTS WITH NEWLY DIAGNOSED TYPE 2 DIABETES MELLITUS IN UAE

Sarah Abdulrahman, Nada Ghazy, Sara Hamwi, Walid Kaplan, Noura Al Hassani
Tawam Hospital, Pediatric Department, Al Ain, United Arab Emirates

Background and Aims: In parallel to the increasing prevalence of childhood obesity worldwide, the incidence of pediatric-onset type 2 diabetes mellitus (T2DM) is also increasing in many countries. In addition, pediatric onset T2DM has been demonstrated to have a more aggressive disease course, with earlier development of diabetes-associated complications and poor response to treatment. Our aim of this study is to describe the characteristics, glycaemic control and complications of children and adolescents with T2DM at time of diagnosis and over the following three years.
Methods: A retrospective observational study, including all children and adolescents 16 years of age or younger who were presenting to Tawam hospital, Al Ain, United Arab Emirates, during Jan2009-Dec2021 as newly diagnosed T2DM, was conducted. Data was collected from the patient's electronic medical records.
Results: Seventy-nine patients were included, 84.8% of them was diagnosed over last 6years. At time of diagnosis, the mean age (SD) were 13.25 (2.10) years with 57% were female and 79.7% were UAE national. Most of patients were having positive family history of T2DM and were asymptomatic at time of diagnosis, 86.1% and 58.2% respectively. The mean body mass index (BMI) Z score was 2.41(0.43) SDS while mean HbA1C was 8.94(2.41) %. The most common complications were hyperlipidemia (35.4%) and nonalcoholic steatohepatitis (NASH) (27.8%). Over the following there years, no much changes in neither BMI Z score SDS (2.28(0.62) at 1year, 2.26(0.54) at 2years and 2.23(0.39) at 3years) nor average HbA1C % (8.06(2.24) at 1year, 8.71(2.46) at 2years and 8.53(2.00) at 3years). Hyperlipidemia and NASH were continued to be the most common complications over this period.
Conclusions: There was much increase in T2DM over last 6 years in our region. Almost similar BMI, average HbA1C and complications over the following 3years post diagnosis which indicate the need to be more aggressive in management of such patients.

PV082 / #1586

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01-03-2024 07:00 - 18:00

EFFECT OF MATERNAL EDUCATION LEVEL ON CARBOHYDRATES COUNTING SKILLS IN CHILDREN WITH TYPE 1 DIABETES

Abeer Alassaf
The University of Jordan, Pediatrics, Amman, Jordan

Background and Aims: Administering appropriate insulin doses based on accurate carbohydrates counting and dietary compliance have significant effect on achieving optimum glycemic control and less incidence of devastating diabetes complications in children and adolescents with type 1 diabetes (T1D). The educational level of mothers of those children, who are usually the main caregiver, plays important role on the effectiveness of conducting the diabetes care plan, including calculation of accurate insulin doses.
Methods: This was a questionnaire-based study using PedCarbQuiz (PCQ) questionnaire for children and adolescents with T1D and their parents to examine the degree of carbohydrates counting and insulin doses calculation skills seen at the pediatric diabetes clinic at Jordan University Hospital, over 12 months, and factors affecting the carbohydrates knowledge score including maternal educational level.
Results: A total of 255 children were enrolled in the study, 124 (48.6%) were males and 131 (51.4) were females. Children had a mean age of 11.4 ± 3.4 years. Age was not correlated with the knowledge score (p= 0.346), while duration of diabetes was significantly negatively correlated with the knowledge score (p=0.001). Results showed that higher maternal education level was associated with higher carbohydrates knowledge score (p= 0.001), but was not associated with better adherence (p= 0.677).
Conclusions: Higher maternal educational level was associated with better knowledge of carbohydrates counting and hence accurate calculation of insulin doses, which resulted in better glycemic control. Children with diabetes, whose mothers had lower educational level, should have special attention during diabetes education with close follow up, to ensure better outcomes.

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A MULTICENTRE STUDY OF NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) DIAGNOSIS USING SERUM BIOMARKERS AMONG DIABETIC PATIENTS WITH AND WITHOUT NAFLD IN UNITED ARAB EMIRATES

Abeer Alhaj
university of sharjah, Diabetes Research Center, sharjah, United Arab Emirates

Background and Aims: Non-alcoholic fatty liver disease (NAFLD) is recognized the commonest chronic liver disease globally. Diagnosis is made either histologically or based on disturbed liver function test or radiological confirmation of liver fatty deposition after excluding secondary causes of liver disease. Diabetes Milletus (DM) is considered one of main risk factors for the disease development. Liver biopsy remains the gold standard for diagnosis . This warranted the search for non-invasive diagnostic tests. We aimed in our study at using combined serum biomarkers, cytokeratin 18 M30 fragment (CK18-M30) and fibroblast growth factor 21 (FGF21) in patients with DM to diagnose NAFLD in United Arab Emirates (UAE) population.
Methods: A multicentre prospective case control study. Screened 350 patients attending the diabetology outpatient clinic at University Hospital of Sharjah and Rashid Hospital of Dubai in UAE. The study was carried out from October 2022 to February 2023. Two groups tested using serum biomarkers (Control group: 31 diabetic patients without NAFLD, second group: 35 diabetic patients with NAFLD) were enrolled in the study. Sociodemographic and laboratory data were extracted from electronic medical records . Biochemistry lab reports within the last 1 year included. An overnight fasting blood samples collected for biomarkers CK18 M30 and FGF-21 analysed using ELIZA kits.
Results: A total of 125 type 2 diabetic patients were enrolled in this study.Of all the patients, 52.8% were female, and 50.4% were considered obese with BMI > 30 kg/m2 and almost the whole cohort 96.8% fell in the elevated waist circumference category. Additionally, 52.0% of the patients had duration of diabetes > 10 years. Dyslipidemia is present in 84.8% of the whole cohort. Uncontrolled Hba1c in 58.1% of the fatty group patients versus 35.9% in non-fatty patients with P-value 0.021 .Table 1 In our data CK-18 M30 levels negatively correlated with AST/ALT ratio without statistical significance. Whereas FGF-21 levels positively correlated with ALT levels with P-value= 0.036 among fatty group and negatively correlated with Ck-18 levels with p-value = 0.047 among fatty group. FGF-21 levels were higher in the fatty group versus non fatty group with p-value=0.03. Table 2 , Graph 1
Conclusions: The Prevalence of NAFLD in T2DM patients of UAE population is 68.8%. Dyslipidemia and uncontrolled Hbac1 were associated with fatty liver disease in T2DM patients with p value = 0.029 and 0.021 respectively. FGF-21 levels positively correlated with NAFLD in T2DM , for which we recommend its use for the diagnosis of Fatty liver in T2DM patients.

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COAGULATION STATE IN PATIENTS WITH TYPE 2 DIABETES DEPENDING ON THE A/C POLYMORPHISM OF THE MTHFR1298 GENE

Said Bakhadirov[1], Barno Shagazatova[2], Anna Alieva[3]
[1]Akfa Medline Clinic, Tashkent, Uzbekistan, [2]Tashkent Medical Academy, Endocrinology, Tashkent, Uzbekistan, [3]Republican Specialized Scientific-and-Practical Medical Centre of Endocrinology, Icu, Tashkent, Uzbekistan

Background and Aims: Methylenetetrahydrofolate reductase is an intracellular enzyme involved in the conversion of homocysteine to methionine in the presence of cofactors - pyridoxine, cyanocobalamin - and a substrate - folic acid. Replacement of adenine with cytosine at position 1298 of the gene for this enzyme leads to a decrease in enzyme activity, which is accompanied by impaired DNA methylation, which leads to a mutagenic effect and the development of conditions associated with hypercoagulation. The purpose of our study was to assess coagulation state in patients with type 2 diabetes mellitus (T2DM) depending on the genotypes of the MTHFR1298 gene.
Methods: We examined 72 patients with type 2 diabetes mellitus (41 of them were male). The genotype of the MTHFR1298 gene was determined by PCR. The coagulogram was determined using the coagulometer.
Results: 33 patients (45.8%) had the AA genotype, 33 (45.8%) had AC genotype, and 6 (8.3%) had CC genotype. Patients with CC and CA genotype had significantly higher level of prothrombin index PTI (108.52±6.09, $p<0.0001$ and 104.74±2.83, $p=0.016$) compared to patients with AA genotype (92.73±3.96%); while the level of procalcitonin, homocysteine and INR was significantly lower in CC genotype (0.112±0.032, $p=0.008$ for procalcitonin, 9.68±1.13, $p=0.003$ for homocysteine, 0.954±0.03, $p=0.029$ for INR) and AC genotype (0.133±0.030, $p=0.024$ for procalcitonin, 13.23±0.86, $p=0.046$ for homocysteine, for INR - not significant - 0.990±0.018, $p=0.069$) compared with patients with the genotype AA (0.240±0.035 for procalcitonin, 18.88±2.64 for homocysteine, 1.04±0.02 for INR). Thrombin time, fibrinogen and D-dimer did not have statistically significant differences between the groups.
Conclusions: The CC genotype of the MTHFR1298 gene was associated with an increase in the level of PTI and a decrease in the levels of procalcitonin, homocysteine and INR in patients with type 2 diabetes.

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GENETIC POLYMORPHISM OF THE METHYLENETETRAHYDROFOLATE REDUCTASE GENE MTHFR 677 MAY BE ASSOCIATED WITH THE DEVELOPMENT OF MACROVASCULAR COMPLICATIONS OF DIABETES MELLITUS

Barno Shagazatova[1], Said Bakhadirov[2], Anna Alieva[3]
[1]Tashkent Medical Academy, Endocrinology, Tashkent, Uzbekistan, [2]Akfa Medline Clinic, Tashkent, Uzbekistan, [3]Republican Specialized Scientific-and-Practical Medical Centre of Endocrinology, Icu, Tashkent, Uzbekistan

Background and Aims: The purpose of our study was to determine the connection between the genetic polymorphism of the methylenetetrahydrofolate reductase gene MTHFR 677 and the risk of developing atherosclerotic diseases in patients with diabetes mellitus.
Methods: 37 patients with type 2 diabetes mellitus and 35 patients without diabetes mellitus as a control group were studied. Of these, 18 patients with diabetes and 28 patients in the control group had no atherosclerotic changes. The association of gene polymorphisms with the presence of atherosclerosis was assessed using logistic regression adjusted for age and gender using the IBM SPSS Statistics program.
Results: the CC genotype of the MTHFR 677 gene was associated with a protective effect against the development of atherosclerosis: Exp(B)=0.839 (95%CI 0.748; 0.941, p=0.03). the CT genotype of the MTHFR 677 gene was also associated with a protective effect against the development of atherosclerosis: Exp(B)=0.895 (95%CI 0.823; 0.974, p=0.01). While the TT genotype did not have a significant effect on the development of atherosclerosis: Exp(B) = 0.992 (95%CI 0.832; 1.183, p = 0.929).
Conclusions: CC and CT genotypes of the MTHFR 677 gene may be associated with a protective effect against the development of atherosclerosis.

PV086 / #150

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TREATMENT OF SEVERE HYPOGLYCEMIA: GLUCOSE NEEDED IS MAXIMUM IN YOUNG CHILDREN

Anna Alieva, Kamil Rakhmankulov, Azamat Kojanazarov
Republican Specialized Scientific-and-Practical Medical Centre of Endocrinology, Icu, Tashkent, Uzbekistan

Background and Aims: Background. Absence of the registered glucagon in the country leaves only intravenous (iv) glucose infusion for treatment of severe hypoglycemia in diabetes patients. The dose of glucose remains low in real clinical practice. **Aim:** to study the amount of glucose needed for full recovery from severe hypoglycemia in patients with diabetes.
Methods: Materials and methods: we performed retrospective study of patients with diabetes admitted to the intensive care unit of the Republican Centre of Endocrinology in 2022 with severe hypoglycemia. The number of patients admitted was 15, mean age was 23.87±14.04 years [min 11, max 66], all of the patients received insulin treatment, only 1 of them had type 2 DM, 14 had type 1 DM.
Results: Results: the mean dose of glucose infused for the full recovery of consciousness was 0.65±0.17 g/kg. Dose of glucose needed had negative correlation with patients' age: r= –0.46. We divided patients into groups aged < 20 and older. Younger patients needed larger doses of glucose: 1.23±0.31 vs 0.43±0.06 g/kg (p=0.024) comparing to the older patients.
Conclusions: Conclusion: in the absence of glucagon iv glucose infusion is the only way to treat severe hypoglycemia, and glucose dose should be adequate, especially in young children.

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HYPERGLYCAEMIC, KETOTIC PRESENTATION OF NEW ONSET DIABETES: A PERSPECTIVE FROM BERMUDA

Andrew Jamieson[1], Sara Al-Mahaynii[2]
[1]Island Health Services, Hamilton, Bermuda, [2]Royal College of Surgeons of Ireland, Manama, Bahrain

Background and Aims: Acute presentations of new onset diabetes are not uncommon in patients of all ages, especially in jurisdictions without easy access to primary care medical services. Presentations to the emergency department may lead to a more detailed assessment than those seen in a primary care setting and within the classic acute presentations of diabetes mellitus, hyperglycaemia with ketosis is one that often causes immediate concern and especially the possibility of insulinopenia and possible type 1 diabetes mellitus. Despite this, a subgroup of patients will not have type 1 diabetes mellitus and will may often be referred to as “Flatbush” type diabetes (FD) . We undertook a retrospective review of cases presenting to a single emergency room with hyperglycaemia to define the nature and outcomes of patients who present with hyperglycaemia and associated ketosis.
Methods: A retrospective evaluation of hospital records of patients with acute hyperglycaemia was undertaken between September 1st 2019 to March 1st 2022. All patients seen in the emergency department were recorded in a single electronic information system and their information passed on to a single endocrinologist for evaluation. Hyperglycaemia was defined as a random blood glucose > 200mg/dl and significant hyperglycaemia defined as a random blood glucose > 500mg/dl. Ketosis was defined as the presence of urine ketones on dipstick > 2+ on testing. Plasma ketone analysis is not available on island. Data sources were checked on three occasions for completeness of data and correlated with patient clinical records. Descriptive statistical data were obtained from SPSS and continuous variables were examined by means of the Student’s t-test for equal variance with a p-value of <0.05 being assumed to be significant.
Results: 27 patients had both significant hyperglycaemia and significant ketosis: cases of type 1 diabetes mellitus were confirmed by the presence of one or more islet cell antibodies, 21 patients were negative for all 4 ICA checked. In type 2 diabetes group, C-peptide levels, weight, age and BMI were significantly higher than in those who were confirmed as having type 1 diabetes. During follow up, none required insulin therapy - mean HbA1c 6.4%, weight reduction 3.86kg (s.d. 4.04kg), p< 0.001 at a median of 13 months.
Conclusions: Patients presenting with hyperglycaemia with ketosis under age 55 should be assessed with C-peptide and islet cell antibodies to ensure correct classification of diabetes type occurs and appropriate treatment, including avoidance of unnecessary insulin therapy, is instituted.

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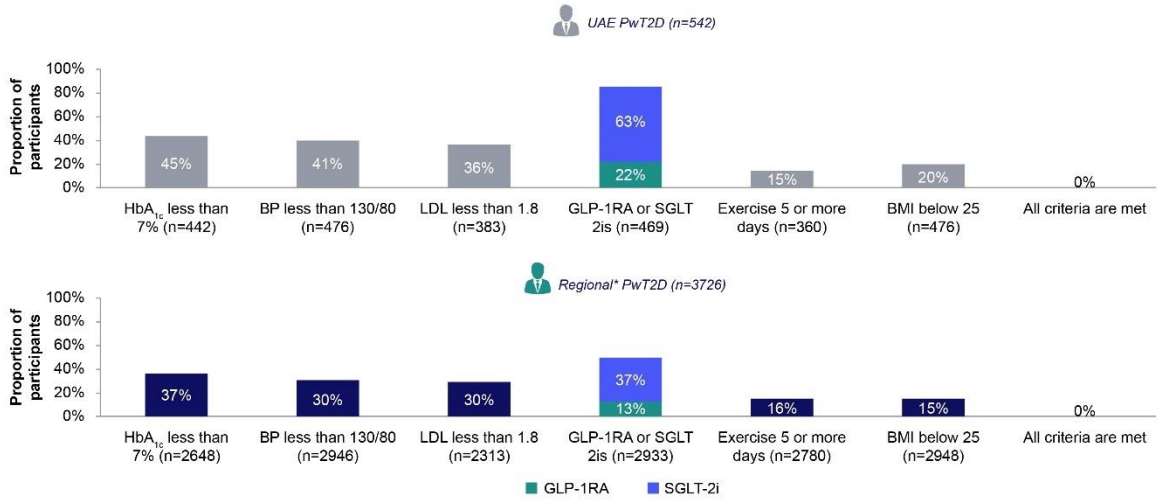
ACHIEVEMENT OF GUIDELINE TARGETS AMONG PEOPLE WITH TYPE 2 DIABETES WITH EASCVD AND HIGH RISK OF ASCVD IN THE UAE: RESULTS OF THE PACT-MEA-UAE COHORT

Wael Almahmeed[1], Alaaeldin Bashier[2], Amrish Agrawal[3], Dinesh Dhanwal[4], Aly Khalil[5], Ghada Awada[6], Haitham Seifeldin[7], Hani Sabbour[8], Hazem Aly[6], Hussam Abusahmin[9], Hussien Heshmat[10], Touseef Azhar[11], Vani Krishna Warrier[12]
[1]Cleveland Clinic Abu Dhabi, Abu Dhabi, UAE, Abu Dhabi, United Arab Emirates, [2]Dubai hospital, Dubai, United Arab Emirates, [3]Fujairah hospital, Fujairah, United Arab Emirates, [4]NMC speciality Hospital, Abu Dhabi, United Arab Emirates, [5]Dubai Hospital, Dahc, Endocrine, Dubai, United Arab Emirates, [6]Novo Nordisk, Dubai, United Arab Emirates, [7]Novo Nordisk, Medical Affairs, Dubai, United Arab Emirates, [8]Mediclinic Hospital, Abu Dhabi, United Arab Emirates, [9]Al qassimi Hospital, Sharjah, United Arab Emirates, [10]Tadawi Hospital, Dubai, United Arab Emirates, [11]Rashid Hospital, Dubai, United Arab Emirates, [12]Aster Jubilee clinic, Dubai, United Arab Emirates

Background and Aims: In people with type 2 diabetes (T2D), atherosclerotic cardiovascular disease (ASCVD) is a major cause of morbidity and mortality. Current international endocrinology and cardiology guidelines and consensus reports recommend SGLT-2i or GLP-1RAs with proven cardiovascular benefits (CV) for the management of T2D associated with CVD/ASCVD. The Prevalence of ASCVD in people with T2D across Middle East and Africa countries (PACT-MEA) study evaluated physicians' compliance with the 2019 ESC guidelines on managing T2D and ASCVD. A subset analysis compared ESC guideline adherence between the UAE and other Middle Eastern and African countries.
Methods: PACT-MEA was a cross-sectional, observational study involving 3726 participants across 7 countries, out of which 542 participants were from the UAE. The participants were classified into CVD risk groups based on ESC guidelines (target organ damage, duration of T2D, and the presence of multiple ASCVD risk factors). Achievement of guideline-recommended targets was assessed by considering HbA_{1c} <7%, BP <130/80 mmHg, LDL <1.8 mmol/L, use of GLP-1RAs or SGLT-2i, a minimum of 30-minute exercise per week, and BMI <25 kg/m^2 in secondary care centers.
Results: According to the PACT-MEA study, in the UAE cohort 0.2%, 62.7%, and 37.1% of participants had moderate, high, and very high 10-year CVD risk estimates, respectively. This cohort when compared to the PACT-MEA cohort exhibited HbA_{1c} <7% (45% vs. 37%), BP <130/80 mm Hg (41% vs. 30%), LDL levels <1.8 mmol/L (36% vs. 30%), BMI <25 kg/m^2 (20% vs. 15%) and performed exercise (15% vs. 16%). None of the study population met all the targets for T2D participants. In the UAE, the use of SGLT-2i (63%) or GLP-1RAs (22%) was higher than that in the Middle East and Africa (SGLT-2i [37%] and GLP-1RAs [13%]), probably due to the inclusion of patients from secondary care centers and awareness of cardiometabolic approaches among UAE physicians (Figure 1).

Figure 1: Comparison of target achievement as per the ESC guidelines between the UAE and the Middle East and African countries.



BMI: Body mass index; BP: Blood pressure; GLP-1RA: Glucagon-like peptide 1 receptor agonist; HbA1c: Glycated hemoglobin; LDL: Low-density lipoprotein; PACT-MEA: Prevalence of Atherosclerotic Cardiovascular disease in people with Type 2 diabetes across Middle East and Africa countries; PwT2D: People with type 2 diabetes; SGLT-2i: Sodium–glucose-like cotransporter 2 inhibitor; UAE: United Arab Emirates.

* Bahrain, Egypt, Jordan, Kuwait, Qatar, South Africa, UAE

Conclusions: In the UAE, less than half of participants with T2D at high or very high 10-year risk estimates for CVD achieved individual targets, and none of them achieved all the recommended targets. The use of GLP-1RAs with proven CV benefits remains low and awareness strategies should be implemented to increase its use. The use of CV-protective antidiabetic medications (GLP-1RAs and SGLT-2i) was higher in the UAE than in other countries, however, most participants with CVD risk were not managed according to ESC guidelines, indicating the need for evidence-based interventions to reduce risks.

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PERCEPTION AND ATTITUDE OF PATIENTS WITH TYPE 2 DIABETES TOWARD INSULIN THERAPY IN THE PRIMARY CARE IN JEDDAH, SAUDI ARABIA

Reem Alshareef[1], Abdullah Alzahrani[2]
[1]King Saud University, Diabetes, Riyadh, Saudi Arabia, [2]king abdulaziz medical city, Diabetes And Family Medicine, jeddah, Saudi Arabia

Background and Aims: Purpose/Background: Our study explores and determines the perception towards insulin among patients with diabetes in the National Guard for Health Affairs (NGHA), Jeddah, the Kingdom of Saudi Arabia (KSA), and aims to gain insight into the causes of refusal. Patients with type 2 diabetes (T2D) are likely to need the use of insulin to keep blood glucose levels within normal range and delay the onset of diabetes-related problems. Individuals with diabetes may be hesitant to begin insulin therapy if they have a negative attitude toward it, which might add to the delay in beginning treatment.
Methods: A cross-sectional study was conducted in the primary healthcare centers of the NGHA in Jeddah, Saudi Arabia. Data were collected through a validated self-administered questionnaire that was divided into three sections, with a total of 32 questions. The first section concerned demographic data, the second part was directed toward insulin users, and the last section was directed toward non-insulin patients.
Results: and conclusion: Our study collected 314 responses. Males constituted 54.8% of participants and insulin users resembled 45.7%. According to our study, important deterrents to starting insulin therapy among non-insulin users included the following: the cost of insulin, the pain associated with injections, the difficulty in maintaining food control while on insulin treatment, scarring at the injection site, and the weight gain impact. Factors that were found to influence compliance to insulin therapy among insulin users included fear of weight gain and self-administration of insulin
Conclusions: Results and conclusion: Our study collected 314 responses. Males constituted 54.8% of participants and insulin users resembled 45.7%. According to our study, important deterrents to starting insulin therapy among non-insulin users included the following: the cost of insulin, the pain associated with injections, the difficulty in maintaining food control while on insulin treatment, scarring at the injection site, and the weight gain impact. Factors that were found to influence compliance to insulin therapy among insulin users included fear of weight gain and self-administration of insulin

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THE USE OF THERMOGRAPHY AND COMPUTER VISION TO DETECT DIABETIC FOOT ULCERS: A VALIDATION STUDY

Meshari F. Alwashmi
amplifai health, Research And Development, Riyadh, Saudi Arabia

Background and Aims: Research Problem: The prevalence of diabetes mellitus and its complications, such as diabetic foot ulcers (DFUs), continue to rise despite medical advancements. Current tools for detecting DFU have limited scalability in terms of time efficiency and practicality, which leads to a high recurrence rate and lower limb amputation, resulting in significant costs. Research Significance: Human Medical Thermography could visualize diseases not readily detected or monitored by other methods, including DFUs. It is relatively inexpensive, compact, portable, involves no ionizing radiation, and requires little electric power. Leveraging Artificial Intelligence (AI) algorithms, specifically, computer vision, can objectively observe the findings and minimize inter-observer variability. The proposed system aims to classify healthy and diabetic patients using thermogram images combined with artificial intelligence, which could lead to early detection and prevention of DFUs, potentially saving limbs and lives. Research Objectives: The purpose of this study is to compare the plantar thermal pattern detected by a computer vision system in adult patients with diabetes without visible foot ulcers to that of healthy individuals without diabetes. The primary outcome is the accurate classification of the thermal images into "healthy" or "having a diabetic foot ulcer".
Methods: This prospective cross-sectional validation study. We will recruit a random sample of 200 patients. Participants will complete a baseline study questionnaire. After completing the questionnaire, the Research Assistant will prepare the participant and complete the thermal imaging. All the data will be saved on a password-protected computer.
Results: The study will be completed Sept 2024. We will have the results ready by the time of the coonference
Conclusions: The proposed study aims to validate a computer vision system that can detect plantar thermal patterns and classify them into healthy individuals and those with diabetes without visible foot ulcers. By comparing the thermal patterns of these two groups, the study seeks to establish the efficacy of the system in identifying early signs of diabetic foot complications. If the proposed system is validated, it can be an efficient and cost-effective tool to predict one's risk of developing foot ulcers, potentially saving limbs and lives. The integration of artificial intelligence and thermal imaging technology can revolutionize the field of diabetic foot care by offering a reliable, objective, and scalable solution.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

ANALYSIS OF RISK FACTORS FOR THE DEVELOPMENT OF NEW-ONSET DIABETES MELLITUS IN COVID-19

Dana Amirkhanova, Elena Laryushina, Ludmila Turgunova, Irina Mekhantseva
Karaganda Medical University, Internal Diseases, Karaganda, Kazakhstan

Background and Aims: Evidence from systematic reviews and meta-analysis suggests an increased risk of new-onset diabetes mellitus (DM) during acute coronavirus infection (COVID-19). Purpose of the study: to investigate the incidence of new- onset diabetes mellitus and to analyze factors associated with the risk of developing diabetes in a cohort of patients hospitalized with COVID-19.
Methods: We retrospectively examined 536 patients in the acute period of COVID-19, hospitalized in infectious diseases hospitals of Karaganda, Kazakhstan in the period from April to July 2021. Factors associated with the risk of diabetes mellitus were assessed by univariate and multiple regression methods. Adjusted odds ratio (aOR) and 95% confidence intervals (95% CI) were calculated for each independent variable.
Results: Among the examined patients diabetes mellitus was detected in 38 people, the frequency of new- onset diabetes mellitus was 7.08%. Type 2 diabetes mellitus was diagnosed in 24 (63.2%) patients, type 1 in 14 (36.8%). There were 15 males (39.5%) and 23 females (60.5%) among the study population. 28 patients (73.7%) had moderate COVID-19 severity and 10 patients (26.3%) had severe COVID-19 severity. According to univariate regression, severity of coronavirus infection, presence of ischemic heart disease, percentage of lung lesions, being in intensive care unit, artificial pulmonary ventilation, antiviral therapy, glucocorticosteroids (GCS), and C reactive protein were associated with the risk of developing DM. After multivariate analysis, COVID-19 severity (aOR 2.719, 95% CI 1.138-6.495; p=0.024), GCS (aOR 4.676, 95% CI 1.536-14.238; p=0.007) remained associated with DM risk. The generated model of DM risk showed a statistically significant level (Chi-square -21.4, p=0, 001).
Conclusions: Thus, significant predictors of diabetes mellitus development in COVID-19 patients in our study, were the severity of coronavirus infection as well as glucocorticosteroid use.

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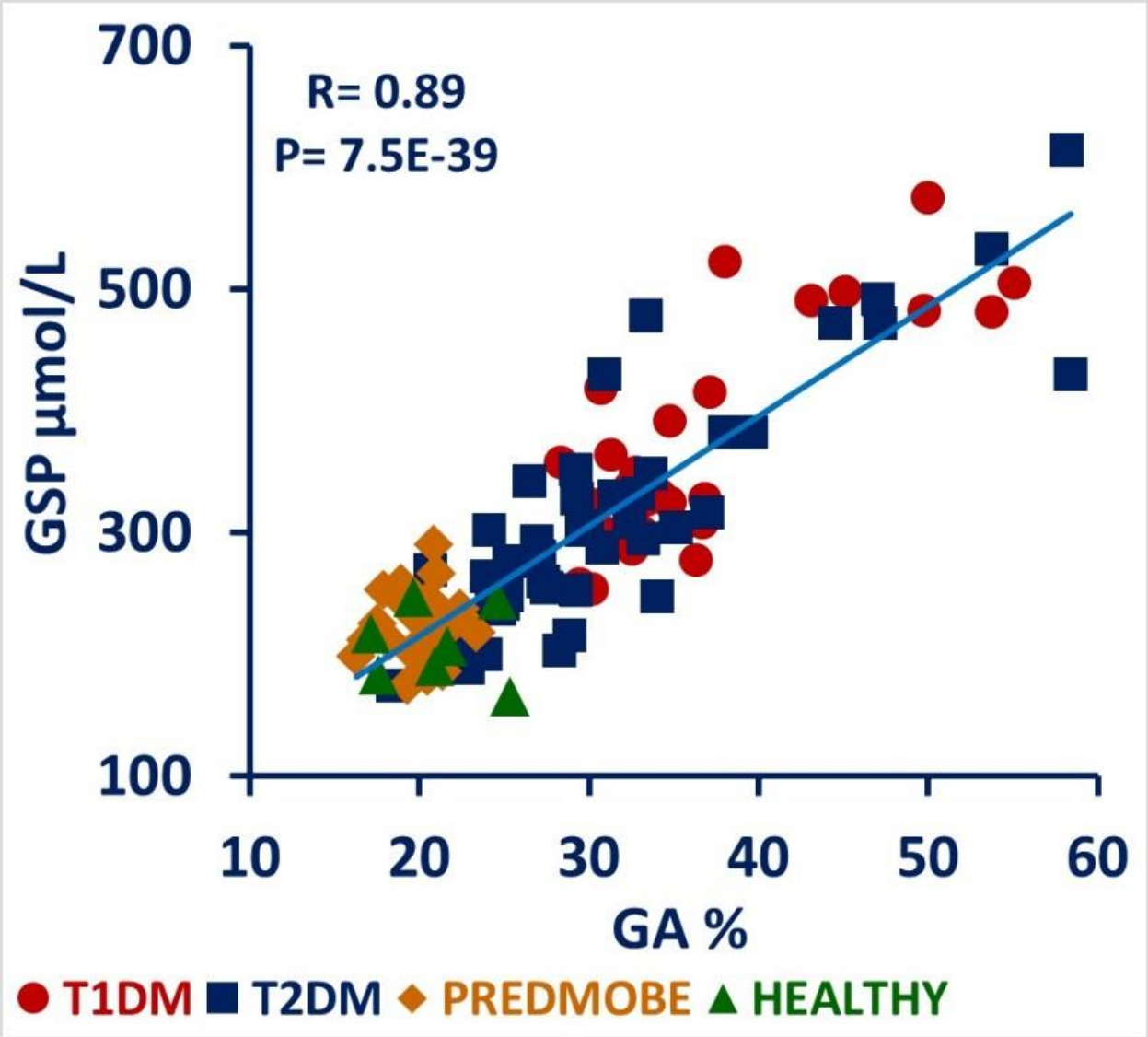
E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

GLYCATED SERUM PROTEIN NBT COLORIMETRIC ASSAY: OLD INEXPENSIVE WINE, BETTER BOTTLE AND POTENTIAL FOR GREATER USE

Madhumati Vaishnav[1], Rajeshwari Ashok[2], Namita Kumari[3], Patnam R Krishnaswamy[3], Padmanabhan Balaram[4], Sathyanarayana Srikanta[5], Navakanta Bhat[3]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [3]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [4]National Center for Biological Sciences, Molecular Biophysics, Bangaiore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India

Background and Aims: Though hemoglobin A1c (HbA1c) is the most extensively studied and implemented glycemic control biomarker world over, glycated albumin (GA) and glycated serum proteins (GSP), are also being evaluated and clinically utilised, though to very limited extent. Glycation of proteins [hemoglobin, serum albumin, serum protein (albumin + globulin)] in diabetes, are influenced differentially (beyond their intrinsic glycability and mean glycemia), by few additional pathologically significant “non-glycemic” factors (insulin resistance and chronic inflammation).
Methods: GSP Nitroblue Tetrazolium (NBT) colorimetric assay was evaluated through 2 studies: GSP Study 1: HbA1c vs GSP Cross Sectional Study [N= 454; Normal Glucose Tolerance (NGT; N= 56); Prediabetes (PREDM; IFG Impaired Fasting Glucose; N= 72); and Type 2 Diabetes (T2DM– not on insulin therapy; N=226)]. GSP Study 2: HbA1c vs GA vs GSP Longitudinal Therapy Study [N=31; 113 evaluations; upto 280 days; T1DM (N=9; 26 evaluations); T2DM (N=9; 45 evaluations); Prediabetes Obesity (PDOB; N=6; 35 evaluations); Healthy Controls (NORM: N=7)]. Hemoglobin, serum albumin and serum protein glycations were measured [HbA1c (HPLC); GSP (NBT colorimetry); GA (mass spectrometry)].
Results: HbA1c vs GSP: There was significant, but “less than perfect” positive correlation between GSP and HbA1c for whole cohort (R=0.78, P=6E-95) (Figure 1) and in T2DM (R=0.77, P= 4E-45). In both NGT and T2DM, hsCRP displayed a significant positive correlation with HbA1c, but not with GSP. In NGT group, HbA1c correlated negatively with serum albumin: globulin ratio, whereas GSP correlated positively. Both GSP and HbA1c were associated with “glomerular hyperfiltration” in T2DM and "glomerular hypofiltration" in NGT (i.e., increased and decreased eGFR, respectively) (Table 1). HbA1c vs GA vs GSP: There was positive correlation (R: 0.89; P: 8E-39) between GSP and GA. HbA1c correlated strongly with both GA (R= 0.89, P= 8E-36) and GSP (P= 0.85, R= 2E-33) for the whole cohort, but relatively more strongly in T1DM (GA: R= 0.93, P= 5E-12; GSP: R= 0.84, P=1E-07), compared to T2DM (GA: R= 0.75, P= 4E-09; GSP: R= 0.79, P= 1E-10). Thus, at every level of HbA1c, T2DM subjects tend to display lower GA and GSP, compared to T1DM (inhibitory effect of insulin resistance on albumin glycation, but not on hemoglobin glycation; chronic inflammation and increased serum globulins; exclusively in T2DM).
Conclusions: HbA1c, GA and GSP are biologically and clinically complimentary and synergistic biomarkers. GSP assay is very economical and easily automatable with high throughput.


R= 0.89
P= 7.5E-39
GSP µmol/L
700
500
300
100
10
20
30
40
50
60
GA %
T1DM
T2DM
PREDMOBE
HEALTHY

		Normal Glucose Tolerance		Type 2 Diabetes	
		HbA1c	**GSP**	**HbA1c**	**GSP**
HbA1c %	R		0.13		**0.77**
	P		0.10		**4E-45**
BMI	R	**0.32**	0.11	0.00	0.11
	P	**4E-05**	0.16	0.99	0.90
FPG	R	0.13	0.14	**0.81**	**0.71**
	P	0.09	0.07	**1E-53**	**1E-35**
hs-CRP	R	**0.29**	0.08	**0.15**	0.10
	P	**0.0002**	0.32	**0.02**	0.13
A: G Ratio	R	**-0.17**	**0.19**	0.09	0.03
	P	**0.03**	**0.01**	0.16	0.69
eGFR	R	**-0.32**	**-0.22**	**0.16**	**0.19**
	P	**4E-05**	**0.006**	**0.01**	**0.005**

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

MASS VENOUS BLOOD HAEMOGLOBIN A1C TESTING AT STREET-CAMPS FOR ENRICHED COMMUNITY PREDIABETES AND DIABETES SCREENING AND CARE: A UNIQUE FIRST-IN-WORLD SOCIAL AND PUBLIC HEALTH EXPERIMENT

Ranjini Krishna[1], Madhumati Vaishnav[2], Leena Lekkala[3], Rajeshwari Ashok[4], Sathyanarayana Srikanta[5], Bhanudev M Bhatt[6], Arokiaswamy Velumani[7], Uma Dayashankar[8], Padmaja Srinivas[9], Samatvam Diabetes Collaborative Study Group[10]
[1]Samatvam: Science and Research for Human Welfare Trust, Public Health Community Medicine, Bangalore, India, [2]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [3]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [4]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [6]Samatvam Trust, Internal Medicine, Bangaiore, India, [7]Mentor Entrepreneur Founder Thyrocare Scientist, Laboratory Medicine, Bangaiore, India, [8]Samatvam Trust, Education And Counselling, Bangaiore, India, [9]Samatvam Trust, Health Care Administration, Bangaiore, India, [10]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Population level HbA1C screening via clinics/hospitals (UK-Biobank) has been shown to reduce diabetes diagnostic delay in adults (Diabetologia. 2023;66(2):300-309). In patients with cardiovascular diseases, HbA1c has been shown to trump oral glucose tolerance testing for diabetes screening (Lancet Diabetes Endocrinol. 2016;4(7):560-562). Also, with reference to point-of-care (POC) HbA1c testing, despite ease of performance, stringent quality assurance and cost-effectiveness challenges remain.
Methods: Between July and September 2023, free voluntary venous blood HbA1c screening was performed on 3245 “walk-in” attendees at 94 morning and evening “street-camps”, in Bangalore. Multiple three member teams (mobile health-van driver, phlebotomist, health-counsellor) implemented the program. Basic demographic information was collected, health literature distributed (Figure 1). HbA1c analyses were performed (HBPro fully-automated HPLC analyser, NGSP/IFCC certified; results within 130 seconds). Results, with recommended actions, were communicated to participants via WhatsApp (with follow-up telephone calls). Cost per HbA1c test: INR 80 /USD 1.
Results: Majority of beneficiaries were from lower/middle socioeconomic strata. Participant groups: (Table 1; % prevalence; PD= Prediabetes; DM= Diabetes; HT/HTN= Hypertension; standard diagnostic criteria utilised). [DM-; HT-] No known diabetes and no known hypertension [DM-; HT+] No known diabetes, but with known hypertension [DM+; HT-] Known diabetes, but no known hypertension [DM+; HT+] Known diabetes and known hypertension Diabetes: In subjects without prior history of diabetes, nearly 40% each met the PD and DM diagnostic cut-offs. In subjects with previously diagnosed diabetes, nearly 30% exhibited poor glycemic control. Hypertension: In subjects without prior history of hypertension, nearly 30-40% each met the HTN stage 1 and 2 diagnostic cut-offs. In subjects with previously diagnosed hypertension, nearly 60% exhibited poor blood pressure control. These “extraordinarily” high prevalences of “pathologies” (compared to systematic random population-based surveys), are obviously biased, likely due to people with history of suffering family members (with resulting heightened disease awareness), preferentially walking into the free street-camps and seeking health screening for themselves.
Conclusions: Mass HbA1c screenings during community outreach events (health fairs, religious

congregations, social parties, public gardens and other recreational facilities etc) can provide excellent opportunities for both: (a) prediabetes and diabetes screening, and (b) raising overall health awareness, especially in underserved populations. Optimum, cost-effective, and pragmatic screening for and diagnosis of important health disorders remains a key aspect of clinical care. Figure

What is my HbA1c?

Samatvam
Diabetes Center
Best Health

The A1C is a blood test you get at the doctor's office or health clinic. It shows:

- Your average blood sugar level for the last 3 months
- Your risk (chance) of having other health problems because of diabetes

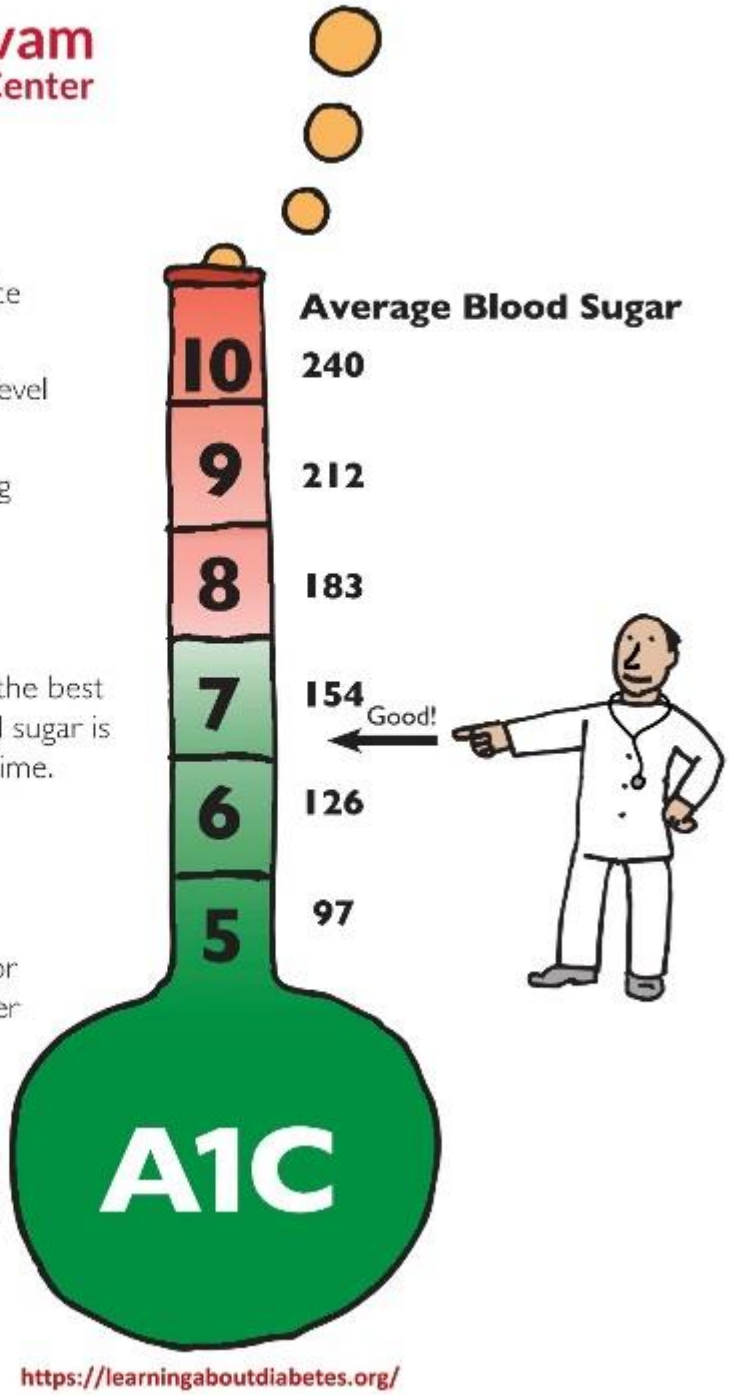
Why do I need it?

Your A1C test results are the best way to know if your blood sugar is under good control over time.

What is a good A1C number ?

7 or lower. You and your doctor or diabetes educator will decide the A1C number (goal) that is best for you.

Be your BEST, Get the TEST!



https://learningaboutdiabetes.org/

1: Table
1:

DM- HT-	NGT	New PD	New DM	Normal BP	New HTN1	New HTN2	HTN Crisis
%	15.3	47.9	36.8	33.0	28.5	35.3	3.3
DM- HT+	NGT	New PD	New DM	Good Control	Fair Control	Poor Control	
%	11.1	45.8	43.2	12.4	25.9	61.7	
DM+ HT-	Good Control	Fair Control	Poor Control	Normal BP	New HTN1	New HTN2	HTN Crisis
%	30.9	39.2	29.9	29.9	26.8	40.2	3.1
DM+ HT+	Good Control	Fair Control	Poor Control	Good Control	Fair Control	Poor Control	
%	24.3	45.3	30.4	14.0	23.4	62.6	

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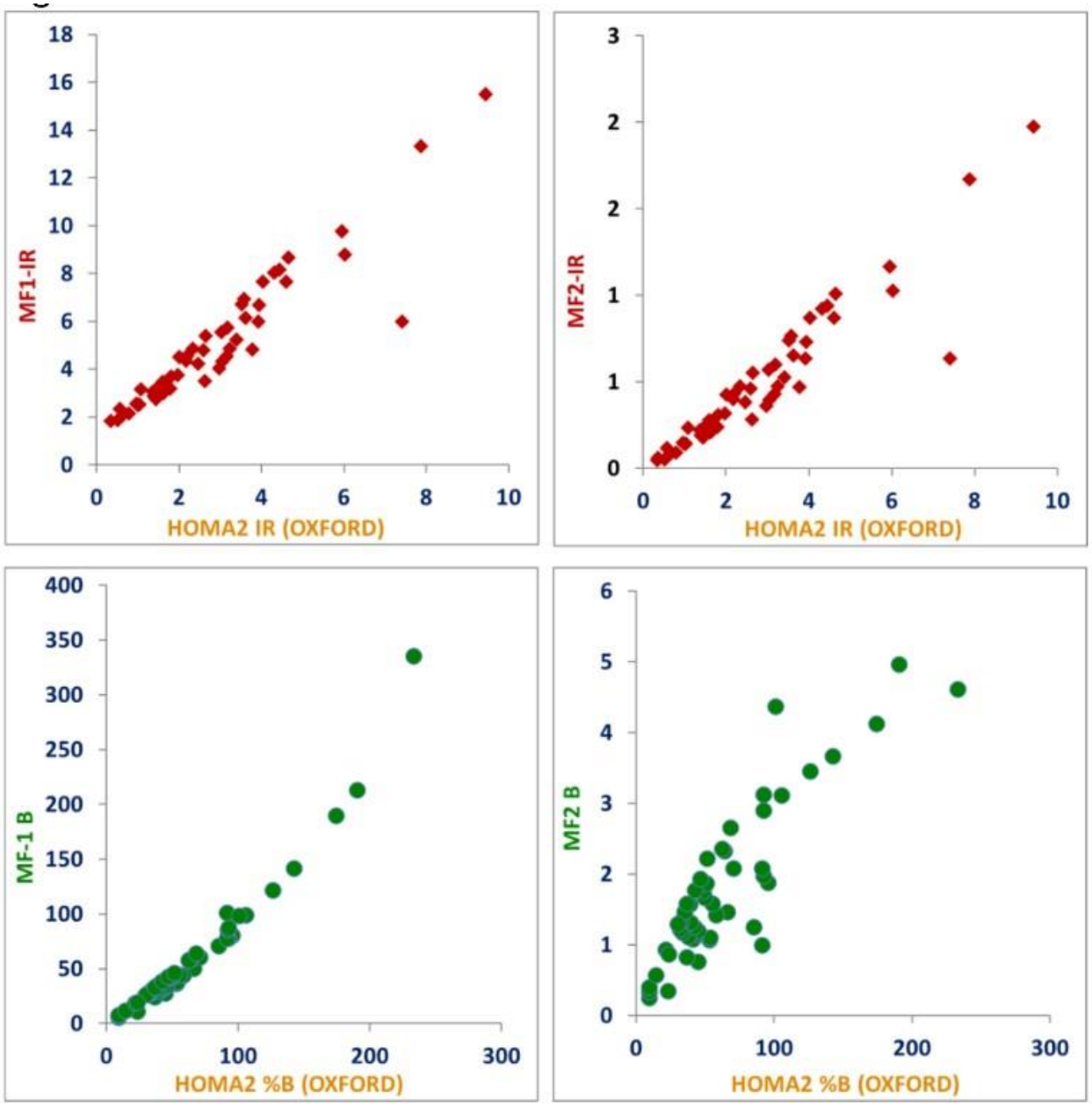
01-03-2024 07:00 - 18:00

COMPARISON OF DIFFERENT C-PEPTIDE BASED INDICES FOR QUANTITATION OF INSULIN RESISTANCE (IR) AND BETA-CELL FUNCTION (BCF) TOWARDS ANALYSING T2D PATHOGENETIC HETEROGENITY

Rajeshwari Ashok[1], Yug Garg[2], Madhumati Vaishnav[3], Sathyanarayana Srikanta[4], Nandini Jayaram[5], Sapna Manjunath[6], Reshma Bv[7], Kamala Thummala[8], Samatvam Diabetes Collaborative Study Group[9]
[1]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [2]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [3]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [4]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [5]Jnana Sanjeevini Medical Center, Diabetes Counselling And Education, Bangalore, India, [6]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [7]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [8]Sagar Hospital, Endocrinology Center, Bangaiore, India, [9]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Type 2 diabetes (T2D) being a pathogenetically heterogeneous syndrome, with varying proportional contributions of insulin resistance (IR) and beta cell dysfunction (BCD), recent reports have examined the sub-classification of T2D based on phenotypical, metabolic characteristics and genetic associations. A refined classification of T2D/ adult-onset diabetes could provide a powerful tool to individualise treatment regimens and identify individuals with increased risk of complications. Towards this, clinically implementable measurement of indices of IR and BCD needs widespread application. In this direction, C-peptide based IR and beta-cell function (BCF) quantitations have been reported to be “superior” to those “traditionally” based on insulin levels. Another major advantage of measuring C-peptide levels is the ability to readily distinguish endogenous insulin levels in the presence of exogenous administration of insulin. Following the initial Homeostatic Model Assessment (HOMA calculator: Oxford, United Kingdom), few modified formulae have also been published (Refer below). We attempted to compare these approaches.
Methods: Based on fasting serum C-peptide measurements, IR and BCF were calculated (Type 2 diabetes: N= 52). A: “Gold Standard” HOMA2 calculator: (University of Oxford, UK; Diabetes Care 2004;27:1487-1495) B: Modified Formula (MF) 1: (Xue Xue Bao Yi Xue Ban. 2004;29(4):419-23; Arch Endocrinol Metab. 2019;63(3):222-227) ---- MF1-IR: Homa-IR (CP)= 1.5 + FPG x FCP/2800 ---- MF1-B: Homa-B (CP-Normal)= 0.27 x FCP/(FPG - 3.5) + 50 ---- MF1-B: Homa-B (CP-DM)= 0.27 x FCP/(FPG - 3.5) ---- FPG (mmol/L), FCP (pmol/L) C: Modified formula (MF) 2: (PLoS One. 2018 May 23;13(5); Cardiovasc Diabetol. 2013 Jan 22;12:21) ---- MF2-IR: CPR-IR= (1080/ FCP × FPG) (reciprocal analysed) ---- FPG (mg/dl), FCP (ng/mL) ---- MF2-B: CPI-B= FCP/FPG × 100 ---- FPG (mmol/L), FCP (mmol/L) Normal reference ranges: Fasting C-peptide derived: (Ranges) FPG mg/dL= 70 to 99; Fasting C-peptide ng/ml= 0.78 to 1.89; HOMA2 IR= 0.5 to 1.4; HOMA2 %B= 99 to 108; HOMA2 %S= 71 to 192. Fasting Insulin derived: (Mean+SD) FPG mg/dL= 90+5; Fasting insulin µU/mL= 8.1+4.2; HOMA2 IR= 1.19+0.60; HOMA2 %B= 106+40; HOMA2 %S= 113+79 [From representative healthy Asian subjects (Normal glucose tolerance and normal weight; N=47; BMI Kg/M2= 19.9+2.1; HbA1c %= 5.35+0.3].
Results: Regression analysis indicated that all the modified IR and BCF indices examined, displayed equivalent performances, comparable to the original HOMA2 calculator (Oxford). (Figure 1; Table 1).
Conclusions: Simple and practical quantitation of IR and BCD could potentially facilitate T2D phenotypic

and metabolic sub-classification and support pathophysiology directed pharmacotherapy. Figure 1:



Table

1:

Index		Insulin Resistance	Beta Cell Function
MF1	R	0.94	0.97
	P	1E-23	2E-33
MF2	R	0.94	0.89
	P	2E-24	7E-18

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

THE COVID-19 AND DYSGLYCEMIA CONNECTION: UNVEILING THE TRUTH

Md. Kamrul Azad, Md Fariduddin, Tahniyah Haq, Shahjada Selim, Sarojit Das, Syed Azmal Mahmood, Cfm Foysal
Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: It is well-established that COVID-19 is more prevalent among individuals with preexisting diabetes and can lead to worse outcomes. However, the question of whether COVID-19 contributes to the development of newly detected dysglycemia, including prediabetes and diabetes, remains uncertain. Given the massive scale of COVID-19 infections globally, the potential for a substantial burden of new cases of dysglycemia is a matter of concern.So study was done to see the frequency and association of newly detected dysglycemia in COVID-19 infection.
Methods: A cross-sectional study was conducted in the Department of Endocrinology at BSMMU, spanned from march 2021 to September 2022. The research enrolled 177 participants, including 88 confirmed post COVID-19 patients and 89 individuals from a non-COVID-19 control group. Comprehensive sociodemographic, clinical, and laboratory data were collected, with a particular focus on oral glucose tolerance tests (OGTT) and HbA1c measurements. Glucose was measured by glucose-oxidase and HbA1c by ion exchange high performance liquid chromatography (HPLC) method.
Results: The analysis revealed that sociodemographic characteristics were similar between the post-COVID-19 and control group. Importantly, there was no significant difference in the prevalence of newly detected dysglycemia between the two groups (COVID-19 vs Control: 35.2% vs 31.5%, P= 0.353). However, a statistically significant association was observed between the severity of COVID-19 and the development of newly detected dysglycemia (OR 3.68, 95% CI 1.03-14.46, P= .04). Age (38.25 ± 9.38 vs 32.5 ± 8.77, P=0.005), oxygen therapy (16.1% vs 1.8%, P=0.019), and steroid therapy (16.1% vs 3.5%, P= 0.037) also showed significant associations with newly detected dysglycemia. However, they didn't show any significance after adjusting with logistic regression. Only age remained an independent predictor of newly detected dysglycemia (OR 1.074, 95% CI 1.008-1.145, P=0.027).
Conclusions: In conclusion, our study finds no significant difference in the prevalence of dysglycemia between post-COVID-19 and control groups. However, a notable association exists between the severity of COVID-19, age, and the development of dysglycemia, with age emerging as the sole independent predictor, emphasizing the need for targeted metabolic monitoring in older individuals post-COVID-19.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

FASTING PROINSULIN LEVELS DECLINE WITH AGE IN NON-DIABETIC INDIVIDUALS

Běla Bendlová, Markéta Vaňková, Daniela Vejražková, Petra Lukášová, Josef Včelák
Institute of Endocrinology, Molecular Endocrinology, Prague, Czech Republic

Background and Aims: Knowledge of the natural changes in the secretion of proinsulin and its processing into functional insulin during the aging process is an integral part of understanding the pathophysiology of the development of glucose tolerance disorders. In type 2 (T2) diabetics, the higher proinsulin levels are well documented, while information describing the situation in non-diabetic normotolerant individuals is scarce. The aim of the study is therefore to outline the dynamics of proinsulin levels in the aging process in people with normal glycemia and good glucose tolerance.
Methods: A total of 1136 individuals (771 women, 365 men) aged 18-90 years (761 were normotolerant with fasting glycemia <5.6 mmol/l and 375 were T2 diabetics) were divided into groups according to age: 1) 18-30 years, 2) 30-45 years, 3) 45-60 years, 4) 60-75 years and 5) 75-90 years. Body composition and levels of fasting blood glucose, proinsulin, insulin, and C-peptide were determined, and the ratios of proinsulin to both insulin and C-peptide were calculated. The homeostasis model of β-cell function (HOMA F) and peripheral insulin resistance (HOMA R) were assessed. The effect of age was assessed using an ANOVA model consisting of the factors sex, age, and sex × age interaction (Statgraphics Centurion v. XVIII software).
Results: In healthy non-diabetic individuals, glycemia, insulin, C-peptide and HOMA R increased in both sexes up to 75 years. On the contrary, proinsulin levels as well as proinsulin/insulin and proinsulin/C-peptide ratios decreased with age up to 75 years. The insulin/C-peptide ratio did not change with age. Regarding proinsulin levels, its highest concentrations were observed at a young age of up to 30 years with a subsequent decrease during middle age and with a different response in the oldest women and men over 75 years of age. In contrast, no decrease in proinsulin with age was observed in T2 diabetics.
Conclusions: Although we showed a moderate increase in insulin and C-peptide secretion in the elderly, which is concordant with naturally decreasing insulin sensitivity even in healthy non-diabetic older people, a cross-sectional analysis of basal proinsulin secretion in normoglycemic individuals showed that its levels were the highest in the youngest age group aged 18-30 years with a subsequent slight age-dependent decrease. AZV-NU20-01-00308, MH-CZ-DRO-(EU00023761)

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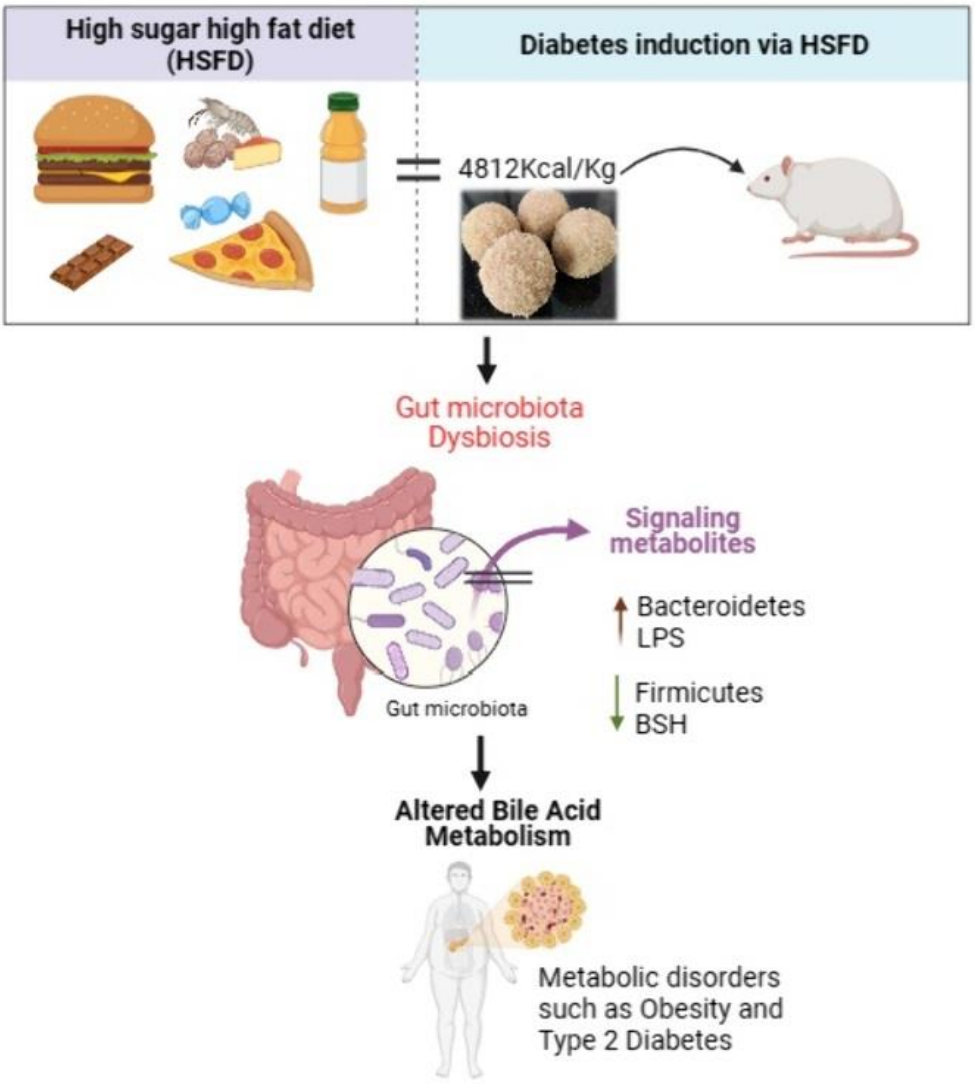
01-03-2024 07:00 - 18:00

THE RECIPROCAL RELATIONSHIP BETWEEN GUT MICROBIOTA AND BILE ACIDS IN HIGH SUGAR HIGH FAT DIET INDUCED TYPE 2 DIABETES

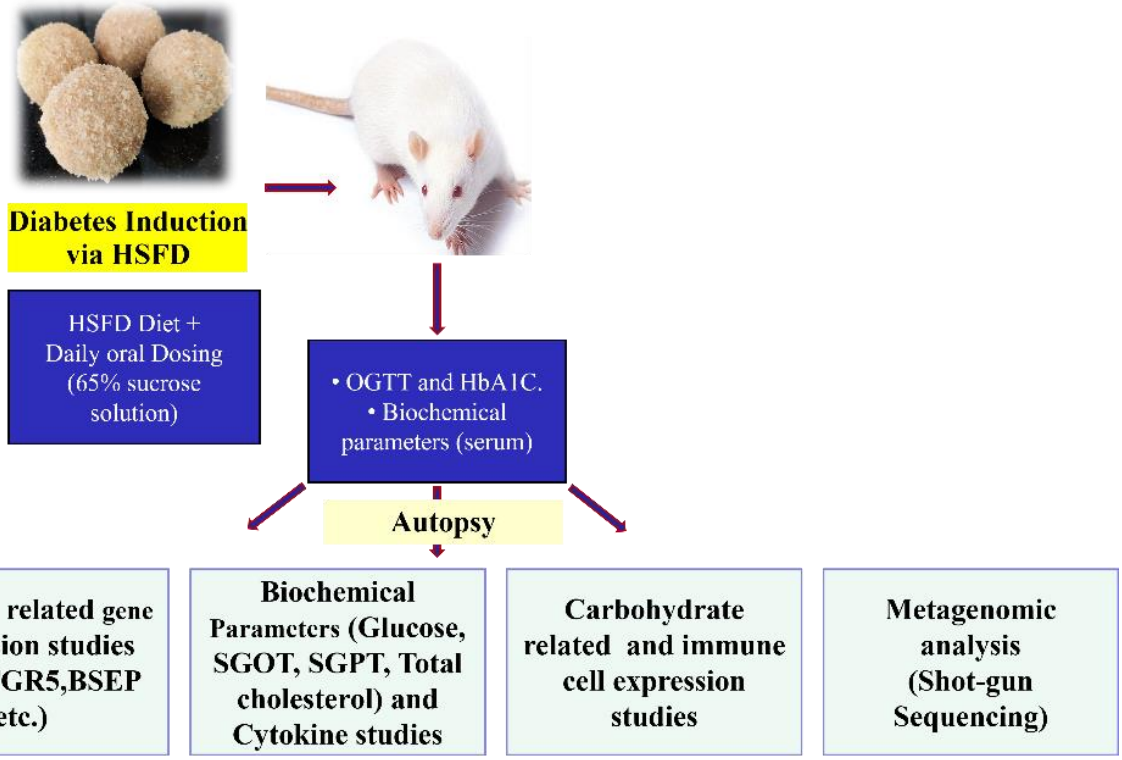
Zeel Bhatia, Sriram Seshadri
Institute of Science, Nirma University, Institute Of Science, Ahmedabad, India

Background and Aims:



Gut microbiota modulates bile acid metabolism, by influencing its modification via bile salt hydrolase (BSH). Hence, any alteration in the gut microbial composition can influence bile acid metabolism, and in turn, bile acids can shape the composition of the gut microbiota since bile acids exhibit anti-microbial properties. Dysbiosis in the gut microbiota has been implicated in the development of many metabolic disorders. Bile acids via its farnesoid X receptors (FXR) regulate glucose homeostasis by affecting insulin secretion, insulin sensitivity, and glucose uptake in peripheral tissues. Insufficient pool of bile acids and reduced population of BSH producing gut microbiota and may together contribute to diseases such as type 2 diabetes. Aim of this study was to induce a diabetic model by providing high sugar high fat diet to the rats. Upon successful induction, we wanted to study bile acid metabolism in control as well as HSFD models in terms of bile acid biosynthesis, metabolism and its correlation with gut microbiota, inflammatory mediators, and overall host health.

Methods: In this study, rats were fed with high sugar, high fat diet (HSFD) to induce type 2 diabetes. After confirmation of diabetes induction by OGTT and HbA1C, the study animals were sacrificed, tissues such as liver and intestine were extracted out, cecal samples and serum samples were collected for analysis. Tissue samples were used for gene expression analysis, serum samples were further processed for biochemical parameters, cytokines and bile acid analysis and cecal samples were extracted from intestine for whole metagenomic
study.



Results: Metagenomic studies of the fecal samples revealed the microflora modulation and dysbiosis in the form of change in firmicutes to bacteriodetes ratio in diabetic condition. Serum TNF-α and IL-17α were higher in diabetic rats suggesting the low-grade inflammation. . Interestingly, total serum bile acids were decreased in the diabetic group, indicating the compositional shift in bile acid pool. Furthermore, the relative gene expression of tissue FXR was observed to be lower when compared to normal control.

Conclusions: From the above results, we could conclude that bile acid metabolism and gut microbiota play crucial role in maintaining the host physiology. Current therapeutic and traditional anti-diabetic drugs treat type 2 diabetes by only altering the glucose metabolism, however new therapeutic interventions

should be explored which should either target the gut microbiota modulation or modulation of bile acid metabolism via targeting its receptors such as FXR to treat such metabolic diseases.

PV098 / #969

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

CASE SERIES: USE OF GLP-1 RECEPTOR AGONIST IN TYPE 1 DIABETES AND SECONDARY DIABETES

Rahila Bhatti
Genesis Healthcare Centre, Diabetes & Endocrinology, Dubai, United Arab Emirates

Background and Aims: GLP-1 RA efficacy is well established in type 2 diabetes; however, not approved for Type 1 Diabetes due to DKA risk. In patients who develop diabetes post pancreatectomy it has been unclear whether combination therapy with GLP-1 RA and basal insulin is effective.
Methods: Three cases presented:
Results: A 47 year old female Type 1 diabetes since age 8 year, hypertension and laser treated proliferative diabetic retinopathy. On 17 units of basal insulin and 18 units of bolus per day (total daily dose, 35 units). Baseline weight 76.8 kg, BMI 31 kg/m^2. On Dexcom G6,TIR 44%, TBR 1%, with GMI 7.7% in June 23. Started on semaglutide and reached 0.5 mg once weekly. 3 months later, she lost 6 kg in weight. Her weight reached 70.9 kg, BMI 28kg/m^2. TIR improved from 44% to 77%, improvement in glycaemic variability with GMI 6.8%. There was no change in insulin requirement. A 32 years old female had partial pancreatectomy in 2017 due to well differentiated neuroendocrine tumour resulting in diabetes. On 18 units basal insulin, 12 units bolus per day (total daily dose, 30 units). Baseline weight 79.5 kg, BMI 30 kg/m^2. TIR was 17%, TBR 1% with GMI 9.3% in June 23. Started on semaglutide and reached 0.5 mg once weekly. 3 months later, lost 5.5 kg in weight. Weight reached 74 kg, BMI 28kg/m^2. TIR improved from 17% to 69%, improvement in glycaemic variability with GMI 7.1%. Her insulin requirement reduced to 15 units basal insulin and 8 units bolus per day (total daily dose, 23 units). A 31 year old female had partial pancreatectomy in 2014 for tumour on tail of pancreas. Histology was benign. 8 years later developed diabetes with HbA1c 9.5%. Baseline weight 65.5 kg, BMI 27.3 kg/m^2. She was on 20 units of basal insulin and 14 units of bolus per day (total daily dose, 34 units). On CGMS Freestyle Libre.TIR 58%, TBR 1%, TAR 42%, GMI 7.4% with glycemic variability of 25.5%. She started on semaglutide and reached 0.5 mg once weekly. 3 months later lost 5 kg in weight. Weight 60.5 kg, BMI 25.2 kg/m^2. Her TIR improved from 58% to 96% with GMI 5.8%. She has completely discontinued insulin.
Conclusions: Semaglutide may exert significant metabolic benefits in patients with established T1DM and secondary diabetes. There is need for a dedicated trial examining potential benefits of semaglutide in T1DM and patients who develop diabetes after partial pancreatectomy.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

LONG-TERM HIGH-FAT DIET DECREASED HEPATIC CONTENT OF INSULIN-DEGRADING ENZYME THROUGH INDUCTION OF OXIDATIVE AND ENDOPLASMIC RETICULUM STRESS IN ADULT MALE RATS

Fateme Binayi[1], Homeira Zardooz[1], Behnam Saeidi[2], Soroush Kalantar[3], Fatemeh Farahani[4]
[1]Shahid Beheshti University of Medical Sciences, Tehran, Iran, Department Of Physiology, School Of Medicine, Tehran, Iran, [2]Shahid Beheshti University of Medical Sciences, Tehran, Iran, Department Of Protein Research Center, Tehran, Iran, [3]Shahid Beheshti University of Medical Sciences, Tehran, Iran, School Of Medicine, Tehran, Iran, [4]Tarbiat Modares University, Tehran, Iran, Department Of Physiology, School Of Medicine, Tehran, Iran

Background and Aims: Long-term consumption of a high-fat diet (HFD) affects the level and activity of insulin-degrading enzyme (IDE), which regulates hepatic insulin clearance and glucose metabolism. IDE is sensitive to the liver's redox and/or endoplasmic reticulum stress status. Accordingly, in the present study, the impact of long-term high-fat diet consumption on the liver's oxidative and endoplasmic reticulum stress, as well as the level of IDE in adult male rats was investigated. The study also examined the effect of 4-phenylbutyric acid, an ER stress inhibitor, on these factors.
Methods: After weaning, male rats were randomly divided into 6 groups, based on the type of diet (normal and high-fat diets) and whether they received the drug or its solvent. Following 20 weeks of diet consumption, 4-phenyl butyric acid (4-PBA, an ER stress inhibitor) and DMSO (Dimethyl sulfoxide) were injected intrapritoneally, twice a day for three days. Blood samples were taken by cutting the end of the tail to measure plasma glucose and insulin levels and calculating the index of pancreatic beta cell secretory function (HOMA-β). Finally, after dissection, the liver and intra-abdominal fat were removed and weighed. The liver was used to measure oxidative and ER stress indices, as well as IDE protein content. Additionally, body weight and food consumption were measured during the test period.
Results: In the animals of the HFD-DMSO and HFD groups, the liver content of MDA and catalase enzyme activity were increased, however the level of GSH in this tissue was decreased. Moreover, HFD led to an increase in the liver protein levels of BIP and CHOP, as well as a significant decrease in its IDE content. These changes were associated with an increase in body weight, food intake, and the weight of intra-abdominal fat and liver. Moreover, the HOMA-β index showed a significant decrease. The values were brought closer to those of the control group by the 4-PBA administration.
Conclusions: Based on this study's results, long-term HFD feeding led to the induction of oxidative and endoplasmic reticulum stress in the liver and an increase in the plasma concentration of glucose. This may have been caused by pancreatic beta cell dysfunction, which was confirmed by the decrease in HOMA-β index. These were followed by the liver IDE content reduction. Considering the low level of plasma insulin in HFD fed rats, the reduction of IDE enzyme content and insulin proteolysis likely prevented further plasma insulin decrement.

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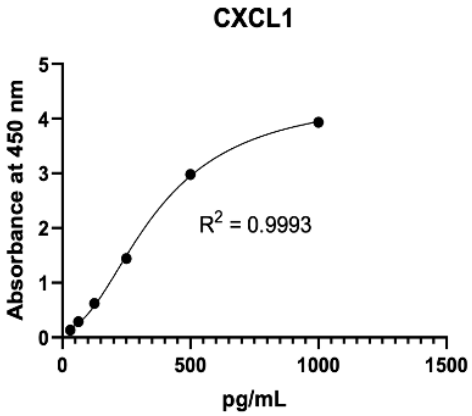
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

ROLE OF CHEMOKINES AS A BIOMARKER OF PERIPHERAL NEUROPATHY AMONGST SUBJECTS WITH TYPE 2 DIABETES IN THE UAE

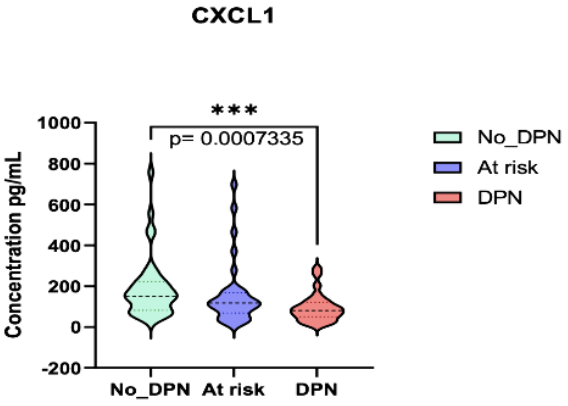
Azza Binhussain[1], Ghaya Juma[2], Alaaeldin Bashier[3], Mohsin Sulaiman[4], Muhammad Hamed Farooqi[1], Bashair M Mussa[5], Salah Abusnana[5]
[1]DAHC, Dubai Diabetes Centre, Dubai, United Arab Emirates, [2]Mohammed Bin Rashid University Of Medicine and Health Sciences, Dubai, United Arab Emirates, [3]DAHC, Dubai Hospital, Dubai, United Arab Emirates, [4]Sharjah Institute of Medical Research College of Medicine University of Sharjah, Sharjah, United Arab Emirates, [5]Unverity of Sharjah, College Of Medicine, Sharjah, United Arab Emirates

Background and Aims: Introduction: DPN is a common complication of diabetes that is associated with very high morbidity, mortality, and psychological and economic cost. Despite that, many subjects with neuropathy are not aware, resulting in a higher risk of amputations. Hence it is essential to detect the disease early by either frequent foot examination, using validated questionnaires, or NCS. Having a biomarker for neuropathy would help with early detection and hence avoidance of complications.
Research area and purpose: This is a case-controlled study that aimed to assess the role of chemokines in relation to DPN in Emirati subjects with type 2 diabetes.
Methods: Purpose of the study: In this case-controlled study, we evaluated the role of chemokines CXCL1, CXCL8, and CXCL13 as biomarkers for early neuropathy in subjects with type 2 diabetes in UAE.
Primary Objective: To identify the specific Chemokines (e.g., CXCL1, CXCL8, CXCL13) that is linked with neuropathy in type 2 diabetes subjects in the UAE.
Secondary Objectives: To identify the clinical characteristics and outcomes of neuropathy in subjects with diabetes in UAE.
Inclusion Criteria: All subjects with type 2 diabetes with or without neuropathy. Ages between 18-70 years will be included.
Exclusion Criteria:Type1 diabetes .Pregnancy.Acutely ill.Neuropathy due to other causes
Results:

Results CXCL1

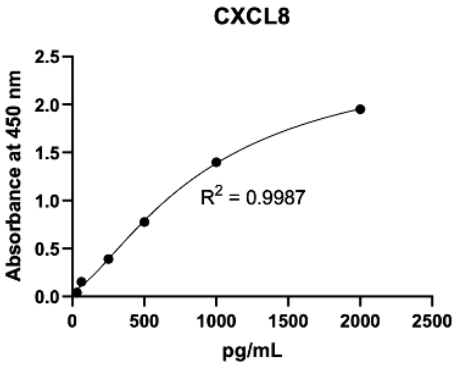


Standard curve for CXCL1

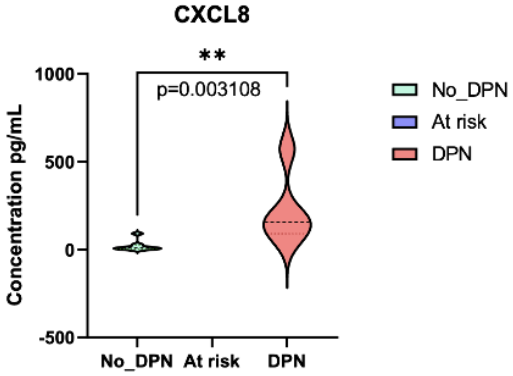


CXCL1 is reduced significantly in DPN group as compared to No DPN

Results CXCL8



Standard curve for CXCL8

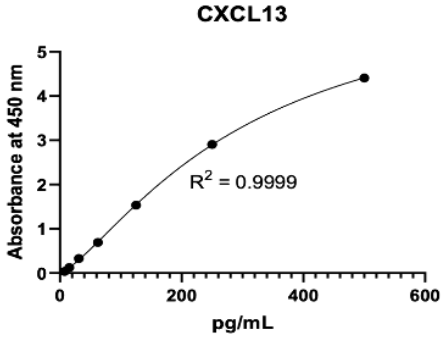


CXCL8 is significantly high in DPN group as compared to No DPN

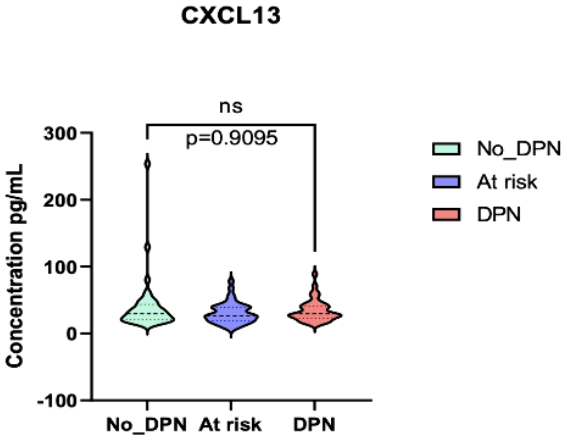
No detection in At risk group

Results CXCL13

Kruskal-Wallis test with Dunn's post hoc test



Standard curve for CXCL13



No significant difference between groups for CXCL13

Results: The total number of subjects recruited was 313. The mean age is 58.46 ±10.79, males represented 53% (n=166), and the mean duration of diabetes was 16.55 ± 8.3. 20.1% (n=63) were found to have neuropathy, while 61.3% (n=192) did not have neuropathy. The rest were at-risk. Age, duration of diabetes, history of IHD, PVD, retinopathy, nephropathy, and creatinine significantly predicted the DPN. After correction for covariance, PVD and retinopathy remained significant. In fact, PVD increased the risk of DPN by eight folds and retinopathy by three folds. CXCL 1 levels were significantly lower in subjects with DPN, while CXCL8 levels were significantly high in the DPN group P=0.0007 and P=0.0031, respectively.

Conclusions: CXCL1 seems to play a protective role in DPN in contrast to CXCL8, which was significantly associated with DPN. The most significant predictor for DPN in our cohort was a history of PVD and retinopathy. Future studies are required to confirm these findings.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

HEMOGLOBIN, SERUM ALBUMIN AND SERUM PROTEIN GLYCATION IN DIABETES: DIFFERENTIAL BIOLOGICAL BEHAVIOR AND CLINICAL COMPLEMENTARITY

Madhumati Vaishnav[1,2], Namita Kumari[3], Reshma Bv[4], Kavitha Muniraj[5], Sathyanarayana Srikanta[6], Vinaya Simha[7], Patnam R Krishnaswamy[3], Padmanabhan Balaram[8], Navakanta Bhat[3]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [4]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [6]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [7]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [8]National Center for Biological Sciences, Molecular Biophysics, Bangaiore, India

Background and Aims: Beyond mean glycemia and metabolic turnover and intrinsic glycability of the corresponding proteins, glycation of hemoglobin, serum albumin, serum protein (albumin + globulin) in diabetes, appears to be influenced differentially, by few additional “non-glycemic” factors. They include, insulin resistance and chronic inflammation, with potential implications in diabetes care.
Methods: In an exploratory “proof-of-concept” longitudinal therapy study, four informative groups of subjects were evaluated (type 1 diabetes, type 2 diabetes, prediabetes-obesity and healthy; 31 subjects, 113 evaluations, upto 280 days). Hemoglobin, serum albumin and serum protein glycations were serially measured [(HbA1c/ HPLC); glycated albumin (GA/ mass spectrometry) and glycated serum protein (GSP/ colorimetry)]. Clinical and biomarker correlations were performed.
Results: Initiation / intensification of diabetes therapy led, as expected, to parallel improvements in glycation of hemoglobin, serum albumin and serum protein in both T1DM and T2DM, with higher and significant improvements in T2DM (P: HbA1c= 2E-5; GA= 2E=6 and GSP= 1E-6) (Figure 1). HbA1c correlated very strongly with both GA (R= 0.89, P= 8E-36) and GSP (P= 0.85, R= 2E-33) for the whole cohort, but qualitative and quantitative differences existed between T1DM and T2DM. The positive correlations of HbA1c versus GA and GSP were relatively stronger in T1DM (GA: R= 0.93, P= 5E-12; GSP: R= 0.84, P=1E-07), compared to T2DM (GA: R= 0.75, P= 4E-09; GSP: R= 0.79, P= 1E-10) (Figure 2). At every level of HbA1c, T2DM subjects tended to display lower GA and GSP, compared to T1DM subjects. Accordingly, T2DM, in comparison with T1DM, had significantly lower GA/A1c ratio (P= 0.02), as well as, GSP/A1c ratio (P= 0.005). For diabetes subjects, renal function (eGFR) showed equivalent and significant positive correlations with HbA1c, GA and GSP (HbA1c: R= 0.58, P= 0.002; GA: R= 0.60, P= 0.002; GSP: R= 0.55, P= 0.005), likely reflecting “glomerular hyperfiltration”.
Conclusions: HbA1c, GA and GSP are biologically and clinically complimentary and synergistic biomarkers, with some differential behaviour in T1DM versus T2DM. Accordingly, HbA1c primarily indicates "pure" mean glycemia, whereas GA and GSP reflect mean glycemia, as well as, likely insulin resistance and chronic inflammation. GSP assay is very economical and easily automatable with high throughput. Figure 1: Magnitude of Hemoglobin, Albumin and Serum Protein Glycation (Hba1c, GA And GSP) In Study Groups at Baseline and During Longitudinal Therapy Follow Up. (Baseline= First Darker Colored Bar; Follow Up= Second Lighter Colored
Bar).

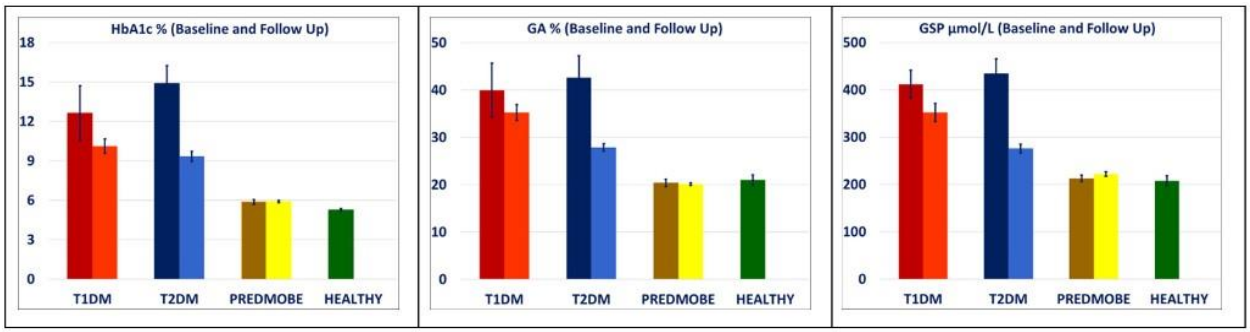
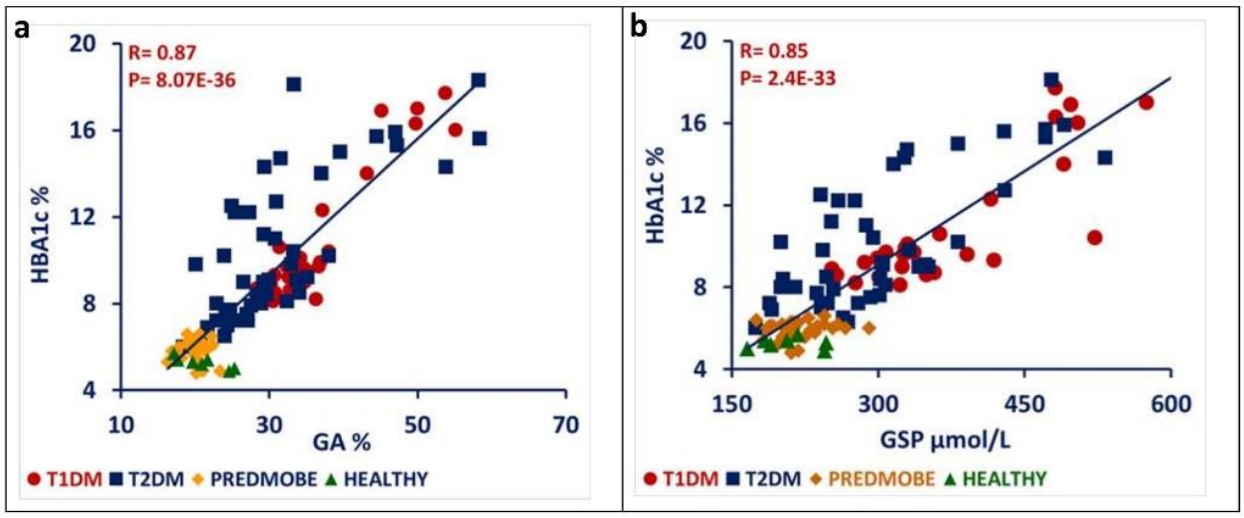


Figure 2: HbA1c correlations with GA and GSP for the whole cohort.



PV102 / #1226

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

DIABETOGENESIS AND SUBCLINICAL EXOCRINE PANCREATIC DYSFUNCTION: DETERMINANTS AND CLINICAL IMPLICATIONS

Madhumati Vaishnav[1,2], Siddhartha Dinesha[3], Yug Garg[4], Vinaya Simha[5], Kavitha Muniraj[6], Leena Lekkala[6], Reshma Bv[7], Sathyanarayana Srikanta[8], Navakanta Bhat[9], Samatvam Diabetes Collaborative Study Group[10]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Sri Chamundeshwari Medical College Hospital and Research Institute, Internal Medicine, Bangalore, India, [4]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [5]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [6]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [7]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [8]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [9]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [10]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Bidirectional intricate interactions exist between endocrine and exocrine pancreas at physiological, pathological and clinical levels. The clinical relevance and consequences of the reported “subclinical” exocrine pancreatic insufficiency in type 1 and type 2 diabetes need further examination.
Methods: We evaluated the levels and correlates of serum amylase and serum lipase in a large cohort of subjects (N=407) with normal glucose tolerance (NGT), prediabetes (PREDM) and type 2 diabetes (T2DM) - all with “normal” renal function (eGFR >60ml/min/1.73m^2). Glycated hemoglobin (HbA1c-HPLC), glycated serum proteins (GSP- NBT colorimetry), insulin resistance (HOMA IR), beta cell dysfunction (HOMA B%), renal function (estimated glomerular filtration rate eGFR) and other metabolic and inflammatory biomarkers were also characterized. Data from an additional group of subjects with Diabetes Chronic Kidney Disease (DCKD; eGFR <60 ml/min/1.73m2) (N= 88) were also comparatively evaluated.
Results: Serum amylase and serum lipase are differentially regulated by adiposity and hyperglycemia. Serum amylase is more strongly influenced by increasing adiposity and insulin resistance (suppressive effect: down-regulation), and (b) serum lipase is more strongly influenced by increasing hyperglycemia (stimulatory effect: up-regulation), a consequence of progressive beta cell failure and insulin deficiency. Increasing renal dysfunction (decreasing eGFR) is associated with higher levels of both pancreatic enzymes, with greater effect on serum amylase, than on lipase. Serum amylase and lipase exhibited informative correlations with various other metabolic and inflammatory biomarkers.
Conclusions: Serum amylase and serum lipase levels are determined, often differentially, by multiple potential pathogenetic factors, including adiposity, insulin resistance, insulin deficiency, hyperglycemia and renal dysfunction. Both relative hypoamylasemia / hypolipasemia and relative hyperamylasemia / hyperlipasemia appear to have pathologic connotations. Awareness and interpretation of these diverse influences on serum levels of pancreatic enzymes, especially in diabetes and diabetes chronic kidney disease, are essential for best clinical assessments and outcomes. Table 1: Serum amylase and lipase levels across the entire study cohort [N= 407] (Mean±SD). BMI Strata: Normal Weight (NW= 103), Overweight (OW= 82) and Obese (OB= 222). Glucose Tolerance Groups: Normal Glucose Tolerance

(NGT= 133), Prediabetes (PREDM= 65) and Type 2 Diabetes (T2DM=209). Diabetes Chronic Kidney Disease (DCKD= 88). "True Healthy" (TH)= Normal Glucose Tolerance + Normal Weight (NGT+NW= 42).

Groups	BMI Kg/M²	HbA1c %	S Amylase U/L	S Lipase U/L	HOMA2 IR	HOMA2 %B	HOMA2 %S
BMI strata							
NW	20.4±2.0	6.5±1.7	**85±40**	49±24	1.9±4.1	80±47	93± 66
OW	24.0±0.6	6.8±1.7	**72±28**	54±29	1.9±1.2	90±49	71±46
OB	29.7±4.0	7.0±1.9	**68±32**	48±27	2.5±1.5	104±68	53±30
P values							
NW vs OW	**2E-16**	0.23	**0.01**	0.25	0.93	0.16	**0.01**
NW vs OB	**2E-16**	**0.02**	**1E-4**	0.66	**0.05**	**0.001**	**8E-13**
OW vs OB	**2E-16**	0.40	0.44	0.10	**0.002**	0.08	**1E-4**
Glucose tolerance groups							
NGT	25.6±5.5	5.5±0.4	72 ± 26	**41 ± 15**	1.7 ± 1.1	135±69	80±56
PREDM	26.6±5.3	5.8±0.4	67 ± 24	**42 ± 14**	2.3 ± 1.3	110±44	60±41
T2DM	26.4±4.8	8.0± 1.9	76.± 41	**58 ± 34**	2.6 ± 3.1	65±39	60±41
P values							
NGT vs PREDM	0.22	**2E-6**	0.14	0.65	**0.0008**	**0.008**	**0.009**
NGT vs T2DM	0.16	**5E-16**	0.31	**1E-7**	**0.001**	**2E-16**	**2E-04**
PREDM vs T2DM	0.78	**4E-16**	0.07	**3E-4**	0.45	**2E-13**	0.93
Diabetes Chronic Kidney Disease							
DCKD	23.6±4.4	6.4±0.9	**108 ± 44**	**77 ± 32**			
"True Healthy" (TH)							
NGT+NW	19.9±2.1	5.4±0.3	**82 ± 24**	**42±16**	1.3 ± 0.6	110±39	105±78

Table 2: Serum amylase and lipase correlations with BMI, HbA1c, HOMA2 IR (insulin resistance), HOMA2 %B (beta cell dysfunction) and HOMA2 %S (insulin sensitivity) and renal dysfunction (eGFR; serum creatinine), hs-CRP and age [Whole cohort: N= 407].

Whole Cohort (407)		BMI	HbA1c	HOMA2 IR	HOMA2 B%	HOMA2 S%	eGFR	S Creat	hs-CRP	Age
Serum amylase vs	**R**	**-0.23**	-0.00	**-0.12**	-0.09	**0.11**	**-0.19**	**0.17**	**-0.10**	**0.20**
	P	**3E-06**	0.88	**0.02**	0.06	**0.02**	**0.0001**	**0.0004**	**0.05**	**4E-05**
Serum lipase vs	**R**	-0.09	**0.26**	-0.00	**-0.19**	-0.06	**-0.21**	**0.10**	**-0.10**	**0.30**
	P	0.08	**1E-07**	0.92	**0.0001**	0.26	**2E-05**	**0.05**	**0.04**	**7E-10**

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01-03-2024 07:00 - 18:00

MITOCHONDRIAL CYTOPATHY (M.3243A>G) WITH DIABETES MASQUERADING AS "LATE-ONSET" SLOWLY PROGRESSIVE NON-AUTOIMMUNE TYPE 1 DIABETES

Diya Manjunath[1], Kavitha Muniraj[2], Reshma Bv[3], Suvyaktha Simha[4], Yug Garg[5], Madhumati Vaishnav[6], Sapna Manjunath[7], Leena Lekkala[2], Sathyanarayana Srikanta[8]
[1]Vellore Institute of Technology, Biotechnology, Vellore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [3]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [4]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [5]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [6]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [8]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India

Background and Aims: Mutations in mitochondrial DNA (mtDNA) associate with various disease states. A few mtDNA mutations strongly associate with diabetes, with the most common mutation being the A3243G mutation in the mitochondrial DNA-encoded tRNA (Leu,UUR) gene. Mitochondrial diseases are rare, heterogeneous conditions affecting organs dependent on high aerobic metabolism. Presenting symptoms and signs vary depending on the mutation and mutant protein load. The percentage of mutated mtDNA decreases in blood as patients get older. We describe an Asian Indian male with mitochondrial cytopathy (m.3243A>G), with diabetes masquerading as "late-onset" slowly progressive non-autoimmune type 1 diabetes.
Methods: Age 25: Diagnosis: "Type 2 Diabetes" (T2D) (USA). HbA1c 5.9% with metformin and pioglitazone. Age 35: Diagnosis: "Type 1 Diabetes" (T1D) (Germany). HbA1c increased to 9.0%, blood glucoses 300-400 mg/dl and serum C-Peptide fasting 0.8 mg/ml (0.8-4.2). Never ketonuria documented. Autoantibodies all negative: GAD, IA2, ZnT8. Shifted to basal bolus insulin, with continuous glucose monitoring. Age 38: Returned to India. Referred to Samatvam Endocrinology Diabetes Center. Diagnosis: Possible "MODY/ Atypical Diabetes/ Monogenic Syndromic Diabetes". Clinical features: Triangular face, dysmorphism, squint, broad forehead, low-set ears, bushy eyebrows, hypertrichosis, arachnodactyly, thumb and wrist sign positive, high arched palate, flat chest, short stature. Glaucoma and primary infertility, cause undetermined. BMI 19 kg/m2. Family history: Adult-onset diabetes in father and mother. Investigations: Autoantibodies all negative: GAD, IA2, ZnT8 and ICA. Serum C-peptide fasting 1.40 and 60-min post glucose 2.99 ng/ml.
Results: Genetic testing: Maturity-Onset Diabetes of the Young (MODY) and neonatal diabetes panel genes and whole mitochondrial genome sequencing: A heteroplasmic pathogenic variation in the MT-TL1 gene (m.3243A>G; Depth: 972x) was detected (This mutation has been reported to be associated with maternally inherited diabetes and deafness). Treatment: Metformin and vildagliptin were started and insulin tapered and discontinued. Glycemic control excellent.
Conclusions: Diabetes mellitus is the most common endocrinopathy associated with mitochondrial cytopathies, and recognition of these patients is important due to its impact on management and screening of family members. A gradual development of pancreatic β-cell dysfunction upon aging, rather than insulin resistance, is the main mechanism in developing glucose intolerance. Atypical diabetes features, strong family history and negative islet-cell autoantibodies should prompt evaluation for

monogenic and syndromic causes of diabetes. Early diagnosis is important for optimal early management and appropriate follow-up because of the broad spectrum of possible manifestations. Studies from Europe have described mitochondrial diabetes prevalence rates of >5% in patients presenting with T2D phenotype.

PV104 / #1440

E-Poster Viewing
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EFFECTS OF ADDING LUSEOGLIFLOZIN TO EXISTING ANTIDIABETIC TREATMENT IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A SINGLE CENTRE RETROSPECTIVE OBSERVATIONAL STUDY

Shu Teng Chai, Meng Loong Mok, Norazwaniah Salehun
Hospital Sultanah Aminah, Endocrinology Unit, Department Of Medicine, Johor Bahru, Malaysia

Background and Aims: Addition of luseogliflozin to various oral antidiabetic drugs (OADs) as well as insulin monotherapy have been shown to improve glycaemic control and reduce body weight in Japanese patients with type 2 diabetes mellitus (T2DM). Luseogliflozin study in Malaysian population, however, is scarce. This study aimed to assess the real-world effects of luseogliflozin, as an add-on to existing antidiabetic treatment, on glycaemic control, blood pressure and body weight of T2DM patients in a tertiary hospital in southern Peninsular Malaysia.
Methods: Data from clinic notes of T2DM patients, who were started on luseogliflozin 2.5mg daily in 2022 and continued taking it for at least three months after commencement, were analysed. The primary endpoints were change in glycated haemoglobin (HbA1c), blood pressure and body weight from baseline to three months after initiation of luseogliflozin.
Results: Fifteen patients [median (interquartile range, IQR) age 53 years (30, 63); 60% female; 80% Malay, 13.3% Indian, 6.7% Chinese] were studied. Six (40%) had T2DM for more than 10 years. Median (IQR) HbA1c at baseline was 9.0% (6.7, 10.3). Five patients (33.3%) received OADs only while the rest received combined OADs and insulin prior to the initiation of luseogliflozin. Ten patients (66.7%) were treated for hypertension. Median (IQR) systolic and diastolic blood pressure were 138 mmHg (123, 147) and 79 mmHg (75, 84), respectively. All except one were obese with a median (IQR) body mass index (BMI) of 34.1 kg/m^2 (30.4, 36.4). Three months after commencement of luseogliflozin 2.5mg daily, HbA1c and body weight significantly reduced from baseline with median (IQR) changes of -0.4% (-1.0, -0.2) [p=0.035] and -1.1kg (-4.3, -0.2) [p=0.035], respectively. There were no significant changes in both systolic and diastolic blood pressure, as well as estimated glomerular filtration rate (eGFR). None reported hypoglycaemia, urinary tract infections, genital infections or pollakiuria during the three-month period.
Conclusions: Glycaemic control and body weight significantly improved, three months after addition of luseogliflozin 2.5mg daily to existing antidiabetic therapy, in T2DM patients in a real-world setting.

PV105 / #1016

E-Poster Viewing
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STUDY OF THE DIFFERENCES IN GENE EXPRESSION AND DNA METHYLATION IN PATIENTS WITH POLYCYSTIC OVARY SYNDROME (PCOS): A CASE-CONTROL STUDY FROM SHARJAH/UAE

Woroud Chaker
Hospital, Dietetics, Sharjah, United Arab Emirates

Background and Aims: Polycystic ovarian syndrome (PCOS) is a multifactorial, complex, and heterogeneous disease which is considered the most prevalent endocrine condition among women of reproductive age. Epigenetic changes may have a direct impact on clinical symptoms and PCOS development on a genetic basis. There is a scarcity of studies that have examined differences in gene expression of genes regulating disease factors between women diagnosed with PCOS and healthy women. The study attempted to find out the distinct genetic and epigenetic (DNA methylation) characteristics related to the aspects of the disease.
Methods: A case-control study was conducted among two groups included: 66 patients diagnosed with PCOS and 69 healthy controls. Anthropometrics were taken by the validated body composition machine Tanita®. Differences in gene expressions (FTO, Nrf2, DENND1A) were measured using GoTaq® qPCR Master Mix (Promega, Cat No. A6001) to perform Real Time-PCR, Ct values were used to calculate Expression Fold Change 2^-ΔΔCt.
Results: Our study showed a significant upregulation/downregulation in the expressions of the three genes among PCOS in comparison with their healthy counterparts. The indicated two genes (FTO, DENND1A) were upregulated, while one was downregulated (Nrf2) among the patients with PCOS in comparison with their counterpart healthy controls.
Conclusions: Conclusion: Adult women with PCOS have distinct genetic expressions that predispose the progression of the disease. This highlights the urge to involve PCOS in personalized medicine and personalized nutrition approaches in the management of this disease. More future well-controlled, longitudinal intervention studies are warranted to find out the effect of different dietary and lifestyle interventions in the management and prevention of PCOS among women in the UAE.

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PV106 / #428

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IS THE ASSOCIATION BETWEEN BMI AND INSULIN RESISTANCE IN WESTERN POPULATIONS A UNIVERSAL TRUTH? A PRELIMINARY ANALYSIS OF DATA FROM SINT MAARTEN

Naira Chobanyan[1], Earl Best[2]
[1]American University of the Caribbean School of Medicine, Clinical Medicine, Philipsburg, Sint Maarten (Dutchpart), [2]American University Of the Caribbean School of Medicine, Clinical Medicine, Philipsburg, Sint Maarten (Dutchpart)

Background and Aims: BACKGROUND: Diabetes mellitus is a leading cause of death and disability worldwide. In Western populations, body mass index (BMI) has consistently been associated with insulin resistance. However, the association between BMI and insulin resistance in Afro-Caribbean populations is unknown. **Aims:** to find a correletaion between BMI and insuline resistance n the Caribbean population
Methods: METHODS: This study used data from community outreach health fairs in Sint Maarten. Participants were given free health consultations, including vital signs and blood glucose (BG) levels. BG data was adjusted by fasting or post-prandial state and sorted into normal, pre-diabetic, and diabetic groups based on American Diabetic Association guidelines. BMI data was split into normal (18.5-24.9), overweight (25-29.9), and obese (30+) groups. We then conducted Pearson's chi-squared test using Stata version 13.1 (Stata Corporation).
Results: RESULTS: 131 of 140 participants had data for both BG and BMI. The majority of participants had normal BG (72%, n=93), with 15% (n=21) with glucose intolerance and 13% (n=17) with diabetic range BG. Most participants were overweight/obese, with 27% (n=35) having normal BMI, 39% (n=51) overweight, and 34% (n=45) obese. Pearson's chi-squared test showed no association between BG and BMI. [$X^2(4, n=131)=2.74, p=0.60$].
Conclusions: CONCLUSION: We observed no association between BG and BMI. While further research is needed, this study suggests that well established risk factors for diabetes in Western populations may not be universally applicable. This would be important clinical information for physicians caring for Afro-Caribbean populations, allowing them to provide better care.

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OBSTETRIC MORBIDITY IN POORLY CONTROLLED DIABETES - A CASE OF PERIPARTUM CARDIOMYOPATHY

Patrícia Cunha Brito, Valentim Lopes, Rita Pinto Ribeiro, Maria Lopes Pereira, Ana Catarina Matos, Olinda Marques
Hospital de Braga, Endocrinology, Braga, Portugal

Background and Aims: Peripartum cardiomyopathy (PPCM) is a rare but serious cause of heart failure that occurs between the late stages of pregnancy and the early months postpartum. It presents with classic signs and symptoms of heart failure, but a high level of suspicion is required for diagnosis, as some of these symptoms may be mistaken for the normal progression of pregnancy. While the exact cause of PPCM remains uncertain, several risk factors have been identified, including pre-existing diabetes and pre-eclampsia.
Methods: The authors describe the case of a 28-year-old woman with a history of type 1 diabetes since the age of 9. She had chronic poor metabolic control with multiple hospitalizations for diabetic ketoacidosis, and various complications including retinopathy, polyneuropathy, and diabetic kidney disease. During pregnancy, she showed an improvement in her metabolic profile. At 34 weeks of gestation, she developed pre-eclampsia and underwent an emergency cesarean section. Seven days after delivery and three days after hospital discharge, she presented to the emergency department with symptoms of dyspnea, orthopnea, and lower extremity edema. She was admitted to the Cardiology service for acute heart failure requiring non-invasive mechanical ventilation. Echocardiography revealed moderate depression of left ventricular systolic function (LVSF 35-40%), mitral insufficiency, and signs of right ventricular overload with pulmonary hypertension. Magnetic resonance imaging confirmed non-ischemic dilated cardiomyopathy with global hypokinesia. After ruling out other causes of heart failure, the diagnosis of PPCM was established, and she was initiated on prognosis-modifying therapy with four different pharmacological classes (sacubitril-valsartan, bisoprolol, and spironolactone).
Results: During follow-up, there was progression of diabetic kidney disease requiring hemodialysis, but there was recovery of left ventricular systolic function (LVSF 45-50%). It was possible to discontinue three of the introduced drugs, with only bisoprolol being maintained. She was proposed for a double transplant (pancreatic and renal), which has not presented any complications up to this point.
Conclusions: PPCM, despite its rarity, is associated with significant maternal morbidity and mortality. The disease course can be variable, with some cases rapidly progressing to end-stage heart failure. In this case, diabetes appears to have played a crucial role in its development, not only due to its direct association with PPCM but also because it is a risk factor for pre-eclampsia. The control of risk factors is essential in its prevention, and a high level of suspicion for PPCM should be maintained, especially in this subgroup of pregnant women.

PV108 / #1976

E-Poster Viewing
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"GIVING TREE: T1D-100": EXPERIENCES FROM A PHILANTROPY BASED FREE TYPE 1 DIABETES COMPREHENSIVE CARE PROGRAM IN INDIA (1987- CURRENT)

Sameera Khanduri[1], Madhumati Vaishnav[2], Uma Dayashankar[3], Nandini Jayaram[4], Ranjini Krishna[5], Anirudh Krishnamurthy[6], Geetha Rao[3], Sapna Manjunath[7], Rajeshwari Ashok[8], Suvyaktha Simha[9], Siddhartha Dinesha[10], Yug Garg[11], Sathyanarayana Srikanta[6], Kavitha Muniraj[12], Apoorva Govind[13], Reshma Bv[14]
[1]Samatvam: Science and Research for Human Welfare Trust, Public Health Community Medicine, Bangaiore, India, [2]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [3]Samatvam Trust, Education And Counselling, Bangaiore, India, [4]Jnana Sanjeevini Medical Center, Diabetes Counselling And Education, Bangalore, India, [5]Samatvam: Science and Research for Human Welfare Trust, Public Health Community Medicine, Bangalore, India, [6]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [8]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [9]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [10]Sri Chamundeshwari Medical College Hospital and Research Institute, Internal Medicine, Bangalore, India, [11]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [12]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [13]Samatvam Research Center, Pediatric Endocrinology, Bangaiore, India, [14]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India

Background and Aims: "Giving Tree: T1D-100" continues its journey to bridge the type 1 diabetes (T1D) health care gap between the 'haves' and 'have nots' of Bharatha (India), through synergistic creativity, empathy and social engineering, all on the foundation of strongest possible contemporary science (1987–2023-ongoing).
Methods: Giving Tree: "Friends of DISHA Stars" Can you (institution or individual) share a bit of friendship and love with a young DISHA Star [a poor and needy child with Type 1 diabetes]? You can become a "Friend of DISHA Stars" and participate in the "Giving Tree" project. Please visit Samatvam – DISHA Free Diabetes Clinic, JP Nagar, Bangalore, India. Identify a DISHA Star (age 1-18 years), as your new friend. Sit with your DISHA Star family, introduce yourself, and understand the socioeconomic challenges of the family. Consider providing your contact phone number to the family, for SOS guidance and emergencies. Once in 3 months, please try to connect with your DISHA Star friend, to enquire about child and family welfare and help the best you can. Hope you find this friendship enriching and enlightening.
Results: DISHA Free Diabetes Clinic for the Poor [1987 - Ongoing]: Currently, 784 children are receiving active enhanced support- free insulin [Basal bolus insulin (meal time regular + bedtime NPH/glargine) 100%], syringes/pens, BG meters, 90 BG strips/ month and limited biochemical evaluations [TSH, quarterly HbA1c, annual urine albumin: creatinine ratio] [Changing Diabetes in Children, Life for a Child with Diabetes, T1D Community Fund and other individual and institutional sponsors]. Activities - Major: Individual Counselling: Initial, Continued, Reinforcement; Group Counselling: Classes, Seminars, Workshops; 24-hour helplines and WhatsApp groups: Short term problem solving, Emergencies; Peer counselling: Motivation by achievers - Role models; Learning resource materials: Age, Literacy, Language tailored; Residential camps: Learning + Fun + Confidence building; Scholarship grants for

school and college education; Mental Health Clinic: Psychology and Psychiatry services. Successes: Many T1D children and youth have graduated over years from the "Giving Tree: T1D-100" program and have become self-supporting adults with gainful employment, many with families, who in turn are volunteering as alumni ("Peer-Support") helping other T1D Stars. Challenges: Volunteer manpower shortage, limitations in longer term leadership/administrative structure and eternal resource/financial challenges.

Conclusions: May the "Giving Trees" flourish into forests, and help maximum T1D stars achieve best of health, happiness, peace and prosperity for themselves, their families and nations. T1D Stars: One Family T1D Stars: One Universe T1D Stars: One Future.

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NEWLY DIAGNOSED TYPE 2 DIABETES MELLITUS PRESENTING AS HYPERGLYCEMIC HEMIFACIAL SPASM

Kayla Pamela De La Cerna, Bernadette Diane Vista
St. Luke's Medical Center-Quezon City, Section Of Endocrinology, Diabetes And Metabolism, Quezon City, Philippines

Background and Aims: Hyperglycemia may present with multiple movement disorders. The most commonly reported is hemichorea. Here, we report an unusual case of a 53 year old male presenting with hemifacial spasm as the initial manifestation of uncontrolled hyperglycemia, which resolved rapidly following the correction of hyperglycemia.
Methods: Case report
Results: This is a case of a 53-year-old male presenting with an 8 day history of intermittent twitching of the right facial muscles and right upper eyelid. Each episode lasted < 1 minute, not associated with stiffening of extremities, upward rolling of eyeballs, loss of consciousness, headache, dizziness and focal weakness. The symptom disappeared during sleep. There was no history of flu like symptoms. He was prescribed with carbamazepine, clonazepam and baclofen but with no relief. Neurological examination was unremarkable. Capillary blood glucose on admission was 449 mg/dl. Blood osmolality was normal (290 mosm/l). Serum ketone was absent. Arterial blood gas showed metabolic alkalosis. Hba1c was elevated at 13.9%. Brain MRI only showed an incidental finding of an empty sella with unremarkable hormonal workup. Electroencephalogram and EMG-NCV was normal. A diagnosis of uncontrolled type 2 diabetes mellitus was made. Patient was started on insulin glargine, insulin glulisine, metformin, and sitagliptin. An improvement of the patient's symptom was observed after normalization of blood glucose on the second day. He was sent home with insulin degludec/aspart, and metformin + sitagliptin.
Conclusions: Hyperglycemia can manifest as various movement disorders, including chorea and seizures. Hemifacial spasm is a rare presentation, distinct from the usual anatomical causes. The link to hyperglycemia might involve increased brain water content or impaired brain metabolism, impacting cerebral blood flow, notably the basal ganglia and neurotransmitter processing. Prompt identification of hyperglycemia-induced movement disorders is crucial due to the condition's treatability. Hence, screening for diabetes should be considered in individuals exhibiting sudden, unexplained involuntary movements, regardless of prior diabetes history, acknowledging the diverse range of potential initial signs.

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RELATIONSHIP BETWEEN AGING AND CONTROL OF METABOLIC SYNDROME WITH TELOMERE SHORTENING- A CROSS-SECTIONAL STUDY

Tarachand Devrajani[1], Shariq Abid[2], Durshana Bai Devrajani[2], Binafsha Manzoor Syed[2]
[1]Liaquat University of Medical and Health Sciences, Department Of Medicine, Jamshoro, Pakistan, [2]Liaquat university of medical and health sciences, Medical Research Center, Hyderabad, Pakistan

Background and Aims: Aging is considered one of the major risk factors for several human disorders. The telomere plays a crucial role in regulating cellular responsiveness to stress and growth stimuli as well as maintaining the integrity of the Deoxyribonucleic Acid (DNA), and aging leads to the progressive decline in the telomere length (TL) due to continuous cell division. The aim of this study was to determine the relationship between TL and advancing age and the impact of metabolic syndrome (MetS) on TL.
Methods: Firstly, we determined the association of advancing age and TL, by measuring telomere length (T/S ratio) in healthy volunteers (n=90). The TL was compared between normal population and patients with metabolic syndrome (n=298). The age matched controlled and uncontrolled MetS patients (n=149) were also compared for their TL T/S ratio.
Results: The TL showed negative correlation with advancing age, whereas the significant change was observed at the cut-offs of 40 and 70 years defining 40 with longer TL and 70 as shorter TL. The longest T/S ratio at 2.46 was measured at the age range of 1 year in healthy volunteers, while elderly population showed considerably shorter TL. The patients older than 60 years with poor or uncontrolled MetS had shorter TL, as compared to the controlled MetS.
Conclusions: In conclusion our findings suggest that TL was negatively correlated with advancing age. Uncontrolled metabolic syndrome appeared to have worsening effects on TL. Telomere length appears to have potential to be used a parameter to determine age. However, further large scale studies are recommended to make firm guidelines.

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A SET OF CIRCULATING MICRORNAS BELONGING TO THE 14Q32 CHROMOSOMIC LOCUS IDENTIFIES TWO CLINICALLY AND PHENOTYPICALLY DIFFERENT SUBGROUPS OF TYPE 1 DIABETIC SUBJECTS

Guido Sebastiani[1], Giuseppina Emanuela Grieco[1], Marco Bruttini[1,2], Stefano Auddino[1], Alessia Mori[1,2], Mattia Toniolli[1], Daniela Fignani[1], Giada Licata[1], Laura Nigi[1], Caterina Formichi[1], Alberto Pugliese[3], Carmella Evans-Molina[4], Lut Overbergh[5], Timothy Tree[6], Mark Peakman[7], Chantal Mathieu[5], Francesco Dotta[1,2]
[1]University of Siena, Department Of Medicine, Surgery And Neuroscience, Siena, Italy, [2]n/a, Tuscany Centre For Precision Medicine (cremep), Siena, Italy, [3]University of Miami, Department Of Medicine, Diabetes Research Institute, Miller School Of Medicine, Miami, United States of America, [4]Indiana University School of Medicine, Center For Diabetes And Metabolic Diseases And The Wells Center For Pediatric Research, Indianapolis, United States of America, [5]Katholieke Universiteit Leuven/Universitaire Ziekenhuizen, Department Of Endocrinology, Leuven, Belgium, [6]King's College London, School of Immunology and Microbial Sciences, Department Of Immunobiology, London, United Kingdom, [7]Sanofi, Immunology & Inflammation Research, Boston, United States of America

Background and Aims: Type 1 diabetes (T1D) is a heterogeneous disease with multiple endotypes being suggested. However, the detection of biomarkers able to stratify patients into distinct endotypes is still missing. MicroRNAs are small non-coding RNAs involved in gene expression regulation and secreted by multiple cells, thus being found in many biological fluids, including plasma. Circulating microRNAs have been associated with multiple T1D characteristics, hence being suggested as disease biomarkers. However, an unbiased approach to classify T1D subjects at diagnosis using microRNAs has not been performed yet. Here, we aimed at stratifying recently diagnosed T1D subjects based on their circulating miRNAs.
Methods: Plasma samples were collected at baseline visit (v1) from an initial cohort of n=115 T1D subjects recruited within the European INNODIA consortium. T1D subjects were followed-up with programmed visits at 3- (v2), 6- (v3) and 12-months (v4). We performed miRNA-seq of v1 plasma samples using two different platforms: HTG-Edge-Seq and Qiaseq miRNA-seq. Interplatforms concordant miRNAs were considered for clustering, miRNA Network Analysis (WMCNA) and correlation with clinical parameters. At v1, we analysed also: blood Immunomics and HLA. Selected miRNAs were validated using droplet digital PCR (ddPCR). Finally, the results were confirmed in a second cohort of n=147 T1D subjects, using miRNA-seq and ddPCR.
Results: Clustering analysis on 248 miRNAs commonly detected by both platforms, identified two distinct clusters of T1D subjects: Cluster-A (Cl-A; n=87) and Cluster-B (Cl-B; n=22). At v1, Cl-A showed higher titres of IAA (logOR:0.038, p=0.05) and a more frequent HLA DR3-DQ2 T1D risk genotype (A:51.8%, B:28.6%, p=0.05). Immunomic analysis showed a different distribution of 18 immune cells subsets between the two clusters with major differences in MAIT CD8+ (A:1.27%, B:0.56%, p=0.041) and TSCM CD8+ cells (A:0.39%, B:0.74%, p=0.004). At follow-up, Cl-A showed a higher insulin need at v2 (logOR:3.84, p=0.002) and v3 (logOR:2.3, p=0.03). Of the miRNAs that account for the largest difference between Cl-B and Cl-A, n=7 are located in the 14q32 T1D susceptibility locus, including miR-409, miR-127 and miR-382, which were validated by ddPCR. WMCNA identified a module of miRNAs correlated with insulin dose at v2 and v3, and almost exclusively composed of 14q32 miRNAs. MiRNA-seq and ddPCR analysis on the second cohort of T1D subjects confirmed the identification of Cl-A and Cl-B, mainly given by the differential expression of 14q32 miRNAs.

Conclusions: We identified two clinically and phenotypically different groups of T1D subjects based on the expression of a specific set of miRNAs located in the 14q32 locus.

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CIRCULATING MICRORNA NETWORKS INVOLVED IN MOLECULAR MECHANISMS IN SUBJECTS WITH TYPE 2 DIABETES AND CARDIOVASCULAR DISEASE

Zein Mersini Besharat[1], Sofia Trocchianesi[1], Giuseppina Emanuela Grieco[2], Lorenzo Farina[3], Manuela Petti[3], Caterina Alfano[1], Marco Bruttini[4], Guido Sebastiani[5], Tanja Milena Autillo[1], Silvia Migliaccio[1], Alessandra Vacca[1], Agnese Po[6], Andrea Natali[7], Francesco Dotta[4,5], Elisabetta Ferretti[1]
[1]Sapienza Univestity of Rome, Department Of Experimental Medicine, Rome, Italy, [2]University of Siena, Department Of Medicine, Surgery And Neurosciences, Siena, Italy, [3]Sapienza University of Rome, Department Of Computer, Control And Management Engineering, Rome, Italy, [4]n/a, Tuscany Centre For Precision Medicine (cremep), Siena, Italy, [5]University of Siena, Department Of Medicine, Surgery And Neuroscience, Siena, Italy, [6]Sapienza University of Rome, Department Of Molecular Medicine, Rome, Italy, [7]University of Pisa, Department Of Clinical And Experimental Medicine, Pisa, Italy

Background and Aims: Type 2 diabetes (T2D) significantly increases the risk of life-threatening cardiovascular disease (CVD). MicroRNAs (miRNAs) have been reported to be involved in the pathogenesis of both T2D and CVD. Circulating miRNAs form highly complex molecular interactions with multiple genes and pathways, as well as with other functionally related miRNAs. However, standard analyses methods (i.e. differential expression) may not fully capture the complexity of miRNA networks, thereby potentially overlooking pivotal mediators of disease processes. In this study, our goal was to identify functionally related complex miRNA networks that could elucidate the inflammatory and compensatory mechanisms that are associated toT2D CVD for better and more efficient patient management.
Methods: Total RNA was extracted from plasma-EDTA samples of n=40 subjects with T2D (age: 63±8.3; BMI: 29.5±4.8; sex (M/F): 20/20; T2D duration: 6.7±6.3) and n=40 with T2D and CVD (age: 63.7±5.4; BMI: 28.7±3.8; sex (M/F): 32/8; T2D duration: 8.2±7.8). Small RNA sequencing was performed and raw data were analysed using sRNA bench bioinformatic pipeline. Co-expression networks were inferred using Spearman Rho (threshold of (±)0.7) and were used to perform community detection (Louvain method), as well as to create a differential network highlighting which miRNA pairs are differentially co-expressed among T2D-CVD and T2D. MiRNAs of interest were subjected to target gene pathways enrichment analysis (Diana miRpath, $p<0.05$) and then correlated (padj<0.05) with clinical parameters and pro-inflammatory/growth factor circulating molecules measured using Bioplex in the same plasma samples.
Results: A total of 271 circulating miRNAs were detected in all plasma samples. miRNAs network analysis identified a community of highly interconnected miRNAs (n=34) in T2D-CVD subjects but not in T2D without CVD, and mainly involved in inflammatory pathways in diabetic cardiomyopathy (i.e. TGF-β p=0.00003, TNF p=0.01 and mTOR signalling pathways p= 0.00005). Differential network analysis identified n=3 hub miRNAs (hsa-let-7a-5p, hsa-miR-132-3p, hsa-miR-1306-3p) in T2D-CVD but not in T2D without complications, all involved in Hippo signalling pathway (p= 0.00007) implicated in inflammation, vascular tissue remodeling and cardiac regeneration in CVD. Notably, correlation analyses revealed significant association between miRNAs of interest with circulating PAR-1, CXCL1 and NEMO, all upstream or downstream of the Hippo signaling pathway.
Conclusions: In conclusion, miRNA network analysis reveals a specific community of miRNAs and hub networks involved in regulating the Hippo signaling pathway; a pathway important for cardiovascular remodeling. Therefore, our findings open up new avenues identifying molecular players useful for better patient management in precision medicine.

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PV113 / #1281

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

TYPE 2 DIABETES IN ONCOLOGIC PATIENTS

Jose De Jesus Garduno Garcia[1], Angel Gomez Villanueva[2], Gerardo Emilio Lopez Chavez[2], Humberto Ramirez Montoya[2], Tania Gil Castaneda[2]
[1]Universidad Autonoma del Estado de México, Medicine School, Toluca, Mexico, [2]Instituto Mexicano del Seguro Social, Hospital 251, Metepec, Mexico

Background and Aims: In recent decades there has been an increase in the prevalence of obesity and type 2 diabetes mellitus. Likewise, there has been an increase in the prevalence of oncological diseases. There is scientific evidence that diabetes and certain types of cancer can have an indirect relationship sharing common risk factors and mechanisms Aims: Determine the prevalence of type 2 diabetes mellitus and in patients with newly diagnosed with cancer.
Methods: Descriptive, observational, retrospective cross-sectional study. The clinical records of patients with a confirmed diagnosis of cancer were reviewed during their first appointment at the Oncology department.
Results: A total of 5,234 patients atend for a firts appointment in Oncology department all of them with histological confirmation of malignat neoplasm. The average age was 55.31±15.61 years. 67.2% of the cases corresponded to women. The percentage of patients with diabetes in the analyzed population was 16.8%. The prevalence of diabetes in oncologic patients increase with age. In patients between 70 and 79 p the prevalence is up to 26.3% compared to with 0.9% individuals younger than 30 years. When analyzing the distribution of the diferent cancer in patients with or with out diabetes, we have a similar proportion of the distribution, with the exception of endometrial which represent a higher proportion of patients diagnosed with diabetes 4.9 vs 2.8% ($p< 0.005$).
Conclusions: Diabetes is highly prevalent in patients with oncological diseases. The proportion of patients with diabetes increases with age. Endometrial cancer represent a higher proportion of cancer on patients with diabetes.

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E-Poster Viewing
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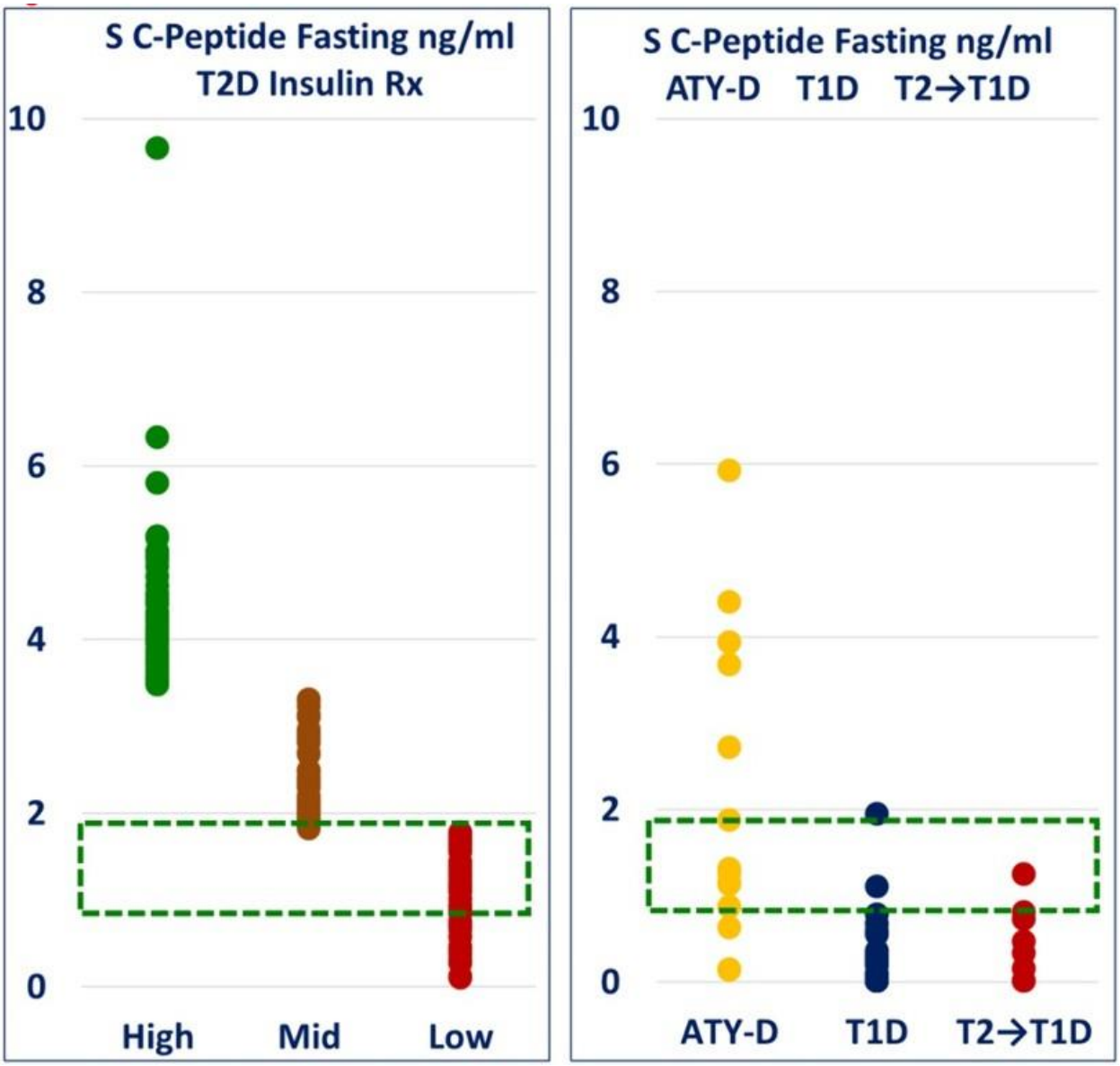
01-03-2024 07:00 - 18:00

CLINICAL UTILITY OF SERUM C-PEPTIDE ASSAY: REAL LIFE EXPERIENCE FROM A SPECIALITY DIABETES CENTER AND LESSONS LEARNT

Yug Garg[1], Madhumati Vaishnav[2], Varenya Badarinath[3], Kavitha Muniraj[4], Sathyanarayana Srikanta[5], Rajeshwari Ashok[6], Nidhi Garg[7], Reshma Bv[8], Apoorva Govind[9], Leena Lekkala[4], Samatvam Diabetes Collaborative Study Group[10], Siddhartha Dinesha[11]
[1]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [2]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [3]Samatvam Research Center, Endocrinology, Bangaiore, India, [4]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [6]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [7]Samatvam Endocrinology Diabetes Center, Endocrinology, Bangaiore, India, [8]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [9]Samatvam Research Center, Pediatric Endocrinology, Bangaiore, India, [10]Samatvam Research Center, Translational Science, Bangalore, India, [11]Sri Chamundeshwari Medical College Hospital and Research Institute, Internal Medicine, Bangalore, India

Background and Aims: C-peptide levels are in many ways better measure of endogenous insulin secretion than peripheral insulin levels. One of the major advantages of measuring C-peptide levels is the ability to readily distinguish endogenous insulin levels in the presence of exogenous administration of insulin. Other extended indications for C-peptide measurements include: follow-up of pancreatectomy; evaluation of viability of pancreas/ islet cell transplants, evaluation of insulin dependence in type 2 diabetes and precise diagnosis of “atypical” forms of diabetes.
Methods: Relevant clinical data were reviewed for a series of 212 consecutive patients for whom practicing clinicians had ordered serum C-peptide levels [fasting and stimulated (in selected cases)] to aid clinical management in a speciality diabetes center in Bangalore, India. C-peptide derived insulin resistance and beta-cell function were calculated using HOMA1, HOMA2 and modified HOMA models.
Results: “Clinical Diagnosis” groups: Learnings from this review are summarised (Figure 1; Table 1). A: Type 1 diabetes (T1D) [N= 49] for diagnosis confirmation in selected children and youth: Glutamic acid decarboxylase antibody (GAD65Ab) positivity= 57%. B: “Type 2 to Type 1” diabetes (T2→T1D) [N= 9] diagnosis subsequently changed to T1D in adults: GAD65Ab positivity= 66%. C: Type 2 diabetes: (T2D) [N=135] already on insulin therapy, to facilitate tailoring and optimisation of guidelines directed diabetes management, i.e., predominant emphasis on either or both of the following therapeutic approaches (supported by HOMA-IR, HOMA%B and HOMA%S data): **** “Insulin sensitising”: for predominant insulin resistance (weight reduction, increased physical activity, metformin, bromocriptine, GLP-1 agonists, SGLT2 inhibitors), versus **** “Insulin enhancing”: for predominant insulin deficiency (DPP-4 inhibitors, sulfonylureas, GLP1 agonists and insulin dose upgrade: basal and basal-bolus). This “C-peptide and HOMA supported” approach for T2D management led to discontinuation of insulin therapy in 57% of subjects. 65% received GLP1 agonists, 50% SGLT2 inhibitors and 15% bromocriptine. D: “Atypical” 2 diabetes (ATY-D) [N= 16]: Most of these subjects were initially clinically marked and managed as T1D. GAD65Ab positivity= 0%. The subsequent diagnosis included: Monogenic diabetes(4) [Wolfram’s syndrome(1); MODY3(1), Novel MODY due to IRS2 mutation(1) Congenital lipodystrophy CGL-4(1)]; Chronic pancreatitis(1). No etiologic diagnosis till date(11). E: Spontaneous hypoglycemia (HYPO) [N= 4]: Insulin autoimmune syndrome(3); Reactive hypoglycemia(1).

Conclusions: Judicious and selected use of serum c-peptide assays (relatively expensive), can enrich quality of routine clinical diabetes care and facilitate precision medicine. Quantitation of C-peptide derived insulin resistance and beta-cell dysfunction illuminates more rational T2D therapy. Figure 1:



Table

1:

"Clinical Diagnosis" groups	Age @ Sample Years	Fasting C-Peptide ng/ml	HOMA2 1R	HOMA2 %B	HOMA2 %S
T1D	24 ± 13	0.18 ± 0.35	-	-	-
T2→T1D	46 ± 9	0.42 ± 0.41	-	-	-
T2D	58 ± 15	2.76 ± 2.00	2.83 ± 1.92	62.4 ± 45.4	61.9 ± 59.8
ATY-D	16 ± 4	2.08 ± 1.7	5.82 ± 6.98	35.3 ± 18.1	89.4 ± 101.6

PV115 / #566

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

ASSESSMENT OF NEUROPATHY BY TEMPERATURE THRESHOLD TESTING (TTT) IN TYPE II DIABETES MELLITUS

Archana Gaur T[1], Sakthivadivel Varatharajan[2], Roja Katta[3], Madhuri Taranikanti[1], Nitin Ashok John[1], Madhusudhan Umesh[1], Vidya Ganji[1], Kalpana Medala[1]
[1]All India Institute of Medical Sciences, Bibinagar, Physiology, Hyderabad, India, [2]All India Institute of Medical Sciennces, Bibinagar, Hyderabad, General Medicine, Hyderabad, India, [3]ESIC Medical College and Hospital, Hyderabad, Telangana, India -, Department Of Physiology, hyderabad, India

Background and Aims: Diagnosing diabetic neuropathy is a challenge at times as it is asymptomatic and is often diagnosed at later stages where it ends in limb salvage surgery. Diagnosing diabetic neuropathy involves the use of quantitative sensory testing, nerve conduction study, and autonomic testing. Temperature Threshold Testing (TTT) can aid in diagnosing small fiber neuropathy at early stages. This study aimed to assess the small fiber neuropathy using TTT in DM and correlate with age, duration of diabetes, and lipid profile.
Methods: The study was commenced after obtaining ethics approval from the Institute Ethics Committee (AIIMS/BBN/ IEC/APR/2021/32/10.5.2021).The study participants included 100 patients with type 2 DM of both genders between the ages of 40 to 65 years. A complete general physical examination including height, weight, BP, pulse rate, and waist and hip circumference was done. Blood was collected to assess the glycemic status and lipid profile. Neuropathy assessment was done using the Michigan neuropathy screening instrument [MNSI] and Temperature threshold testing.
Results: The prevalence of small fiber neuropathy based on temperature threshold testing was 63%. The lipid profile was similar in both groups. The Michigan B scale had significantly higher scores in neuropathy group. In the neuropathy group, the thresholds for hot was significantly greater in all four limbs and cold was significantly lower. Age and years of DM were positively correlated with neuropathy. Hot thresholds in the lower limb had shown a strong positive correlation whereas cold thresholds had a weak correlation.
Conclusions: The age and duration of diabetes are independent risk factors for DPN. The glycemic status and high BP are potential dangers for developing DPN. Small fiber neuropathy is a prequel to the motor neuropathy. Hot threshold testing in the lower limb is more sensitive than cold threshold testing for diagnosing small fiber neuropathy.

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E-Poster Viewing
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MANAGING TRANSIENT NEONATAL HYPERGLYCEMIA IN AN EXTREME PREMATURE BABY WITH SUBCUTANEOUS INSULIN DEGLUDEC: A CASE REPORT

Reham Ghanim[1], Omar Al Sokhni[2], Anwar Khan[3], Manal Mustafa[1]
[1]Al Jalila Children's Speciality Hospital, Pediatric Endocrinology, Dubai, United Arab Emirates, [2]Al Jalila Children's Speciality Hospital, Head Of Pharmacy, Dubai, United Arab Emirates, [3]Dubai Hospital, Nicu, dubai, United Arab Emirates

Background and Aims: Transient neonatal hyperglycemia is a common metabolic complication encountered in premature infants, particularly those born at extremely low gestational ages. Neonatologists typically express concern regarding hyperglycemia when the plasma glucose concentration, as measured by the standard laboratory test, exceeds 180 to 200 mg/dL (10 to 11.1 mmol/L). The delicate balance of glucose regulation in these vulnerable neonates is often disrupted due to immature pancreatic function and other physiological factors. Hyperglycemia in this population is associated with an increased risk of adverse outcomes, including long-term neurodevelopmental and metabolic issues. As a result, effective management strategies are imperative to mitigate these risks and promote optimal growth and development. In this case, we present our experience with using subcutaneous insulin Degludeg in managing temporary neonatal hyperglycemia.
Methods: We present a 24-week gestation premature female with extreme low birth weight 780 grams and neonatal hyperglycemia since birth. Despite initial attempts to manage blood glucose levels without insulin and by reducing glucose infusion rate, the baby exhibited persistent significant hyperglycemia that was refractory to usual treatment but demonstrated a favorable response to long-acting subcutaneous insulin Degludeg. Subcutaneous insulin Degludeg was started at the age of 21 days (Baby's weight 860 grams) at a dose of 0.5 units on first day and increased next day to 1 unit daily. Blood glucose was monitored every 4 hours. Flash glucose sensor was also applied to the thigh for continuous glucose monitoring. Degludeg was used daily for 2 weeks and then stopped as blood glucose readings remained less than 150 mg/dL thereafter.
Results: Insulin degludec offers a longer duration of action, allowing for once-daily dosing and reducing the risk of hypoglycemia. Its ultra-long half-life and stable pharmacokinetic profile make it an ideal option for maintaining stable blood glucose levels in this vulnerable population of extreme preterm infants.
Conclusions: Managing transient neonatal hyperglycemia in extreme premature infants poses unique challenges, requiring a careful balance between glycemic control and the delicate nature of their underdeveloped physiology. While management strategies for transient neonatal hyperglycemia exist, there is limited literature in the context of extreme prematurity, particularly involving the use of novel therapeutic agents such as subcutaneous insulin degludec. By sharing this case report, we aim to contribute to the existing knowledge on managing transient neonatal hyperglycemia in extreme premature infants. The utilization of subcutaneous insulin degludec in this context highlights an alternative therapeutic approach that can potentially optimize glycemic control, minimize treatment burden, and improve long-term outcomes.

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SGLT2I IN PRIMARY AND SECONDARY GLOMERULAR DISEASE

Vjollca Godanci Kelmendi[1], Mimoza Ramadani Piraj[2]
[1]UNIVERSITY CLINICAL CENTRE OF KOSOVA, Nephrology Clinic, PRISHTINA, Albania, [2]UNIVERSITY CLINICAL CENTRE OF PRISHTINA, Endocrinology Clinic, Prishtina, Albania

Background and Aims: Ever since their therapeutic introduction, SGLT2 inhibition class of medicaments did impress physicians of related fields, nephrologists, internal medicine doctors, endocrinologists etc. Their natriuretic and glucoretic effects besides lowering the plasma glucose does produce a important effect on lowering intraglomerular pressure, this became an added value and a strong point to recommend these drugs on all CKD population irregardles the main cause of the disease.
Methods: Observational retrospective study on 125 patients, three groups: G1 50 pt with diabetic nephropathy treated with empagliflozine vs control group G2 50 pt with diabetic nephropathy treated with other glucose lowering agents, and G3 25 nondiabetic pt with CKD and proteinuria treated with SGLT2i. Inclusion criteria was proteinuria and T2D for G1 and G2, and patients with proteinuria and CKD for G3. Patients with T1D and eGFR > 20 where excluded. Intervention - the SGLT2i drugs where started, median follow up 18 months. We followed on four periods creatinine levels, 24 hour proteinuria in g/24 h, HbA1c, cholesterol level, BMI.
Results: In our study the G1 showed a decrease in proteinuria average – 811 mg/24 h, serum creatinine showed increase on the first three months and it did get back to baseline afterwards, the eGFR increased + 15.44 ml/min; HbA1c decreased with -1.41%, levels, the reduction BMI – 0.9 kg/m^2 and LDL cholesterol -1.11 mmol/l. G2 results decrease on 24 hour proteinuria with – 121 mg/24 hours, a drop on eGFR with -3.3 ml/min, a drop on HbA1C – 1.45 %, - 0.3 mmol/l decrease on cholesterol level and average increase on BMI with + 0.8 kg/m^2; G3 results on patients without T2D but with CKD different causes and proteinuria where: - 690 decrease proteinuria, + 14.4 increase on eGFR, HbA1C NA, we did have 2 cases that experienced hypoglycemic symptoms, both of them where improved with dose reduction, a – 0.9 decrease on cholesterol level and 0.3 kg/m^2 was registered on our G3.
Conclusions: In our observation the 18 month follow up showed remarkable improve in kidney function tests, other benefits were noted such as optimal glycemic control, total body cholesterol lowering and a significant reduce of body weight expressed on BMI. Treatment with SGLT2i drugs does present a safe and efficient treatment modality for diabetic nephropathy and for all other CKD with proteinuria.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

TRANSDERMAL DELIVERY OF SYZYGIUM AROMATICUM-DERIVED OLEANOLIC ACID BY DERMAL PATCHES IN STREPTOZOTOCIN-INDUCED DIABETIC RATS: SOME SELECTED METABOLIC PARAMETERS

Silindile Hadebe[1], Cephas Musabayane[2]
[1]Nelson Mandela University, Human Physiology, Port Elizabeth, South Africa, [2]University of KwaZulu-Natal, Human Physiology, Durban, South Africa

Background and Aims: Medicinal plants believed to be safe and cost effective than synthetic hypoglycaemic agents play important roles in the management of diabetes mellitus in developing countries where resources are meagre. We have isolated triterpenes from Syzygium aromaticum as the bioactive compounds that possess hypoglycaemic effects in experimental diabetes. However, the poor water solubility of triterpenes observed in oral administration has necessitated the evaluation of alternative methods of administration for effective diabetes management. Accordingly, the aim of this study was to investigate whether transdermal application of Syzygium aromaticum-derived oleanolic acid patch (P-OA) formulations sustain controlled release of oleanolic acid (OA) into the bloodstream of streptozotocin (STZ)-induced diabetic rats with concomitant alleviation of some of the complications associated with diabetes.
Methods: Topically applied P-OA patches containing various OA doses (21, 42 and 84 mg/kg) prepared by dissolving pectin/OA in deionised water with subsequent solidification with CaCl2 were evaluated for oral glucose tolerance responses in groups of STZ-induced diabetic rats. Short-term (5 weeks) effects were assessed in diabetic animals treated thrice daily with P-OA patches 8 hours apart. Animals treated with drug-free pectin and subcutaneous insulin (175 µg/kg, s.c.) acted as untreated and treated positive controls, respectively. Blood and tissue samples were collected for the measurement of selected metabolic parameters.
Results: Blood glucose concentrations were significantly reduced following transdermal P-OA treatment thus indicating that OA was transported across the skin. The treatment also restored the reduced glycogen concentrations in muscle and hepatic tissues of diabetic animals to near normalcy. These effects were comparable to those observed in animals administered with the standard drug, s.c. insulin. However, there was no change in plasma insulin concentrations of STZ-induced diabetic rats following acute and short-term daily treatment with P-OA patches.
Conclusions: Conclusion: The data indicate successful sustained controlled release of OA into the bloodstream of STZ- induced diabetic rats via P-OA hydrogel matrix patches with a concomitant reduction in plasma glucose concentrations and amelioration of some selected metabolic parameters. POA-containing dermal patch formulations will be easy to use and will not require elaborative devices to prevent drug leakage as in solution formulations

PV119 / #950

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

MULTIFACTORIAL RISK REDUCTION WITH ORAL SEMAGLUTIDE VS COMPARATORS IN THE TREATMENT OF TYPE 2 DIABETES

Khadijah Hafidh
Rashid Hospital, Endocrinology, Dubai, United Arab Emirates

Background and Aims: - A holistic approach to treating type 2 diabetes (T2D), considering multiple patient-specific goals (i.e., glucose control, weight management and cardiometabolic risk factor reduction), can reduce the likelihood of late-stage diabetes complications.
Methods: and endpoints The PIONEER phase 3a clinical trial programme evaluated the efficacy and safety of oral semaglutide vs active comparators and placebo in patients with T2D over 26–78 weeks4–11 In this post-hoc analysis, the proportion of patients who achieved
1, 2, 3 or ≥4 of the following endpoints by EOT in the PIONEER 1–8 trials* was evaluated: •Body weight reduction ≥5% •HbA1c reduction ≥1% •SBP reduction ≥5 mmHg •LDL cholesterol reduction ≥0.5 mmol/L •An increase or no worsening of eGFR (eGFR change ≥0 mL/min/1.73 m2)
Results: • Generally, greater proportions of patients achieved the individual endpoints of HbA1c reduction ≥1%, body weight reduction ≥5% and SBP reduction ≥5 mmHg with oral semaglutide 14 mg/flexible dose adjustment vs active comparators or placebo across the PIONEER 1–8 trials (Figure 1A–C).
• A greater proportion of patients achieved LDL cholesterol reduction ≥0.5 mmol/L in PIONEER 1, 2 and 4 with oral semaglutide 14 mg (vs placebo only; Figure 1D).
• Across the PIONEER 1–8 trials, the proportion of patients who achieved an increase or no worsening of eGFR was generally similar with oral semaglutide 14 mg/flexible dose adjustment vs active comparators or placebo (Figure 1E).
• In almost all trials, a significantly greater proportion of patients achieved any 2, 3 or ≥4 endpoints with oral semaglutide 14 mg/flexible dose adjustment vs comparators (Figure 2).
Conclusions: • Oral semaglutide was more effective at improving multiple cardiometabolic risk factors vs comparators, indicating its potential to help address the full cardiometabolic profile for patients with T2D.

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E-Poster Viewing
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HISPIDULIN IS AN INSULIN SECRETAGOGUE TARGETING THE AKAP9-MEDIATED PKA SIGNALING PATHWAY.

Abdul Hameed
Ziauddin University, Molecular Medicine, Karachi, Pakistan

Background and Aims: Inadequate insulin secretory impairment in response to high glucose is considered predominant in Asian non-obese type 2 diabetic subjects. Hispidulin, a natural flavone, was identified as a new insulin secretagogue that enhances insulin secretion in response to high glucose and seems a better drug candidate than synthetic marketed drugs.Here, we explored the insulinotropic mechanism(s) of hispidulin.
Methods: Secreted insulin and intracellular cAMP contents from batch-incubated C57BL/6 J mice islets and INS-1 832/13 cells were measured using an AlphaLISA kit. Preparation of hispidulin-immobilized beads and affinity purification with hispidulin-immobilized beads were performed. INS-1 832/13 β-cells were transfected with the AKAP-9 siRNA or scrambled siRNA using Lipofectamine RNAiMAX reagent. AKAP-9 knockdown was confirmed by western blotting.
Results: Hispidulin showed insulin secretory potential in INS1832-13 cells and isolated mice islets in response to high-glucose. Hispidulin showed no effect on intracellular cAMP concentration; however, showed an additive effect in both forskolin and IBMX-induced insulin secretion. Among the inhibitors of major signaling pathways, H89, a PKA inhibitor, completely inhibited hispidulin-induced insulin secretion. Hispidulin showed a strong binding affinity with A-kinase anchoring protein 9 (AKAP-9). Interestingly, in AKAP-9 knock down β-cells, hispidulin-mediated glucose-induced insulin secretion was further amplified. Furthermore, it was also observed that the intracellular PKA signaling was further increased using hispidulin alone and AKAP-9 knockdown β-cells.
Conclusions: Hispidulin increases intracellular PKA concentration and inhibits the negative regulation of AKAP-9-cAMP-PKA signalosome, enhancing glucose-induced insulin secretion. The promising glucose-dependent insulin-releasing mechanism makes hispidulin a potential anti-diabetic drug candidate.

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E-Poster Viewing
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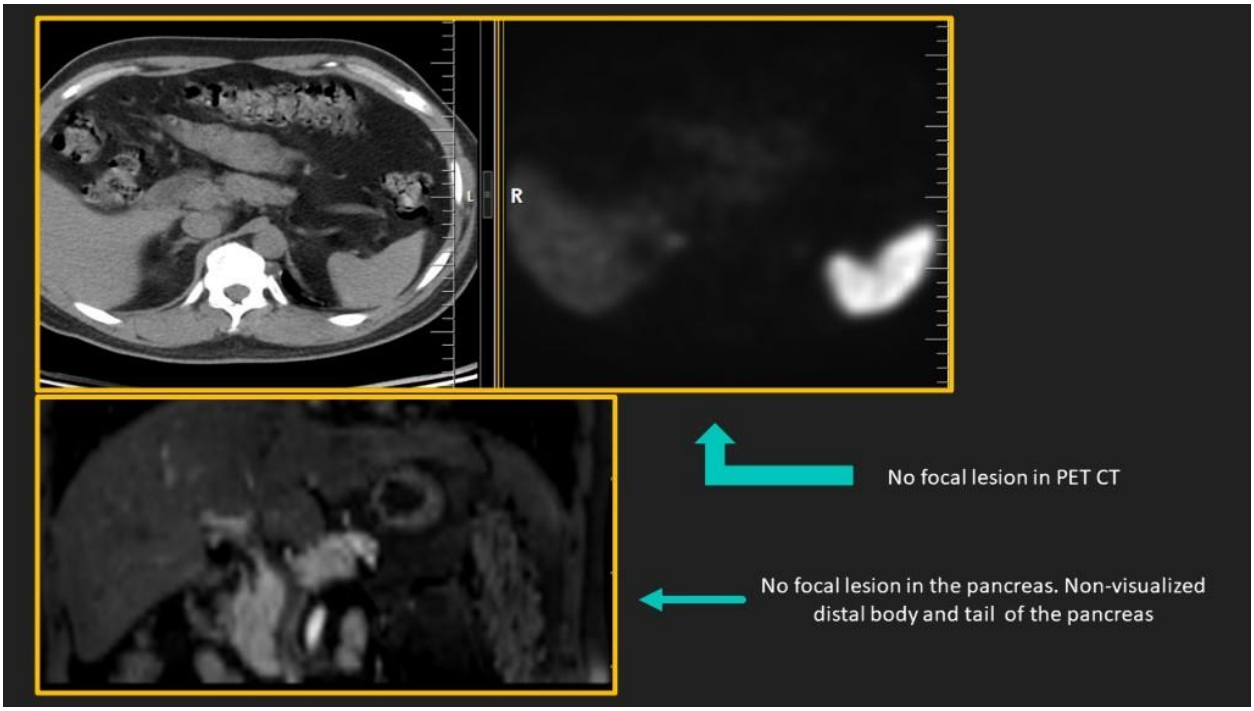
01-03-2024 07:00 - 18:00

INSULIN AUTOIMMUNE SYNDROME IN A MIDDLE-AGED MALE WITH DORSAL AGENESIS OF THE PANCREAS

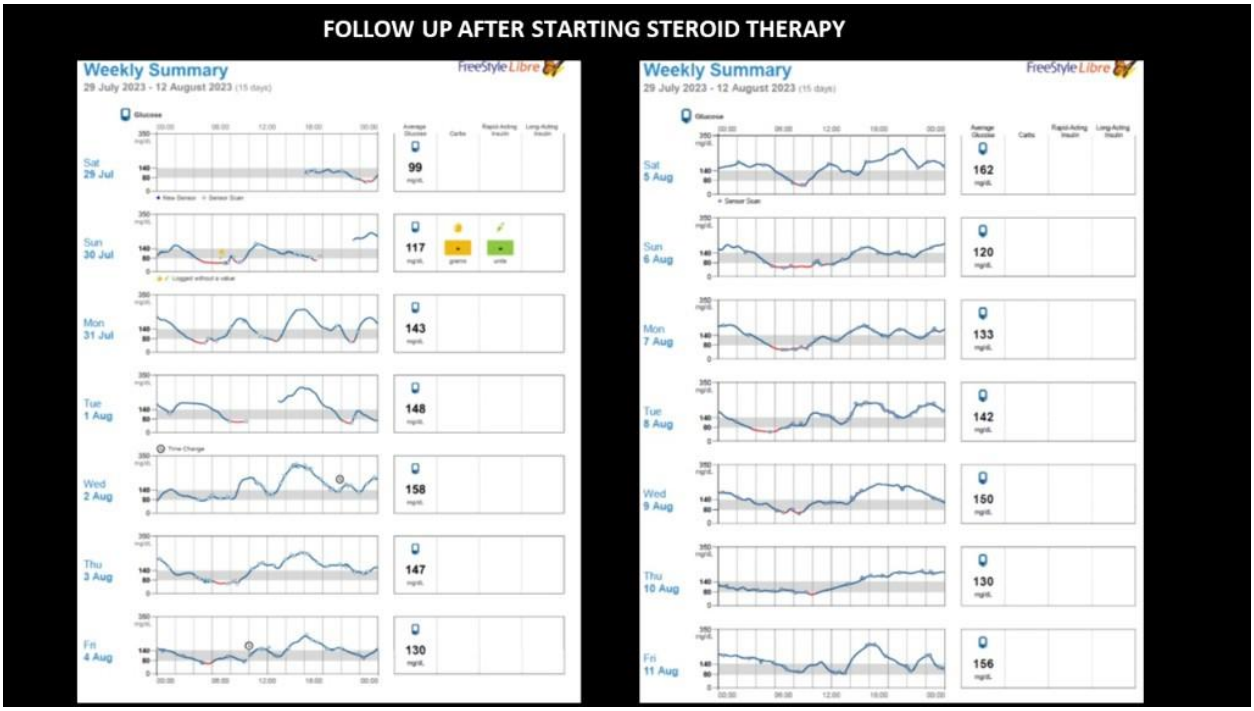
C V Harinarayan[1], Zacharia Marsha[2], J S Vinduja[3], Anisha S Tandon[4], Shabnam Roohi[5], Janardhan Raghu[3], Subrata Das[3], Tr Hemkumar[3]
[1]Sakra World Hospitals, Sy No 52/2 & 53/3, Deverabeesanahalli(opp Intel, Outer Ring Road), Varathur Hobili, Marathahalli,, Director, Institute Of Endocrinology, Diabetes, Thyroid And Osteoporosis Disorders,, Bangalore , Karnataka State, India, [2]Sakra World Hospitals, Sy No 52/2 & 53/3, Deverabeesanahalli(opp Intel, Outer Ring Road), Varathur Hobili, Marathahalli,, Institute Of Endocrinology, Diabetes, Thyroid And Osteoporosis Disorders,, Bangalore , Karnataka State, India, [3]Sakra World Hospitals, Sy No 52/2 & 53/3, Deverabeesanahalli(opp Intel, Outer Ring Road), Varathur Hobili, Marathahalli,, Internal Medicine, Bangalore , Karnataka State, India, [4]Sakra World Hospitals, Sy No 52/2 & 53/3, Deverabeesanahalli(opp Intel, Outer Ring Road), Varathur Hobili, Marathahalli,, Radiologial Sciences, Bangalore , Karnataka State, India, [5]Sakra World Hospitals, Sy No 52/2 & 53/3, Deverabeesanahalli(opp Intel, Outer Ring Road), Varathur Hobili, Marathahalli,, Laboratory Sciences, Bangalore , Karnataka State, India

Background and Aims: Agenesis of the pancreas is an extremely rare developmental anomaly with a handful of cases reported in the literature. They are primarily symptomatic with abdomen pain, pancreatitis, and diabetes mellitus. Insulin autoimmune syndrome(IAS) is characterized by hyper-insulinemic hypoglycemia with elevated insulin autoantibodies in a person who has no prior exposure to insulin.
Methods: A 43-year-old male presented to the outpatient department with a history of elevated blood sugars three years back. He was treated with oral hypoglycemic agents for 3-4 days. He stopped medications due to recurrent hypoglycemic events. Current presentation: Recurrent hypoglycemia with sweating and drowsiness despite not taking oral hypoglycemic drugs for the past two weeks. Self-monitoring of blood glucose during hypoglycemic episodes the blood sugars were between 63-65 mg/dL mostly 3:30 AM and 6 PM. His parents and 2 elder brothers are diabetic. Occasional Drinker. He was not on anti-diabetics or antithyroid medications, antihypertensives, steroids, proton blockers, anti-tuberculosis drugs, or antiplatelets.
Results: On evaluation, 2-hour oral glucose tolerance along with insulin and C-peptide levels were: Fasting and post-prandial blood sugars; HbA1C; Fasting C-Peptide; Insulin; Insulin-C peptide Ratio; Postprandial C Peptide; Insulin; Insulin-C Peptide Ratio were 66 and 263 mg/dL;6.5%;22.2 ng/mL(N:3-9);5480 µIU/mL(1:20 dilution)(N:<41.00);4936.9(N<1);29.9 ng/mL(N:3-9)5960 µIU/mL(1:20 dilution)(N:<41.00);3986.6(N<1) respectively. MRI ABDOMEN did not reveal a focal lesion in the pancreatic parenchyma. Ga68 EXENDIN and Ga68 DOTANOC scan did not reveal focal metabolically active lesions to suggest insulinoma or neuroendocrine tumor seen in the pancreas.
I



Insulin Autoantibody Assay: 176(N:< 0.9 COI). Insulin to C peptide ratio was more than 1. Insulin autoantibodies were positive at high titers prompting a diagnosis of insulin autoimmune syndrome.

Conclusions:



The patient was advised to take frequent complex carbohydrate meals and started on steroids. Continuous glucose monitoring after starting the steroid is shown in the figure below. An appropriate

diagnosis helps to avoid unwarranted investigations and abdominal exploration. Most cases are self-limiting. Intractable cases corticosteroids and steroid sparing immunosuppressants

PV122 / #1794

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

BARRIERS TO INSULIN THERAPY IN TYPE 2 DIABETICS; DISCIPLINE IN DIABETES.

Nadia Haroon
Rawal Institute, Medicine, ISLAMABAD, Pakistan

Background and Aims: Pakistan has been ranked 3rd in diabetes prevalence. We face challenges regarding insulin therapy. Current research aims to study these barriers to insulin therapy in our type 2 diabetics. This research is unique as there is limited regional data in this domain.
Methods: This cross-sectional study was conducted at Medicine Outdoor Clinic RIHS Islamabad after ethical approval. 206 Type 2 diabetics were included from (Jan.2021-Jan.2022). Type 1 diabetics, gestational diabetes, critically ill, contraindication to insulin were excluded. Demographic details, diabetes duration, glycemic control, dietary compliance, medications, alternative therapy, physical/visual morbidity, facilities at home i.e., glucometer, electricity, fridge were documented. 14-point Barriers to Insulin Therapy (BIT) Questionnaire was administered. Data analyzed by SPSS V-21. Chi-square test used to analyze BIT-questionnaire responses with respect to gender; significant $p<0.05$.
Results: Among 206 cases, 104(50.5%) males and 102(49.5%) females. Mean age was 54.49+11.67(27-85) years, mean diabetes duration 7.25+5.64(1-25) years, mean family income 43,200/Rs.; 196(95%) cases were married, 63(32%) illiterate, 56(27.2%) employed. 30(14.6%) were physically dependent, 63(30.6%) had visual morbidity. 144(69.9%) had good dietary compliance, satisfactory glycemic control in 93(45%). 32(15.5%) used alternative therapies. 114(55.3%) had various co-morbids (HTN, IHD, asthma, CLD, thyroid disorders and CCF). All the cases had electricity at home, 198(96.1%) had fridge, while 179(86.9%) had personal or accessible glucometer. Regarding BIT questionnaire; 74(35.9%) had fear of injection pain, injection phobia 78(37.8%), fear of glucose checking 80(38.8%). 116(56.3%) said insulin works better than pills, 140(67.9%) believed that insulin makes one feel better. 133(64.5%) agreed that insulin prevents long term diabetes complications, 113(54.8%) didn't had enough time for regular insulin doses, 118(57.3%) couldn't manage diet plan, 110(53.4%) couldn't organize their day with insulin and 85(41.3%) considered injecting in public embarrassing. 142(68.9%) were concerned that insulin makes one feel dependent and like drug addict 106(51.4%). 163(79%) had fear of hypoglycemia. Females had significant fear of needle prick, hypoglycemia, dietary restrictions and to organize the day to cope with insulin. While significantly more men commented that insulin prevents complications, has better results than pills, though time management will be difficult with
insulin.

BARRIERS TO INSULIN THERAPY-BIT QUESTIONNAIRE	n(%) with response Yes			*p-value*
	All n=206	Females n=102	Males n=104	
1. I am afraid of the pain when injecting insulin	74(35.9%)	49(48%)	25(24%)	**<0.0001**
2. Besides the pain, I am just afraid of injections.	78(37.8%)	46(45%)	32(31%)	**0.034**
3. I am afraid of the pain during regular blood-sugar checks	80(38.8%)	45(44%)	35(34%)	0.123
4. Insulin works better than pills.	116(56.3%)	45(44%)	71(68%)	**<0.0001**
5. People who get insulin feel better.	140(67.9%)	6261%)	78(75%)	**0.029**
6. Insulin can reliably prevent long-term complications due to diabetes.	133(64.5%)	56(55%)	77(74%)	**0.004**
7. I just don't have enough time for regular doses of insulin.	113(54.8%)	43(42%)	70(67%)	**<0.0001**
8. I can't pay as close attention to my diet as insulin treatment requires.	118(57.3%)	71(79%)	47(45%)	**<0.0001**
9. I can't organize my day as carefully as insulin treatment requires.	110(53.4%)	59(58%)	51(49%)	0.205
10. Injections in public are embarrassing to me. Pills are more discreet.	85(41.3%)	44(43%)	41(39%)	0.588
11. Regular insulin treatment causes feelings of dependence.	142(68.9%)	78(76%)	64(62%)	**0.021**
12. When people inject insulin, it makes them feel like drug addicts.	106(51.4%)	61(60%)	45(43%)	**0.018**
13. An insulin overdose can lead to extremely low blood glucose levels (hypoglycaemia). I am afraid of the unpleasant accompanying symptoms	163(79.1%)	89(87%)	74(71%)	**0.004**
14. An insulin overdose can lead to extremely low blood glucose levels. I have concerns about possible permanent damage to my health.	163(79.1%)	80(78%)	83(80%)	0.808

Table1: Responses to 14-point Barriers to Insulin therapy BIT-Questionnaire *(n=206).*

Conclusions: There exists significant fears and concerns amongst type 2 diabetics about insulin injections, life style changes, feeling of dependance and hypoglycemia. Most of the patients had facilities to properly store insulin and monitor the blood sugars. There is need to educate type 2 diabetics regardless of gender or age to overcome fears and concerns of insulin therapy by providing individualized options and gaining patient's

confidence.

Fig1:Steps to overcome barriers to Insulin Therapy and improve Adherence.

PV123 / #1835

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

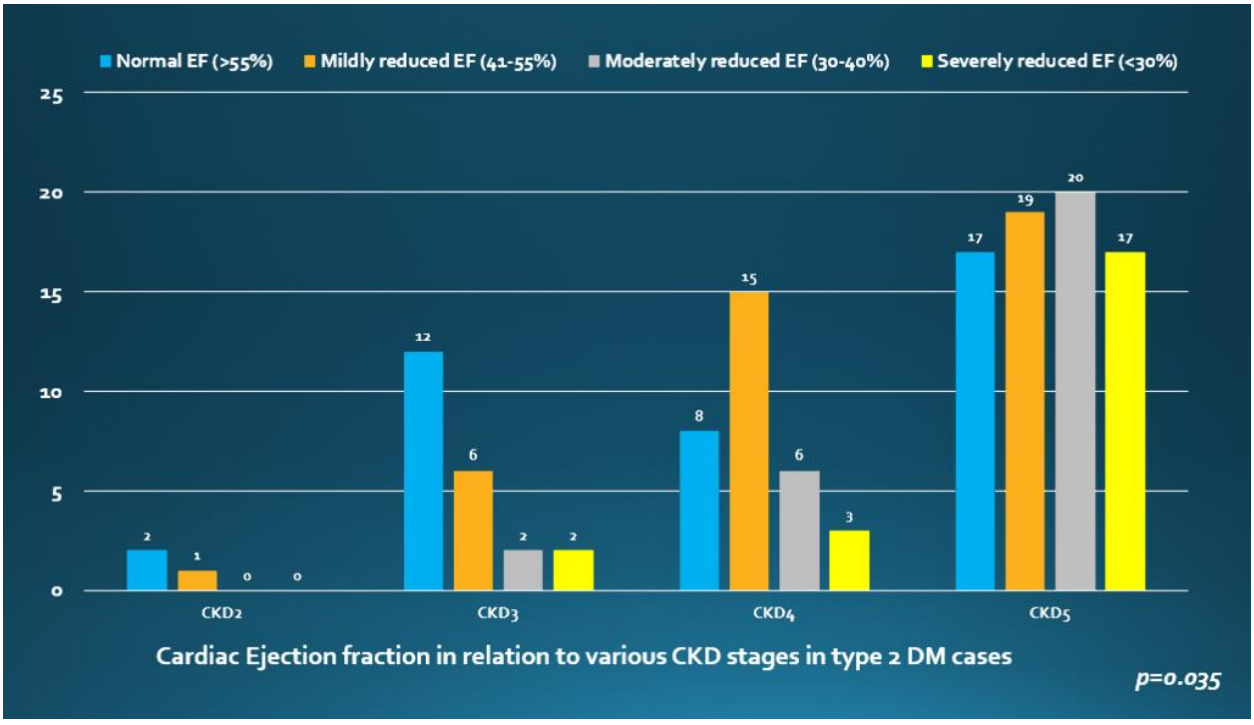
TYPE 2 DIABETICS WITH RENOCARDIAC SYNDROME

Nadia Haroon
Rawal Institute, Medicine, ISLAMABAD, Pakistan

Background and Aims: There is significant world-wide burden of diabetes with CKD having high cardio-vascular related mortality. Reno-cardiac syndrome (CRS) is currently observed in diabeticsin view of the aging population, hypertension, diabetes and dyslipidemia. Major consequence of failing kidneys is the stimulation of metabolic and humoral pathways and multiple bidirectional interactions between the kidneys and heart. Healthy kidneys and healthy hearts are intrinsically linked. Injury to remote organs such as the heart and liver secondary to renal involvement are observed. This research aims to study echocardiography based cardiac function with respect to CKD stages in type 2 diabetics.
Methods: This cross-sectional study was conducted at RIHS Islamabad, Dept. of medicine and nephrology. (Jan-June 2023) after ethical approval. Total 100 adult Type 2 diabetic CKD cases were included by consecutive sampling. Ongoing acute kidney injury, <3 months history of renal impairment, renal transplant cases, pregnant women and previously diagnosed/treated cardiac disease cases were excluded. BMI and estimated glomerular filtration rate (eGFR) were calculated. CKD staging was done by KDOQI-classification. Cardiac impairment was categorized by ECG and Echocardiography. Data was analyzed by SPSS V-22 with Chi-square test.
Results: Amongst 100 diabetic CKD cases, there were 53% males and 47% females. Mean age was 60+13.27 years, mean BMI was 24+4.2. Hypertension seen in 92%. Mean creatinine was 5.83mg/dl and mean GFR 18.84 mL/min/1.73m^2. 17.2% patients were on hemodialysis. Mean cardiac EF was 47.18%. EF was normal in 30%, mildly reduced in 31%, moderately reduced in 22% and severely reduced in 17%, diastolic dysfunction seen in 5.2%. There was significant association between eGFR and cardiac EF in type 2 diabetics with CKD
($p<0.0001$).

Demographic variables, anthropometric measurements, electrolytes, renal and cardiac functions

Variables	Mean ± SD (n=100)	Range
Age (years)	60.2 ± 13.27	30-87
Monthly income (Rs)	25,769 ± 11,676	10,000-60,000
BMI (kg/m²)	24.27 ± 4.27	17.08-37.55
BP systolic (mmHg)	137.05 ± 20.15	90-180
BP diastolic (mmHg)	83.42 ± 12.49	60-110
Hemoglobin (gm/dl)	10.0 ± 1.65	5.9-14.0
MCV (fl)	81.28 ± 6.25	60-93
Urea	123.87 ± 66.57	39-364
Creatinine	4.83 ± 3.53	1.2-16
Sodium	131.57 + 15	19-142
Potassium	4.66 + 0.82	2.3 -7.5
Calcium	8.84 + 0.72	7.0 – 10.1
Phosphorus	5.03 + 1.36	2.5-9.4
GFR	17.84 + 11.33	2.85-45.18
Ejection fraction (%)	49.18 + 12.54	25-65



Cardiac Ejection fraction in relation to various CKD stages in type 2 DM cases

p=0.035

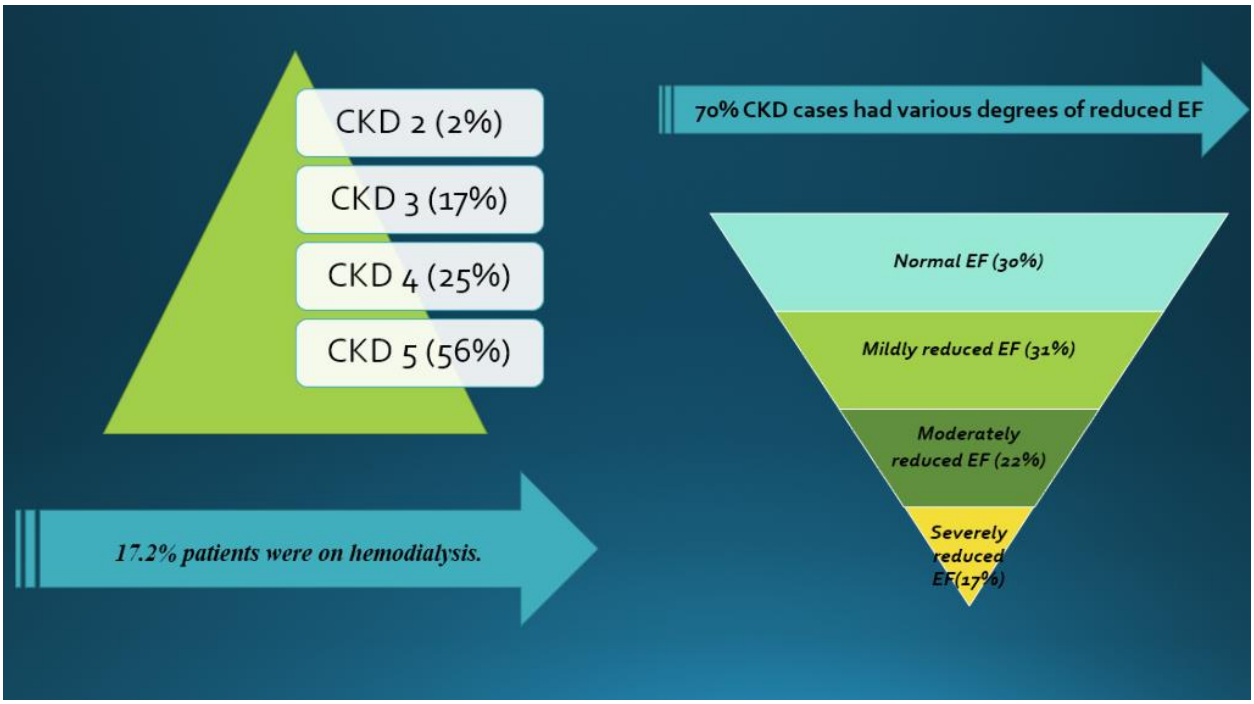


Table 2 : There was significant association between eGFR and cardiac EF in type 2 diabetics with CKD (p<0.0001).	
Variable	Mean ± SD (n=130)
Glomerular Filtration rate	17.84 ± 11.33
Ejection Fraction (%)	49.18 ± 12.54

Conclusions: Decline in cardiac function is associated with advanced CKD stages in Type 2 diabetes cases. Cardiac evaluation is suggested at initial presentation of diabetics with CKD, hence diagnosing compensated cardiac failure at early stages. High clinical suspicion and early intervention may lead to better outcome. Study finds high burden of diabetes, hypertension, anemia and IHD in CKD cases.
LIMITATIONS: Better sample size and randomization, I would be interested to categorize the cases as CRS 1-5 in future research. Decompensated Vs. compensated heart failure in relation to eGFR. Impact of intervention e.g.SGLT 2 inhibitors on reno-cardiac syndrome?

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

PREVALENCE AND PATTERNS OF DYSLIPIDEMIA AMONG LIPID-LOWERING DRUG-NAÏVE PATIENTS WITH TYPE 2 DIABETES MELLITUS – A COUNTRYWIDE STUDY IN BANGLADESH

Abm Kamrul Hasan[1], Shahjada Selim[2]
[1]Mymensingh Medical College, Endocrinology, Mymensingh, Bangladesh, [2]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Dyslipidemia is a major risk factor for cardiovascular disease in patients with type 2 diabetes mellitus (T2DM). This countrywide study explored the prevalence and patterns of dyslipidemia among patients with T2DM who were not taking lipid-lowering drugs (LLD).
Methods: This cross-sectional study included 2241 subjects with T2DM visiting several endocrinology outpatient clinics throughout Bangladesh from January to December 2021. Lipid profiles were measured in fasting blood samples using automatic analyzers. Data were analyzed using Stata 17 (Stata Corp LLC, TX, USA).
Results: 2241 patients were investigated; their mean age was 46.27 (±11.27, SD) years, and 57.16% were female. Overall, the prevalence of dyslipidemia was 96.83%. Total cholesterol (TC), low-density lipoprotein cholesterol (LDLC), and triglyceride (TG) were high in 42.88%, 63.54%, and 71.40% of patients, respectively; high-density lipoprotein cholesterol (HDLC) was low in 77.60%. Mixed dyslipidemia (including raised TC, LDLC, TG, and low HDLC) was the most prevalent (24.05%) type. Female sex (adjusted OR: 5.63, 95%CI: 3.07 – 11.1) and uncontrolled diabetes (HbA1c <7%) (adjusted OR: 2.64, 95%CI: 1.54 – 4.52) were independently associated with dyslipidemia. Dyslipidemia was associated with microvascular complications of diabetes.
Conclusions: Dyslipidemia is highly prevalent among LLD-naïve patients with T2DM in Bangladesh. Early detection and prompt management are required to prevent complications arising from dyslipidemia.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

STATUS OF LIPID CONTROL IN BANGLADESHI SUBJECTS WITH TYPE 2 DIABETES MELLITUS ON LIPID-LOWERING DRUGS: A MULTICENTER, FACILITY-BASED, CROSS-SECTIONAL STUDY

Abm Kamrul Hasan[1], Muhammad Shah Alam[2], Mohammad Saifuddin[3], Shahjada Selim[4]
[1]Mymensingh Medical College, Endocrinology, Mymensingh, Bangladesh, [2]Army Medical College Cumilla, Medicine, Cumilla, Bangladesh, [3]Dhaka Medical College, Endocrinology, Dhaka, Bangladesh, [4]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Achievement of lipid targets is crucial in patients with type 2 diabetes mellitus (T2DM) to mitigate the risk of cardiovascular diseases (CVD). Data on lipid-control status among patients with T2DM in Bangladesh are scarce. This study was conducted to determine the lipid-control status among patients with T2DM who were on lipid-lowering drugs in the country.
Methods: This cross-sectional study was conducted in the diabetes outpatient departments of several tertiary hospitals in Bangladesh from January 2022 to December 2022. Adults of both sexes diagnosed with T2DM for at least one year and were on the lipid-lowering drug(s) for a minimum of 3 months were included in the study by consecutive sampling. Patients' data were collected by face-to-face interviews, and blood samples were collected for fasting lipid profile. The lipid target was set at <200 mg/dL for total cholesterol (TC), <150 mg/dL for triglyceride (TG), <100 mg/dL for low-density lipoprotein cholesterol (LDL-C), >40 mg/dL for high-density lipoprotein cholesterol (HDL-C), and <160 mg/dL for non-HDL cholesterol (non-HDL-C).
Results: 3060 patients (age 44.7±13.3 years, female 57%) with T2DM were evaluated. Overall, almost 81% of the study subjects achieved the LDL-C target. Besides, TC, TG, HDL-C, and non-HDL-C targets were achieved by 40.8, 21.6, 66.3, and 44.1% of patients, respectively. However, all the lipid parameters were under control in only 8.8% of patients. Almost 77.6% of the patients with ischemic heart disease, 81.5% of patients with stroke, and 65% of patients with CKD had LDL levels <70mg/dL. Only 10.03% achieved the HbA1c target of <7%. 7.4% of patients achieved both HbA1c <7% and LDL <100mg/dL and 5% achieved both HbA1c <7% and LDL <70mg/dL. Advanced age (aOR 0.97, 95% CI 0.96, 0.98, p<0.001), longstanding T2DM (aOR 0.53, 95% CI 0.39, 0.72, p<0.001), and non-statin therapy (aOR 0.25, 95% CI 0.16, 0.37, p<0.001) were negatively associated with lipid control (LDL <100mg/dL) while using oral hypoglycemic drugs or insulin (aOR 2.01, 95% CI 1.45, 2.77, p<0.001) and having cardiovascular comorbidity (aOR 3.92, 95% CI 3.00, 5.12, p<0.001) were positively associated with lipid control.
Conclusions: Though most patients with T2DM achieved their target LDL level, the prevalence of both glycemic and overall lipid control was low in our study despite lipid-lowering therapy.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

NEED FOR HAJJ FOCUSED DIABETIC EDUCATION

Gulshad Hasan
Bahria International Hospital, Lahore, Endocrinology, Lahore, Pakistan

Background and Aims: Background and aims. Each year millions of Muslims perform pilgrimage to Makkah, Saudi Arabia known as Hajj. It is particularly stressful during the peak 5 days, when all rituals have to be performed at specific periods of time at different sites. Poor diabetes control in people with diabetes predisposes to morbidity and increases risk of acute complications.Total distance to walk – approximately 10 – 12 kilometres to Arafat and 10 – 12 Kilometres back to Makkah.Tawaf– To walk bare foot 7 times around Kaaba. Approximately 200 meters to 1 kilometers/ circle,Sai (Safa – Marwa) – approximately 3.5 kilometers
Methods: Methodology:We performed an observational prospective pilot study,(Study on risk factors for poor Diabetes Control during Hajj, year2015, in people with Diabetes.), at King Abdullah Medical City, Makkah,Saudi Arabia. Based on questionnaire. 61 patients were enrolled after taking informed consent. Patients included in the study were known or newly diagnosed diabetics who were admitted to KAMC between 1st and 30thZil'Hajj. Objectives/ Aim: We wanted to see how well their blood glucose control was . whether they received diabetic education before travelling; We also wanted to know the reasons for hospital admission.
Results: Of the total 61 patients, 16 were newly diagnosed, (not known diabetic , before), while 45 were known diabetics. Among known diabetics, about 77% patients had poor diabetes control on admission. 72% did not bring glucometer, about 55% received diabetic education before coming to Makkah; 37% were doing SMBG occasionally and only 22% were aware that more frequent SMBG required during illness. Interesting information, about complications and reasons of admission to the hospital
Conclusions: Most people in our study population suffered from poor glycemic control before coming to Hajj. A significant number were unaware of their diagnosis. The most significant risk factor in our study was a lack of knowledge about self-management of diabetes and Hajj specific management. On the basis of our findings we suggest need for Hajj specific Diabetic Education. Regarding Blood glucose control and Self-monitoring of blood glucose,(SMBG.),physical fitness and exercise, Foot care, and how to avoid, hypo./Hyperglycemia and what to do in case of any illness/infection Recommendations will be given in oral presentation. NOTE: An information leaflet for people with diabetes, travelling for Hajj has been recommended, in our paper Published in the Journal of Pakistan Medical sciences, Sept/Oct.2016,issue. http://dx.doi.org/10.12669/pjms.325.11217 Key Words : Diabetes Mellitus, Hajj, Diabetic education.

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01-03-2024 07:00 - 18:00

SAFETY AND EFFECTIVENESS OF IGLARLIXI WITH OR WITHOUT SODIUM-GLUCOSE COTRANSPORTER-2 INHIBITORS IN PEOPLE WITH TYPE 2 DIABETES DURING RAMADAN FASTING: A SOLIRAM STUDY SUBANALYSIS

Mohamed Hassanein[1], Rachid Malek[2], Rakesh Sahay[3], Mehmet Akif Buyukbese[4], Khier Djaballah[5], Lydie Melas-Melt[6], Inass Shaltout[7]
[1]Dubai Hospital, Dubai Health, Endocrinology, Dubai, United Arab Emirates, [2]CHU Mohamed Saadna Abdennour, Setif, Algeria, [3]Osmania Medical College, Hyderabad, India, [4]Private practice, Gaziantep, Turkey, [5]Sanofi, Paris, France, [6]IVIDATA Life Sciences, Levallois-Perret, France, [7]AASD, President, Prof, Cairo University, Cairo, Egypt

Background and Aims: SoliRam study demonstrated the safety and effectiveness of iGlarLixi, a fixed-ratio combination of insulin glargine and lixisenatide, in adults with type 2 diabetes (T2D) during Ramadan fast. 85% of the SoliRam study population were using a concomitant oral antihyperglycaemic treatment (OADs), of which 42% were on sodium-glucose cotransporter-2 inhibitors (SGLT-2i). Therefore, the current subanalysis was conducted to assess the safety and effectiveness of concomitant iGlarLixi and SGLT-2i use versus iGlarLixi without SGLT-2i in adults with T2D during Ramadan in the SoliRam study.
Methods: SoliRam was a prospective, real-world, observational study. Adults (≥18 years) with T2D treated with iGlarLixi for ≥3 months before inclusion and who intended to fast for ≥15 days during Ramadan were included. The primary endpoint was the proportion of participants experiencing ≥1 severe and/or symptomatic documented (<70 mg/dL [3.9 mmol/L]) hypoglycemia.
Results: Among 420 total participants, 174 participants were using SGLT-2i in addition to iGlarLixi ± other OADs. The baseline characteristics are provided in the Table. Around 97% of the participants in both the groups were able to fast for ≥25 days; 9.3% and 6.3% of participants in SGLT-2i user and SGLT-2i non-user groups, respectively, broke their fast. During Ramadan, most participants took iGlarLixi at Iftar (SGLT-2i user, 93.0% and SGLT-2i non-user, 85.7%). During the pre-Ramadan, Ramadan, and post-Ramadan, 0.6%, 4.2%, and 0.6% of participants in SGLT-2i user and 1.3%, 0.9% and 0 participants in SGLT-2i non-user group experienced severe and/or symptomatic documented (<70 mg/dL [<3.9 mmol/L]) hypoglycemia. Similarly, incidence of severe and/or symptomatic documented (<54 mg/dL [<3.0 mmol/L]) hypoglycemia events was low throughout the study, including during Ramadan period. Improvements were seen from pre- to post-Ramadan in HbA_{1c}, fasting plasma glucose and body weight in both groups (Table). Few participants reported any adverse event (AE) over the whole study period (SGLT-2i user, 7.9% and SGLT-2i non-user, 2.4%); of these 5 (2.9%) participants in SGLT-2i user and 1 (0.4%) participant in SGLT-2i non-user groups experienced at least one AE during Ramadan. No AEs were treatment-related or
serious.

Table: Baseline characteristics and efficacy outcomes

Characteristics	SGLT-2i user (N=174)	SGLT-2i non-user (N=246)
Age	55.2 ± 9.6	58.4 ± 9.8
≥65 years, n (%)	33 (19.0)	68 (27.7)
Male, n (%)	98 (56.3)	134 (54.5)
Body weight, kg	87.88 ± 16.19	85.48 ± 13.96
BMI, kg/m²	31.30 ± 5.39	30.65 ± 5.30
Duration of diabetes, years	11.4 ± 6.3	12.6 ± 6.4
≥10 years, n (%)	96 (55.2)	150 (61.0)
HbA_{1c}, %	8.23 ± 1.34	8.23 ± 1.02
FPG, mg/dL	141.14 ± 49.91	138.88 ± 26.25
Efficacy outcomes		
Change from pre- to post-Ramadan		
HbA_{1c}, %	−0.69 ± 1.20	−0.78 ± 0.92
FPG, mg/dL	−15.95 ± 40.36	−19.78 ± 26.62
Body weight, kg	−0.52 ± 2.50	−1.31 ± 2.04

Data are presented as mean ± SD, unless mentioned otherwise.
FPG, fasting plasma glucose; HbA_{1c}, glycated hemoglobin; SD, standard deviation.

Conclusions: Concomitant SGLT-2i and iGlarLixi therapy provides robust glycemic outcomes with low incidence of hypoglycemia in adults with T2D during Ramadan fast.

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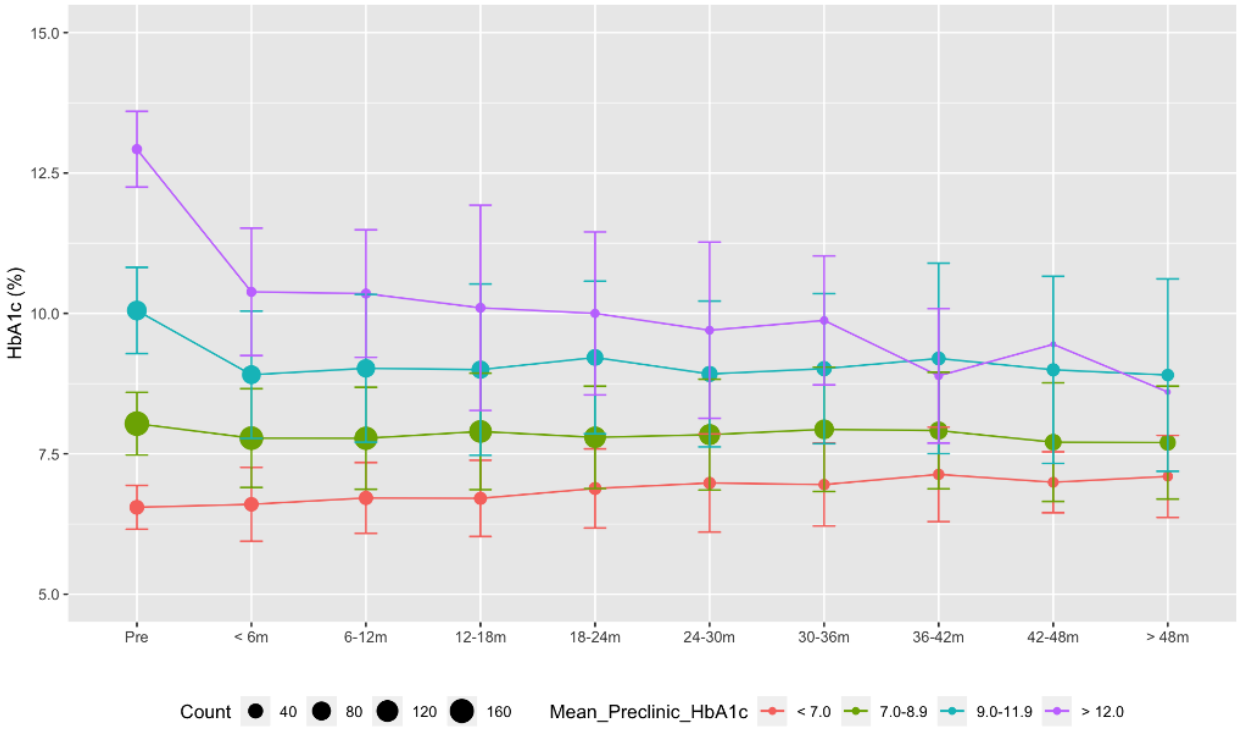
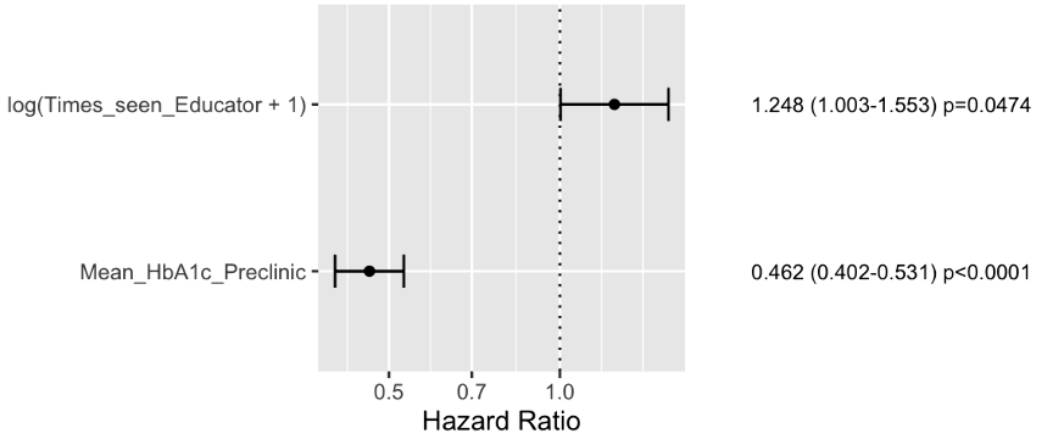
01-03-2024 07:00 - 18:00

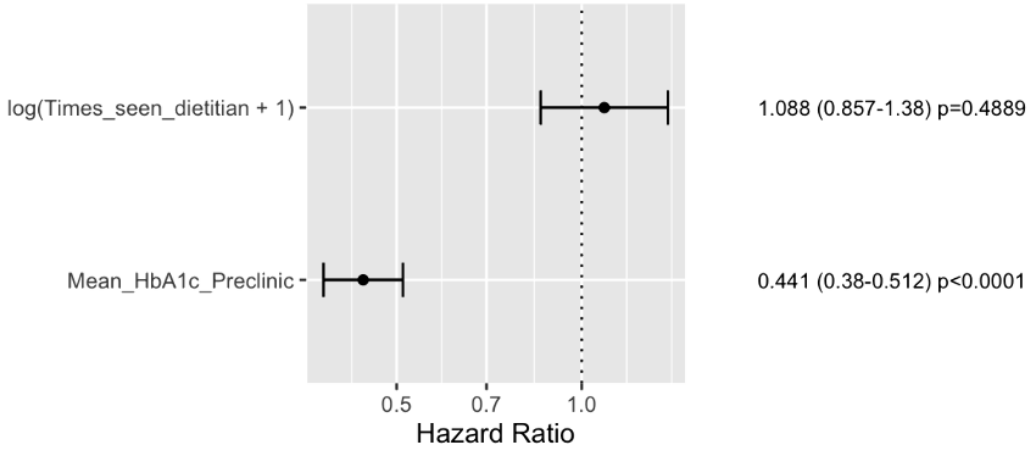
FIVE-YEAR CLINICAL OUTCOMES FROM A MULTI-DISCIPLINARY ADULT INSULIN PUMP CLINIC IN THE UNITED ARAB EMIRATES

Alero Adjene[1], Adam Buckley[1], Lina Yassine[1], Manar Abu Asaba[2], Reem Khoury[1]
[1]Imperial College London Diabetes Centre, Diabetes And Endocrinology, Abu Dhabi, United Arab Emirates, [2]ICLDC, Diabetes Education, Abu Dhabi, United Arab Emirates

Background and Aims: Our centre specialises in treating metabolic disease in a largely Emirati population. To improve services for people living with type 1 diabetes, we established a multi-disciplinary clinic dedicated to the management of adults using insulin pump therapy. This provides a setting where patients can be seen simultaneously by a diabetologist, dietician and diabetes specialist nurse (DSN). The aim of this study is: •To report 5-year clinical outcomes from the multi-disciplinary adult insulin pump clinic. •To examine changes in glycated haemoglobin (HbA1c), Body Mass Index (BMI), lipids and blood pressure. •To assess patient engagement with the multidisciplinary team, in particular with the dietician and DSN.
Methods: A retrospective analysis of clinical data included patients with type 1 diabetes, aged 16yrs and over, using insulin pump therapy and attending the multi-disciplinary adult insulin pump clinic from October 2015 till December 2020. Patients were identified using the Diamond® electronic health record system.
Results: We identified 527 patients with type 1 diabetes who attended the multi-disciplinary adult insulin pump clinic from October 2015 till December 2020. The majority were Emirati and 86% were nationals of the United Arab Emirates. The mean age was 26.5years at the first clinic visit and 57.3% were female. 43% have been living with type 1 diabetes for more than 10years. Mean HbA1c dropped from 8.7% (71.6mmol/mol) to 8.2% (66.1mmol/mol). Improvement in glycaemic control was greater in individuals with poor glycaemic control (Figure 1). 96% of patients were seen by the dietician and 100% were seen by the DSN. The number of DSN visits correlates with improved HbA1c and significantly increases the number of patients achieving a 2% reduction in HbA1c (Figure 2). The number of dietician visits also correlates with improved HbA1c and significantly increases the number of patients achieving a 2% reduction in HbA1c (Figure 3). Body Mass Index (BMI) increased over time and increased with better control. There was no significant change in blood pressure or lipid
control.


15.0
12.5
10.0
7.5
5.0
HbA1c (%)
Pre
< 6m
6-12m
12-18m
18-24m
24-30m
30-36m
36-42m
42-48m
> 48m
Count
40
80
120
160
Mean_Preclinic_HbA1c
< 7.0
7.0-8.9
9.0-11.9
> 12.0


log(Times_seen_Educator + 1)
Mean_HbA1c_Preclinic
1.248 (1.003-1.553) p=0.0474
0.462 (0.402-0.531) p<0.0001
0.5
0.7
1.0
Hazard Ratio



Conclusions: This multi-disciplinary adult insulin pump clinic led to an improvement in glycaemic control. Our findings also highlight the essential role of the diabetes specialist nurses and dieticians in the successful management of people with type 1 diabetes, especially when using insulin pump therapy. Seeing patients in this setting allows for better communication between all members of the team, including the patient who leaves the clinic with a clear management plan agreed by all.

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01-03-2024 07:00 - 18:00

COMPARABLE TOTAL EXPOSURE OF ONCE-WEEKLY INSULIN ICODEC BETWEEN DIFFERENT SUBCUTANEOUS INJECTION REGIONS

Suheil Ashraf[1], Leona Plum-Moerschel[2]
[1]ICLDC, Endocrinology, dubai, United Arab Emirates, [2]profil, mainz, Germany

Background and Aims: People with diabetes may inject s.c. insulin in different body regions. To address if choice of
injection region affects insulin icodec exposure and glucose-lowering effect, this study compared icodec administration in different s.c. injection regions
Methods: In a randomized, open-label, three-period
crossover trial, 25 individuals with T2D on basal insulin (22 males; mean±SD age 60±7 yrs, BMI 30.7±4.6 kg/m2) received single s.c. icodec doses (5.6 U/kg) in the thigh, abdomen and upper arm (9-13 weeks washout) . Blood was sampled for pharmacokinetics (PK) until 840 h (35 days) post-dose. Glucose-lowering effect was assessed at 36-60 h post-dose in an automated glucose clamp (target 135 mg/dL) .
Results: Total icodec exposure (AUC0-∞,SD) was similar after single-dose s.c.
injection in the thigh, abdomen and upper arm (Table) . Maximum concentration (Cmax,SD) was higher for abdomen/upper arm vs. thigh. Extrapolation of PK profiles to steady state using a PK model showed smaller differences in Cmax,SS for abdomen/upper arm vs. thigh than after single dose. Partial glucose-lowering effect 36-60 h after single dose (AUCGIR,36-60h,SD) was comparable across injection regions (geom. mean [CV%] of 1961 [51], 2130 [52] and 2391 [40] mg/kg for thigh, abdomen and upper arm) .
Conclusions: In conclusion, insulin icodec can be administered s.c. in the thigh, abdomen or upper arm with
essentially similar exposure and glucose-lowering effect.

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01-03-2024 07:00 - 18:00

ASSOCIATION OF PLASTICIZER MIXTURES WITH TYPE II DIABETES MELLITUS BY RACE/ETHNICITY AND SEX: NHANES 2013-2016

Jesús Gibran Hernández-Pérez[1], Abraham Valenzuela-Sánchez[1], David S López[2], Luisa Torres-Sánchez[3]
[1]National Institute of Public Health, School Of Public Health Of Mexico, Cuernavaca, Mexico, [2]University of Texas Medical Branch, School Of Public And Population Health, Texas, United States of America, [3]National Institute of Public Health, Center For Population Health Research, Cuernavaca, Mexico

Background and Aims: Background: Phthalates and bisphenols are endocrine disruptors used as plasticizers, and they have been independently associated with the incidence of Type II diabetes (T2DM) and T2DM-specific mortality. However, there is a research gap about the association of the mixtures of these plasticizers with T2DM, and by race/ethnicity and sex. Objective: To investigate the association of to the mixtures of phthalates and bisphenols with T2DM, and its variation according to sex and race/ethnicity.
Methods: We analyzed data from 2137 adults ≥ 20 years who participated in the 2013-2016 NHANES with available urine concentrations of phthalates and bisphenol A, F, and S. Diabetes was defined by self-report of diagnosis, hypoglycemic use, fasting ≥126 mg/dl, glucose test (≥ 200 mg/dL) or HbA1c level was ≥ 6.5%. Poorly diabetes control was considered if the HbA1c level was ≥ 8%. Mixture to phthalates and bisphenol exposure for the total population, and by race/ethnicity, were identified using separated principal component analysis. Group weighted quantile sum regression was used to evaluate the independent association between each mixture with T2DM prevalence and control.
Results: Three exposure mixtures were identified: mixture 1 was characterized by Di(2-ethylhexyl) phthalate (DEHP) metabolites; mixture 2 by bisphenol A, F y S, and low-molecular weight phthalates (LMW); and mixture 3 by high-(HMW). However, the mixtures' composition varied by race/ethnicity, mainly in relation to bisphenol and LMW contribution. The association between each mixture and T2DM varied by race/ethnicity, sex, and diabetes's control. A quintile increase of mixture 1 was associated with lower odds of T2DM (OR 0.82: CI 95% 0.69-0.96) in total population, including in women and other races. Mixture 2 was associated with higher odds of T2DM (OR 1.29: CI 95% 1.06-1.57). Regarding diabetes control, among Mexican Americans, there was a higher exposure of mixture 2 associated with poorly controlled diabetes, whereas in whites and blacks, there were lower odds of poorly controlled diabetes associated to mixture 2. Mixture 3 was not associated with diabetes.
Conclusions: The mixture exposure to phthalates and bisphenols mixture in relation to T2DM varied by race/ethnicity and sex in a nationally representative sample of the United States Population.

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01-03-2024 07:00 - 18:00

DIABETES MELLITUS, DIABETIC FOOT AND INFECTIVE ENDOCARDITIS CO-INFECTION – A CASE REPORT

Violeta Hoxha[1], Dorina Ylli[2]
[1]University Hospital Center Mother Tereza, Tirana, Albania, [2]University of Medicine Tirana, Internal Medicine, Tirane, Albania

Background and Aims: Introduction Diabetes Mellitus (DM) is a potential risk factor for infectious disease due to immunological dysfunctions. Several cases have been reported of comorbidity between DM and IE with high mortality rate. We present the case of a diabetic patient with Diabetic Foot and Endocarditis.
Methods: Case Description The patient M.K. female of 66 years old, came to the Emergency Room with complaints of pain in the left foot. She was first diagnosed with Diabetes Mellitus type 2, 20 years ago. Three days before, she had noticed an ulcerative lesion in the left foot. During the hospitalisation the patient had dyspnoea. She began Oxygen therapy and started treatment for hypalbuminaemia and secondary pulmonary overload. In a few days, depression of ST in V4-V6 in her Electrocardiogram was present. No chest pain and no changes in cardiac enzymes.
Results: Laboratory finding were as follow: WBC 23 000/mm3, Granulocytes 90%, pH 7.19, pCo2 41%, HCO3 15.7, D-Dimer 7.07 mcg/ml (<0.5), Albuminemia 2.9 g/dl (3.5 – 5.2). In a Transthoracic Echocardiography was seen a vegetation in her left atrium. The diagnose of Endocarditis was confirmed with Haemoculture and Transoesophageal Echocardiography. She continued Antibiotics and transferred to the Intensive Care Unit (ICU) when her oxygen saturation began to fall. After several days in ICU, she was feeling better and was discharged.
Conclusions: In patient with Diabetes Mellitus and Diabetic Foot, the risk for infectious comorbidities is higher. Infective Endocarditis is a severe disease which need specific antibiotics and supportive therapy especially in immunocompromised patients such as diabetics.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

DIABETES MELLITUS, DIABETIC FOOT AND INFECTIVE ENDOCARDITIS CO-INFECTION – A CASE REPORT

Violeta Hoxha
University Hospital Center Mother Teresa, Tirana, Albania

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01-03-2024 07:00 - 18:00

AN UNDER-DIAGNOSED IMPORTANT ENTITY: PANCREATIC DIABETES (TYPE 3C DIABETES)-A CASE SERIES

Iftikhar Ali[1], Laila Shinwari[2], Wardah Arshad[3], Arshad Hussain[4]
[1]Paraplegic Center, College Of Physical Medicine & Rehabilitation, Peshawar, Pakistan, [2]Northwest General Hospital & Research Centre, Medicine, Peshawar, Pakistan, [3]Rawal Institute of Health sciences, Student, Islamabad, Pakistan, [4]Northwest General Hospital and Research Center, Endocrinology, Peshawar, Pakistan

Background and Aims: Type 3c diabetes, also known as pancreatogenic diabetes, is caused by primary pancreatic disorders affecting the pancreatic islets of Langerhans, causing impaired glycemic control. Common causes include chronic pancreatitis, pancreatic ductal adenocarcinoma, hemochromatosis, cystic fibrosis, and prior surgeries. Diagnosing T3cDM is crucial for patient care and long-term management, but is often misclassified due to its rarity and limited medical recognition.
Methods: This is a retrospective case series study aimed at describing and analyzing a series of cases of T3cDM. Data were retrieved from hospital medical records for individuals diagnosed with Type 3c Diabetes, based on clinical assessments, laboratory findings, and imaging results. Cases were included regardless of age, gender, or underlying pancreatic disorder and their demographics, clinical history, symptoms, laboratory results, radiological reports, biopsy findings, and treatment were recorded for each identified case. Informed consent was waived for this study, as it involved no direct patient contact and posed no additional risk to patients.
Results: All patients were relatively young, with a median age of 32.50 years. A common thread among all four cases was the presence of pancreatic pathology. The underlying pancreatic conditions leading to T3cDM differed significantly across the cases: Case 1's condition stemmed from a periampullary tumor; Case 2 had a history of acute pancreatitis; Case 3 experienced acute pancreatitis linked to hypertriglyceridemia; and Case 4 encountered acute pancreatitis associated with hyperlipidemia. In all four patients, significantly elevated random blood glucose levels and elevated HbA1c levels were noted, signifying suboptimal glycemic control. Similarly, each case was marked by a distinctive set of symptoms unrelated to diabetes, including epigastric pain, back pain, vaginal itching, dysuria, and vomiting. In all cases, the diagnosis of Type 3c diabetes was complicated by the presence of other medical conditions and symptoms that overlapped with various differential diagnoses. Treatment approaches varied among the cases. While all patients received insulin therapy, Case 1 also underwent surgical intervention for tumor removal and received chemotherapy. Case 2 required hospitalization for the management of diabetic ketoacidosis (DKA). In contrast, Case 3 was managed conservatively, and Case 4 received treatment for acute pancreatitis and hyperlipidemia.
Conclusions: These cases highlight the complex interplay between pancreatic disorders and diabetes, underscoring the importance of early recognition and tailored management for the intricate and multifaceted nature of T3cDM. Awareness of this entity can enhance patient care and potentially mitigate both short-term and long-term complications associated with the disease.

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01-03-2024 07:00 - 18:00

CROSS-BORDER PERSPECTIVES: UNDERSTANDING AND BRIDGING DISPARITIES IN TYPE 2 DIABETES AMONG PAKISTANI AND AFGHANI PATIENTS

Iftikhar Ali[1], Wardah Arshad[2], Arshad Hussain[3]
[1]Paraplegic Center, College Of Physical Medicine & Rehabilitation, Peshawar, Pakistan, [2]Rawal Institute of Health sciences, Student, Islamabad, Pakistan, [3]Northwest General Hospital and Research Center, Endocrinology, Peshawar, Pakistan

Background and Aims: Diabetes Mellitus (DM) is one of the most prevalent diseases globally with an increasing incidence. It is one of the major causes of premature mortality and has been recognised as one of the topmost public health priorities. The distinctive attributes inherent in DM necessitate an interdisciplinary paradigm for comprehensive understanding and management.The study was undertaken to analyse patients and disease characteristics of Pakistani and Afghani patients with type 2 DM
Methods: This descriptive cross sectional study was conducted from 29 January 2014 to 31 October 2019 in northwest general hospital & Research centre which is a tertiary care hospital, a Venture of Alliance Healthcare (PVT) Ltd, located in the historic city of Peshawar. Its catchment area is all over the province of Khyber Pakhtunkhwa and nearby border areas of Afghanistan. All pertinent clinical and disease-related information was recorded on structured questionnaire. Chi square test, student independent test, and Mann-Whitney test were used to see differences between Pakistani and Afghani on the different characteristics.
Results: The study enrolled 1263 participants, comprising 72.7% Pakistani and 27.3% Afghani individuals. Key parameters such as mean age, weight, and BMI exhibited parity between the two cohorts. Notably, a higher prevalence of smoking was observed among the Afghani group. Pakistani patients demonstrated significantly elevated diastolic blood pressure, along with a longer mean duration since the diagnosis of DM ($p<0.001$). Complications such as nephropathy and neuropathy manifested at a higher frequency among Afghani subjects ($p>0.05$). Conversely, ischemic heart diseases ($p>0.05$) and hypertension ($p=0.001$) were more prevalent in the Pakistani cohort. Mean serum lipid values were comparable between the groups, yet HbA1c levels were notably elevated in Afghani patients (16.5% vs. 9.5%, $p=0.060$). Importantly, a majority of Afghani participants reported poor dietary control ($p<0.001$), while Pakistani subjects exhibited relative physical inactivity ($p=0.002$).
Conclusions: The results of this study showed comparable patient and disease-related characteristics except for comorbids, risk behaviour, glycemic control and complications. Moreover, variation in dietary and exercise compliance were evident. The imperative role of health education in holistic care is underscored, emphasizing the necessity for patient education encompassing facets of healthy nutrition, regular exercise, weight management, and glycemic control to forestall or attenuate complications, ultimately optimizing the quality of life.

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01-03-2024 07:00 - 18:00

"SURPASS(ING)" AN ERA OF BASAL-BOLUS INSULIN THERAPY: TIRZEPATIDE VS INSULIN LISPRO TID ADDED-ON TO POORLY CONTROLLED BASAL INSULIN-TREATED TYPE 2 DIABETES!

Julio Rosenstock[1], Juan Pablo Frias[2], Helena Rodbard[3], Santiago Tofé[4], Emmalee Sears[5], Ruth Huh[6], Laura Fernández Landó[7], Hiren Patel[8], Tatjana Isailovic[9]
[1]Velocity Clinical Research at Medical City, Dallas, Dallas Diabetes Research Consulting, Texas, United States of America, [2]Velocity Clinical Research, Velocity Clinical Research, Los Angeles, United States of America, [3]Endocrine and Metabolic Consultants, Rockville, Founder And Medical Director, Maryland, United States of America, [4]University Hospital Son Espases, Department Of Endocrinology And Nutrition, Palma de Mallorca, Spain, [5]Eli Lilly and Company, Computational Stats-diabetes, Indianapolis, United States of America, [6]Eli Lilly and Company, Statistics, Indianapolis, United States of America, [7]Eli Lilly and Company, Incretin Portfolio Development, Indianapolis, United States of America, [8]Eli Lilly and Company, Type 2 Diabetes Development, Indianapolis, United States of America, [9]Eli Lilly and Company, Diabetes Medical, Dubai, United Arab Emirates

Background and Aims: Tirzepatide (TZP) is a once weekly GIP and GLP-1 receptor agonist for the treatment of type 2 diabetes (T2D). Efficacy and safety of once weekly TZP vs insulin lispro (iLispro) was assessed in people with T2D with inadequately controlled glycemic control on insulin glargine (iGlar) with or without metformin.
Methods: In this 52-wk open-label, multicenter, Phase 3b study, 1428 patients with T2D (mean baseline [BL] age 59 y; T2D duration 14 y; HbA1c 8.8%; BMI 33 kg/m^2; iGlar dose 46 IU/day) were randomized (1:1:1:3) to TZP (5, 10, 15 mg) or iLispro TID, as an add-on to iGlar ± metformin. Insulin doses were titrated to a target fasting and pre-prandial glucose of 100-125 mg/dL. Primary efficacy measure was change in HbA1c from BL for TZP (pooled) vs iLispro at 52 wk. Secondary measures were change from BL in fasting serum glucose and body weight (BW), and proportion of patients at HbA1c and BW loss goals (TZP pooled and each dose vs iLispro).
Results: At 52 wk, TZP (pooled) was superior vs iLispro in change from BL in HbA1c, achieving a mean HbA1c of 6.5% vs 7.6%, with substantially less in insulin use (iGlar: 13 IU/day vs 42 IU/day [iLispro 62 IU/day]) and BW loss of 10 kg vs gain of 4 kg, respectively. Rate of Level 2 and 3 hypoglycemia was 10-fold higher with iLispro. The most common adverse events with TZP were nausea, diarrhea, and vomiting of mild to moderate severity.
Conclusions: In conclusion, TZP demonstrated clinically meaningful and superior glycemic and BW control vs iLispro associated with substantially less hypoglycemia and insulin use.

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THE DIAGNOSTIC VALUE OF GLYCATED ALBUMIN IN GESTATIONAL DIABETES : AN INTERIM ANALYSIS IN A MULTI-ETHNIC ASIAN SETTING

Noor Ashikin Ismail[1], Jeyakantha Ratnasingam[1], Sharmila Paramasivam[1], Lee-Ling Lim[1], Luqman Ibrahim[1], Quan Hziung Lim[1], Nicholas Hee Ken Yoong[1], Tharsini Sarvanandan[1], Shinye Eng[1], Ying-Guat Ooi[1], Mukhri Hamdan[2], Pavai Sthaneshwar[3], Shireene Ratna Vethakkan[1]
[1]University Malaya Medical Centre, Internal Medicine & Endocrinology, Lembah Pantai, Malaysia, [2]University Malaya Medical Centre, Obstetrics And Gynaecology, Lembah Pantai, Malaysia, [3]University Malaya Medical Centre, Pathology, Lembah Pantai, Malaysia

Background and Aims: The reference method for Gestational-Diabetes-Mellitus (GDM) diagnosis is the labour-intensive, time-consuming 75g OGTT (Oral-Glucose-Tolerance-Test), which involves fasting and blood sampling at 2-3 time-points over 2 hours. Use of HbA1c for diagnosis of GDM however, is fraught with difficulties due to physiological changes of pregnancy resulting in altered red-cell kinetics, anemia and iron-deficiency. Unlike HbA1c, glycated albumin (GA) reflects mean glycemia in the prior 2–3 weeks and is unaffected by erythrocyte-survival. We aimed to compare the diagnostic performance of GA, HbA1c and fasting-plasma-glucose (FPG) in Malaysian mothers screened for GDM with a one-step screening process deploying the OGTT.
Methods: Mothers were recruited during antenatal screening for GDM with a 2-point, 2-hour 75g OGTT. In addition to glucose, blood was sampled for HbA1c, GA and fructosamine. Women with known recent blood transfusion, hemoglobinopathy, nephrotic syndrome and liver cirrhosis were excluded. Applying Malaysian diagnostic criteria, GDM was diagnosed if fasting-glucose was >5.1 mmol/L and/or 2hour-glucose was >7.8 mmol/L. Area under the receiver-operating characteristic curves (AUCs) were calculated to determine the diagnostic value of FPG, GA, HbA1c and fructosamine.
Results: We recruited 107 women: 55 with GDM (51.4%) and 52 (48.6%) with normal-glucose-tolerance (NGT). Mean age was 32.4 ± 5 years, majority of Malay descent (62%) followed by Chinese (31%) and Indian (7%) ethnicity. Mean pre-pregnancy BMI was 24.8 ± 5.2 kg/m^2 and mean gestation was 27 ± 4.8 weeks, 37% of mothers had anaemia and 97% had mild hypoalbuminemia (serum albumin 25 to 34 g/L). Levels of GA, FPG, fructosamine and HbA1c were significantly higher in GDM group ($p < 0.05$). Upon multivariate logistic regression analysis, after adjusting for age, pre-pregnancy BMI, ethnicity, HbA1c and fructosamine; only FPG (OR 9.274, 95% CI 2.617-32.863) and GA (OR 1.657, 95% CI 1.115-2.463) were independently associated with diagnosis of GDM. In the entire cohort, ROC analyses revealed FPG had highest AUC for GDM detection (0.746, $p < 0.001$) compared with GA (0.657, $p=0.006$), HbA1c (0.655, $p=0.007$) and fructosamine (0.633, $p=0.02$). When women with BMI >30 kg/m^2 were excluded, AUC for GA improved to 0.695 ($p=0.002$). GA combined with FPG had an AUC of 0.814 ($p < 0.001$) in non-obese mothers.
Conclusions: GA used in combination with FPG significantly predicts GDM in non-obese pregnant women. Our preliminary findings indicate that a combination of FPG with GA, may be used for GDM diagnosis in those with BMI <30kg/m^2, as an alternative to the cumbersome 2-hour 75g OGTT.

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01-03-2024 07:00 - 18:00

ATTITUDE AND PREVENTIVE PRACTICES REGARDING DIABETIC COMPLICATIONS AMONG DIABETIC PATIENTS IN A TERTIARY ENDOCRINE CENTER IN NEPAL

Ansumali Joshi, Srijana Karmacharya, Sudikshya Mainali, Laxmi Gurung, Pushpa Dahal
Kathmandu Diabetes and Thyroid Center, Lalitpur, Nepal

Background and Aims: Diabetes is a global epidemic and a major challenge to Nepal's healthcare system due to its rising prevalence and complications. This study aimed to find out the attitude and preventive practices regarding diabetic complications among diabetic patients.
Methods: A cross-sectional, observational study was carried out among 128 diabetic patients using non-probability purposive sampling technique. Face to face interview was carried out using self-developed validated structured questionnaire in Nepali version. The 5-point Likert scale for 10 statements regarding diabetic complication was used to determine attitude. There were 5 positive and 5 negative statements. The patients were considered to have positive attitude if score was ≥50% and negative attitude if score was <50%. Practices of preventive measures of diabetic complications such as diet planning, glucose monitoring, drug compliance, screening for diabetic retinopathy, heart diseases, and follow-up was measured by self-developed structured questionnaire. Preventive practice was categorized as good practice if score was >75%, moderate practice if score was ≥ 50-75% and poor practice if score was < 50%. The collected data were analyzed using SPSS v16. Chi square test was used to assess association between different categorical variable. Pearson correlation coefficient was used to assess correlation between attitude and preventive practices.
Results: 128 patients above 18 years of age were included in this study. The mean age of the patients was 50.11±13.3 years. There were 71 (55.5%) male and 57 (44.5%) female patients. 113 (88.3%) respondents had a positive attitude. Level of preventive practice was poor among 44(34.4%) respondents, moderate in 72 (56.3%) and good among 12(9.4%) respondents. There was significant association of attitude with employment status (p =.009) and family history of diabetes (p=.001). Similarly, there was significant association of the level of preventive practices with marital status (p= < .001) and family history of diabetes (p= .029). In our study, duration of diabetes, duration of treatment and experiences of complication was not significantly associated with attitude and preventive practices. Similarly, age, gender, educational status, monthly income and family type had no significant association with attitude and preventive practice level. The correlation between attitude and preventive practices was not significant (p=0.714).
Conclusions: Though majority of diabetic patients had positive attitude, preventive practice measures for diabetic complication were poor among one third of the diabetic patients. Hence, this study recommends that health care personnel involved in diabetes care should emphasize patients on preventive measures for diabetic complications.

PV136 / #1407

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

RELATIONSHIP OF HANDGRIP STRENGTH WITH CARDIAC AUTONOMIC NEUROPATHY IN PATIENTS WITH TYPE 2 DIABETES

Chanhee Jung, Ji-Oh Mok
Soonchunhyang University Bucheon Hospital, Internal Medicine, Bucheon, Korea, Republic of

Background and Aims: To our knowledge, no studies have examined the relationship of handgrip strength (HGS) with cardiac autonomic neuropathy (CAN) in patients with type 2 diabetes mellitus (T2DM). In this study, we examined the relationships of HGS and CAN in patients with T2DM.
Methods: A total of 546 T2DM patients were enrolled in this cross-sectional study. CAN was assessed using five tests according to Ewing's protocol and was defined as the presence of autonomic neuropathy points ≥2.5. HGS in kilograms was measured by using a dynamomter and low HGS was defined as below 28kg in men and 18kg in women. In addition, HGS was normalized to body weight to account for the proportion of strength relative to body weight [HGS (kg)/body weight (kg)].
Results: The prevalence of CAN in total subjects was 35%. 17.9% of total patients had low HGS. Body weight-adjusted HGS showed negative correlation with age, albuminuria, hsCRP, and HOMA-IR and positive correlation with ankle brachial index. The patients with low HGS showed significantly higher glycated hemoglobin, older, lower eGFR, and higher mean carotid intima-media thickness than patients having higher HGS. The prevalence of CAN was significantly higher in those with lower HGS than those with higher HGS (p=0.003). In addition, the prevalence of CAN gradually increased with decreasing quartiles of weight-adjusted HGS quartile (p=0.012). The hazard ratios (HRs) [95% confidence interval (CI)] for CAN across quartiles of weight-adjusted HGS (Q1-Q4) were as follows: 1.00 (reference), 0.72 (0.42, 1.16), 0.48 (0.29, 0.82), 0.51 (0.3, 0.85) (p=0.022).
Conclusions: These results suggest that lower HGS may be significantly associated with CAN in patients with T2DM.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

DIABETES DISTRESS: UNDERSTANDING THE HIDDEN STRUGGLE AND ITS IMPLICATIONS ON SELF-MANAGEMENT AMONG SRI LANKANS LIVING WITH TYPE-2 DIABETES MELLITUS

Thilina Samarathunga[1], Harsha Dissanayake[1], Himasal Liyanage[2], Laksara De Silva[1], Uditha Bulugahapitiya[3], Manilka Sumanatilleke[3], Prasad Katulanda[1]
[1]Diabetes Research Unit, Department Of Clinical Medicine, Faculty Of Medicine, University Of Colombo, Colombo, Sri Lanka, [2]Ministry of Health, Colombo, Sri Lanka, Ministry Of Health, Colombo, Sri Lanka, Colombo, Sri Lanka, [3]Diabetes and Endocrinology Unit, National Hospital Of Sri Lanka, Colombo, Sri Lanka, Colombo, Sri Lanka

Background and Aims: Diabetes distress (DD) is the emotional burden caused by living with diabetes, including the daily self-management, dietary changes and fear of potential complications. Patients may experience distress with no clear sign or symptom which may lead to compromised self-management behaviours and poor diabetes outcomes. Therefore, we aimed to evaluate the determinants of diabetes distress and its implications on self-managemnt among people living with type-2 diabetes (T2DM).
Methods: A descriptive cross-sectional study was conducted at the Diabetes and Endocrine clinic of National Hospital of Sri Lanka from February to April 2023. Adults with T2DM were recruited by consecutive sampling. Diabetes distress and diabetes self-management were evaluated using DDS-17 and DSMQ-R questionnaires respectively. Moderate to high distress was considered worthy of clinical attention.
Results: Among 322 participants (females 69.3%), mean age was 59.9 (±10.2) years and mean diabetes duration was 11.4 (±7.7) years. Majority had suboptimal T2DM control (HbA1c ≥7%) (71.1%) and did not perform self-monitoring of blood glucose (66.5%). Prevalence of DD was 30.4% and majority (62.4%) experienced moderate-high emotional distress. Predictors of moderate-high DD were age range of 40-59 years (OR 3.6272, CI 2.023-6.504), female gender (OR 2.776, CI 1.416-5.441), suboptimal glycaemic control (OR 4.348, CI 1.880-10.052) and presence of other comorbidities (OR 3.051, CI 1.282-7.265). Self-management activities including glucose monitoring, medication adherence, dietary control, physical activity and healthcare use all exhibited significant and negative correlations with both DD and HbA1c.
Conclusions: Diabetes distress had a negative effect on the self-management among people living with T2DM. Addressing the emotional aspect of diabetes in a patient centered manner is essential for improving diabetes care. These findings highlight the clinical importance of addressing DD for promoting effective self-management practices and also shed light on how distress may influence diabetes management outcomes in low resourced settings such as Sri Lanka.

PV138 / #1030

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

CHANGES IN HBA1C AND AMBULATORY GLUCOSE PROFILE PARAMETERS IN IRZEPATIDE NAÏVE DIABETES PATIENTS WITH HYPERGLYCAEMIA

Mohammad Khalifah, Tomader T.M. Ali, Manar Abu Asaba
ICLDC, Diabetes Education, Abu Dhabi, United Arab Emirates

Background and Aims: Tirzepatide, a dual glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 agonist recently prescribed for the management of type 2 diabetes [1]. Poorly controlled patients with type 2 diabetic mellitus presents as a serious complication both short-and long-term [2]. We aimed to investigate, utilizing flash glucose monitoring [3] the effects on HbA1c, glucose levels and ambulatory glucose profile parameters in tirzepatide naïve patients with diabetes. References 1. Wong, E., et al., Tirzepatide: A Dual Glucose-dependent Insulinotropic Polypeptide and Glucagon-Like Peptide-1 Agonist for the Management of Type 2 Diabetes Mellitus. Am J Ther, 2023. 30(1): p. e26-e35. 2. Westman, E.C., Type 2 Diabetes Mellitus: A Pathophysiologic Perspective. Front Nutr, 2021. 8: p. 707371. 3. Krakauer, M., et al., A review of flash glucose monitoring in type 2 diabetes. Diabetol Metab Syndr, 2021. 13(1): p. 42.
Methods: At our Centre, data on HbA1c and AGP-derived glucose variability parameters were collated for group patients attending the Diabetes Educator Service who were: (1) adults (≥19 years old), (2) diagnosed with type 2 diabetes (3) on insulin therapy, (4) prescribed tirazepatide, and (5) on flash glucose monitoring device (FGM). Data was collected at two time points, baseline (T0) and the first visit after tirazepatide prescription (T1). Statistical analysis utilizing a two-tailed Student's t-test with unequal variance was conducted on each AGP profile parameter, with statistical significance at the p≤0.05 level.
Results: Fifteen patients were included in the analysis; two patients were excluded due to incomplete data. At T1 compared to T0, for the remaining patients (n=12; male n=7 (58%) glucose variability and AGP-derived time above range (TAR) were significantly decreased; p=0.0119 and p=0.0138 respectively. HbA1c and glucose management indicator (GMI) were also decreased significantly; p=0.0003 and p=0.0036 respectively; (Table
1).

	AGP-derived Parameters							
	HbA1c		GMI		TAR		Variability	
	T0	T1	T0	T1	T0	T1	T0	T1
Median	9.1	6.8	7.5	6.1	37.5	3.0	28.0	20.0
Min	7.1	5.7	5.7	5.7	0.0	0.0	17.0	13.0
Max	13.9	8.5	10.0	7.9	88.0	55.0	41.0	37.0
AVG	9.6	6.8	7.6	6.3	36.5	9.7	29.1	21.6
STDEV	2.0	0.9	1.3	0.7	34.3	17.4	7.7	7.5
p-value	0.0003		0.0036		0.0138		0.0119	

Table 1: HbA1c and AGP-derived parameters for patients with type 2 diabetes on insulin therapy and flash glucose monitoring devices. Patients (n=13).

Conclusions: In complex patients, with poorly controlled diabetes on insulin therapy, our data show that initiation of tirazepatide results in significant improvements in hyperglycaemia, glucose variability and ambulatory glucose profile parameters. Supported with efficient diabetes education and follow up, short - term beneficial effects can be observed, and maintained, improving overall health outcomes long-term.

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PV139 / #1842

E-Poster Viewing
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01-03-2024 07:00 - 18:00

DIETARY INTAKE OF INDIVIDUALS WITH TYPE 2 DIABETES DURING RAMADAN IN ACCORDANCE WITH RAMADAN NUTRITION PLAN (RNP) – DIABETES AND RAMADAN (DAR) GUIDELINES 2021.

Shahreen Ansar Khan[1], Saima Askari[2], Mussarrat Riaz[1,3]
[1]Baqai Institute of Diabetology and Endocrinology, Endocrinology, Karachi, Pakistan, [2]Baqai Institute of Diabetology and Endocrinology, Baqai Medical University, Karachi, Pakistan, [3]Baqai Institute of Diabetology and Endocrinology, Baqai Medical University, Endocrinology, Karachi, Pakistan

Background and Aims: The DaR offers a guideline regarding Ramadan risk stratification for people with diabetes. The role of medical nutrition therapy (MNT) is vital when fasting during Ramadan, not only in achieving optimal diabetes control but also in improving their lifestyle specially in overweight and obese individuals with type 2 diabetes (T2DM). AIM: To assess the dietary intake of individuals with type 2 diabetes who observed fasting for more than 15 days during Ramadan in accordance with RNP - DaR guidelines 2021.
Methods: This cross-sectional study was conducted at the Baqai Institute of Diabetology and Endocrinology (BIDE), a tertiary care diabetes center in Karachi, Pakistan. All people with T2DM of both genders regardless of age, who observed fasting for more than 15 days during Ramadan were included. A pre-design structured questionnaire was used to collect data for this study. One to one interview was conducted. Data on Ramadan nutrition practice and food consumption patterns were collected. The details about dietary intake at Suhoor, iftar and dinner time, especially the amount of carbohydrates, proteins, and fats was assessed as per dietary recommendations.
Results: A total number of 223 participants were enrolled in which females 93 (41.4%), and male 130 (58.6%) participants with a mean BMI of 28.07 kg/m^2. Sixty-four % didn't consult health care professionals and 80 % did not received pre- Ramadan education. Sixty % participants didn't monitor their blood glucose. Forty-nine % did not engage in regular physical activity or tarawih during Ramadan.

Macro Nutrients	Standards (DaR guidelines)	Total Practices
Carbohydrates	40-50%	54%
Proteins	20-30%	6%
fats	Less 35%	40%

Conclusions: The observed dietary intake during Ramadan did not align with established dietary recommendations of carbohydrates, proteins, and fats.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

PREGNANT WOMEN WITH DIABETES PERSPECTIVE REGARDING MEDICAL NUTRITION THERAPY; ARE THEY REALLY AWARE?

Shahreen Ansar Khan, Saima Askari, Mussarrat Riaz
Baqai Institute of Diabetology and Endocrinology, Baqai Medical University, Karachi, Pakistan

Background and Aims: Background and aim: Medical nutrition therapy (MNT) is an integral part of diabetes management and carbohydrate is the primary nutrient affecting postprandial blood glucose levels. Hence, knowledge of food containing carbohydrates can assist women with diabetes optimize glycemic control. The aim of this study is to find out the MNT awareness among pregnant women with diabetes.
Methods: Method: This cross-sectional study is being conducted at the Outpatient department of Baqai Institute of Diabetology and Endocrinology (BIDE), Baqai Medical University, Karachi, Pakistan from March 2023. After taking approval from Institutional review board (IRB) of BIDE, all women attending BIDE with gestational or pre-existing type 1 or type 2 diabetes who had a history of pregnancy and willing to participate regardless of age are enrolled in the study. Baseline demographics, detailed gynae & obstetrics history, and dietary knowledge is recorded on a questionnaire by a clinical dietician.
Results:

CHARACTERISTICS	TYPE OF DIABETES		
	Type 1	Type 2	GDM
Total number 120	21	83	16
Current Age	32±12.91	50±12.4	40±9.7
BMI	25±6.59	27.04±5.45	26±5.3
Education			
Can read / write only	0%	8.3%	11.1%
Primary	25%	25.9%	0%
Intermediate	35%	13.8%	11.11%
Matriculation	18.8%	27.4%	22.2%
Graduate	18.8%	27.6%	44.4%
Post graduate	0%	1.9%	0%

Knowledge related questions	Type 1	Type 2	GDM
A balanced diet is important during pregnancy?			
Yes	80%	73.9%	77.7%
No	14.5%	5.5%	0%

Don't know	5.5%	20.8%	22.2%
Women nutritional needs during pregnancy is different from others?			
Yes	60%	41%	44.4%
No	40%	33.3%	22.2%
Don't know	0%	25%	33.3%
Can pregnant women eat more food?			
Yes	35%	56%	55.5%
No	60%	40.1%	22.2%
Don't know	5.2%	4.0%	22.2%
Fruits need to be avoided in pregnancy.			
Yes	50%	40%	66.6%
No	50%	35%	33.3%
Don't know	0%	25%	0%
Can a pregnant woman skip her diabetic medicines if her sugars are normal?			
Yes	30.2%	41.4%	55.5%
No	50%	29%	22.2%
Don't know	20%	29%	22.2%
Is it right to gain weight during pregnancy?			
Yes	45%	55%	55%
No	55%	38%	11.5%
Don't know	0%	7.0%	33.3%
Can a pregnant woman with diabetes takes rice in her meal?			
Yes	80%	37%	55.5%
No	20%	41.7%	11.1%
Don't know	0%	20.8%	33.3%

Conclusions: Conclusion: The majority of women with diabetes lack proper knowledge related to MNT during pregnancy. As dietary counseling has long been recommended for women with diabetes for better maternal and fetal outcome therefore the nutritionists need to suggest special dietary strategies.

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PV141 / #1248

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

GESTATIONAL DIABETES MELLITUS: A PREDICTIVE RISK SCORE (GDM-PRICE STUDY)

Lakshmi Nalini Kopalle[1,2], Tarakeswari Surapaneni[3], Anees Soufiyana[4], Afrah Ali[4], Syeda Somayya Nayeem[4]
[1]Fernandez Hospital, Endocrinology, Hyderabad, India, [2]Ayan Institute of Medical Sciences, Biochemistry, Hyderabad, India, [3]Fernandez Hospital Foundation, Obstetrics, Hyderabad, India, [4]Chilkur Balaji College of Pharmacy, Phram D, Hyderabad, India

Background and Aims: Early identification of pregnant women at risk of Gestational Diabetes Mellitus (GDM) is essential to prevent the complications of both mother and fetus. In India, the number of pregnant women with GDM living in resource poor settings, with less accessibility to healthcare systems, is high. Devising a prophylactic program to prevent diabetes with lifestyle modifications to delay/prevent the onset of GDM immensely benefits these women. A predictive tool not just offers health benefits but also aids in risk stratification and decreases burden on healthcare system. Keeping in mind the limitations of healthcare system and implications of GDM on outcomes of pregnancy, we envisaged to develop a clinical risk scoring system (CRSS). CRSS aids in early screening and application of lifestyle changes to positively impact GDM and its effects.
Methods: A retrospective study was carried out to develop a predictive score model. The parameters chosen for construction of the scoring system were Pre-pregnancy BMI, Previous history of LGA / macrosomia, Family history of Diabetes mellitus (Primary Relations: biological parents or Siblings), Gravid status (Primigravida/multigravida), Maternal Age, H/o two or more miscarriages in the past, PCOS, Past H/o GDM, Hypertension (>140/90mmhg), History of still birth. Categorical outcomes were compared between study groups using Chi square test /Fisher's Exact test. Descriptive analysis for the quantitative variable, frequency, proportion for categorical variables were carried out. The association between exposure variables and outcome was assessed by calculating the odds ratio, 95% CI and Chi-square test. Quantitative variables were compared using an independent sample t-test or Mann-Whitney U test. To compute the weighted risk score univariate, multivariate and logistic regression analysis were carried out along with ROC.
Results: 812 pregnant women were included, 52.59% (427) of women had GDM, and 47.41% (385) of women were non-GDM. The Area under the Curve (AUC) value obtained was 0.897 and the cut-off value was determined by Young's Index, which was 8.5. This indicates that having a score greater than 8.5 has a higher risk and a score smaller than 8.5 has a lower risk of GDM. The diagnostic validity of the tool had an accuracy of 83.99% with 91.57%sensitivity, 75.58%specificity, 24.42% false positive, 8.43% false negative, 80.62% positive predictive, and 88.99% negative predictive.
Conclusions: The predictive score tool developed in our study has good predictability as tested using ROC. The cut-off score was found to be 8.5. Any pregnant woman with a score above 8.5 has a high chance of developing GDM.

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PV142 / #134

E-Poster Viewing
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01-03-2024 07:00 - 18:00

THE CHALLENGE OF TREATING NONALCOHOLIC STEATOHEPATITIS OF DAPAGLIFLOZIN IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

Iryna Kostitska[1], Nadiia Protas[2]
[1]Ivano-Frankivsk National Medical University, Endocrinology, Ivano-Frankivsk, Ukraine, [2]Communal Non-commercial Enterprise Regional Clinical Hospital of Ivano-Frankivsk Regional Council, Endocrinology, Ivano-Frankivsk, Ukraine

Background and Aims: The most common form of liver disease in individuals with type 2 diabetes mellitus (DM) is nonalcoholic steatohepatitis (NS). NS are increasingly being recognized as the microvascular complications of DM and an increased risk of cardiovascular disease. Nowdays treatment options for NS in patients with metabolic dysfunction–associated fatty liver disease (MAFLD) are expanding.To investigate efficacy and safety of dapagliflozin on NS evaluated in patients with NS and MAFLD. Aim our study to elucidate the effect of dapagliflozin as second line glucose-lowering agents for NS patients with type 2 DM by comparing with metformin.
Methods: We have studied 31 subjects with type 2 DM duration of 12.8±7.1 years, among uncontrolled carbohydrate metabolism (HbA_1C-8.4±0.5%) and an abnormal alanine aminotransferase (ALT) level (>40 IU/L) with symptoms of MAFLD. The patients with the fatty liver index (FLI) < 30 (hepatic steatosis) were excluded from the analysis. All patients divided into two groups: I control group (n=15, 7 males/8 females) participants, mean BMI was 33.9±1.1 kg/m^2 who received metformin (daily doses (dd) - 2000 mg) and II group subjects (n=16, 8 males/8 females), mean BMI was 34.7±1.4 kg/m^2 assigned to metformin (dd-2000 mg) added dapagliflozin (dd - 10 mg) within the 3 months of diagnosing NS. An FLI, BMI, waist circumference and HbA_1C, ALT, triglycerides, γ-glutamyl transpeptidase levels were measured at start and end after 3 months of the treatment. No subjects studied have had the signs of other disorders of gastrointestinal tract.
Results: II group showed more weight loss and more ALT decline than control group (–3.2 kg vs. –0.9 kg, p=0.005; –20.3 U/L vs. –9.4 U/L, p=0.005, respectively) and the proportion of patients with ALT normalization after treatment was also significantly higher in the II group (81.0% vs. 61.2%, p=0.05). FLI decreased significantly in II group (49.2±21.4 to 41.1±23.9; p<0.01) compared with the I group (48.6±22.2 to 47.5 ± 22.6). Multiple linear regression analysis showed that the changes in FLI had a significantly positive correlation with changes in HbA_1C (p=0.03) in the patients who received dual oral hypoglycemic agents.
Conclusions: The liver function in the patients with type 2 DM and NS improvement was statistically significant in the dapagliflozin when combined with metformin than the metformin.

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E-Poster Viewing
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THE EFFECT OF IMEGLIMIN IN JAPANESE PATIENTS WITH TYPE 2 DIABETES MELLITUS VARIES WITH THE LEVELS OF HBA1C.

Masataka Kusunoki[1], Fumiya Hisano[2], Tomokazu Abe[1], Shin-Ichi Matsuda[3], Tetsuro Miyata[4]
[1]Research Center of Health, Physical Fitness and Sports, Nagoya University, Nagoya, Japan, [2]Department of Integrated Health Science, Graduate School of Medicine, Nagoya University, Nagoya, Japan, [3]Nanzan University, Data Science Fuculty Of Data Science And Technology, Nagoya, Japan, [4]Office of Medical Education, School of Medicine, International University Of Health And Welfare, Narita, Japan

Background and Aims: Imeglimin is a novel medicine for diabetes mellitus that acts by improving mitochondrial function. In this study, we evaluated the effects of imeglimin on parameters related to diabetes mellitus with poor glycemia control despite treatment with multiple antidiabetic drugs and/or had difficulty in following therapeutic modifications of diet and exercise.
Methods: A total of 40 patients with poor glycemia control who received Imeglimin at the dose of 2,000 mg/day for 3 months, and the following parameters were measured before and after the treatment: plasma HbA1c, lipid profile and other relevant blood parameters.
Results: At the end of administration period,Imeglimin significantly lowered HbA1c level (8.6±1.12→7.6±1.12, p<0.001). Regarding serum lipids,the Imeglimin treatment ameliorated levels of LDL-cholesterol(106±33.2→93.7±32.8, P<0.02).Imeglimin also reduced serum levels of alanine aminotransferase(ALT)(28.9±21.65→21. 3 ±11.31, P<0.005), the hepatic function parameter. In the patients of HbA1c≧8.0%, Imeglimin additionaly lowered total-cholesterol(192.7±41.39→172.6±49.26, P<0.005) and non-HDL-cholesterol(134.2±41.55→119.3±44.84, P<0.02). On the other hand,Imeglimin did not reduce total-cholesterol and non-HDL-cholesterol in the patient of HbA1c＜8.0%. Different effects have recoganized in the HbA1c levels.
Conclusions: Imeglimin significantly lowered the HbA1c level, and ameliorated serum lipids levels and hepatic function parameters in the patients. Imeglimin may have beneficial effects on glucose control, atherosclerosis and hepatic function in the diabetic patients showing poor glycemic control.However,the effect of Imeglimin in Japanese patients with type2 Diabetes Mellitus varies with the levels of HbA1c.

PV144 / #1670

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

REDUCED SEVERE HYPOGLYCEMIA RISK WITH SGLT2 INHIBITORS COMPARED TO DPP4 INHIBITORS IN TYPE 2 DIABETES

Hyuk-Sang Kwon[1], Soon Jib Yoo[2]
[1]The Catholic University of Korea, Division Of Endocrinology And Metabolism, Department Of Internal Medicine, SEOUL, Korea, Republic of, [2]The Catholic University of Korea, Endocrinology, Bucheon, Korea, Republic of

Background and Aims: Severe hypoglycemia has been linked to substantial health consequences such as cardiovascular events and mortality. We investigated the risk of severe hypoglycemia associated with sodium-glucose transport protein 2 (SGLT2) inhibitors compared with dipeptidyl peptidase-4 (DPP4) inhibitors.
Methods: Using data from the National Health Insurance Service of Korea, we ascertained the initiators of SGLT2 or DPP4 inhibitors from 2014 to 2017. Based on a 1:1 propensity score match, we included new users of SGLT2 (n=57,021) and DPP4 (n= 57,021) inhibitors. We used the Cox proportional hazards model to estimate hazard ratios (HRs) with 95% confidence intervals (CIs) for developing severe hypoglycemia in the matched sample. Exploratory subgroup analyses were performed to assess the consistency of the treatment effects on the primary outcome.
Results: During a follow-up of 1 year, the incidence rate of severe hypoglycemia was 1.88 and 3.28 per 1,000 person-years in patients treated with SGLT2 and DPP4 inhibitors, respectively. SGLT2 inhibitors, as opposed to DPP4 inhibitors, were associated with a significantly lower risk of severe hypoglycemia (HR, 0.57; 95% CI, 0.45–0.73). In subgroup analyses, SGLT2 inhibitors showed a significantly decreased risk of hypoglycemia in women, patients with peripheral artery disease, and patients on angiotensin-converting enzyme inhibitors/angiotensin receptor blockers and sulfonylureas, whereas their counterparts did not.
Conclusions: The new use of SGLT2 inhibitors was associated with a 43% lower risk of severe hypoglycemia than DPP4 inhibitors. SGLT2 inhibitors may be safer in glycemic control than DPP4 inhibitors, especially in subjects at an increased risk of severe hypoglycemia.

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PV145 / #1673

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

REPEATED DETECTION OF NON-ALCOHOLIC FATTY LIVER DISEASE INCREASES THE INCIDENCE RISK OF TYPE 2 DIABETES IN YOUNG ADULTS

Hyuk-Sang Kwon[1], Soon Jib Yoo[2]
[1]The Catholic University of Korea, Division Of Endocrinology And Metabolism, Department Of Internal Medicine, SEOUL, Korea, Republic of, [2]The Catholic University of Korea, Endocrinology, Bucheon, Korea, Republic of

Background and Aims: This study aimed to investigate the effects of repeated detection of non-alcoholic fatty liver disease (NAFLD) on the incidence risk of type 2 diabetes in young adults.
Methods: In this nationwide population-based observational study using data from the Korean National Health Insurance Service, approximately 1 125 015 young adults aged 20-39 years who underwent health screening four times between 2009 and 2013 were included. NAFLD was defined as a fatty liver index (FLI) of ≥60. Repeated detection of NAFLD scores was defined as the number of times the participants met the criteria for NAFLD (0-4). To account for the degree of repeated detection of NAFLD, weighted repeated NAFLD scores were scaled as a sum by assigning points (0 points for FLI <30, 1 point for 30 ≤ FLI < 60, and 2 points for FLI ≥60) ranging from 0 to 8 points.
Results: The multivariable-adjusted hazard ratios of type 2 diabetes associated with repeated detection of NAFLD scores of 1, 2, 3 and 4 were 2.74 (95% confidence interval 2.57-2.921), 3.45 (3.221-3.694), 4.588 (4.303-4.892) and 6.126 (5.77-6.504), respectively. The incidence risk of type 2 diabetes increased significantly with repeated detection of the NAFLD score. In the analysis of the weighted repeated NAFLD score, the hazard ratios for the incidence of type 2 diabetes showed a significant continuous positive linear association with increasing scores.
Conclusions: Repeated detection of NAFLD influenced the incidence risk of type 2 diabetes in young adults, and a higher degree of repeated detection of NAFLD was independently associated with the risk of type 2 diabetes in young adults.

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PV146 / #823

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01-03-2024 07:00 - 18:00

UTILISATION OF THE DIABETES AND RAMADAN (DAR) RISK SCORE IN A DIGITAL INTERVENTION STUDY AMONG DIABETES MELLITUS PATIENTS IN BRUNEI DARUSSALAM

Hui Wen Lee[1], Athirah Yusof[1], Hiu Nam Chan[1], Yufan Chen[1], Si Yee Chan[1], Hong Shen Lim[1], Pui Lin Chong[2], Chee Kwang Yung[2], Musjarena Mulok[3], Alice M L Yong[2]
[1]EVYD Technology Sdn Bhd, Medical Operations, Bandar Seri Begawan, Brunei, [2]RIPAS Hospital, Endocrine Centre, Bandar Seri Begawan, Brunei, [3]Ministry of Health, Department Of Health Services, Bandar Seri Begawan, Brunei

Background and Aims: Fasting during the month of Ramadan is one of the five pillars of Islam and is practiced by Muslims worldwide, including Brunei Darussalam. In view of abstinence from food and fluids during the fasting period, there are potential increased health risks for patients with type 2 diabetes mellitus (T2DM). The International Diabetes Federation - Diabetes and Ramadan (IDF-DAR) risk score is a tool designed to help determine risk of fasting amongst diabetes patients. This study aims to stratify participants with T2DM according to their DAR risk score and assess the association of DAR risk score parameters with the risk of fasting.
Methods: Participants enrolled in this 16-week digital intervention study and intended to fast during Ramadan were assessed using the DAR risk stratification tool to determine their risk score. Baseline characteristics and demographics were collected through various components within the DAR questionnaire. Participants received targeted Ramadan-focused education, including a dietitian-led group session, personalized nutrition and exercise guidance from a health coach. This study represents a sub-analysis of a pilot study to explore the effectiveness and feasibility of a digital intervention for T2DM, approved by the Medical and Health Research and Ethics Committee (MHREC). Data collection and analysis were conducted in Microsoft Excel.
Results: 102 participants (mean age 42.5 ± 9.3 years and 54.9% females) were stratified into low-risk (23.5%), moderate-risk (55.9%), and high-risk (20.6%) groups based on their DAR scores. Over 75% of the participants belonged to moderate to high-risk groups. Gender and age analyses comparing participants aged ≤ 40 and those > 40 years old did not show significant differences in DAR scores. BMI variations in DAR scores were non-significant; although more than half of participants who were overweight/obese had moderate risk (53.9%). Participants with a history of hypo-glycaemia and those with suboptimal/poor glycaemic control (HbA1c ≥ 7.5 - 9%; HbA1c > 9%) had higher DAR scores than those without hypo-glycaemia and better glycaemic control (HbA1c < 7.5%). Notably, participants who did not perform SMBG and those on sulphonylureas had significantly higher DAR scores compared to those who performed SMBG and those not taking sulphonylureas ($p < 0.05$).
Conclusions: Participants with history of hypo-glycaemia, poor glycaemic control, no SMBG and those taking sulphonylureas were associated with an elevated risk of fasting, as indicated by higher DAR scores. Personalised guidance is crucial to ensure safe fasting for individuals with T2DM during Ramadan.

PV147 / #672

E-Poster Viewing
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01-03-2024 07:00 - 18:00

LINC01270 ATTENUATION AGGRAVATES PRO-INFLAMMATORY RESPONSE MEDIATED BY NFKB AND STAT1 BY THE MIR-326/LDOC1 AXIS IN THP-1 CELL LINE

Imene Arab, Won Ha Lee
Kyungpook National University, Scholl Of Life Sciences And Biotechnology, Daegu, Korea, Republic of

Background and Aims: Recent advancements in the field of diabetes research have illuminated the critical role of macrophage long noncoding RNAs (lncRNAs) in diabetes development and the wound healing process in diabetic individuals. These lncRNAs regulate the formation of proinflammatory environments and the polarization of M1/M2 macrophages. Promisingly, lncRNA-targeted therapies are currently in development for the treatment of diabetes. LINC01270, a 2,278-base pair transcript categorized within the intergenic subset of lncRNAs, has gained attention due to its involvement in various diseases. However, comprehensive research on its impact on macrophage-mediated inflammation remains limited.
Methods: In this study, we investigated the potential role of LINC01270 in modulating the inflammatory response in the human macrophage-like cell line THP-1. The expressions of LINC01270, miR-326, and LDOC1 were measured by quantitative real-time polymerase chain reaction (qPCR) or Western blot. LINC01270 expression was suppressed using small interfering RNA (siRNA). The inflammatory response was investigated by measuring the expression levels of inflammatory cytokines, tumor necrosis factor-alpha (TNF-a), interleukin IL)-6, IL-8, and macrophage chemoattractant protein (MCP)-1 using qPCR and ELISA. The interaction among LINC01270, miR-326, and LDOC1 was investigated through bioinformatics analysis and confirmed using decoy RNAs and microRNA mimics and inhibitors. Finally, the expression levels signaling mediators were detected via Western blotting.
Results: Our findings revealed an upregulation of LINC01270 expression in response to lipopolysaccharide (LPS) stimulation. Notably, the attenuation of LINC01270 led to heightened activation of the NFκB and STAT1 signaling pathways, resulting in an exacerbated secretion of LPS-induced pro-inflammatory cytokines such as IL-6, IL-8, and MCP-1. Additionally, the knockdown of LINC01270 downregulated LDOC1, a novel NFκB suppressor. Further analysis of the LINC01270 miRNA/protein interactome profile identified miR-326 as a potential mediator of the LINC01270-LDOC1 interaction. Treatment with miR-326 inhibitor or a decoy RNA molecule mimicking the LINC01270 binding site of miR-326 effectively reversed the knockdown effects observed in both NFκB and STAT1 signaling pathways.
Conclusions: Our study elucidates the critical role of LINC01270 in regulating the pro-inflammatory response through the miR-326/LDOC1 axis in THP-1 cells. These findings offer valuable insights into the potential therapeutic targeting of LINC01270 in the context of inflammatory disorders, particularly in diabetes-related inflammation and polarization of macrophages.

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DIAGNOSIS AND MANAGEMENT OF DIABETIC KETOACIDOSIS (DKA) DURING COVID 19 PANDEMIC: CONFUSION, CHAOS AND CHALLENGES (TWO CONTRASTING EXAMPLES)

Leena Lekkala[1], Kavitha Muniraj[2], Anirudh Krishnamurthy[2], Sathyanarayana Srikanta[2], Vasanthi Nath[2], Samatvam Diabetes Collaborative Study Group[3], Chandrika K.M[4], Jayalakshmi Thimmaiah[5]
[1]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [3]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangaiore, India, [4]CMH Hospital, Diabetes, Bangaiore, India, [5]Vikram Hospital, Endocrinology, Bangaiore, India

Background and Aims: Covid-19 infection associated increased incidence, complications and mortality of DKA in type 1 (T1D) or type 2 (T2D) diabetes has been attributed to: potentiation of autoimmune-mediated destruction of β cells (with underlying T1D genetic risk), infection associated increased insulin resistance leading to glycaemic decompensation, presence of SARS-CoV-2 in pancreatic β cells, increased oxidative stress, high concentrations of pro-inflammatory cytokines, cytokines mediated impairment of insulin secretion and insulin action etc.
Methods: We present two challenging reports of DKA encountered during Covid-19 pandemic and highlight lessons learnt.
Results: Delayed diagnosis of autoimmune late-onset T1D manifesting DKA during mild (non-hypoxic) Covid 19. 1974: Birth (Female)
2018: T2D OHA treated
2018: Hypothyroidism Primary
2021: Insulin added
2022 November 13: Hospitalisation- fever, vomiting, diarrhoea, fatigue, dehydration and drowsiness. No respiratory symptoms or signs. Blood glucose 415 mg/dl with ketonuria and severe metabolic acidosis. Covid-19 RTPCR positive. Treated for DKA with IV fluids and insulin. Discharged on OHA plus Insulin 40 units per/day.
2022 November 21: Endocrine Clinic initial visit. In good health. CGM initiated. Treated with metformin, glimepiride, dapagliflozin and liraglutide; insulin discontinued.
2022 November 26: CGM glucose 200 to 350 mg/dl. Insulin glargine 16 units added.
2022 December 30: T1D diagnosis. Started on basal bolus insulin and OHAs discontinued.
Serum C-peptide fasting 0.3 ng/ml (0.78- 5.19), post-meal 0.82 ng/ml; HbA1C 11.9%; TPO antibodies positive; GAD antibodies positive 57 IU/ml (<17); islet cell antibodies negative.
2023 September: Recommended insulin pump.
Iatrogenic steroid induced near-fatal DKA in T2D during incidental mild (non-hypoxic) Covid 19. 1981: Birth (Male)
2009: T2D OHA treated
2021 May 13: Covid-19 mild
2021 May 18: Unfortunately given oral glucocorticoids (local doctor).
2021 May 21: Hospitalisation- anorexia, poor food intake, fatigue, disorientation; blood glucose 600 mg/dl, respiratory rate 40/min. Diagnosed as “Covid-Pneumonia”; intubated and ventilated (5 days); progressed to coma. Covid-19 treatment; also, insulin and IV fluids.

2021 June 3: Discharged on basal bolus insulin 86 u/day; glucocorticoids discontinued.
2021 June: Serum C-peptide fasting 0.4 ng/ml (low); glucotoxicity/ beta cell exhaustion vs injury? GAD antibodies negative; islet cell antibodies (immunofluorescence) negative. HbA1c 12.8%.
2021 July: OHA added, insulin tapered and stopped.
2021 September: Serum C-peptide fasting 1.1 ng/ml (0.78-5.19), post-glucose 2.64 ng/ml; beta cell recovery! HbA1c 6.0%.
2023: Serum insulin fasting: 4.75 µU/mL (1.9-23).
Conclusions: Extraordinary clinical challenges resulted from co-occurrence of two potentially lethal medical emergencies, especially at a time when health care delivery systems were stretched beyond capacity.

PV149 / #1277

E-Poster Viewing
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INVOLVEMENT OF MELATONIN RECEPTOR ON THE HYPOGLYCEMIC EFFECT OF TRANSCUTANEOUS AURICULAR VAGUS NERVE STIMULATION

Shaoyuan Li, Yuzhengheng Zhang
China Academy of Chinese Medical Sciences, Institute Of Acupuncture And Moxibustion, Beijing, China

Background and Aims: Type 2 diabetes is a chronic metabolic disease characterized by elevated blood glucose. With the increasing health burden, the number of diabetics worldwide has reached 537 million by 2021, equivalent to 10.5% of the world's population. In addition to the common insulin resistance and insulin receptor damage, melatonin deficiency and its receptor damage have also been shown to be associated with diabetes.
Methods: In the present study, we observed that a rat model of type 2 diabetes mellitus established by high-fat chow feeding exhibited reduced plasma melatonin concentrations, decreased expression of insulin receptors in the liver, skeletal muscle, and pancreatic tissues, as well as reduced melatonin receptor expression in the ileum, duodenum, and jejunum.
Results: Plasma insulin concentration was increased, and insulin receptor and ileal, duodenal, and jejunal melatonin receptor expression were upregulated in liver, skeletal muscle, and pancreatic tissues in Zucker diabetic fatty rats (ZDF) by continuous transcutaneous vagus nerve stimulation (taVNS) intervention. Meanwhile, after taVNS intervention in pinealectomized ZDF rats, we observed increased plasma insulin concentration and increased intestinal melatonin receptor expression, which further demonstrated the role of intestinal melatonin receptor and its secreted melatonin in blood glucose regulation. In contrast, ZDF rats in which the pineal gland was excised by taVNS intervention and injected with Luzindole, a melatonin receptor antagonist, did not show these changes.
Conclusions: This study suggested that taVNS produces hypoglycemic effects by regulating peripheral melatonin secretion and intestinal melatonin receptor expression, which provides a promising mechanism for treating type 2 diabetes with taVNS.

PV150 / #1847

E-Poster Viewing
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FEATURES OF THE MOLECULAR BIOMARKER PROFILE DEPENDING ON THE PHENOTYPE OF DIABETES MELLITUS

Nikolai Likhonosov, Elena A. Lyasnikova, Alina Yu. Babenko, Evgeny V. Shlyakhto
Federal State Budgetary Institution “V.A. Almazov National Medical Research Centre” of the Ministry of Health of the Russian Federation, Saint Petersburg, Russia., Saint-Petersburg, Russian Federation

Background and Aims: To improve personalized treatment of type 2 diabetes mellitus (T2DM), it is suggested to consider phenotypic differences among T2DM patients based on the dominant pathogenetic mechanism and disease complications. However, the biomarker profile reflecting insulin resistance and associated inflammatory-fibrotic processes in different T2DM clusters is not fully clear and continues to be refined. Therefore, we investigated the serum biomarker profile in groups of patients with different T2DM phenotypes.
Methods: 146 patients with T2DM (age 58 [51; 64] years (50% men)), duration of T2DM 8.7 [3.3; 12] years, HbA1c 8.4 [7.4; 9.4]%, BMI 35.4 [29.9; 39.1] kg/m2 were included. Patients were stratified into four clusters: insulin-deficient (ID) - 19.9%, insulin resistant (IR) – 37%, obesity-determined (OD) – 35.6%, age-determined (AD) – 7.5%. All patients underwent echocardiography, ultrasound examination of vascular wall structural-functional parameters, and serum markers of fibrosis, inflammation, oxidative, and myocardial stress (Procollagen type I, Procolagen type III, NT-proBNP, Galectin-3, E-selectin, sST2, MMP-9, TIMP-1, TGF-β, sICAM-1, Myeloperoxidase, Paraoxonase-1).
Results: The most significant differences among the T2DM groups were found in the levels of circulating biomarkers of the extracellular matrix. The highest concentrations of type I collagen propeptide (PICP) and N-terminal propeptide of type III procollagen (PIIINP) were observed in obesity-determined and insulin resistant clusters, respectively. Patients of these groups were associated with increased markers of inflammation, characterized by the presence of more echocardiographic markers of myocardial hypertrophy and the presence of chronic heart failure with preserved left ventricular ejection fraction.
Conclusions: The study results suggest that the proposed T2DM phenotypes are associated with different serum biomarker profiles. The balance between inflammatory-fibrotic processes and insulin resistance apparently determines the direction of myocardial remodeling in patients with impaired glycemic status, predominantly in patients with OD and IR phenotypes of T2DM, predetermining various cardiovascular complications associated primarily with inflammatory risks.

PV151 / #1793

E-Poster Viewing
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TCF7L2 RS12255372 MUTATION AMONG BANGLADESHI ADULT TYPE 2 DIABETES PATIENTS

Syed Azmal Mahmood[1], Shahjada Selim[2]
[1]Bangabandhu Sheikh Mujib Medical University, Department Of Endocrinology, Dhaka, Bangladesh, [2]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Background: While the etiology of T2DM is complex, genetic markers for T2DM are surfacing fast and amidst such markers, the transcription factor 7-like 2 (TCF7L2) gene has been emerged as the most promising T2DM causing gene. The intronic variant rs12255372 of the TCF7L2 gene has been found to be strongly associated with T2DM in different ethnic populations. Aims: To determine frequency of rs12255372 polymorphism in the TCF7L2 gene in Bangladeshi adult population with T2DM and without diabetes.
Methods: This cross-sectional study was conducted in department of Endocrinology, BSMMU. Eighty T2DM patients and 80 age and sex matched controls were recruited consecutively by non-random sampling, history and clinical examination findings were recorded. Blood samples were collected. Genomic DNA was extracted and single nucleotide polymorphisms rs12255372 were determined by restriction fragment length polymorphism (RFLP) method. P values ≤ 0.05 was considered as statistically significant.
Results: The minor (T) allele frequencies for rs12255372 (G>T) among T2DM and NGT were 28% and 11% respectively. The observed genotype frequencies of rs12255372 were different than those expected from the Hardy-Weinberg equation. There was significant association of TCF7L2 SNP rs12255372 with T2DM in all four genetic models. GT heterozygous and TT homozygous variants were found to cause approximately 3-fold and 5.2-fold increase in T2DM risk respectively. Univariate logistic regression analysis also predicted that there is about 3.5 times higher likelihood of developing T2DM for those having at least one “T” allele in rs12255372 position in this subgroup but when adjusted for age, family history of diabetes, BMI and central obesity the odds for developing T2DM equalizes.
Conclusions: The minor T allele frequency of rs12255372 (G>T) among T2DM and NGT participants were about one-fourth and one-tenth respectively indicating the rs12255372 polymorphism of the TCF7L2 may be associated with risk of T2DM in the studied Bangladeshi population.

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COMPARATIVE ANALYSIS BETWEEN LINAGLIPTIN AND SODIUM-GLUCOSE COTRANSPORTER-2 INHIBITORS AND ITS IMPACT ON HBA1C LEVELS – A CROSS-SECTIONAL CORRELATIONAL STUDY FROM SOUTH ASIAN DIABETIC PATIENTS

Ainan Arshad[1], Sher Muhammad Sethi[1], Muhammad Zain Mushtaq[2], Saad Bin Zafar Mahmood[2], Faheem Sheikh[1], Farhala Baloch[1], Rabeea Azmat[1], Sumera Batool[1]
[1]Aga Khan University Hospital, Karachi, Pakistan, [2]Aga Khan University Hospital, Medicine, Karachi, Pakistan

Background and Aims: This research endeavors to comprehensively investigate the efficacy of linagliptin and sodium glucose co-transport-2 (SGLT-2) inhibitors as therapeutic agents for glycemic control in the South Asian population, responding to the escalating diabetes prevalence in the region. The study anticipates yielding insights to optimize emerging interventions, tailoring precise and efficacious diabetes management strategies to enhance the quality of care within the South Asian demographic.
Methods: Conducted at the Aga Khan University Hospital in Karachi over six months (May to October 2023), this cross-sectional comparative study employed descriptive statistics. Categorical variables were summarized with frequencies and percentages, and quantitative variables with mean and standard deviation, categorized by treatment groups (Linagliptin and SGLT-2 inhibitor). Differences were assessed through chi-square tests and independent t-tests. Multiple linear regression analysis identified factors associated with post-treatment HbA1c levels, with regression model assumptions evaluated and multicollinearity assessed through Pearson correlation and statistical tests. The final model outcomes, including crude and adjusted beta coefficients, 95% confidence intervals, and p-values (significance set at < 0.05), are reported.
Results: Involving 278 participants with type 2 diabetes mellitus, 86.3% used SGLT-2 inhibitors, and 13.7% received linagliptin. Groups exhibited comparable socio-demographic characteristics, with slight variations in age, diabetes duration, and concurrent medication use. No statistically significant differences were observed in clinical parameters and laboratory values after 6 months of treatment, except for urine micro-albumin levels. Complications analysis indicated higher hypoglycemia incidence with linagliptin (8.1%) versus SGLT-2 inhibitors (0.5%). Regression analysis revealed a significant increase in post-treatment HbA1c with SGLT-2 inhibitors, associating post-treatment FBS increase with higher HbA1c.
Conclusions: Our study highlights that linagliptin is more effective in reducing HbA1c levels but carries a risk of hypoglycemia when combined with multiple other oral hypoglycemic agents. Combining SGLT-2 inhibitors with other oral hypoglycemic medications proves beneficial for enhanced glycemic control.

PV153 / #723

E-Poster Viewing
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DIABETES CARE FOR THE BOTTOM OF THE SOCIOECONOMIC PYRAMID: FOUR DECADES OF SCIENCE, MEDICINE, CREATIVITY AND EMPATHY (SAMATVAM - INDIA MODEL; 1987 - 2023)

Sapna Manjunath[1], Madhumati Vaishnav[2], Kavitha Muniraj[3], Reshma Bv[4], Rajeshwari Ashok[5], Leena Lekkala[3], Ranjini Krishna[6], Sathyanarayana Srikanta[7], Uma Dayashankar[3], Geetha Rao[5], Samatvam Diabetes Collaborative Study Group[8]
[1]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [2]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [3]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [4]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [5]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [6]Samatvam: Science and Research for Human Welfare Trust, Public Health Community Medicine, Bangalore, India, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [8]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: “Ideal/optimal/minimal” standard diabetes care in resources limited settings remains a major challenge globally. Health care gap between ‘haves’ and ‘have nots’ needs bridging.
Methods: Focusing on adult/type 2 and childhood/type 1 diabetes, “Samatvam” (not-for profit charity) has continued to implement several FREE/subsidised health care programs.
Results: Type 1 diabetes Care (Project DISHA = Direction): Insulin, Love and Care and “Type 4” Diabetes: "Type 4 diabetes" refers to health care providers (HCP)s who try to understand in-depth and give their best to patients. Such "stranger patients", become part of the "extended family" of the HCPs. Patients are Our Best Teachers – The “Outside” and “Inside” of Diabetes: Ms Shobha Setia, India's first Diabetes Specialist Nurse (herself with Type 1 diabetes), has rightly remarked: "Doctors only know the outside (textbook) of diabetes. We suffering people with diabetes know the inside of Diabetes”. Unique HCPs like Ms Shobha Setia know both the inside and outside of Type 1 diabetes (suffers are often the best healers). Economics and Affordability - “Discipline compensation for poverty”: Our comparative study of “poor” (Free Clinic) versus the “affluent / affordable” (Fee for Service Clinic) groups indicated that, in their struggles towards euglycemia, ways these DISHA youngsters ‘compensate’ for the infrequent home glucose monitoring, generic human insulin etc, include: (a) intense discipline, (b) extraordinary family support and (c) rigid life adjustments. Type 2 Diabetes Care (Project DOSTI = Friendship): Healthcare “at the doorsteps” for Rural and Urban Poor: “Peers for Health” or “Madhura Sanjeevini” Model (“Help Them Help Themselves”): Peer Leaders or Community Health Workers (PLs/CHWs: patients with diabetes or their family members– spouses, mothers, daughters, daughters-in-law, sisters etc)= 18. Families Enrolled= 491; People screened= 2880; Diabetes: Newly Diagnosed= 175 (6.1%); Known Diabetes Identified= 360 (12.5%); Hypertension: Newly Diagnosed= 317 (11.0%); Known Hypertension Identified= 243 (8.4%)]. PLs/CHWs serve as vital 'Health Ambassadors” and augment the health and wellness levels of their communities. Digital Health for Bridging the Gap (Wellzio): Electronic Medical Records and Telemedicine: Post Covid-19, health care services at Samatvam are 100% digitized (in-person clinic and telemedicine visits), for both "computer/IT literate and illiterate" [via volunteer "proxy families"].
Conclusions: Through synergistic creativity, empathy, social engineering and public philanthropy, all on the foundation of strongest possible contemporary science, “optimal / minimal” standard diabetes care

can be provided even to the socioeconomically challenged sections of our societies: “Samatvam Diabetes Care Model.”

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PROFILE AND LONG-TERM CLINICAL OUTCOMES OF PATIENTS WITH TYPE 2 DIABETES MELLITUS ON INSULIN THERAPY WITH PRN INSULIN INJECTION (PRIJ) REGIMEN

Joseph Francis Sazon, Joannalyn Reyes, Jessa Marie Chua, Leilani Mercado-Asis
University of Santo Tomas, Internal Medicine, Manila, Philippines

Background and Aims: Background. Four hundred sixty million people worldwide have diabetes. Glycemic control prevents complications, with an HbA1c target of <7%. However, only 25.2% of multiple insulin injections and 12.3% of basal-only met the target. Complications risk rises with HbA1c >8%. Delays in insulin therapy are common. Asia needs help with delayed initiation and insufficient titration. Supplementing rapid-acting insulin during meals, particularly those high in sugar, or adjusting food intake outside of meal times can replicate the natural insulin secretion pattern from the pancreas, potentially improving glycemic control. Therefore, the primary aim of this study is to show the profile and long-term clinical outcomes of patients with type 2 diabetes mellitus on insulin therapy with PRN or as-needed insulin injection.
Methods: . Retrospective cohort study design through chart review in a single clinic at the University of Santo Tomas Hospital from January to December 2023. Inclusion criteria are patients on insulin therapy for > 15 years and instructed to inject fast rapid insulin subcutaneously during extra-large carbohydrate intake with and during intake of sugar-containing food. To prevent the occurrence of hypoglycemia, patients were instructed to have automatic snacking.
Results: A total of 50 patients on a PRN Insulin Injection (PRIJ) regimen were included in the study. The mean age at the first and last consult was 50 and 65 years, respectively, with a mean follow-up of 15.75 years. The most common comorbid condition was hypertension, controlled, with a mean systolic blood pressure of 130mmHg and mean diastolic blood pressure of 80.8mmHg. Mean Hba1c at the first and last consult was 9.4% and 7.3%, respectively. The majority (82%) were able to meet the Hba1c target. Most (38%) were maintained on premixed insulin 70/30, plus pre meals bolus 3x a day. The range of PRN insulin dose per injection was 8 to 10 units, with 3 to 4 injections in a week. In all 50 patients, there was no incidence of acute myocardial infarction, stroke, CKD with dialysis, blindness, and foot amputation. The vital attribute of these patients was regular outpatient follow-up.
Conclusions: Conclusion. The patients in this study who were given adjunctive PRN Insulin Injection (PRIJ) on top of their current insulin regimen and who regularly and strictly had regular outpatient visits showed zero incidence of acute myocardial infarction, stroke, CKD with dialysis, blindness, and foot amputation in the 15 years and longer follow-up.

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CLINICAL SCORING IN HIGH-RISK INDIVIDUALS WITH PRE-IMPAIRED GLUCOSE TOLERANCE (PRE-IGT) AND ITS BURDEN OF DISEASE PROJECTED IN 2030

Ivy Rose Nisce-Martinez[1], Mary Jane Tanchee-Ngo[2], Jeannine Ann Salmon[3], John Rey Macindo[4], Leilani Mercado-Asis[4,5]
[1]Bethany Hospital, San Fernando, Manila, Philippines, [2]La Union, Metropolitan Medical Center, Manila, Philippines, [3]Baypointe Medical Center, Subic Bay Freeport Zone, Olongapo City, Philippines, [4]AMOSUP Seamen's hospital, Manila, Philippines, [5]University of Santo Tomas, Manila, Philippines

Background and Aims: . Pre-impaired glucose tolerance (pre-IGT) is a prediabetes stage in type 2 diabetes mellitus (DM) characterized by compensatory hyperinsulinemia due to insulin resistance with still-normal blood glucose levels. With, specific clinical risk factors clinical scoring has been attempted to identify those with impaired glucose tolerance (IGT) and overt type 2 DM, but not among high-risk individuals with pre-IGT. This report aims to determine if clinical scoring can identify high-risk individuals with pre-IGT. Likewise, we determine the prevalence and burden of pre-IGT, IGT, and type 2 DM and project results to the year 2030.
Methods: . Seventy-five grams OGTT test was performed. Arbitrary scores were given to clinical factors: BMI ≥ 23kg/m2 (7), family history of type 2 DM (6), age >40 years (5), gender (4), hypertension (3), PCOS (2), and history of GDM (1). For the clinical risk scoring, multiple logistic regression analysis was performed. The Philippine Food and Nutrition Research Institute 2019 and 2013 IGT and type 2 DM reports were used for the forecast growth and projection. The medication price used was IMS 2011 plus 12% VAT, assuming that the cost will remain constant until 2030. Subjects with pre-IGT and IGT were placed on metformin and thiazolidinedione, while type 2 DM patients were on polypharmacy.
Results: . We studied 165 high-risk individuals. The prevalence of pre-IGT (normoglycemic, hyperinsulinemic, insulin >30 uIU/mL) was high at 52%, with IGT and type 2 DM at 14.0% and 20.0%, respectively, and 14% were normal (normoglycemic, normoinsulinemic), with a pre-IGT, IGT, and type 2 DM, ratio of 4:2:1. With a pre-IGT risk score of ≥70, the clinical risk score could detect pre-IGT with a sensitivity of 60% and specificity of 66%. At the same time, the negative predictive value was low at 38.2%, signifying a high false negative rate. The burden of disease findings among high-risk Filipinos showed that by 2030, there would be 80 million with pre-IGT, 40 million with IGT, and 20 million with type 2 DM with a cost expense projection of 1.10 trillion pesos ($19.7 billion), 1.60 trillion pesos ($28.7 billion) and 4.7 trillion pesos ($84.3 billion), respectively.
Conclusions: Conclusion. Clinical scoring has limited utilization in identifying high-risk individuals with pre-IGT. Although there is more significant number of Filipinos with pre-IGT projected in 2030, its burden of cost of expense and economic impact remains less compared to IGT and type 2 DM on polypharmacy. Early diagnosis and treatment of pre-IGT warrants attention.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

CHANGES IN PATTERNS OF CARE IN DIABETES MANAGEMENT PRE AND DURING THE COVID-19 PANDEMIC FOLLOWING GREATER USE OF VIRTUAL CARE.

Geetha Mukerji, Patricia Palcu, Youstina Soliman, Ciara Pendrith, Cherry Chu
Women's College Hospital, Endocrinology, Toronto, Canada

Background and Aims: Background: The COVID-19 pandemic accelerated the use of virtual care for management of healthcare conditions including diabetes. Objective: This study aimed to compare how patterns of care for diabetes have changed as a result of virtual care and the COVID-19 pandemic at a large academic ambulatory care facility in Toronto, Canada.
Methods: Patients were included who had an initial diabetes visit in the endocrinology practice between September 15, 2019 and September 14, 2020. Chi-square test and Fisher's exact test were used to determine differences in care patterns between visits pre (September 15, 2019 – March 14, 2020) and during COVID-19 (March 15, 2020 – September 14, 2020).
Results: This study included 120 patients with an initial visit for diabetes pre COVID-19 (mean age 54.2; mean A1C 8.7%; 56% women) and 155 patients with an initial diabetes visit during COVID-19 (mean age 48.7; mean A1C 9.1%; 60% women). Majority of initial visits during the pandemic were completed by phone (83.2% vs. 7.1% in person vs. 9.7% video). There were more no-shows pre COVID-19 (17.5% vs. 12.3%; p=0.0351); however there were more patients lost to follow-up (28.4% vs. 23.3%; p=0.0155) during COVID-19. In a 1 year period, patients had more follow-up visits during COVID-19 compared to pre COVID-19 (2.93 vs. 2.14; p=0.00006). During COVID-19, 54.2% of patients had no weight measured or reported at initial visits compared to 4.2% pre COVID-19 (p<0.0001). Similarly, the proportion of patients that had no blood pressure measured/reported at initial visits during COVID-19 was 86.5% compared to 2.5% pre COVID-19 (p<0.0001). In terms of blood-work ordered, there was no difference for most labs performed except urine microalbumin: creatinine ratio which was ordered less during COVID-19 (63.4% vs. 73.3%; p=0.0122). There were more changes made to insulin doses at follow-up visits pre COVID-19 (66.7%) compared to during COVID-19 (47.4%; p=0.0245). However, at initial visits pre COVID-19, there were less changes made to oral anti-hyperglycemic doses (23.4%) compared to during COVID-19 (50%; p=0.00079), and more changes made to anti-hypertensive doses (7.1%) compared to during COVID-19 (0%; p=0.0152). There was no difference in the amount of new insulin starts pre and during COVID-19 (7.8% vs 5.9%; p=0.739).
Conclusions: Conclusion: There were notable variations in patterns of care for diabetes as a result of virtual care and the COVID-19 pandemic.

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01-03-2024 07:00 - 18:00

SELECTIVELY INCREASED C-TERMINAL ALBUMIN TRUNCATION (HSA-L) IN DIABETES CHRONIC KIDNEY DISEASE: AN INDICATOR OF SUBCLINICAL OR UNDIAGNOSED PANCREATITIS

Madhumati Vaishnav[1], Kavitha Muniraj[2], Namita Kumari[3], Sathyanarayana Srikanta[2], Vinaya Simha[4], Patnam R Krishnaswamy[3], Padmanabhan Balaram[5], Navakanta Bhat[3]
[1]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [3]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [4]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [5]National Center for Biological Sciences, Molecular Biophysics, Bangaiore, India

Background and Aims: Hyperglycemia driven significant reduction (“deficiency”) of both N- and C-terminal truncated human serum albumin isoforms (HSA-DA and HSA-L) has been observed in diabetes with “normal” renal function. We aimed to examine the potential influence of renal dysfunction on albumin truncation in diabetes.
Methods: In a “proof of concept” longitudinal therapy study, HSA post-translational modifications [glycation, oxidation (cysteinylation and di/tri-oxidation) and truncation by mass spectrometry], serum pancreatic enzymes (amylase and lipase), other metabolic and inflammatory biomarkers and renal function (estimated glomerular filtration rate eGFR) were evaluated in five informative subject groups [type 1 diabetes (T1DM), type 2 diabetes (T2DM), prediabetes-obesity (PDOB), healthy controls (NORM) and diabetes chronic kidney disease (DCKD: eGFR <60 ml/min/1.73m2)], over a follow up period upto 280 days (138 evaluations).
Results: Selectively elevated levels of HSA-L (but not HSA-DA) were observed in association with DCKD (Figure 1). Subjects with DCKD exhibited “paradoxically” higher mean levels (7.78%) of HSA-L, in comparison with subjects with “normal” renal function [i.e., eGFR >60 ml/min/1.73m2; for baseline: T1DM (1.45%; P= 0.002), T2DM (0.36%; P= 0.0002), PDOB (2.03%; P= 0.02) and NORM (2.45%; P= 0.01)]. HSA-L elevations were persistent or intermittent during therapy follow-up (Figure 2). Increasing renal dysfunction (decreasing eGFR) in diabetes was associated with significantly higher levels of HSA-L (“epiphenomenon”) (R= -0.41; P= 0.05), as well as, strikingly similar higher levels of serum amylase and lipase (R= -0.47 and -0.48; P= 0.02 and 0.02; respectively), suggesting the role of subclinical or undiagnosed pancreatitis (Carboxypeptidase mediated, increased concentration of HSA-L in circulation has been reported earlier in pancreatitis of different etiologies).
Conclusions: Association of selectively increased C-terminal albumin truncation and DCKD, likely reflects the well reported higher prevalence of subclinical (asymptomatic) or undiagnosed (symptomatic) pancreatitis with increasing renal dysfunction, necessitating physician awareness towards enriched clinical care quality and health outcomes. Figure 1: Magnitude of albumin truncation (HSA-DA% and HSA-L%) at baseline and during longitudinal therapy follow up. (Baseline= first darker colored bar; Follow up= second lighter colored
bar).

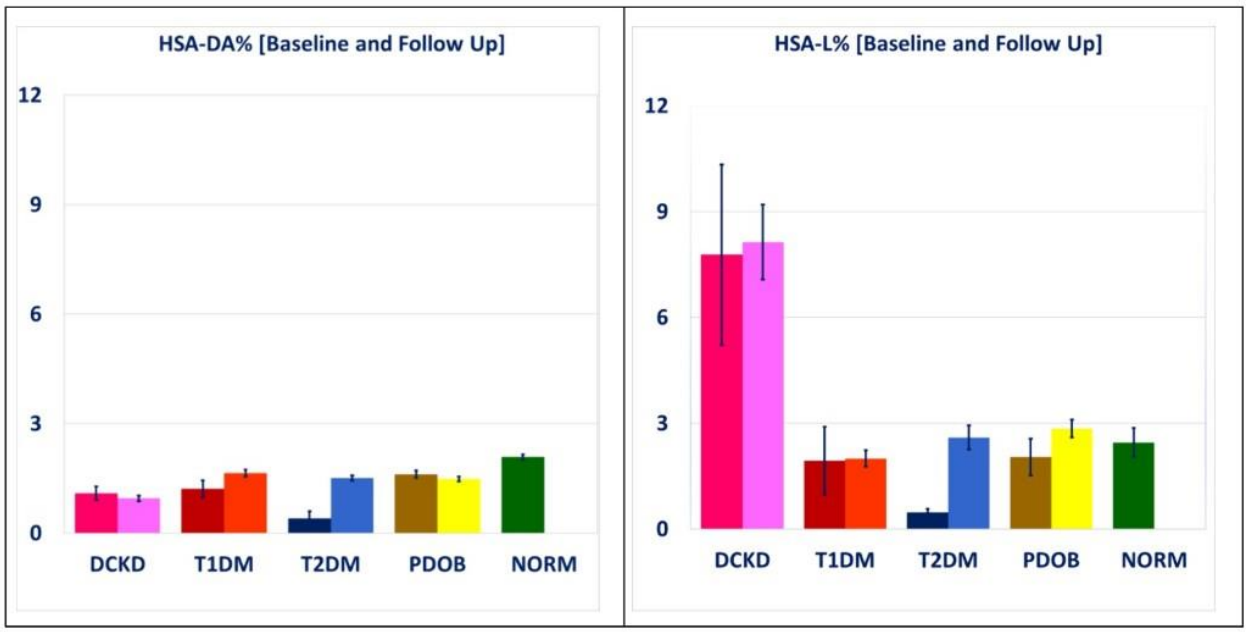
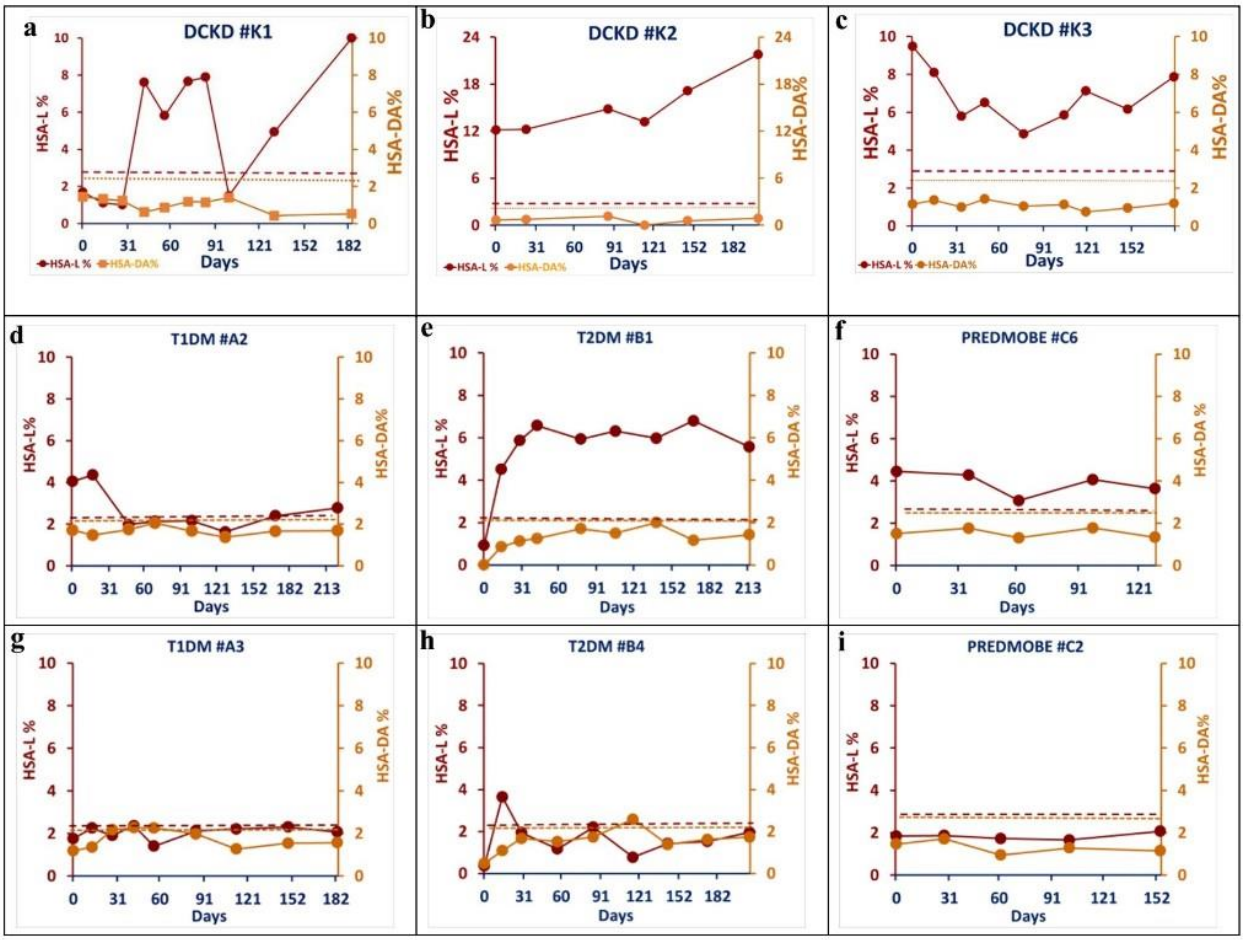


Figure 2: HSA-L and HSA-DA longitudinal trends in diabetes in relation to renal dysfunction. (a-c): DCKD (eGFR <60 ml/min/1.73m2) and (d-i) representative T1DM, T2DM and PDOB subjects with “normal” renal function (eGFR >60 ml/min/1.73m2). HSA-L is shown in red and HSA-DA in yellow. The two-horizontal dashed (HSA-L) and dotted (HSA-DA) lines indicate the upper limits of the normal range in healthy control (NORM)

group.


a
DCKD #K1
HSA-L %
HSA-DA%
Days
b
DCKD #K2
HSA-L %
HSA-DA%
Days
c
DCKD #K3
HSA-L %
HSA-DA%
Days
d
T1DM #A2
HSA-L%
HSA-DA%
Days
e
T2DM #B1
HSA-L %
HSA-DA %
Days
f
PREDMOBE #C6
HSA-L %
HSA-DA %
Days
g
T1DM #A3
HSA-L %
HSA-DA %
Days
h
T2DM #B4
HSA-L %
HSA-DA %
Days
i
PREDMOBE #C2
HSA-L %
HSA-DA%
Days

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01-03-2024 07:00 - 18:00

GLYCATION GAP AND ITS DETERMINANTS: COMPARATIVE ANALYSIS AND IMPLICATIONS IN TYPE 2 VERSUS TYPE 1 DIABETES

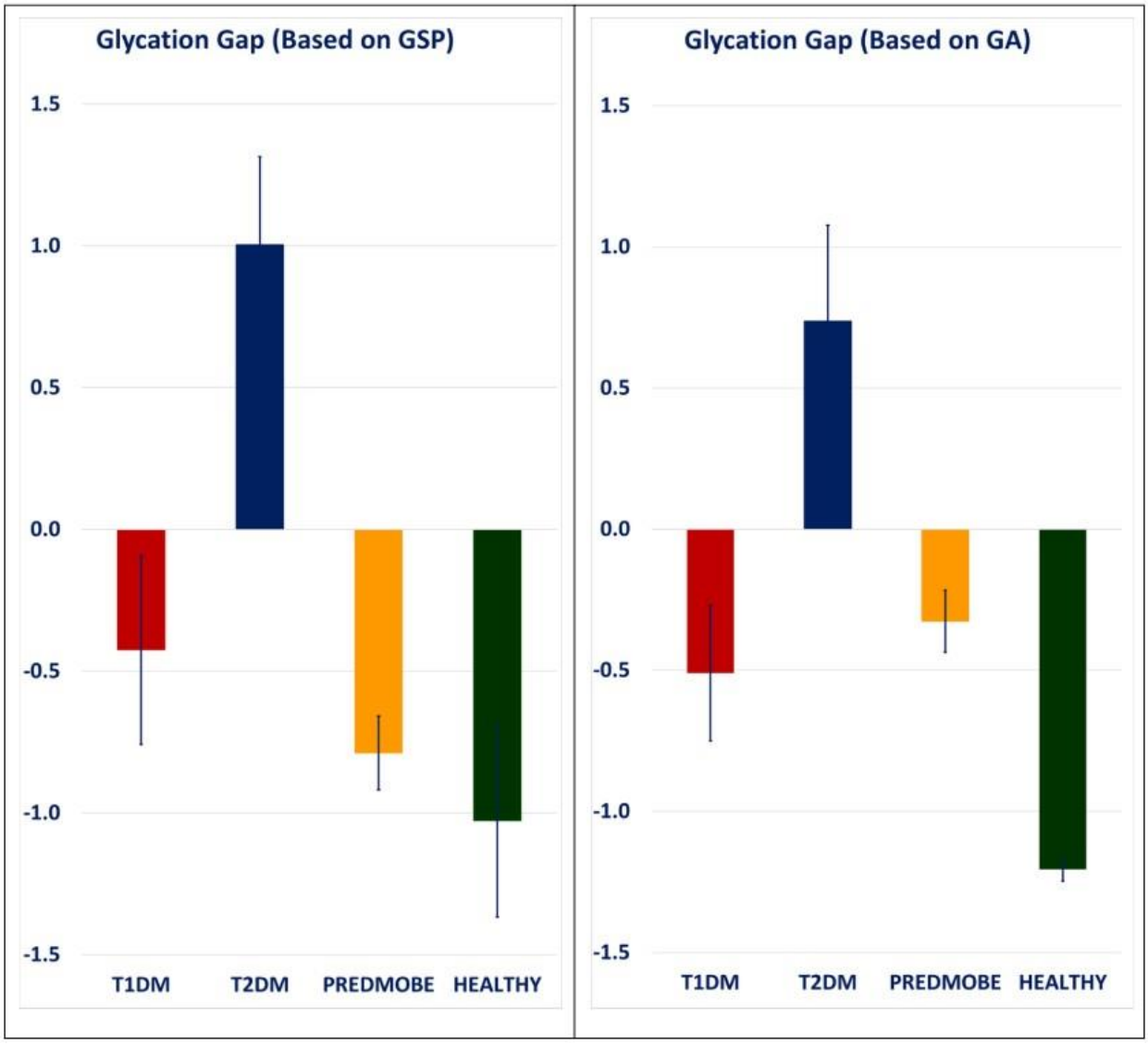
Madhumati Vaishnav[1,2], Kavitha Muniraj[3], Namita Kumari[4], Sathyanarayana Srikanta[5], Vinaya Simha[6], Patnam R Krishnaswamy[4], Padmanabhan Balaram[7], Navakanta Bhat[4]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [4]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [6]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [7]National Center for Biological Sciences, Molecular Biophysics, Bangaiore, India

Background and Aims: Glycation Gap (GG), as defined, has been shown to be associated with increased microvascular and macrovascular complications of diabetes, and even mortality. Comparative analysis of GG and its determinants in type 2 versus type 1 diabetes was performed.
Methods: Magnitude and correlates of GG were intensively serially evaluated in four informative subject groups [type 1 diabetes (T1DM), type 2 diabetes (T2DM), prediabetes-obesity (PREDMOBE) and healthy (HEALTHY); 31 subjects) during 113 evaluations, over follow up period upto 280 days, in a longitudinal therapy study. Glycated hemoglobin(HbA1c; HPLC), glycated serum proteins(GSP; NBT colorimetry) and glycated albumin(mass spectrometry), were measured at each evaluation. GG was calculated as the difference between measured HbA1c (mHbA1c) and HbA1c value predicted (pHbA1c) by regression on GSP or GA for all subjects. All subjects had “normal” renal function, i.e., estimated glomerular filtration rate eGFR >60 ml/min/1.73m2).
Results: HbA1c displayed differential relationships with GSP and GA in T2DM versus T1DM. For all the evaluations combined, there was no significant difference in mean HbA1c between T2DM versus T1DM (HbA1c%: 10.5 vs 11.0; P= 0.54) (Table 1). However, mean GSP and GA were significantly lower in T2DM compared to T1DM (GSP µmol/L: 313 vs 376, P= 0.009; GA%: 31.5 vs 36.9, P= 0.02). HbA1c positive correlations with GSP and GA were relatively stronger in T1DM (GSP: R= 0.84, P=1E-07; GA: R= 0.93; P= 5E-12), compared to T2DM (GSP: R= 0.79, P= 1E-10; GA: R= 0.75; P= 4E-09). With respect to GG, healthy (normal glucose tolerance, non-obese and non-hypertensive: “insulin sensitive”) group had the lowest and negative GG (Figure 1). Type 2 diabetes group (“insulin resistant”) had the highest and positive GG; whereas, Type 1 diabetes group (complete insulin deficiency; “insulin sensitive”) had lower and negative GG (T2DM versus T1DM: P= 0.004 for GG based on GSP, and 0.01 for GG based on GA).
Conclusions: Multifactorial (hyperglycemia, insulin resistance, beta cell dysfunction) differential pathobiology of HbA1c, GSP and GA appears to be the basis of the prognostically useful (in terms of diabetes complications and mortality), empirical index “Glycation Gap”. GG could be an additionally useful composite, synergistic and “free” (calculated), biomarker in diabetes care. Table 1: HbA1c, GSP and GA in the study groups. (N= 113); Mean +
SD.

Groups (N)	HbA1c [%]	GSP [µmol/L]	GA [%]
T1DM (26)	11.0 ± 3.1	376 ± 89	36.9 ± 7.6
T2DM (45)	10.5 ± 3.4	313 ± 98	31.5 ± 9.4
PREDMOBE (35)	5.9 ± 0.5	220 ± 24	20.1 ± 1.5
HEALTHY (7)	5.3 ± 0.2	208 ± 28	21.0 ± 2.9
P Values			
T1DM vs T2DM	0.54	0.009	0.02
HEALTHY vs T1DM	3E-5	3E-5	7E-6
HEALTHY vs T2DM	0.0002	0.007	0.005
HEALTHY vs PDOB	0.004	0.24	0.23

Figure 1: T2DM versus T1D comparative glycation gap study– glycation gap in the study groups. (N= 113); Mean + SD. (a) GG calculation based on GSP, and (b) GG calculation based on

GA.


Glycation Gap (Based on GSP)
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
T1DM
T2DM
PREDMOBE
HEALTHY
Glycation Gap (Based on GA)
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
T1DM
T2DM
PREDMOBE
HEALTHY

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01-03-2024 07:00 - 18:00

MULTIFACTORIAL DETERMINANTS AND SIGNIFICANCE OF GLYCATION GAP AND ORGAN DAMAGE IN DIABETES: ROLE OF INSULIN RESISTANCE AND BETA CELL DYSFUNCTION

Madhumati Vaishnav[1,2], Kavitha Muniraj[3], Suvyaktha Simha[4], Yug Garg[5], Reshma Bv[6], Rajeshwari Ashok[7], Sapna Manjunath[8], Vinaya Simha[9], Sathyanarayana Srikanta[3], Navakanta Bhat[10]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [4]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [5]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [6]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [7]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [8]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [9]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [10]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India

Background and Aims: Glycation Gap (GG), as defined, has been shown to be associated with increased microvascular and macrovascular complications of diabetes, and even mortality. Determinants and significance of GG, including influence of insulin resistance and beta cell dysfunction were further examined.
Methods: Magnitude and correlates of GG were evaluated in a large cohort of Asian Indian subjects across Type 2 Diabetogenesis spectrum [Normal Glucose Tolerance (NGT), Prediabetes (PREDM) and Type 2 Diabetes (T2DM)], with additional Body Mass Index (BMI) stratification [Normal Weight (NW), Overweight (OW) and Obese (OB)]. Glycated hemoglobin (HbA1c), glycated serum proteins (GSP), insulin resistance (HOMA IR), beta cell function (HOMA B%), renal function (estimated glomerular filtration rate eGFR) and other metabolic and inflammatory biomarkers were also characterized.
Results: Type 2 diabetes and obesity were associated with significantly highest GG (P: T2DM vs NGT= 1E-14; T2DM vs PREDM= 6E-09; OB vs NW 0.0004; OB vs OW 0.05) (Figure 1). GG correlated positively with insulin resistance and negatively with beta cell function (HOMA1 IR: R= 0.29, P= 5E-10; HOMA2 IR: R= 0.16, P= 0.0004; HOMA1 B%: R= -0.11, P= 0.01; HOMA2 B%: R= -0.23, P= 1E-06) (Figure 2). Even in these subjects with “normal” renal function (eGFR > 60ml/min/m2), GG exhibited negative correlation with eGFR (R= -0.10; P= 0.03) and positive correlation with urine albumin: creatinine ratio (R= 0.10; P= 0.04), marking “subclinical/early” renal dysfunction and nephron loss (Table 1). Other significant and informative GG biomarker correlations were observed.
Conclusions: Insulin resistance and beta cell dysfunction, along with hyperglycemia, appear to synergistically mediate, the literature reported, GG associated increased organ damage and death in diabetes. GG could be an additional prognostically useful composite and complimentary biomarker in diabetes care. Figure 1: Glycation Gap (GG) in the 3 Glucose Tolerance Groups, as well as the 3 BMI Strata. Whole Cohort [N= 454]. Glucose Tolerance Groups: Normal Glucose Tolerance (NGT), Prediabetes (PREDM) and Type 2 Diabetes (T2DM). BMI Strata: Normal Weight (NW), Overweight (OW) and Obese
(OB).

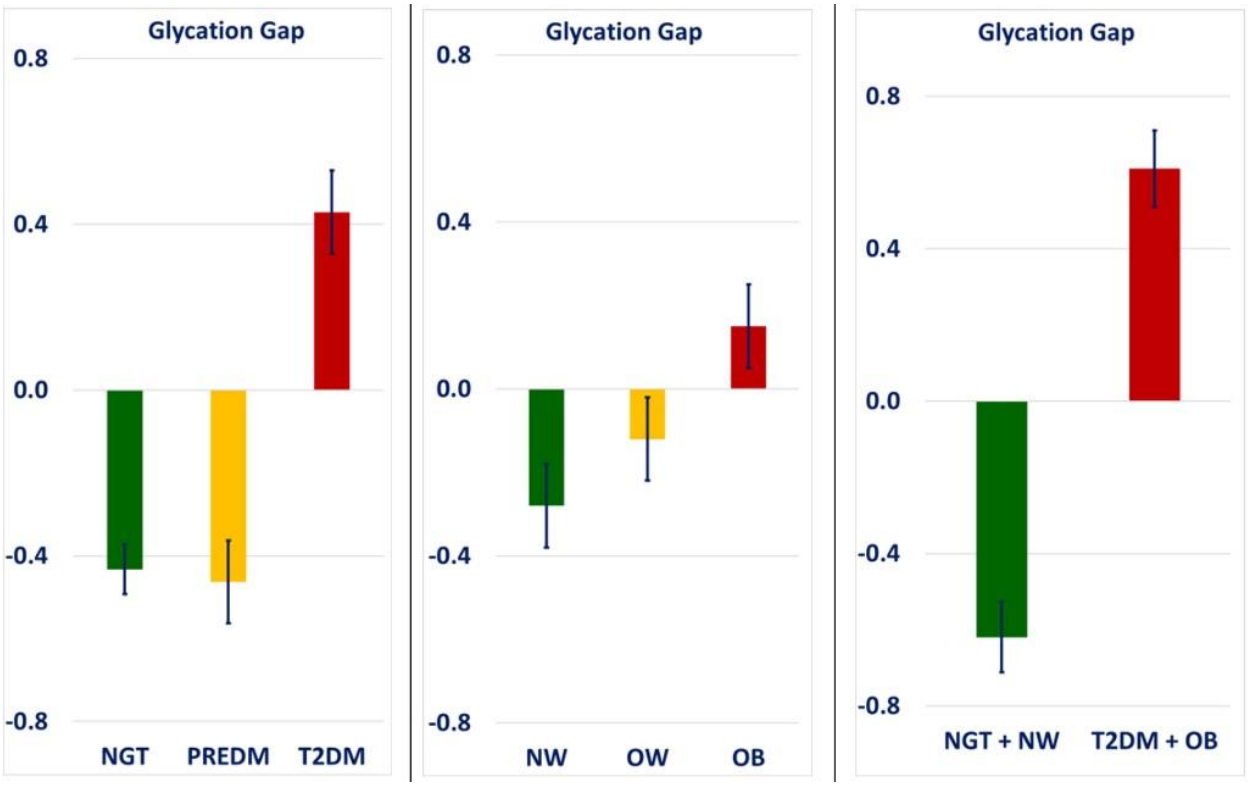

Figure 2: Glycation Gap correlations with HOMA1-IR, HOMA2-IR, HOMA1-B, and HOMA2-B AND HOMA-S in the 3 Glucose Tolerance Groups, as well as the 3 BMI Strata. Correlation coefficient bar diagrams [Positive correlations are shown in pink and negative correlations in blue to the right and left of

Glycation Gap	Normal Glucose Tolerance	Prediabetes	Type 2 Diabetes
	R	R	R
GG vs		Insulin Resistance	Insulin Resistance
HOMA1 IR			0.23
HOMA2 IR			0.15
HOMA2 S		-0.21	-0.15
		Hyperinsulinemia	Beta Cell Failure
HOMA1 B		0.21	-0.14
HOMA2 B		0.22	-0.19
Glycation Gap	Normal Weight	Over Weight	Obesity
	R	R	R
GG vs	Insulin Resistance	Insulin Resistance	Insulin Resistance
HOMA1 IR		0.18	0.32
HOMA2 IR	0.2		0.14
HOMA2 S			
GG vs	Beta Cell Failure	Beta Cell Failure	Beta Cell Failure
HOMA1 B	-0.16	-0.19	-0.14
HOMA2 B	-0.24	-0.26	-0.29
Glycation Gap	Normal Glucose Tolerance + Normal Weight	Type 2 Diabetes + Obesity	
	R	R	
GG vs	Insulin Resistance	Insulin Resistance	
HOMA1 IR		0.29	
HOMA2 IR		0.15	
HOMA2 S			
GG vs	Beta Cell Failure	Beta Cell Failure	
HOMA1 B		-0.21	
HOMA2 B		-0.27	

Table 1: Glycation Gap Correlations with other clinical and metabolic biomarkers and renal dysfunction (Glucose Tolerance Groups and Whole Cohort - "0" (zero) line].

WC).

Groups (N)		GG vs Age	GG vs BMI	GG vs hs CRP	GG vs A: G ratio	GG vs S Iron	GG vs % Trans Sat	GG vs S Uric Acid
NGT	**R**	0.08	**0.27**	**0.22**	**-0.26**	**-0.32**	**-0.32**	-0.06
(156)	**P**	0.27	**0.0008**	**0.006**	**0.0008**	**0.00006**	**0.00004**	0.45
PREDM	**R**	0.02	0.21	0.05	-0.06	**-0.33**	**-0.36**	-0.15
(72)	**P**	0.86	0.08	0.68	0.64	**0.005**	**0.001**	0.21
T2DM	**R**	0.03	**0.14**	0.10	-0.1	**-0.19**	**-0.19**	**-0.21**
(226)	**P**	0.66	**0.03**	0.14	0.09	**0.003**	**0.004**	**0.002**
WC	**R**	**0.16**	**0.18**	0.05	**-0.11**	**-0.27**	**-0.28**	**-0.16**
(454)	**P**	**0.0005**	**0.0001**	0.27	**0.03**	**3E-09**	**1E-09**	**0.0008**

Groups (N)		GG vs S Creat	GG vs eGFR	GG vs UAC Ratio	GG vs T Chol	GG vs LDL C	GG vs HDL C	GG vs Trig
NGT	**R**	-0.04	0.04	0.08	-0.04	-0.01	0.05	**-0.15**
(156)	**P**	0.62	0.59	0.34	0.63	0.90	0.50	**0.05**
PREDM	**R**	-0.15	0.03	-0.11	-0.01	0.10	-0.02	**-0.24**
(72)	**P**	0.21	0.83	0.38	0.93	0.39	0.83	**0.04**
T2DM	**R**	-0.07	0.02	0.05	-0.008	0.03	-0.10	0.04
(226)	**P**	0.29	0.79	0.49	0.90	0.64	0.13	0.57
WC	**R**	-0.07	**-0.10**	**0.10**	**0.10**	0.07	-0.07	0.006
(454)	**P**	0.13	**0.03**	**0.04**	**0.04**	0.13	0.13	0.89

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01-03-2024 07:00 - 18:00

SEXUAL DYSFUNCTIONS ARE MORE FREQUENT IN WOMEN WITH DIABETES THAN NON-DIABETIC WOMEN

Marufa Mustari[1], A B M Kamrul-Hassan[2], Shahjada Selim[1]
[1]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh, [2]Mymensingh Medical College, Endocrinology, Mymensingh, Bangladesh

Background and Aims: Sexual dysfunction among women with diabetes is a common but neglected health issue worldwide. The objective of the present study was to investigate the prevalence of sexual dysfunction and its associated factors among women with type 2 diabetes mellitus (T2DM).
Methods: This cross-sectional comparative study comprises 150 women with diabetes and 100 healthy women without diabetes who visited the endocrinology outpatient department of Mymensingh Medical College Hospital (MMCH). The data were collected from July to December 2019. Sexual dysfunction was assessed by the 19-item Female Sexual Function Index (FSFI). Informed consent was obtained before participation. Collected data were analyzed by SPSS 26.
Results: More women with diabetes than control subjects reported sexual dysfunction (79% vs. 72%; $p = 0.864$). The global FSFI score was lower among the diabetes patients than among the healthy controls (20.8 ± 7.2 vs. 23.7 ± 4.8; $p < 0.001$). Patients with T2DM scored significantly lower in the domains of desire ($p = 0.04$), lubrication ($p = 0.01$), orgasm ($p = 0.01$), and satisfaction ($p < 0.001$), but not the domain of arousal ($p = 0.09$). A prolonged duration of diabetes was the primary contributor to orgasm problems (adjusted odds ratio, aOR 1.3, 95% CI 1.1-1.7) and painful intercourse (aOR 1.2, 95% CI 1.1-1.5).
Conclusions: Sexual problems are frequent in women with diabetes. Inclusion of sexual health in comprehensive diabetes management is crucial to address this problem as well as to improve the quality of life of female diabetes patients.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

THE MOLECULAR EFFECT OF SGLT2I ON THE AUTOPHAGY & KLOTHO PATHWAYS IN TYPE II DIABETES MELLITUS MICE MODEL, AND ITS VASCULAR COMPLICATIONS

Farid Nakhoul[1], Offir Ertracht[1], Hagar Tadmor[2], Nakhoul Nakhoul[2]
[1]The Galilee Medical Center Nahariya, Cardio-vascular Research, Nahariya, Israel, [2]Baruch Padeh Tzafon, Diabetes & Metabolism Lab, Lower Galilee, Israel

Background and Aims: Type 2 diabetes mellitus DM is associated with increased glucose cell toxicity and oxidative stress that can lead to irreversible kidney damage such as diabetic nephropathy (DN). DN is a microvascular complication of diabetes and is the leading cause of ESRD. Recent the anti-diabetic drugs such as sodium-glucose transporter type 2 inhibitors (SGLT2I) can have role in the development or amelioration of renal injury. The exact protective mechanisms by which these drugs stabilize GFR had not been clarified. Aautophagy is involved in the pathogenesis of DM. Autophagy is involved in catabolic processes and plays a key role in maintaining intracellular homeostasis and cell integrity. Studies suggesting that autophagy-related protein 5 (ATG5) and LC3, play a role in a DM/DN. Klotho and Podocin-Nephrin proteins are an important proteins involved in the tubule-glomerular injury. The Klotho is a circulating anti-ageing hormone with anti-oxidative and anti-inflammatory properties. The sodium glucose transporter inhibitor (SGLT2i) which represents a new class of glucose lowering drugs and is recommended in type II diabetic patients. .The proposed research aim to investigate the molecular effect of SGLT2i on the expression of ATG5 and LC3-II,Klotho and Podocin in diabetic mice model.
Methods: We used eight weeks old male mice: twenty C57BL/6 wild type (C57BL/6), twenty BTBR ob/ob (DM), and twenty BTBR ob/ob that were treated with empagliflozin (DM+EMPA), FDA approved SGLT2i. EMPA powder was diluted in water (1 mg/kg mouse) and administrated to the mice, as was published in another study, via drinking water for a period of 12 consecutive weeks, All mice were sacrificed 13 weeks after the beginning of the experiment. Lysate from murine renal cortex was analyzed by H&E, Western blot and immunohistochemistry. ATG5, LC3B, Klotho, Podocin and fibronectin expression were analyzed in murine kidney tissues. EMPA powder was diluted in water (1 mg/kg mouse) and administrated to the mice, as was published in another study, via drinking water for a period of 12 consecutive weeks, All mice were sacrificed 13 weeks after the beginning of the experiment.
Results: EMPA treatment reduced T2DM mice body weight and blood glucose and increased urine glucose. Histological analyses revealed decreased Podocin-Nephrin and Klothoproteins expression at renal specimens taken from DM mice. EMPA treatment upregulated Podocin-Nephrin and klotho proteins expression in kidney sections.
Conclusions: Hyperglycemia reduces Podocin-Nephrin and Klotho proteins expression in kidney, which were upregulated by EMPA treatment. SGLT2i (EMPA) treatment in DM patients can significantly reduce progression of DN and onset of ESRD probably through its effect on Klotho/Podocin-Nephrin proteins**.**

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EVALUATION OF PLASMA OSTEOPONTIN IN DIABETES MELLITUS WITH AND WITHOUT NEUROPATHY: AN OBSERVATIONAL STUDY

Rachita Nanda[1], Prajna Parimita Jena[1], Amritava Ghosh[2]
[1]All India institute of Medical Sciences Raipur, Biochemistry, Raipur, India, [2]All India institute of Medical Sciences Raipur, Endocrinology, Raipur, India

Background and Aims: One of the most prevalent microvascular complications of diabetes is diabetic neuropathy. Studies in humans have supported the vascular influence (endoneural microangiopathy) on the development of neuropathy as evidenced by nerve biopsies showing endoneurial capillary dysfunction with increased thickness of basement membrane, loss of pericytes and endothelial hyperperplasia. Osteopontin(OPN), a protein with diverse functions has been associated with type 2 diabetes with cardiovascular autonomic functions. Evidence has also shown that hyperglycemia to enhance osteopontin expression leading to vascular disease. Although OPN has been shown to be associated with nephropathy and retinopathy in diabetes, the relation with diabetic neuropathy is limited. Therefore, the aim of this study is to investigate whether OPN level differs between diabetes with and without neuropathy and correlate osteopontin with clinical parameters.
Methods: After ethical clearance, a total of 68 patients with type 2 diabetes mellitus(DM), with 31 DM without neuropathy and 37 DM with neuropathy were recruited along with 29 healthy controls after written informed consent. The detailed clinical history of the patients were collected and demographic measurements were recorded. Ankle Brachial Pressure Index(ABPI) was assessed to rule out Peripheral Arterial Disease(PAD). Diabetic peripheral neuropathy assessment was done by QST (quantitative sensory testing using neuropathy analyser – Vibrotherm-Dx. Blood (3mL) will be collected, centrifuged at -4ºCand stored at -80ºC for OPN and other blood investigations. OPN was measured by enzyme linked immunosorbent assay(ELISA) kit. Clinical data and other biochemical data were measured and recorded. The correlation of OPN with clinical parameters were evaluated using statistical software.
Results: OPN was significantly higher in patients with DM with neuropathy when compared to those without neuropathy and healthy individuals[One way-ANOVA(Kruskal Wallis), $p<0.001$,$\varepsilon^2=0.652$, DSCF pairwise comparisons between each group was <0.001]. OPN was positively and significantly correlated with SBP(p=0.016), plasma glucose level(p=0.001), HbA1C(p=0.003) and hsCRP(p=0.02). Multiple linear regression analysis of showed osteopontin(dependent variable) to be independently associated with plasma glucose and hsCRP (p=0.049 and p=0.023 respectively).
Conclusions: Elevated OPN in diabetic neuropathy and a strong association with hsCRP in neuropathy patients indicates that OPN is related to endothelial dysfunction and inflammation and can predict the vascular nature underlying diabetic neuropathy. Further studies are needed to investigate the role of OPN in the pathogenesis and progression of diabetic neuropathy.

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INSULIN INJECTION PRACTICES AT A TRANSPLANT CENTER: A CLINICAL AUDIT

Raza Gulzar Ghouri[1], Hamza Naeem[2], Maryam Saleem Raza[1], Zuhra Naheed Khan[1], Ali Raza Naqvi[3]
[1]Pakistan Kidney and Liver Institute and Research Center, Lahore, Pakistan, [2]King Edward Medical University, Lahore, Pakistan, [3]Pakistan Kidney and Liver Institute and Research Center, ., Lahore, Pakistan

Background and Aims: Insulin is considered one of the essentials in terms of managing advanced T2DM. Inadequate knowledge and modest skill influence the outcome of the patient. To assess the knowledge and understanding of the administration of insulin to T2DM patients by the nurses, an audit was undertaken.
Methods: The audit was done at Pakistan KIdney and Liver Institute. A questionnaire was formulated to check the basic knowledge regarding insulin and its administration. We systematically inspected insulin injection site practices in all nurses injecting insulin into patients in order to identify local complications related to incorrect injection technique.
Results: 53 nursing staff from all departments were included. Average years of experience practicing nursing were 3.4± 3.72. 71.7% of nurses knew more than 2 sites of insulin administration and rotated injection sites every time. 17% of the nursing staff had previously undergone formal training regarding the aforesaid at some point in their career course. 96.2% of nursing staff were directly involved in administering SC insulin to patients in routine, fully aware of all the injection sites that could be used for administration, and aware of the need for rotating sites. The rationale for rotating these injection sites was known to 92%. 90% of the staff were actually practicing the rotation method.
Conclusions: After this audit and review of policies and guidelines have provided a foundation for making further recommendations within clinical practice regarding the safe administration of SC insulin. Based on the findings of the audit, several recommendations are proposed to address the issues surrounding the administration of SC insulin: • Education (including the number and rotation of insulin sites, its technique, possible local and systemic effects, patient meal-times along with insulin storage) • A separate insulin prescription chart with guidelines and contact number of specialist • Annual mandatory training courses • Ensuring regular diabetes care updates • Advocate people with diabetes to monitor their blood glucose levels and manage their own administration of insulin. It is important to acknowledge that this audit included only a small number of participants; however, the results do reflect our concerns. it is important to acknowledge that recommendations have been introduced for the safe administration of SC insulin as a result of audits. These recommendations aim to ensure that safer practices are provided for people with diabetes. Severe harm or death are potential consequences of insulin errors, and such errors could be avoided by implementing change.

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DIAGNOSING MODY FROM NON-INSTITUTIONAL-BASED DIABETES CARE CLINICS

Arunkumar Pande[1], Santosh Chaubey[2], Dinesh Kumar[3], Kumar Prafull Chandra[4], Thenral S Geetha[5], Akshita Sharma[5]
[1]Lucknow endocrine diabetes and thyroid clinic, Endocrinology, Lucknow, India, [2]Cairns and Hinterland Hospital and Health Services, Endocrinology, Cairns, Australia, [3]Harsha Clinic and Diabetes Centre, Internal Medicine, Lucknow, India, [4]Chandra Diabetes Clinic, Diabetology, Lucknow, India, [5]MedGenome Labs, Genetics, Bangalore, India

Background and Aims: Maturity-onset diabetes of the young (MODY) is a rare group of disorders characterised by impaired function or development of pancreatic islets and monogenic diabetes at a young age. Diagnosing MODY can be rewarding for both clinicians and patients as it can change the management from generic to targeted therapy.
Methods: This study reports the retrospective analysis of data collected from 4 clinics, between March 2016 and February 2023, from Lucknow, a tier 2 city in Northern India. Fifty-three individuals are suspected to be affected by MODY based on ISPAD guidelines. Following a detailed clinical evaluation, they were referred for genetic diagnostic testing.
Results: The cohort consists of 19 females, and 34 males with a mean age of diagnosis 26.03 years and a BMI of 23.47 Kg/m^2. Genetic testing detected variants in 19/53 (35.8%) (22 variants) of whom 5 had significant pathogenic/likely pathogenic variants and 17 were variants of uncertain significance. Five had variants in the HNF1A gene, 3 with HNF1B, 3 with ABCC8, 2 with HNF4A, and one of each in PDX1, KLF11, CEL, PAX4, BLK, KCNJ11, RFX6, LIPC and PPARG genes respectively. Two cases suggest digenic variants in two MODY genes (HNF1A+HNF1B; HNF1B+BLK) of which one is a novel combination (HNF1B+BLK).
Conclusions: This is one large case series from northern India that features the diagnostic yield based on genetic testing for MODY their response to specific treatment and case examples with probable digenic pattern on inheritance. Of note, the individuals detected with variants of uncertain significance for HNF1A and HNF1B responded well to Sulfonylureas. We have also highlighted interesting observations based on our case studies.

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KETOSIS-PRONE DIABETES PRESENTING WITH ACUTE ESOPHAGEAL NECROSIS OR "BLACK ESOPHAGUS": AN INTRIGUING NEW CLINICAL ASSOCIATION

Riccardo Maria Pollis, Andrea Graziani, Carla Scaroni, Mattia Barbot, Giacomo Voltan
University of Padua, Department Of Medicine, Padua, Italy

Background and Aims: Ketosis-prone diabetes (KPD) is an intermediate subtype of diabetes mellitus, usually affecting Afro-American adults, presenting with diabetic ketoacidosis (DKA), without the classic phenotype of autoimmune type 1 diabetes. Patients require insulin therapy at onset for the acute decompensation, then usually remain insulin-free for prolonged period with diet alone or with other antidiabetic drugs. DKA can be rarely complicated by upper gastrointestinal bleeding and mucosal necrosis, a severe complication named acute esophageal necrosis (AEN) burdened by a high mortality. The association of KPD presenting with DKA complicated by AEN, is here reported for the first time in literature.
Methods: Here we report an interesting case of middle-aged African woman, newly diagnosed with KPD, presenting with DKA and upper gastrointestinal bleeding signs. All medical information derives from physical examination, laboratory exams and imaging, taken during the in-hospitalisation.
Results: The patient was first treated at Intensive Care Unit for the ketoacidosis with intravenous fluids combined with continuous insulin infusion, and then switched to subcutaneous regimen. At the same time, esophagogastroduodenoscopy (EGD) was performed to diagnose acute esophageal necrosis, which was promptly managed with proton pump inhibitors infusion, fasting and parenteral nutrition. After the correct clinical evaluation in our Care Unit, patient was switch to oral antidiabetic and basal insulin at discharge and EGD follow-up was scheduled.
Conclusions: KPD is still the most under-diagnosed type of diabetes mellitus and AEN remains a rare, but potentially life-threatening cause of upper gastrointestinal bleeding, with DKA as a possible trigger. Therefore, clinicians should be aware of AEN in patient with DKA presenting with upper gastrointestinal bleeding. The prompt management of DKA combined with the EGD execution is crucial for early AEN diagnosis and follow-up. Resolution of triggering cause and continues infusion of proton pump inhibitors are the mainstays of AEN treatment.

PV166 / #1067

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TIME IN RANGE TIGHTER THAN THE CURRENT RECOMMENDATION IS ASSOCIATED WITH LGA IN TREATED GDM

Polina Popova[1,2], Alexandra Tkachuck[1], Elena Vasukova[1,2], Anna Anopova[2], Artem Isakov[2], Angelina Eriskovskaya[2], Evgenii Pustozerov[1], Maria Kokina[2], Irina Nemykina[2], Kristina Pashkova[1], Olga Li[3], Tatiana Pervunina[3], Elena Grineva[1,2]
[1]Almazov National Medical Research Centre, Institute Of Endocrinology, Saint Petersburg, Russian Federation, [2]Almazov National Medical Research Center, World-class Research Center For Personalized Medicine, Saint Petersburg, Russian Federation, [3]Almazov National Medical Research Center, Institute Of Perinatology And Pediatrics, Saint Petersburg, Russian Federation

Background and Aims: Continuous glucose monitoring (CGM) enables more detailed insight into fetal exposure to maternal glucose. Optimal target range of glucose levels for gestational diabetes mellitus (GDM) is controversial. The recommended time in range (TIR) and its correlation with adverse pregnancy outcomes in this group is unknown. Our aim was to examine the impact of time within different target ranges (tight and less tight) on the development of large for gestational age (LGA) infants in women with GDM.
Methods: We performed a secondary analysis of the randomised controlled trial of different intensities of glycemic control in women with gestational diabetes (NCT03610178) in a subset of the study participants who undertook 7-day CGM at 30–33 weeks' gestation (n=219). TIR, time above range (TAR) and time below range (TBR) were compared between mothers of LGA infants (n=40) and those without LGA infants (n=179). Two variants of target range were applied: 1) tighter range (3.5-7.0 mmol/L) and 2) less tight range (3.5-7.8 mmol/L as current recommendation from American Diabetes Association). LGA was defined according to the INTERGROWTH charts.
Results: TAR was higher (6.8 vs. 3.9 %, p=0.012) and TIR tended to be lower (92.4 vs 94.7%, p=0.051) in women with LGA infants compared with mothers without LGA infants when tighter treatment targets (3.5-7.0 mmol/L) were applied. However, when less tight target range was used, there were no differences in the TIR (97,0 vs 97.3 %, p=0.597) and TAR (2.2 vs 1.3, p=0.08) between the groups. TBR (<3.5 mmol/L) did not differ between the groups with and without LGA (0.8 vs 1.4%, p=0.076) and was the same for the two variants of target range.
Conclusions: Time above the tighter range (3.5-7.0 mmol/L), but not the time above the currently recommended range (3.5-7.8 mmol/L), was associated with LGA in treated GDM. This work was financially supported by the Ministry of Science and Higher Education of the Russian Federation (Agreement No. 075-15-2022-301).

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EFFECT OF TECHNOLOGY ON GLYCEMIC CONTROL BY FREESTYLE LIBRE MONITORING AT IBRAHIM BIN HAMAD OBAIDULLAH HOSPITAL EHS

Fathelrahman Ahmed[1], Assadullah Dahani[2], Wasim Qasim[2]
[1]IBHOH/EHS, Internal Medicine/endocrinology, RAS AL KHAIMAH, United Arab Emirates, [2]IBHOH/EHS, Internal Medicine, RAS AL KHAIMAH, United Arab Emirates

Background and Aims: To evaluate the effect of freestyle libre on glycemic control in patients with Diabetes Mellitus
Methods: This a retrospective study conducted on the hospital free style libre data. We compared HBA1C at the initiation of free style libre and 6 months. During this period the patients were closely monitored by the diabetologist and directed for the insulin doses titration. Inclusion criteria: Patient with type 1 diabetes Patient with type 2 diabetes on multiple daily insulin injections. Exclusion criteria: Patient on oral agents only Patient who did not complete the follow for 6 months Only patients who were willing to use freestyle libre and carry out HBA1c at O and 6 months were included in the study. Those patients who have well controlled Diabetes and did not agree on follow up with HBA1c were excluded from the study
Results: The average HBA1C at week 0, 6 was 9.2 and 8.15 respectively. The use of Freestyle Libre reduced their HbA1c levels by an average of 1.05% (9.2% to 8.15 %) which is statically significant with a p-value of 0.004135. The reduction of HBA1c of 0.9% associated significant risk reduction for complications.
Conclusions: Use of freestyle libre with close monitoring is associated with significant improvement in glycemic control.

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IDENTIFYING NOVEL CLINICAL BIOMARKERS FOR EARLIER DETECTION OF DIABETIC NEPHROPATHY IN CHRONIC KIDNEY DISEASE PROGRESSION TO END-STAGE RENAL DISEASE

Aaron Nameer Abrar Rahman[1], Juned Islam[2], Haasan Pathan[1], Zakaria Rashid[1]
[1]King's College London, Gkt School Of Medical Education, London, United Kingdom, [2]Whittington Hospital, Gastroenterology, London, United Kingdom

Background and Aims: Diabetic nephropathy (DN) is a microangiopathic complication seen in diabetes mellitus. DN is a leading cause of end-stage renal disease (ESRD) and an independent risk factor for cardiovascular disease (CVD). Early detection and intervention for DN are crucial to attenuate adverse outcomes, including progression to ESRD and increased morbidity and mortality from CVD. Despite the availability of biomarkers for DN, such as urine albumin-to-creatinine ratio (uACR) and estimated glomerular filtration rate (eGFR), these markers have limitations, including their inability to detect all cases of DN. Thus, there is an unmet need for novel biomarkers with greater accuracy and specificity for the early detection of DN. This study aims to investigate existing biomarkers for early DN detection, with the goal of addressing current limitations.
Methods: To identify novel biomarkers for the diagnosis of DN, a comprehensive literature search was conducted, encompassing articles published up to August 2023. The articles selected were those reporting on novel biomarkers for the diagnosis of DN.
Results: Several novel biomarkers, including TNFR, KIM-1, MCP-1, RBP, uric acid, and copeptin, have shown potential for early and accurate DN diagnosis. TNFR and L-FABP are clinically effective, while CKD273 is a promising tool for detecting CKD early. TNFR is linked to inflammation and apoptosis, with elevated levels increasing the risk of cardiovascular events and all-cause mortality in DN patients. KIM-1 is upregulated in response to kidney injury, and urinary levels are associated with renal function decline. MCP-1 attracts immune cells to sites of inflammation, and increased urinary levels in DN patients are linked to renal function decline. RBP is synthesized in the liver and carries retinol; elevated urinary levels in DN patients are associated with albuminuria and reduced eGFR. Uric acid, a byproduct of purine metabolism, is excreted by the kidneys; elevated serum levels in DN patients increase the risk of progression to ESRD. Copeptin, a stable peptide derived from pre-provasopressin, is a surrogate marker for vasopressin secretion; elevated plasma levels in DN patients increase the risk of progression to ESRD.
Conclusions: Timely detection of diabetic nephropathy is pivotal for proactive intervention. Emerging biomarkers hold potential for DN diagnosis and progression assessment. Yet, further rigorous research and targeted clinical trials are imperative to establish their efficacy, cost-efficiency, and patient relevance. Standardised criteria, diverse validation, and robust diagnostic accuracy are prerequisites prior to clinical implementation. Enhanced biomarkers are indispensable for advancing outcomes and mitigating morbidity/mortality linked with DN and CVD.

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EXPLORING THE POTENTIAL IMPACT OF PLACENTAL LACTOGEN ON BETA-CELL FUNCTION IN TYPE 2 DIABETES MELLITUS: A PROMISING AVENUE FOR NOVEL THERAPEUTIC STRATEGIES

Aaron Nameer Abrar Rahman[1], Haasan Pathan[1], Zakaria Rashid[1], Juned Islam[2], Mohamed Guled[3]
[1]King's College London, Gkt School Of Medical Education, London, United Kingdom, [2]Whittington Hospital, Gastroenterology, London, United Kingdom, [3]Luton and Dunstable University Hospital, Psychiatry, Luton, United Kingdom

Background and Aims: Diabetes is a looming global health concern that has a significant impact on public health, affecting over 422 million people worldwide, with prevalence increasing steadily. Chronic hyperglycemia is characterized by weakened β-cells and their eventual deterioration, which results in a phenomenon known as "β-cell plasticity." This state is influenced by changes in β-cell mass and function, and thus represents a crucial factor in the onset and progression of type 2 diabetes mellitus (T2DM). Placental lactogen (PL) and its receptor, prolactin receptor (PRLR), are known to play a fundamental role in maintaining β-cell mass and function during pregnancy. Therefore, targeting this cascade may provide a long-term adaptive response due to the morphologically plastic nature of β-cells. The primary aim of this study is to determine the potential of exogenous PL to target PRLR in T2DM.
Methods: This study proposes an innovative experimental design to investigate the potential of exogenous PL to target the PRLR in T2DM. The study will use a combination of animal models and in vitro islets to assess the effects of exogenous PL on β-cell mass and function. The animal models will be separated into two groups, a control group and a treatment group receiving exogenous PL. The in vitro islets will also be divided into two groups, a control group and a treatment group, with the latter receiving exogenous PL. The effect of exogenous PL on β-cell mass and function will be assessed through various parameters, including proliferation, growth, neogenesis, and apoptosis. The assessment of β-cell mass will be carried out using cutting-edge immunohistochemistry, while function will be evaluated using insulin secretion assays.
Results: The proposed study's results will determine whether exogenous PL has the capacity to improve β-cell mass and function, leading to enhanced glycemic control in animal models and in vitro islets. The findings of this study could revolutionize our understanding of the mechanisms behind T2DM progression and pave the way for the development of novel therapeutic strategies for the treatment of this devastating disease.
Conclusions: In conclusion, this experimental design is poised to yield significant findings regarding the potential of exogenous PL to target PRLR in T2DM. If successful, this approach could provide a novel and highly effective therapeutic strategy for treating T2DM. The results of this study will provide valuable evidence for the use of placental hormones in the treatment of T2DM, thereby opening a new frontier of research into the development of novel therapeutic strategies.

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ALBUMIN OXIDATION AND ALBUMIN GLYCATION DISCORDANCE DURING TYPE 2 DIABETES THERAPY: BIOLOGICAL AND CLINICAL IMPLICATIONS

Madhumati Vaishnav[1], Lakshmi Reddy[2], Namita Kumari[3], Kavitha Muniraj[4], Sathyanarayana Srikanta[5], Vinaya Simha[6], Patnam R Krishnaswamy[3], Padmanabhan Balaram[7], Navakanta Bhat[3]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangaiore, India, [3]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [4]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [6]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [7]National Center for Biological Sciences, Molecular Biophysics, Bangaiore, India

Background and Aims: Cys34 albumin redox modifications (reversible “cysteinylation” and irreversible “di/tri-oxidation”) besides being just oxidative stress biomarkers, may have primary pathogenetic roles to initiate and/or aggravate cell, tissue and vascular damage in diabetes. We aimed to further examine albumin oxidation longitudinal trends and correlations during diabetes therapy and elucidate their potential clinical implications.
Methods: In an exploratory “proof-of-concept” longitudinal therapy study, mass spectrometric analysis was utilised to monitor human serum albumin (HSA) post-translational modifications [glycation (GA), cysteinylation (CA or HNA1; Human Non-Mercaptalbumin-1; reversible), di/tri-oxidation (OA or HNA2; Human Non-Mercaptalbumin-2; irreversible) and truncation (TA)] and to relate them to contemporary therapy. Four informative groups of subjects were evaluated (type 1 diabetes, type 2 diabetes, prediabetes-obesity and healthy), over follow-up period upto 280 days.
Results: T2DM was associated with relatively enhanced albumin cysteinylation (CA% total) compared with T1DM (P= 0.004). Albumin cysteinylation: albumin glycation (C: G) ratios are lower in diabetes (T1DM= 0.67 ± 0.20; T2DM= 0.77 ± 0.12; prediabetes-obesity= 1.64 ± 0.39; healthy= 1.48 ± 0.25; P: T1DM vs healthy= 1E-05; T2DM vs healthy= 1E-06). Glycated cum cysteinylated albumin isoforms were significantly higher in diabetes (T2DM > T1DM; P: CysHSA+1G= 0.003; CysHSA+2G= 0.007; and CysHSA+3G= 0.001). Improvements in glycemic control and decrease in albumin glycation (GA% total) during diabetes therapy in T2DM, were not always associated with parallel reductions of albumin cysteinylation, and in some therapeutic situations, albumin cysteinylation worsened (glycation – cysteinylation discordance) (Figure 1 and 2).
Conclusions: Combined or multiple molecular modifications represent greater albumin (protein) molecular damage, and possibly translate into increased pathology. Current “glucose-centric” only approaches to diabetes care are inadequate and incomplete, and do not efficiently address the need for the parallel amelioration of albumin (protein) oxidation– cysteinylation and oxidative stress. Prevention of protein molecular damage and even restoration of best protein molecular health via existing and new, natural and pharmacologic agents need future exploration. Figure 1. Temporal relationships between the trends of albumin glycation (GA% total) and albumin cysteinylation (CA% total) during the course of diabetes therapy in representative T2DM subjects (B#1, B#2) (a and
b).

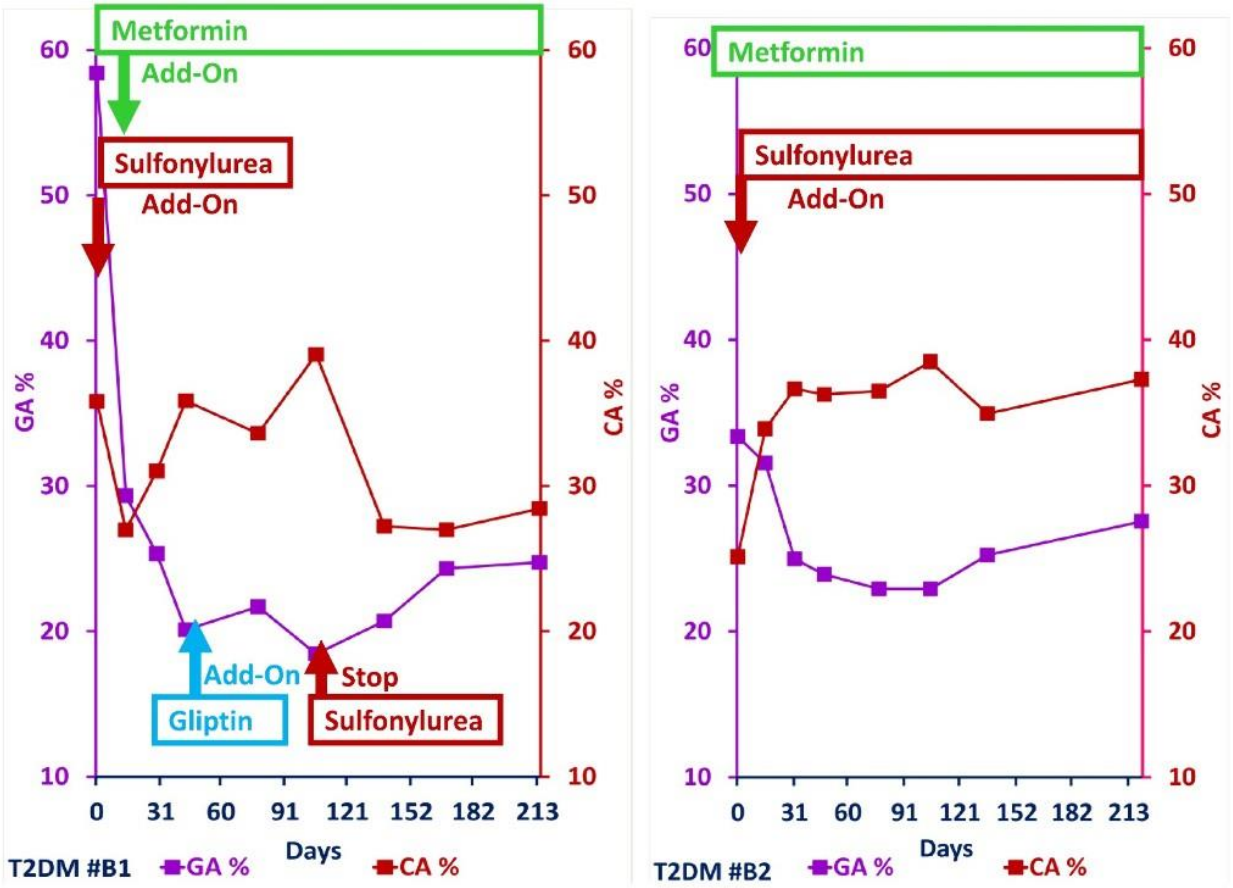
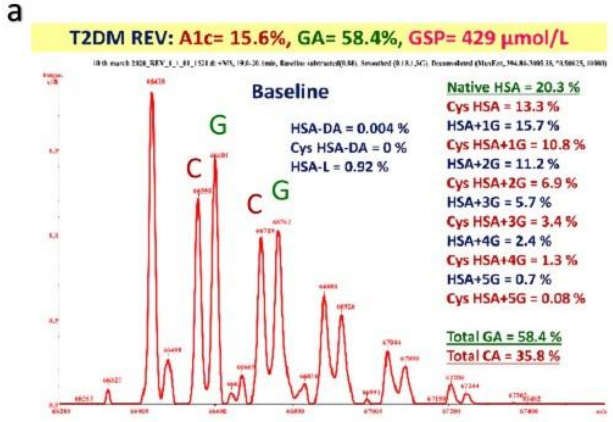


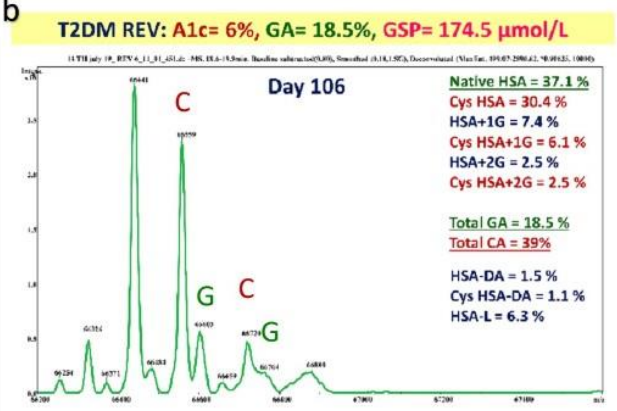
Figure 2: Deconvoluted mass spectra for representative T2DM (a, b) and T1DM (c, d) subjects - baseline (a, c) and follow up (b, d) during the longitudinal therapy

study.

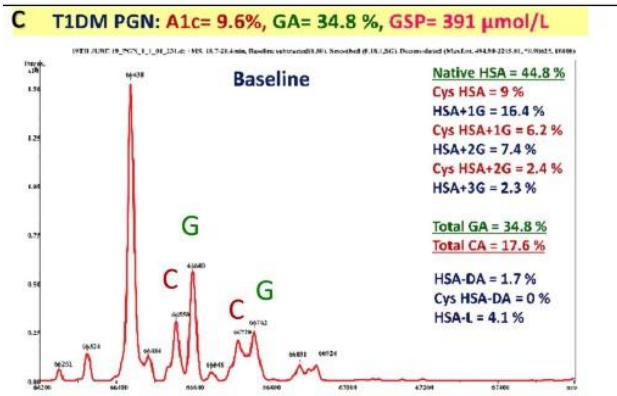
a


T2DM REV: A1c= 15.6%, GA= 58.4%, GSP= 429 µmol/L
Baseline
HSA-DA = 0.004 %
Cys HSA-DA = 0 %
HSA-L = 0.92 %
Native HSA = 20.3 %
Cys HSA = 13.3 %
HSA+1G = 15.7 %
Cys HSA+1G = 10.8 %
HSA+2G = 11.2 %
Cys HSA+2G = 6.9 %
HSA+3G = 5.7 %
Cys HSA+3G = 3.4 %
HSA+4G = 2.4 %
Cys HSA+4G = 1.3 %
HSA+5G = 0.7 %
Cys HSA+5G = 0.08 %
Total GA = 58.4 %
Total CA = 35.8 %

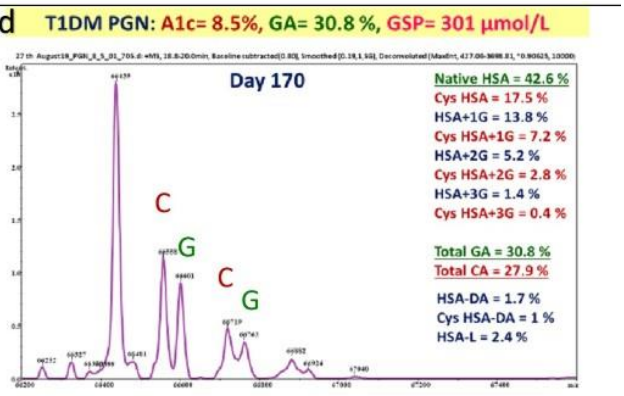
b


T2DM REV: A1c= 6%, GA= 18.5%, GSP= 174.5 µmol/L
Day 106
Native HSA = 37.1 %
Cys HSA = 30.4 %
HSA+1G = 7.4 %
Cys HSA+1G = 6.1 %
HSA+2G = 2.5 %
Cys HSA+2G = 2.5 %
Total GA = 18.5 %
Total CA = 39%
HSA-DA = 1.5 %
Cys HSA-DA = 1.1 %
HSA-L = 6.3 %

c


T1DM PGN: A1c= 9.6%, GA= 34.8 %, GSP= 391 µmol/L
Baseline
Native HSA = 44.8 %
Cys HSA = 9 %
HSA+1G = 16.4 %
Cys HSA+1G = 6.2 %
HSA+2G = 7.4 %
Cys HSA+2G = 2.4 %
HSA+3G = 2.3 %
Total GA = 34.8 %
Total CA = 17.6 %
HSA-DA = 1.7 %
Cys HSA-DA = 0 %
HSA-L = 4.1 %

d


T1DM PGN: A1c= 8.5%, GA= 30.8 %, GSP= 301 µmol/L
Day 170
Native HSA = 42.6 %
Cys HSA = 17.5 %
HSA+1G = 13.8 %
Cys HSA+1G = 7.2 %
HSA+2G = 5.2 %
Cys HSA+2G = 2.8 %
HSA+3G = 1.4 %
Cys HSA+3G = 0.4 %
Total GA = 30.8 %
Total CA = 27.9 %
HSA-DA = 1.7 %
Cys HSA-DA = 1 %
HSA-L = 2.4 %

PV171 / #1223

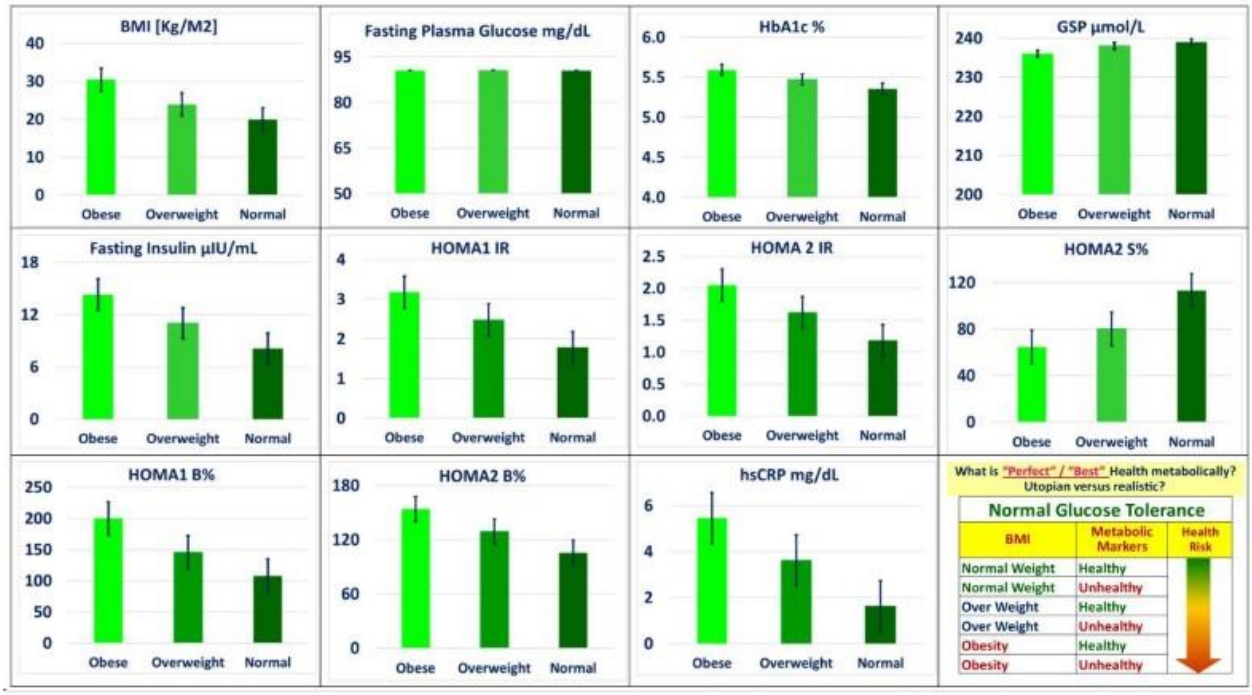
E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

HEMOGLOBIN VERSUS SERUM PROTEIN GLYCATION IN DIABETES: DIFFERENTIAL BEHAVIOR, BIOLOGICAL SIGNIFICANCE AND CLINICAL COMPLEMENTARITY

Madhumati Vaishnav[1,2], Lakshmi Reddy[3], Yug Garg[4], Reshma Bv[5], Kavitha Muniraj[6], Leena Lekkala[6], Jayalakshmi Thimmaiah[7], Vinaya Simha[8], Sathyanarayana Srikanta[9], Navakanta Bhat[10], Samatvam Diabetes Collaborative Study Group[11]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Sparsh Hospital, Endocrinology, Bangalore, India, [4]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [5]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [6]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [7]Manipal Hospital, Endocrinology, Bangaiore, India, [8]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [9]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [10]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [11]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Further investigations on the influence of additional “non-glycemic” metabolic and inflammatory factors on the pathobiology of hemoglobin versus serum protein (albumin+globulin) glycation, across the type 2 diabetogenesis continuum and phenotypes.
Methods: Magnitude and correlates of hemoglobin and serum protein glycation were evaluated in a large cohort of Asian Indian subjects across the type 2 diabetogenesis spectrum [Normal Glucose Tolerance (NGT), Prediabetes (PREDM) and Type 2 Diabetes (T2DM)], with additional Body Mass Index (BMI) stratification [Normal Weight (NW), Overweight (OW) and Obese (OB)]. Analyses included glycated hemoglobin (HbA1c), glycated serum proteins (GSP), insulin resistance (HOMA IR), beta cell dysfunction (HOMA B%) and other metabolic and inflammatory biomarkers and renal function (eGFR: estimated glomerular filtration rate).
Results: Hemoglobin glycation and serum protein glycation exhibited differential behaviour across the glucose tolerance continuum. Within the NGT group, among the 3 increasing BMI strata, identical fasting plasma glucose (FPG) and progressively increasing fasting insulin, HOMA IR, HOMA B% and hs-CRP, were associated with stepwise increase in HbA1c (NGT-NW vs NGT-OB: P= 0.0007), but not GSP (P= 0.58) (Figure 1). This “euglycemic” dysmetabolic state was accompanied by progressively lower serum iron and % transferrin saturation, lower serum albumin: globulin ratio, higher serum uric acid and worsening atherogenic lipid profile. HbA1c and GSP correlated differentially with various “non-glycemic” metabolic and inflammatory biomarkers, during type 2 diabetogenesis (Figure 2). Both HbA1c and GSP correlated significantly positively with eGFR in T2DM (glomerular hyperfiltration), but negatively (stronger) in NGT (best mean glycemia with better renal function).
Conclusions: Differential and often divergent HbA1c and GSP biomarker correlations, highlight their individual biological significance and potential clinical complementarity and synergy. The earliest “euglycemic” dysmetabolic state needs aggressive preventive and therapeutic approaches. Future in-depth phenotype ("Diabetome" and “Diabetomics”) and genotype characterisation and prognostication can facilitate “precision” medicine for type 2 diabetes. Figure 1: Magnitude of hemoglobin glycation, serum protein glycation, insulin resistance, beta cell dysfunction and hs-CRP and other inflammatory - metabolic biomarkers in normal glucose tolerance BMI strata. [Mean and

SD].



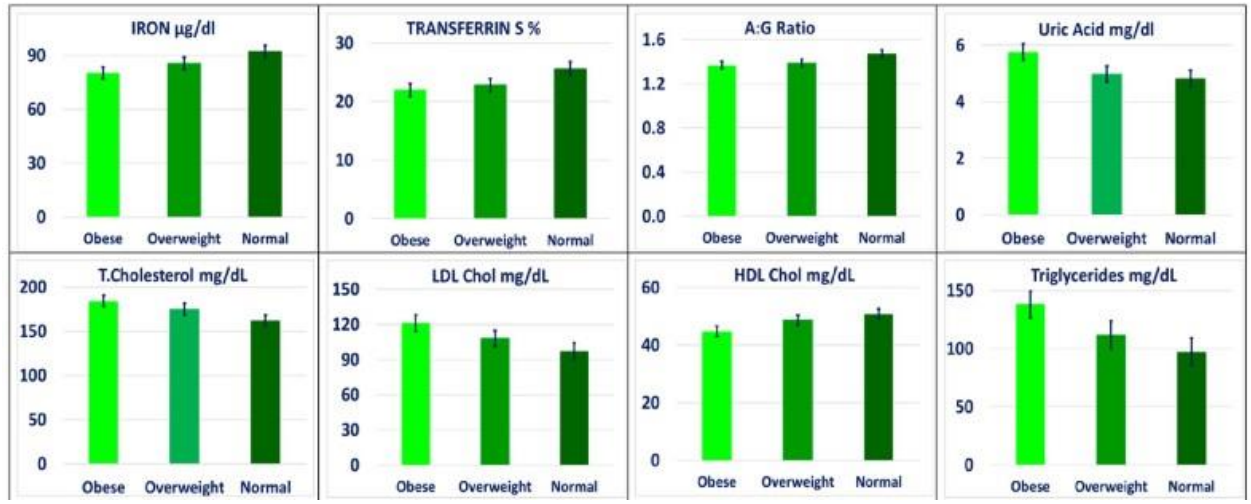


Figure 2: Protein glycation (HbA1c and GSP) biomarker correlations with insulin resistance and beta cell dysfunction and with chronic inflammation and dysmetabolism. Correlation Bar Diagram plots, illustrating significant R values (Positive correlations are shown in red and negative correlations in blue, to the right and left respectively, of the vertical zero line). (N: NGT= 156; T2DM=

226).

		NGT		T2DM	
		HbA1c	GSP	HbA1c	GSP
HbA1c %	R				0.77
BMI	R	0.32			
FPG	R	0.13	0.14	0.81	0.71
F Insulin	R	0.25			
HOMA1 IR	R	0.26		0.38	0.38
HOMA2 IR	R	0.26		0.31	0.26
HOMA2 S%	R	-0.21	-0.13	-0.18	
HOMA1 B%	R	0.21		-0.43	-0.41
HOMA2 B%	R	0.22		-0.52	-0.5

		NGT		T2DM	
		HbA1c	GSP	HbA1c	GSP
hs-CRP	R	0.29		0.15	
Iron	R	-0.18	0.24		0.16
%Trans Sat	R	-0.19	0.24		0.14
A: G Ratio	R	-0.17	0.19		
Uric Acid	R	0.19	0.17	-0.27	-0.17
T Chol	R	0.17	0.13	0.23	0.29
LDL C	R	0.29		0.26	0.29
HDL C	R			-0.21	-0.17
Trigly	R	0.19	0.26	0.2	0.2

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

ASSESSMENT OF JEJUNAL EOSINOPHIL POPULATIONS IN DIABETIC DB/DB MICE FOLLOWING TREATMENT WITH A GREEN ROOIBOS EXTRACT

Sylvia Riedel[1,2], Nireshni Chellan[1,2], Yonela Ntamo[3], Johan Louw[2,4], Christo J.F. Muller[1,2,4]
[1]Stellenbosch University, Centre For Cardio-metabolic Research In Africa, Division Of Medical Physiology, Tygerberg, South Africa, [2]South African Medical Research Council, Biomedical Research And Innovation Platform, Tygerberg, South Africa, [3]South African Medical Research Council, Cochrane Centre, Tygerberg, South Africa, [4]University of Zululand, Department Of Biochemistry And Microbiology, KwaDlangezwa, South Africa

Background and Aims: Metabolic diseases, including type 2 diabetes, are characterized by increased systemic inflammation which may originate from increased intestinal permeability leading to lipopolysaccharide-induced endotoxemia. Intestinal mucosal inflammatory and tolerogenic responses are dysregulated in metabolic disease and studies suggest that CD11c+ eosinophil sub-populations may be contribute to metabolic disease through their pro-inflammatory effects. Aims To investigate (i) selected jejunal immune cell populations of leptin receptor deficient diabetic (db/db) mice and non-diabetic (db/+) mice; (ii) effects of treatments with green rooibos extract (GRT™), an indigenous South African fynbos plant with anti-diabetic and anti-inflammatory properties, and pioglitazone, a known anti-diabetic drug, and (iii) whether aging in mice and long-term exposure (32 weeks) to these treatments modulates immune cell populations in the jejunal mucosa in db/+ mice.
Methods: Four groups (n=8/group) of db/db mice received (i) control, (ii) low dose GRT™ (LD, 74 mg/kg/day), (iii) high dose GRT™ (HD, 740 mg/kg/day) and (iv) pioglitazone (PIO, 15 mg/kg/day) for 16 weeks while db/+ littermates received these treatments for 16 and 32 weeks. For immunophenoptyping by flow cytometry, lamina propria cells were isolated from the jejunum and stained for CD45 (pan-leukocyte marker), SiglecF (eosinophil marker), CD11c (expressed in eosinophils and dendritic cells) and F4/80 (expressed in eosinophils and macrophages).
Results: At 16 weeks, CD45+/SiglecF+ cells were reduced in db/db when compared to db/+ mice ($p<0.001$). However, SiglecF+ CD11c+ cells increased ($p=0.010$) in db/db mice when compared to db/+ mice regardless of treatment. $CD11c^+$ (F4/80- and SiglecF-, $p=0.008$) and $F4/80^+/CD11c^+$ cells (SiglecF-, $p=0.004$) were increased in db/db compared to db/+ mice. Glucose tolerance improved in db/db mice with the 16-week pioglitazone treatment ($p=0.004$), however, pioglitazone not significantly modulate eosinophil populations. Mice receiving the LD GRT™ treatment displayed increased CD11c+/SiglecF+/F4/80+ cell populations regardless of the diabetic status compared to controls and PIO ($p=0.013$). At 32 weeks, CD45+/F4/80+ cells increased ($p=0.001$), while $CD11c^+$ ($p<0.001$) decreased. $CD11c^+/SiglecF^+$ ($p=0.004$) and CD11c-/SiglecF+ populations ($p<0.001$) increased in aged mice compared to the 16-week treatment.
Conclusions: The observed reduction of eosinophils in diabetic mice supports previous studies where diet-induced faulty gut-homing resulted in small intestinal eosinophil depletion. More detailed immunophenotyping may provide better insights into potential immune modulatory effects of GRT™ and pioglitazone. Characterisation of dendritic cells and macrophages and examining the mechanisms leading to the observed increase in pro-inflammatory eosinophil sub-populations in diabetic and aged mice could improve our understanding of inflammatory responses in metabolic diseases and aid in devising new treatment strategies.

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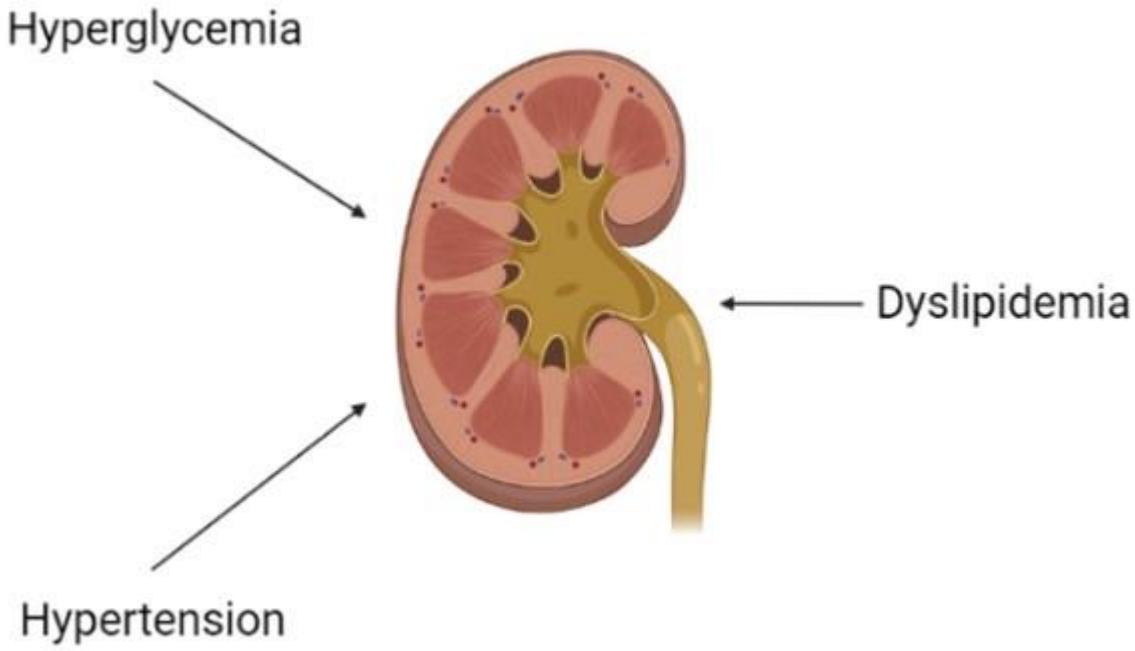
E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

DIABETIC KIDNEY DISEASE – EVALUATION OF RISK FACTORS: REAL WORLD EVIDENCE FOR INDIAN PATIENTS

Banshi Saboo[1], Amit Gupta[2], Deepak Dalal[3], Krishna Vijaykumar Patil[4], Garima Verma[5]
[1]Diacare, Diabetology, Ahmedabad, India, [2]Centre for Diabetes Care, Diabetes And Metabolism, Greater Noida, India, [3]Bharti Arogya Nidhi Hospital, Department Of Diabetes, Mumbai, India, [4]KIMS Hospital, Nephrology, Hyderabad, India, [5]HealthPlix, Department Of Clinical Insights, Bangalore, India

Background and Aims: Diabetic kidney disease (DKD), a chronic complication associated with diabetes mellitus can lead to end-stage kidney disease (ESKD). It is known to be asymptomatic in the initial stages, and hence routine screening is considered necessary for the early diagnosis. KDIGO recommends that all diabetic patients should undergo serum creatinine-based eGFR and urine tests for evaluation of albuminuria on an annual basis. Conventionally, DKD prevention and progression relies on lipid management, glycemic, and hypertension control. Figure 1 represents the predisposing factors for DKD. Figure 1: Predisposing factors for Diabetic Kidney
Disease



Methods: Considering the recommendations and preventive measures, retrospective data from HealthPlix EMR (https://healthplix.com/) was extracted and deidentified data (2018-2022) was analyzed. The data was assessed to evaluate the percentage of diabetic patients (receiving treatment) who had uncontrolled HbA1c, blood pressure levels, LDL levels
Results: HbA1c On evaluation, it was observed that, in 2022 – approximately 1.5 lakh of 17.5 lakh

patients had their HbA1c levels >9% while approximately 2 lakh patients had HbA1c levels in the range of 7.1 to 9%. Blood pressure SBP values were reported for around 84% of the diabetic patients in 2022 and of those (for which SBP was reported), 68% had SBP values beyond the normal 120 mm Hg, which is quite alarming. Data of the past year suggested that out of the 84% of the patients for whom DBP was reported - 32% patients had DBP values beyond 80 mm Hg. LDL Uncontrolled LDL levels can be one of the important factors for progression of DKD. In the preceding year, LDL levels were reported for just 14% of the diabetic patients on EMR. Of these 14% patients, 42% had LDL levels beyond the optimal level, 100 mg/dL.

Conclusions: It can be clearly inferred from the presented data that the parameters (vital and clinical) which predispose diabetic patients to DKD are beyond the optimal value/range in majority of the patients. This necessitates the need to create awareness amongst the patients that maintaining these parameters within the normal reference range. can save them from the development and progression of DKD and several other complications.

PV174 / #1255

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

GENE THERAPY AS FUNCTIONAL CURE FOR DIABETES: ARE WE THERE YET?

Alaeddin Saghir
Dr. Sulaiman Al Habib Hospital, Endocrinology, Dubai, United Arab Emirates

Background and Aims: n this oral presentation, I will first review the role of genetic variations in precipitating all types of diabetes: T1D, T2D, MODY, and gestational diabetes. After elucidating the role of genetics in diabetes, I will discuss the new functional cures by using gene therapy and gene-edited therapy which hold a lot of promise for people living with T1D.
Methods: Role of genes in all kinds of diabetes: 1- Genetics in T1D I will present a list of all genes associated with the incidence of T1DM, and review the updated literature addressing the most important genes. 2- Genetics in T2D T2D is more environmental than genetic. I will report several genes which were identified to be associated with T2D through insulin resistance and obesity. Other genes which can increase the risk of T2D independently of obesity and insulin resistance will also be reported briefly. 3- Genetics in MODY type MODY is estimated to account for 1 to 3 percent of all cases of diabetes, and it can be caused by a variation in one of several genes. I will review the updated literature tackling the most important genes associated with MODY. 4- Genetics in gestational diabetes I will review briefly the most important genes involved in the incidence of gestational diabetes.
Results: Gene therapy and gene-edited therapy in Diabetes In my research, I will focus on the current status and the future perspectives of gene therapy and gene-edited therapy and review the updated literature addressing these two novel therapies in the management of diabetes, such as Wisconsin University clinical trial of 2013, VCTX210 trial in Canada, and other studies.
Conclusions: Studying the role of genes in the incidence of all types of diabetes can help us in understanding the mechanism of the novel experimental therapies of T1D, principally gene therapy and gene-edited therapy. Currently, there are several gene level interventions that are being investigated successfully on animal models. However, the safety of such therapies is yet to be established in humans. Gene therapy research continues, looking at how certain cells in the body could be reprogrammed to start making insulin in T1D patients. While gene therapy and gene-editing therapy are still in their early stages, there’s a lot of hope for a T1D radical cure in our near future.

PV175 / #1509

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

PARTICULARITIES OF PHENOTYPES OF PATIENTS WITH TYPE 2 DIABETES MELLITUS AND MYOCARDIAL INFARCTION

Yanina Saienko, Borys Mankovsky
Ukrainian Children's Cardiac Center,, Cardiometabolic Disorders Department, Kyiv, Ukraine

Background and Aims: Cardiovascular (CV) diseases are the main cause of death in patients with diabetes mellitus. The different phenotypes can predispose to those disease in people with diabetes. Aim: to identify phenotypic features in patients with type 2 diabetes mellitus (T2DM) and their impact on the development of myocardial infarction (MI).
Methods: We examined 231 patients with T2DM with and without MI. The average age of patients was 61,57±0,89 years, the duration of diabetes was 8,61±0,56 years. The average level of HbA1c was 7,78±0,12%, systolic blood pressure - 134,92±1,04, diastolic blood pressure - 81,95±0,68 mm Hg. Depending on the presence or absence of MI patients with T2DM were alienated into 2 groups. The number of patients with T2DM and MI was 59, and 172 without MI. For all patients were calculated BMI, creatinine level, albuminuria and the ratio of albumin to creatinine in the urine to diagnose chronic kidney disease (CKD). All patients received antidiabetic, antihypertensive and statin therapy. We analyzed the effect of age, BMI, duration of T2DM, HbA1c and CKD on the development of MI in patients with T2DM.
Results: Patients with T2DM without MI were significantly younger, their age was 62 [53-69] years, the duration of diabetes was significantly less than 6 [2-11] years, in compared to patients with T2DM with MI, where the age was 65 [61-72] years, and the duration of diabetes was 10 [2-17,5] years. BMI was significantly higher in the group of patients with T2DM without MI and amounted to 32 [28,1-36,2] kg/m^2, while in patients with T2DM with MI was 30 [28-34,3] kg/m^2. The level of HbA1c in the groups of patients with T2DM with or without MI did not differ significantly. The risk factor of CKD III – IV was present in 21 of 172 patients without a history of MI and in 31 of 59 patients with MI and T2DM. The odds ratio for developing a heart attack in the presence of CKD was OR = 2,242 [1,21 - 4,125], p =0,008.
Conclusions: We identified the influence of age, duration of diabetes mellitus on the development of MI in patients with T2DM.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

EVALUATION OF EFFICACY AND SAFETY OF EMPAGLIFLOZIN IN BANGLADESHI PATIENTS WITH TYPE 2 DIABETES MELLITUS (EFFISAEM STUDY)

Mohammad Saifuddin[1], Shahjada Selim[2], Abm Kamrul Hasan[3]
[1]Dhaka Medical College, Endocrinology, Dhaka, Bangladesh, [2]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh, [3]Mymensingh Medical College, Endocrinology, Mymensingh, Bangladesh

Background and Aims: Empagliflozin is a relatively newer glucose-lowering drug (GLD) with many extra-glycemic benefits. To date, no study has evaluated the efficacy and safety of empagliflozin in Bangladeshi patients with type 2 diabetes mellitus (T2DM). Aim of the study is to assess the efficacy and safety of Empagliflozin as an add-on to ongoing GLDs in Bangladeshi adults with uncontrolled T2DM.
Methods: This real-world, multicenter, open-label, prospective study was carried out at 21 sites throughout Bangladesh from 1 February 2022 to 31 July 2022. Patients with T2DM who met the criteria had Empagliflozin added to their existing GLD treatment, with necessary modifications to their ongoing medication regimen. The efficacy and safety data were collected 12 weeks after empagliflozin initiation.
Results: Out of 1449 subjects initiating empagliflozin, 1340 subjects [age 50.3±9.0 years, male 52.5%, overweight/obese 94.4%, insulin-treated 25.7%, baseline hemoglobin A1c (Hba1c) 9.9±1.4%] completed the study. At 12 weeks, the reduction in HbA1c was 1.6% (95% CI 1.5-1.6, $P < 0.001$); 12.5% of the study subjects achieved HbA1c <7%. There were also significant ($P < 0.001$ in all instances) reductions in fasting plasma glucose (3.0 mmol/L), plasma glucose 2 hours after breakfast (4.8 mmoL/L), body weight (1.9 kg), body mass index (0.8 kg/m^2), systolic blood pressure (BP) (10 mmHg), diastolic BP (7 mmHg), insulin dose (3 U), serum creatinine (0.06 mg/dL), total cholesterol (18 mg/dL), low-density lipoprotein cholesterol (13 mg/dL), high-density lipoprotein cholesterol (1 mg/dL), and triglyceride (42 mg/dL) and an increase in estimated glomerular filtration rate (4.2 mL/min/1.73 m^2) from the baseline values. 6.62% experienced adverse events (lightheadedness 2.21%, genital tract infection 0.97%, urinary tract infection 1.24%, generalized weakness 0.48%, and nocturia 0.48%). 1.1% of subjects experienced hypoglycemia, and other 0.12% reported severe hypoglycemic events.
Conclusions: Empagliflozin is effective, safe, and tolerable for treating Bangladeshi patients with uncontrolled T2DM as add-on therapy in routine clinical practice with favorable effects on body weight, BP, lipid profile, and renal function.

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01-03-2024 07:00 - 18:00

THE EFFECT OF TIRZEPATIDE DURING WEIGHT LOSS ON FOOD INTAKE, APPETITE, FOOD PREFERENCE AND FOOD CRAVING IN PEOPLE WITH OBESITY

Corby K Martin[1], Eric Ravussin[2], Guillermo Sanchez-Delgado[3], Hiroshi Nishiyama[4], Jing Li[4], Shweta Urva[5], Edward J Pratt[6], Zvonko Milicevic[7], Axel Haupt[8], Tamer Coskun[6], Sylvia Sarwan[9]
[1]Pennington Biomedical Research Center, Ingestive Behavior Laboratory, Baton Rouge LA, United States of America, [2]Pennington Biomedical Research Center, Nutritional Obesity Research Center, Baton Rouge LA, United States of America, [3]Pennington Biomedical Research Center, Human Physiology Laboratory, Baton Rouge LA, United States of America, [4]Eli Lilly and Company, Statistics, Indianapolis, United States of America, [5]Eli Lilly and Company, Pk/pd, Indianapolis, United States of America, [6]Eli Lilly and Company, Medical, Indianapolis, United States of America, [7]Eli Lilly and Company, Next Generation Incretins, Indianapolis, United States of America, [8]Eli Lilly and Company, Obesity & Complications, Indianapolis, United States of America, [9]Eli Lilly and Company, Medical Science Liaisons Sameta, Dubai, United Arab Emirates

Background and Aims: Tirzepatide (TZP) promotes significant, clinically meaningful weight loss. In a randomized blinded clinical trial in people with obesity undergoing caloric restriction, we investigated the effect of TZP vs Placebo (PBO) on food intake during ad libitum lunch and dinner, appetite, food preference and craving.
Methods: In this 18wk phase 1 study, 55 people with obesity, with baseline body weight 102.8 kg were randomized (1:1) to TZP 15 mg/PBO. Food intake was measured during ad libitum lunch (664 kcal, PBO; 682 kcal, TZP) and dinner (1178 kcal, PBO; 1190 kcal, TZP) at baseline and after 18wk of treatment. We measured appetite during fasting and standardized mixed meal tolerance test (sMMTT) with visual analogue scale (VAS) and retrospective VAS (average ratings over the previous week). Food cravings and preferences were measured with the Food Craving Inventory (FCI) and Food Preference Questionnaire (FPQ) at baseline, 8wk and 18wk.
Results: At 18wk, mean body-weight loss was 16.7 kg with TZP and 8.3 kg with PBO ($p<0.001$). TZP significantly decreased food intake from baseline during lunch (-285±42 kcal) and dinner (-631±58 kcal) compared to PBO (60±42, and -116±58 kcal, respectively). TZP significantly lowered appetite at fasting and at each time point during the sMMTT, resulting in decreased hunger and prospective food consumption and increased fullness. Based on retrospective VAS, appetite changes started at 1wk. TZP significantly decreased food preference scores in 10/12 FPQ metrics at 8wk and 18wk compared to PBO. TZP significantly decreased the overall FCI score and the sweets, carbohydrates and starches, and fast-food fats sub scores, but not the high fat and fruit and vegetable sub scores, at 8wk and 18wk, compared to PBO.
Conclusions: TZP decreased food intake, appetite, food craving and preference. TZP appears to reduce body weight via reductions in food intake and the drive to eat.

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01-03-2024 07:00 - 18:00

FAMILY CASE OF NEONATAL DIABETES MELLITUS

Andrey Emelyanov[1], Tamara Kuraeva[1], Elena Sechko[1], Ilvira Yakhina[1], Galina Svetlova[1], Anastasia Severina[1], Irina Gunbina[2], Dmitriy Laptev[1]
[1]Endocrinology Research Center, Pediatric Diabetes, Moscow, Russian Federation, [2]Chelyabinsk Regional Children Clinical Hospital, Endocrinology, Chelyabinsk, Russian Federation

Background and Aims: Neonatal diabetes mellitus (NDM) is one of the monogenic forms of diabetes mellitus, most often manifesting in the first 6 months of life. NDM is sometimes combined with DEND syndrome, which is characterized by the triad of developmental delay, epilepsy and neonatal diabetes. The development of the syndromes is caused by activating mutations in the KCNJ11 gene, encoding ATP-dependent K channels. Aims: Demonstration of a rare familial case of NSD with DEND syndrome with a different prognosis depending on the chosen management tactics.
Methods: Description of a family with NDM.
Results: Boy, D, 4 years old: from a mother with NDM. Pregnancy: 2, with chronic placental insufficiency, stage 2 fetal growth restriction syndrome. Childbirth: surgical at 36 weeks. Weight: 2240 gr. (SDS -1.25), length: 46 cm (SDS-0.81). Hyperglycemia on the 3rd day of life, insulin therapy was started. On the 7th day of life he was switched to glibenclamide 1.75 mg 1/8 tablet 4 times a day. A month later, a mutation in the KCNJ11 gene was detected (heterozygous R201C, described in permanent NDM). Glibenclomide receives constantly 0.875 mg/day: 1/8 tablet. 4 times a day. HbA1c from 4.5% to 6.7%. At 4 years: Height: 101 cm, height SDS: -0.75, BMI SDS: -1.28. HbA1c – 6.8%. C-peptide 0.454 ng/ml (1.1-4.4), insulin 1.28 µU/ml (2.6-24.9). Psychomotor development is by age. Mother, 33 years old. From the anamnesis: she was born at term, body weight 2100 g. (SDS -3.48). Hyperglycemia of 25 mmol/l was detected at 4 months, type 1 diabetes mellitus was diagnosed, and she received insulin therapy. Delayed psychomotor and physical development (final height 135 cm, SDS -4.17). Pregnancy-1 - childbirth (caesarean section November 11, 2015): a boy weighing 1600 g, hyperglycemia of 13 mmol/l from the 3rd day of life, received insulin with frequent hypoglycemia. By the age of one year, due to severe cognitive impairment, the child was abandoned and died at the age of 4, the cause is unknown. At the age of 33, she was successfully transferred from insulin 4 U/day to gliclazide 15 mg/day. Complications of diabetes: diabetic nephropathy > 5 years, stage of proteinuria, chronic kidney disease. Nonproliferative retinopathy >10 years. Distal symmetric sensorimotor neuropathy >15 years. Encephalopathy.
Conclusions: The effectiveness of transfer to sulfonylurea drugs after 33 years was demonstrated in this case. Genetic testing should be performed on any child with NDM Identifying the type of mutation can lead to major differences in patient management.

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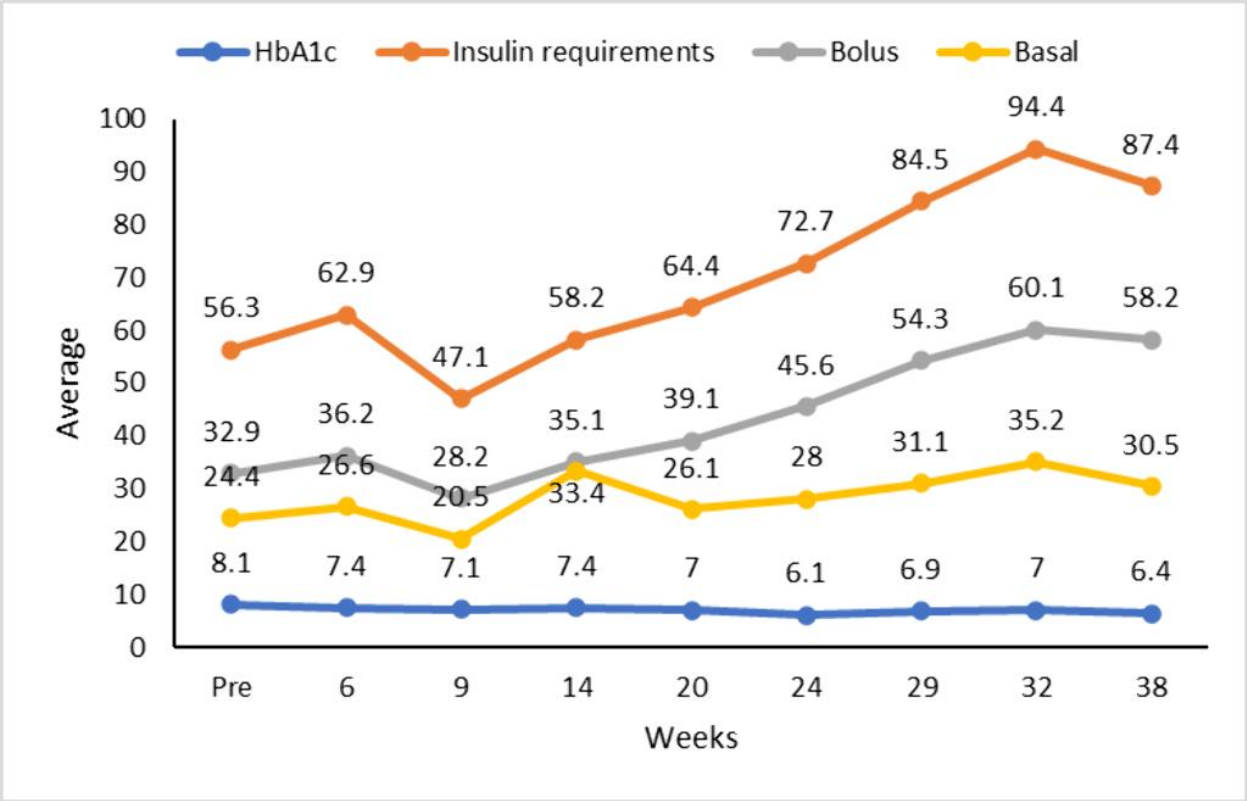
01-03-2024 07:00 - 18:00

GLYCAEMIC CONTROL AND INSULIN REQUIREMENTS THROUGHOUT PREGNANCY IN WOMEN WITH TYPE 1 DIABETES MELLITUS AND PREGNANCY OUTCOME.

Asifa Jamali[1], Aisha Sheikh[2], Mabrooka Kazi[2], Safia Awan[3], Lumaan Sheikh[4], Najmul Islam[1]
[1]Aga Khan University Hospital, Internal Medicine, Section Of Diabetes Endocrine And Metabolism, KARACHI, Pakistan, [2]Aga Khan University Hospital Karachi, Internal Medicine, Section Of Diabetes Endocrine And Metabolism, KARACHI, Pakistan, [3]Aga Khan University Hospital Karachi, Internal Medicine, KARACHI, Pakistan, [4]Aga Khan University Hospital Karachi, Gynaecology And Obstetrics, KARACHI, Pakistan

Background and Aims: **Background:** The prevalence of diabetes in pregnancy has been increasing worldwide. In women with Type 1 diabetes mellitus (T1D), precise metabolic control is important both before and during pregnancy to reduce pregnancy complications. Maintenance of good glycaemic control is difficult because insulin requirements continuously change throughout pregnancy. The changes include a decrease in Insulin requirement in the first trimester, an increase in the second half of pregnancy, and falling in insulin requirements in the third trimester. **Aims:** The aim of this study was to determine glycaemic control, insulin requirement of women with Type 1 diabetes mellitus throughout pregnancy and to correlate maternal glycaemic control with maternal and perinatal outcomes.
Methods: This is a Retrospective cohort study. Medical records of 135 pregnancies complicated by Type 1 diabetes mellitus were scrutinized and 71 medical records fulfilled the inclusion criteria. Collected data was assessed for patients' demographics, blood glucose records, insulin requirements during each trimester, and maternal and neonatal outcomes.
Results:



Average insulin requirements pre-pregnancy were 56.3 units, which peaked to 62.9 units between 6-8 weeks gestation, a nadir between 9-13 weeks(47.1units), and a second peak between 32-36 weeks (94.4 units) and again nadir at 38 weeks (87.4 units) onwards, the sharpest increment was observed from week 14 to week 32. Maternal complications included impaired awareness of hypoglycemia in 5.6%, ketoacidosis in 2.8%, and pregnancy-induced hypertension/pre-eclampsia in 11.3%. Premature delivery (<37 weeks) occurred in 33.8% of cases. Most births were through c-section, with an average age of 36.5 ± 2.2 weeks and a birth weight of 2425-3100 grams. Neonatal complications included neonatal hypoglycemia in 8.45%, respiratory distress syndrome in 22.54%, congenital anomalies in 11.27%, and intrauterine death (IUD) in 1.4%. Pre-pregnancy poor glycaemic control was significantly associated with congenital anomalies ($p < 0.05$) but no association was observed between maternal glycaemic control, premature delivery, neonatal hypoglycaemia, and birth weight (p=NS)

Conclusions: Pregnant women with Type 1 diabetes mellitus had changes in insulin requirements with three successive changes of direction. Poor glycaemic control in T1D patients is complicated by higher rates of maternal and neonatal complications.

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01-03-2024 07:00 - 18:00

HIGH-FAT-, HIGH-CARB-DIET-INDUCED PREDIABETES PRECONCEPTION IN SPRAGUE-DAWLEY RATS AS A RISK FACTOR FOR THE DEVELOPMENT OF PREECLAMPSIA

Asisaphola Ludidi[1], Ntethelelo Sibiya[2], Andile Khathi[1], Phikelelani Ngubane[1]
[1]University of KwaZulu Natal, Human Physiology, Durban, South Africa, [2]Rhodes University, Pharmacy, Makhanda, South Africa

Background and Aims: Hyperglycaemia preconception deranges the establishment of a functional placenta due a number of metabolic disturbances. Despite efforts to understand the pathological links between diabetes and preeclampsia, it is not clear whether prediabetes can predispose individual on developing preeclampsia. Therefore, the risk of developing PE in prediabetic patients remains obscure. Accordingly, the aim of the study was to assess abnormal placental changes as a risk factor for the development of PE in high-fat-, high-carbohydrate diet-induced prediabetic rats.
Methods: Prediabetes was induced through the exposure of animals to high carbohydrate, fats and fructose for 9 months. Rats exposed to normal standard diets served as control. After successful induction of prediabetes the rats were mated. After a successful mating, the oral glucose tolerance test and mean arterial blood pressure measurements were conducted on the gestational day 0, 9 and 18. At the end of the experimental period, the rats were sacrificed. The expression of placental IFY-gamma, PLGF, VEGFRI was measured using an ELISA. TNF-alpha, and IL-6 gene expressions were assessed using a real time PCR. Plasma nitric oxide was measured using a calometric assay.
Results: The prediabetic group showed a pronounced oral glucose tolerance disturbance throughtout the pregnancy period in comparison to the non-prediabetic group. Furthermore, a pronounced sustained increase in mean arterial pressure was also observed in prediabetic rats. Immunoassays demonstrated an increase protein expression of the VEGFR1 and IFN-Y, whilthe st PLGC's expression was reduced in prediabetic group. Gene expression studies revealed an increased expression of TNF alpha and IL-6 in prediabetc group. Lastly, plasma nitric oxide concentrations were reduced.
Conclusions: This study observations may suggest that a prediabetic state could be risk factor for the development of preeclampsia as evidenced by disturbances in functional and pathologocal markers of preeclampsia. Findings from this study highlight the need for screening and monitoring of prediabetes during pregnancy to reduce the risk of developing preeclampsia.

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INSULIN SENSITIVITY AND SECRETION BIOMARKERS IN HOMOZYGOTE VS HETEROZYGOTE FAMILY MEMBERS FOR THE PATHOGENIC WRN GENE MUTATION (WERNER SYNDROME)

Suvyaktha Simha[1], Madhumati Vaishnav[2,3], Leena Lekkala[4], Kavitha Muniraj[4], Reshma Bv[5], Diya Manjunath[6], Yug Garg[7], Sneha Kl Rao[8], Vinaya Simha[9], Chao Xing[10], Abhimanyu Garg[10], Sathyanarayana Srikanta[11], Samatvam Collaborative Study Group[12]
[1]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [2]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [3]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [4]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [5]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [6]Vellore Institute of Technology, Biotechnology, Vellore, India, [7]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [8]Olmsted Medical Center, Internal Medicine, Rochester, United States of America, [9]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [10]UT Southwestern, Endocrinology Nutrition, Dallas, United States of America, [11]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [12]Samatvam Research Center, Translational Science Medicine, Bangalore, India

Background and Aims: 50-70% of Werner syndrome (WS) patients have been reported to develop “type 2 DM” associated with insulin resistance, hyperinsulinemia and low BMI with accumulated visceral fat. Average age of diabetes onset is 30-40 years (18 and 28 years in 2 cases). We recently identified an Asian Indian family (consanguinity), in which three members had diabetes diagnosis at 15, 20 and 33 years, with homozygous pathogenic c.561A>G variant in WRN RecQ Like Helicase (WRN) gene, inducing new splicing site on exon 6 resulting in truncated WRN protein, p.Lys187Trpfs*13.
Methods: Insulin sensitivity and secretion biomarkers measurements were analysed [HOMA: fasting plasma glucose (FPG) and fasting plasma insulin (FPI) to determine IR (insulin resistance), %S (insulin sensitivity) and %B (beta-cell function)]. [Normal reference ranges for representative Asian Indian population: Normal glucose tolerance plus normal weight; BMI 19.9+2.1, fasting plasma glucose 90+5 mg/dL, HbA1c 5.35+0.3%] (Figure 1).
Results: 400.26 (homozygous; most severely affected WS) displayed highest insulin resistance and lowest insulin sensitivity, with evidence of compensatory hyperinsulinemia. 400.15 (homozygous; father of 400.26; relatively delayed and “milder” WS) and 400.28 (homozygous; sister of 400.26; currently no obvious WS), both had strikingly identical magnitudes of increased insulin resistance, decreased insulin sensitivity and compensatory hyperinsulinemia (genetic programming, with possible future delayed manifestation?). 400.16 (heterozygous; mother of 400.26) displayed “highest” insulin sensitivity– “better than normal”. This was despite her BMI (23.4 kg/m2) being the highest among family members. Comparative evaluation of biochemical metabolic profiles, reaffirms many of the well-known correlates of insulin resistance syndrome and associated chronic inflammation (increased liver enzymes, hs-CRP, serum globulins, uric acid and atherogenic dyslipidemia) (Figure 2).
Conclusions: While the homozygous "pathogenic" WRN gene mutations (WS 400.15, 400.26 and 400.28), give rise to insulin resistance of varying severity (through currently undefined molecular mechanisms in insulin signalling pathways), heterozygosity for the same mutation appears to generate opposite biology (“supranormal” insulin sensitivity in WS 400.16). In-depth molecular and mechanistic studies could lead to novel "insulin sensitisers", to better treat insulin resistance in type 2 diabetes and

related disorders. Figure 1:

Parameters	Normal Range	400.30	400.15	400.26	400.28	400.16
		PROBAND	Maternal uncle	Maternal cousin sister	Maternal cousin sister	Maternal aunt
Residence		USA	India	India	India	India
Diabetes onset	Year	15	33	20	-	-
Current age	Years	22	52	26	16	44
Therapy		Insulin Metformin	Metformin Glimepiride	Metformin Vildagliptin Glimepiride	-	-
BMI kg/m2		14.9	18.0	11.7	15.7	23.4
Premature aging		Yes	Yes	Yes	No	No
HbA1c%	< 5.6	11.4	7.8	9.9	5.6	6.0
Glucose-Fasting	70-100 mg/dl		86	108	83	87
Insulin-Fasting	1.9-23 µU/mL		13.25	19.96	13.74	2.55
HOMA2 IR	1.19 ± 0.6		1.89	3.01	1.93	0.44
HOMA2 %B	106 ± 40		163	141	179	59
HOMA2 %S	113 ± 79		53	33	52	227
WRN mutation		Homozygous	Homozygous	Homozygous	Homozygous	Heterozygous

Figure

2:

Parameters	Normal Range	400.30	400.15	400.26	400.28	400.16
Total cholesterol	< 170 mg/dL	140	186	356	154	157
Triglycerides	< 90 mg/dL	268	138	>800	125	64
LDL-cholesterol	< 110 mg/dL	78	91	117	92	106
HDL-cholesterol	> 45 mg/dL	27	61	40	57	49
Bilirubin	0.1-1.3 mg/dL	0.65	0.45	0.54	0.44	0.63
Aspartate Aminotransferase	10-45 U/L	61	38	68	22	21
Alanine Aminotransferase	10-50 U/L	147	51	104	27	21
Alkaline Phosphatase	40-150 U/L	270	127	103	136	70
Gamma Glutamyl Transferase	<38 U/L		96	142	21	16
Total Protein	5.7-8.2 gm/dl		8.04	9.02	7.79	7.64
Serum Albumin	3.2-4.8 gm/dl		3.80	4.57	4.49	4.43
Serum Globulin	2.5-3.4 gm/dl		4.24	4.45	3.30	3.21
Serum uric acid	3.2 - 6.1 mg/dl		6.16	6.36	5.09	3.86
C-reactive protein hs-CRP	< 1.00 mg/L		6.79	2.2	1.4	5.36
Hemoglobin	12.0 -15.0 g/dL		14.6	11.0	13.5	13.7

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THE "HAVE-NOTS" AND THE "HAVES" WITH TYPE 1 DIABETES: UNIVERSAL DREAM AND QUEST FOR HEALTH CARE PERFECTION (AN EXPERIENCE FROM INDIA)

Suvyaktha Simha[1], Sapna Manjunath[2], Madhumati Vaishnav[3], Reshma Bv[4], Leena Lekkala[5], Kavitha Muniraj[6], Sathyanarayana Srikanta[6], Samatvam Diabetes Collaborative Study Group[7]
[1]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [3]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [4]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [6]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [7]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Besides "perfect" physiological insulin replacement through appropriate material support, intensive and sustained psychosocial support is mandatory for holistic and complete T1D care, for all socioeconomic sections of society, world over. Towards this, Samatvam Trust, Bangalore, India, has progressively implemented and enriched two parallel programs DISHA ("Direction"): (a) Free Clinic for poor children ("have-nots") providing basal bolus insulin, syringes, blood glucose meters/strips, medical care and counselling, and limited diagnostic tests- all for free; and (b) Fee for Service Clinic for those who can afford ("haves"), where insulin pumps (IP), continuous glucose monitoring (CGM), and automated insulin delivery (AID) are also options (chosen by a subset). More than 6000 "have-not" and 1000 "have" beneficiaries have been provided care by the same endocrinology specialist health care team (1987-2023). We wanted to examine if there were differences in various health metrics, including quality of life (QoL) and treatment satisfaction (DTS) between the two groups.
Methods: Validated structured questionnaires were administered to random sample of T1D subjects, from both the "have-nots" and "haves" groups. QoL was assessed by 20 questions with responses ranging from 1-5 (lower scores indicate lower burden of disease and better QoL) and DTS by 6 questions (lower scores indicate lower satisfaction).
Results: Overall, "haves" were older, had longer duration of diabetes and slightly better HbA1c (9.1 vs 10.0%) compared to "have-nots" (Figure 1) (Note: As expected, the subset of "haves" on IP/CGM/AID had HbA1c 6.6% and glucose time in range 81%). Further, composite QoL score was similar between two groups and DTS score tended to be higher in "have nots", reflecting different aspirations and contentment target levels. There were no remarkable correlations between any QoL and DTS measures and age, duration of diabetes or HbA1c.
Conclusions: Equitable access to various essential components of T1D care, remains a social and political challenge world over. In their struggles towards euglycemia, "have-nots" compensate for infrequent home glucose monitoring, generic human insulin etc, with intense discipline, extraordinary family support, and rigid life adjustments (sacrificing flexibility and 'enjoyment', which are basic aspirations of every child or adolescent). Focused government and private programs and partnerships are imminently needed to bridge the diabetes health care gap between the "have-nots" and "haves". Synergistic creativity, empathy and social engineering, all on the foundation of strongest possible contemporary science are central. Figure

1:

Parameter	Have-Nots	Haves	P value
Age (Years)	18.9 ± 7.6	36.7 ± 15.1	< 0.001
Duration of T1D	9.5 ± 6.5	23.8 ± 15.3	<0.001
% Female	64%	65%	
BMI	20.0 ± 4.4	23.6 ± 4.2	<0.005
HbA1c	10.0 ± 2.0	9.1 ± 2.8	0.2
Composite QOL Score	31.9 ± 12.8	34.2 ± 14.6	0.5
Composite DTS Score	40.6 ± 6.4	33.8 ± 12.0	0.08

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RARE CASE OF CONGENITAL GENERALIZED LIPODYSTROPHY IN ASSOCIATION WITH MUSCLE WEAKNESS AND POOR EXERCISE CAPACITY

Diya Manjunath[1], Madhumati Vaishnav[2], Suvyaktha Simha[3], Vinaya Simha[4], Nivedita Patni[5], Chao Xing[6], Abhimanyu Garg[6], Sathyanarayana Srikanta[7], Samatvam Diabetes Collaborative Study Group[8]
[1]Vellore Institute of Technology, Biotechnology, Vellore, India, [2]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [3]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [4]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [5]UT Southwestern, Pediatric Endocrinology, Dallas, United States of America, [6]UT Southwestern, Endocrinology Nutrition, Dallas, United States of America, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [8]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Congenital Generalized Lipodystrophy (CGL) is a rare autosomal recessive disorder characterized by extreme paucity of subcutaneous adipose tissue from birth, increased muscularity and metabolic complications related to severe insulin resistance such as diabetes, hyperlipidemia and steatohepatitis. Most patients have biallelic mutations in AGPAT2 or BSCL2 resulting in CGL1 or CGL2 respectively. We report two patients with features of CGL and some additional manifestations who did not have a variation in either of these common loci.
Methods: Both patients belong to a consanguineous family from Southern India with two of the three siblings being affected including a 17-year-old girl and her 14-year-old brother. Perinatal period was uneventful and they were noted to be skinny and muscular at birth, but otherwise healthy. The elder sister had recurrent illnesses during infancy including fever and episodes of suspected gastroenteritis. She had poor growth and delayed developmental milestones, and was able to walk at 2.5 years. She was diagnosed with diabetes at age 3 years and had an episode of hypertriglyceridemic pancreatitis at age 6 years. She is also known to have steatohepatitis with compensated cirrhosis and nephropathy. She is on metformin, high dose basal-bolus insulin therapy requiring about 2.5 units/kg, besides combination lipid lowering therapy with statin and fibrate, despite which she continues to have significant hyperglycemia (HbA1c= 14%) and hyperlipidemia (triglycerides >800 mg/dL). Her younger brother however does not have any metabolic complications currently and is not on any medications. Both of them have a characteristic muscular appearance with marked absence of subcutaneous fat and prominence of limb musculature and veins. Their BMI are 16.5 and 19.5 kg/m2, respectively. They have marked acanthosis nigricans over the neck, axillae and trunk.
Results: Besides these classical features of CGL, both patients complained of poor exercise capacity mainly due to pain in the calf on walking more than 5-10 minutes. They even experienced pain in the thigh with prolonged sitting. They did not participate in sports activity. Joint laxity and clinodactyly was also noted in both patients. ECG and echocardiogram did not reveal any abnormality with good systolic function (EF >60%). Genetic analysis showed normal sequence of AGPAT2 and BSCL2, but a homozygous c.613G>T (p.Glu205*) truncation mutation in Caveolae associated protein 1 (CAVIN1) establishing the diagnosis of CGL4.
Conclusions: CGL4 due to CAVIN1 mutation is an extremely rare disorder which needs to be considered in patients with features of CGL and myopathy.

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DETERMINANTS OF THE QUALITY OF LIFE OF PEOPLE WITH TYPE 2 DIABETES: A CROSS SECTIONAL SURVEY FROM A TERTIARY CARE HOSPITAL IN SINGAPORE

Gilbert Soh[1], Goh Su Yen[2,3], Nur Nasyitah Binte Mohamed Salim[4], Lim Gek Hsiang[4], Charlotte Choo Hui Min[2], Xin Xiao Hui[4], Daphne Gardner Tan Su Lyn[3], Suresh Rama Chandran[3]
[1]Ministry of Health Holdings, Internal Medicine, Singapore, Singapore, [2]Singapore General Hospital, Endocrinology, Singapore, Singapore, [3]Singapore General Hospital, Singapore, Singhealth Duke Nus Diabetes Centre, Singapore, Singapore, [4]Singapore General Hospital, Health Services Research Unit, Singapore, Singapore

Background and Aims: Various factors may impact the quality of life (QOL) of a person living with type 2 diabetes (T2D). We examined the impact of demographic factors, disease-specific factors, diabetes distress, and socio-economic tier (assessed by housing type) on the QOL of people with T2D in Singapore.
Methods: A cross-sectional survey done in Jul 2021 invited all people with T2D and attendance at Diabetes and Metabolism Centre of Singapore General Hospital in the year 2020 via SMS. Respondents filled European Quality of Life -Visual Analog Scale (EQ-VAS), and Problem Areas in Diabetes (PAID) score on their smartphones. Socio-demographic and diabetes-related data were retrieved from SingHealth Diabetes Registry. Continuous variables are summarized as mean (SD) and proportions are presented as percentage. Multiple linear regression was used to test if age, sex, BMI, diabetes duration, treatment type, housing type, HbA1c, Gold Score and PAID score significantly predicted EQ-VAS scores.
Results: A total of 1406 people with T2D, 46.4% female, with mean (SD) age 61.1 (13.4) years, HbA1c 8.0 (1.4%), PAID score 5.04 (4.5) participated. Multiple linear regression model as described above was significant (R^2=0.235, F (17, 266) = 4.82, p<0.0001). It was found that only diabetes duration (β=-0.0045, p=0.02), the housing type (β=0.24-0.31, p<0.01) and PAID score (β=-0.019, p<0.001) significantly predicted EQ-VAS.
Conclusions: QOL in people with T2D is affected by diabetes duration, their socio-economic tier, and diabetes distress. Interestingly HbA1c, the type of diabetes treatment, BMI, age, and sex did not have any impact on the QOL.

PV185 / #647

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

COMPARISON OF THE EFFECT OF HONEY AND SUCROSE ON BLOOD GLUCOSE AND C-PEPTIDE IN PATIENTS WITH DIABETES

Fahimeh Soheilipour
Minimally Invasive Surgery Research Center, Aliasghar Children Hospital, School of Medicine, Iran University of Medical Sciences, Tehran, Iran, Pediatric, Tehran, Iran

Background and Aims: This study was designed to compare the effect of honey and sucrose on blood glucose and c-peptide in people with type 1 diabetes mellitus.
Methods: This study was a blocked randomized, single-blind 2-week crossover clinical trial with one-week washout between treatment phases that was conducted on 30 patients with type 1 diabetes mellitus. At the first trial patients in separate blocks were given honey and sucrose solution and after the one week wash out period they crossed. In each trial their fasting and postprandial c-peptide and blood sugar in 0, 30, 60, 90, 120 and 180 min after solution were measured. Data has been analyzed by SPSS software with the Statistical Significance $P < 0.05$.
Results: 30 patients with type 1 diabetes mellitus, 17 males (56%) and 13 females (44%) completed the trial. The mean age was 10.7 (± 2.84) with the mean duration of diabetes 4.3 (± 2.48). The mean HbA1c was 7.47% (±1.01). The mean levels of c-peptide were 0.53 (±0.41) and 0.29 (±0.17) after consumption of honey and sucrose respectively, with a significant difference of P-value=0.005.
Conclusions: Our study showed that the average rise in blood sugar was lower after honey consumption, although statistically non-significant. Consumption of honey solution was also related to a significant increase in c-peptide level. Considering the increase in c-peptide after the consumption of honey in people with type 1 diabetes, it could be a wise to focus on the protective effects of honey against microvascular complications of diabetes.

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PV186 / #979

E-Poster Viewing
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01-03-2024 07:00 - 18:00

CARE MODELS IN TYPE 2 DM: CLINICAL OUTCOMES FROM AN APPROACH BASED ON MULTIDISCIPLINARY TEAMS AND EHEALTH

Eva Venegas-Moreno[1], Pablo Remon-Ruiz[1], Román Villegas-Portero[2], Alfonso Soto-Moreno[1]
[1]Instituto de Biomedicina de Sevilla (IBiS), Hospital Universitario Virgen del Rocío/CSIC/Universidad de Sevilla, Unidad De Gestión Clínica De Endocrinología Y Nutrición, Seville, Spain, [2]Sistema Andaluz de Salud, Subdirección Técnica De Gestión De La Información, Seville, Spain

Background and Aims: With the rising epidemic of type 2 DM, it is crucial for health systems to efficiently structure patient care, ensuring uniform and high-quality services. Our study aims to analyze the clinical outcomes of a targeted and active intervention through multidisciplinary teams (Primary Care and Endocrinology) and the use of eHealth to guide intervention objectives.
Methods: This describes the active intervention arm of the quasi-experimental study “Organizational models in the care of Type 2 Diabetes Mellitus in Andalusia (MEDEA)”. In the active intervention arm, 2 health centers from our health district were selected, matched socioeconomically with another 2 centers chosen for the moderate intervention arm. Intervention criteria were selected for patient intervention (patients with HbA1c > 8%, patients with LDL > 100 mg/dL, patients older than 75 years with HbA1c < 7% on potentially hypoglycemic drug treatment). Population listings that met these criteria were extracted through the Population Health Base. In a multidisciplinary meeting (Primary Care Team-Endocrinology), intensification strategies and necessary visits were designed.
Results: 3,513 patients with type 2 DM were treated. Average previous HbA1c was 6.98 +/- 1.33%, with 16.54% (440) of patients with HbA1c > 8%, and 24.54% (108) with HbA1c > 10%. 50.6% (1,115) had LDL > 100 mg/dL and 32.88% (728) had LDL levels between 70-100 mg/dL. Upon individual examination of patients to be intervened upon: 327 patients with HbA1c > 8% (alive and residents in the area) were selected. A significant decrease in HbA1c levels was achieved. In 63.3% (207) of patients, an HbA1c drop to below 8% was achieved. 9.2% (30) achieved a drop greater than 0.5% but not below 8%, and in 27.5% (90), no improvement in HbA1c levels was seen. For patients with LDL > 100 mg/dL, an improvement in LDL levels was observed in 71.56% (329) of patients, with 37.61% (173) reaching levels < 100 mg/dL. 121 well-controlled older patients on drugs at risk of hypoglycemia (sulfonylureas/insulin) were intervened upon, with discontinuation in 32.23% (39) of patients.
Conclusions: Digitization of medical records allows for targeted intervention, selecting metabolic risk profiles. Coordinated intervention between Primary Care and Endocrinology, selecting at-risk patients, appears to be an effective strategy in metabolic control of the patient population with type 2 DM, achieving improved clinical outcomes for patients

PV187 / #1934

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

CONGENITAL HYPERINSULINISM DUE TO A MUTATION IN GCK : A FAMILY WITH MILD CLINICAL PRESENTATION

Leila Sozaeva, Sabina Ismailova, Valentina Peterkova
Endocrinology Research Center, Pediatric Endocrinology, Moscow, Russian Federation

Background and Aims: Glucokinase (GCK) plays a crucial role in the regulation of insulin secretion. Glucokinase activating mutation is the rare cause of congenital hyperinsulinemia.
Methods: Case description
Results: We present a case of 15 years old girl with asymptomatic hypoglycemia. She has normal weight and height, no cognitive deficit or other neurological manifestations. She had no history of seizures or other signs of hypoglycemia. Hypoglycemia was detected during routine testing in the hospital where she was admitted for a viral pneumonia at the age of 15 years. After recovery from pneumonia, the girl continued to experience hypoglycemia up to 2 mmol/l without any clinical signs. When she admitted to endocrinology center her blood glucose was 1.94 mmol/l, insulin - 30.3 μIU/ml, C-peptide - 4.81 ng/ml. A blood test revealed no traces of sulfonylurea drugs. Insulinoma was suspected, but MRI and CT did not reveal any pancreatic masses. No mutations were found in the MEN1 gene. The patient had an unusual pattern of hypoglycemia: glucose level decreased more immediately after taking fast-digesting carbohydrates. The mother of patient (41 y.o.) was also found to have asymptomatic hypoglycemia (2.8-3.0mmol/l): she never had any signs of hypoglycemia before. Genetic testing of the girl and her mother revealed heterozygous variant c.212T>C (p.Val71Ala) in the GCK gene. This variant has previously been described in a patient with neonatal hypoglycemia.
Conclusions: Activating mutations in GCK may be a cause of congenital hyperinsulinism. The clinical picture can vary from severe neonatal hypoglycemia to asymptomatic hypoglycemia in adult patients.

PV188 / #1536

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

A NOVEL EARLY-ONSET SYNDROMIC DIABETES ASSOCIATED WITH PANCREATITIS, SEIZURES AND HEARING IMPAIRMENT IN AN ASIAN INDIAN FAMILY WITH EXTENSIVE CONSANGUINITY

Diya Manjunath[1], Kavitha Muniraj[2], Reshma Bv[3], Madhumati Vaishnav[4], Sapna Manjunath[5], Suvyaktha Simha[6], Sathyanarayana Srikanta[7]
[1]Vellore Institute of Technology, Biotechnology, Vellore, India, [2]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [3]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [4]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [6]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India

Background and Aims: Early-onset monogenic, syndromic and atypical diabetes remains a diagnostic challenge, and more entities are being identified. We report a family with very high consanguinity, manifesting early-onset diabetes, pancreatitis, hearing impairment and seizures. The constellation of manifestations initially suggested “mitochondrial cytopathy” (eg: maternally inherited diabetes with deafness MIDD).
Methods: 100.01: Proband; Consanguinity. Birth: Congenital deafness Age 5: Cochlear implant Age 10: Seizures Age 14: Diabetes. On oral medications (OHA); serum C-peptide fasting 1.29 ng/ml (0.78-1.89), post-glucose 1.33; GAD65 and islet cell antibodies negative. Age 14: Chronic pancreatitis; steatorrhea; on pancreatic enzyme supplements Age 21: Hypoplastic ovaries; bicornuate uterus Age 23: Marriage to maternal uncle Age 24: Height 141 cm, Weight 36.9 Kg, BMI= 18.1KG/M^2; HbA1c 8.0% on OHA 100.02: Brother: Age 15: Seizures Age 17: Chronic pancreatitis Age 26: Diabetes; On OHA. 100.03: Mother: Age 36: Diabetes; On OHA. 100.04: Father: Age 59: Diabetes; On OHA. 100.05: Husband: (maternal uncle) No comorbidities 100.06: Paternal cousin: Birth: Congenital deafness.
Results: Genetic testing (whole mitochondrial genome and clinical exome sequencing): Following genes associated with diabetes were specifically investigated for all family members [27 monogenic diabetes genes (including 18 associated with syndromic diabetes), MODY genes, mitochondrial cytopathy genes etc]. Studies did not identify any monogenic/syndromic/MODY/mitochondrial/atypical diabetes associated pathogenetic gene variants in any of the family members (Table 1). However, other independent deafness related gene mutations were identified in family members.
Conclusions: Syndromic forms of monogenic diabetes are less common and characterized by young-onset diabetes, absence of obesity and negative islet autoantibodies. They typically present with additional non-autoimmune extrapancreatic features. These syndromes are caused by mutations that can be autosomal dominant (e.g., HNF1B), mitochondrial (e.g., m.3243A>G), and autosomal recessive (e.g., WFS1). Patients with the mitochondrial mutation m.3243A>G commonly have diabetes and bilateral sensorineural deafness. Diarrhea, exocrine pancreatic dysfunction, pancreatic genesis/ atrophy/ anomalies and pancreatitis have been described in several distinct neonatal and early-onset monogenic diabetes entities [NEUROG3, FOXP3, PDX1, PTF1A, RFX6, GLIS3, Wolcott-Rallison syndrome (EIF2AK3), MODY-4 (IPF1, PDX1), MODY-5 (HNF1B), MODY-6 (NEUROD1) MODY-8 (CEL)]. Deafness has also been described (WS1, SLC19A2, NEUROD1, GLIS3). The diabetogenic gene mutation(s) in this

family remain(s) currently unidentified.

Parameters		100.01	100.02	100.03	100.04	100.05
		PROBAND	Brother	Mother	Father	Husband
Diabetes onset	Year	14	26	36	59	-
Current age	Years	22	29	51	61	38
Therapy		OHA	OHA	OHA	OHA	-
BMI kg/m2						
Pancreatitis	Year	10	17	-	-	-
Seizures	Year	10	15	-	-	-
Hearing impairment	Year	Birth	-	-	-	-
Mitochondrial genome mutation		Negative	Negative	Negative	Negative	Negative
Deafness mutation MYO15A (+) c.4351G>A		Homo zygous	Hetero zygous	Hetero zygous	Hetero zygous	
Deafness mutation OTOG (+) c.2608G>A		Hetero zygous	Hetero zygous	Hetero zygous		Hetero zygous
Deafness mutation OTOG (+) c.1172G>A		Hetero zygous			Hetero zygous	

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

GLYCEMIC EXCURSION IN NEWLY DIAGNOSED YOUTH-ONSET TYPE-2 DIABETES MELLITUS MAY BE RELATED TO B-CELL SECRETORY CAPACITY THAN INSULIN RESISTANCE

Mashfiqul Hasan, Kishore-Kumar Shil, Nusrat Sultana, Muhammad Abul Hasanat
Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Youth-onset type 2 Diabetes mellitus (T2DM) often presents with high glycemic values. The study aims to see the relationship of β-cell secretory capacity and insulin resistance (IR) with plasma glucose and hemoglobin A1c (HbA1c) at diagnosis in phenotypic T2DM of young.
Methods: This cross-sectional study was done in Endocrinology department, BSMMU which enrolled 72 newly-diagnosed youth-onset phenotypically T2DM [age range 19-29, median 27, inter-quartile range (IQR) 24-29 years; male 32 (44.4%), female 40 (55.6%)] to see secretory capacity of β-cell and insulin resistance assessed by measuring fasting C-peptide by chemiluminescence immunoassay and by calculating visceral adiposity index (VAI) as well as serum triglyceride/high-density lipoprotein (TH/HDL) ratio respectively.
Results: Median HbA1c, fasting plasma glucose (FPG), and 2h plasma glucose (2h-PG) of the participants were 8.7% (IQR 6.7-11.0), 10.8 (IQR 7.1-16.3) mmol/L and 18.0 (IQR 13.1-24.3) mmol/L respectively. Glycemic indicators inversely and significantly correlated with fasting C-peptide (HbA1c: r=-0.437, p<0.001; FPG: r=-0.479, p<0.001; 2h-PG: r=-0.456, p<0.001), body mass index (HbA1c: r=-0.546, p<0.001; FPG: r=-0.550, p<0.001; 2h-PG: r=-0.505, p<0.001) and waist circumference (HbA1c: r=-0.422, p<0.001; FPG: r=-0.399, p=0.001; 2h-PG: r=-0.361, p=0.002) whereas neither with VAI (HbA1c: r=-0.037, p=0.757; FPG: r=0.075, p=0.532; 2h-PG: r=0.136, p=0.254) nor TG/HDL ratio (HbA1c: r=0.036, p=0.764; FPG: r=0.144, p=0.228; 2h-PG: r=0.196, p=0.099). Linear regression model adjusted for VAI, each nmol reduction of C-peptide was associated with 0.49 (95%CI 0.19-0.79) rise of HbA1c% (p=0.002).
Conclusions: Higher glycemic excursion at diagnosis of youth-onset T2DM is related to lower β-cells reserve and lower obesity indices but not to insulin resistance.

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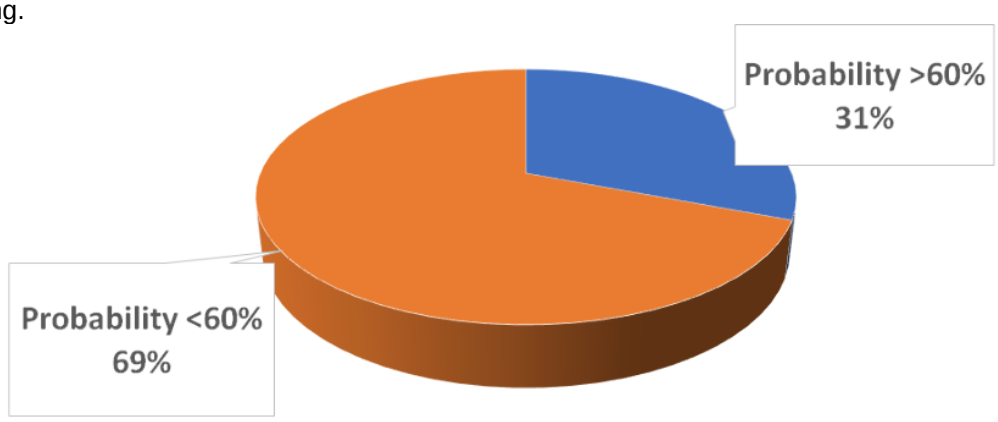
PV190 / #955

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

DO BANGLADESHI YOUTH-ONSET DIABETES PATIENTS NEED GENETIC SCREENING FOR MODY?

Mashfiqul Hasan, Kishore-Kumar Shil, Nusrat Sultana, Sayad Bin Abdus-Salam, Muhammad Abul Hasanat
Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Identifying maturity-onset diabetes in young (MODY) has obvious clinical and health-economic benefits. Still, MODY is rarely diagnosed and the majority are managed as type-1 or type-2 diabetes. Application of the MODY probability calculator (a web-based tool devised by the University of Exeter, UK) may identify those who have a likelihood of MODY and need genetic screening. The aim of the study was to estimate the probability of MODY in Bangladeshi newly diagnosed youth-onset diabetes patients by applying the MODY probability calculator.
Methods: This cross-sectional study enrolled 84 newly-diagnosed youth-onset diabetes [age 13-29 years, female 49 (58.4%), none had ketosis at diagnosis] during March-December 2022 in the Endocrinology department, BSMMU. Of them, 6 were excluded [positive islet-autoantibody (GAD-65, ZnT8 and/or IA2 antibody) in 4, C-peptide <0.5 ng/mL in 1, pancreatic calcification in 1]. MODY probability was calculated by the MODY probability calculator (available on www.diabetesgenes.org) which uses a weighted combination of the patient's current age, age at diagnosis, sex, parental family history of diabetes, BMI, HbA1c, ongoing treatment and need for insulin therapy. Persons with a MODY probability ≥60% are considered to have a high probability and are recommended for genetic testing.
Results: Among the participants, 30.8% (24 of 78) had a high probability of MODY. The high-probability group had lower age (20.3±5.8 vs 26.3±3.4 years, p<0.001), lower HbA1c (7.3±1.2 vs 10.0±3.1%, p<0.001), a trend of higher frequency of parental diabetes history (75.0% vs 51.9%, p=0.055); but BMI (26.8±4.7 vs 26.0±5.2 kg/m^2, p=0.547), C-peptide [5.2 (3.8-7.8) vs 4.1 (3.0-6.4) ng/mL, p=0.120] and HOMA-IR [1.8 (1.7-2.0) vs 1.8 (1.7-1.9), p=0.101)] were statistically similar to the low-probability group. None of the high-probability group needed insulin while 29.6% of the low-probability group needed it.
Conclusions: Nearly one in three youth-onset apparently type-2 diabetes patients have a high probability of MODY and hence require genetic screening.



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E-Poster Viewing
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01-03-2024 07:00 - 18:00

GUT MICROBIOTA PROFILES OF DYSGLYCEMIA SPECTRUM IN THE INDONESIAN POPULATION AND ITS ASSOCIATION WITH METABOLIC PARAMETERS

Farid Kurniawan[1], Mikhael Manurung[2], Linda Erlina[3], Dyah Purnamasari[1], Em Yunir[1], Tri Juli Edi Tarigan[1], Wismandari Wisnu[1], Atikah Isna Fatya[1], Cicilia Marcella[4], Tika Pradnjaparamita[5], Dante Saksono Harbuwono[1], Pradana Soewondo[1], Dicky Tahapary[1]
[1]Faculty of Medicine Universitas Indonesia/Dr. Cipto Mangunkusumo National General Hospital, Division Of Endocrinology, Metabolism, And Diabetes, Department Of Internal Medicine, Jakarta, Indonesia, [2]Leiden University Medical Center, Leiden University Center For Infectious Diseases, Leiden, Netherlands, [3]Faculty of Medicine Universitas Indonesia, Bioinformatics Core Facilities, Indonesian Medical Education And Research Institute, Jakarta, Indonesia, [4]Second Affiliated Hospital of Nanjing Medical University, Medical Center Of Digestive Disease, Nanjing, China, [5]Faculty of Medicine Universitas Indonesia, Metabolic Disorders, Cardiovascular, And Aging Reserach Cluster, Indonesian Medical Education And Research Institute, Jakarta, Indonesia

Background and Aims: The prevalence of diabetes is expected to rise significantly in middle-income countries. The gut microbiome has been recognized as a key player in the pathophysiology of type 2 diabetes (T2D). However, most studies on the gut microbiome and diabetes have been conducted in developed countries. Here, we investigate the gut microbiota profiles of the dysglycemia spectrum and its association with metabolic parameters in the Indonesian population, a middle-income country with one of the highest number of people with diabetes globally.
Methods: A total of 54 participants were included in this study, with 18 subjects from each normoglycemia (Normo), prediabetes (PreDM), and T2D (DM) groups. Fecal DNA was extracted from the stool samples and 16s rRNA gene amplicon sequencing was performed, targeting V3-V4 regions using Illumina MiSeq platform.
Results: There were 32 genera formed the core microbiome of our study population, consisting: Escherichia-Shigella, Klebsiella, Bifidobacterium, Collinsella, Bacteroides, Prevotella, and multiple members of family Ruminococcaceae and Lachnospiraceae. DM exhibited lower gut microbiota diversity compared to Normo and PreDM groups. Beta diversity analysis revealed significant differences in the gut microbiota composition among the three groups. The PreDM group showed a higher relative abundance of Bacteroidetes phylum than DM group. While, DM group exhibited an increase in the relative abundance of Blautia, unclassified Lachnospiraceae, [Ruminococcus]_torques_group, Agathobacter, and Lactobacillus genera in comparison to Normo group, with a gradual increase pattern from Normo, PreDM, to DM groups. Furthermore, these Blautia and unclassified Lachnospiraceae genera were positively correlated with metabolic parameters such as waist circumference, fat mass, HbA1c, insulin resistance (HOMA-IR), and fasting insulin levels, all of which demonstrated a similar progressive increase across the dysglycemia spectrum.
Conclusions: The Indonesian individuals with normoglycemia, prediabetes, and T2D show distinct gut microbiota composition, particularly at the genus level, which positively correlated with several metabolic parameters associated with diabetes. These findings suggests that early intervention strategies by modulating the gut microbiome in prediabetes patients might potentially prevent the progression towards T2D.

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E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

THE EFFECT OF TIRZEPATIDE DURING WEIGHT LOSS ON METABOLIC ADAPTATION, FAT OXIDATION AND FOOD INTAKE IN PEOPLE WITH OBESITY

Eric Ravussin[1], Guillermo Sanchez-Delgado[2], Corby K Martin[3], Hiroshi Nishiyama[4], Jing Li[4], Shweta Urva[5], Edward J Pratt[6], Tamer Coskun[6], Zvonko Milicevic[7], Axel Haupt[8], Fatih Tangi[9]
[1]Pennington Biomedical Research Center, Nutritional Obesity Research Center, Baton Rouge LA, United States of America, [2]Pennington Biomedical Research Center, Human Physiology Laboratory, Baton Rouge LA, United States of America, [3]Pennington Biomedical Research Center, Ingestive Behavior Laboratory, Baton Rouge LA, United States of America, [4]Eli Lilly and Company, Statistics, Indianapolis, United States of America, [5]Eli Lilly and Company, Pk/pd, Indianapolis, United States of America, [6]Eli Lilly and Company, Medical, Indianapolis, United States of America, [7]Eli Lilly and Company, Next Generation Incretins, Indianapolis, United States of America, [8]Eli Lilly and Company, Obesity, & Complications, Indianapolis, United States of America, [9]Eli Lilly and Company, Diabetes Medical, Dubai, United Arab Emirates

Background and Aims: We hypothesized that tirzepatide (TZP) causes body weight loss by reducing food intake and, according to pre-clinical studies, decreasing metabolic adaptation during weight loss. In a randomized blinded clinical trial in people with obesity (PWO) undergoing caloric restriction, we investigated the effect of TZP vs Placebo (PBO) on energy metabolism after targeting a 10% (±2%) weight loss.
Methods: In this 18wk phase 1 study, 55 PWO, were randomized (1:1) to TZP 15 mg or PBO (mean baseline body weight 102.5 vs 103.1 kg, respectively). The primary objective was to investigate the change from baseline in sleeping metabolic rate (SMR) measured by whole-room indirect calorimetry. Secondary measures were changes in 24-hr sedentary energy expenditure, 24-hr respiratory quotient (RQ), sleeping RQ, substrate utilization, body composition (BC) and food intake.
Results: TZP caused greater weight loss than PBO (-16.7 kg vs -8.3 kg; p<0.001). The decreases in SMR (TZP: -135 kcal/day; PBO: -154 kcal/day; P=0.573) and 24-hr energy expenditure (TZP: -300 kcal/day; PBO: -297 kcal/day; P=0.948) were not different between groups after adjusting for changes in body weight and BC. However, TZP significantly reduced 24-hr RQ (TZP: -0.030; PBO: 0.005; P<0.0001) and sleeping RQ (TZP: -0.028; PBO: -0.001; P=0.0031) compared to PBO; thus, significantly increasing fat oxidation (TZP: 12.8 g/day; PBO: -1.6 g/day; P<0.0001) while decreasing carbohydrate and protein oxidation rates.
Conclusions: TZP significantly reduced food intake, did not affect metabolic adaptation but significantly increased fat oxidation.

PV193 / #24

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

URIC ACID CRYSTALLURIA FOLLOWING THE RECOVERY PHASE OF DIABETIC KETOACIDOSIS (DKA) – A LESSER KNOWN COMPLICATION OF DKA

Yotsapon Thewjitcharoen, Nopparat Thongpoo, Soontaree Nakasatien, Worawit Kittipoom, Thep Himathongkam
Theptarin Hospital, Diabetes And Thyroid Center, BANGKOK, Thailand

Background and Aims: The occurrences of hyperuricemia is frequently associated with diabetic ketoacidosis (DKA); however, crystalluria from the precipitation of crystals of calcium oxalate, uric acid, or urates is lesser known. Metabolic derangements during DKA especially acidic urinary pH and hyperuricosuria are the main risk factors of uric acid crystals and stones. Patients with uric acid crystals also more frequently displayed acute kidney injury AKI from local inflammatory response that might trigger renal tissue injury. Herein, we report a case of uric acid crystalluria following the recovery phase of severe DKA.
Methods: A clinical course of this case has been described in details.
Results: A 72-year-old man with persistent poorly-controlled type 2 DM was admitted due to COVID-19 pneumonia and severe DKA. On admission, his baseline serum creatinine increased from 1.3 mg/dL to 2.1 mg/dL. After intravenous insulin infusion and hydration, DKA was resolved at 15 hours with improved renal function to baseline. Unexpectedly, urinalysis after DKA resolution revealed newly found 30 uric acid crystal particles with acidic urine pH at 5.0. The blood chemistry test result showed normal plasma level of uric acid at 6.6 mg/dL. Abdominal plain CT revealed no stones in the renal medulla or ureters. He had previously normal plasma uric acid during the past 5 years. However, blood sample on arrival showed markedly elevated plasma uric acid level at 12.1 mg/dL. Further investigations revealed increased fractional excretion of uric acid from 7.4% at admission to 15.7% on the second day of admission, indicating hyperuricosuria. With adequate diuresis and supportive treatment, crystalluria disappeared within 48 hours and he was discharged home in stable condition after 10 days of admission.
Conclusions: Our case highlights the importance of urine microscopy examination in patients with severe DKA to detect crystalluria which might contribute to renal impairment or nephrolithiasis following the recovery phase of DKA. Recognizing this lesser-known complication of DKA should lead to prevent further kidney damage during the hospitalization.

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PV194 / #785

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

NEWLY DIAGNOSED DIABETES MELLITUS DURING COVID-19

Iroda Tillyashaykhova[1], Nargiza Parpieva[2], Gulnara Rakhimova[3]
[1]The Republican Scientific and Practical Medical Center of Endocrinology, Thyroid Pathology, Tashkent, Uzbekistan, [2]Director of the Republican Scientific and Practical Medical Center of Phthisiology and Pulmonology, Phthisiology, Tashkent, Uzbekistan, [3]Center for the development of professional qualification of medical workers, Endocrinology, Tashkent, Uzbekistan

Background and Aims: Diabetes mellitus (DM) and COVID-19 interact in two ways, according to the pandemic. People with diabetes are more likely to die from intense COVID-19 therapy, care, and associated conditions than those without diabetes. Clinical and current evidence show that SARS-CoV-2 may cause metabolic dysregulation and impaired glucose homeostasis. Aim: Analyse the incidence of developing diabetes mellitus in Covid-19 patients to evaluate clinical outcomes and comorbidities with and without altered carbohydrate metabolism.
Methods: The observational monocenter longitudinal controlled research included 267 people: newly diagnosed diabetics, T1D and T2D patients, and non-carbohydrate metabolism disease patients. Patients' mean age was ±51.3 years. All patients had fasting blood glucose tests to confirm carbohydrate metabolism abnormalities. Assessment of concurrent illnesses included anamnesis, clinical examination, blood pressure, heart rate, and BMI measurements.
Results: Of the 267 patients, 44.9% had carbohydrate metabolism abnormalities, 23.9% had newly diagnosed diabetes (n=64), 18.7% had T2D (n=50), and 2.2% had T1D (n=6). Patients with type T2D had the greatest age (64.6 ± 10.5), whereas those without hyperglycemia problems had the lowest age-49.6 ± 14.9. The T1D and T2D groups had the highest mean fasting blood glucose readings (17.07±4.4 mmol/l and 11.39±5.5 mmol/l, respectively), showing glycemic control breaches in DM and COVID-19 groups. The newly diagnosed DM group had a mean fasting blood glucose of 8.18 ± 3.6 mmol/l.Comorbidities changed groups. T2D patients had the highest comorbidities: 74% arterial hypertension, 92% CVD, and 46% obesity. Newly diagnosed diabetics exhibited 54.7% arterial hypertension, 59.4% CVD, and 34.4% obesity. Concurrent conditions were lowest in the group without carbohydrate metabolism problems: 39.6% for arterial hypertension, 43.5% for CVD, and 27.2% for obesity.ICU admission and mortality assessed COVID-19 severity. None of the recruits died. Newly diagnosed glycemia patients had 26.5% ICU admission, 40% type 2 diabetes, 16.6% type 1 diabetes, and 22.44% no impaired carbohydrate metabolism. ICU patients with impaired carbohydrate metabolism had a mean fasting glucose of 9.9 mmol/l. Hospitalisation in the ICU averaged ±8 days.
Conclusions: COVID-19 and diabetes have a bidirectional interaction. On the one hand, patients with diabetes are more likely to develop problems if they carry COVID-19, whereas SARS-CoV-2 may operate as a diabetogenic agent. A carbohydrate metabolism violation was found in 44.9% of patients in our research; 23.9% had newly diagnosed diabetes, 18.7% had type 2 diabetes, and 2.2% had type 1 diabetes. There was also a significant frequency of comorbid illnesses and catastrophic COVID-19 results related with carbohydrate metabolism abnormalities.

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E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

POLYMORPHISM OF TCF7L2 RS12255372 AND ADIPOQ RS1501299 ARE NOT ASSOCIATED WITH GESTATIONAL DIABETES MELLITUS

Tania Tofail[1], Mashfiqul Hasan[2], Farhana Sayeed[2], Choman Abdullah Mohona[2], Muhammad Abul Hasanat[1]
[1]Bangabandhu Sheikh Mujib Medical University, Department Of Endocrinology, Dhaka, Bangladesh, [2]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: TCF7L2 rs12255372 and ADIPOQ rs1501299 have been found to play an important role in the pathogenesis of diabetes mellitus (DM). Increasing prevalence of gestational diabetes mellitus (GDM) in South-east Asian population can be explained by genetic predisposition. This study aimed to determine genotype frequencies for TCF7L2 rs12255372 and ADIPOQ rs1501299 in GDM patients across all trimesters and find out if it differs from pregnant mothers with normal glucose tolerance (NGT).
Methods: This cross-sectional study included 110 pregnant women with 38 GDM and 72 NGT mothers after challenging by three sample 75gm oral glucose tolerance test (OGTT) following WHO-2013 criteria in the Endocrinology department of BSMMU. Glucose was measured by the glucose oxidase method. Genotyping was done by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP).
Results: The minor allele frequencies (MAF) for TCF7L2 rs12255372 and ADIPOQ rs1501299 were similar in GDM and NGT (rs12255372 7.9% vs. 13.9%, p=0.190; rs1501299 13.9% vs. 22.2%, p=0.145; GDM vs. NGT). The observed genotype frequencies were not different than those expected from the Hardy-Weinberg equation for both the SNPs. There was no association of TCF7L2 rs12255372 [dominant: OR=1.91 (95%CI:0.69-5.04), p=0.33; recessive: OR= NA, p=0.46; over-dominant: OR=1.78 (95%CI:0.64-4.94), p=0.25; co-dominant: for TG: OR= 1.81 (95%CI: 0.65-5.04), for TT: OR= NA, p=0.33] as well as ADIPOQ rs1501299 [dominant: OR=2.02 (95%CI: 0.83-4.92), p=0.11; recessive: OR=1.52 (95%CI: 0.15-15.17), p=0.71; over-dominant: OR= 1.98 (95%CI: 0.79-4.97), p=0.14; co-dominant: for TG: OR= 2.04 (95%CI: 0.81-5.16), for TT: OR=1.88 (95%CI: 0.19-19.05), p=0.28] with GDM. There was no difference between GDM and NGT in the estimated haplotype frequencies of these SNPs (p=NS for all). Linkage disequilibrium (LD) analysis showed the absence (D'=0.06, r^2=0.04, p=0.516) of linkage disequilibrium between rs12255372 and rs1501299.
Conclusions: In conclusion, genotyping frequencies of TCF7L2 rs12255372 and ADIPOQ rs1501299 were not significantly different between GDM and NGT mothers.

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01-03-2024 07:00 - 18:00

ROLE OF CD36 GENE POLYMORPHISM IN THE PATHOPHYSIOLOGICAL LINK BETWEEN OBESITY AND TYPE 2 DIABETES

Maïmouna Touré[1,2]
[1]Université Cheikh Anta Diop (UCAD), Laboratoire De Physiologie Humaine Et D'explorations Fonctionnelles, Faculté De Médecine, De Pharmacie Et D'odontostoma (fmpos), Avenue Cheikh Anta Diop / Dakar, Senegal, [2]Université Cheikh Anta Diop, Url3189/cnrs/cnrst/bamako-dakar, Avenue Cheikh Anta Diop / Dakar, Senegal

Background and Aims: Obesity is an indisputable factor in type 2 diabetes, hence the term diabesity. The pathophysiological link between obesity and type 2 diabetes involves an imbalance in energy metabolism through disorders of carbohydrate-lipid metabolism and insulin resistance. The mechanism would result from complex interactions with the existence of several candidate genes such as the CD36 gene which encodes the CD36 glycoprotein. CD36 is a receptor involved in the absorption of long-chain fatty acids, the elimination of oxidized plasma LDL, the storage of fats and the differentiation of fat cells. A CD36 structural and/or functional disorder leads to an imbalance in carbohydrate-lipid metabolism. Study was carried out to elucidate the CD36 gene polymorphism involvement in the obesity and type 2 diabetes link.
Methods: The study was conducted on healthy women and type 2 diabetic subjects. All participants underwent a complete clinical examination with biometric measurement. The CD36 gene polymorphism was determined by rt-PCR with the SNP rs3211867. The nitric oxide and the soluble CD36 were determined by ELISA. All biochemistry parameters were analysed on an automated Abbott device. Arterial stiffness was studied with a pOpmetre® (Axelife SAS-France) which evaluates the finger-toes pulse wave velocity. Endothelial dysfunction was studied with an EndoPAT2000® (Itamar-Israel) which measures the dependent endothelial vasodilatation by determining the reactive hyperaemia index.
Results: Compared to control subjects, the sCD36 level is low in obese and high in type 2 diabetic. In obeses, a decrease in sCD36 level would be associated with an increase in total body fat (coefficient=-265.10 p=0.006), in triglyceride levels (coefficient=-3115.22 p=0.007), a reduction in plasma insulin (coefficient=121.30 p=0.02) and in nitric oxide levels (coefficient=3.27 p=0.025). In the diabetic and obese diabetic, an increase in sCD36 levels would be associated with an increase in plasma HDL cholesterol (coefficient=11919.68 p=0.01), in the ApoB/ApoA ratio (coefficient=3080.57 p=0.014), and in the nitric oxide levels (coefficient=7.32 p=0.02). Compared to the CC genotype carriers, the AA/AC genotype carriers have a lower sCD36 level in control (p=0.01), a higher BMI in obese (p=0.02), a higher total cholesterol level in obese diabetic (p=0.03). Carrying the AA/AC genotype would increase twice the risk of elevated visceral fat level in obese diabetic (OR=1.50 [1.02-2.21]; p=0.038). Carrying the AA/AC genotype would have no influence on vascular function.
Conclusions: Conclusion : The sCD36 level varies depending on excess weight and plasma glucose-lipid balance. CD36 gene polymorphism would have a reducing impact on the sCD36 levels and an increase in circulating lipids levels.

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FREQUENCY OF APOE GENE POLYMORPHISMS AND ITS IMPACT ON CARBOHYDRATE AND LIPID METABOLISM IN TYPE 2 DIABETIC IN A POPULATION OF SENEGALESE FEMALES

Maïmouna Touré
Université Cheikh Anta Diop, Dakar - Laboratoire de Physiologie humaine et d'Explorations fonctionnelles (FMPOS) de l'Université Cheikh Anta Diop (UCAD) de Dakar au Sénégal, Senegal

Background and Aims: L'apparition du diabète de type 2 et ses complications microangiopathiques est multifactorielle et complexe. La microangiopathie diabétique débute par un dysfonctionnement endothélial et un raideur vasculaire. L'altération du métabolisme lipidique serait parmi les composants responsables des altérations de la paroi vasculaire. Les troubles du métabolisme lipidique sont associés à des altérations génétiques. Ici, nous avons examiné l'association entre les polymorphismes du gène APOE et le métabolisme glucidique-lipidique dans le diabète de type 2 avec ou sans complications microvasculaires chez les femmes sénégalaises.
Methods: L'étude a été menée chez des femmes sénégalaises en bonne santé et des sujets diabétiques de type 2 (sans ou avec vasculopathie). Nous avons déterminé les polymorphismes du gène APOE par PCR-RFLP dans l'ADN isolé du sang périphérique de chaque participant. Tous les paramètres biochimiques ont été analysés à partir du sérum effectué sur un appareil automatisé Abbott selon le protocole de laboratoire standard. Le raideur artérielle a été étudié avec un appareil appelé pOpmètre® (Axelife SAS-France) qui évalue la vitesse de l'onde de pouls de la main au pied (VOPdo). La dysfonction endothéliale a été étudiée avec un EndoPAT2000® (Itamar-Israël), un appareil qui mesure la vasodilatation endothéliale dépendante en déterminant l'indice d'hyperémie réactive (RHI).
Results: dans cette étude, l'analyse a montré que les trois allèles APOE étaient tous présents dans la population sénégalaise avec une distribution de fréquence de ε2 (43,5%) ; ε3 (42,6 %) ; ε4 (13,9 %). En outre, il convient de préciser que la distribution du génotype APOE dans cette étude était ε2ε3 (64,8 %) ; ε2ε4 (22,2 %) ; ε3ε3 (7,4%) ; ε3ε4 (5,6 %). Cependant, certains génotypes tels que ε2ε2 et ε4ε4 étaient totalement absents de notre population d'étude. Le cholestérol LDL avait été associé de manière significative à l'allèle ε4 [OR = 3,06 (1,16–8,22) ; 5,34 ; p = 0,02]. L'allèle ε4 et le génotype ε3ε4 étaient associés à un risque accru de développer un diabète de type 2 (33 à 41 % des porteurs). Le génotype ε3ε4 avait été associé à un risque très élevé de vasculopathie (34 % des porteurs).
Conclusions: Notre étude a montré une différence dans les fréquences des allèles APOE et dans la distribution des génotypes avec une absence totale des génotypes ε2ε2 et ε4ε4 dans un échantillon de femmes sénégalaises. Nous avons également constaté que le polymorphisme du gène APOE pourrait jouer un rôle dans les taux de lipides plasmatiques et dans l'état du contrôle glycémique.

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01-03-2024 07:00 - 18:00

DIABETIC FOOT ULCERS AND ITS SURGICAL MANAGEMENT: OUR EXPERIENCE AT HAYATABAD MEDICAL COMPLEX PESHAWAR

Tahir Ghaffar[1], Khalid Usman[1], Rashid Aslam[2]
[1]Hayatabad Medical Complex, Diabetes And Endocrinology, peshawar, Pakistan, [2]hayatabad medical complex, Surgery, peshawar, Pakistan

Background and Aims: Surgeons face a therapeutic challenge while treating diabetic foot ulcers (DFUs), particularly in underdeveloped nations with limited healthcare resources and a high proportion of patients who arrive at medical institutions with advanced foot ulcers.
Methods: this prospective study was carried out at Hayatabad Medical Complex Peshawar to assess how diabetic foot ulcers changed over a period between November 2021 and December 2022 at the wards and at the outpatient department of Endocrinology and General Surgery. A diabetic patient's foot is first screened for ulceration in the endocrinology department, and only those with active ulcers are referred to the surgical department. SPSS 23.0 and Microsoft Excel 2013 were used to collect and analyze data.
Results: Out of 44 patients most patients most patients presented with Wagner grade 3, 10(22.7%) and grade 4, 13(29.5%) ulcers. Surgical interventions done on DFU patients include Ray amputation 13(29.4%), incision and drainage 12(27.3%), dressing and debridement 10(22.7%), below knee amputation 5(11.4%), above knee amputation 4(9%). Post-op complications observed in patients were surgical site infection 9(20.4%), recurrence 7(5.9%) and deformity 4(9%).
Conclusions: Diabetes foot ulceration is the most common reason for non-traumatic lower limb amputation in people with diabetes mellitus. Usually people who presented with advance ulcers have to undergo limb amputation and had post-op complications.

PV199 / #771

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

CONGENITAL GENERALISED LIPODYSTROPHY (CGL): THIS NATURE'S MODEL REAFFIRMS MANY FACETS OF THE MOLECULAR AND METABOLIC SIGNATURE OF INSULIN RESISTANCE

Madhumati Vaishnav[1,2], Suvyaktha Simha[3], Namita Kumari[4], Kavitha Muniraj[5], Sathyanarayana Srikanta[6], Vinaya Simha[7], Chao Xing[8], Abhimanyu Garg[8], Patnam R Krishnaswamy[4], Padmanabhan Balaram[9], Navakanta Bhat[4]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Samatvam Institute of Medical Sciences, Biology Public Health Medicine, Bangalore, India, [4]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [6]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [7]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [8]UT Southwestern, Endocrinology Nutrition, Dallas, United States of America, [9]National Center for Biological Sciences, Molecular Biophysics, Bangaiore, India

Background and Aims: Congenital Generalized Lipodystrophy (CGL) is an extremely rare autosomal recessive condition, which manifests with very severe insulin resistance, absence of subcutaneous fat and muscular hypertrophy. During the course of our studies on albumin molecular modifications and insulin resistance in type 2 and type 1 diabetes, we had the opportunity to similarly evaluate a CGL child.
Methods: Albumin molecular modifications (mass spectrometry), insulin resistance, beta cell dysfunction, and inflammatory and other metabolic biomarkers were studied in a 17-year young child with CGL. The results from this child with monogenic insulin resistant diabetes were compared with those from a group of type 1 diabetes children (T1DM representing complete insulin deficiency and high insulin sensitivity), to further dissect and reaffirm the influence of insulin resistance on albumin molecular modifications and other surrogate biomarkers.
Results: The CGL child with severe insulin resistance (HOMA2 IR= >200), had equivalent HbA1c of 12.8% (T1DM group= 12.7 %) and lower BMI of 16.8 (T1DM= 20.0). In comparison with T1DM, the insulin resistant CGL situation was associated with relatively: (a) decreased of albumin glycation; (b) increased reversible Cys 34 albumin cysteinylation; (c) increased irreversible Cys 34 albumin di/tri-oxidation; and (d) altered several other surrogate biochemical markers / correlates of insulin resistance and atherogenic dyslipidemia (Figure 1 and 2). Lipodystrophy genetic testing identified PTRF (CAVIN1) mutation consistent with CGL4 (also observed in her insulin resistant, currently "non-diabetic", 13-year brother with several features of CGL4).
Conclusions: Observations on the insulin resistant CGL child, of relatively heightened albumin oxidation, associated with abnormalities in several other metabolic and inflammatory biomarkers, reemphasize the urgent need to more effectively and safely therapeutically ameliorate the "independent" pathology of insulin resistance and the resulting wide spectrum of disorders. In depth investigations of rare extreme disease models (eg: CGL) can yield new insights towards understanding the disease pathogenesis and discovering newer therapies for the milder "common garden variety" diseases (eg: T2DM). Figure 1: Albumin mass spectra quantitating various molecular modifications. (a) Ms UA. Child with the rare insulin resistant monogenic diabetes associated with Congenital Generalised Lipodystrophy (age 14 years) and (b) Mr SRA. A representative child with Type 1 Diabetes (age 19
years).

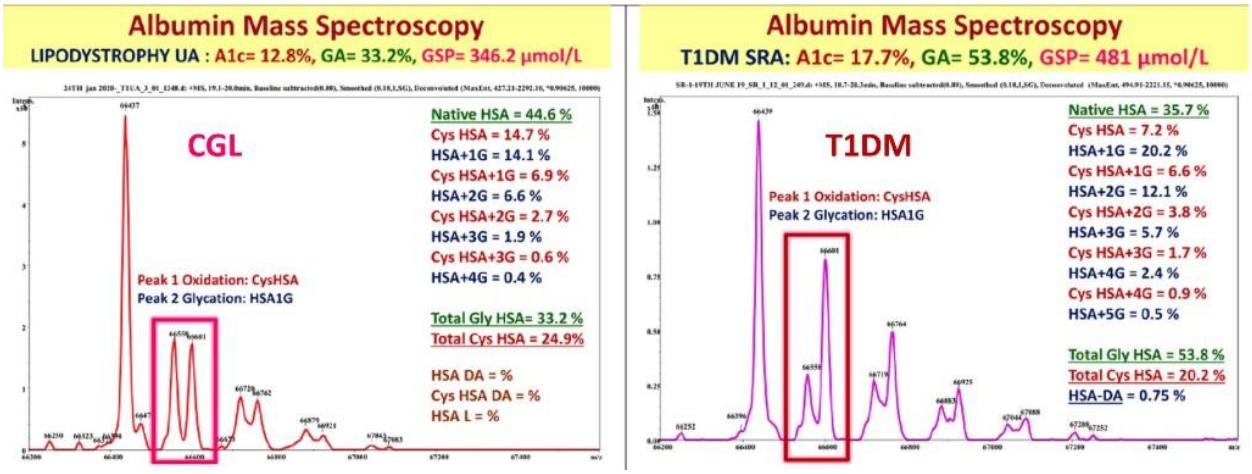
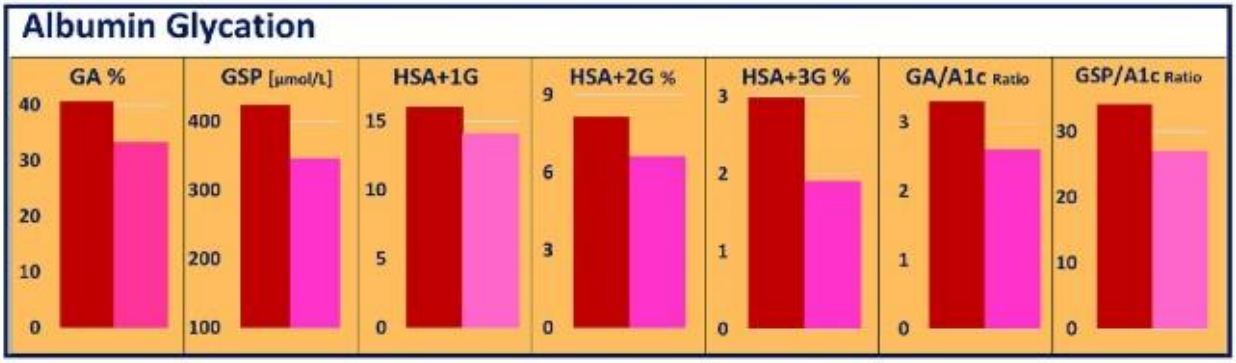
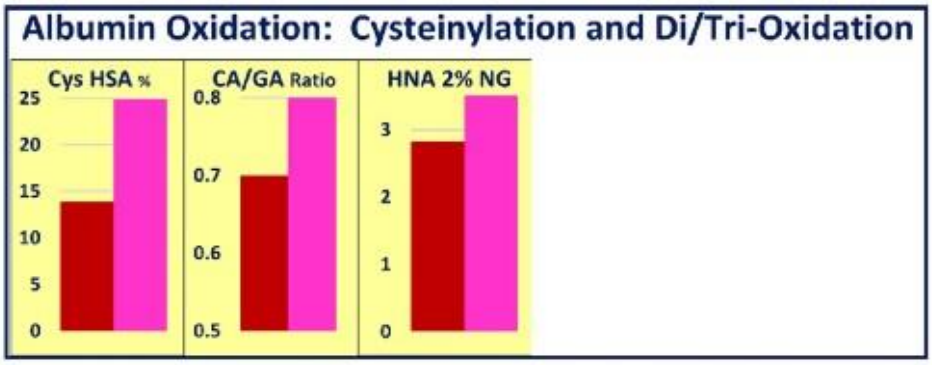


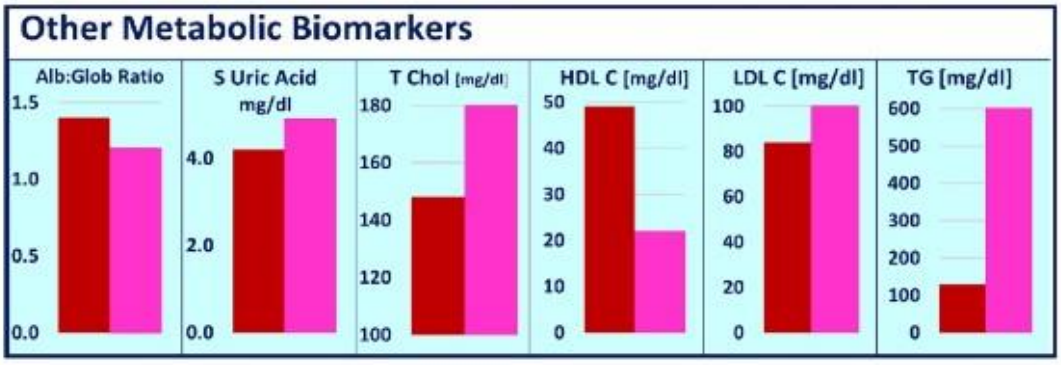
Figure 2: Insulin Resistance (CGL: LIPODYS) versus Insulin Sensitivity (T1DM) – Differential effects on Albumin molecular modifications and other biomarkers. Congenital Generalized Lipodystrophy (pink bars) compared with Type 1 Diabetes (red bars). Mean and SD. Note the identical HbA1c between the two

groups.


BMI Kg/M2
20
15
10
5
0
T1DM
CGL
HbA1c %
12
10
8
6
4
2
0


Albumin Glycation
GA %
40
30
20
10
0
GSP [µmol/L]
400
300
200
100
HSA+1G
15
10
5
0
HSA+2G %
9
6
3
0
HSA+3G %
3
2
1
0
GA/A1c Ratio
3
2
1
0
GSP/A1c Ratio
30
20
10
0


Albumin Oxidation: Cysteinylation and Di/Tri-Oxidation
Cys HSA %
25
20
15
10
5
0
CA/GA Ratio
0.8
0.7
0.6
0.5
HNA 2% NG
3
2
1
0


Other Metabolic Biomarkers
Alb:Glob Ratio
1.5
1.0
0.5
0.0
S Uric Acid mg/dl
4.0
2.0
0.0
T Chol [mg/dl]
180
160
140
120
100
HDL C [mg/dl]
50
40
30
20
10
0
LDL C [mg/dl]
100
80
60
40
20
0
TG [mg/dl]
600
500
400
300
200
100
0

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01-03-2024 07:00 - 18:00

TRUNCATED ALBUMINS AS NOVEL SURROGATE BIOMARKERS IN DIABETES: EPIPHENOMENA AND POTENTIAL CLINICAL APPLICATIONS

Madhumati Vaishnav[1,2], Namita Kumari[3], Kavitha Muniraj[4], Sathyanarayana Srikanta[5], Vinaya Simha[6], Patnam R Krishnaswamy[3], Padmanabhan Balaram[7], Navakanta Bhat[3]
[1]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [2]Samatvam Research Center, Translational Science Medicine, Bangaiore, India, [3]Indian Institute of Science, Center For Nano Science And Engineering, Bangaiore, India, [4]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [5]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [6]Mayo Clinic, Endocrinology Nutrition, Rochester, United States of America, [7]National Center for Biological Sciences, Molecular Biophysics, Bangaiore, India

Background and Aims: Among various albumin post-translational modifications, N- and C-terminal truncations (HSA-DA and HSA-L) have also shown biomarker potential in disease states. We examined albumin truncation longitudinal trends and correlations during diabetes therapy, towards possible future clinical applications.
Methods: In an exploratory “proof-of-concept” longitudinal therapy study, mass spectrometric analysis was utilised to monitor human serum albumin (HSA) post-translational modifications [glycation, cysteinylation (HNA1; Human Non-Mercaptalbumin-1; reversible), di/tri-oxidation (HNA2; Human Non-Mercaptalbumin-2; irreversible) and truncation] and to relate them to contemporary therapy. Four informative groups of subjects were evaluated (type 1 diabetes, type 2 diabetes, prediabetes-obesity and healthy), over a follow up period upto 280 days.
Results: Diabetes and prediabetes were associated with significant reduction (“deficiency”) of measured albumin truncations (HSA-DA: T2DM= 0.32 ± 0.3%, P= 2E-08; T1DM= 1.02 ± 0.4%, P= 3E-05; prediabetes-obesity= 1.61 ± 0.2%, P= 0.004; compared to healthy controls= 2.08 ± 0.2%) (Figure 1). Albumin truncation reduction was most striking in T2DM (HSA-DA: T2DM vs T1DM: P= 0.004). Improvements in glycemic control and decrease of albumin glycation during diabetes therapy, were associated with parallel increase of albumin truncations towards the “healthy” normal ranges, and vice versa (“mirror image” trends) (Figure 2). Accordingly, albumin truncations correlated inversely with albumin glycation (and also to a lesser extent with albumin cysteinylation).
Conclusions: The “epiphenomenon” of albumin truncation (magnitude and trends reflecting the severity of hyperglycemia, and also of insulin resistance) can possibly provide novel sensitive and complementary biomarkers (e.g.: via simpler immunoassays) to monitor efficacy of diabetes therapy and also progression from “healthy” to prediabetes and type 2 diabetes, highlighting potential diagnostic and prognostic utility in clinical diabetes care. Figure 1: Magnitude of hemoglobin, albumin and serum protein glycation (HbA1c, GA and GSP) and albumin truncation (HSA-DA, CysHSA-DA and HSA-L) in study groups at baseline and during longitudinal therapy follow up. (Baseline= first darker colored bar; Follow up= second lighter colored bar). Figure 1 Legend: CysHSA-DA Baseline *T1DM and *T2DM= 0% (Undetectable).

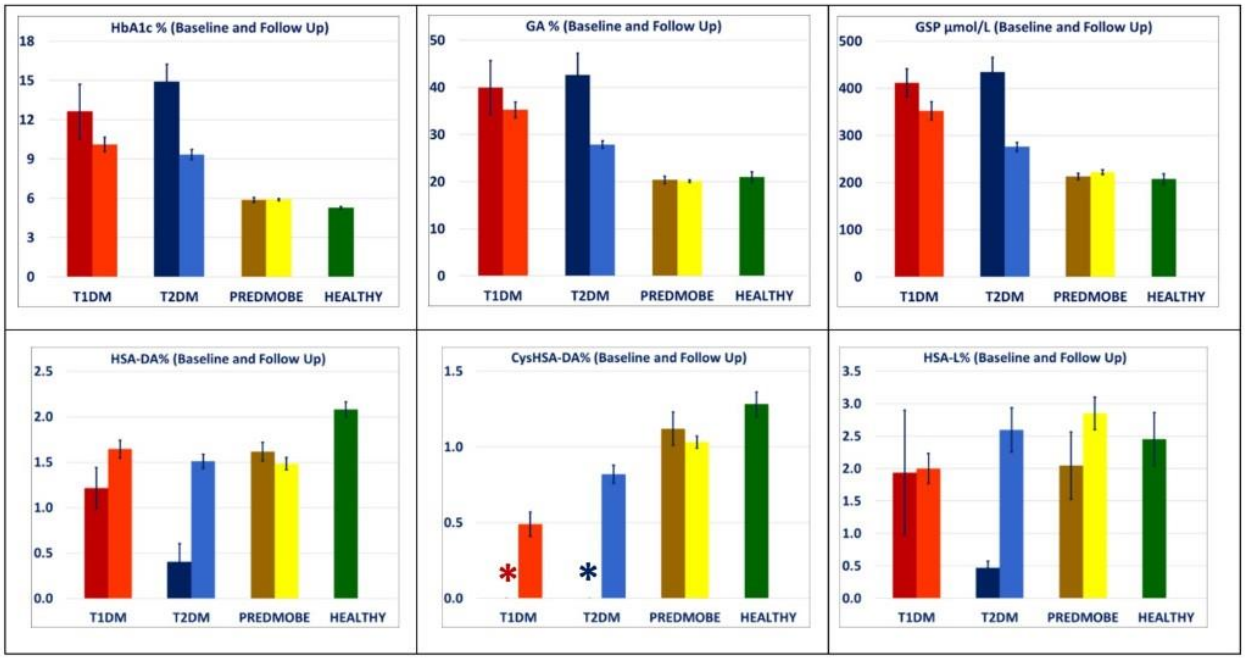
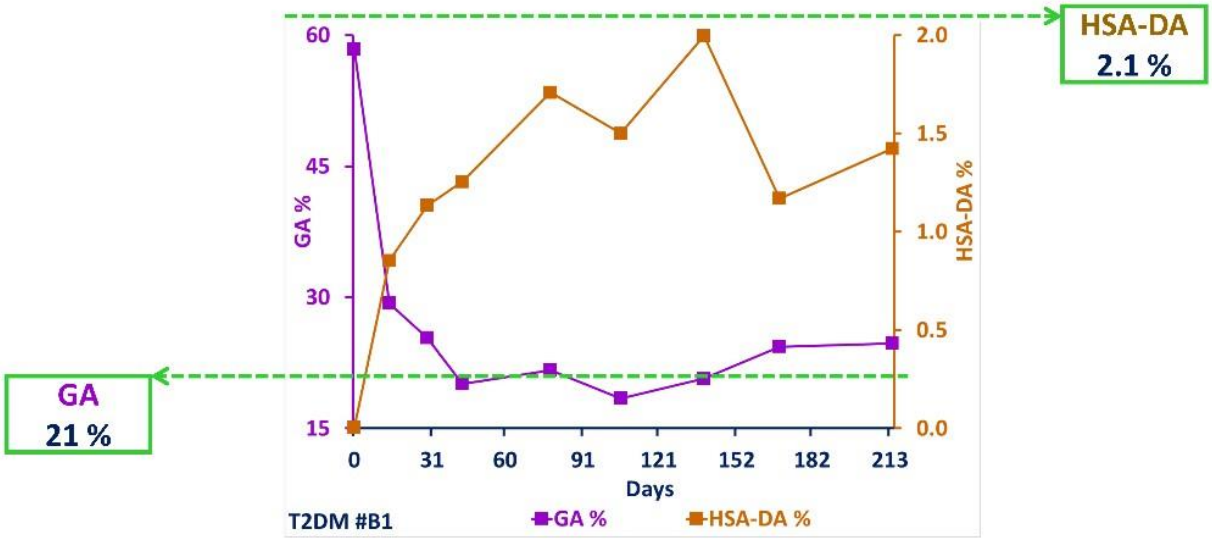


Figure 2: GA (Glycated Albumin) Versus HSA-DA (N-terminal Truncated Albumin) Trends and Trajectories of a Representative T2DM Subject During Longitudinal Therapy Study.



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01-03-2024 07:00 - 18:00

BIORHYTHMS AND SLEEP PATTERNS IN RELATION TO MELATONIN RECEPTOR GENE VARIABILITY

Daniela Vejražková[1], Denisa Chocholová[2], Markéta Vaňková[1], Josef Včelák[1], Martin Sládek[3], Alena Sumová[3], Běla Bendlová[1]
[1]Institute of Endocrinology, Molecular Endocrinology, Prague, Czech Republic, [2]Charles University, Faculty Of Science, Prague, Czech Republic, [3]Institute of Physiology, The Czech Academy Of Science, Prague, Czech Republic

Background and Aims: Melatonin is a crucial hormone for controlling sleep rhythms. Disruption of its natural secretory rhythmicity is considered to be one of the causes of type 2 diabetes mellitus. The MTNR1B gene encodes the melatonin receptor. Polymorphism rs10830963 in this gene shows an association with fasting blood glucose and impaired glucose tolerance. Current studies suggest that carriers of the minor allele G have a slightly shifted cycle of melatonin secretion toward a later rise in the evening and a slower decline in the morning, which may interact with social pressure on early morning activity and thus adversely affect glucoregulation. The aim of this study was to determine whether the polymorphism is projected into sleep patterns, biorhythms and chronotype evaluated through a questionnaire.
Methods: A total of 355 volunteers completed the MCTQ (Munich chronotype questionnaire) to determine sleep habits and chronotype. The average age did not differ between the compared genotype groups. The ratio of women/men was also similar. Genotyping was performed on a TaqMan instrument (LC480, Roche), data were evaluated by NCSS/PASS 2020.
Results: Minor variant G was present in a heterozygous constellation in 45 % and in a homozygous constellation 8.5 % with an allelic frequency of 32.2 %. The average length of sleep on weekdays and days off did not differ between the groups, nor did the mid-sleep phase on weekdays and days off. The chronotype calculated from the mid-sleep phase corrected for sleep debt accumulated during working days was also comparable. The time of subjective maximum alertness was shifted from 11 h in the CC genotype and 11.5 h in the CG genotype to 12 h in the GG genotype, nevertheless, in the current sample size, this difference was not statistically significant. The social jet lag resulting from the discrepancy between the natural biorhythm and work or social duties averaged 0.8 ± 0.65 h regardless of genotype. However, it is noteworthy that there wasn't even a single individual within the GG group who did not consume caffeine. For comparison, in the CG and CC groups, there were 7 % and 9 %, resp. of people with very low or no caffeine consumption.
Conclusions: Based on the current sample of the Czech population, we did not observe significant differences in sleep patterns and chronotype between the groups formed depending on the rs10830963 SNP genotype of the MTNR1B gene. Grant support: NU20-01-00308 and MZ ČR RVO EÚ00023761.

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01-03-2024 07:00 - 18:00

DYSLIPIDEMIA AND CRP : POTENTIAL PREDICTIVE BIOMARKERS OF PERIPHERAL NEUROPATHY IN AFROCARIBBEAN DIABETIC SUBJECTS

Fritz-Line Velayoudom[1], Sayana Chingan[1], Christophe Armand[2], Claude Gruel[1]
[1]University Hospital of Guadeloupe, Endocrinology-diabetology, Abymes, Gouadeloupe, [2]University Hospital of Guadeloupe, ABYMES, Gouadeloupe

Background and Aims: The prevalence of mellitus diabetes (MD) among Afro-Caribbean subjects is one of the highest in the world. Diabetic peripheral neuropathy (DPN) pathogenesis remains complex, classically described as the consequence to chronic glucotoxicity with a prevalence of 50% after 25 years of progression of diabetes. Aims: To analyze epidemiological data of DPN in a sample of Afro-Caribbean subjects with type 2 MD (T2MD) and identify predictive biomarkers of DPN that could be helpful in medical practice to early detect DPN risks
Methods: We performed a retrospective observational case-control study including patients with T2MD followed between 2020 and 2022. After collecting their clinical and biological profile, they were divided into 2 groups (DPN group G1 and non-DPN group G2). We used SPSS software for statistical analysis to evaluate the characteristics of the studied population, to compare both groups and determine predictive factors of DPN after logistic regression. A $p < 0.05$ was significant.
Results: Among the studied population (mean age 64±13 years, 55.1% of men), DPN was found in 59.1%. Patients in G1 were older than in G2 and had significantly higher values of diabetes duration, overweight, sedentary lifestyle, smoking, micro and macroangiopathy, HbA1C > 7%, dyslipidemia and renal failure ($p<0.05$). A positive correlation was found between DPN and CRP and also dyslipidemia. After multivariate logistic regression adjusted to age and diabetes duration, we found that triglycerides concentrations and CRP levels > 5mg/L were significantly associated with DPN (OR: 1.45 [0.91-2.29], p=0.031 and 2.92 [1.63-5.24], p=0.0001 respectively).
Conclusions: Our results report the high frequency of DPN in Afrocaribbean subjects with T2MD and the clinical and biological profile associated with DPN. We also highlight the potential neuropathogenic role of biomarkers inflammation such as CRP with a threshold at 5mg/L and of hypertriglyceridemia as predictive factors of DPN. However, prospective evaluation is necessary to better understand if those biomarkers are causes or consequences of DPN.

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CARE MODELS IN TYPE 2 DM: RESULTS FROM THE "ORGANIZATIONAL MODELS PROJECT IN THE CARE OF TYPE 2 DIABETES MELLITUS

Eva Venegas-Moreno[1], Pablo Remon-Ruiz[1], Román Villegas-Portero[2], Alfonso Soto-Moreno[1]
[1]Instituto de Biomedicina de Sevilla (IBiS), Hospital Universitario Virgen del Rocío/CSIC/Universidad de Sevilla, Unidad De Gestión Clínica De Endocrinología Y Nutrición, Seville, Spain, [2]Sistema Andaluz de Salud, Subdirección Técnica De Gestión De La Información, Seville, Spain

Background and Aims: Given the growing epidemic of type 2 DM health systems must structure patient care efficiently, ensuring uniform and high-quality attention. Our study aims to analyze the clinical outcomes of different organizational intervention models in patients with type 2 DM and to describe the basic clinical and metabolic characteristics of the type 2 DM patients from our area
Methods: A quasi-experimental study was conducted, evaluating 3 care models for type 2 DM. Three comparative arms: 2 intervention and 1 control. 4 Primary Care Centers were selected for the study, with 2 allocated to each intervention arm. PCC were paired based on the socioeconomic level of the area, and a control population was established consisting of all patients with type 2 DM in the health area. The active intervention arm focused on a joint assessment of all patients diagnosed with type 2 DM in two specific Health Centers, including the selection of patients based on metabolic objectives and other health outcomes. The second intervention arm was based on using patient lists from a Unique Database provided to the Primary Care Teams, supported by counseling of diabetes expert.
Results: The main characteristics of patients are in Table 1. After intervention, there was a decrease in the number of patients with HbA1c > 8% in active intervention arm. Table 1. Baseline characteristics

	Active intervention		Counseling intervention		Control
	CAP 1	CAP 2	CAP 1	CAP 2	
DM	8.22%	13.60%	9.71%	16.37%	
HbA1c (SD)	6,96 (1,34)	6,93 (1,32)	6,90 (1,36)	6,98 (1,42)	6,95 (1,4)
HbA1c >8% (%)	35.3% (199)	32.1% (211)	31% (722)	40% (1275)	
LDL (SD)	103,4 (35,11)	103,52 (34,97)	103 (35,1)	104,23 (35,70)	103,4 (35, 52)

Table 2. Changes in HbA1c

	AI				CI			
	PCC 1		PCC 2		PCC 3		PCC 4	
	Inicial	Final	Inicial	Final	Inicial	Final	Inicial	Final
<83	64 (64,7%)	467 (82,9%)*	447 (67,9%)	563 (85,6%)*	1112 (60%)	1167 (62,7%)	884 (69%)	935 (72,9%)
>81	99 (35,3%)	96 (17,1%)*	211 (32,1%)	95 (14,4%)*	741 (40%)	686 (37,3%)	397 (31%)	346 (27,1%)

Conclusions: Cross-disciplinary and multidisciplinary care seems to offer clinical benefits to patients with type 2 DM. The existence of a multi-level team that monitors clinical data at the population level allows for closer tracking of patients with type 2 DM, achieving better metabolic control.

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MAGNITUDE OF INTENTIONAL WEIGHT REDUCTION AND ASSOCIATED CLINICAL OUTCOMES

Hong Kan[1], Lindsay Bengtson[2], Nadia Nazir Ahmad[3], Jay Bae[1], Noelle Gronroos[4], Christina Landis[4], Chanadda Chinthammit[1], Julia Dunn[5], Shadi Wehbe[6]
[1]Eli Lilly and Company, Value, Evidence, Outcomes-research, Indianapolis, United States of America, [2]Boehringer Ingelheim Pharmaceuticals, Heor Vdt, Ridgefield, United States of America, [3]Eli Lilly and Company, Chronic Weight Management Development, Indianapolis, United States of America, [4]Optum, Heor, Minneapolis, United States of America, [5]Eli Lilly and Company, Medical, Indianapolis, United States of America, [6]Eli Lilly and Company, Medical Science Liaison, Dubai, United Arab Emirates

Background and Aims: To describe the association of BMI reduction on clinical outcomes (medication utilization, HbA1c, and blood pressure) in adults undergoing medical intervention for weight reduction.
Methods: Optum's Market Clarity database (Study Period: 2007-2020) was used to identify adults with overweight/obesity with a medical intervention for weight reduction (surgery, procedure, anti-obesity medication, or lifestyle) whose weight after a 3-year period was less than or equal to their pre-intervention weight (date of weight: index). Patients were grouped by percent BMI change. Outcomes included change in 6-month pre-index versus 6-month follow-up (starting after the 3-year period) for HbA1c and blood pressure in patients with measures in both periods, and change in condition-specific pharmacy utilization for patients with the condition during pre-index.
Results: There were n=127,267 patients meeting study criteria. Mean Rx utilization during follow-up decreased (relative to pre-index) as BMI reduction increased, ($p<0.001$) with groups achieving ≥15% BMI reduction having lower mean utilization in follow-up versus pre-index. Greater BMI reduction was also associated with improvements in HbA1c and blood pressure ($p<0.001$).
Conclusions: Higher BMI reduction groups had greater mean improvements in clinical measures while mean medication utilization decreased.

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YOUNG ONSET DIABETES IN SRI LANKA: A PRELIMINARY ANALYSIS OF THE MULTICENTRE DATABASE FOR PATIENTS WITH YOUNG-ONSET DIABETES IN SRI LANKA (DYOD-SL)

Maulee Arambewela[1], Ashani Wickramarachchi[1], Umesha Wijenayake[1], Shani Matharage[2], Cj Subasinghe[3], Gm Ratnayake[4], Sumudu Seneviratne[5], Nl De Silva[6], G Samarasinghe[7], M Amarawardena[8], D Karupaiah[9], T Samarasekara[10], K Liyanarachchi[11], M Ahmad[12], S Pathmanathan[1], Dt Muthukuda[13], Charles Antonypillai[14], Uditha Bulugahapitiya[15], Manilka Sumanatilleke[15], S Cooray[16], N Somasundarum[1], Prasad Katulanda[17], C Garusinghe[18], A Wijesinghe[19], S Jayakody[20], S Abhayaratne S[21], Dulani Kottahachchi[22], S Gunatilake[23]
[1]National Hospital of Sri Lanka, Diabetes And Endocrinology Unit, Colombo, Sri Lanka, [2]DGH Awissawella, Diabetes And Endocrine Unit, Awissawella, Sri Lanka, [3]DGH Chilaw, Diabetes And Endocrine Unit, Chilaw, Sri Lanka, [4]Medway NHS Foundation Trust, Diabetes And Endocrine Unit, Gillingham, United Kingdom, [5]Faculty of Medicine, University of Colombo, Paediatrics, Colombo, Sri Lanka, [6]Kothalawala Defence University, Department Of Medicine, Werahara, Sri Lanka, [7]District General Hospital, Matale,, Diabetes And Endocrine Unit, Matale, Sri Lanka, [8]Teaching Hospital, Anuradhapura,, Diabetes And Endocrine Unit, Anuradhapura, Sri Lanka, [9]Teaching Hospital, Batticloa, Diabetes And Endocrine Unit, Batticolo, Sri Lanka, [10]Teaching Hospital, Kalutara, Diabetes And Endocrine Unit, Kalutara, Sri Lanka, [11]Teaching Hospital, Ratnapura, Diabetes And Endocrine Unit, Rathnapura, Sri Lanka, [12]General Hospital, Polonnaruwa, Diabetes And Endocrine Unit, polonnaruwa, Sri Lanka, [13]Sri Jayewardenepura General Hospital, Diabetes And Endocrine Unit, Jayawardanepura, Sri Lanka, [14]National Hospital Kandy, Diabetes And Endocrine Unit, Kandy, Sri Lanka, [15]Diabetes and Endocrinology Unit, National Hospital Of Sri Lanka, Colombo, Sri Lanka, Colombo, Sri Lanka, [16]royal Darwin hospital, Diabetes And Endocrine Unit, Northern Territory, Australia, [17]Faculty of Medicine, University of Colombo, Clinical Medicine, Colombo, Sri Lanka, [18]Colombo South Teaching Hospital, Diabetes And Endocrine Unit, Kalubowila, Sri Lanka, [19]Provincial General Hospital, Badulla,, Diabetes And Endocrine Unit, Badulla, Sri Lanka, [20]Warwick Medical School, University of Warwick, United Kingdom, Diabetes And Endocrine Uni, Warwick, United Kingdom, [21]Faculty of Medicine, University of Colombo, Department Of Pharmacology, Colombo, Sri Lanka, [22]Faculty of Medicine, University of Kelaniya, Physiology, Ragama, Sri Lanka, [23]District General Hospital, Nuwaraeliya, Diabetes And Endocrine Unit, Nuwaraeliya, Sri Lanka

Background and Aims: There is an increasing prevalence of young onset diabetes(YOD) globally as well as locally. Establishing the epidemiological data on YOD in Sri Lanka was paramount.
Methods: Database for the patients with YOD in Sri Lanka (DYOD-SL) is a multi-centre hospital based database established in 2021 for patients diagnosed with diabetes <25 years. A retrospective analysis was conducted to determine disease characteristics and state of care.
Results: 29 centers (2/27 peadiatric/adult) participated. Of the 2393 patients,(female 57.5% / male 42.5 %) included in the preliminary analysis median age was 20 (IQR 6)years, median age at diagnosis was15(IQR 6)years and mean BMI was 21.107(SD 4.874)kg/m2.. Type 1 diabetes(T1D), type 2 diabetes(T2D), type 3c diabetes(T3cD) and MODY accounted for 57%, 33.4%, 2.9% and 2.4% respectively. Thalassemia caused 81.3% of T3cD. There was no difference in male and female proportions between T1D and T2D.($x^2(1)=2.094$;p=0.148).Among 76 patients with T1D undergoing early GAD antibody testing 26% were negative. Mean BMI[19(SD3.13) vs 24(SD4.92)kg/m^2,p=0.000] Age-at-diagnosis[13.47(SD5.31) vs 16.39(SD4.36)years,p=0.000] positive family history[42.9% vs 74.2%,p=0.000] were significantly lower in T1D vs T2D. Prevalence of complications were nephropathy

8.03%(104/1294), retinopathy 6.66%(80/1199), neuropathy 4.25%(55/1293),foot disease 1.32%(27/2031) macrovascular complications 0.52%(9/1702) DKA 29.1%(535/1842) and major hypoglycaemia 9.9%(141/1424). Prevalence of hypertension and dyslipidaemia were 2.5% and 14.2% respectively and there was no significant difference between T1D and T2D. DKA(p=0.000), major hypoglycaemia(p=0.000) and retinopathy(p=0.000) were significantly higher in T1D. Prevalence of major hypoglycaemia increased with age. AmongT1D, 62% were on premixed insulin, 20% were on basal bolus regimen and 14.9% were on basal bolus regimen with self titration of insulin. Notably 39.09% among T2D was on insulin. Performance of SMBG was 79% in T1D and 57.7% in T2D. HbA1c of entire cohort was 10.05 with significantly poorer control in T1D [10.49(SD 3.05)vs 9.39(SD 3.15),p=0.000] . Better HbA1c noted with increasing age.

Conclusions: T1D was the commonest subtype of YOD in this cohort and complications were relatively higher in them compared to T2D. Poor disease control with unsatisfactory glucose monitoring and suboptimal therapeutic regimens requires urgent measures to step-up care.

PV206 / #1867

E-Poster Viewing
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HIGH-DOSE STATIN IMPAIRS PROTEIN SYNTHESIS IN C2C12 MYOBLAST BY INDUCTION OF ER STRESS

Soon Jib Yoo[1], Oak Kee Hong[2], Hyuk-Sang Kwon[3]
[1]The Catholic University of Korea, Endocrinology, Bucheon, Korea, Republic of, [2]The Catholic University of Korea, Endocrinology, Seoul, Korea, Republic of, [3]The Catholic University of Korea, Division Of Endocrinology And Metabolism, Department Of Internal Medicine, SEOUL, Korea, Republic of

Background and Aims: Statins are among the most widely prescribed medications around the world, used by more than 200 million people to lower cholesterol and their risk of cardiovascular disease. The most severe adverse effect of statins is myotoxicity, in the form of myopathy, myalgia, myositis or rhabdomyolysis. The exact pathophysiology of statin-induced myopathy is not fully known. We hypothesized that similar effects would occur in C2C12 myoblast in a lipophilicity-dependent manner between 2 common statins: simvastatin (lipophilic) and pravastatin (hydrophilic).
Methods: C2C12 myoblast cells were treated with 0 - 100 μM simvastatin and 0 – 300 μM pravastatin for 24 h. Protein levels involved in ER stress were measured by Western blotting.
Results: Simvastatin and pravastatin decreased cell viability in a dose-dependent manner. Simvastatin at 100 μM caused about 65% loss of metabolic activity as measured by MTT assays in C2C12 myoblast cells. Furthermore, simvastatin (0 - 50 μM) impaired atrophy protein (MuRF1 and MAFbx) and pravastatin (0 - 300 μM) also impaired activation of protein expression of the muscle atrophy. Simvastatin and pravastatin caused inhibition of muscle protein synthesis increased PERK and IRE pathway indicating endoplasmic reticulum (ER) stress. In addition, simvastatin and pravastatin stimulated apoptosis by impairing the caspase 3, Bcl2, Bax, and cytochrome C.
Conclusions: To our knowledge, we are demonstrated in vitro that high dose simvastatin and pravastatin impairs protein synthesis in C2C12 myoblast by induction of ER stress.

PV207 / #115

E-Poster Viewing
E-POSTER VIEWING: AS04. DIABETES / DIABETES COMPLICATIONS
01-03-2024 07:00 - 18:00

EXOSOMES OF GESTATIONAL DIABETES MELLITUS INDUCE OXIDATIVE STRESS AND REGULATE CELL AUTOPHAGY AND APOPTOSIS VIA TRANSFERRING MIR-152-5P

Yuan Zhang[1], Jianxia Fan[2]
[1]The International Peace Maternity and Child Health Hospital, School of Medicine, Shanghai Jiao Tong University, Obstetrics, Shanghai, China, [2]Shanghai Jiaotong University, Obestetrics, Shanghai, China

Background and Aims: Gestational diabetes mellitus (GDM) is a common pregnancy complication and exosomal-microRNA(miRNA) played a critical role in the development of GDM. Our research aimed to investigate the mechanism of exosomes participation in GDM and proposed the innovative therapeutic methods.
Methods: Ultracentrifugation was used to isolate exosomes. The ultrastructure images of the exosomes were captured using a transmission electron microscope (TEM) and the mean diameter was measured by a nanoparticle tracking analysis (NTA). Metabolic profiling was performed by liquid chromatograph mass spectrometer (LC-MS). Assay kit, flow cytometry as well as immunofluorescence were utilized to detect the oxidative stress levels of co-cultured cells. Western blotting, immunofluorescence and flow cytometry method were used to detect the autophagy and apoptosis. The differential expressed miRNA profiling in exosomes were explored using RNA sequence analysis and verified by quantitative real-time polymerase chain reaction (qRT-PCR).
Results: We isolated and identified the peripheral blood-derived exosomes from GDM and normal patients. Exosomes could be internalized by HTR8 cells and induced the lipid metabolism dysfunction. Differential metabolites in placenta tissues between GDM and normal patients were analyzed and lipid metabolites occupied the highest proportion. We found that exosomes promoted the oxidative stress production. Besides, exosomes promoted cell apoptosis and inhibited cell autophagy by transferring miR-152-5p. In addition, miR-152-5p inhibitor could reverse the aberrant levels of cell autophagy and apoptosis induced by exosomes.
Conclusions: Our findings revealed that peripheral blood-derived exosomes of GDM could affect cell lipid metabolism, increase oxidative stress and regulate cell autophagy and apoptosis. Exosomal miR-152-5p is expected to be a promising target for GDM treatment.

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DISEASE PROGRESSION PROMOTES CHANGES IN ADIPOSE TISSUE SIGNATURES IN TYPE 2 DIABETIC (DB/DB) MICE: THE POTENTIAL PATHOPHYSIOLOGICAL ROLE OF BATOKINES

Khanyisani Ziqubu[1], Phiwayinkosi Dludla[2,3], Sithandiwe Mazibuko-Mbeje[1]
[1]North-West University, Biochemistry, Mahikeng, South Africa, [2]South African Medical Research Council, Cochrane South Africa, Cape town, South Africa, [3]University of Zululand, Biochemistry And Microbiology, KwaDlangezwa, South Africa

Background and Aims: Brown adipose tissue (BAT), a thermoregulatory organ known to promote energy expenditure via the mitochondrial uncoupling protein (Ucp)-1, has been extensively studied as a potential avenue to combat obesity and type 2 diabetes (T2D). Beyond its role in regulating thermogenesis, BAT secretes metabolism-regulating factors, called batokines. The current study makes use of an established animal model of type 2 diabetes (T2D) db/db mice to determine the effect of the disease progression on adipose tissue morphology and gene regulatory signatures.
Methods: Obese-type 2 diabetic db/db mice and control littermates db/+ were monitored from the age of 8-, 12-, and 18-weeks. Body weights, fasting blood glucose and insulin levels, and oral glucose tolerance tests were monitored weekly. Subsequently, gene expression analysis of batokines was performed using Real-time quantitative polymerase chain reaction.
Results: The results showed that WAT and BAT from db/db mice display a hypertrophied phenotype that is consistent with increased expression of the pro-inflammatory cytokine, tumor necrosis factor-alpha (Tnf-α). Moreover, BAT from both db/db and non-diabetic db/+ control mice displayed an age-related impairment in glucose homeostasis, inflammatory profile, and thermogenic regulation, as demonstrated by reduced expression of genes like Ucp-1, glucose transporter (Glut-4), and adiponectin (AdipoQ). Importantly, gene expression of the batokines regulating sympathetic neurite outgrowth and vascularization, including bone morphogenic protein 8b (Bmp8b), fibroblast growth factor 21 (Fgf-21), neuregulin 4 (Nrg-4) were altered in BAT from db/db mice. Likewise, gene expression of meteorin-like (Metrnl), growth differentiation factor 15 (Gdt-15), and C-X-C motif chemokine-14 (Cxcl-14) regulating pro- and anti-inflammation were altered.
Conclusions: This data provides some new insights into the pathophysiological mechanisms involved in BAT hypertrophy (or whitening) and the disturbances of batokines during the development and progression of T2D. However, these are only preliminary results as additional experiments are necessary to confirm these findings in other experimental models of T2D.

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E-Poster Viewing
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A CASE REPORT OF THECOMA FIBROMA MASQUERADING AS PCOS: A RARE ETIOLOGY OF HIRSUTISM AND HYPERANDROGENISM

Misk Alsubaie, Sulaiman Hajji, Khaled Aljenaee
Adan Hospital, Internal Medicine, Kuwait city, Kuwait

Background and Aims: A 42 year-old lady, not known to have any chronic medical problems, presented complaining of abnormal facial hair growth and acne. The patient was noticing increase in hair growth mainly over the face but also her back and upper chest. She was also reporting irregular menstrual cycles over the past seven years and mild acne. Her initial investigations showed elevated total testosterone levels and her pelvic ultrasound showed multiple small follicles on both ovaries suggesting polycystic ovarian morphology. Consequently, she was diagnosed with Polycystic Ovary Syndrome (PCOS) and was prescribed oral contraceptive pills (OCP). The patient was on therapy for a period of three years where she noticed temporary relief of hirsutism and acne; however, symptoms recurred upon discontinuation of the OCP. As a result, she sought a second medical opinion as her symptoms were more aggressive than before. She reported recurrence of the hair growth on the face, chest, back, and abdomen. She was also expressing concerns about the return of her acne and a significant hair loss. She denied weight gain or change in her voice. She did not report any galactorrhea, headaches, visual disturbance, or fatigue. There was no history of abdominal pain or distention.
Methods: Physical examination showed a weight of 72 kilograms and height of 156 cm. Her BP was 115/70. She had mild facial acne. Hirsutism was notably present on the face but also the chest, back and abdomen. Her Ferriman–Gallwey score was 16. No masses were appreciated on abdominal examination. Laboratory investigations showed an elevated Total testosterone level of 5.83 nmol/L (normal range: 0.5-2), DHEAS 14 micromol/L (normal range: 1.7-10). LH 19.78 mIU/mL, FSH 3.84 mIU/mL, and Prolactin 339 microg/L (normal range: 80-450). HbA1C was 6%. TSH 1.3 mIU/L (normal range: 0.8-4.5).
Results: Based on extremely elevated androgens a CT abdomen scan was requested and identified a 5.1x4.2x4 cm isodense mass adjacent to the right ovary.
Conclusions: Our impression was an androgen secreting tumor, and she was subsequently referred to a gynecologist for surgical resection. The mass was surgically resected, and the histopathology report confirmed the diagnosis of thecoma fibroma, characterized by spindle cells with hyperchromasia but no pleomorphism. Three months post-surgery, the patient reported a marked improvement in her symptoms as her acne cleared and a noticeable decrease in hirsutism was observed. The total testosterone levels dropped significantly to 0.50 mmol/L, indicating successful removal of the testosterone-producing tumor. DHEAS and SHBG levels also normalized.

PV210 / #786

E-Poster Viewing
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01-03-2024 07:00 - 18:00

CASE REPORT: A PATIENT WITH MULTIPLE PARAGANGLIOMA TREATED WITH LONG-ACTING SOMATOSTATIN ANALOGUE

Rahila Bhatti
Genesis Healthcare Centre, Diabetes & Endocrinology, Dubai, United Arab Emirates

Background and Aims: Paragangliomas are neuroendocrine tumours which overexpress somatostatin receptors and provide a unique therapeutic target for well differentiated advanced disease where such lesions are surgically inoperable.

Methods: Case report
Results: A 30 years old Egyptian had bilateral adrenalectomy secondary to pheochromocytoma at 15 years and left suprarenal mass removal with splenectomy at 20 years. In 2017, distal pancreatectomy casing diabetes-histology confirmed well-differentiated neuroendocrine tumour with metastatic deposits in one out of 3 retropancreatic lymph nodes synaptophsyin and chromogranin positive.
Readmitted with hypertensive crisis in September 2019. MRI abdomen: left sympathetic chain paraganglioma. While awaiting surgery she developed metastatic stroke, recovered with slight right sided sensory loss. She underwent open laporotomy for neuroendocrine removal. MRI abdomen 3 months post-operatively demonstrated 2 soft tissue abnormalities, at the left renal hilum para-aortic region and aorto-caval groove. MDT decision in March 21 was for Lutetium therapy, however, patient refused.
Readmitted with iron deficiency anaemia Hb 5g/dl secondary to severe menorrhagia (dual antiplatelet therapy post stroke). She was treated with iron transfusions and medication reduced to single antiplatelet therapy. Readmitted with another stroke in May 22. Her BP was 174/113 mm of Hg, pulse 90/min.
PET scan showed DOTATATE avid residual disease at site of previous distal pancraetectomy aortocaval left paraaortic and site of previous right adrenalectomy. Blood tests: Metanephrine ≤50 ng/l (≤ 90), Normetanephrine 1716 ng/l (≤129), 3 methoxytyramine 40 ng/l (≤18). Medications : Tresiba insulin 16 units once daily, Lymjuv insulin with all meals, doxazosin 8 mg twice daily, Moxinidine 0.4 mcg twice daily, bisoprolol 5 mg twice daily, aspirin 300 mg once daily, atorvastatin 80 mg once daily.
Started on Sandostatin 30 mg once monthly in May 22. One year later, BP 137/94, pulse 82/min. In January 23, her Chromogranin A is 334 ng/ml (≤ 102), Metanephrine 22.43 pg/mL (≤ 69) and Normetanephrine 1427.80 pg/mL (≤159) There is no further admission with stroke or hypertensive crisis. Her doxazosin reduced 4 mg twice daily, Moxinidine discontinued. PET CT scan 1 year later showed two of the lesions at the left para-aortic and aorto- caval appear metabolically more active, the other 2 lesions show no significant change.
Conclusions: A case of recurrent metastatic paraganglioma is presented.After 1 year of treatment with LAR octreotide there is improvement in quality of life, reduction in hypertensive crisis and stroke admissions. Research should be continued for targeting SSTRs with second-generation SSAs,chimeric dual receptor-targeting peptides, chemotactic delivery through SSTRs, and other novel methods.

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PV211 / #906

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

PREVALENCE OF VARIOUS ENDOCRINOPATHIES RESULTING FROM USE OF IMMUNE CHECKPOINT INHIBITORS - A PROSPECTIVE STUDY FROM TERTIARY CARE CENTRE IN INDIA

Alka Bishnoi, Vs Shekhawat, Amit Nachankar
Army Hospital Research and Referral, Endocrinology, New Delhi, India

Background and Aims: Immune checkpoint inhibitors (ICIs) have emerged as a robust tool in armamentarium for treatment of several advanced cancers not responding to conventional chemotherapy and the list is expanding. The ICIs are frequently associated with endocrine side effects with incidence of 0.1 to 10 percent according to literature. However there is paucity of prospective study data of ICI related endocrinopathies. Prompt diagnosis and timey management is likely to provide better quality of life among these patients, hence this study was planned with AIMS- To study the prevalence of endocrinopathy in patients on ICIs. To assess the risk factors for development of ICI related endocrinopathies.
Methods: This prospective observational cohort study was conducted in the Endocrinology department of a tertiary care centre in India over 18 months. Total 86 patients on ICIs for the underlying malignancies were screened and finally 50 patients were enrolled after ruling out existing endocrine illness. They were evaluated for the diagnosis of endocrinopathies biochemically at baseline, then monthly for first three months and thereafter at six, nine and 12 months follow-up. All underwent baseline biochemical evaluation along with thyroid functions, anterior pituitary hormones, adrenal and gonadal hormone profile. Glycosylated haemoglobin, 25-hydroxy vitamin D3, parathyroid hormone, calcium, phosphorous, blood glucose were also done.
Results: New onset ICI related endocrinopathies were confirmed in 14 patients with prevlance of 28% with 6 cases of primary hypothyroidism, 3 cases of hypergonadotropic hypogonadism and 2 cases of diabetes mellitus. Other uncommon endocrinopathies were hypogonadotropic hypogonadism, primary adrenal insufficiency and primary hyperparathyroidism one case each. The median age of diagnosis was 54.50 years . Hypertension was associated with development of endocrinopathy in 4 patients (p=0.044). Seven patients with endocrinopathy were diagnosed at three months and 6 patients at six months of therapy. Endocrinopathies were diagnosed among 31% patients on Nivolumab and 28% patients on Pembrolizumab but no significant association was found between ICI drugs and endocrinopathy (p=0.510).
Conclusions: The prevalence of ICI related endocrinopathy is very high with primary hypothyroidism being commonest. Onset can be as early as two months to six months since ICI initiation. Male sex, sixth decade of life and hypertension are important risk factors for endocrine dysfunction in patients on ICIPs.

PV212 / #1504

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

UNEXPECTED JOURNEY OF A RARE METASTATIC DISEASE

Shriya Gadve
APPLE SARASWATI MULTISPECIALITY HOSPITAL, Internal Medicine, Karveer, India

Background and Aims: Brain is an exceedingly rare site of metastasis in carcinoma thyroid (1 % mostly follicular). Brain metastasis from medullary carcinoma of thyroid is extremely uncommon with only 10 previously reported cases.We hereby report a casse of isolated leptomeningeal metastasis in medullary carcinoma of thyroid which is extremely rare.
Methods: An elderly male, diagnosed case of medullary carcinoma of thyroid presented with fever and involuntary movements . In view of brain metastasis, autonomic dysfunction and peripheral nerve hyperexcitability ,he was evaluated with neuroimaging , CSF analysis, EEG, NCV and EMG .
Results: On the basis of clinical evaluation and investigations possible diagnosis of Morvan syndrome as paraneoplastic manifestation of medullary carcinoma of thyroid was made.
Conclusions: The case presented here is unusual because of the unexpected distant metastatic site for a MTC. This is an extremely rare case of isolated leptomeningeal metastasis in medullary carcinoma of thyroid.

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PV213 / #1607

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

CHALLENGING CASE OF LOW-GRADE PARATHYROID CARCINOMA WITH COEXISTING GRANULOMATOUS LYMPHADENITIS MASQUERADING AS METASTASES

Yug Garg[1], Madhumati Vaishnav[2], Kavitha Muniraj[3], Reshma Bv[4], Siddhartha Dinesha[5], Leena Lekkala[3], Rajeshwari Ashok[6], Sapna Manjunath[7], Nidhi Garg[8], Sathyanarayana Srikanta[9], Samatvam Diabetes Collaborative Study Group[10]
[1]Kasturba Medical College Mangalore, Medicine, Mangalore, India, [2]Indian Institution of Science, Center For Nano Science And Engineering, Bangalore, India, [3]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine, Bangalore, India, [4]Samatvam Endocrinolgy and Diabetes center, Endocrinolgy Diabetes, Bangalore, India, [5]Sri Chamundeshwari Medical College Hospital and Research Institute, Internal Medicine, Bangalore, India, [6]Jnana Sanjeevini Medical Center, Laboratory, Bangalore, India, [7]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Health Education, Bangalore, India, [8]Samatvam Endocrinology Diabetes Center, Endocrinology, Bangaiore, India, [9]Samatvam Diabetes Endocrinology and Medical Center Samatvam: Science and Research for Human Welfare Trust, Diabetes Endocrinology Medicine Translational Science, Bangalore, India, [10]Samatvam Research Center, Translational Science, Bangalore, India

Background and Aims: Optimal management of rare parathyroid carcinoma (<1% sporadic primary hyperparathyroidism), with its typical indolent but progressive course, remains clinical/diagnostic challenge. Diagnosis of malignancy is made only when local recurrence/metastases occur, because parathyroid tumor histology can be equivocal/frankly misleading.
Methods: 2021 December: Weight Loss, proximal muscle weakness. Hypercalcemia; Primary hyperparathyroidism. S-Calcium= 15.5 mg/dl (8.8-10.6); S-intact-PTH >2000 pg/ml (15-65) 2022 February: Left cervical, supraclavicular lymphadenopathy. HPE: Granulomatous lymphadenitis; non-caseating; S-ACE 27.9 U/L (12-68) Mantoux test negative; Possible sarcoidosis. 2022 February: First Surgery: Left parathyroid adenomectomy, Left hemithyroidectomy. HPE: Parathyroid carcinoma versus adenoma, oxyphilic cells; no lymph node metastases. Hypocalcaemia (5.9) post-surgery. 25OH Vitamin D= 3.0 ng/ml S-intact-PTH >2000 2022 June: Initial Endocrinology Consultation: Persistent hypocalcaemia; osteomalacia myopathy (Vitamin-D deficiency coexisting). S-Calcium= 7.8; S-Phosphorus= 2.6 (2.4-5.1 mg/dl); S-PTH 243 (12-8); 25OH-Vitamin D= 31.0 Isotope bone scan: Metabolic bone disease.
Results: 2023 January: Swelling in the neck right side lower, cystic, hypercalcaemic crisis S-Calcium= 13.2; S-Phosphorus=2.0; S-PTH 572; 25OH-Vitamin D= 67 S-Calcium increased to 19.9. Treatment: IV fluids, calcitonin, zoledronic acid. Ultrasound: Swelling neck right anterior; subcutaneous, irregular, fixed: 30x20 mm (cystic/solid) Sestemibi scan: Neck mass right anterior (cystic) negative; posterior (solid) portion positive. Choline/FDGPET-CT: Neck mass right posterior positive uptake; left lower cervical and supraclavicular nodes; left lung nodule from 5.5 mm. Second surgery: Wide excision of right neck mass/block dissection. HPE: Parathyroid carcinoma low grade. Immunohistochemistry: CD31 confirms presence of tumor cells within blood vessels in the pseudocapsule; KI67 extremely low around 5%. Post-Op Day 1: S-Calcium= 8.7; 2023 Feb: S-Calcium= 9.0; S-Phosphorus= 1.8; S-PTH 258; 25OH-Vitamin D= 38. 2023 September: Hypercalcaemic crisis; Recurrent hyperparathyroidism. Parathyroid Carcinoma S-Calcium= 15.0; S-Phosphorus=2.2; S-PTH= 725; 25OH-Vitamin D= 36.0 Choline/FDGPET-CT: “New” nodule left mid jugular area; left lower cervical/supraclavicular nodes; left lung nodule 7.5 mm. Left cervical neck dissection/lymph node excision. HPE: Parathyroid carcinoma deposits in neck soft tissues.

Lymph nodes no metastases. Post-Op: S-Calcium= 10.8, increased to 13.8. Tab Cinacalcet started for hypercalcemia.

Conclusions: Goals of surgery in parathyroid carcinoma are resection with negative margins. Adjuvant therapy with chemotherapy/external beam radiation has not been proven to affect disease-free/overall survival. Recurrence is common, with reoperation recommended for resectable recurrent disease. Palliation with calcimimetic pharmacotherapy can aid management of symptomatic hypercalcemia in recurrent/persistent disease after parathyroidectomy. Ultimately, patients succumb to sequelae of hypercalcemia, rather than tumor burden.

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E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

MALIGNANT PHEOCHROMOCYTOMA AND PARAGANGLIOMAS IN SINGLE TERTIARY REFERRAL CENTER IN MALAYSIA

Wee Mee Cheng, Azraai Bahari Nasruddin, Zanariah Hussein
Hospital Putrajaya, Endocrinology, Putrajaya, Malaysia

Background and Aims: Malignant pheochromocytoma and paragangliomas (mPPGL) are rare neuroendocrine tumors characterized by presence of distant metastases upon diagnosis. These cases are best managed by expert multidisciplinary team comprising endocrinologists, endocrine surgeons, radiologists, nuclear medicine physicians and oncologists. We present our local experience from Putrajaya Endocrine Institute and National Cancer Institute in Malaysia
Methods: Retrospective review of electronic medical record revealed 32 patients with mPPGL under follow up in Putrajaya Hospital from year 2020 to 2023.
Results: There was equal gender distribution and median age at diagnosis was 41 years (range : 9 – 67 years). Common sites of PGL were abdominal-pelvic 62.5% (n=20), head and neck (n=2), thoracic (n=1). Unilateral malignant pheochromocytoma (n=8) was more common than bilateral pheochromocytoma (n=1). The median size of primary tumour was 5.5cm (IQR:4.5cm to 7.65cm). Common sites of metastasis include lymph nodes (100%), lungs (46.8%), bone (40.6%) and liver (21.8%). 17 patients consented for genetic testing with high detection rate of 88%. Mutations detected were SDHB (n=10), SDHD (n=4) and VHL (n=1). All but one demonstrated catecholamine excess with normetanephrine being the commonest biochemical phenotype. All patients had computed tomography (CT) for anatomical imaging. Radionuclide imaging with I^{131} Meta-Iodo-Benzyl-Guanidine (MIBG) and Gallium-68 DOTA peptide scan were performed to characterize the extent of disease and avidity to guide subsequent systemic therapy. 62.5% (n= 20) patients had repeated surgery for excision or debulking as first line therapy while 5 patients had non-resectable tumour at presentation. 10 patients had chemoembolization to tumour while radiotherapy was administered for symptom control related to skeletal metastasis in 4 patients. Five patients had MIBG therapy. 10 patients (31.3%) had Lutetium-177 based peptide receptor radionuclide therapy (PRRT). Eight patients completed until maximum radiation limit while two were terminated due to poor response. Treatment outcome of those receiving targeted radionuclide therapy were 53% (8/15) with stable disease, 6 progressive disease and one death. Two patients received chemotherapy with temozolamide following poor response to radionuclide therapy. All treatment decisions were made in multidisciplinary consensus. Overall, we recorded 4 mortalities, 12 patients with progressive disease, 12 stable disease and 5 lost to follow up. Median years of survival was 8.5 years (range 2 – 19 years) for four patients who unfortunately succumbed to the disease.
Conclusions: Malignant PPGLs are rare entity with no single curative treatment available. There is expanding role of targeted therapy using PRRT. Multimodal therapies with multidisciplinary discussions are the keys in their management plan.

PV215 / #1906

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

RARE PRESENTATION OF DIFFRENTIATED MALIGNANT COLLISION THYROID TUMOR

Hina Javaid[1], Nawal Ibraheem[2], Khadija Ibrahim[3], Shwan Hameed[4], Assadullah Akhtarzai[4], Shekhar Shikare[5]
[1]NMC Royal Hospital, Sharjah, United Arab Emirates, [2]NMC, Endocrine, Sharjah, United Arab Emirates, [3]NMC Royal Hospital, Internal Medicine, Sharjah, United Arab Emirates, [4]NMC Royal Hospital, Otorhinolaryngology, Sharjah, United Arab Emirates, [5]NMC Royal Hospital, Nuclear Medicine, Sharjah, United Arab Emirates

Background and Aims: Background: Collision tumor is coexistence of two or more histologically distinct neoplastic morphologies separated by normal tissue in the same organ. They are extremely rare constituting less than 1% of all thyroid tumors.Simultaneous papillary thyroid carcinoma and follicular thyroid carcinoma of the same thyroid lobe is a very rare occurrence with only 16 reported cases of papillary thyroid carcinoma and follicular thyroid carcinoma to date. Aims: We report this case to highlight the significance in reporting and follow-up of this rare entity.
Methods:
This case describes a 31-year-old gentleman who presented with dizziness and palpitations. On physical examination, he had a heart rate of 105 bpm and a left-sided thyroid lump. Subclinical hyperthyroidism was diagnosed based on suppressed TSH levels and normal Free T3 and Free T4 levels. Serum Anti-Thyroglobulin and TSH-receptor antibodies were undetectable.
Further investigations, including ultrasound of the thyroid gland and 99mTechnetium uptake scintigraphy, revealed a 2.2 centimeter cold nodule in the left thyroid. Fine-needle aspiration cytology (FNAC) of the nodule confirmed the presence of papillary thyroid cancer.
Based on the multidisciplinary team's evaluation, total thyroidectomy was proposed and performed. Histopathological examination revealed two different types of cancer, follicular and papillary carcinoma. The ATA staging was pT1b N0, classifying it as a "low-risk cancer."
At 12 weeks of follow-up, thyroglobulin levels and Tg-antibodies will be repeated to assess for recurrence of the cancer. This monitoring is crucial to detect any potential recurrence early and initiate appropriate treatment.
Results: Figure-1 USG thyroid scan: showing left
nodule

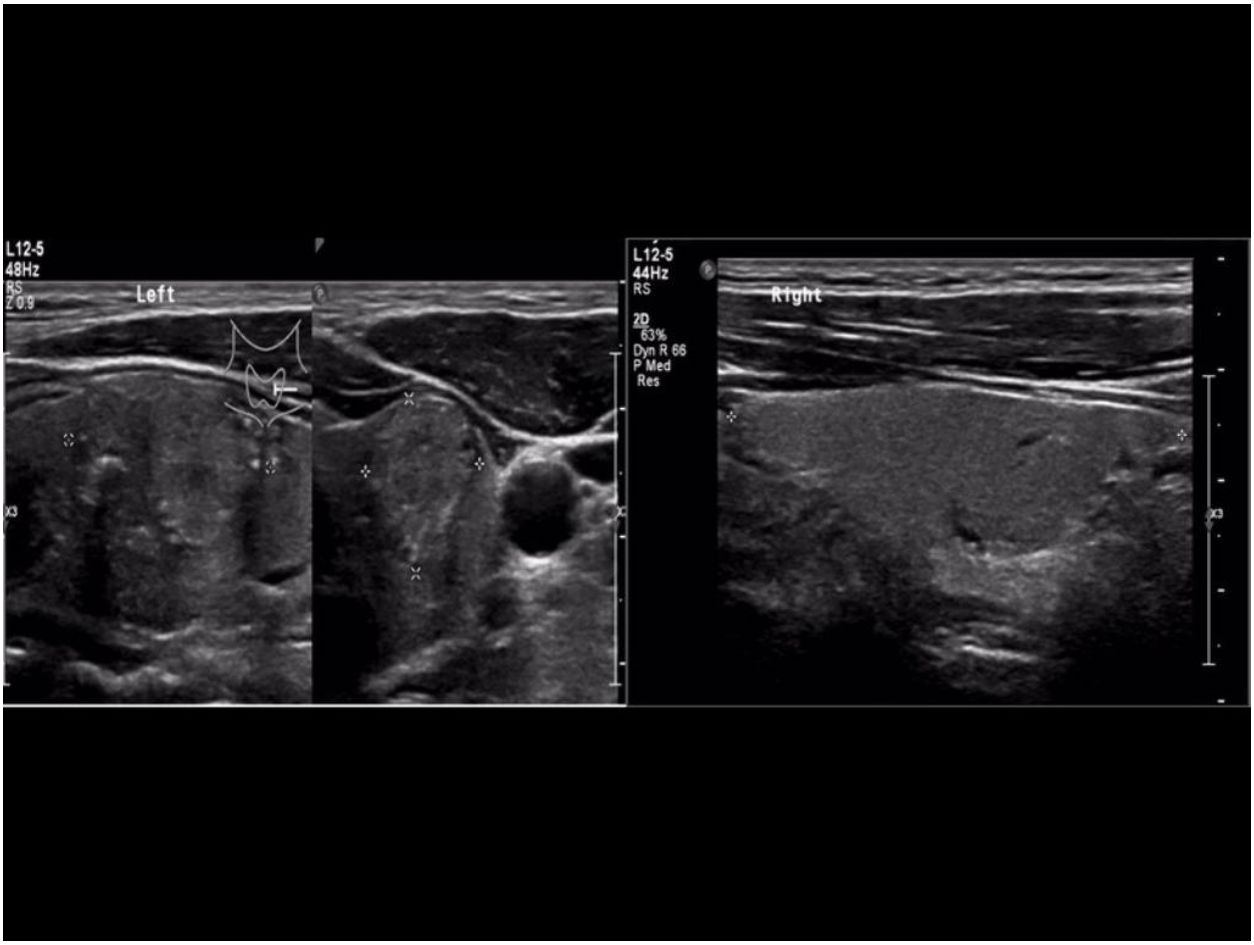
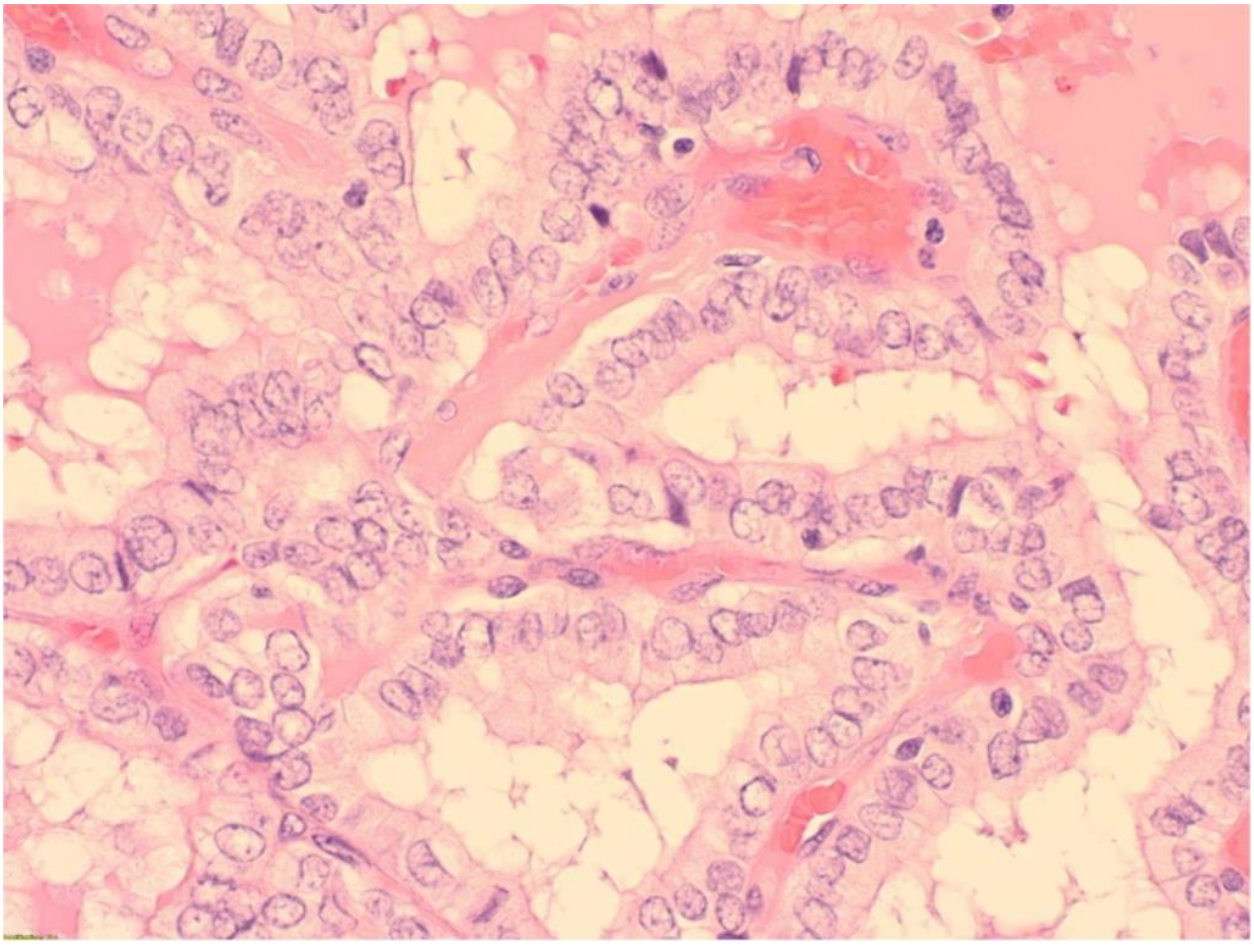
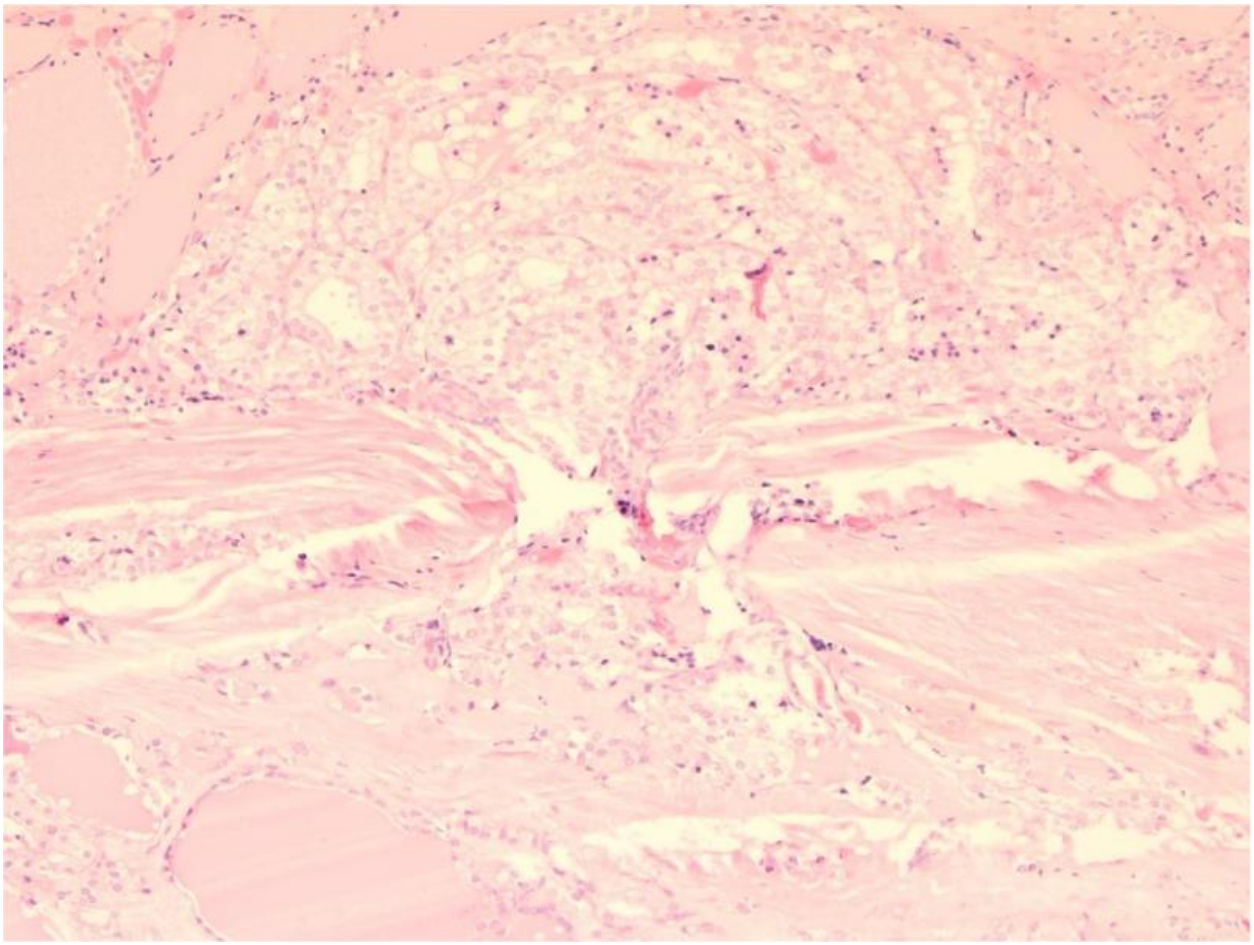


Figure -2 &3 H&E stain 40X (high power view) illustrating the nuclear features of papillary carcinoma &Figure 4 H&E stain 10X (low power view) showing follicular tumor with capsular invasion (arrow).carcinoma.





Conclusions: A multi-disciplinary approach and regular reporting of such cases are essential for improving patient outcomes and advancing our understanding of these rare tumors. Overall, the study of collision cancers and their genetic and molecular characteristics can provide valuable insights into the development and management of these complex tumors.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

A CASE OF 27-YEAR OLD FEMALE WITH MULTIPLE ENDOCRINE NEOPLASIA 2A

Gloria Concordia Naguit-Reyes[1], Perie Adorable-Wagan[2]
[1]The Medical City, Department Of Internal Medicine, Section Of Endocrinology, Pasig City, Philippines, [2]The Medical City, Internal Medicine, Pasig City, Philippines

Background and Aims: Multiple Endocrine Neoplasia 2A accounts for 95 percent of MEN2 cases. The diagnosis of classical MEN2A who have no identifiable RET germline mutation can be made if one or more first-degree relatives have characteristic clinical features of the entity. Classical MEN2A is the most common which includes MTC, Pheochromocytoma and Primary Hyperparathyroidism.
Methods: None - this is a case report
Results: At age 12, patient presented with palpable anterior neck masses with unrecalled size and cervical lymphadenopathies. Three years after, she experienced unintentional weight loss accompanied by palpitations, anxiety, tremors, easy fatigability and heat intolerance. Neck ultrasound allegedly revealed an enlarged left thyroid gland with nodules. Due to her strong family history of Medullary Thyroid Cancer and Pheochromocytoma, patient was advised to undergo Total Thyroidectomy, however, only Left Thyroid Lobectomy was done. Histopathology results allegedly revealed Medullary Thyroid Carcinoma.

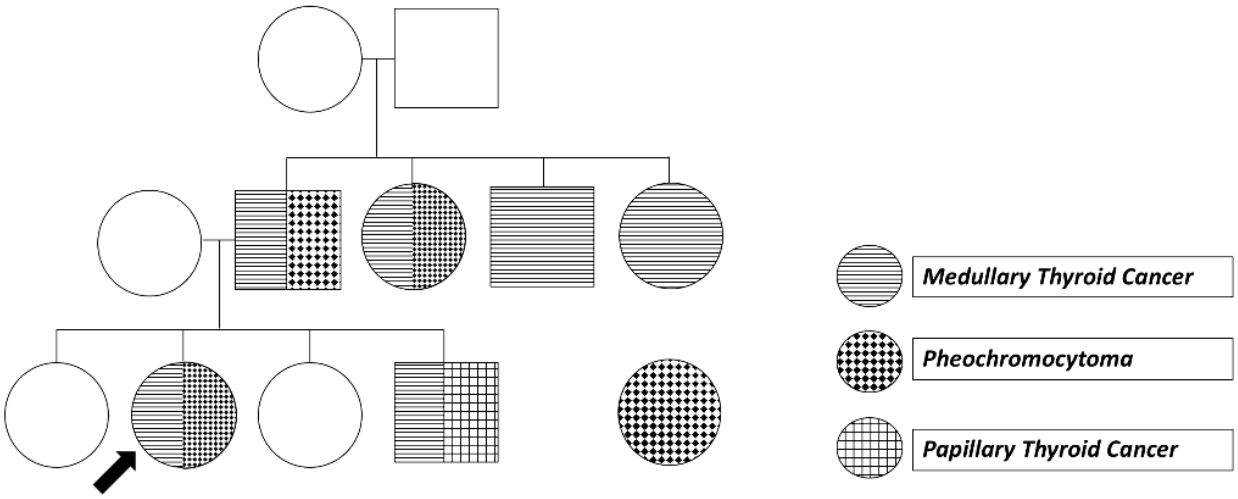

Figure 1. Pedigree. The index patient is designated with an arrow. The maternal side is unremarkable while all her paternal aunts and uncles presented with an endocrine pathology. His father, paternal aunt and uncles were diagnosed with MTC at the age of 38, 21 and 46. His father and aunt were diagnosed with Pheochromocytoma at the age of 24 and 45 and his brother was diagnosed with Mixed Papillary and MTC at the age of 15. Interval history was unremarkable, however, at age of 26, she experienced occasional chest pain and heaviness, sensation of “rush” in the chest, diaphoresis, lightheadedness and resistant hypertension. Upper abdominal CT scan with adrenal protocol revealed bilateral adrenal lesions with enhancement pattern compatible with adrenal adenoma. Biochemical tests revealed elevated levels of calcitonin, ionized calcium, intact parathyroid hormone, 24 hour urine calcium, plasma free metanephrine, 24hr urine metanephrine and serum cortisol post 1mg DST. She had normal levels of

plasma aldosterone, plasma renin, aldosterone:renin ratio and 24hr urine free cortisol. Neck ultrasound revealed left thyroid bed nodule which is worrisome for recurrence Patient underwent laparoscopic total adrenalectomy right with partial adrenalectomy left. Postoperatively, there was resolution of hyperadrenergic symptoms with no adrenal insufficiency noted. Histopathology results revealed Primary Adrenal Neoplasm, favor Pheochromocytoma.

Conclusions: Physicians must have a strong clinical suspicion of MEN in patients presenting with the classic symptoms or any patient with MTC or PHEO particularly at a young age with multicentric tumor/s and/or a strong family history.

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E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

TWO CHINESE ADOLESCENTS PRESENTING WITH CONCURRENT GRAVE'S DISEASE AND THYROID CARCINOMA

Gloria Shir Wey Pang[1], Yvonne Chi Lun Leung[2], Anthony Pak Yin Liu[2], Eric Chun Ho Fu[2], Sarah Wing Yiu Poon[2], Joanna Yuet Ling Tung[2]
[1]Hong Kong Children's Hospital, Department Of Paediatrics, Ngau Tau Kok, Hong Kong PRC, [2]Hong Kong Children's Hospital, Ngau Tau Kok, Hong Kong PRC

Background and Aims: Grave's disease is the most common cause of hyperthyroidism in children and accounts for 10-15% of all paediatric thyroid diseases. In adults, several studies report increased risk of differentiated thyroid cancer (DTC) associated with Grave's disease (GD), believed to be due to activation of binding thyroid stimulating antibodies, which stimulates growth and angiogenesis. The association between GD and children is less commonly described. Here we present two 10 year old Chinese girls presenting concurrently with GD and DTC.
Methods: The first patient presented with euthyroidal neck swelling. Ultrasonography of her neck showed a single large thyroid nodule with increased intralesional vascularity and a tiny coarse calcification at the posterior aspect of the lesion. Fine needle aspiration yielded Hurthle cell atypical of undetermined significance. Shortly after she was planned for surgery, she developed thyrotoxicosis with suppressed TSH to <0.01mIU/L, fT4 raised to 17.4pmol/L [Reference range (R.I.) 8.5-15.7pmol/L] Anti-TSH receptor was raised to 1.5 IU/L (R.I. <1.0IU/L). She was treated with carbimazole then underwent hemi-thyroidectomy then completion thyroidectomy. Histology for the 4.5cm nodule showed follicular carcinoma with Hurthle cell features, with limited vascular invasion, no extra thyroidal extension and no contralateral lobe involvement. She is on thyroxine suppressive therapy.
Results: The second patient presenting with thyrotoxicosis. TSH was undetectable and fT4 was raised to 92.3pmol/L (R.I 12.5-21.5pmol/L). Ultrasonography of the neck showed heterogenous texture suggestive of Grave's disease. Her thyroid function was well controlled for 3 years by carbimazole but there was sudden increase in size of right neck. Ultrasonography revealed a diffuse 5cm lesion with heterogenous hyper echoic parenchymal echo pattern and no discrete borders. FNAc of the lesion and lymph nodes was suspicious of metastatic disease, thus complete thyroidectomy with central and right neck dissection was performed. The diagnosis was diffuse sclerosing variant of PTC and extensive central neck and right neck lymph node involvement. She is planned for radioactive iodine therapy.
Conclusions: Few studies exist to describe concurrent GD and DTC in children, whilst those describing such association in adults are often retrospective cross sectional studies. Prospective studies are difficult as Grave's disease is common whilst thyroid carcinoma is rare. Studies conducted jointly by paediatric and adult endocrinologists will provide important information for the natural history and response to treatment of concurrent GD and DTC across the population.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

SPECTRUM OF PANCREATIC NEUROENDOCRINE TUMOURS (PNETS) IN INDIAN PATIENTS WITH MEN1 SYNDROME

Kiran Kumar Pasam[1,2], Yashdeep Gupta[2], Alpesh Goyal[2], Sujoy Pal[3], Nikhil Tandon[2]
[1]AIG Hospitals, Endocrinology, Hyderabad, India, [2]AIIMS, Endocrinology, New Delhi, India, [3]AIIMS, Gastroenterology, New Delhi, India

Background and Aims: Multiple Endocrine Neoplasia 1 consists tumors of endocrine glands like Parathyroid , Pancreatic and Pituitary glands. Available literature is derived from European and other western countern countries . Little is known about Pancreatic neuroendocrine tumors(PNETS) arising in the background of MEN1 syndrome in Indian patients. We aim to study the spectrum of PNETS in MEN1 syndrome patients in India.
Methods: This was an ambispective study conducted from January 2016 to December 2022 in consecutive patients with MEN1 syndrome presenting to AIIMS, New Delhi. Data is collected from Index patients and in asymptomatic individuals screened for MEN1 syndrome in family members.
Results: We evaluated 43 patients (30 index) with MEN1 from 32 different families . Mean age was (±SD): 33.5(12.5) years ; range: 8-57]. PNETs were seen in 34(79%), 39(90.7%) had primary hyperparathyroidism, and 16 (37.2%) had pituitary adenomas. Patients by 50 years were more likely to have PNETs as compared to patients < 20 y (90% vs. 25%). Majority (14) were < 1 cm in size. Over two decades there is a rising trend in NFPNET prevalence as shown in table from 1.1% in Trump et al study to 62.8% in our study. Among PNETS, non-functioning PNETs, insulinomas and gastrinomas were seen in 27(PD-1, DP-4, enuc-1, nonop:21), 11(TP-1, PD-6, DP-3, nonop-1) and 6 (TP-1, PD-2, enuc-1, nonop-2) patients with a mean FU of 31, 20 and 70 months, respectively. One patient was started on Octreotide LAR monthly injection. Overall 20 patients underwent pancreatic resection, a majority of whom had functioning PNETs (14). Metastasis was present in 5 patients, metachronous PNETs developed in 3 cases. Mortality observed in one patient during post operative period

Tumors	Trump et al UK(1996) N=220	Goudet et al France(2010) N-758	Sakurai Japan(2012) N=560	Goroshi et al KEM, Mumbai(2016) (N=18)	Guisti et al Italy(2017) N= 475	Asha et al CMC, Vellore 2021 N= 32	Our study AIIM 2023 N=43
GEPNETS	41%	420(55.4%)	314(58.6%)	13(72.2)	53%(230)	22(68.7%)	34 (79.0%)
Gastrinomas	63.2%	216(28.5%)	91(29%)	2(15.3%)	61(26.6%)	8(36.3%)	6(14.0%)
Insulinoma	27.3%	79(10.4%)	69(22%)	5(38.4%)	26(11.4%)	7(31.8%)	11(25.6%)
Nonfunctionig PNET	1.1%	113(14.9%)	91(29%)	6(46.2%)	136(59%)	9(40.9%)	27(62.8%)

Conclusions: PNETs occur frequently in Indian MEN1 patients, majority are non-functioning, are often multifocal and overt malignancy with metastatic disease is not uncommon. Resection is commonly required for functional PNETs Abbreviations:

PD-pancreatoduodenectomy, TP-total pancreatectomy, DP-distal pancreatectomy, Enucleation, FU-Follow-up, SACST- Selective arterial calcium stimulation test

PV219 / #718

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

PARATHYROID CARCINOMA IN THE BACKGROUND OF TERTIARY HYPERPARATHYROIDISM

Aadarsh Raghavan
Madras Medical College, Endocrine Surgery, Chennai, India

Background and Aims: Parathyroid carcinoma is very rare in normal population. it is one of the rarest cancers with a prevalence of 0.005% in the USA. it is usually associated with primary hyperparathyroidism and very rarely with secondary and tertiary hyperparathyroidism. Aim of the study is to report a case of parathyroid Carcinoma in the setting of Tertiary Hyperparathyroidism. Very few cases have been reported in world literature.
Methods: A 54 year old male with ESRD was admitted and evaluated for hyperparathyroidism and subjected to investigations and planned for parathyroid surgery. preoperative work up revealed tertiary hyperparathyroidism and was subjected to subtotal parathyoidectomy.
right superior parathyroid gland was found to be enlarged with adhesion to the thyroid capsule. subtotal parathyroidectomy with total thyroidectomy for his multinodular goitre was done.
Results: Final HPE was suggestive of Parathyroid carcinoma in the right superior parathyroid gland it was low grade, no vascular invasion mitosis <5/10HPG ki 67 2% The thyroid capsule was intact and Thyroid follicular nodular disease histology
Conclusions: Diagnosis of parathyroid carcinoma in tertiary hyperparathyroidism is remarkably complex because of the lack of clinical diagnostic criteria and, in many cases, is made postoperatively at histopathological examination

PV220 / #1538

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

ACUTE PANCREATITIS, AN UNCOMMON PRESENTATION OF MULTIPLE ENDOCRINE NEOPLASIA TYPE 2A: A CASE REPORT

Imane Ziani[1], Abdessamad Malki[1], Fatimzahra Bentebbaa[1], Siham Rouf[2], Hanane Latrech[2]
[1]University Hospital Mohammed VI center, Endocrinology-diabetology And Nutrition Department, oujda, Morocco, [2]Mohammed VI University hospital center, Faculty of Medicine and Pharmacy Mohammed First University Oujda, Morocco, Endocrinology Diabetology And Nutrition, Laboratory Of Epidemiology, Clinical Research And Public Health, Oujda, Morocco

Background and Aims: Multiple endocrine neoplasia type 2 is a hereditary disease of autosomal dominant transmission associated with germline mutations of the RET gene. (MEN2 A) is a sub-type of MEN 2, which is characterised by the association of medullary thyroid carcinoma (MTC) with pheochromocytoma, and/or primary hyperparathyroidism, The discovery of this disease by acute pancreatitis is exceptional. We have observed multiple endocrine neoplasia type 2 A revealed by acute pancreatitis stage E. We report an observation of multiple endocrine neoplasia type 2 A identified by acute pancreatitis stage E.
Methods: case report
Results: This 41-year-old patient had recently diagnosed diabetes and being treated with insulin. He was admitted to the emergency department with severe abdominal pain, and he was diagnosed with stage E pancreatitis associated with malignant hypercalcaemia of 154mg/l. A fastidious etiological exploration was conducted, and the diagnosis of primary hyperparathyroidism was adopted; with a PTH level 20 times normal, and Sesta MIBI scintigraphy revealed left lower parathyroid nodule. Furthermore, a thyroid nodule, 2.19cm on the right upper lobe, was found, classified EU-TIRADS 4, reflecting a high calcitonin level of 472 pg/ml, As a result, the diagnosis of medullary carcinoma of the thyroid was maintained. In light of these two diagnostics, we have retained the diagnosis of NEM2A.And the diagnosis of pheochromocytoma is excluded. After medical preparation aimed at normocalcaemia, the patient underwent a total thyroidectomy, with lymph node dissection, and surgery for the parathyroidectmy.The postoperative follow-up was simple and the patient is in a remission state.
Conclusions: Primary hyperparathyroidism, isolated or associated with a neoplastic syndrome (NEM 2A), is a frequent cause of hypercalcaemia. The latter is one of the rare causes of acute pancreatitis. Our case highlights the necessity of carrying out a phosphocalcic assessment in all cases of acute pancreatitis

PV221 / #1992

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

A CLINICAL CASE OF PROGESTERONE DEFICIENCY AS A CAUSE OF ACNE AND PROSTATE CANCER.

Olga Samburskaya, Svetlana Kalinchenko, Leonid Vorslov, Daria Gusakova, Igori Nikiforov
Professor Kalinchenko's clinic, Moscow, Russian Federation

Background and Aims: Annotation. A new etiology of prostate cancer development based on genetic analysis of progesterone receptor sensitivity in the presence of a clinical symptom of progesterone deficiency – acne.
The aim of the study was to evaluate the role of progesterone in the development of acne and prostate cancer.
Methods: Materials and methods of research. A 40-year-old man with a diagnosis of acne, which is based on the clinical picture: the first manifestations from puberty and rashes were not eliminated in adulthood. The diagnosis of pancreatic cancer was made on the basis of a biopsy at the age of 40.
The level of steroid hormones was determined using the steroid profile of saliva. The patient was genotyped by progesterone receptor PGR (PROGINS; g. 101062681 C>A; c. 1486 G>T) by direct sequencing.
Results: Result: from the age of fifteen to the present, the patient has had severe acne for 25 years with lesions of the skin of the face, chest, back and gonglobate form. The disease was resistant to standard therapy with antibiotics, antimycotics, and retinoids. At the age of 40, prostate cancer was suspected with a slight urinary impairment, a lump in the prostate area during finger rectal examination and a high titer of prostate-specific antigen >100 ng/ml. As a result of the biopsy, Bal was diagnosed with prostate cancer.
On the steroid saliva profile: the decrease in progesterone levels is 55 pg/ml, which is lower than the reference values (the norm is from 80 to 180 pg/ml).
On genetic analysis, there is a complete polymorphism of the progesterone receptor with a complete loss of sensitivity to progesterone.
Conclusions: Discussion: Acne is a polyethological disease and one of the primary triggers is progesterone deficiency, which is most often manifested by premenstrual acne in women during both puberty and adulthood.
The main cause of prostate cancer is considered to be a genetic predisposition, and the triggers are age, obesity and smoking, as well as the presence of any inflammatory process in the body.
However, the established new relationship between acne and prostate cancer due to progesterone deficiency opens up new horizons in preventing the development of cancer, which requires further research.
Conclusion. Progesterone deficiency can be established even during puberty, the correction of which can help prevent the development of prostate cancer in men in adulthood.

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PV222 / #905

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

HYPOGLYCEMIC CONVULSIONS DUE TO INSULINOMA IN A TEN-YEAR-OLD GIRL.

M. W. A. Nimanthi[1], Thabitha Hoole[1], Sumudu Seneviratne[2]
[1]Lady Ridgeway Hospital for children, University Paediatric Unit, Colombo, Sri Lanka, [2]Faculty of Medicine, University of Colombo, Paediatrics, Colombo, Sri Lanka

Background and Aims: Insulinomas are extremely rare neuroendocrine tumours (incidence of 1-4: 1,000,000 in adults) with limited cases reported in children. We report a ten-year-old girl presenting with new onset symptomatic non ketotic hypoglycemia due to an insulinoma.
Methods: This previously healthy ten-year-old girl was referred for endocrine review due to recurrent episodic daytime sleepiness and two brief hypoglycemic convulsions over four months. Her birth weight was 3.7 kg with an uneventful postnatal period without neonatal hypoglycemia. Her development was normal. Parents were non-consanguineous. Her father and paternal aunt had early-onset diabetes mellitus. Her BMI was 20kg/m^2 (85th – 95th centiles) and height 141cm (50-75th centile). She had no dysmorphism or skin pigmentation. System examinations were normal. Neurological evaluation and EEG was normal. During a supervised fast she developed asymptomatic hypoglycemia at 9 hours of fasting with a blood glucose of 47 mg/dl, negative urine ketone bodies and elevated serum insulin 41.5µIU/ml (normal range 2.6-24.9). There was no history suggestive of ingestion of oral hypoglycemic drugs and fasting C-peptide level was elevated 1.25nmol/ml (0.26-1.03). On questioning, mother recalled that child had recent weight gain, increased appetite, temperament issues and difficulty in concentrating at school. Insulinoma was suspected. She had no exercise intolerance, muscle cramps, secretory diarrhea, sweating suggestive of neuroendocrine tumour, nor features of multiple endocrine neoplasia type 1 (MEN1) such as galactorrhea, abdominal pain, constipation, heamaturia. Serum prolactin, calcium, phosphate, and thyroid functions were normal. The Double contrast CT abdomen revealed an encapsulated focal lesion measuring 1.8*1.7cm in the distal body of the pancreas.
Results: The family, including the child were counselled regarding the condition. Patient was discussed with the surgical team. MRCP performed upon surgeon's request revealed proximity of the lesion to the pancreatic duct. Preoperative blood sugars remain normal. Prolonged fasting was avoided. enucleation or partial pancreatectomy is planned in the upcoming weeks.
Conclusions: Although rare, hyperinsulinemia due to insulinoma should be considered an important differential in late onset non-ketotic, episodic hypoglycemia in childhood. Other causes of non ketotic hypoglycemia in a young person include ingestion of insulin secretagogues, fatty acid oxidation disorders and late onset forms of congenital hyperinsulinemia. Targeted investigations for the most possible diagnosis based on history and examination, as in this case, is cost-effective in resource-poor setting. While many cases of insulinoma are sporadic, Screening for MEN1, an important genetic cause of insulinoma which should be considered, due to important implications for family screening.

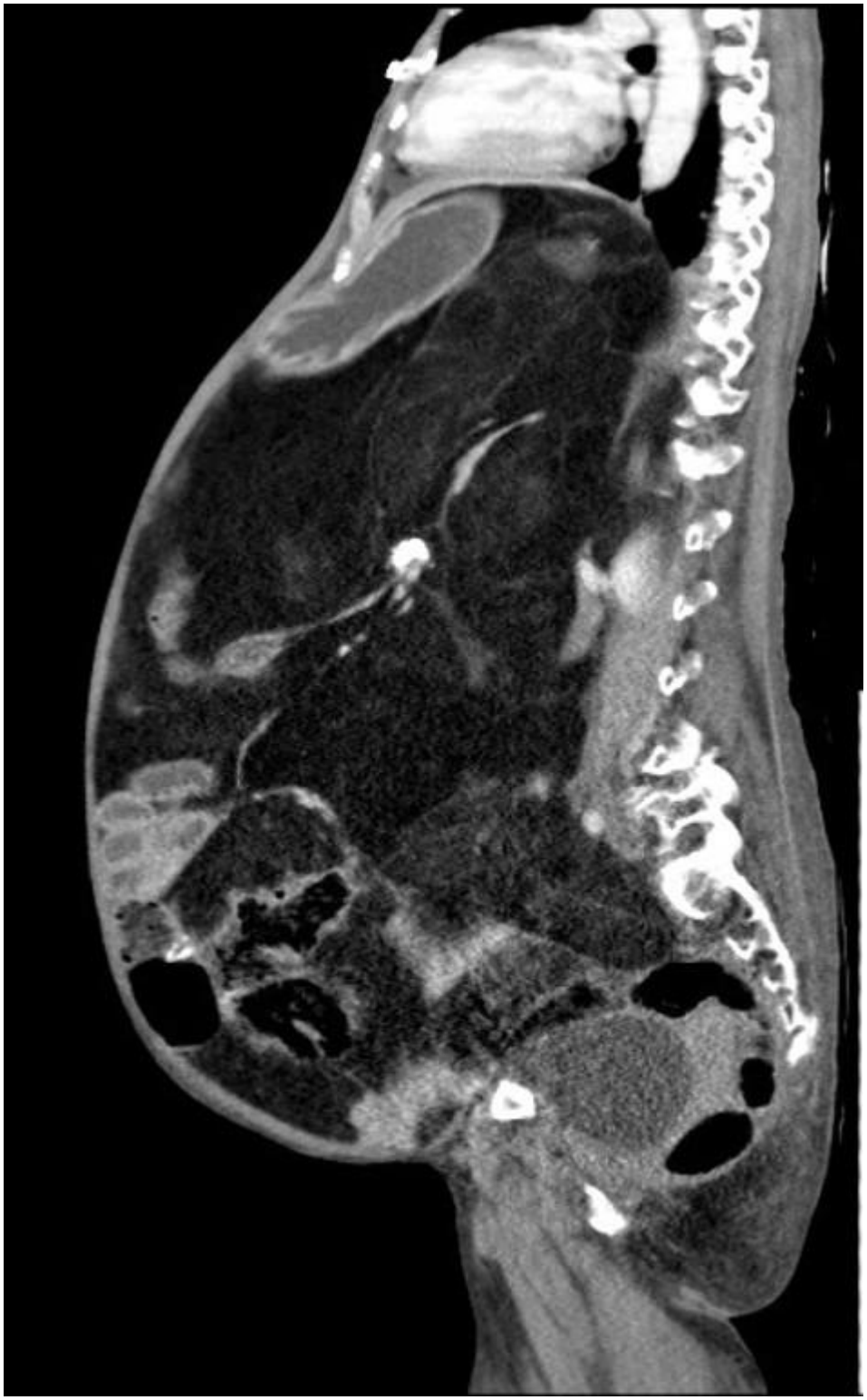
PV223 / #1426

E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

NON-ISLET CELL TUMOUR HYPOGLYCEMIA IN A RECURRENT RETROPERITONEAL LIPOSARCOMA

Sahana Shetty[1], Rupa Neelakantan[1], Avivar Awasthi[1], Sharada Mailankody[2]
[1]KASTURBA MEDICAL COLLEGE, MANIPAL, MANIPAL ACADEMY OF HIGHER EDUCATION, MANIPAL, Endocrinology, Manipal, India, [2]KASTURBA MEDICAL COLLEGE, MANIPAL, MANIPAL ACADEMY OF HIGHER EDUCATION, MANIPAL, Medical Oncology, Manipal, India

Background and Aims: Symptomatic hypoglycaemia in a non-diabetic individual is a rare occurrence with various etiologies that must be systematically evaluated. We report a rare presentation and management of Non-islet cell tumour hypoglycaemia (NICTH) in a patient with recurrent retroperitoneal Liposarcoma
Methods: A lady in her fifties presented with decreased responsiveness and blood glucose recording of 41mg/dl which resolved with dextrose infusion satisfying the Whipple's triad. She was non-diabetic and had no history of consumption of any drugs known to induce hypoglycemia. She was diagnosed with recurrent retroperitoneal liposarcoma 7 years ago and had undergone surgical resections twice and received chemotherapy. Her disease at the last follow-up was staged unresectable but non-progressive. On examination, she was cachexic, afebrile and hemodynamically stable. Her abdomen was markedly distended with an abdominal girth of 106cm, non-tender with no palpable discrete borders of the mass.
Results: Routine investigations including complete blood count, electrolytes, liver and kidney function tests were within normal limits. Critical sample sent during an episode of hypoglycemia with a random blood glucose of 37mg/dl revealed low levels of c-peptide and insulin, normal cortisol and negative urine ketones indicative of non-insulin mediated hypoglycemia. CECT abdomen showed a 30cmX88cm retroperitoneal heterogeneous lesion compressing and displacing the intra-abdominal structures with a mild increase in size compared to the last



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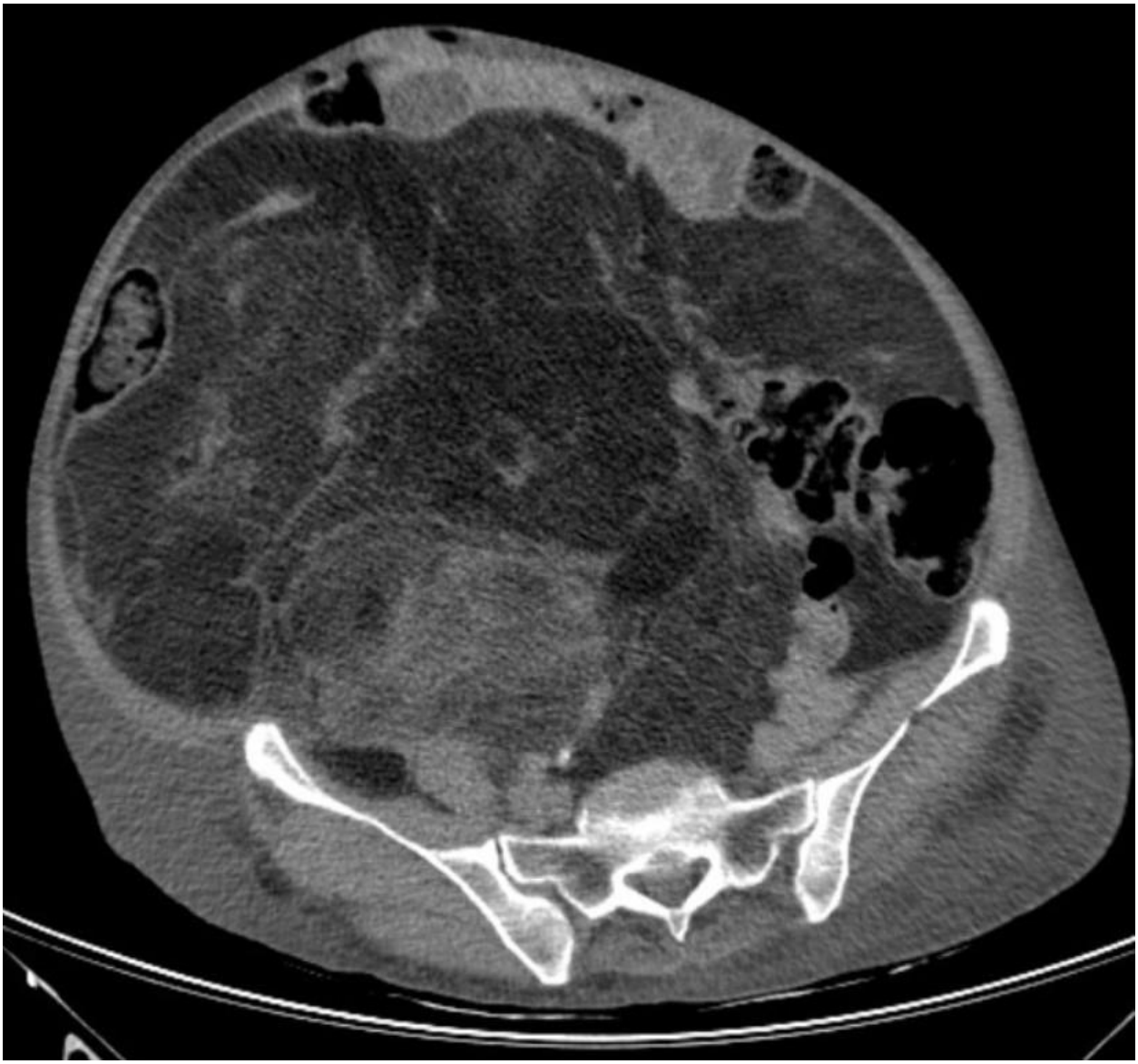

In view of non-insulin mediated hypoglycemia with normal cortisol, liver and renal function tests, a diagnosis of non-islet cell tumour hypoglycemia, a paraneoplastic syndrome secondary to recurrent retroperitoneal liposarcoma was made. The hypoglycemia was initially managed with dextrose infusion and small frequent meals. In view of persistent hypoglycemia requiring continuous dextrose infusion, she was started on glucocorticoids with which there was no further hypoglycemia. As surgical excision, the mainstay of management was not feasible, she was discharged on a low dose of oral dexamethasone. She has been asymptomatic with no further hypoglycaemic episodes during the last 3 months' follow-up.

Conclusions: NICTH refers to Insulin-like growth factor-2 (IGF-2) mediated hypoglycemia secondary to tumours other than insulinomas. It is described in several solid organ tumours of mesenchymal and epidermal origin, both malignant and benign with paraneoplastic IGF-2 secretion which cause hypoglycemia. The commonly implicated mesenchymal tumours are fibrosarcoma mesothelioma, liposarcoma and rhabdomyosarcoma. Although surgical resection is the mainstay of treatment, glucocorticoids come to the rescue in inoperable cases. NICTH, a rare but potentially treatable

paraneoplastic syndrome must be considered in the differential diagnosis of non-insulin-mediated hypoglycemia.

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E-Poster Viewing
E-POSTER VIEWING: AS05. ENDOCRINE CANCERS
01-03-2024 07:00 - 18:00

MANAGEMENT AND OUTCOMES OF ASYMPTOMATIC PRIMARY HYPERPARATHYROIDISM (APHPT) AT RIGA EAST CLINICAL UNIVERSITY HOSPITAL (RECUH) – SINGLE-CENTER EXPERIENCE (A PILOT TRIAL)

Ingvars Rasa[1], Diāna Stūrīte[2]
[1]RIGA EAST CLINICAL UNIVERSITY HOSPITAL, Outpatient Clinic, RIGA, Latvia, [2]RĪGA STRADIŅŠ UNIVERSITY, Medical Faculty, RIGA, Latvia

Background and Aims: Background and aims: The APHPT patient profile varies globally. APHPT remains an underdiagnosed disease worldwide. The study aims to assess the demographic, clinical characteristics, and diagnostic modalities employed in evaluating surgically treated patients (pts) care and outcomes with APHPT.
Methods: The pilot trial retrospectively analyzes medical records of 26 pts with APHPT who were evaluated in a tertiary care multi-profile RECUH Outpatient Clinic. Between January 2021 and August 2023, 61.5% of pts were operated at RECUH and 38.5% at Pauls Stradiņš Clinical University Hospital in Riga. Detailed records were systematically compiled, encompassing clinical presentation, medical history, biochemistry, hormonal lab tests, radiology data, histopathology, and surgical protocols. Multiple endocrine neoplasia pts were excluded.
Results: Among 26 pts, 24 (92.3%) were female, and 2 (7.7%) – male. The mean age was 60.7 ± 10.5 years. 24 (92.3%) had a single parathyroid adenoma, 2 (7.7%) had parathyroid carcinoma, and none had parathyroid hyperplasia. Adenoma sizes ranged from 0.5 x 0.3 cm to 3.8 x 3.3 cm. Gallstones occurred in 6 (23.1%), and kidney stones in 7 (26.9%) pts. DXA revealed osteoporosis in 14 (53.8%) pts, with 4 (15.4%) having osteoporotic fractures. Ultrasound imaging detected parathyroid adenoma in 20 of 26 pts, achieving a sensitivity of 76.9%. In a subset of 8 pts, contrast-enhanced ultrasound (CEUS) had a sensitivity of 87.5%. Contrast-enhanced CT, performed in 8 cases, showed 75% sensitivity. Bone scan with SPECT-CT in 18 pts yielded an 83.3% sensitivity rate. Parathyroid imaging using 99mTc-sestamibi scintigraphy in 15 pts had a sensitivity of 73.3%. Contrast-enhanced MRI was employed and detected adenoma in one pt. Mean preoperative maximal serum calcium and intact PTH (iPTH) levels were 2.93 ± 0.20 (normal 2.1-2.6) mmol/L and 243.2 ± 119.0 (normal 12-72) pg/mL, respectively. After surgery, the mean serum calcium was 2.44 ± 0.16 mmol/L, and iPTH was 71 ± 42.6 pg/mL. Mean minimal preoperative serum phosphorus (assessed in 92.3 %) and 25-hydroxyvitamin D ($25(OH)D_3$) levels were 0.77 ± 0.14 (normal 0.8-1.6) mmol/L and 26.81 ± 13.25 ng/mL, respectively. Postoperatively, the mean serum phosphorus level (assessed in 65.4%) was 1.09 ± 0.17 mmol/L, and $25(OH)D_3$ level (evaluated in 69.2%) – 41.45 ± 11.98 ng/mL. No pts required repeated parathyroidectomy.
Conclusions: The sensitivity of diagnostic modalities and the prevalence of osteoporosis differed from what has been reported in Western Europe and the USA, with osteoporosis occurring more frequently. Further evaluation involving a more significant number of pts is required.

PV225 / #1830

E-Poster Viewing
E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

HYPERGONADOTROPHIC HYPOGONADISM DUE TO TRANSALDOLASE DEFICIENCY: TWO CASE REPORTS AND LITERATURE REVIEW

Nasser Abunamous, Akram Takaleh, Aisha Alshamsi, Noura Al Hassani, Raya Almazrouei
Tawam Hospital, Internal Medicine, Alain, United Arab Emirates

Background and Aims: Transaldolase deficiency is an inborn error of the non-oxidative phase of the pentose phosphate pathway (PPP). The PPP is divided into oxidative and nonoxidative parts, which generates NADPH used for biosynthetic reactions and neutralization of reactive oxygen intermediates and ribose for the synthesis of ribonucleic acid (RNA), DNA, and adenosine triphosphate (ATP). It presents in several tissues such as lung, liver, mammary glands, brain, adrenal cortex, and skin. Transaldolase (TALDO) is the second enzyme of the non-oxidative part. In the absence of this enzyme, there is accumulation of polyols (accumulate in body fluids, mostly in the urine) and failure to recycle ribose-5P, which leads to NADPH and glutathione (GSH) deficiency. Transaldolase deficiency was first described in 2001 in a patient with prominent liver involvement in infancy. It is an autosomal recessive disorder caused by biallelic pathogenic mutations in TALDO1 gene. It has a wide clinical phenotype ranging from hydrops fetalis, intrauterine growth restriction, short stature with failure to thrive, dysmorphic features, dry scaly skin, hepatosplenomegaly, cytopenia, renal, respiratory, and cardiac involvements. Patients may have early onset disease with severe symptoms during the neonatal period that may lead to death or a relatively milder late onset presentation. Apart from short stature, endocrine evaluation in patients with transaldolase deficiency, reveals gonadal dysfunction with hypergonadotropic hypogonadism. This has been recognized recently with few case reports in the literature mainly from Turkish and Arabic origin.
Methods: We present two emirates' patients with hypergonadotropic hypogonadism as part of transaldolase deficiency along with variable phenotypes of other systems involvement.
Results: Patient 1 is a female who was followed for leukopenia, thrombocytopenia, liver cirrhosis, chronic kidney disease and premature ovarian insufficiency (hypergonadotropic hypogonadism). She was diagnosed with transaldolase deficiency in adulthood after a nephew diagnosed in neonatal period. Patient 2 is a male with premature birth, bilateral cryptorchidism, failure to thrive, short stature, recurrent chest infection, leukopenia, and hepatomegaly. He was evaluated for delayed puberty and investigation revealed hypergonadotropic hypogonadism. He was diagnosed with transaldolase deficiency after recognizing the condition in the same tribe. Both patients have homozygous mutation (exon 5, c.574C>T p.Arg192Cys) in TALDO1 gene.
Conclusions: The two reported patients raise the awareness of the expanding list of genetic causes of hypergonadotropic hypogonadism especially among tribal community with consanguineous marriage.

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E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

GROWTH HORMONE THERAPY IN CHILDREN WITH SYNDROMIC SHORT STATURE : EXPERIENCE FROM A SINGLE TERTIARY CARE CENTRE

Alka Bishnoi[1], Vs Shekhawat[1], Aradhna Dwivedi[2]
[1]Army Hospital Research and Referral, Endocrinology, New Delhi, India, [2]Army Hospital Research and Referral, Pediatrics, New Delhi, India

Background and Aims: Syndromic short stature is phenotypically and genetically heterogeneous disorder of varied etiology including monogenic disorders , chromosomal aberrations, copy number variants, methylation defects and unkown causes . Growth failure in these patients may be associated with aberrations in the GH/IGF-1 axis or may be related to other specific problems. However in most of syndromic disorders, the cause of short stature is based at the cellular level. Recombinant human growth hormone (rhGH) use has been advocated in patients with Turner syndrome, Prader–Willi syndrome, and Noonan syndrome. However, rhGH use is not routine in patients with many other syndromic short statures.hence we compiled these cases together to study the effect of recombinant growth hormone therapy in children with syndromic short stature.
Methods: Nine children (5 females) with various syndromic short stature with proven genetic diagnosis in a tertiary care centre of north India were included in this study. Two siblings had Dent disease and three had Turner syndrome,one with smith magnes syndrome, one with Rauch steindl syndrome,one with 3M(Miller-McKusick-Malvaux) syndrome and one with Noonan syndrome. All the patients were evaluated thoroughly clinically and biochemically and two GH dynamic testing was performed in each case to delineate cause of short stature. The children were followed up 3 monthly for the growth velocity and clinical assessment.
Results: Median age at initiation of GH was 7 years.Younger age at initiation of rGH therapy was independently associated with significant response to therapy suggesting the importance of identifying children with short stature and prompt initiation of rGH therapy.

Variable	Turner syndrome	Dent disease
Age (in years)	6.5	11

GH-IGF axis	intact	Deficient in one intact in one
Height (SDS)	-4.2	-3.2
Gain in height (SDS) over six months	0.15	0.35
Gain in height (SDS) over one year	0.3	0.6

Conclusions: Use of rGH for approved indications as well as off label resulted in significant height gain.. Hence apart from approved usage it can also be considered for off label use in other syndromes such as Dents disease, 3 M syndrome etc regardless of GH-IGF axis as the defect could just be functional and not organic resulting in short stature.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

OFF LABEL USE OF RECOMBINANT HUMAN GH TO TREAT SHORT STATURE IN SIBLING PAIR WITH DENT'S DISEASE

Alka Bishnoi[1], Ks Brar[2]
[1]Army Hospital Research and Referral, Endocrinology, New Delhi, India, [2]Artemis Hospital, gurugram, Endocrinology, gurugram, India

Background and Aims: Dent's disease is a rare X-linked renal tubulopathy characterized by low-molecular-weight proteinuria, hypercalciuria, nephrocalcinosis, nephrolithiasis, and progressive renal failure. Common features are rickets or osteomalacia, growth retardation, and short stature which could be multifactorial. To the best of our knowledge, this is only the fourth report on the use of growth hormone therapy in a child with poor growth associated with Dent's disease.
Methods: Initially the elder sibling presented at the age of five with proteinuria, calciuria, phosphaturia and growth failure and was treated with calcium, vitamin D and multivitamin supplementation and ACE inhibitor. During evaluation for etiology, genotyping revealed a hemizygous two base pair duplication in exon 6 of the CLCNS gene resulting in frameshift muation. Later the younger sibling presented with similar features and genotyping revealed same muatation along with both parents being carriers. Both were referred to us for short stature at a chronological age of 11 years (younger) and 15 years(older). Evaluation revealed GH deficiency (IGF 49.21 ng/ml range 37-459) in the younger brother but elder brother had normal GH-IGF axis along with features of Rickets and nephrocalcinosis in both brothers. Bone age was delayed in both, 4.5 years and 11 years respectively. Literature search revealed three different cases of short stature where GH therapy had been tried with success. Hence GH therapy was started at the dose of 0.18 mcg/kg/week in both along with vitamin D, potassium, phosphorous supplements and thiazide diuretic.
Results: After 1 year of GH treatment, height increased from 113 cm (−4.1 S.D.) to 121.5 cm (− 3.5 S.D.) in younger one and and 139 cm (-3.5 SD) to 148 cm(-2.7 SD) in the elder brother . IGF1 levels increased in the younger one from 49.2 ng/ml (37-459) to 191 ng/ml. Bone age also increased from 4.5 years to 6.5 years in the younger one and from 11 years to 13 years in the elder sibling. Our preliminary findings showed beneficial effects of GH treatment on growth velocity of around 8 cm in younger sibling and 9 cm in elder sibling after one year.
Conclusions: GH treatment should be considered in children with Dent's disease and short stature since positive effects on linear growth can be obtained.

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E-Poster Viewing
E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

A CLINICAL CASE OF LARON SYNDROME IN THREE SIBLINGS

Maria Pankratova[1], Elizaveta Raykina[1], Igor Chugunov[1], Alla Alexeeva[2], Olga Bezlepkina[1], Valentina Peterkova[1]
[1]Endocrinology Research Centre, Pediatric Endocrinology, Moscow, Russian Federation, [2]Kuzbass Clinical Hospital named after S.V. Belyaev, Kemerovo, Russian Federation

Background and Aims: Laron syndrome is a rare autosomal recessive disease characterized by an insensitivity to growth hormone. The clinical features include the classic phenotype (severe short stature, prominent forehead, depressed nasal. bridge, blue sclerae) with low levels of IGF1 in the blood against a background of elevated GH. The cause of the disease is a disorder of the GH receptor due to a mutation in the GHR gene (total lesion), as well as other genes (partial). Aim: description of case of Laron syndrome in three siblings born in closely related marriage.
Methods: We describe the clinical case (anamnesis, clinical and laboratory data of patients were analyzed). Mutations in GHR gene were searched by Sanger method.
Results: Three siblings referred to our clinic with the chief complaint of short stature. They had been born with a normal weight at term. Their parents were second cousins. The siblings are the first to have the disease in their family. Patient M., female, 13 years old, objectively - height 113 cm, SDS -6.6, Tanner 2. Phenotypic features: "doll's face", pronounced frontal tubercles, sunken nose bridge, saddle nose, hypoplasia of the upper and lower jaw, blue scleraes, high timbre of voice. Patient K., female, 10 years old, objectively - height 98 cm, SDS -6.7, similar phenotypic features, Tanner 1. Patient B., male, 4 years old, in addition to complaints of low height (75.5 cm, SDS -6.5), similar phenotypic features, complained of episodes of hypoglycemia (up to 1.8 mmol/l) with a tonic-clonic seizures. In the course of examination in the hormonal profile of patients revealed low IGF1 level on the background of high GH level, at the place of residence during the 4-day test with GH - no increase in IGF1 level was detected. Patients M. and B. have hypercholesterolemia in the biochemical profile (characteristic for the syndrome). The patients and their parents underwent a molecular genetic study, a homozygous c.703C>T p.Arg235Ter mutation in the GHR gene was detected in the children, a similar heterozygous mutation in both parents.
Conclusions: A clinical description of Laron syndrome in three siblings is presented. Currently our patients are waiting to be able to obtain the treatment of recombinant IGF-1.

PV229 / #1520

E-Poster Viewing
E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

UNVEILING THE ENIGMA: EXPLORING MISDIAGNOSED AND UNDERDIAGNOSED MAYER-ROKITANSKY-KÜSTER-HAUSER (MRKH) SYNDROME: A SERIES OF CASES OF A RARE AND COMPLEX DISORDER.

Iftikhar Ali[1], Wardah Arshad[2], Arshad Hussain[3]
[1]Paraplegic Center, College Of Physical Medicine & Rehabilitation, Peshawar, Pakistan, [2]Rawal Institute of Health sciences, Student, Islamabad, Pakistan, [3]Northwest General Hospital and Research Center, Endocrinology, Peshawar, Pakistan

Background and Aims: Mayer-Rokitansky-Küster-Hauser (MRKH) Syndrome is a rare congenital disorder characterized by the absence or underdevelopment of the uterus and vaginal canal. Despite its rarity, it significantly impacts individuals' lives, causing physical and psychosocial implications. The scarcity of cases and variability in clinical presentation complicate the diagnosis, leading to misdiagnosis and underdiagnosis, delayed interventions, and emotional burdens.We aim to unravel the enigma surrounding MRKH syndrome, enhance diagnostic acumen, and advocate for greater awareness and support for those grappling with this intricate and often misunderstood disorder.
Methods: We present three cases of MRKH syndrome, a complex and frequently misunderstood condition, diagnosed at Northwest General Hospital & Research Centre, Peshawar. Data were retrieved from hospital medical records for individuals diagnosed with MRKH syndrome, based on clinical findings, laboratory findings, and imaging results. Cases demographics, clinical history, symptoms, laboratory results includings hormonal assays, imaging, and treatment were recorded for each identified case. Informed consent was waived for this study, as it involved no direct patient contact and posed no additional risk to patients.
Results: Case 1 introduces a 15-year-old girl with primary amenorrhoea, revealing typical pubescent changes and a puzzling absence of a discernible vagina. Hormonal assays and imaging confirm MRKH Syndrome, Type I, underscoring the syndrome's characteristic clinical presentation. In Case 2, a 26-year-old woman seeks guidance for irregular menstrual cycles. A detailed evaluation rules out various causes, ultimately diagnosing a milder form of MRKH syndrome, marked by delayed menstruation and reduced ovarian function. Case 3, a 17-year-old girl with a history of amenorrhoea, experiences a single episode of menstruation, leading to the diagnosis of MRKH syndrome with uterine and vaginal agenesis.
Conclusions: In conclusion, the presented cases of MRKH syndrome highlight the complexity and variability of this rare congenital disorder. These cases underscore the importance of early recognition and diagnosis, as well as the need for a multidisciplinary approach to provide comprehensive care and emotional support to affected individuals. The diverse clinical presentations and hormonal variations observed in these cases emphasise the uniqueness of each patient's journey with MRKH syndrome. Overall, these cases shed light on the challenges faced by patients, their families, and healthcare providers in understanding and managing this enigmatic condition, emphasising the necessity for greater awareness and support for those affected by MRKH syndrome.

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E-Poster Viewing
E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

EFFECTIVENESS OF RHIGF-1 THERAPY IN A PATIENT WITH GROWTH HORMONE RESISTANCE

Arina Dzhamaludinova, Anna Kolodkina, Valentina Peterkova
Institute of pediatric endocrinology, Moscow, Russian Federation

Background and Aims: A rare cause of severe postnatal growth retardation in children is growth hormone resistance (Laron syndrome (LS)), resulting from defects in the growth hormone receptor (GHR) gene. Tissue insensitivity to growth hormone (GH) leads to primary significant insulin-like growth factor1 (IGF-1) deficiency in the presence of extremely high circulating GH levels. Besides growth failure, the syndrome presents with a distinctive phenotype. In most cases, pathogenic variants are often undetected due to being located deep in the intronic region and affect splicing, which makes diagnosis more challenging. We present data from a patient without a reported genetic diagnosis of LS, and the first effective use of recombinant human IGF-1 (rhIGF-1) for this disease in Russia.
Methods: We performed Sanger sequencing of the GHR gene and whole exome sequencing by next-generation sequencing.
Results: A 5-year-old female child from consanguineous families with normal anthropometric measurements at birth (length SDS -1.63, weight SDS -1.24). From 4 month of life there was a progressive decrease in height and weight gain. Karyotype: 46XX. Father's height is 173 cm, mother's - 154 cm. First examination at the age of 2: height 63.7 cm (SDS -6.5), weight 6 kg, BMI SDS -1,66. She had phenotypic features like frontal bossing, midface hypoplasia, protruding forehead, sunken bridge, large eyes with blue sclerae, thin and fragile hair, reduced muscle tone. Her serum basal GH levels were 80.0 ng/ml, IGF-1 12.24 ng/ml. Biochemically, hypoglycemia up to 2.7 mmol/l was detected. The bone age corresponded to the 1.5 years old. According to the genetic examination, pathogenic variants in the GHR gene weren't identified, clinically LS was diagnosed. The rhIGF-1 (Mecasermin) therapy has been initiated at a starting dose of 1.2 mg/d (0.2 mg/kg/d) followed by a gradual increase with continuous glucose monitoring. Examined at age of 4,8 years: height 80.5 cm (SDS -5.3), height velocity 5.43 cm/e (SDS -1.34), weight 9.0 kg, SDS BMI -1.36. During the course of therapy (2 years), she gained 16.8 cm in height, ΔSDS 1.2. The hormonal profile showed a low normal level of IGF-1 at 56.9 ng/ml. Low blood glucose levels were managed with food. The current dose is 2.7 mg/d (0.3 mg/kg/d). The examination is continued.
Conclusions: Observation of a patient with clinically diagnosed LS on rhIGF-1 therapy for 2 years demonstrated a significant increase in height SDS. Early treatment is crucial for linear growth in children and prevention of severe metabolic complications.

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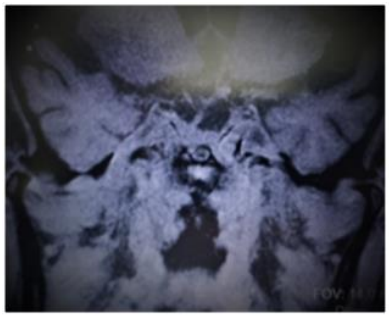
E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

BREAST CANCER IN A MALE PATIENT WITH ACROMEGALY AND NORMAL IGF-1 LEVELS

Thanikai Sasikanth, Prasad Katulanda, Pramith Shashinda Ruwanpathirana
Faculty of Medicine, University of Colombo, University Medical Unit, Colombo, Sri Lanka

Background and Aims: Increased risk of benign and malignant neoplasms in acromegaly is well known. However the increased risk of male breast cancer in acromegaly is not well established. We report a male patient with a long standing undiagnosed acromegaly presenting with invasive breast cancer.
Methods: A 71-year old man presented with breast lump which was proven to be papillary cancer of breast tissue. He had long standing hypertension and developed non ST elevation myocardial infarction (NSTEMI) while awaiting mastectomy. His renal and liver functions were normal and had normal blood glucose levels throughout. He was investigated for gradual change in his facial appearance over several years. However his IGF-1 level was normal (153ng/ml). Due to high index of suspicion oral glucose tolerance test with growth hormone levels was done and his growth hormone levels were not suppressed. His serum prolactin level also was increased (1893µg/l). Pituitary imaging revealed asymmetrically enlarged pituitary fossa with stalk deviation. Following recovery from NSTEMI his IGF-1 repeated and was on a rising trend
(221ng/ml).



Results: He underwent left sided radical mastectomy, histology proven to be encapsulated papillary cancer of breast tissue, and was started on tamoxifen. Due to the co-morbidities it was decided to manage the pituitary tumour medically with carbagoline 0.5mg weekly and decided to do GH day curve to asses disease control.

Conclusions: In laboratory studies it was shown that IGF-1 increases the proliferation of breast cancer cells and, breast cancer risk in pre menopausal women with acromegaly is increased. As male breast cancer is an extremely rare tumour the association between acromegaly and male breast cancer cannot be extablished. There is only one more case of male breast cancer associated with acromegaly described in literature up until now. Association of such a rarer tumour in acromegaly yet to be established.

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E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

GIGANTISM DUE TO GH-SECRETING PITUITARY ADENOMA IN A 22 YEAR OLD MAN

Tania Tedjo Minuljo[1], Dody Priambada[2], Charles Budiman[1]
[1]Dr. Kariadi Hospital, Internal Medicine, Semarang, Indonesia, [2]Dr. Kariadi Hospital, Neurosurgery, Semarang, Indonesia

Background and Aims: Gigantism is a clinical disorder caused by hypersecretion and hyperstimulation of Growth Hormone that happened in teenager or young adult before the closing of epiphyseal plate that causing linear overgrowth. This condition mostly originated from pituitary adenoma. Prevalence of pituitary adenoma is 20 cases per million residents, and particularly for somatotroph origin that secreting GH is 3 per million residents. We reported a 22 year old man with very tangible clinical appearance of gigantism.
Methods: Case Report
Results: 22 year old man admitted to Dr. Kariadi Hospital due to severe headache and near complete sight loss. He suffered from headache since last year and it was getting worse progressively. He also suffered from complete blindness on the left eye and his right eye could barely see anything since the last six months. Physical examination showed that his height (189 cm) and the size of his palms and foots were much more beyond average size on his age. He also much taller than both of his parents. From laboratory examination there was an overt increase of insulin like-growth factor-1 (IGF-1) level. It was 404 ng/mL formerly and than became 502 ng/mL within the couple of months. GH level was also detected very high >120 ng/mL, but there were no alteration in other pituitary hormones such as TSHs and prolactine. Head MRI showed giant pituitary adenoma (more than 4 cms in diameter) that expanded to the surrounding structures including optic chiasm. Fundus copy showed atrophy of both pappils causing bitemporal blindness even sight loss. Patient undergone three modalities of treatment for giant pituitary adenoma, which are consist of three times operations (2 times of transphenoid surgery and the last one is craniotomy), consumption of agonis dopamine drug and also radiation to slow down tumor growth.
Conclusions: Unawareness of the physician to recognize the signs and symptoms of gigantism might cause delay diagnosis and treatment. The bigger the adenoma than the more difficult to manage and more poor prognosis.

PV233 / #1955

E-Poster Viewing
E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

RARE GENETIC DISEASE DUE TO A DEFECT IN THE GROWTH HORMONE GENE (GH1): CLINICAL CASE

Zinaida Zyuzikova, Nataliya Volevodz
Endocrinology Research Centre, Moscow, Russian Federation

Background and Aims: Isolated deficiency of growth hormone type II is a rare autosomal dominant disease characterized by severe stunting and caused by absolute deficiency of growth hormone.
Methods: Patient R., 8 months, complained of stunting and low weight from 5 months. A boy from 2nd pregnancy, 2nd urgent physiological deliveries. Pregnancy proceeded without any peculiarities. At birth, body weight was 3030 g (SDS body weight: -1.27), body length - 49 cm (SDS body length: - 0.92), Apgar score - 8/9. Psychomotor development was age-appropriate. It is known from the anamnesis that the father had isolated STG deficiency (molecular genetic diagnosis was not carried out), received somatotropin treatment from the age of 1 year, the final growth was 170cm. The height of the mother is 165cm. The eldest girl in the family is healthy. During the examination, height 64.2 cm, SDS height: - 2.7, weight 6.7 kg, SDS weight - 2.7. Tanner 1, volume testes D = S = 1 ml. Internal organs and systems without features. The boy has 2 teeth. According to examination, a clinical blood test and a biochemical blood analysis without features, euglycemia. There was no deficiency of tropic pituitary hormones. IGF-1 level - 23.42 ng/mL (SDS IGF-1 -3.3).
Results: Taking into account the burdened family history, a molecular genetic study was conducted, according to the results of which in the gene GH1 in the region of the donor splicing site of 3rd exon was found a variant previously described in the literature (HG38, chr17:63918012C>T, c.291+5G>A) in a heterozygous state, typical for type II.
Conclusions: Thus, a molecular genetic study conducted in the first year of life allowed to establish a diagnosis and to initiate therapy with somatotropin.

PV234 / #1975

E-Poster Viewing
E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

CLINICAL CASE OF RARE GENETIC SWAMP ACCOMPANIED BY SEVERE GROWTH RETARDATION - RING CHROMOSOME 13.

Zinaida Zyuzikova, Nataliya Volevodz
Endocrinology Research Centre, Moscow, Russian Federation

Background and Aims: Ring chromosome 13 is a rare chromosomal disease characterized by pre- and postnatal growth retardation, retardation of psychomotor development, characteristic phenotypic features and malformations. The severity of the phenotype depends on the amount of genetic material lost in the formation of the ring chromosome. An important region is the 13q32 locus, whose deletion is known to cause severe phenotypic changes and serious malformations. And in contrast, deletion of the more distal locus 13q34 is involved in such symptoms as microcephaly and genital malformations.
Methods: Patient I., 3.5 years old, complained of delayed physical development. A boy from 3rd pregnancy, accompanied by SGA from the 29th week of gestation, was diagnosed with nasal bone aplasia at 1 fetal ultrasound screening. Third delivery, spontaneous vaginal at 40th week of gestation. At birth, body weight 2480g (SDS body weight: -2.69), body length 47cm (SDS body length: -2.01), Apgar score 6/8. Family history unburdened, mother height 164cm, father height 188cm, target height 183.5cm, SDS target height 0,93SD. The boy is observed by surdologist with sensorineural hearing loss. In the first year of life there was a delay in psychomotor development, the karyotype 46XY,r (13) (11.1q34) was investigated - ring chromosome 13.
Results: During the examination, attention was paid to the presence of multiple dysembryogenic stigmas: elongated face, small face features, epicant, low nasal bridge, thin lips, shortened filter, shortening of 5 fingers of the hands. The boy does not walk on his own. Growth 81.7cm, SDS growth - 4.26, weight 8.9kg, SDS bmi - 2.8, growth rate for the last year 6.18 cm/year, SDS growth rate - 1.1. During the examination, the bone age lagged behind the chronological age by 1 year, the level of thyroid hormones, IGF-1 corresponded to normal values, there was no deficiency of other tropic pituitary hormones. Accounting the age of the child, a good growth rate over the past year, we made a decision to monitor the growth rate.
Conclusions: Presented clinical observation reflects the peculiar properties of manifestations of this disease: low indicators of body weight and length at birth, postnatal growth retardation, retardation of psychomotor development and phenotypic features. The question of treatment with growth hormone remains extremely debatable in view of the small number of patients with this disease.

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01-03-2024 07:00 - 18:00

TIME-RESTRICTED FEEDING RESTORED GROWTH HORMONE PULSATILE PROFILE, REDUCED INSULIN LEVEL, AND IMPROVED ENERGY METABOLISM IN LEAP 2 KO MICE FED WITH HIGH FAT DIET

Jianmei Yang[1], Jeffrey M Zigman[2], Chen Chen[3]
[1]Pediatric Endocrinology, Shandong Provincial Hospital affiliated to Shandong First Medical University, Jinan, China, [2]University of Texas Southwestern Medical Center, Harry Hines Boulevard, Dallas, Texas, United States of America, [3]Endocrinology, SBMS, Faculty of Medicine, The University of Queensland, Brisbane, Australia

Background and Aims: Dysregulation of metabolic regulatory hormones, particularly reduction of growth hormone (GH) and increase in insulin, often occurs during the progress of obesity. Such GH:insulin balance has recently been proposed critically important in affecting metabolism profiles. Time-restricted feeding (TRF) is an effective strategy against obesity and was tested in this study. Compared to wild type mice, Leap 2 KO mice is prone to obesity induced by high fat diet (HFD). However, changes of metabolic regulatory hormones and effect of TRF have not been studied yet. Thus, the insulin and GH profiles, glucose and lipid metabolism, and energy balance in HFD-fed were studied in Leap 2 KO mice and the effect of TRF was tested.
Methods: TRF was performed with 8 hour with food in dark period and no food for 16 hours in light period for 10 weeks. Mice were monitored in the PhenoMaster in week 1-2 of TRF. Growth hormone levels in 6 hours were measured in week 5 of TRF. Glucose tolerance, and insulin tolerance were tested at 8, and 9 weeks of TRF, respectively. Energy metabolism-related gene expression was measured in liver and subcutaneous white adipose tissues at the terminal time point.
Results: TRF decreased body weight, white fat, and liver weight; restored GH pulsatile secretion profile; improved the insulin sensitivity, metabolic flexibility, glucose tolerance; and decreased blood glucose fluctuation. In PhenoMaster, TRF increased the usage of lipids in energy spending and reduced the energy storage. In qPCR analysis, TRF stimulated the expression of energy utilising or producing genes but reduced energy and lipid storage genes in adipose tissue and liver.
Conclusions: TRF effectively diminished HFD-induced hyperinsulinemia and restored GH pulsatile secretion profile in Leap 2 KO HFD-fed mice, causing significant improvement in energy metabolism and body-weight-gain without changing total caloric intake.

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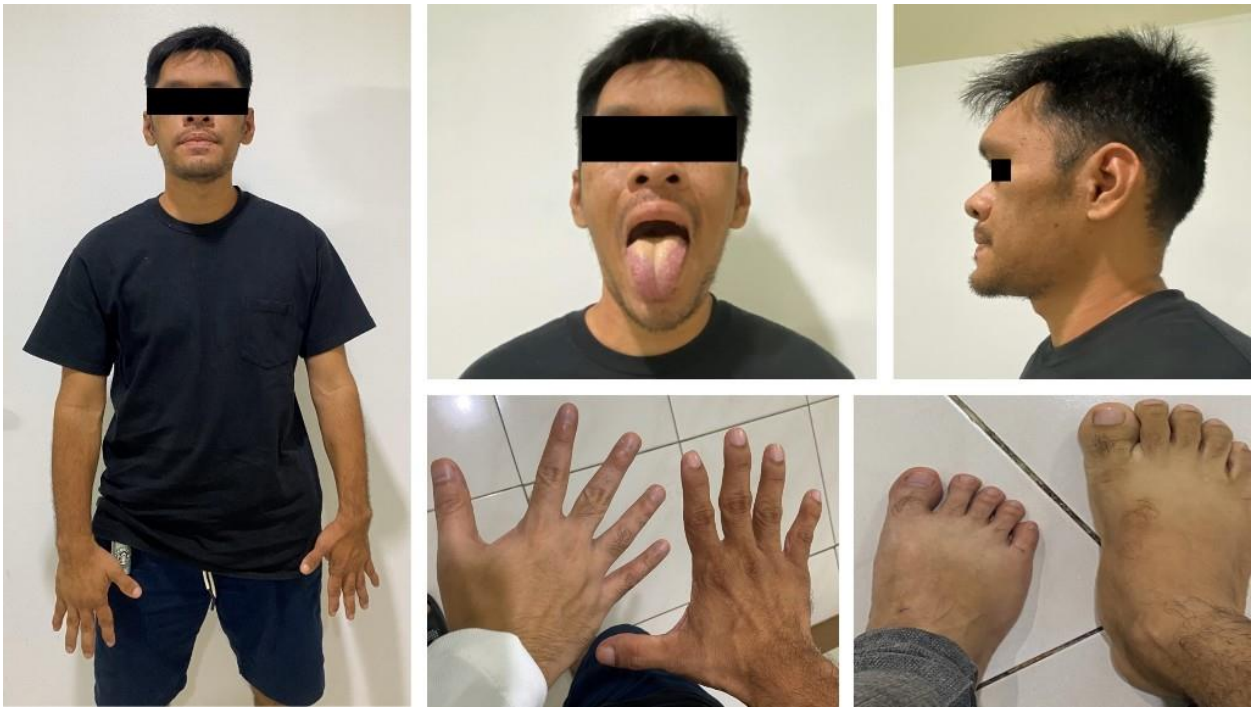
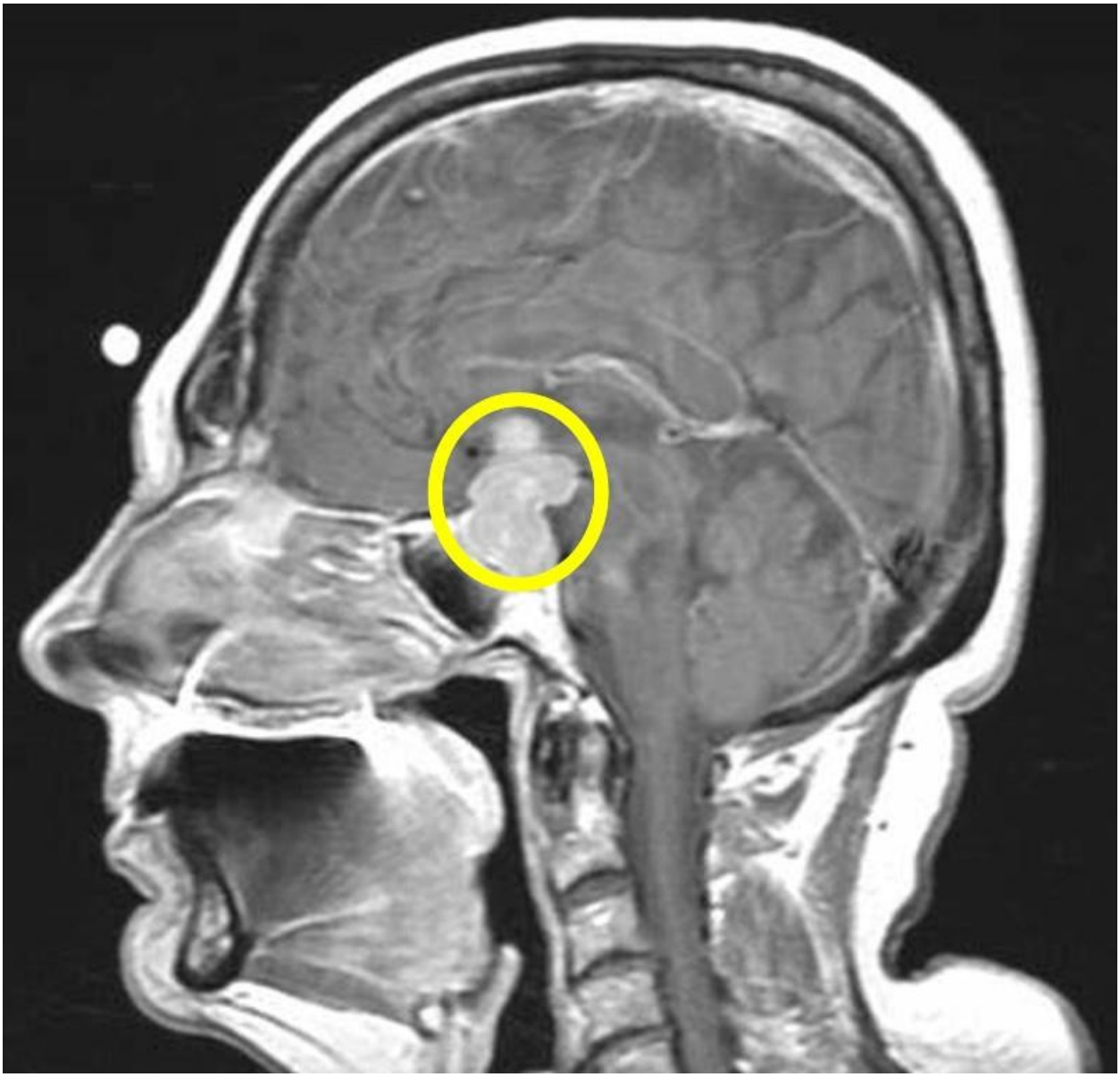
E-Poster Viewing
E-POSTER VIEWING: AS06. GROWTH HORMONE
01-03-2024 07:00 - 18:00

A CASE OF A 35-YEAR-OLD MALE WITH PITUITARY MACROADENOMA PRESENTING AS ACROMEGALY

Zamzam Zailon[1], Anlorenze Mae Conde[1], Theresa Leona Prudencio[1], Jay Karlou Regondola[1], Maria Carrissa Abigail Roxas-Panuda[2]
[1]Davao Medical School Foundation Hospital, Department Of Internal Medicine, Davao City, Philippines, [2]Davao Medical School Foundation Hospital, Department Of I, Davao City, Philippines

Background and Aims: Pituitary adenomas are non-malignant tumors of the pituitary gland, with prolactinoma accounting for 53% ofcases, followed by non-functioning pituitary adenomas (30%), growth hormone (GH) secreting tumors (12%), and Cushing's disease (~4%). GH-secreting tumors are rare and can present differently per age group — gigantism in children and acromegaly in adults. In the Philippines, cases of acromegaly are undocumented due to the slowprogression of the disease and the late onset of symptoms of mass effect such as headache, blurring of vision, andhormonal imbalances. This is a case of a 35-year-old man who was admitted due to complaints of headache witheventual blurring of peripheral vision. On physical examination, the patient was noted with prominent frontalbossing, thickened lips, prognathism, macroglossia, and larger appendages (Figure 1). Cranial magnetic resonance imaging (MRI) revealed pituitary macroadenoma measuring 1.9 x 2.4 x 3.0 cm in the anteroposterior, transverse,and craniocaudal dimensions (Figure 2). Initial Insulin Growth Factor - 1 (IGF-1) level was elevated at 562.23 ng/mL,while other pituitary hormones were within normal limits.





Methods: The patient underwent endoscopic intranasal transsphenoidal hypophysectomy.
Results: Significant improvement of the headache and blurring of vision was noted post-operatively and the patient was discharged. On follow-up after 3 months, there was recurrence of headache and repeat IGF-1 was still elevated at 758 ng/mL. Repeat MRI showed tumor recurrence and the patient was advised for gamma knife surgery of the pituitary stump. However, the tumor already impinged on the optic nerve, making it unresectable. Thus, the patient was advised medical therapy with Octreotide.
Conclusions: Based on a study by Lu et. al (2022), 32% of patients with adenoma residue experience recurrence of the tumor within 2.2-6.3 years. However, this patient presented with early recurrence in a span of 3 months. Complications of acromegaly may include cardiovascular, respiratory, metabolic, musculoskeletal, neurologic, and neoplastic comorbidities that might be irreversible with disease control. Progression to these complications and associated risk for mortality may be avoided with early diagnosis and adequate treatment. The ultimate goal of management is to control GH excess, primarily with surgical intervention, which was done in this case. Tumor recurrence may still be managed with surgery, however

in this case, anatomical complications necessitated medical management with somatostatin analogues or GH receptor antagonists.

PV237 / #1685

E-Poster Viewing
E-POSTER VIEWING: AS07. HEALTH SYSTEMS/CARE
01-03-2024 07:00 - 18:00

NUCLEAR MEDICINE AND ENDOCRINOLOGY - IN THE AGE OF PRECISION MEDICINE

Humayun Bashir
East Kent Hospitals University Foundation NHS Trust, Nuclear Medicine, Canterbury, United Kingdom

Background and Aims: Nuclear medicine has a historic relationship with endocrinology. The two most favourite radiotracers Iodine and Technetium have a natural avidity for the thyroid gland besides other sites. Radioiodine treatment of benign and malignant thyroid diseases has been one of the first theranostic application of Nuclear medicine which has stood the test of time for over 8 decades. Microvascular ischemic heart disease is a challenge for clinicians treating diabetes. Nuclear medicine has taken myocardial perfusion imaging to a new level with PET radiotracers - the best non-invasive cardiovascular imaging modality just got better. List of indications for application of Nuclear medicine in endocrinology is very diverse - it includes clinical scenarios like diabetic foot imaging, renal function assessment, parathyroid imaging, intractable hypertension. Nuclear medicine departments with bone densitometry services have been providing invaluable input into bone health, however newer scanners have more to offer for metabolic syndrome, with measurement of visceral adipose tissue.
Aim of this review presentation is to provide the Endocrinologists of today, and the future, a better understanding of the Nuclear medicine practice which is equipped with a variety of hybrid scanners (SPECT/CT, PET/CT, PET/MR) and novel theranostic radiopharmaceuticals.
Methods: Review of inter-societal guidelines, appropriate use criteria and established practices of Nuclear medicine procedures applicable in Endocrinology practice.
Results: Nuclear medicine practice has always been governed by stringent guidelines about the use of radioactive materials and evidence-based applications in medicine. In the past multiple societal guidelines have been issued, however lately there is welcome trend of inter-societal guidelines and consensus statements with vital input from all stake holders. There are resources, electronic and printed, focusing on Nuclear endocrinology for Nuclear medicine and endocrinology practitioners.
Nuclear medicine procedures can require procedure-specific preparations, knowledge of which is crucial for reliable results. Endocrinologists are the first people to explain to their patients about the necessity of a particular Nuclear medicine test or procedure. Knowledge and understanding of the pre-requisites of a Nuclear medicine procedure, which can be like stopping a medication or fasting, avoid exercise etc. can play an important part in building physician-patient trust. Practice and procedure guidelines, physician and patient information brochures, e-resources provide information in this regard.
Conclusions: Nuclear medicine and molecular imaging have a key role in precision and personalized medicine and given the broad spectrum of the discipline of endocrinology collaboration of both specialities is imperative for best patient care.

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E-POSTER VIEWING: AS07. HEALTH SYSTEMS/CARE
01-03-2024 07:00 - 18:00

OBESE OR OVERWEIGHT PATIENT: THE PRACTICAL COURSE FOR DOCTORS OF ANY SPECIALTIES

Marina Berkovskaia, Olesya Gurova, Valentin Fadeev
I.M. Sechenov First Moscow State Medical University (Sechenov University), Moscow, Russia, Department Of Endocrinology №1, Institute Of Clinical Medicine, Moscow, Russian Federation

Background and Aims: Despite the progressive increase in the number of patients with overweight and obesity, including those seeking for medical help, medical practitioners experience great difficulties in managing obese patients due to their lack of practical skills and a structured program for supporting an obese patient. To improve the quality and efficiency of medical care for patients with obesity we created post graduate professional training course: "Obese or overweight patient: the practical course for doctors of any specialties". The course has been developed for endocrinologists, general practitioners, cardiologists, nutritionists, gastroenterologists, internists and doctors of other specialties who provide care to patients with overweight and obesity.
Methods: The course is conducted in hybrid format (online lectures and face-to-face practical training) using distance learning technologies. Duration of the course: 36 academic hours. Lecture and test material for intermediate control is organized on the Unified Educational Platform of the I.M. Sechenov First Moscow State Medical University (Sechenov University) website (http://do.sechenov.ru/), practical and seminar classes are conducted in the Department of Endocrinology №1, Institute of clinical medicine, Sechenov University.
Results: ACQUIRED KNOWLEDGE: • Pathogenesis of obesity: a modern view of the problem • Comorbid conditions in obesity • Psycho-emotional disorders in obesity • Structure of eating disorders • Algorithm for examining a patient with obesity and overweight • Strategy for choosing an individual treatment plan • Long-term nutritional support for obesity • Pharmacotherapy of obesity • Indications for bariatric surgery for obesity • Algorithm for patient support after bariatric surgery ACQUIRED SKILLS: • Communicative skills with patients • Structured counseling • Drawing up an individual consultation plan • Principles of creating a diet for a given goal • Skills in analyzing a food diary and working with it in a structured manner • Tools for managing with a weight plateau • Skills for diagnosing eating disorders • Practical tools for correcting eating disorders • Principles of working with patients before and after bariatric surgery • Skills in counseling specific groups of overweight patients (pregnant, breastfeeding, planning pregnancy, older children, teenagers, elderly people)
Conclusions: Completing the course allows practicing physicians to acquire new theoretical knowledge and practical skills to provide qualified comprehensive care to overweight and obese patients.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

METABOLIC SYNDROME IN MEDICAL WORKERS: HEALTH RISKS AND WAYS TO OVERCOME THEM

Uliana Frolova[1,2], Irina Olovyanishnikova[2], Elena Shestaeva[1,2]
[1]City Clinical Hospital No. 1, Dept.endocrinology, Togliatti, Russian Federation, [2]City Clinical Hospital No. 1, Togliatty, Russian Federation

Background and Aims: In recent years, special attention has been paid to the study of the prevalence of metabolic syndrome among medical workers. It is known that working in the healthcare sector is often associated with high levels of stress, irregular work schedules, and limited opportunities for healthy eating and regular physical exercises. All these factors can contribute to the development of obesity and other components of metabolic syndrome. Medical workers often experience psycho-emotional stress, which can lead to increased blood pressure and changes in lipid metabolism. Thus, they are at increased risk of developing insulin resistance, which is a key factor in the development of metabolic syndrome. Attention needs to be paid to the development and implementation of programs aimed at the prevention and control of metabolic syndrome among medical staff. It is also important to realize that medical workers, as carriers of a healthy lifestyle, can serve as an example for patients and society as a whole. Raising awareness of metabolic syndrome and its prevention among medical workers can have a significant positive impact on public health.
Methods: Описание выборки: 477 сотрудников ГБУЗ Самарской области «Городская клиническая больница № 1», г. Тольятти. Методы сбора данных: анкетирование и научные исследования. Статистический анализ для оценки связи между факторами риска и метаболическим синдромом.
Results: BMI distribution among employees: Of the 477 employees, 50.94% (243 people) had a normal BMI (up to 25 kg/m2), 29.56% (141 people) – overweight (BMI from 25.1 kg/m2 to 30.0 kg/m2), 14.47% (69 people) – obesity of the first degree (BMI from 30.1 kg/m2 to 35.0 kg/m2) and 5.03% (24 people) – obesity of the second degree (BMI over 35 kg/m2). Harmful habits: Smoking was reported by 29.56% (141 employees) and alcohol consumption by 72.33% (345 employees). Physical activity: Only 27.04% (129 out of 477) of employees regularly engage in physical exercises.
Conclusions: High risk of developing metabolic syndrome among medical workers. Influence of irregular work schedule and high stress levels. The need for a comprehensive approach to improving working conditions and the health of medical workers. Suggestions and Recommendations: Development of programs for regular physical exercises. Optimization of work schedules to reduce stress and improve rest. Providing access to healthy eating and stress management programs. Regular medical examinations for early detection of metabolic disorders.

PV240 / #1916

E-Poster Viewing
E-POSTER VIEWING: AS07. HEALTH SYSTEMS/CARE
01-03-2024 07:00 - 18:00

CLINICAL POLYMORPHISM OF PRIMARY HYPERPARATHYROIDISM IN CHILDREN

Anastasia Benina, Anna Kolodkina, Natalia Kalinchenko, Olga Bezlepkina
Institute of Pediatric Endocrinology, Moscow, Russian Federation

Background and Aims: Primary hyperparathyroidism (PHPT) in children is a rare disease with a prevalence up to 2-5:100,000. Clinical manifestations in the debut are non-specific, so the disease may remain undiagnosed for a long time.
Aim: to study clinical features of primary hyperparathyroidism in children.
Methods: Data analysis of 49 patients (23 boys, 26 girls) aged 10 to 17 years with PHPT examined at the Institute of Pediatric Endocrinology between September 2014 and December 2022. All patients underwent hormonal-biochemical and instrumental examination.
Results: The age of first symptoms of PHPT was 13.8 years [10.6; 15.2]. The median age at the time of the examination was 15.81 years [13.1; 16.8]. The most frequent clinical symptoms at the time of diagnosis were fatigue (n=17, 34.7%), headache (14.3%), dyspepsia (20.4%), constipation (8.2%), lower extremity pain (n=12, 24.5%), and 16.3% of patients had a history of fractures. Among the rare manifestations of PHPT, the following were noted: weight loss in 6 patients (12.2%), pancreatitis in 4 (8.2%), hyperesthesia in 2 (4.1%). Neck organ compression syndrome and subfebrile temperature was observed in 2 patients (4.1%) each. No complaints were noted in 12 children (24.5%) at the time of diagnosis. Prolonged hypercalcemia is the cause of target organ failure. Signs of cholelithiasis were detected in 2 patients (4.1%), urolithiasis in 14 (28.6%). Gastritis was diagnosed in 19 patients (38.8%). According to the results of densitometry of the lumbar region, 19 patients (38.8%) showed a decrease in bone mineral density. All patients had an increase in parathyroid hormone to 148.1 pg/ml [87.0; 532.9], total calcium to 2.97 mmol/L [2.73; 3.2] and ionized calcium to 1.37 mmol/L [1.3; 1.49]. Hypophosphatemia was found in 93.9% of patients (n=46) and hypercalciuria in 43% of children (n=21). There were no significant gender differences in any of the laboratory parameters.
Conclusions: PHPT was diagnosed in 2 years after the initial symptoms in our study. This long diagnostic period might by due to the nonspecificity of clinical symptoms, as well as high amount of asymptomatic forms. When symptoms of gastrointestinal tract, urinary or musculoskeletal system lesions appear in children, blood calcium study should be considered for the purpose of differential diagnosis.

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E-Poster Viewing
E-POSTER VIEWING: AS07. HEALTH SYSTEMS/CARE
01-03-2024 07:00 - 18:00

UNDERSTANDING OF ILLNESS INTRUSIVENESS IN GERIATRIC DIABETICS - FOCUSING ON COGNITIVE AND FUNCTIONAL ABILITY: COMMUNITY-WIDE STUDY

Emilda Rajan[1], Aamina Hussain[2], Essa Mohamed[3], Christopher Pierret[4], Rajiv Janardanan[5]
[1]SRMMCH&RC, Department Of Clinical Psychology, Chennai, India, [2]SRMMCH&RC, Department Of Community Medicine, Chennai, India, [3]Mayo Clinic, Division Of Gastroenterology And Hepatology, Rochester, United States of America, [4]Mayo Clinic, Department Of Biochemistry And Molecular Biology, Rochester, United States of America, [5]SRM MCH&RC, Division Of Medical Research, Chennai, India

Background and Aims: Background: Geriatric Diabetes (GD) is often creatively associated with decreased or poor quality of sleep coupled with elevated levels of blood sugar and obesity. Common risk factors such as cognitive impairment, functional status, and mobility impairment have been associated with diabetes. Examples of geriatric syndromes include impairment of multiple physiological systems which can lead to functional disability, falls, depression, dementia, and incontinence. Understanding geriatric care is an imperative step to a comfortable navigation of one's day-to-day life. Furthermore, the process of moving within a community to understand the functional impact of GD is based on numerous societal factors. Aim: To evaluate the relationship between geriatric diabetes with illness intrusion and instrumental activities of daily living.
Methods: Method: A cross-sectional study was conducted in an urban field practice area of a tertiary care hospital (SRM, Chengelpattu, Tamil Nadu, India) on GD using a systematic random sampling method amongst households with geriatric populations. The individuals' intrusive behavior was evaluated with the Adaptive Illness Intrusiveness Scale (AIIS) resulting from the diagnosis of disease along with the Geriatric Functional Assessment (GFA).
Results: The statistical software SPSS version 21.0 was used for data analysis while descriptive statistics was used for count variables (mean (SD)). In addition, frequencies (percentage) were reported for categorical variables. In inferential statistics, chi-square was used with a statistical significance set to $p<0.05$.The statistical software SPSS version 21.0 was used for data analysis while descriptive statistics was used for count variables (mean (SD)). In addition, frequencies (percentage) were reported for categorical variables. In inferential statistics, chi-square was used with a statistical significance set to $p<0.05$.
Conclusions: This is the first study to be conducted in a South Indian geriatric population. Results were expressed in relevant charts and tables. The outcome measures have enabled us to understand the functional process of GD post-diagnostic care plan. Additionally, adaptive measures can be used for educational awareness of GD care as well as to inform continuity of care once the patient is home.

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E-Poster Viewing
E-POSTER VIEWING: AS07. HEALTH SYSTEMS/CARE
01-03-2024 07:00 - 18:00

PREVALENCE OF COMMON VARIANTS IN TESTOSTERONE METABOLISM GENES IN PATIENTS WITH CLINICAL MANIFESTATIONS OF TESTOSTERONE DEFICIENCY.

Tatyana Shkeleva[1], Svetlana Kalinchenko[2], Olga Samburskaya[2], Daria Gusakova[2]
[1]Allele LLC, Moscow, Russian Federation, [2]Professor Kalinchenko's clinic, Moscow, Russian Federation

Background and Aims: Relevance. The increase in life expectancy among men leads to a rise in the number of patients with age-related hypogonadism, which manifests at various ages. Despite the availability of various medications for treating hypogonadism (testosterone gels, intramuscular injections, chorionic gonadotropin preparations), pharmacological therapy does not always yield the desired effect in practice. Testosterone exerts its hormonal action through the nuclear testosterone receptor. The active form of testosterone, dihydrotestosterone, has the most significant physiological effect. Sex hormone-binding globulin binds testosterone and dihydrotestosterone in the blood, limiting their bioavailability to receptors. The presence of variants in testosterone metabolism genes that reduce function may affect patients' response to testosterone therapy. Objective. To assess the prevalence of common variants in testosterone metabolism genes: androgen receptor AR (CAG repeat), 5α-reductase type 2 enzyme SRD5a2 (g.31580636G>C), sex hormone-binding globulin SHBG (TAAAAA repeat), among patients with hypogonadism.
Methods: Materials and Methods. The study included 1007 male patients with clinical manifestations of testosterone deficiency aged 25 to 76 years. Genetic analysis of patients was conducted using genetic markers AR (CAG repeat), SRD5a2 (g.31580636G>C), SHBG (TAAAAA repeat) through fragment analysis and direct sequencing methods. The prevalence of function-reducing genetic variants and their combinations was assessed.
Results: . Decreased androgen receptor sensitivity (genotype L, 23-38 CAG repeats) was observed in 43% of patients. Reduced 5α-reductase activity (genotype CC, CG) was found in 51% of patients. Increased activity of the SHBG gene (genotype S/S) was detected in 49% of patients. Simultaneous changes in all three genetic markers were found in 10% of patients, predisposing them to the development of genetically determined hypogonadism.
Conclusions: . Reduced androgen receptor sensitivity, decreased activity of 5α-reductase type 2, and increased activity of the SHBG gene are prevalent among patients with hypogonadism, identified in our sample with frequencies of 43%, 51%, and 49%, respectively. Testosterone therapy should be personalized, considering the individual sensitivity to testosterone in the patient, the activity of dihydrotestosterone synthesis, and the biological availability of hormones. This approach will allow for the highest efficacy in the treatment of hypogonadism.

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E-Poster Viewing
E-POSTER VIEWING: AS07. HEALTH SYSTEMS/CARE
01-03-2024 07:00 - 18:00

IMPROVEMENT OF FUNCTIONAL STATUS AND PHYSICAL ACTIVITY LEVEL OF OLDER ADULTS TAKING AN ORAL NUTRITIONAL SUPPLEMENT: A RANDOMIZED CONTROLLED TRIAL

Kalani Weerasinghe[1], Ranil Jayawardena[2], Andrew P Hills[3]
[1]The Faculty of Medicine, University of Colombo, No. 25, Kynsey Road, Colombo 8, Sri Lanka., Health And Wellness Unit, Colombo, Sri Lanka, [2]Faculty of Medicine, University Of Colombo, Department Of Physiology, Colombo, Sri Lanka, [3]University of Tasmania, Newnham Drive, Launceston, Tasmania, Australia., School Of Health Sciences, Tasmania, Australia

Background and Aims: Background: Malnutrition or the risk of malnutrition affects nearly two-thirds of older individuals, leading to significant functional decline, impacting their physical activity level, and ultimately reducing their overall quality of life. The supplementation of energy and protein-rich products might enhance the functional status and physical activity of elderly individuals. Objective: The purpose of this study was to assess the impact of oral nutrition supplements (ONS) on the functional status and physical activity level of institutionalized older adults in Sri Lanka.
Methods: This open-label, randomized controlled, parallel-group study included an intervention group (IG) that received 250 mL of ONS before bedtime for 12 weeks and a control group (CG) that received an equivalent volume of water. The ONS provided 247 kcal and 12 g of protein per serving. Mean changes in variables, including handgrip strength (HGS), knee extension strength (KES) on the dominant side, gait speed, activities of daily living (ADLs) assessed using the Barthel index, and physical activity levels assessed using the Physical Activity Scale for the Elderly (PASE) and the International Physical Activity Questionnaire-short form (IPAQ), were collected at baseline and at the end of the 12th week. Mean changes were compared using a student t-test.
Results: The mean age of the IG (n = 20) was 75.38 ± 6.05 years, and the CG (n = 22) was 74.84 ± 5.22 years ($p = 0.732$). Following 12 weeks of the intervention, the IG demonstrated a significant improvement in HGS (43.96 ± 18.61 kg vs. 32.81 ± 17.92 kg; $p < 0.001$) and KES (23.45 ± 2.29 kg vs. 16.41 ± 2.09 kg; $p < 0.001$) compared to the control group. Additionally, the IG participants exhibited significant improvements in gait speed (1.31 ± 0.52 m/s vs. 0.87 ± 0.26 m/s; $p < 0.001$), Barthel index score (0.30 ± 0.47 vs. -0.18 ± 0.66; $p < 0.001$), PASE score (1.52 ± 17.79 vs. -1.60 ± 21.77; $p < 0.001$), and improved physical activity level measured by IPAQ ($p < 0.001$).
Conclusions: Supplementation with ONS as a bedtime drink was found to be effective in improving the functional status and physical activity level of malnourished older adults. Trial Registration: The trial was registered at the Sri Lanka Clinical Trials Registry (SLCTR/2022/021).

PV244 / #1954

E-Poster Viewing
E-POSTER VIEWING: AS08. OBESITY/LIPIDS
01-03-2024 07:00 - 18:00

HIGH SERUM LEPTIN LEVELS ARE ASSOCIATED WITH IMPAIRED WALKING STEADINESS/STABILITY

Mahmoud A. M. Alfaqih
Arabian Gulf University, Medical Biochemistry, Manama, Bahrain

Background and Aims: Leptin hormone has pro-inflammatory properties and was found to contribute to chronic low-grade inflammation in various tissues and organs. This chronic inflammation has been linked to poor health outcomes and the pathogenesis of several metabolic disorders, including obesity, insulin resistance, and cardiovascular diseases. Physical activity has been shown to reduce serum leptin concentrations. However, the relationship between leptin and walking instability has never been investigated. Given the potential involvement of leptin in both inflammatory processes and metabolic disturbances, and its association with physical inactivity and obesity it is plausible to hypothesize that leptin might also be associated with the development or progression of walking instability.
Methods: Using a cross-sectional study, a sample of 146 participants was recruited from Jordan University of Science and Technology. Data collection involved general characteristics of study participants, phone records of walking steadiness parameters and daily step count, and a Global Physical Activity questionnaire.
Results: About 74.5% of male participants met the WHO recommendations on physical activity for health compared to only 54.7% of females (P value = 0.019). Obese subjects had significantly higher serum leptins, and higher double support time (P value <0.05). Serum leptin was found to be negatively correlated with step count, double support time, and walking asymmetry. After stratification by BMI, Leptin concentration remained significantly correlated to walking asymmetry. Additionally, Leptin was negatively correlated with rigorous MET minutes (r_s =0.22, P value =0.007). Using a multivariate regression model, serum leptin was a significant predictor of double support time (β= 0.25, P value=0.047).
Conclusions: Our findings highlight the relationship between walking steadiness, physical activity, obesity, and serum leptin levels. Leptin was associated with increased double support time and walking asymmetry, reflecting decreased walking steadiness. Further investigation is warranted to elucidate the precise mechanisms underlying the association between leptin and walking steadiness/stability, especially in the older population who might benefit from this feature to monitor their walking steadiness and fall risk throughout their daily activities.

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01-03-2024 07:00 - 18:00

COMPARATIVE ANALYSIS OF WEIGHT LOSS EFFICACY OF TIRZEPATIDE IN OBESE WOMEN WITH POLYCYSTIC OVARIAN SYNDROME (PCOS) VERSUS NON-PCOS POPULATION

Khaled Aljenaee[1], Sulaiman Hajji[2], Fatma Alshatti[3]
[1]Adan Hospital, Endocrine Department, Kuwait city, Kuwait, [2]Adan Hospital, Endocrine Department, hawally, Kuwait, [3]ENINE, Endocrine, hawally, Kuwait

Background and Aims: Tirzepatide, a novel glucagon-like peptide-1 receptor (GLP-1) and glucose-dependent insulinotropic polypeptide (GIP) drug, exhibits promising efficacy in promoting weight loss. This study aims to compare the extent of weight loss in obese females with polycystic ovarian syndrome (PCOS) to that in a non-PCOS population attending our endocrinology clinic in Kuwait.
Methods: Since introducing Tirzepatide prescriptions in March 2023 for obesity management, we have treated over 1,200 patients with obesity who did not respond to lifestyle modification programs. From this cohort, we randomly selected 93 female patients who successfully followed up for 8 months from the initiation of therapy. This group included 14 patients with PCOS (Group 1) and 79 non-PCOS patients (Group 2) for comparing weight loss outcomes between the two groups.
Results: Ninety-three obese females were randomly included in this study from our clinical practice, divided into two groups: 14 patients diagnosed with PCOS (Group 1) and 79 non-PCOS patients (Group 2). The average age of the entire cohort was 36 years (range 18-58), with an average age of 27.7 years (range 22-33) in Group 1 and 40 years (range 18-58) in Group 2. The average BMI was 36 (range 30-58.5), with an average BMI of 35.9 in Group 1 and 37 in the Group 2. The average weight loss observed was 19.9%, with a 20% reduction in weight in the PCOS patients (Group 1) and a 19.8% reduction in the non-PCOS patients (Group 2). Notably, 100% of the patients responded to Tirzepatide, with a minimum weight loss of 6.2%.
Conclusions: In summary, overall weight loss reduction was significant, reaching 19.9%. There was no significant difference in weight loss reduction observed when using Tirzepatide in obese females from the normal population compared to obese females with PCOS. Larger, longer and further studies in PCOS patients are needed to evaluate symptom resolution and the potential reversal of insulin resistance.

PV246 / #1944

E-Poster Viewing
E-POSTER VIEWING: AS08. OBESITY/LIPIDS
01-03-2024 07:00 - 18:00

EXAMINING THE WEIGHT LOSS EFFICACY OF TIRZEPATIDE: INSIGHTS FROM CLINICAL PRACTICE

Khaled Aljenaee[1], Sulaiman Hajji[2], Fatma Alshatti[3]
[1]Adan Hospital, Endocrine Department, Kuwait city, Kuwait, [2]Adan Hospital, Endocrine Department, hawally, Kuwait, [3]ENINE, Endocrine, hawally, Kuwait

Background and Aims: This study investigates the efficacy of Tirzepatide, a novel glucagon-like peptide-1 receptor (GLP-1) and glucose-dependent insulinotropic polypeptide (GIP) drug, in promoting weight loss among patients with obesity. The research focuses on a comprehensive analysis of outcomes, considering the inclusion of all patients with a body mass index (BMI) greater than 30 who have already maximized diet control and physical activity.
Methods: Initiated in March 2023, our obesity management program utilizing Tirzepatide has engaged over 1200 patients at our esteemed endocrinology clinic in Kuwait. For the purpose of this investigation, a cohort of 100 randomly selected patients (7 males and 93 females) has been examined., offering insights into the average weight reduction experienced over an eight-month period spanning from March 2023 to November 2023. The diverse patient sample comprises individuals with various comorbidities. Inclusive of these diverse conditions, our study aims to provide a comprehensive understanding of Tirzepatide's effectiveness across a spectrum of obesity-related health issues. Additionally, demographic factors such as age, gender, and the presence of comorbidities will be considered in our analyses.
Results: Within the stipulated timeframe, our study cohort exhibited compelling outcomes. The initial BMI of participants ranged from 30 to 58.5, with an average of 37. The age of the participants ranged from 18 to 59, with an average age of 37.7. Of the 100 patients treated with Tirzepatide, the average weight reduction observed was an impressive 19.9% in the eight-month period, showcasing the efficacy of the drug. Equally noteworthy is the absence of significant side effects, further underscoring the safety profile of Tirzepatide. Furthermore, our results reveal a notable finding: the average weight reduction observed in our sample exceeds the figures reported in published data on Tirzepatide. This highlights the potential for enhanced efficacy in real-world clinical settings compared to controlled trial environments, emphasizing the practical utility of Tirzepatide in promoting substantial weight loss among patients with obesity and various comorbidities.
Conclusions: In summary, our comprehensive findings underscore the significant contribution of Tirzepatide to weight reduction, with average weight loss reduction of 19.9% in patients with obesity. As data collection persists for the subsequent 6 months, we anticipate further nuanced analyses and subsequent publications, further cementing Tirzepatide's role in the battle against obesity and its associated health conditions. This research not only contributes to the growing evidence supporting Tirzepatide but also emphasizes its crucial role in clinical practice for achieving sustainable weight loss across diverse patient populations.

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01-03-2024 07:00 - 18:00

UNUSUAL ENDOCRINE FEATURES OF BARDET-BIEDL SYNDROME

Mohamed Khairi Arous, Najla Bchir, Sabrina Ayari, Anaam Ben Chhida, Chadia Zouaoui, Haroun Ouertani
Military Hospital of Tunis, Department Of Endocrinology, Tunis, Tunisia

Background and Aims: Bardet-Biedl syndrome (BBS) is a rare autosomal recessive ciliopathy with endocrine and extra-endocrine disorders. The primary features of BBS are Retinal cone-rod dystrophy, obesity, postaxial polydactyly, Cognitive impairment, Hypogonadism, and kidney disease.
Methods: We report the case of a 15-year-old male, who was referred for obesity. He underwent surgery at the age of 15 months for a supernumerary 5th finger. Birth weight was normal, then gain weight was progressive since the third year (statural advance +2DS, ponderal advance +3DS).
Results: Physical examination revealed hexadactyly in both feet, Obesity (weight =110 kg, height = 172 cm, BMI =37.18 kg/m^2), mental delay with learning difficulties, and significant loss in visual acuity. Genital examination shows testicles in place with normal penis size. Biological investigations revealed elevated fasting blood glucose (6 mmol/L), hypertriglyceridemia (1.72 mmol/L), normal renal clearance hypovitaminosis D, normal testosterone level (16.4 nmol/L) with high levels of gonadotropins (FSH=11.69 mUI/ml LH=10.46mUI/ml), and subclinical peripheral hypothyroidism (TSH = 7.06 µIU/L, FT4 = 9.9 pmol/L). Ophthalmological examination revealed chorioretinal atrophy with bilateral macular atrophy. Renal ultrasound showed irregular bumpy contours with ectasia of the right excretory tract. Abdominal and cardiac ultrasound were normal. Nutritional support resulted in a weight reduction of 25kg. We also treated the patient with 50µg of levothyroxine
Conclusions: The diagnosis of BBS is based on the criteria published by Beales et al ; particularly the presence of four primary features. Metabolic syndrome, the most common endocrine disorder in BBS, was reported in our patient. Syndromic obesity, in this case, is attributed to uncontrollable eating disorders. Controlling obesity is a cornerstone of BBS management, enabling a reduction in morbidity and mortality. Only dietary care made a satisfactory weight reduction possible, which is unusual in such cases. The second most frequent endocrine disorder in BBS is hypogonadism (59%), manifested by cryptorchidism, micropenis, and/or delayed puberty. Contrariwise our patient had normal puberty and elevated gonadotropins. Increased prevalence of subclinical hypothyroidism was described in the literature, but the clinical significance and cause are unknown. We have chosen to substitute our patient with levothyroxine as subclinical hypothyroidism has been associated with an increased prevalence of metabolic syndrome and could worsen cognitive impairment.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

EVALUATING THE NECK CIRCUMFERENCE-HEIGHT RATIO (NHR) IN RELATION TO BMI AND EOSS: INSIGHTS FROM BAROPHENOTYPE ASSESSMENT AND REGIONAL VARIATIONS AMONG PEOPLE WITH OBESITY IN INDIA

Saptarshi Bhattacharya[1], Shehla Shaikh[2], Sambit Das[3], Sunil Kota[4], Sanjay Kalra[5], Nitin Kapoor[6]
[1]Indraprastha Apollo Hospitals,, Department Of Endocrinology,, Delhi, India, [2]HN Reliance Hospital,, Department Of Endocrinology, Mumbai, India, [3]Kalinga Institute of Medical Sciences, Endocrinology, Bhubaneswar, India, [4]Diabetes & Endocare Clinic, Berhampur, India, [5]Bharti hospital, Karnal, India, [6]Christian medical college, Endocrinology, Vellore, India

Background and Aims: The Edmonton Obesity Staging System (EOSS) is a comprehensive tool that integrates metabolic, physical, functional and psychological parameters to assess the severity of obesity. The Neck Circumference-Height Ratio (NHR) is an anthropometric index that has been associated with poor long-term cardiovascular outcomes, obstructive sleep apnea, and metabolic syndrome. It has also been found to be a useful measurement of body adiposity in young to middle-aged adults, and changes in neck circumference have been positively associated with visceral fat.
Methods: We conducted a prospective observational study (n=750) to explore the relationship between the BMI, EOSS and Neck Circumference-Height Ratio across five endocrine centres as BHARAT study Barophenotype Assessment and Regional Variations Among People Living With Obesity In India. GraphPad 10.0.3 was used for statistical analysis.
Results: The mean age was 48 years (±13, 95%CI 47 to 49). The mean BMI was 32kg/m2 (±4.6, 95%CI 31 to 32). The mean NHR was 0.24 (±0.094, 95%CI 0.23 to 0.25). There was a non-significant positive correlation between the BMI and NHR, Pearson r 0.004, p=0.90 (ns). The mean NHR in patients with sleep apnea (n=88) was 0.24 (±0.01, 95% CI 0.24 to 0.25) which was comparable to the mean NHR in patients without sleep apnea (n=661) which was 0.24 (±0.09, 95% CI 0.23 to 0.24), p=0.53 (ns). The mean NHR in patients with stage 0 EOSS (n=94), stage 1 (n=490), stage 2 (n=141) and stage 3 (n=24) was 0.24 (±0.018, 95% CI 0.24 to 0.25), 0.23 (±0.11, 95% CI 0.22 to 0.24) Pearson r – 0.02, p= 0.83 (ns), 0.24 (±0.001, 95% CI 0.24 to 0.25) Pearson r -0.04, p= 0.65 (ns), 0.25 (±0.01, 95% CI 0.24 to 0.25) Pearson r -0.06, p= 0.75 (ns)
Conclusions: In our study , the Neck Circumference-Height Ratio (NHR) displayed a consistent mean across various patient categories, including those with and without sleep apnea, as well as across different EOSS stages. Although NHR has been associated with various health outcomes in prior research, our findings suggest no significant correlation between NHR and BMI or between NHR and EOSS stages. This indicates that while NHR may provide insights into certain health parameters, its association with obesity severity (as categorized by EOSS) and BMI remains inconclusive in our study cohort. Further research might be required to elucidate the specific contexts where NHR provides the most valuable insights

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PREVALENCE OF OBESITY RELATED METABOLIC CONDITIONS FROM A MULTIDISCIPLINARY WEIGHT MANAGEMENT PROGRAM

Rahila Bhatti[1], Maria Michailidou[2], Amar Khamis[3]
[1]Genesis Healthcare Centre, Diabetes & Endocrinology, Dubai, United Arab Emirates, [2]Dubai College, Student, Dubai, United Arab Emirates, [3]Mohammad Bin Rashid University of Medicine and Health Sciences, Biostatistics, Dubai, United Arab Emirates

Background and Aims: To study the prevalence of obesity related metabolic diseases in a multidisciplinary weight management clinic and determine the relationship to obesity anthropometric indices.
Methods: This is a cross-sectional study conducted at Genesis Healthcare Centre in Dubai, UAE. 130 patients have been evaluated from October 2022 until July 2023 as part of a multi-disciplinary weight management program. Key demographics, anthropometrics, and clinical data was analyzed using Statistical Package for Social Sciences software version 25 (SPSS Inc., Chicago, IL). Kolmogorov-Smirnov was used to test the normality of continuous variables. The Mann-Whitney test was used to compare the means between two groups if the normality was not confirmed while t-test was used for normal data per groups. A P-value of less than .05 was considered significant in all statistical analysis.
Results: 130 patients included. 104 (80%) females and 26 (20%) males. The mean age was 42 years (±7.7) with a mean BMI of 32.8 (±5.5) and 32.72 (±5.47) for females and males respectively. Mean waist circumference was 99.6 cm (±9.8) and 99.7 cm (±9.8), fat percent was 42.7% (±6.7) and 42.6 (±6.9), fat mass was 39.59 kg (±11.7) and 39.51 (±11.67), and visceral fat was at level 17.3 (±2.9) and 17.2 (±2.9), for females and males respectively. In this cohort, the following co-morbidities were documented: 23.8% (n=31) prediabetes, 1.5% (n=2) type 2 diabetes. 5.4% (n=7) hypertension, 6.2% (n=8) obstructive sleep apnea, 70% (n=91) dyslipidemia, 17% (n=22) fatty liver, 9.2% (n=12) polycystic ovarian syndrome, 26.2% (n=34) hyperuricemia and 48% (n=62) had Vitamin D deficiency. Mean HbA1c was 5.4% (±0.45), AST 26.19 IU/L (±23.06), ALT 28.9 IU/L (±22.4) and GGT 27.5 IU/L (±20.2). Mean TC 216.3 mg/dl (±42.7), TG 148.4 mg/dl (±87.84), LDL 133.6 mg/dl (±39) and HDL 55.17 mg/dl (±14.7). Mean uric acid was 6.08 mg/dl (±5.95). There was no statistical difference between males and females. BMI, fat mass and waist circumference strongly correlated with pre-diabetes, hypertension, fatty liver, obstructive sleep apnea and hyperuricemia. ($P<0.01$)
Conclusions: The risk of pre-diabetes, hypertension, fatty liver, obstructive sleep apnea and hyperuricemia increased significantly with increasing BMI, highlighting the importance of preventing further weight gain even in individuals who are already living with obesity.

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OBESITY-INDUCED INFLAMMATION AND INSULIN RESISTANCE DEVELOPMENT IN QATARI CHILDREN

Meritxell Espino-Guarch[1], Rana Nahas[1], Nicholas Van Panhuys[1], Khalid Hussain[2]
[1]Sidra Medicine, Traslational Medicine, Doha, Qatar, [2]Sidra Medicine, Endocrinology, Doha, Qatar

Background and Aims: The incidence of childhood type 2 diabetes (T2D) is extremely high in Qatar. With 23% of obese children classified as suffering from T2D, compared to the 8 and 15% observed in Europe and US, respectively. During obesity alterations in the immune cells present in the adipose tissue causes a change from a type-II inflammation that is associated with lean individuals to a type-I inflammatory environment. This change in the inflammatory profile is currently thought to be the driving force in the development of IR and ultimately leading to T2D. However, the cellular mechanisms underlying obesity-induced inflammation remain unclear. We conducted a study to examine the alterations which occur in the circulating CD4+ T cell immune subset during the onset of insulin resistance to provide evidence of the key immune-related factors that supports the progression from a healthy to T2D state.
Methods: PBMCs from 5mL blood were purified by Ficoll gradient and cryopreserved in 10%DMSO-FBS. A 16 colours panel including markers for Macrophage, Treg, Th2, Tcon, Teff, Eosinophil, Basophil and Mast cell was used. RNA from Tcon and Treg subsets was isolated using AMPpure Beads. Isolated RNA was poliA primed for reverse transcription by ultra-low input cDNA synthesis kit (Takara). The Illumina Nextera workflow for library preparation was used and further sequencing using NovaSeq Instrument. Plasma proteome and metabolome profile was done by target-mass spectrometry for metabolites and epitope-base recognition for the proteins (SOMAscan).
Results: The relative presence of pro-inflammatory CD4+ T cells including T-helper 1 (Th1) and Th17, were compared with anti-inflammatory CD4+ T regulatory (Treg) subsets, between control, obese, insulin resistant and T2D children. We discovered a significant differential CD49d expression on CD4+ CD25+ Treg cells among the clinical phenotypes studied, with a progressive increase of CD49d expression observed during disease development. Furthermore, the serum levels of the pro-inflammatory cytokine IL17, generated by the Th17 subpopulation, was found elevated in T2D cases, while a decrease in the production of the anti-inflammatory IL10 by Treg subset was observed. CD49d (ITGA4) is a membrane protein active in T cells and plays a role in cellular migration to tissue.
Conclusions: We hypothesize that abnormal levels of expression of CD49d in circulatory T cells alters the ability of the anti-inflammatory immune cells to migrate to the adipose tissue enhancing inflammation and ultimately triggering the development of insulin resistance.

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INTESTINAL FATTY ACID-BINDING PROTEIN (I-FABP) AND GUT MICROBIOTA PROFILES IN OBESITY WITH AND WITHOUT TYPE 2 DIABETES MELLITUS

Atikah Isna Fatya[1], Maria Diyan Monica[2], Farid Kurniawan[3], Dyah Purnamasari[3], Pradana Soewondo[3], Linda Erlina[4], Dicky Tahapary[1,3]
[1]Indonesia Medical Education and Research Institute, Metabolic Disorder, Cardiovascular And Aging Research Center, Jakarta, Indonesia, [2]Faculty of Medicine Universitas Indonesia, Master Program Of Biomedical Science, Jakarta, Indonesia, [3]Faculty of Medicine Universitas Indonesia/Dr. Cipto Mangunkusumo National General Hospital, Division Of Endocrinology, Metabolism, And Diabetes, Department Of Internal Medicine, Jakarta, Indonesia, [4]Faculty of Medicine Universitas Indonesia, Bioinformatics Core Facilities, Indonesian Medical Education And Research Institute, Jakarta, Indonesia

Background and Aims: Our previous study showed that there was increased intestinal fatty acid-binding protein (I-FABP) in obesity-related type 2 diabetes mellitus (T2DM), which represented impaired intestinal permeability. This might be correlated with intestinal dysbiosis that triggers chronic inflammation and insulin resistance via metabolic endotoxemia in obesity. This study aims to evaluate the correlation between I-FABP and gut microbiota profiles in obesity with and without T2DM.
Methods: This was a cross-sectional study in Jakarta, Indonesia, from July 2018 to August 2019. We recruited 18 to 60 years old subjects and classified them into 3 groups: non-obese non-T2DM (healthy subjects), obese-non T2DM, obese-T2DM. Obesity was determined using BMI cut-off for Asian population (BMI ≥25 kg/m2). Diagnosis of T2DM was based on American Diabetes Association (ADA) criteria. Exclusion criterias were subjects with chronic gastrointestinal disorders, severe kidney and liver disorders, autoimmune diseases, history of taking steroids, non-steroidal anti-inflammatory drugs (NSAIDs) and antibiotics in the past month, pregnant or breastfeeding. Subjects underwent medical interview, physical examination as well as laboratory tests. I-FABP level was measured from blood plasma using enzyme-linked immunosorbent assay. Metagenomic analysis was performed from fresh fecal matter using 16SrRNA sequencing method followed by bioinformatics analysis using QIIME 2. Correlation between I-FABP level and gut microbiome composition was assessed using Spearman correlation test.
Results: There were 23, 13 and 15 subjects enrolled in non-obese non-T2DM, obese-non T2DM and Obese-T2DM groups, respectively. I-FABP level was elevated in obese-T2DM (4.2±2.1 ng/mL) compared to others (p=0.002). At phyllum level, we found increasing trend of relative abundance proportion of Actinobacteriota in obese-non T2DM and obese-T2DM compared to healthy subjects as well as its positive correlation to I-FABP (r=0.206), while Bacteroidota showed a decreased trend of relative abundance in obese-T2DM compared to obese-non-T2DM and had negative correlation to I-FABP level (r=-0.269). At genus level, Escherichia-Shigella was the most abundance with an increasing trend in obese-non-T2DM and obese-T2DM compared to healthy subject, but no correlation with I-FABP level (-0.026). Obese-non T2DM had the highest abundance of Bifidobacterium compared to other groups and was positively correlated to I-FABP level (0.208).
Conclusions: I-FABP level seems to be weakly correlated to certain gut microbiota abundance in obesity and T2DM. However, the mechanism needs to be further explored.

PV252 / #1373

E-Poster Viewing
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01-03-2024 07:00 - 18:00

RISK FACTORS OF GRADE 2 AND 3 OBESITY IN BANGLADESHI CHILDREN – A HOSPITAL BASED STUDY

Tahniyah Haq, Md Fariduddin, Palash Chandra Sutradhar
Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Obesity is a growing public health concern in Bangladesh. The aim of the study was to determine the risk factors of grade2 & 3 obesity.
Methods: This study was done in the Department of Endocrinology, BSMMU from May 2019 to March 2020 in children with primary exogenous obesity. Childhood obesity was classified using charts of the US Centers for Disease Control and Prevention. Risk factors (family, screen time, diet and physical activity domains) were assessed with an open ended structured questionnaire.
Results: The study included 189 children with a mean age of 12.27±3.22 years and mean BMI of 29.61±6.79 kg/m2. Children with grade 2 & 3 obesity spent more time on computer/laptop/tablets due to academic purpose (2.07 ± 2.00 vs 0.33 ± 0.71 hours/day, p=0.029). After controlling for other factors, only duration of private tuition was related with BMI (β=0.883, p=0.02, 95%CI=0.147-1.620). Sleep deprivation (z=1.332, SE=0.101, p=0.183) and screen time due to academic purpose (z=1.523, SE=0.282, p=0.128) were not mediators of private tuition and obesity. Duration of private tuition (OR=1.309, p=0.053, 95%CI 0.997-1.721), private tuition duration > 1 hour/day times (OR=2.078, p=0.040, 1.034-4.173), screen time ≥2 hours/day (OR=5.732, p=0.021, 1.304-25.201), snacking (OR=11.872, p=0.033, 1.218-115.730), maternal obesity (OR=2.963, p=0.033, 1.094-8.023), maternal obesity and no access to playground (OR=1.463, p=0.009, 95%CI=1.258-4.823) were independent predictors of grade 2 & 3 obesity.
Conclusions: Duration of private tuition, screen time, maternal obesity and snacking were risk factors of grade 2 & 3 obesity in children. Effect of private tuition on obesity was direct. Lack of access to playground was a risk factor only in those with a family history of maternal obesity.

PV253 / #1729

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01-03-2024 07:00 - 18:00

INFLAMMATORY CHANGES IN PEOPLE WITH AND WITHOUT METABOLIC SYNDROME IN ALBANIA

Violeta Hoxha
University Hospital Center Mother Teresa, Tirana, Albania

Background and Aims: Obesity is a chronic low grade inflammatory state associated with the development of insulin resistance, type 2 diabetes mellitus and atherosclerosis. TNF and Interleukin 6 are proinflammatory cytokines which relate to the starting of immune response. The aim of the study was to investigate inflammatory changes(TNF and Interleukin 6) in people with and without metabolic syndrome
Methods: The study involved 131 healthy individuals aged 25-55 years old randomly chosen in Tirana. Data concerning generalities, sex, residence, age, weight, height, abdominal circumference, systolic blood pressure, diastolic blood pressure, BMI, cholesterol, triglycerides, LDL, HDL, glycemia, TNF, interleukin 6 , insulinemia and HOMA-IR were collected. Insulin resistance and insulin sensitivity were calculated and compared within people with and without MS. MS prevalence was determined according to IDF criteria.
Results: We found in people with and without MS significant difference between Interleukin 6 levels (P 0,01) and between TNF alpha levels (P<001). In subjects with MS we observed an important correlation between interleukin 6 and insulinemia (p=0.029, r=0.292) and between TNF and total cholesterol (p=0.001, r=0.315). Also, a significative correlation was noticed between Homa-IR and TG in the MS population (p=0.001, r=0.489).
Conclusions: According our results metabolic syndrome subjects have a higher inflammatory state compared to the healthy population. The results show a strong correlation of pro inflammatory cytokines levels with insulinemia, triglycerides and cholesterolemia suggesting an important role of pro inflammatory cytokines in the metabolic syndrome pathogenesis.

PV254 / #90

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A CASE OF HYPERTHYROIDISM DUE TO CO-EXISTING TSH SECRETING PITUITARY ADENOMA AND GRAVES' DISEASE-A RARE ASSOCIATION

Shahd Ibrahim
HAMAD MEDICAL CORP, Medical Education, Doha, Qatar

Background and Aims: Graves' disease (GD) is the commonest cause of thyrotoxicosis. The disease is presumed to be autoimmune in etiology and is characterized by the presence of thyroid stimulating receptor antibodies. TSH producing pituitary adenoma (TSHoma) is a rare cause of thyrotoxicosis and comprises only 0.5-3% of all pituitary tumors. We present a case of co-existing TSHoma and GD in a patient with visual field defect who had an inappropriately normal TSH and high free T3 and free T4 levels.
Methods: This is a case presentation and literature review
Results: Case presentation
Conclusions: In a patient with hyperthyroidism, it is important to recognize TSHoma as a possible diagnosis, especially when TSH is not suppressed. It is essential to identify the combination of TSHoma and Graves' disease in evaluating patients with hyperthyroidism as the use of anti-thyroid drugs in such patients can paradoxically worsen the TSHoma.

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CASE REPORT: MASSIVE OBESITY SECONDARY TO A HOMOZYGOUS MC4R MUTATION IN A 3-YEAR-OLD BOY

Anju Jacob[1], Nandu Thalange[2]
[1]Al Jalila Childrens specialty hospital, Endocrinology, Dubai, United Arab Emirates, [2]Al Jalila Children's Speciality Hospital, Pediatric Endocrinology, Dubai, United Arab Emirates

Background and Aims: We present a 3-year-old boy with massive obesity and hyperphagia. His appetite symptoms were evident from age 3 months, and his parents report he has an insatiable appetite, and seeks food constantly. At presentation to our clinic, his BMI was 37.21 Kg/m² [+6 SDS]. Parents are first cousins . Both parents are moderately obese, but his siblings are normal weight for age. Sleep apnoea is suspected, for which he is undergoing evaluation.
Methods: See Results
Results: In view of his early-onset obesity, monogenic obesity was suspected. His monogenic obesity panel revealed a previously unreported homozygous MC4R c.419T>C (p.Leu140Pro) variant of uncertain significance. It is known that he majority of disease-associated mutations in transmembrane protein coding genes result in leucine to proline (as in our case) and glycine to arginine substitutions. Our patient's variant is not found in the Gnomad or GME population databases and given his phenotype, we consider this to be the cause of his hyperphagia and obesity. Segregation analysis for the patient's two siblings is planned. Heterozygous loss-of-function mutations in MC4R are the most common genetic cause of monogenic obesity, occurring in approximately 2-5% of cases of severe, early-onset obesity, with an estimated population incidence of 1:500. In contrast, patients with homozygous MC4R mutations are extremely rare and their phenotype is characterised by intractable obesity with insatiable appetite, resistant to lifestyle modification or drug therapy. Even bariatric surgery is only transiently beneficial. However, we note the successful use of liraglutide in an adult with a homozygous MC4R mutation, and this may be worthy of consideration. Liraglutide, an analogue of the enteric hormone, Glucagon-Like Peptide-1 (GLP1 is known to inhibit appetite, directly through effects on anorexigenic proopiomelanocortin (POMC) and cocaine- and amphetamine-regulated transcript (CART) neurons. However, this would be nullified in the case of MC4R homozygotes. However, inhibition of hypothalamic orexigenic agouti-related peptide (AgRP)/neuropeptide Y (NPY) neurons could be the mechanism in the reported case. In summary, we present a 3-year-old boy with massive obesity secondary to a homozygous MC4R mutation and the challenging situation this presents.
Conclusions: Monogenic obesity should always be considered in any children with hyperphagia and morbid obesity. They should be offered genetic evaluation for monogenic obesity panel.

PV256 / #868

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GLP-1 RA USE IN A PATIENT WITH EXISTING GASTROPARESIS

Priya Jaisinghani
NYU Grossman School of Medicine, Endocrinology, New York, United States of America

Background and Aims: Patient is a 26 y/o female with a past medical history of anxiety, depression, vitamin D deficiency, and seborrheic dermatitis who presented for weight management. Patient was recently diagnosed with idiopathic gastroparesis. Pertinent labs include hemoglobin A1c of 5.5%, a fasting insulin level: 25.7 (elevated), fasting blood sugar: 91, HOMA IR: 5.8 (elevated), vitamin D: 23.8 (decreased), ALT 44 (elevated) and AST 35 (elevated). Ultrasound of the abdomen showed a liver with normal contour and echotexture, but there is a geographic hyperechoic appearance in the central liver, possibly indicating focal fat deposition. Patient's recent gastric emptying study indicated normal gastric emptying of liquids and delayed gastric emptying of solids. Patient did not have any symptoms of nausea, vomiting, or abdominal pain at this time and GI was okay with proceeding with metformin or GLP1 receptor agonist (GP1Ra) therapy at this time.
Methods: Patient was initially trialed on metformin 500 mg extended release daily; however, she experienced nausea without resolution with zofran. Patient was then started on saxenda 0.6 mg qdaily which she tolerated and was uptritrated to 1.2 mg qdaily over 2-4 weeks, rather than immediately after 1 week which is normally recommended. Patient was also advised to avoid fatty and fried foods, and eat smaller portions which is line with a gastroparesis diet, while also increasing her hydration to 64-80 oz of water throughout the day and engaging in weights/resistance training in addition to cardio.
Results: Patient lost 27 lbs across 9 months with lifetyle interventions and medical weight management with slow tritration of GLP1RA in the setting of idiopathic gastroparesis. Idiopathic gastroparesis may be the most common form of gastroparesis. It is estimated that no detectable primary underlying abnormality is found in approximately one half of patients with delayed gastric emptying. The presence of obesity may further lead to the development of refractory gastroparesis. In some patients with refractory gastroparesis Roux-en-y gastric bypass or sleeve gastrectomy has been used dual treatment for obesity and gastroparesis. Weight loss itself may alleviate some gastroparesis symptoms as it reduces stress on the digestive system.
Conclusions: If considering weight management in the setting of gastroparesis in paients living with overweight or obesity, specifically GLP1Ra, its important make a personally tailored plan to implement lifestyle modifications while slowly titrating medications.

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SLEEP DEPRIVATION IN PATIENTS WITH OBESITY - INSIGHTS FROM THE BHARAT DATASET (BAROPHENOTYPE ASSESSMENT AND REGIONAL VARIATIONS AMONG PEOPLE LIVING WITH OBESITY IN INDIA)

Nitin Kapoor[1], Sunil Kota[2], Shehla Shaikh[3], Saptarshi Bhattacharya[4], Sambit Das[2,5], Sanjay Kalra[6]
[1]Christian medical college, Vellore, Vellore, India, [2]Diabetes & Endocare Clinic, Berhampur, India, [3]HN Reliance Hospital,, Department Of Endocrinology, Mumbai, India, [4]Indraprastha Apollo Hospitals,, Department Of Endocrinology,, Delhi, India, [5]Kalinga Institute of Medical Sciences, Endocrinology, Bhubaneswar, India, [6]Bharti hospital, Karnal, India

Background and Aims: Obesity and sleep deprivation are two pandemics that pervade the current society filled with technological advancements and unhealthy life style choices. Though the association between them is well established in western countries, there is paucity of data from the south Asian region which represents a distinct obesity phenotype. In this paper the authors explore the association between sleep deprivation and the severity of obesity. The authors also assess its impact on the health-related quality of life, obesity related comorbidities and the Edmonton obesity staging system.
Methods: This study is based on a prospectively collected clinic-based dataset including people living with obesity, representing different regions of India. Data regarding obesity indicators, comorbidities associated with obesity, quality of life using SF-36 questionnaire and the Edmonton obesity staging system was captured using a central computerized Information and Processing System. Sleep deprivation was defined as less than 6 hours of sleep per night. Appropriate statistical methods were applied and data was analyzed using SPSS (version 17) (IBM SPSS Inc., Chicago, IL, USA) program. This study was approved by a central ethics committee vide registration number ECR/1629/Inst/MH/2021.
Results: Data from 761 individuals was collected. The mean (SD) age of the study participants was 48.2(13.1) years and 62% were women. 39.5% (300/761) of individuals had sleep deprivation. Despite having a similar BMI between the two groups (33.2 vs 33.7 kg/m^2; p = 0.38) , sleep deprived individuals had higher indicators of central obesity(Waist circumference 83.4 vs 100.7 cm; p = 0.001; Hip circumference 85.8 vs 105.3 cm; p = 0.001; Neck Circumference 29.1 vs 35.9 cm; p = 0.001; Wrist circumference13.6 vs 16.2 cm; p = 0.001). Moreover, though a higher proportion of sleep deprived individuals had a worse EOSS stage, not all domains of healthy related quality of life and obesity related comorbidities were worse in people with sleep deprivation.
Conclusions: Individuals who reported slept less than 7 hours per night were more likely to have increased central adiposity despite a similar body mass index when compared to those who slept more than 7 hours in this south Asian cohort. We recommend further investigations to elucidate the potential ethnicity specific mechanisms that lead to a differential effect of sleep deprivation on various obesity related comorbidities in the Indian population.

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FAMILIAL PARTIAL LIPODYSTROPHY: CLINICAL FEATURES, GENETICS AND TREATMENT IN A GREEK REFERRAL CENTER

Aikaterini Kountouri[1], Emmanouil Korakas[1], Eirini Maratou[2], Ignatios Ikonomidis[3], Konstantinos Balampanis[1], Stavros Liatis[4], Nikolaos Tentolouris[4], Panagiotis Toulas[5], Foteini Kousathana[1], Christoforos Giatzakis[6], George Dimitriadis[1], Vaia Lambadiari[1]
[1]ATTIKON UNIVERSITY HOSPITAL, Second Department Of Internal Medicine, HAIDARI, Greece, [2]ATTIKON UNIVERSITY HOSPITAL, Laboratory Of Clinical Biochemistry, Medical School, National And Kapodistrian University Of Athens,, HAIDARI, Greece, [3]ATTIKON UNIVERSITY HOSPITAL, Laboratory Of Preventive Cardiology,, HAIDARI, Greece, [4]Laiko General Hospital, First Department Of Propaedeutic And Internal Medicine, ATHENS, Greece, [5]Bioiatriki Healthcare Group, Bioiatriki Healthcare Group, ATHENS, Greece, [6]Cretan Center for Research and Development of Applications on Genetics and Molecular Biology, Dnabiolab, HERAKLION, Greece

Background and Aims: Familial partial lipodystrophy (FPLD) is a rare syndrome in which a patient's phenotype is dependent on the specific genetic mutation, but also on a combination of other demographic, environmental and genetic factors
Methods: In this prospective observational study in a Greek referral center, we enrolled 39 patients who fulfilled the clinical criteria of familial partial lipodystrophy. A genetic analysis was conducted, which included sequence and deletion/duplication analyses of the LMNA and PPRARG genes. Anthropometric parameters were examined. The treatment responses of patients who received treatment with metreleptin were evaluated at 3 and 12 months.
Results: In most patients, no significant changes were detected at the exon level, and mutations that led to changes at the protein level were not associated with the lipodystrophic phenotype. Ωarious changes were detected at the intron level, especially in introns 7 and 10, whose clinical significance is considered unknown. Treatment with metreleptin in specific FPLD patients significantly improved glycemic and lipidemic control, and the benefit was sustained after 12 months.
Conclusions: We have shown the presence of mutations both in exons, which are different from the ones already associated with the disease, and in introns, which might also contribute to the final amino acid products and the phenotype of the patient.The sustainable and favorable results of metreleptin treatment in FPLD patients were confirmed, and they are independent from any baseline parameters.

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ORG43553, A LOW-MOLECULAR-WEIGHT AGONIST OF THE HUMAN LUTEINIZING HORMONE RECEPTOR, INDUCES LEANNESS AND ENERGY EXPENDITURE IN MICE

Daria Lizneva, Anisa Gumerova, Kseniia Ievleva, Orly Barak, Uliana Cheliadinova, Funda Korkmaz, Darya Vasilyeva, Judit Gimenez Roig, Tal Frolinger, Georgii Pevnev, Farhath Sultana, Anusha Rani Pallapati, Satish Rojekar, Vitaly Ryu, Ofer Moldavski, Tony Yuen, Mone Zaidi
Icahn School of Medicine at Mount Sinai, Center Of Excellence For Translational Medicine And Pharmacology, New York, United States of America

Background and Aims: Epidemiological studies show that a low BMI is associated with high serum luteinizing hormone (LH) levels in healthy reproductive-aged women, postmenopausal women, and women diagnosed with PCOS. Here, we aim to determine whether LH can function as a pro-lean hormone and whether pharmacological activation of the LH receptor (LHCGR) in adipose tissue can facilitate weight reduction.
Methods: LHCGR expression and metabolic phenotyping were performed in wild type and LHCGR-deficient mice on normal chow or hight-fat diet. Methods used include qPCR, RNAseq, immunoblotting, Sanger sequencing, RNAscope in situ hybridization, immunohistochemistry, AlexaFluor-488-labeled hCG binding, biodistribution studies, siRNA knockdown, ELISA, qNMR, GTT and ITT.
Results: We detected Lhcgr transcripts and proteins in white adipose tissue (WAT) depots in male and female C57BL/6 mice. Intraperitoneal AlexaFluor-488–labeled hCG bound to gonadal and subcutaneous fat pads in wild type mice, but not in Lhcgr$^{-/-}$ mice. Following i.v. ^{89}Zr–LH injection, radioactivity was detected in mesenteric, inguinal and gonadal WAT. LH, hCG and small molecule LHCGR agonist ORG43553 rapidly induced ERK1/2 phosphorylation in differentiated 3T3.L1 adipocytes. Female and male Lhcgr$^{+/-}$ mice on normal chow and high–fat diet, respectively, became obese, importantly, without changes in sex steroids. 14–week–old male C57BL/6 mice were fed on high–fat diet and injected, i.p., with LH, hCG or vehicle, twice–a–week, for 6 weeks. Both LH and hCG markedly reduced body fat accrual (qNMR) but triggered a rise in serum testosterone. The hCG–induced lean phenotype persisted despite androgen receptor blockade by flutamide—confirming that the pro–lean actions of LH and hCG were largely independent of testosterone. Injection of ORG43553 into male C57BL/6 mice for 9 weeks caused a significant reduction in fat mass (qNMR), with reduced WAT weight in fat depots. Remarkably, serum testosterone remained unchanged confirming that the anti–adiposity effect of ORG43553 was independent of sex steroids. To study the mechanism of LHCGR activation on body fat, 3T3-L1–derived organoids treated with LH, hCG or ORG43553 displayed a substantial reduction in the differentiated layer compared to vehicle–treated organoids. To study whether LHCGR agonism also enhanced thermogenesis, 3T3-L1 adipocytes were pretreated with ORG43553 for 1 hour before measuring oxygen consumption rate (OCR). ORG43553 increased OCR at baseline and upon oligomycin exposure, indicating mitochondria proton leak. To confirm increased energy expenditure in vivo, mice were injected, s.c., with ORG43553 or vehicle. Oxygen consumption and energy expenditure increased acutely in ORG43553–treated mice.
Conclusions: We show that ORG43553 activates adipocytic LHCGR to reduce adipocyte differentiation, increase energy expenditure and protect mice from diet-induced obesity.

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01-03-2024 07:00 - 18:00

A JOURNEY OF TRANSFORMATION: A CASE STUDY ON THE MANAGEMENT OF OBESITY AND COMORBIDITIES

Holly Lofton
NYU Langone Grossman School of Medicine, Bariatric Surgery / Internal Medicine, New York, NY, United States of America

Background and Aims: Introduction:
In the realm of medical practice, the management of obesity and its associated comorbidities presents a formidable challenge. This clinical vignette elucidates the journey of a 55-year-old female patient, who, over a decade, transformed her health status through a comprehensive weight management program. Clinical Context and Relevance:
Obesity is a global health concern, often serving as a precursor to numerous chronic conditions such as coronary artery disease, type 2 diabetes, and sleep apnea. This case underscores the importance of a multidisciplinary approach in managing obesity and its comorbidities.
Methods: Patient Medical History:
The patient, with a past medical history of hypothyroidism, hyperlipidemia, DCIS breast mass, hepatic steatosis, and gastroesophageal reflux disease, initially sought medical assistance for weight management in 2012. However, she was lost to follow-up until 2021, during which she developed coronary artery disease, suffered a non-ST elevation myocardial infarction, and was diagnosed with sleep apnea. Physical Exam:
The patient's physical examination revealed a BMI of 38.19 kg/m² in 2021, up from 32.93 kg/m² in 2012. Her vitals remained stable throughout her treatment course. Clinical Course:
The patient was diagnosed with type 2 diabetes in 2021, which led to the initiation of semaglutide and metformin treatment. A high-protein, low-carb diet and meal replacement regimen were also implemented. This resulted in significant weight loss and a decrease in BMI to 20.99 kg/m². The patient's diabetes went into remission, and her nonalcoholic fatty liver disease resolved. Despite the cessation of snoring, her sleep apnea diagnosis remained. Over the course of two years, the patient lost a total of 105 pounds. Her diabetes was well-managed, with her A1c levels normalizing. The patient's weight stabilized at 134 pounds by June 2023, and her fatty liver disease had resolved. However, her sleep apnea diagnosis was not rescinded despite the resolution of her snoring.
Results: Discussion: The patient's journey underscores the efficacy of a comprehensive, multidisciplinary approach in managing obesity and its comorbidities. The use of semaglutide, in conjunction with lifestyle modifications, proved instrumental in her weight loss and the remission of her type 2 diabetes.
Conclusions: Lessons Learned by the Case: This case highlights the transformative potential of a comprehensive weight management program in patients with obesity and associated comorbidities. It underscores the importance of long-term follow-up and the need for a multidisciplinary approach in managing such patients. Furthermore, it emphasizes the role of GLP-1 receptor agonists in weight management and glycemic control.

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THE ROCZEN PROGRAMME: REAL-WORLD DATA OF A DIGITALLY ENABLED TIME RESTRICTIVE EATING PROGRAMME ON BIOMETRIC OUTCOMES IN AN ETHNICALLY DIVERSE POPULATION IN THE UK

Laura Falvey[1], Laurence Dobbie[2], Ling Chow[1], Claudia Ashton[1], Dipesh Patel[3], Adrian Brown[4], Jonathan Kwan[5], Siri Steinmo[4], Barbara Mcgowan[6]
[1]Reset Health, London, United Kingdom, [2]King's College London, London, United Kingdom, [3]Royal Free Hospital, London, United Kingdom, [4]University College London, London, United Kingdom, [5]Darent Valley Hospital, London, United Kingdom, [6]Guys & St Thomas's Hospital, Endocrinology And Diabetes, London, United Kingdom

Background and Aims: Roczen is a digital, clinical programme designed for people living with obesity (PLwO) and complications such as type 2 diabetes (T2D) that utilises time-restricted eating (TRE). Weight management and metabolic health intervention data mostly includes people from white ethnicity. The aim was to examine the impact of the programme in an ethnically diverse population in the UK at 12 months (12m).
Methods: We conducted a retrospective, real-world service evaluation. Patients were initiated on a 16-hour TRE plan with low-carbohydrate, moderate-protein dietary guidance. The programme was digitally delivered by clinicians with regular video follow up, goal setting, self monitoring, motivational interviewing, feedback, and peer support via an App. Advice on increasing physical activity from baseline was tailored to the individual. We calculated mean±standard deviation to compare biometric outcomes in different ethnic groups.
Results: We included 945 patients (47.4±10.3 years, 64.6% female, BMI: 34.6±6.1kg/m2) who were at varying stages of the Roczen programme. 61.2% were from white ethnicity (n=578), 16.0% from black ethnicity (n=151), 14.1% from South Asian (SA) ethnicity (n=133) and 8.8% were from other ethnic groups (n=83). Of data available, mean weight loss was 8.6±7.1kg (-8.7%) at 12m (n=132, p<0.0001). At 12m, mean weight reductions were 6.0±6.3kg [-6.1%] in people from black ethnicity, 6.6±5.2kg [-7.9%] in people from SA ethnicity and 10.5±7.7kg [-9.9%] in people from white ethnicity (ANOVA: p=0.0052, BAC vs white: 4.4kg, p=0.01, SA vs white: 3.8kg, p=0.07). For available data on waist circumference, mean reduction was 10.1±10.5cm (9.3%) at 12m (n=70, p<0.0001), with similar reductions between ethnic groups (ANOVA: p=0.50, white: -10.6±10.5cm, black: -12.9±11.2cm, SA:-7.9±9.1cm). Retention rates at 12m were 46% in Black ethnicity , 28% in SA and 25% in WE groups.
Conclusions: Evaluation of the Roczen programme within a real-world setting shows that people from black and SA ethnicity appear to perform better than those from white ethnicity in terms of retention. Reductions in body weight in black ethnicity are less than in white ethnic groups, but all weight reductions were clinically significant. Waist circumference loss was highest in people from black ethnicity, but did not significantly differ between groups. Overall, our data shows the suitability of the programme for PLwO from diverse ethnic backgrounds.

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E-Poster Viewing
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ASSOCIATION OF POSTOPERATIVE DIETARY MACRONUTRIENT CONTENT AND QUALITY WITH TOTAL WEIGHT LOSS AND FAT-FREE MASS LOSS AT MIDTERM AFTER SLEEVE GASTRECTOMY

Parvin Mirmiran[1], Zahra Kamali[1], Nazanin Moslehi[2], Maryam Barzin[3], Alireza Khalaj[4]
[1]Faculty of Nutrition and Food Technology, National Nutrition and Food Technology Research Institute, Shahid Beheshti University of Medical Sciences, Department Of Clinical Nutrition And Dietetics, Tehran, Iran, [2]Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Nutrition And Endocrine Research Center, Tehran, Iran, [3]Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Obesity Research Center, Tehran, Iran, [4]Faculty of Medicine, Shahed University, Department Of Surgery, Tehran, Iran

Background and Aims: The amount of postoperative total weight loss (TWL) and fat-free mass loss relative to weight loss (FFM loss/WL) indicate the success rate of the bariatric surgery (BS).The postoperative compositions of macronutrients may play a role in the observed differences in TWL and FFM loss/WL. This study aimed to examine the associations between the quantity and quality of dietary macronutrients and TWL and FFM loss after BS.
Methods: This cross-sectional study included 146 patients who had undergone sleeve gastrectomy 2–4 years previously. To assess diet, a validated food frequency questionnaire was utilized. To evaluate the overall quality of dietary macronutrients, the macronutrient quality index (MQI) was calculated using the three quality indices of carbohydrate quality index, fat quality index, and healthy plate quality index. The association of quantity and quality of dietary macronutrients with TWL and FFM loss/WL was investigated using linear regression. The odds of non-response to surgery (TWL<25%) and excess FFM loss/WL (highest tertile of FFM loss with a value >28%) were also evaluated using logistic regression.
Results: The participants' mean age and postoperative time were 43.6 ± 12.1 years and 30.8 ± 6.5 months, respectively. Forty-six (31.5%) were non-responders, and 49 (33.6%) experienced excessive FFM loss. After controlling for all variables, each 5% increase in carbohydrate was associated with a 0.75% lower TWL (95% CI = -1.45, -0.05). The odds of non-response were 53% lower per 5% increase in protein (95% CI = 0.23, 0.94). Additionally, each 5 g higher intake of fat was associated with 0.29% higher FFM loss (95% CI= 0.03, 0.55). The odds of excessive FFM loss was 5% lower per 1 gram increase in fiber intake (95% CI= 0.90, 0.99). Eventually, each 5% increment in energy intake from protein that were isocalorically substituted for either carbohydrate (OR = 0.44 (95% CI = 0.21, 0.91)) or fat (OR = 0.45 (95% CI = 0.21, 0.97)) was associated with lower odds of non-response. The MQI showed no significant associations.
Conclusions: Substitution of protein for carbohydrates or fats was associated with decreased odds non-response to BS. A higher fiber intake was associated with less relative FFM loss and a decreased odds of excessive FFM loss. Following the BS, adherence to a high-protein, high-fiber diet may enhance surgical success.

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INDICATORS OF CARBOHYDRATE METABOLISM IN PATIENTS DURING THE ACUTE PERIOD OF COVID-19

Umida Mirzaeva
Tashkent pediatric medical institute, Endocrinology, Tashkent, Uzbekistan

Background and Aims: The article represents the results of the study on the features of metabolic disorders in COVID-19 infected patients in the acute phase of the disease course. The study used data of 31 patients in the acute period of coronavirus infection caused by COVID-19. The average age of patients was 56.4±12.8 years (from 32 to 80 years), among them 13 (41.9%) were men and 18 (58.1%) were women. **The aim of a research study:** To determine the parameters of carbohydrate metabolism in patients with COVID-19 in the acute phase of the disease.
Methods: The object of the study was 31 patients in the acute period of coronavirus infection caused by COVID-19. The age of the patients ranged from 32 to 80 years (mean age 56.4 ± 12.8 years). Of these, there were 13 (41.9%) males and 18 (58.1%) females. More than half of the patients (58.1%) were between 50 and 70 years of age. All patients underwent standard clinical and anamnestic examinations: anthropometric (height, body weight, calculation of body mass index (BMI); hemodynamic (blood pressure (BP) and HR); laboratory examination included general and biochemical blood analysis - liver function parameters (alanine aminotransferase (ALT) and aspartate aminotransferase (AST), bilirubin), coagulogram, lipid spectrum indicators (total cholesterol (TC), triglycerides (TG), high-density lipoproteins (HDL), low-density lipoproteins (LDL)), as well as fasting glycemia, HbA1c, fasting insulin levels with determination of HOMA- IR index, urea, creatinine with calculation of SCF and C-reactive protein.
Results: Carbohydrate metabolism disorder in the form of increased fasting glucose level was revealed in 6 (19,4 %) patients, mainly older than 50 years old with concomitant arterial hypertension, excessive body weight and obesity. In 4 patients with a history of type 2 DM the duration of the disease was 6.8 ± 1.7 years on average. In most patients fasting glucose level was within the range of normal values (mean 4.4 ± 0.7 mmol/l). HbAlc above the reference interval was observed in 32.3% of patients. When analyzing the indicators of insulin resistance the increased level of insulin was noted in 22.6% of cases, HOMA IR ≥2.7 was found in 35.5% of patients, mostly with coronavirus infection of moderate severity.
Conclusions: Thus, the presence of impaired carbohydrate metabolism is associated with a more severe course of coronavirus infection. At the time of admission, the group with a moderate course of coronavirus infection had more co-morbidities than patients in the group with a mild course.

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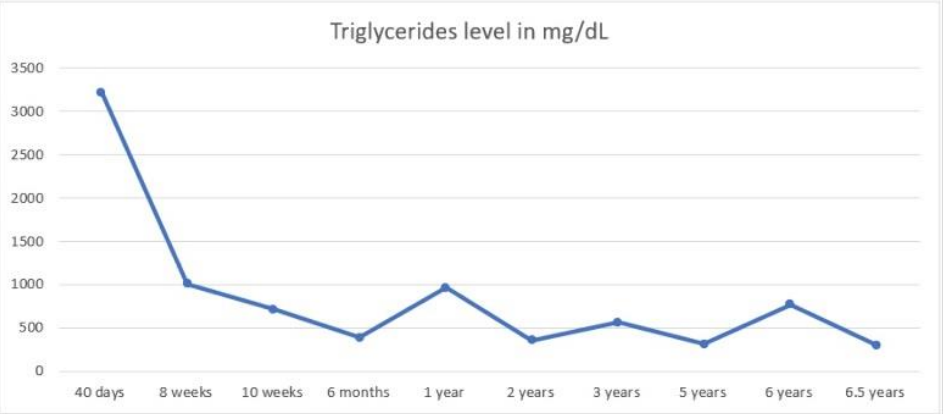
SIX YEARS FOLLOW UP OF A CHILD WITH FAMILIAL CHYLOMICRONEMIA SYNDROME: DISEASE COURSE AND EFFECTIVENESS OF GEMFIBROZIL TREATMENT: CASE REPORT AND LITERATURE REVIEW

Manal Mustafa
Al Jalila Children's Speciality Hospital, Pediatric Endocrinology, Dubai, United Arab Emirates

Background and Aims: Familial chylomicronemia syndrome (FCS) is a rare autosomal recessive disease affecting lipoprotein metabolism. FCS
is estimated to occur in 1 in 1 - 2 million individuals, and can be diagnosed at any age, affecting all genders, races, and ethnicities
equally. The condition is characterized by hypertriglyceridemia, which may predispose patients to acute pancreatitis. Treatment of FCS primarily includes dietary fat restrictions and the inclusion of medium chain triglycerides. However, some severe cases have required lipid lowering
medications, which have improved the condition of these patients. Patients have rarely needed plasmapheresis, and new medications
under trials have shown promising results.
Methods: Here, we presented the case of a now 6-year-old girl with FCS on Gemfibrozil and dietary restrictions. The patient
initially presented at 40 days of age with bloody diarrhea. Serum samples showed lipemia, with markedly elevated triglyceride
levels. Weight, height, and head circumference were appropriate to age, her abdomen was soft, and no dysmorphic features, skin abnormalities, or organomegaly were noted. Her initial lipid profile revealed a normal total cholesterol of 162 mg/dL = 4.1 mmol/L (normal range 170 - 200 mg/dL, 4.4 - 5.2 mmol/L) and significantly high serum triglycerides, at 3221 mg/dL = 36.4mmol/L (normal range: 75 - 100 mg/dL, 0.8 - 1.1 mmol/L). She was diagnosed with FCS, which was confirmed by genetic testing, showing homozygous variant c.833C>T(p,Ser278Phe)
for LPL gene. Despite starting a low-fat diet with medium chain triglycerides (MCT) based milk formulas, the patient developed acute
pancreatitis two months later, with continued elevated triglyceride levels. She was started on Gemfibrozil and fat-soluble vitamins
at two months of age, with marked improvements subsequently noted. Currently she is well, with normal growth parameters and no
other episodes of acute pancreatitis. Her triglyceride levels have maintained within normal levels.
Results:



Graph 1: Trend of triglyceride level of the patient since diagnosis.

Conclusions: In conclusion, familial chylomicronemia syndrome is a rare, inherited primary lipid disorder that often goes underdiagnosed and unmanaged. The condition mainly presents in childhood but can also be seen in infancy with various manifestations. There is insufficient data regarding its treatment protocol, however, the mainstay of management is dietary restrictions and lipid lowering agents. Notably, fibrate derivative agent, Gemfibrozil, has been used as in the early treatment of those patients after diagnosis with promising results.

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REVOLUTIONIZING DIAGNOSIS AND PROGNOSIS OF METABOLIC STEATOPATHY: THE SIGNIFICANCE OF THE RECENTLY INTRODUCED DIAGNOSTIC CRITERIA OF MAFLD

Ahmed Mohamed Nefzi, Bochra Bouchabou, Yosr El Mouldi, Abdelwahab Nakhli, Nesrine Hemdani, Zeineb Benzarti, Houda Ben Nejma, Rym Ennaifer
Mongi Slim Hospital , La Marsa , Tunisia, Hepato-gastroenterology, Tunis, Tunisia

Background and Aims: The diagnosis of metabolic steatopathy is based on the classic criteria of Non-Alcoholic Fatty Liver Disease (NAFLD). A group of experts found these criteria to be restrictive and proposed new criteria defining Metabolic Dysregulation Associated Fatty Liver Disease (MAFLD). The aim of this study was to compare the clinical and biological profiles, degree of liver fibrosis, and cardiovascular risk of patients meeting the criteria for NAFLD versus those meeting the criteria for MAFLD
Methods: This was a descriptive, prospective, cross-sectional, single-center study including patients with ultra-sound confirmed steatosis. We applied both criteria to the study population and defined two groups: NAFLD (+) and MAFLD (+). We described their clinical and biological profiles, liver fibrosis scores, Fibroscan Data, and cardiovascular risk and compared these data between the two groups. Liver fibrosis was assessed using non-invasive serum tests (NAFLD Fibrosis Score (NFS) and Fibrosis-4 score (FIB-4)) and transient elastography. Advanced liver fibrosis is defined as a FIB-4 score ≥ 1.3 and/or an NFS score ≥ -1.455, with an elasticity ≥ 8kPa.Cardiovascular risk was estimated using the GLOBORISK score. We then eliminated patients meeting both criteria and compared the data of the non-overlapping groups meaning NAFLD (+) MAFLD (-) and NAFLD (-) MAFLD (+).
Results: Out of 107 patients, 69 met the criteria for NAFLD and 96 for MAFLD. We did not find any significant differences in terms of basic demographic data. Body mass index, waist circumference, and systolic blood pressure were higher in the MAFLD (+) group with respective p-values of 0.06, 0.05, and 0.04. Biological Data were comparable between the two groups. Liver fibrosis scores, hepatic elasticity, and cardiovascular risk were higher in MAFLD (+) patients but did not reach statistical significance. After eliminating overlapping patients, NAFLD (-) MAFLD (+) patients had higher fasting blood sugar levels (p=0.002) and lower HDL c levels (p=0.04). The NAFLD Fibrosis Score and hepatic elasticity were significantly higher in these patients with respective p-values of 0.03 and 0.02. These patients also had a higher cardiovascular risk (p=0.04).
Conclusions: The MAFLD criteria detected patients with more metabolic disorders, more severe liver fibrosis, and a higher cardiovascular risk.

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THE ORIGANUM VULGARE L. ESSENTIAL OIL AMELIORATES FATTY ACID- IMPAIRED INSULIN SIGNALING AND GLUCOSE UPTAKE IN HUMAN ADIPOCYTES

Paulina Ormazabal[1], Gabriela Yuri[2], Andrea Müller[3], Claudia Foerster[3]
[1]Escuela de Obstetricia, Facultad de Ciencias para el Cuidado de la Salud, Universidad San Sebastián, Santiago, Chile, [2]Institute of Nutrition and Food Technology (INTA), Laboratory Of Obesity And Metabolism In Geriatrics And Adults (omega), Santiago, Chile, [3]Universidad de O'Higgins, Institute Of Agrifood, Animal And Environmental Sciences (ica3), San Fernando, Chile

Background and Aims: Obesity is strongly associated with insulin resistance (IR). IR at the molecular level may be defined as a diminished activation of PI3K/Akt signaling and its related molecules (IRS-1/Akt/AS160) as well as reduced glucose uptake. Subjects with obesity have elevated plasma levels of saturated fatty acids, such as palmitic acid (PA), which triggers insulin signaling disruption in vivo and in vitro. Oregano (Origanum vulgare L.) is a plant used as a food component worldwide. Interestingly, the main constituents of oregano have shown protective effects on obesity-related dysfunctions. The Origanum vulgare L. essential oil (O-EO) contains considerable amounts of phenolic monoterpenes, such as carvacrol and thymol, which may explain the biological activity of the plant. The aim of this study was to assess whether O-EO exposure protects against PA- induced disruption of IRS-1/Akt/AS160 signaling and glucose uptake in human adipose cells.
Methods: Cytotoxicity of a range of O-EO concentrations (0.01–20 µg/mL) was evaluated by MTS assay in in vitro differentiated adipocytes from the adipose cell line SW872. Adipocytes were incubated or not with PA for 24 h in the presence or not of O-EO (2-h preincubation), and thereafter stimulated with insulin or vehicle. Thereby, experimental conditions were: control (untreated cells), 0.4 mM PA, 0.1 µg/mL of O-EO, 10 µg/mL of O-EO, 0.1 µg/mL of O-EO (2 h before) + 0.4 mM PA for 24 h, 10 µg/mL of O-EO (2 h before) + 0.4 mM PA for 24 h, and incubated with 100 nM insulin for 10 min. Phosphorylation of Tyr-IRS-1, Ser-Akt and Thr-AS160 were evaluated by Western blot and glucose uptake was assessed using the 2-NBDG analogue.
Results: In SW872 adipocytes, O-EO was not cytotoxic at any concentration assessed. Insulin-stimulated phosphorylation of IRS-1, Akt, AS160 and glucose uptake were not affected by treatment with 0.1 and 10 µg/ml O-EO compared with vehicle-treated cells. PA-treated adipocytes showed a reduction in insulin-stimulated phosphorylation of IRS-1, Akt, AS160 and glucose uptake compared to control ($p<0.05$). Interestingly, these effects were prevented by O-EO treatment.
Conclusions: These findings give new insights into the effect of O-EO ameliorating PA- impaired insulin signaling and glucose uptake in adipocytes. More studies should focus on Origanum vulgare L., since might represent a preventive approach in individuals whose circulating PA levels contribute to IR.

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THE CHALLENGING DIFFERENTIAL DIAGNOSIS OF PSEUDO-CUSHING'S SYNDROME AND CUSHING'S SYNDROME IN PATIENT WITH OBESITY

Riccardo Maria Pollis, Mattia Barbot, Carla Scaroni, Chiara Sabbadin
University of Padua, Department Of Medicine, Padua, Italy

Background and Aims: Obesity, classically defined as body mass index (BMI) > 30kg/m^2, is a worldwide emerging condition with a prevalence of 20% in Europe. It is considered a chronic disease listed among the different entities of so-called pseudo-Cushing states (PCS), because of the dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis inducing functional hypercortisolism. Approaching patients with obesity needs to be systematic, in order to rule out any underlying endocrinological disorder. Among these, Cushing's syndrome (CS), although rare per se, should be taken into account when subjects exhibit specific clinical features suggestive of hypercortisolism. The aim of this clinical case is to stress the importance of the correct management of patients with obesity, unmasking endogenous hypercortisolism, to avoid its catabolic effects and complications affecting quality of life and life expectancy unless properly treated.
Methods: Here we report an interesting case of a middle-aged obese man, with history of resistant hypertension and stroke, admitted to our care unit for severe hyperglycaemia and moderate hypokalaemia. According to the clinical history, laboratory tests and physical examination, CS was suspected.
Results: At admission, the patient was promptly treated with subcutaneous insulin administration and fluid replacement with electrolytes. At physical examination, central obesity (BMI 31.2 kg/m^2; waist circumference 110 cm), proximal myopathy with think skin, dorsocervical fat pad, facial plethora, and peripheral oedema, were present. The patients showed uncontrolled hypertension (170/100 mmHg) and a new onset of type 2 diabetes (HbA1c 115 mmol/mol; blood glucose 35 mmol/L) supporting the hypothesis of CS. First line tests showed an abnormal circadian rhythm with high late night salivary cortisol (LNSC 10.5 nmol/L, repeated 6.6nmol/L), impaired glucocorticoid feedback after overnight 1-mg dexamethasone suppression test (serum cortisol 590 nmol/L), and increased 24-hour urinary free cortisol (292 nmol/24h, repeated 478 nmol/24h,), all consistent with CS diagnosis. Therefore, patient was correctly managed according to current guidelines for CS.
Conclusions: This case report underlines the importance of clinical assessment to determine which patients with obesity should be screened for CS diagnosis. The combination of catabolic manifestations, fat redistribution and increased fluid reabsorption are strongly suggestive for endogenous hypercortisolism. Distinguishing CS from PCS is essential for the correct management, and subsequent follow-up, in these complicated patients. Finally, prompt treatment of comorbidities in CS (hyperglycaemia, electrolytes impairment and hypertension) is another key point to consider.

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TRENDS OF OBESITY IN PEOPLE WITH DIABETES- AN 18 YEARS FOLLOW-UP STUDY FROM PAKISTAN

Saima Askari[1], Mussarrat Riaz[2], Abdul Basit[1]
[1]Baqai Institute of Diabetology and Endocrinology, Baqai Medical University, Karachi, Pakistan, [2]Baqai Institute of Diabetology and Endocrinology, Baqai Medical University, Endocrinology, Karachi, Pakistan

Background and Aims: Background: Obesity and its associated co-morbidity are a major public health problem and the fifth most common leading cause of death globally. Objective: To assess the trends of obesity and associated risk factors over a period of 18 years in people with diabetes presenting at a tertiary care diabetes centre in Karachi, Pakistan.
Methods: This retrospective observational study was carried out at Baqai Institute of Diabetology and Endocrinology (BIDE), Baqai Medical University (BMU), Karachi- Pakistan. from January 2005 to April 2022.The data at first presentation of people diagnosed with type 2 diabetes of both genders, aged ≥ 20 years were obtained through an electronic database (Health Management System). Obesity was defined according to the World Health Organization (WHO) criteria of body mass index (BMI) classification guidelines for the Asian population. To assess trends over time and produce reliable estimates, data was grouped into two-time frames: 2005-2014, and 2015-2022. Two population proportion test was used to analyze differences in proportions between groups.
Results: A total of 50940 subjects who met the inclusion criteria were selected for analysis. Out of which 54.8% were men. The mean age and duration of diabetes were 51.92±11 years and 7.89±7.44 years respectively. The mean BMI was 28.46±5.36 (kg/m2). The trend of the obesity rate over the years 2005 to 2022 demonstrated that the obesity rate had been steadily increasing over the years, starting at 63.4% in 2005 and reaching at 75% in 2022. Highest significant change in obesity trend was observed in men (Δ=7.8%) and people with the duration of diabetes >10 years (Δ=8.8%) (p for trend<0.05). Table 1: Temporal change in obesity rate.

Parameters	2005-2014	2015-2022
	% (95% CI)	% (95% CI)
Overall	69.2(68.5-69.8)	75.6(75.1-76.1)
Women	76.9(76-77.7)	81.3(80.6-81.9)
Men	63(62.1-63.8)	70.8(70.1-71.5)
Age (years)		
20-29	64.2(58.9-69.1)	72.1(68.3-75.6)
30-39	73.5(71.5-75.3)	79.4(78-80.8)
40-49	73.2(72.1-74.3)	79.7(78.8-80.6)
50-59	70.5(69.5-71.6)	76.7(75.9-77.5)
≥60	61.8(60.6-63.1)	68.7(67.7-69.7)
Diabetes status		
Newly diagnosed	73.1(71.6-74.6)	78.2(77-79.3)

Known DM	68.4(67.7-69.1)	75(74.5-75.6)
Duration of DM		
≤10 years	71.9(71.1-72.6)	77(76.5-77.6)
>10 years	63.2(62-64.4)	72(71.1-73)
Hypertension		
No	65.6(64.7-66.5)	72.8(72.1-73.4)
Yes	73.3(72.4-74.2)	80.2(79.4-80.9)

Conclusions: This study highlighted the rising trends of dual burden of obesity in people with diabetes and calling an immediate need for local awareness, useful policies, effective and appropriate social and physical environments to address and manage this challenge.

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EFFECTS OF TRANSCUTANEOUS AURICULAR VAGUS NERVE STIMULATION ON ADIPOSE TISSUE PLASTICITY IN DIET-INDUCED OBESE RATS

Chen Xin, Peijing Rong
China Academy of Chinese Medical Sciences, Institute Of Acupuncture And Moxibustion, Beijing, China

Background and Aims: The vagus nerve plays a significant role in lipid metabolism, appetite and energy balance, making it crucial in the process of obesity. The aim of this study is to investigate the effect of transcutaneous auricular vagus nerve stimulation (taVNS) on adipose tissue plasticity in diet-induced obese (DIO) rats.
Methods: Three-week-old Male Sprague-Dawley rats were fed high fat or normal chow for 11 weeks. DIO rats were treated with taVNS, orlistat or taVNS after subdiaphragmatic vagotomy (SDV+taVNS) for 6 weeks. Body weight and 24-hour food intake were maintained weekly. Rats were sacrificed for measurement of epididymal, inguinal white adipose tissue (eWAT, iWAT) and dorsal brown adipose tissue (BAT) weights. The ratios of adipose tissue weight to body weight were then calculated. The morphology of adipose tissue lipid droplets was observed by HE staining. Expression of Uncoupling Protein 1(UCP 1) in BAT, eWAT and iWAT were determined by Western blot.
Results: After 6 weeks of intervention, both taVNS and orlistat significantly reduced body weight gain in DIO rats ($P<0.001$), while SDV+taVNS did not yield the same effect. TaVNS mildly reduced food intake in DIO rats, with a more significant effect observed during the first week ($P<0.05$). However, SDV+taVNS appeared to increase animal feeding ($P<0.05$). TaVNS significantly reduced the accumulation of iWAT and eWAT in DIO rats ($P<0.05$), while orlistat and SDV+taVNS had no effect in this regard. TaVNS, orlistat and SDV+taVNS all showed an increase in the content of BAT ($P<0.05$), with taVNS and SDV+taVNS showing a more significant effect. In terms of cell morphology, both taVNS and SDV+taVNS were effective in reducing the adipocyte size in BAT($P<0.001$), eWAT($P<0.01$), and iWAT($P<0.05$). In regard to protein expression, both taVNS and SDV+taVNS increased the expression level of UCP1 in BAT ($P<0.05$) and iWAT ($P<0.05$), whereas orlistat did not.
Conclusions: In summary, taVNS exhibits anti-obesity effects by reducing body weight gain, decreasing WAT accumulation, and increasing BAT in DIO rats. This effect may be attributed to its regulation of adipose tissue plasticity, including the promotion of WAT browning. Interestingly, the vagus nerve appears to play an important role in regulating WAT during taVNS.

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MID-UPPER ARM CIRCUMFERENCE IN RELATION TO ABDOMINAL ADIPOSITY AND BLOOD PRESSURE MEASUREMENTS IN YOUNG ADULTS

Dewi Ratna Sari[1,2], Muhammad Auliya Rachman[2], Tri Hartini Yuliawati[3], Ahmad Yudianto[4]
[1]Faculty of Medicine Universitas Airlangga, Department Of Anatomy, Histology And Pharmacology, Surabaya, East Java, Indonesia, [2]Faculty of Medicine Universitas Airlangga, Medical Program, Surabaya, East Java, Indonesia, [3]Faculty of Medicine Universitas Airlangga, Department Of Anatomy, Histology, And Pharmacology, Surabaya, East Java, Indonesia, [4]Dr. Soetomo Hospital - Faculty of Medicine, Department Of Forensic Medicine And Medicolegal, Surabaya, East Java, Indonesia

Background and Aims: Body mass index (BMI) and waist circumference (WC) are commonly used to assess the abnormal fat distribution. Both anthropometric parameters are influenced by position and meal time during measurements. Increase in BMI and WC are linked to high blood pressure in older adults. Mid-upper arm circumference (MUAC) is a reliable tool to indicate nutritional status in children and adolescents. However, studies about whether MUAC is related to abnormal adiposity and blood pressure in young adults are scarce. The study aimed to analyze the relationship between MUAC with abdominal adiposity and blood pressure measurements in young adults.
Methods: This was a cross-sectional study conducted among 51 male and 51 female medical students in the third year, aged 19 to 26 years, in October 2021. The MUAC was measured on the left arm with a non-elastic tape held midway between the acromion and olecranon processes with an unflexed arm at the side of the body. The BMI was calculated by dividing body weight by body height squared. The WC was defined using a non-elastic tape from the narrowest point, half the distance between the lower margin of the costal arcs and the iliac crests. The blood pressure was assessed with a sphygmomanometer. The data were statistically analyzed by Pearson or Spearman rank correlation tests, and a p value < 0.05 was considered significant. The study protocol was approved by the Health Research Ethics Committee, Faculty of Medicine, Universitas Airlangga.
Results: MUAC had positive strong correlations with body weight [r= 0.922, p< 0.001], BMI [r= 0.852, p< 0.001], WC [r= 0.865, p< 0.001], and a positive moderate correlation to body height [r= 0.472, p<0.001], but weak correlations for the MUAC/WC ratio [r= 0.317, p=0.001] and systolic blood pressure (SBP) [r= 0.252, p=0.011] in overall students. After adjusting for gender, it was shown that both male and female students had positive highly correlated to body weight [r= 0.914, p< 0.001; r= 0.882, p< 0.001], and BMI [r= 0.880, p< 0.001; r= 0.900, p< 0.001]. The MUAC had positive significant correlations with WC in both male [r= 0.860, p< 0.001] and female [r= 0.696, p< 0.001] students. A positive moderate correlation between MUAC and the ratio of MUAC/WC [r= 0.526, p< 0.001] was only observed in female students.
Conclusions: A larger MUAC was strongly correlated with increased abdominal adiposity and had a weak correlation with systolic blood pressure among young adults, regardless of gender.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

VOLUNTARY WHEEL RUNNING IMPROVES A HIGH-FAT DIET-INDUCED INFLAMMATION AND INSULIN RESISTANCE IN HYPOTHALAMIC ARCUATE NUCLEUS AND VENTRAL TEGMENTAL AREA IN MALE MICE

Tomoyuki Sasaki[1], Mariko Sugiyama[1], Mitsuhiro Kuno[1], Hiroshi Takagi[1,2], Ryoichi Banno[1,3], Hiroshi Arima[1]
[1]Nagoya University Graduate School of Medicine, Department Of Endocrinology And Diabetes, Nagoya, Japan, [2]Nagoya City University Graduate School of Medical Sciences, Department Of Gastroenterology And Metabolism, Nagoya, Japan, [3]Nagoya University, Research Center Of Health, Physical Fitness And Sports, Nagoya, Japan

Background and Aims: We previously showed that a high-fat diet (HFD) induced inflammation in both the hypothalamic arcuate nucleus (ARC) and ventral tegmental area (VTA) in the brain of mice. It is shown that hypothalamic inflammation induced by HFD occurs prior to substantial body weight gain with glial cell activation, and that the inflammation causes resistance to leptin and insulin, resulting in impairment of energy homeostasis through increased food intake and decreased energy expenditure. In addition, HFD-induced inflammation with glial cell activation in the VTA is suggested to affect the function of dopaminergic neurons and cause abnormal eating behaviors accompanied by insulin resistance in the VTA. In the present study, we aim to elucidate the impact of voluntary exercise on HFD-induced inflammation and insulin resistance in in the ARC and VTA.
Methods: We divided 8-week-old male C57BL/6J mice into four group; a chow-fed sedentary group (CHD/EX- group), HFD-fed sedentary group (HFD/EX- group), a chow-fed exercise group (CHD/EX+ group), and HFD-fed exercise group (HFD/EX+ group). We used wireless running wheels for voluntary exercise. Four weeks after the start of the experiment, the ARC and VTA were dissected from mice. We evaluated the mRNA expressions of inflammation-related cytokines (TNFα, IL1β, IL6, IL10) and glial markers (Iba1, GFAP, CD80) in the ARC and VTA by quantitative real-time PCR. We also evaluated the phosphorylation of Akt in the ARC and VTA after central insulin injection.
Results: In both the ARC and VTA, the mRNA expressions of TNFα and CD80 (microglial M1 marker) in HFD/EX- group were significantly higher than those in CHD/EX-, CHD/EX+ and HFD/EX+ groups. Of note, there were no significant differences in the expressions of TNFα and CD80 among the CHD/EX-, CHD/EX+ and HFD/EX+ groups. The phosphorylation of Akt in the ARC and VTA in HFD/EX- group was significantly lower than that in CHD/EX- group, while the phosphorylation in HFD/EX+ group was significantly higher than that in HFD/EX- group. These results indicate that voluntary wheel running suppresses HFD-induced inflammation and insulin resistance in the ARC and VTA. The decreased mRNA expressions of TNFα and CD80 in HFD/EX+ suggest that voluntary exercise may have an anti-inflammatory effect by suppressing the polarity change to M1-type microglia.
Conclusions: Voluntary wheel running improves a high-fat diet-induced inflammation and insulin resistance in the ARC and VTA in male mice.

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PREDICTORS AND DETERMINANTS OF HEPATIC FIBROSIS IN OBESE INDIAN CHILDREN AND ADOLESCENTS

Vibha Yadav[1], Risha Saxena[2], Dhvani Raithatha[1], Jaya Agarwal[3], Rashmi Kapoor[2], Rishi Shukla[4], Anurag Bajpai[1]
[1]Regency CDER, Pediatric Endocrinology, kanpur, India, [2]Regency Health, Paediatrics, Kanpur, India, [3]Regency Health, Pediatric Gastroenterology, kanpur, India, [4]Regency CDER, Endocrinology, Kanpur, India

Background and Aims: Introduction- Nonalcoholic fatty liver disease (NAFLD) is one of the most common comorbidities of childhood and adolescent obesity; its association with hepatic fibrosis and chronic liver disease has not been explored. Aim- To evaluate the prevalence and predictors of transient elastography-identified hepatic fibrosis in obese Indian children and adolescents.
Methods: - Transient elastography (liver stiffness measurement, LSM, and controlled attenuation parameter, CAP), and metabolic workup were performed in 62 obese children and adolescents (45 boys, 11.7 ± 3.0 years, BMI SDS 2.1 + 0.5) and 61 controls (39 boys, 11.5 ± 3.5 years, BMI SDS -0.3 + 0.9). ROC curves were drawn to identify ALT cut-offs predicting advanced fibrosis (LSM above 8.6 KPa) and steatosis (CAP above 280 dB/m).
Results: - Obese children and adolescents had higher ALT (49.6 + 24 as against 32.3 + 16.0, $p < 0.001$), CAP (267.8 + 57.2 as against 175.8 + 44.3 dB/m, $P < 0.001$), and LSM values (5.2 + 2 vs 4.2 + 1.0 KPa, $p = 0.02$) than controls. CAP and LSM values correlated significantly with BMI SDS ($r = 0.67$ and 0.32, $p < 0.001$) and ALT levels ($r = 0.54$ and 0.36, $p <0.001$). Seven obese subjects (11.3%) had hepatic fibrosis as against none in the control group. Obese individuals with hepatic fibrosis had higher BMI SDS (2.4 + 0.7 as against 2.0 + 0.5, $p =0.05$) and ALT level (73.2 + 48.8 as against 46.8 + 28.0, $p = 0.05$) than those without it. Hepatic steatosis in the obese group was associated with higher BMI SDS (2.2 + 1.9 as against 1.9 + 0.4, $p =0.03$) and ALT level (57.2 + 34.0 as against 39.2 + 24.0, $p = 0.03$). The ROC curve for ALT with advanced fibrosis and steatosis had an area under of curve of 74.9% ($p = 0.05$) and 73.2% ($p = 0.02$) respectively. An ALT cut-off of 69 had 80% sensitivity and 81% specificity for identifying hepatic fibrosis while that of 52 had a specificity of 81.6% and a sensitivity of 58.3% for hepatic steatosis.
Conclusions: Conclusion- A significant proportion of obese Indian children and adolescents have latent hepatic fibrosis and steatosis. Elevated ALT levels predict hepatic involvement with cut-offs of 69 and 52 for hepatic fibrosis and steatosis respectively.

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THE RELATION BETWEEN METABOLIC PARAMETERS AND ANDROGEN SERUM CONCENTRATIONS IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

Magouri Oumaima[1], Dounia Zerrouki[1], Fatimazahra Zerrouki[1], Rouf Siham[2], Hanane Latrech[2]
[1]Hospital University Center of Mohamed VI-Oujda-Morocco, Endocrinology-diabetology And Nutrition, Oujda, Morocco, [2]Hospital University Center of Mohamed VI-Oujda-Morocco, Faculty of Medicine and Pharmacy Mohammed First University in Oujda, Morocco, Endocrinology Diabetology And Nutrition, Laboratory Of Epidemiology, Clinical Research And Public Health, Oujda, Morocco

Background and Aims: Polycystic Ovary Syndrome (PCOS) is the most common endocrinopathy in women of reproductive age and is characterized by hyperandrogenism and chronic anovulation ,this syndrome is associated with a metabolic disorders including obesity and insulinresistance. The aim of our study is to determine the correlation between serum androgen levels and the metabolic profile of patients with polycystic ovary syndrome.
Methods: This is a retrospective descriptive study, conducted for a duration from December 2016 to September 2023 involving patients with polycystic ovary syndrome(PCOS) hospitalized in the Department of Endocrinology-Diabetology and nutrition . The diagnosis of polycystic ovary syndrome was based on the Rotterdam criteria, and after exclusion of other adrenal and ovarian etiologies of hyperandrogenism. The collected data were analyzed by SPSS-version-21 software.
Results: The median age of our patients was 24 years [15-42], 19% of them were obese and 25% were overweight.The mean fasting blood glucose was 0,8 ± 0,2g/l , the average glycated hemoglobin was 5,3± 0,5% and the median HOMA index was 2.4± 2,8 µU/mL . In terms of lipid profile, we noted that the mean of HDL-C was 0,4 ± 0,09g/l, LDL-C was 0,9± 0,2g/l and triglyceride was 0,7±0,4g/l. On analysing metabolic and hormonal parameters, we have found that biological hyperandrogenism was found in forty-six percent (46%) with a median of testosterone level 0,6±0,4ng/m , it is significantly positive with obesity ,glycated hemoglobin and also with Triglyceride levels. However, the serum testosterone levels correlate negatively with other metabolic parameters.
Conclusions: We concluded that the androgenic hormones, precisely testosteronemia predispose to insulin resistance with significant metabolic risk for patients with polycystic ovary syndrome, and this is concordant with others studies reported in literature.

PV274 / #645

E-Poster Viewing
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01-03-2024 07:00 - 18:00

COMPARISON OF VITAMIN D DEFICIENCY IN MORBID OBESE PATIENTS BEFORE AND AFTER BARIATRIC SURGERY

Fahimeh Soheilipour
Minimally Invasive Surgery Research Center, Aliasghar Children Hospital, School of Medicine, Iran University of Medical Sciences, Tehran, Iran, Pediatric, Tehran, Iran

Background and Aims: Obesity as a Growing Public Health Problem in the world and its prevalence is increasing. Bariatric surgery leads to a variety of nutritional deficiencies, including vitamin D deficiency, even with supplements that require careful bariatric surgery postoperative follow-up. Vitamin D deficiency in bariatric surgery is multifactorial, some are related to obesity and some are related to the type of surgery or its complications.
Methods: This retrospective cohort study was performed on the patients referred to the Obesity Clinic of Minimally Invasive Surgery Research Center, which their information is registered in the National Obesity Surgery Database. Demographic information and serum vitamin D levels were evaluated on the first visit and at 12 months after sleeve gastrectomy (SG group), roux-en-Y bypass gastrectomy (RYGB group) and mini bypass gastrectomy (OAGB group).
Results: Before surgery, 53.3% of patients were deficient in vitamin D, 26.6% had insufficient, and 20.7% had insufficient vitamin D levels. Of the women, 553 (52.4%) and 125 men (57.6%) were deficient in vitamin D (P-value = 0.159). twelve months after bariatric surgery compared to preoperative, serum levels of vitamin D increased significantly in the each groups of SG, RYGB, and OAGB (for all of them P <0.001) and at 12 months after bariatric surgery, at serum vitamin D levels, no significant difference was observed between the three surgical groups (P2 = 0.232).
Conclusions: Vitamin D deficiency was observed in morbid obese patients who are candidates for bariatric surgery despite receiving different regimen of vitamin D supplementation. The level of vitamin D after restrictive vs malabsorptive procedure of bariatric Surgery aren't different, so more research is needed to assess the appropriate doses of vitamin supplementation based on the surgical procedure to achieve the safety level of vitamin D in the morbid obese patients after bariatric surgery.

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01-03-2024 07:00 - 18:00

DIETARY MEDIUM CHAIN TRIGLYCERIDE IMPAIRS OREXIGENIC ACTION OF GHRELIN

Tomohiro Tanaka[1], Daisuke Aotani[1], Hiroyuki Ariyasu[2], Yoshiyuki Shimizu[3], Katsushi Takeda[1], Takashi Yagi[1], Hiroyuki Koyama[1], Toru Kusakabe[3], Takashi Miyazawa[3], Takatoshi Hikida[3], Nobuya Inagaki[4], Hiromi Kataoka[1], Kazuwa Nakao[3]
[1]Nagoya City University Graduate School of Medical Science, Gastroenterology And Metabolism, Nagoya, Japan, [2]Wakayama Medical university, First Department Of Internal Medicine, Wakayama, Japan, [3]Kyoto University Graduate School of Medicine, Kyoto, Japan, Medical Innovation Center, Kyoto, Japan, [4]Kyoto University Graduate School of Medicine, Kyoto, Japan, Department Of Diabetes, Endocrinology And Nutrition, Kyoto, Japan

Background and Aims: Ghrelin, a stomach-derived orexigenic peptide, stimulates feeding and weight gain to regulate energy homeostasis. Ghrelin requires modification with octanoate, one of the medium-chain fatty acid, for its biological action. Hence, orally ingested medium-chain triglyceride (MCT) promotes ghrelin synthesis and secretion through the increased acyl modification. However, the role of dietary MCT in the effect of ghrelin remains to be elucidated. Here we investigate whether MCT consumption alters the orexigenic action of ghrelin in vivo.
Methods: Male C57BL6/J mice were fed with normal chow (NC) diet (fat 12 kcal%). During the experimental period, mice were divided into three groups. One group remained on the NC diet. The other two groups were subjected to diet substitution from NC diet to long-chain triglyceride (LCT) or MCT diet (fat 45 kcal%). We examined the orexigenic effects of administered ghrelin in mice fed with LCT or MCT diet.
Results: MCT consumption for five days significantly increased ghrelin concentration in wild-type mice, but it could not promote food intake, suggesting that the orexigenic effect of ghrelin was attenuated in mice fed with MCT diet. Pharmacological administration of ghrelin significantly increased food intake in mice fed with NC or LCT diet for five days, but could not in mice fed with MCT diet, both when acutely and continuously administered. Intraperitoneal ghrelin injection failed to induce NPY gene expression, the downstream factor of ghrelin signal, in the hypothalamus of mice fed with MCT diet. Interestingly, ghrelin-induced GH secretion was not inhibited by MCT ingestion.
Conclusions: These findings suggest that dietary MCT inhibits ghrelin's orexigenic action without changing the ability to stimulate GH secretion, which provides a novel insight into strategy of dietary or pharmacological therapy for obesity.

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MULTI-OMICS-BASED ANALYSIS OF THE HYPOTHALAMIC REMODELING IN MURINE MODELS OF OBESITY

Tomohiro Tanaka[1], Katsushi Takeda[1], Takashi Yagi[1], Hiroyuki Koyama[1], Daisuke Aotani[2], Hiromi Kataoka[1], Kazuwa Nakao[3]
[1]Nagoya City University Graduate School of Medical Science, Gastroenterology And Metabolism, Nagoya, Japan, [2]Nagoya City University, Gastroenterology And Metabolism, Nagoya, Japan, [3]Kyoto University Graduate School of Medicine, Kyoto, Japan, Medical Innovation Center, Kyoto, Japan

Background and Aims: Hypothalamus is a constellation of nuclei, each controlling an aspect of “internal milieu”, including appetite and energy homeostasis. Although inflammatory changes within the hypothalamus have been reported to be pathogenic in diet-induced obesity, alterations of the overall molecular landscape that leads to the development of obesity have yet to be elucidated. To understand hypothalamic remodeling in obesity, we have analyzed hypothalamic nuclei by transcriptomic and metabolomic analyses.
Methods: In high fat diet (60%kcal) or control diet-fed C57B/6 mice (3d, 2, 6 and 16wk of each diet feeding) and in ob/ob mice, we micro-dissected arcuate (ARC), paraventricular (PVN) and lateral (LH) nucleus of the hypothalamus. RNA or lipid was extracted for bulk RNA-Seq or LC/MS analysis, respectively. We next prepared high fat diet (45%kcal) with low (1.2%kcal)(LLA) or high (18%kcal)(HLA) linoleic acid content and compared body weight in mice fed either with LLA or HLA and analyzed the hypothalamic tissue biochemically.
Results: -PCA-based on lipidome but not transcriptome clearly segregated anatomically-defined hypothalamic nuclei. -Genes whose expression levels were changed in any one or more of the conditions were clustered into 13 subgroups; one big group of genes suppressed throughout, and each upregulated group corresponding to 3 nucleus x 4 timepoint combinations. -Each gene group significantly associated with distinct GO terms, suggesting a nucleus and timepoint-specific pathology. -Changes of lipidome in obesity were similar across nuclei with an accumulation of a broad lipid moieties containing esters of n-6 polyunsaturated fatty acids (PUFA) such as arachidonic acids. -In ob/ob mice, esters of palmitic and other saturated fatty acids were increased instead of n-6 PUFA across hypothalamic nuclei, suggesting a distinct nature of hypothalamic lipidome in obesity of diet-induced and genetic origin. -Compared with low linoleic acid (LLA) group, mice fed high linoleic acid (HLA) diet gained bodyweight more rapidly. -Accumulation of arachidonic acid in ARC was observed with increased local prostaglandinE2 (PGE2) content and enhanced expression of inflammatory cytokines. -In ARC from mice fed HLA diet, weight-reducing signals of leptin was attenuated. In an in vitro model of leptin sensitivity, PGE2 interfered with leptin signaling.
Conclusions: Multi-omics-based analyses revealed distinct hypothalamic molecular landscapes in diet-induced and genetic models of obesity. During the development of obesity, accumulation of arachidonic acid and subsequent induction of inflammatory changes within the hypothalamus progressed along with the development of leptin resistance, suggesting a potential mechanistic role of hypothalamic remodeling in a murine model of obesity.

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TRENDS IN WAIST CIRCUMFERENCE AND OBESITY PREVALENCE IN CZECH 7-YEAR-OLD CHILDREN DURING YEARS 2008-2019

Radka Taxová Braunerová[1], Tereza Metelcová[1], Marie Kunešová[1], Tereza Svobodová[2], Bohuslav Procházka[3], Hana Zamrazilová[1], Martin Hill[1], Josef Včelák[4], Markéta Vaňková[4]
[1]Institute of Endocrinology, Obesity Management Centre, Prague, Czech Republic, [2]Charles University, Faculty Of Science, Prague, Czech Republic, [3]Paediatric clinic, Paediatric Clinic, Kutná Hora, Czech Republic, [4]Institute of Endocrinology, Molecular Endocrinology, Prague, Czech Republic

Background and Aims: Our study is part of the World Health Organization's (WHO) European Childhood Obesity Surveillance Initiative (COSI). Children have been measured since 2008. The aim of the research is to monitor the health of school children and to improve health programmes for them.During the 6th COSI round we collect data on the impact of the COVID-19 lockdown as well as the impact of genetic background on the studied factors.
Methods: Representative nationwide samples of children aged 6.5-7.9 years were examined. Numbers in each COSI round were: 1st round (2008) 1531, 2nd round (2010) 2497, 3rd round (2013) 2489, 4th round (2016) 1719 and 5th round (2019) 2349 children. Approximately 2000 children aged 6.5-7.9 years and approximately 1000 children screened at this age prior to the COVID-19 lockdown and aged 11-13 years now are beeing screened in 2023-2024 (6th round). The protocol for all COSI rounds includes: anthropometry (height, weight, waist circumference, WHtR-waist-to-height ratio) and questionnaire surveys on dietary habits, physical activity and school environment. Gene analysis of overweight and cardiorespiratory fitness candidates is planned for 6th COSI round. Data were analysed using Statgraphics Centurion, version-XV ($p<0.05$].
Results: The prevalence of overweight, obesity and severe obesity (according to WHO criteria) did not differ significantly during the study period. However, waist circumference and WHtR increased in girls during the study period. In 5th COSI round, there was a significant increase in waist circumference (>90th percentile) and WHtR (above the risk value of 0.5) to 12.4% and 13.6%, respectively. High prevalence of severe obesity was found both in boys (3.8 %) and girls (1.75 %).
Conclusions: Although the prevalence of overweight, obesity and severe obesity did not differ between 2008 and 2019 for boys and girls, the study found a significant increase in waist circumference and WHtR values for girls. Waist circumference correlates with metabolic risk related to abdominal fat and it is significantly associated with cardiovascular risk not only in adults but also in children. This finding indicates the importance of waist circumference measurement in children. In addition, the ongoing 6th round will provide information on the observed risk and protective lifestyle factors affected by the COVID-19 lockdown. The uniqueness of the study is based on the ability to analyze data in children just prior to the COVID-19 lockdown, versus information found in the same cohort after these restrictive epidemiological measures. Supported by: AZV NU23-09-00252 andMH-CZ-DRO(EU00023761).

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LIRAGLUTIDE (VICTOZA) EFFECTS ON CARBOHYDRATE METABOLISM IN TYPE 2 DIABETES WITH OBESITY

Iroda Tillyashaykhova[1], Gulnara Rakhimova[2], Nargiza Parpieva[3]
[1]The Republican Scientific and Practical Medical Center of Endocrinology, Thyroid Pathology, Tashkent, Uzbekistan, [2]Center for the development of professional qualification of medical workers, Endocrinology, Tashkent, Uzbekistan, [3]Director of the Republican Scientific and Practical Medical Center for Phthisiology and Pulmonology, Phthisiology, Tashkent, Uzbekistan

Background and Aims: Beta-cell mass reduction reduces standard hypoglycemic therapy's efficacy. Target blood glucose levels for problems and cardiovascular disease usually cause weight gain and hypoglycemia. To find the «ideal» medicine, T2D researchers studied and used the incretin effect. The first analogue of human glucagon-like peptide (GLP-1), liraglutide, has the desired properties and improves glycemic control (65% of patients have the targeted HbA1c level of 7% at a minimal risk of hypoglycemia). Weight loss, lower arterial pressure and trigycerides, and beta-cell activity are further benefits. Aim: Liraglutide's efficacy in correcting carbohydrate metabolism and tolerance in obese T2D patients
Methods: Research included 33 patients aged 45-65 (mean age 53.6 ± 1.45years with T2D in decompensation, insulin therapy, overweight. On average, the illness lasted 8.7±0.95 years. Research took six months.
Results: Three therapy groups were randomly assigned to all patients: 1 Group (15) had basal-bolus insulin, short-acting (18 U/day) and long-acting (32 U/day) insulin, and metformin. Group 2 (n = 6) averaged 1750 mg metformin daily. Long-acting insulin averaged 22 U/day.
Group 3 (n = 12) got 2300mg metformin daily. Like severe patients, the 1 group had to reach individual glycemic thresholds to reduce parameters. The group's glycemic level dropped 30% to 3.9 mmol/L by the third month and 41.5% to 5.4 by the sixth month. In BWG reduction, similar modifications occurred. Indicators fell equally. After 3 and 6 months of treatment, group 1 patients' PPG levels dropped by 4.6 mmol/L(28%) and 6.2(37%). Group 2 patients dropped 2.6 mmol/L (23%) and 3.7 mmol/L (33%), respectively, from the baseline level by the 3rd and 6th months. After 3 and 6 months of treatment, Group 3 patients' PPG dropped 3.2 and 4.1 mmol/L (27% and 35%, respectively). Glycemic readings dropped with good alc dynamics and significantly after 3 months of treatment in all 3 patient groups. By month 6, Group 2 and 3 patients reached goals. Group 1 reached individual objectives(down 1.5%).
Conclusions: Liraglutide strongly hypoglycemic in T2D patients, according to the research. Thus, persons with poor glycemic control may meet their targets without hypoglycemia. Thus, all groups' GN levels dropped dramatically by the third month of therapy. Groups 1 and 2 had 41.5%, 33%, and 35% lower GN levels at the 6th month of therapy. Groups 2 and 3 showed substantial decreases in alc by the 3rd month of therapy and attained goal levels by 6 months; group 1 showed a significant drop of more than 1.5%) by 6 months.

PV279 / #1425

E-Poster Viewing
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WAIST-TO-HEIGHT RATIO CORRELATES WITH LIPID PROFILES IN ADULTS WITH INSULIN RESISTANCE

Rimbun Rimbun, Tri Hartini Yuliawati, Dewi Ratna Sari, Kusuma Eko Purwantari, Sakina Sakina, Lucky Prasetiowati
Faculty of Medicine Universitas Airlangga, Department Of Anatomy, Histology, And Pharmacology, Surabaya, Indonesia

Background and Aims: Free fatty acid (FFA) levels are often increased in obese people, and the dysregulation of FFA metabolism causes insulin resistance by chemically altering Insulin Receptor Substrate-1 (IRS-1) and activating the proinflammatory pathway. Subsequently, insulin resistance through aberrant insulin signaling could alter systemic lipid metabolism, which leads to the development of dyslipidemia and endothelial dysfunction. Previous studies revealed associations between abdominal fat accumulation and metabolic markers in various ages and populations. Waist-to-height ratio (WHtR) is an abdominal adiposity assessment that provides a better predictor for metabolic implications in both sexes and different populations since it considers individual height for correction. The study aims to analyze correlations between anthropometric measurements of central obesity, including WHtR, and lipid profiles in adult subjects with insulin resistance.
Methods: A cross-sectional study obtained anthropometric and lipid profile data from 71 adult subjects, consisting of 20 men and 51 women, aged 19–54 years old. All subjects had insulin resistance, which was calculated from the Homeostatic Model Assessment for Insulin Resistance (HOMA-IR) to be more than 2.5. Measurements of fat accumulation, including sagittal abdominal diameter (SAD), waist circumference (WC), hip circumference (HC), abdominal skinfold (AS), waist-to-hip ratio (WHR), and WHtR, were assessed with standard anthropometric tools and protocols. Lipid profiles, including cholesterol, triglyceride (TG), high-density lipoprotein (HDL), and low-density lipoprotein (LDL), were examined from venous blood after 10–12 hours of fasting before blood collection. The variables were correlated with each other using Pearson or Spearman tests, depending on their normal distribution. The results were considered significant if the p value was < 0.05.
Results: Significant correlations were found between SAD and TG ($r=0.383;p<0.001$), SAD and HDL ($r=-0.359;p=0.002$), WC and TG ($r=0.441;p<0.001$), WC and HDL ($r=-0.427;p<0.001$), HC and TG ($r=0.439;p<0.001$), HC and HDL ($r=-0.438;p<0.001$), AS and TG ($r=0.408;p<0.001$), AS and HDL ($r=-0.399;p<0.001$), WHR and TG ($r=0.283;p=0.017$), WHR and LDL ($r=0.253;p=0.034$), while WHtR was significant correlate with all lipid profiles which are cholesterol ($r=0.268;p=0.024$), TG ($r=0.369;p=0.002$), HDL ($r=-0.345;p=0.003$), and LDL ($r=0.318;p=0.007$).
Conclusions: In adult subjects with insulin resistance, all anthropometric measurements for abdominal adiposity have significant positive correlations with triglyceride and significant negative correlations with HDL, except WHR. WHtR was the only anthropometric marker that had a significant correlation with all lipid profiles. Anthropometric measurements, particularly WHtR, could be the superior, non-invasive, and reliable assessments for lipid metabolism abnormalities in insulin resistance individuals.

PV280 / #926

E-Poster Viewing
E-POSTER VIEWING: AS08. OBESITY/LIPIDS
01-03-2024 07:00 - 18:00

INCREASING PARAMETER OF WHITE BLOOD CELLS INDICATE LOW-GRADE SYSTEMIC INFLAMMATION IN OBESE CHILDREN

Tri Hartini Yuliawati[1], I Dewa Gede Ugrasena[2], Ni Wajan Tirthaningsih[3], Dewi Ratna Sari[3], Harianto Notopuro[4]
[1]Faculty of Medicine Universitas Airlangga, Department Of Anatomy, Histology, And Pharmacology, Surabaya, Indonesia, [2]Dr. Soetomo Hospital - Faculty of Medicine Universitas Airlangga, Department Of Child Health, Surabaya, Indonesia, [3]Faculty of Medicine Universitas Airlangga, Anatomy Histology And Pharmacology, Surabaya, Indonesia, [4]Faculty of Medicine Universitas Airlangga, Physiology And Medical Biochemistry, Surabaya, Indonesia

Background and Aims: The prevalence of childhood obesity has increased in the last decade and has given a burden on the health sector due to the complications. The fat accumulation in obese people promotes changes in the immune system including white blood cells. However, similar studies conducted in children are still limited. This study aims to investigate the effect of obesity on the immune system by evaluating the parameters of white blood cells (WBC) in children.
Methods: A total of forty-two children were divided into two groups, obese (n=25) and control (n=17), depending on their Body Mass Index (BMI). The obese were defined refer to WHO classification, the BMI percentile ≥ 95. Anthropometric indicators including body weight, body height, waist circumference, hip circumference, and skinfold thickness were measured using standard anthropometric tools. Hematologic parameters of white blood cells were examined in the Clinical Pathology Laboratory using an automatic hematology analyzer and flow cytometer. The pro-inflammatory cytokine, TNF alpha, was measured using the ELISA technique. Data analyses were performed using IBM SPSS software version 25. P value <0.05 was considered statistically significant.
Results: The two groups had significant differences in all anthropometric indicators ($p<0.05$). The parameters of WBC including WBC count, absolute number of lymphocytes, immature granulocytes, $CD45^+$, and $CD3^+$ cells were significantly increased in obese children, followed by increasing the level of TNF alpha ($p<0.05$).
Conclusions: The increase in WBC parameters and TNF alpha showed low-grade systemic inflammation in obese children. Meanwhile, the elevation of $CD3^+$ cells indicates the T-lymphocytes involvement in this condition.

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E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

THE CLINICAL CHARACTERISTICS, PRESENTATION, AND TREATMENT OUTCOMES OF PROLACTINOMAS AT GROOTE SCHUUR HOSPITAL

Mohamed Abdalla
Dasman Diabetes Institute, Clinical Care Research And Trials, Kuwait, Kuwait

Background and Aims: Prolactin-secreting tumours (prolactinomas) are the commonest type of pituitary tumour, accounting for approximately 30 to 40 % of all pituitary adenomas. Although there is ample epidemiologic and clinic data from Industrialized countries there remains sparse data from Africa. Specifically, the clinical presentation, and hormonal deficiencies and treatment outcomes in the South Africa have not been described.
Methods: A retrospective study of prolactinoma patients who attended Endocrine-Pituitary Clinics at Groote Schuur Hospital over a 12- month period, between March 2019-March 2020. Patients folders were reviewed to retrieve the following information: demographic data, clinical presentation, clinical signs, prolactinoma phenotype, hormonal deficiencies, treatment modalities and clinical outcomes.
Results: Over 12-month period 52 patients were included, females 73% (n=38), mean age 46.1 ± 14.6 years. A macroprolactinoma present in 67.3% (n=35) of patients and 32.7% (n=17) of patients had a microprolactinoma. In the macroprolactinoma group: the common symptoms were headache 88.6% (n=33), altered vision 40% (n=14) and, in females, amenorrhea 63.6% (n=14) but a cranial nerve palsy 17.1% (n=6) and apoplexy 5.7% (n=2) were uncommon. In the microprolactinoma group the common symptoms included amenorrhea 75% (n=12), galactorrhea 70.6% (n=12), headache 64.7% (n=11). The majority of patients with a macroadenoma had at least one hormonal abnormality with hypogonadism 73.1% (n=19) being most common, followed by hypothyroidism 53.8% (n=14) and hypoadrenalism 30% (n=8). Over 50% of patients with a giant adenoma had panhypopituitarism with hypogonadism in 100%, hypothyroidism in 77.8% (n=7) and hypoadrenalism in 66.7% (n=6). Hormonal deficiencies in the microadenoma group included hypogonadism 64.7% (n=11), hypothyroidism 35.3 (n=6) and one patient had hypoadrenalism. All patients received treatment, however, in the macroadenoma group 4 patients required surgical debulking of the tumour, 3 patients required a ventriculo-peritoneal (VP) shunt for hydrocephalus and 2 patients required radiation. After a median follow-up of 46.5 months, the median prolactin level decreased from 322.5ug/l (94.0-4282.0) on presentation to 17.5 ug/l (8.6-82.5) at follow-up. In parallel there was a reduction of 12.2 ±9.7mm in tumour size after a mean of 59.8 ±53.3 months. There was resolution of hypogonadism in 56.4% (n=22), of hypothyroidism in 2.7% (n=2) and hypoadrenalism only resolved in 1 patient.
Conclusions: Most patients with a prolactinoma are symptomatic with at least one hormone deficiency. With management most patients experienced a reduction in prolactin levels and tumour size. This was associated with the resolution of hypogonadism in the majority, however, hypothyroidism and hypoadrenalism are unlikely to resolve despite a reduction in tumour size.

PV282 / #1427

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

SECONDARY AMENORRHEA REVEALING A GIANT HAMARTOMA OF THE TUBER CINEREUM

Hayfa Farid[1], Mohamed Taieb Ach[2], Sawssen Nouira[2], Hamza El Fekih[2], Amel Maaroufi[2], Molka Chadli Chaieb[1], Koussay Ach[2]
[1]Hospital Farhat Hached Sousse, Department Of Endocrinology And Diabetology, Sousse, Tunisia, [2]Hospital Farhat Hached Sousse, Department Of Endocrinology And Diabetology, sousse, Tunisia

Background and Aims: Hamartomas are benign tumors that occur in many different parts of the body. Brain locations of hamartoma are rare but still reported in few cases such as the tuber cinereum (TC) location. Children with hypothalamic hamartomas develop precocious puberty generally associated with gelastic seizures. However, TC hamartomas do not necessarily induce clinical symptoms. Amenorrhea has never been reported as a revealing symptom of TC hamartomas. Here we describe an atypical discovery of a giant hamartoma of the TC in a young woman who presented for a secondary amenorrhea.
Methods: Case report
Results: A 23-year-oldwoman presented to our department for a secondary amenorrhea associated with reccurent headaches. The past history revealed that the patient had her first periods at the age of 19-year-old, and presented one year after a spaniomenorrhea. On examination, there was no hirsutism, no galactorrhea no signs of hypothyroidism or hypogonadism with a normal neurological examination. Her body mass index was 30kg/m². Pelvic exam was normal. Laboratory data revealed a negative Human Chorionic Gonadotropin level, normal thyroid function and normal serum levels of Growth hormone and ACTH. Serial hormone tests including serum concentration of luteinizing hormone, follicle stimulating hormone, estradiol, and progesterone, indicated normal cyclical ovarian activity. A moderate hyperprolactinemia after dilution was identified (=33 ng/mL [3–20 ng/mL]). There were no other medications intakes explaining the hyperprolactinemia. Synacthen testing showed normal adrenal response. A luteinizing hormone-releasing hormone test showed a normal gonadotrophin response excluding the pituitary cause of the secondary amenorrhea. Hyperprolactinemia was the selected diagnosis to secondary amenorrhea. A magnetic resonance imaging revealed a homogen suprasellar hamartoma of the TC of 20 mm,with sellar extension. The hyperprolactinemia was explained by the mechanical compression on the pituitary stalk. The patient was started on cabergoline with an improvement of the prolactin levels and had a natural pregnancy 6 months later.
Conclusions: The hamartoma of the TC is a rare, non-neoplastic heterotopic mass of normal nervous tissue. In contrast, during early life, the diagnosis is made of clinical symptoms such as precocious puberty and/or gelastic seizures. Works on clinical manifestations in the adult life are rare. In our case the main symptom was a secondary amenorrhea. More detailed imaging techniques and new molecular methods may, in future, provide further insight into the pathogenesis of either sexual impairment or seizure activity in TC hamartoma.

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E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

12TH CRANIAL NERVE PALSY- A VERY RARE PRESENTATION OF PITUITARY MACROADENOMA

Ameet Kumar[1], Tasnim Ahsan[1,2]
[1]Medicell Institute of Diabetes, Endocrinology & Metabolism (MIDEM), Internal Medicine & Endocrinology, Karachi, Pakistan, [2]Medicell Institute of Diabetes, Endocrinology and Metabolism (MIDEM), Internal Medicine & Endocrinology, Karachi, Pakistan

Background and Aims: Pituitary adenomas are frequently seen in endocrine practice. They are classified as microadenomas (<1cm) or macroadenomas (>1 cm) based on their size. Prolactinomas are the most common functioning pituitary adenomas. Giant Prolactinoma, usually defined by a size of >4 cm, is associated with significant extrasellar extension and very high serum prolactin levels (> 1000 ng/ml). Prolactinoma may manifest as either endocrine dysfunction, local mass effect, or both. Giant prolactinomas often present with neurological rather than endocrine symptoms, in view of their large size and potential to cause compressive effects on surrounding structures such as optic nerve and cavernous sinus. Involvement of the 12th cranial nerve is very rare in Prolactinoma. This is the first case of 12th nerve involvement in our series of 173 pituitary tumors, and prolactinoma was the lead tumor comprising of 76 cases.
Methods: We are reporting a case of a 50 year old male, who was incidentally discovered to have a giant pituitary tumor when a trivial head injury led to a 5 Methods CT scan of head. He was referred to our clinic; he gave a 6 year history of headache associated with blurred vision and diplopia, erectile dysfunction and loss of libido (2 years), difficulty in speech and difficulty in eating on right side for 1 year. Examination revealed normal eye movements with diplopia on downward & lateral gaze; tongue was asymmetrical, wasted on Right side with fasciculations, suggestive of Right 12th cranial nerve palsy. Serum prolactin was >20000ng/mL (3.8-23 ng/ml). MRI pituitary demonstrated a giant macroprolactinoma extending in all directions. He was started on Cabergoline, to which he responded very well. He reported a significant improvement in his symptoms, Prolactin level decreased to 30.6 within two months after initiating therapy.
Results: This case elucidates a rare presentation of a giant prolactinoma induced 12th cranial nerve palsy. It highlights the importance of raising awareness amongst doctors as well as general public, for the early detection and treatment of this tumor, which is significantly amenable to medical therapy alone.
Conclusions: This case elucidates a rare presentation of a giant prolactinoma induced 12th cranial nerve palsy. It highlights the importance of raising awareness amongst doctors as well as general public, for the early detection and treatment of this tumor, which is significantly amenable to medical therapy alone.

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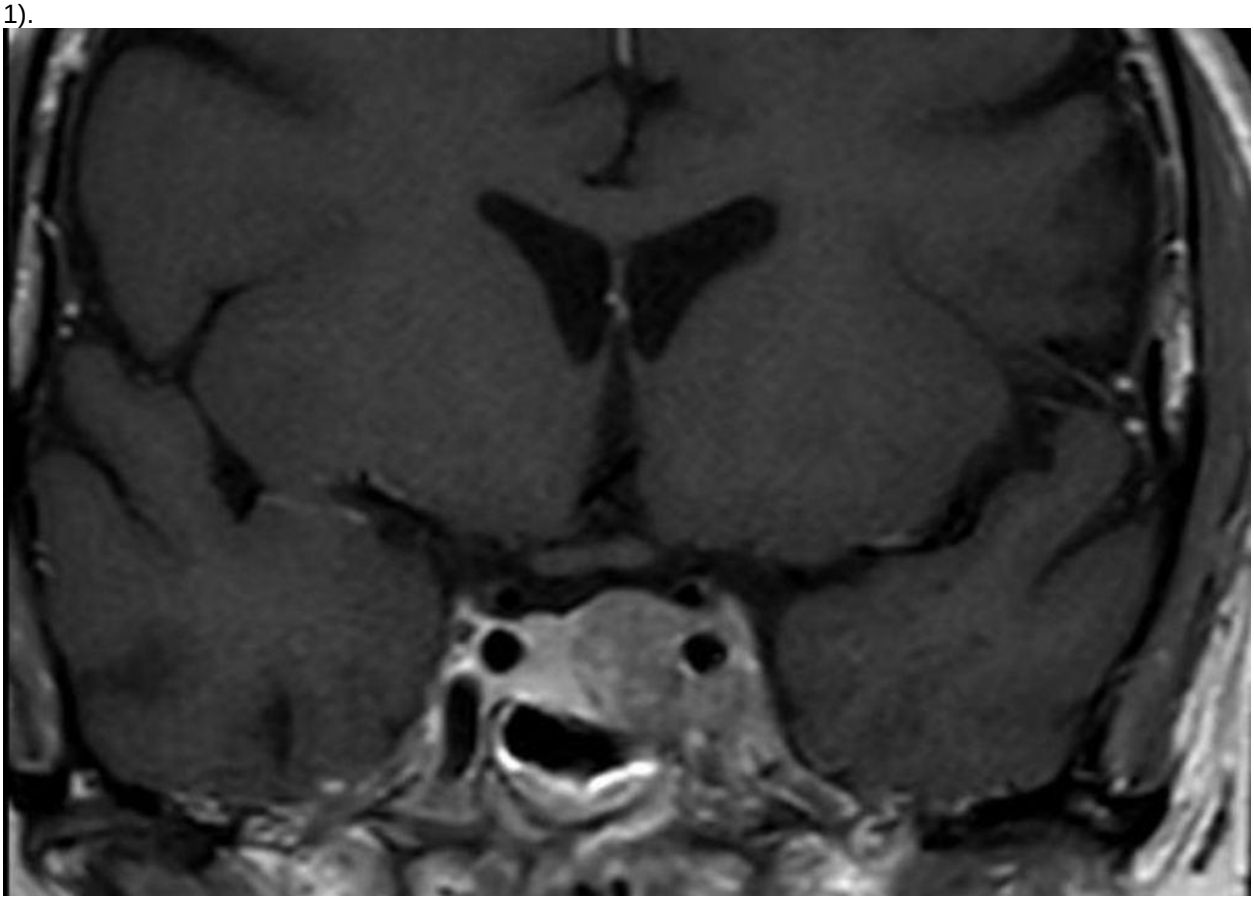
E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

WHEN PTOSIS OPENS THE DOOR TO AN UNUSUAL CASE OF ACTH-DEPENDENT CUSHING'S SYNDROME

Zainab Akram Yousif[1], Niki Karavitaki[2]
[1]University Hospitals Birmingham, Endocrinology, Birmingham, United Kingdom, [2]University Hospital Birmingham, Endocrinology, Birmingham, United Kingdom

Background and Aims: Cushing's syndrome (CS) is a rare clinical entity. Due to its unpredictable course; it can create diagnostic challenges. Our case is a good demonstration of these challenges.
Methods: A 61-year-old lady presented in August 2022 with sudden onset of a pupil-sparing left third nerve palsy and new-onset hypertension. Cranial-CT angiogram excluded aneurysms; however, a pituitary tumour invading the left cavernous sinus was discovered. MRI pituitary revealed 14.7x10.9mm macroadenoma with left cavernous sinus extension (Images-1).



Initial hormonal tests showed high random cortisol (1074nmol/l). A full morning pituitary profile was repeated a month later (Table-1).

1: Pituitary profile (September 2022)	
Cortisol	2475nmol/l-(172-597nmol/l)
TSH	0.9mIU/l-(0.4-4.9mIU/l)
fT4	10.5pmol/l-(9-19pmol/l)
LH	1.4IU/l-(5.2-62IU/l)
FSH	1.7IU/l-(26-133IU/l)
IGF-1	21.6nmo/l-(5.4-22nmol/l)
Prolactin	353mU/l-(109-557mU/l)
Oestradiol	106pmol/l
Testosterone	0.7nmol/l-(<0.9nmol/l)
SHBG	46nmol/l-(19.8-155.2nmol/l)

Further tests were consistent with ACTH-dependent Cushing's Syndrome (Table-2).

Table 2: CS confirmatory tests

	Morning Cortisol (172-497nmol/l)	**ACTH (0-50ng/l)**	**24hr UFC (<130nmol/l)**	**Urine volume (ml)**	**Late-night salivary cortisol (<3.2nmol/l)**	**Low-dose DST cortisol**
7/10/2022	727	149				
8/10/2022			581	2847	5.3	
9/10/2022			358	2169	6.8	
12/10/2022						2368

Given the invasive features of the pituitary tumour, whole-body FDG PET-CT was arranged which did not highlight pathologies. Meanwhile, the neuro-ophthalmology team review was satisfactory with the optic nerve function but noted left third nerve palsy with complete ptosis and limitations in up-gaze, adduction, and depression. There was no history of weight gain (BMI 24.2Kg/m2), but the patient reported hirsutism, fluctuating proximal muscles weakness, and depression. On subsequent visits during the following weeks, those symptoms and ptosis spontaneously resolved, which prompted a conclusion of a microvascular incident affecting the third cranial nerve and ACTH-dependent Cushing's Syndrome of fluctuating activity. Follow up Cortisol (Image-2), and hormonal profile were normal (TSH 3.65mIU/l, fT4 10.4pmol/l, FSH 70IU/l, LH 32.2IU/l, IGF-1 24.6nmo/l, Prolactin 219mU/l) with normal CS screening tests (Table-3). MRI scans from January-2023 showed spontaneous tumour regression which remained stable in July-2023 (Images 3).

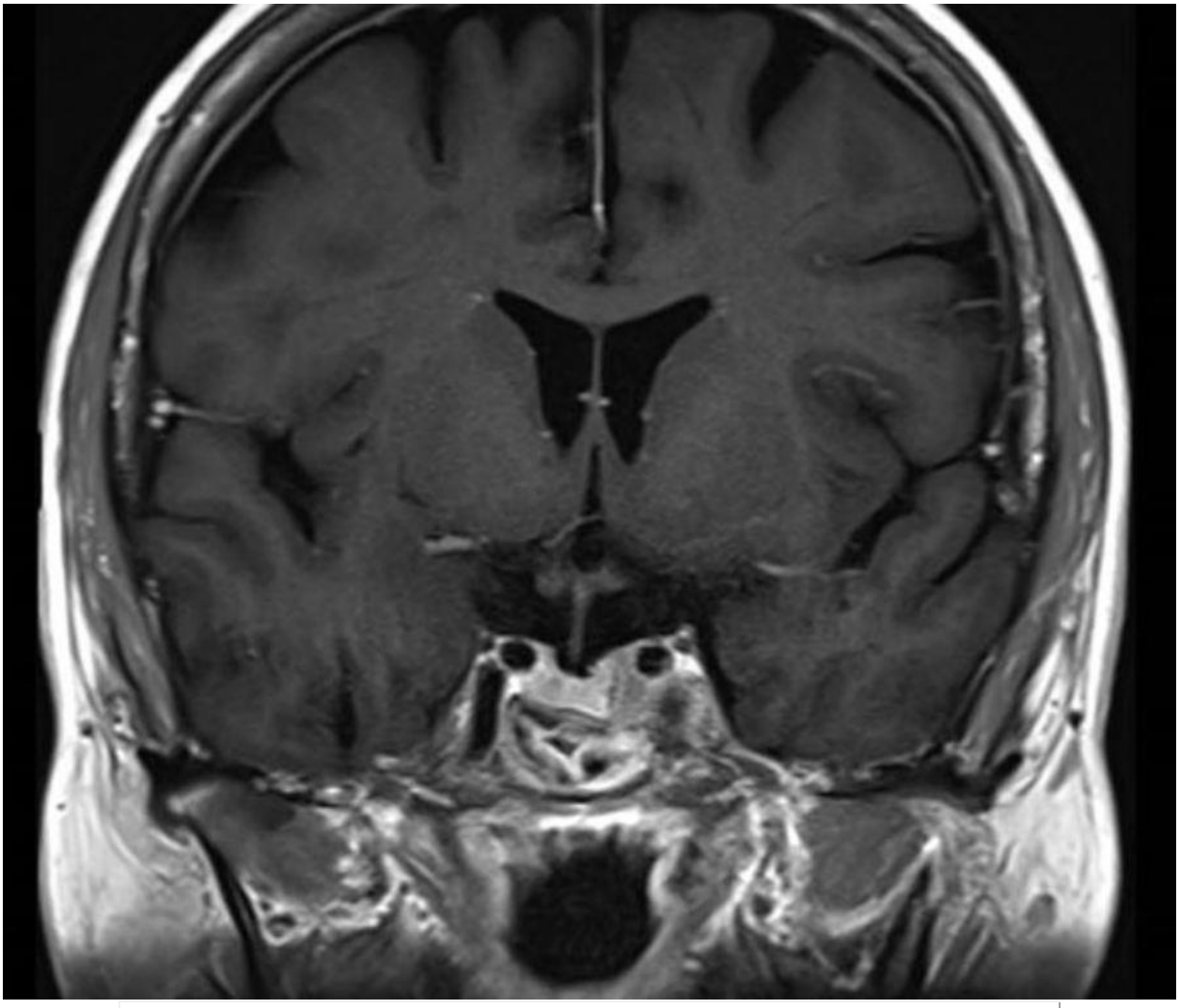


Table 3. Repeat CS screening tests

	24hr- UFC (<130nmol/l)	Urine-volume	Late-night-salivary-cortisol (<3.2nmol/l)

24/07/2023			2.1
25/07/2023	91	3027	2.7
27/07/2023	97	3282	

Results: Though our case does not qualify for the classical definition of cyclical Cushing's syndrome, but given the significant tumour remnant, the patient is closely observed for the return of hypercortisolaemia. Due to the pattern of normal cortisol interspersed with periods of hypercortisolaemia; cyclical CS gets frequently overlooked. Therefore, multiple measurements of urinary or salivary cortisol are reliable screening tests for suspected cases.
Conclusions: Endocrinologists should remain vigilant in patients with variable Cushing's features but normal biochemistry or vice-versa.

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E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

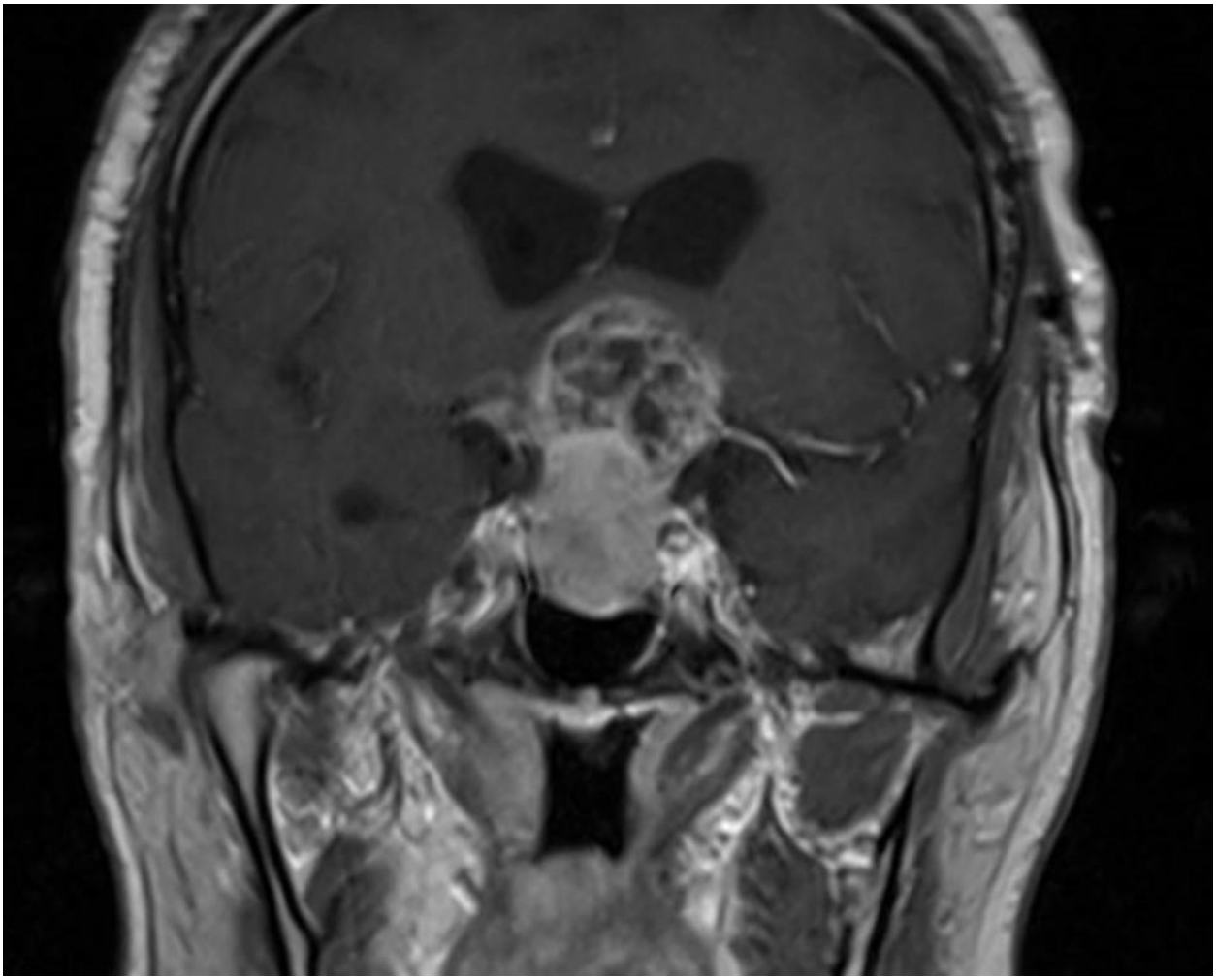
WHEN HEAD TRAUMA UNCOVERS A COLLISION PITUITARY SELLA LESION!

Zainab Akram Yousif[1], Asem Almatrafi[1], Nadia Ijaz[1], May Thin Khine[1], Priscilla Sarkar[1], Ruchika Batra[2], Lidia Alvarez[2], Santhosh Nagaraju[3], Latha Senthil[4], Jonathan Kyaw Thant[5], Helena Gleeson[1], Georgios Tsermoulas[5], John Ayuk[1], Niki Karavitaki[6]
[1]University Hospitals Birmingham, Endocrinology And Diabetes, Birmingham, United Kingdom, [2]University Hospitals Birmingham, Ophthalmology, birmingham, United Kingdom, [3]University Hospitals Birmingham, Histopathology, Birmingham, United Kingdom, [4]University Hospitals Birmingham, Radiology, Birmingham, United Kingdom, [5]University Hospitals Birmingham, Neurosurgery, Birmingham, United Kingdom, [6]University Hospital Birmingham, Endocrinology, Birmingham, United Kingdom

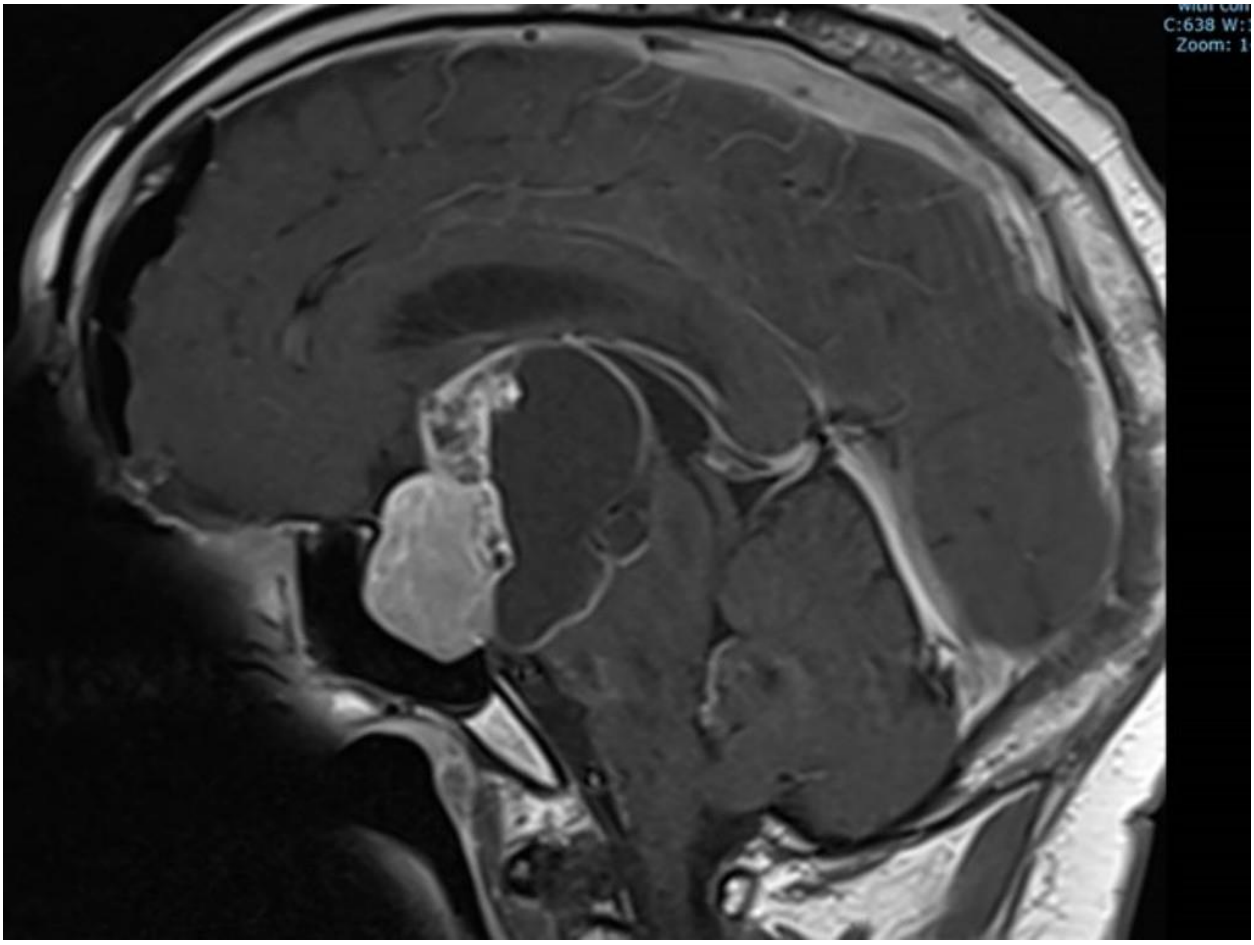
Background and Aims: A pituitary adenoma-craniopharyngioma collision sella tumour is a unique clinical entity. We present a 66-year-old man with an incidental collision tumour exerting pressure effects on nearby structures.
Methods: Following a fall into a man-hole, a 66-year-old male was admitted with a 4-month history of headaches, confusion, blurry vision, and unsteadiness. Eye examination showed poorly reactive pupils and papilledema. Confrontation fields showed right dense homonymous hemianopia. He could count fingers in the left eye and had partially maintained central vision and nasal field in the right eye.

[ZA1]Paraphrased into: Confrontation fields showed right dense homonymous hemianopia with a partially maintained central vision on the right and counting fingers on the left. CT head showed an expanded sella with a solid mass extending into the supra-sellar cistern measuring 2x2.6x2.6cm, and a midline cystic lesion with heterogeneous component and punctate peripheral calcification measuring 2.5x4.2x4.2cm in the supra-sellar cistern compressing the third ventricle causing obstructive non-communicating hydrocephalus and cerebellar tonsil herniation. Biochemistry revealed prolactin of 26,296mU/L (73-407mU/l), fT4 8.8pmol/l (9.0-19.0pmol/l), TSH 0.42mIU/l (0.4-4.9mIU/l), Testosterone 6.3nmol/l (7.7-24.8nmol/l), IGF1- 13.4nmol/l (6-25.5nmol/l) and random cortisol 247nmol/l. MRI pituitary suggested macroprolactinoma with anterior visual pathway involvement and posteriorly-located craniopharyngioma (Images-1&2).

collision tumour MRI coronal postcontrast.jpg
Post-contrast coronal section MRI of pituitary sella showing a large solild sellar lesion and a superior heterogenously cacified [ZA1] cystic lesion.

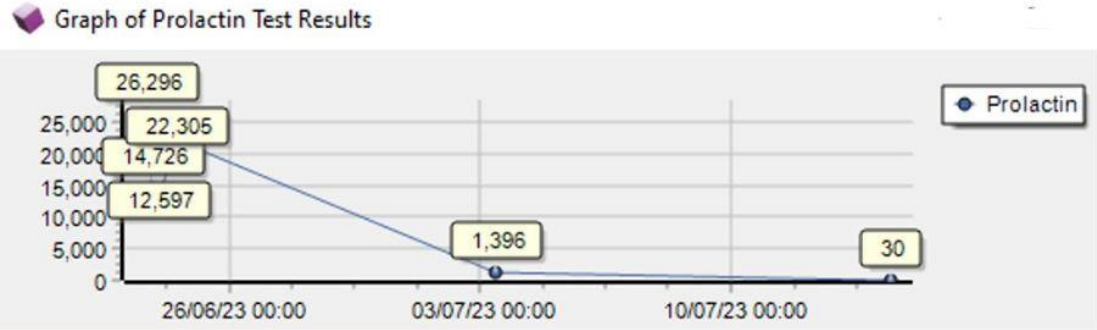


Collision tumour MRI - sagittal postcontrast.jpg
Post-contrast sagittal view showing 2 sellar lesions, a solid sellar mass and a supero-posterior, heterogenouosly[ZA1] -calcified, predominantly cystic mass causing optic pathway compressiom [ZA2] and local pressure effects.



Cabergoline 0.5 mg twice weekly was commenced and bilateral external ventricular drains were inserted. Pituitary MDT agreed on an urgent trans-sphenoidal resection to unblock CSF drainage channels and decompress visual pathways. The Patient was commenced on peri-operative Hydrocortisone and Levothyroxine replacement.commenced post-operatively. Histopathology revealed 2 distinct tumours. A mixed PRL/GH expressing PitNET/adenoma, predominantly acidophil lactotrophs, Ki-67 <2%, and an Adamantinomatous Craniopharyngioma[ZA1] , WHO- grade-1.

Post-operatively, left eye visual acuity improved from counting fingers to N9. Fields improved to milder temporal field defects right>left. As of yet, 3 months post-operation; the patient is not back to his baseline due to multiple post-operative complications such as fluctuating confusion, oropharyngeal dysphagia requiring NG-feed, and CSF leak necessitating multiple corrective surgeries. Nevertheless, prolactin dramatically dropped post-operatively; supporting the histopathology findings (Image-3).



mage-3)

Results: 23 cases of pituitary adenoma-craniopharyngioma collision tumours have been reported to date. Our institution's case is the 24th. In all reported cases, the craniopharyngioma was adamantinomatous , except for one that was papillary. Overall, the craniopharyngioma tumours burden is higher and collision tumours' disease course is more complicated with variable treatment outcomes, higher risks for complications, and prolonged recovery compared to a single tumour of either type. This is demonstrated in our case's clinical course.

Conclusions: Collision sella tumours are an exceptionally rare phenomenon and histological studies are essential to confirm the diagnosis. Future research advances in molecular genetics will hopefully clarify how they develop.

PV286 / #1875

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

IMPULSE CONTROL DISORDERS IN PATIENTS WITH DOPAMINE AGONIST-TREATED PITUITARY ADENOMAS: A CROSS-SECTIONAL MULTICENTER STUDY

Mussa Al Malki
College of Medicine, Alfaisal University, Riyadh, Saudi Arabia

Background and Aims: Background: Impulse control disorders (ICDs) have been described as some rare side effects of dopamine agonists (DAs) in neurological disorders but are not sufficiently understood in endocrine conditions. Objective: To identify the prevalence of DAs induced ICDs and determine potential risk factors related to these disorders in patients with prolactinoma and non-function pituitary adenomas (NFPAs).
Methods: This is a cross-sectional multicenter study involving 200 patients with prolactinoma and NFPAs, who received follow-ups in tertiary referral centers. DA-induced ICDs were assessed using ICD questionnaires modified from prior studies.
Results: Result: At least one ICD was reported by 52% of participants, among whom 28.5% mentioned compulsive shopping, 24.5% punding, and 24.5% hypersexuality. Furthermore, 33% of the patients reported the presence of one type of ICD behavior, while 12% specified two and 7% had three types of such behavior. Risk factors included a history of psychiatric illness (adjusted OR: 7.67, 95% CI: 1.37-42.97, p 0.021). Similarly, a family history of psychiatric illness was significantly higher among patients with ICDs, than those without (20 versus 3, p value < 0.001). The multivariable logistic model showed that a one-year increase in age is associated with an 8% decrease in odds of any ICDs. In addition, being single is associated with a lower odds ratio for developing an ICD.
Conclusions: Conclusion: ICDs with a broad range of psychiatric symptoms are common in individuals with DA-treated prolactinoma and NFPAs. Endocrinologists should be aware of this potential side effect, particularly in patients with personal or family history of psychiatric disorder.

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E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

HYPOTHALAMIC PITUITARY DYSFUNCTION IN LANGERHANS CELL HISTIOCYTOSIS

Maria Wajid[1], Abrar Ali[2], Najmul Islam[3,4]
[1]The Aga khan university hospital, Diabetes, Endocrinology And Metabolism, KARACHI, Pakistan, [2]The Aga khan university hospital, Diabetes, Endocrinology And Metabolism, Karachi, Pakistan, [3]Aga Khan University Hospital, Internal Medicine (Endocrine), KARACHI, Pakistan, [4]Aga Khan University Hospital, Internal Medicine, Section Of Diabetes Endocrine And Metabolism, KARACHI, Pakistan

Background and Aims: Langerhans cell histiocytosis (LCH), a disease of childhood, rarely reported in adults is characterized by aberrant proliferation of a specific dendritic cell belonging to the monocyte-macrophage system. Diabetes insipidus (DI) is the most common endocrine abnormality, reported in 15–50% of patients with LCH . Anterior pituitary deficiency in LCH has almost always been associated with DI. Here we report of case of a young woman with Langerhans cell histiocytosis manifesting as scalp lesions, diabetes insipidus and menstrual irregularities.
Methods: 30 years old female presented with complaints of headache for 4 years associated with polyuria and polydipsia and secondary amenorrhea. Patient had recurrent scalp lesions first noticed 2 years back. Systemic review and examination were unremarkable. CT scan of head showed extra-axial infiltrating lesion along convexity of bilateral parietal and occipital bones with heterogeneous appearance. Patient underwent biparietal craniotomy and excision of lesion. Histopathology showed fibro collagenous tissue exhibiting a neoplastic lesion composed of sheets of Langerhans's cells with moderate to abundant eosinophilic cytoplasm. Immunohistochemical stains were positive for CD1a, S100, CD68 and Cyclin D1. Biochemical workup showed sodium of 154meq/l, FSH was 6.36 m IU/ml (1.4-9.9), LH 4.32 m IU/ml (1.7-15), estradiol 21.4pg/ml (19.5-144.2), TSH u IU/ml , FT4 1.28ng/dl, 8am cortisol was 14ug/dl , prolactin was 25.6ng/ml (monomeric 10.2ng/ml). Serum sodium after overnight fluid deprivation was 147mmol/l with serum osmolality of 309mosm/kg (275-300) and urine osmolality of 242mosm/kg (50-1400). Whole body PET/CT was negative. MRI pituitary protocol showed a well-defined cystic lesion in the sella, measuring approximately 8 x 9 x 8 mm causing mass effect displacing the pituitary stalk posteriorly and the pituitary parenchyma inferiorly. The pituitary stalk appeared thickened and measured approximately 4 mm in maximum transverse dimension.
Results: Desmopressin at a dose of 0.05mg bid was initiated with marked improvement in polyuria and polydipsia. The patient was given progesterone for breakthrough bleeding. Cladribine 5mg/m2 for 5 days every 3 weekly for 6 cycles was initiated by oncologist. Repeat MRI showed marked reduction in thickening of pituitary stalk.
Conclusions: Hypothalamic pituitary axis involvement in Langerhans cell histiocytosis requires long term follow-up with proper replacement of hormonal deficiencies which may be as important in improving quality of life as other more aggressive interventions.

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01-03-2024 07:00 - 18:00

ADIPSIC DIABETES INSIPIDUS WITH VENOUS THROMBOEMBOLISM-A CASE SERIES

Maria Wajid, Abrar Ali, Muhammad Masood
The Aga khan university hospital, Diabetes, Endocrinology And Metabolism, Karachi, Pakistan

Background and Aims: Central diabetes insipidus, an infrequently encountered disorder of water balance, can result from several traumatic and non-traumatic etiologies. It leads to production of large amounts of dilute urine secondary to deficient or impaired antidiuretic hormone (ADH) release. In most patients, a euvolemic state can be maintained by increasing fluid intake as the thirst center is triggered by an increase in serum osmolality. Patients with impaired thirst perception i.e., Adipsic DI, or patients with limited water access as seen during fasting, in the perioperative period or impaired cognition are more likely to develop severe dehydration and hypernatremia. One infrequently reported complication in such settings is venous thrombosis resulting from hemoconcentration, high doses of glucocorticoids, and elevated levels of factor VIII and von Willebrand factor with subsequent increase in morbidity and mortality. Here, we present 3 patients with central DI who were either Adipsic or had limited access to water who developed thromboembolism.
Methods: PATIENT 1 A 45-year-old female with craniopharyngioma underwent trans-sphenoidal resection of the lesion. Following surgery, she developed panhypopituitarism and DI with impaired thirst perception. Elastic stockings were given for DVT prophylaxis. 3 weeks after the surgery, she was admitted with acute onset abdominal pain, distension, and decline in oxygen saturation. The workup showed a thrombus in portal vein, right main pulmonary artery, and segmental branches. PATIENT 2 A 43-year-old male who underwent trans-sphenoidal resection of craniopharyngioma developed hypopituitarism and DI in immediate postoperative period. He was given DVT stockings as a prophylaxis. His thirst mechanism was not intact. 40 hours after receiving desmopressin, the patient developed thrombosis in segmental branches of bilateral pulmonary arteries. PATIENT 3 A 28-year-old male who developed central DI after traumatic brain injury had decreased fluid intake due to impaired cognition. DVT stockings were given to the patient as prophylaxis. Desmopressin was initiated for DI. On 5TH day of admission, the patient developed thrombosis in superficial femoral and popliteal veins.
Results: In our patients, water intake in response to increased serum osmolality was impaired. The resultant hypernatremia and dehydration predisposed these patients to the risk of developing thromboembolism. Interestingly, none of these patients received medical prophylaxis for thromboembolism. Hence meticulous management of water and electrolyte balance is of paramount importance in managing patients with adipsic DI and one should have a low threshold for initiating prophylaxis of thromboembolism in such cases.
Conclusions: Patients with adipsic DI should be vigilantly screened for thromboembolism, a rare yet clinically significant complication.

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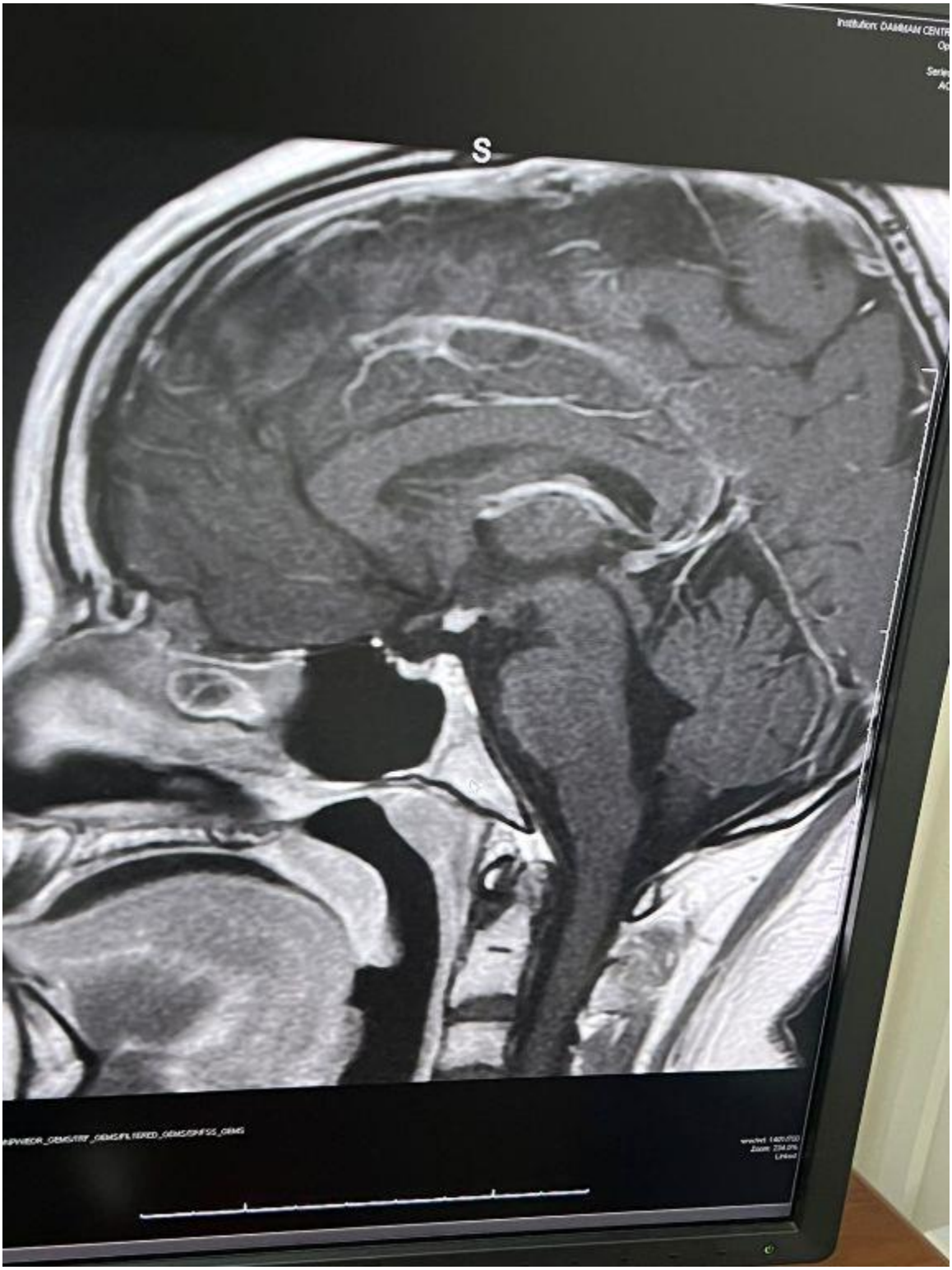
PITUITARY STALK INTERRUPTION SYNDROME, CASE SERIES WITH VARIABLE PRESENTATION.

Malak Alkhalifa, Zahra Al-Khadrawi, Huda Radwan
Ministry of health, Endocrinology, Dammam, Saudi Arabia

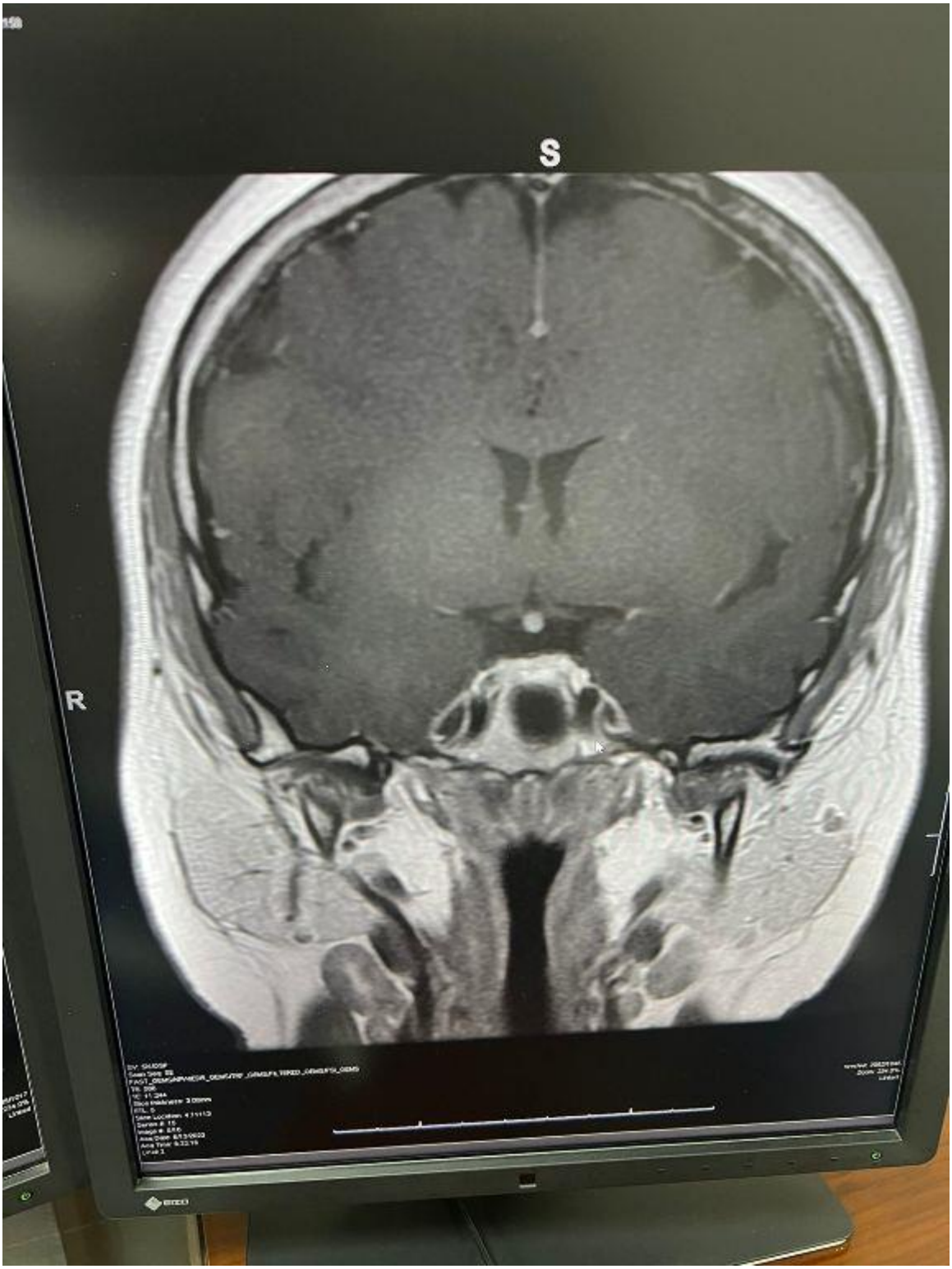
Background and Aims: Pituitary stalk interruption syndrome (PSIS) is very rare condition with incidence about 0.5 per million(2). It has variable time of onset and presentation. Herein, we report two cases of pituitary stalk interruption syndrome with variable presentation first case have panhypopituitarism. While other case have growth hormone deficiency and secondary amenorrhea.
Methods: Case 1 21-year-old female diagnosed as growth hormone deficiency at 7-year-old and started on growth hormone therapy. At 16-year-old, she was admitted as adrenal crises and discharged on hydrocortisone. She didn't develop secondary sexual characteristic and didn't get menstrual cycle. She sought our clinic at the age of 21-year with hormonal profile showed pictures of panhypopituitarism. Pituitary MRI revealed anterior pituitary atrophy, pituitary stalk agenesis with ectopic posterior pituitary, and non-fused spheno-occiptal
synchondrosis.



Case 2

19-year-old female diagnosed as growth hormone deficiency at 8-year-old and started on growth hormone therapy. She developed secondary sexual characteristic between13- 14-year-old. She was

started her cycle at 15-year-old but six months later she had secondary amenorrhea. She sought our clinic at age of 19-year-old, her workup showed pictures of hypogonadotropic hypogonadism with intact thyroid and adrenal axis. Pituitary MRI revealed a triad of hypoplastic anterior pituitary, Ectopic posterior pituitary with absent of the pituitary



stalk..

Results: Discussion: PSIS is a triad of thin or interrupted pituitary stalk, absent or ectopic posterior lobe, and hypoplastic or aplastic anterior lobe. Fujisawa et al (1) first described this condition In 1987.The

incidence rate is 0.5/1000,000 births(2).The hypothesis for PSIS either environmental factor or genetic mutation reported in less than 5% of cases(4). It can be associated with extra-pituitary malformation such as Chiari I malformation and Septo-optic dysplasia(3). Some studies found that presence of extra-pituitary malformation associated with multiple pituitary hormonal deficiency while other found no association(3). We found here association between presence of malformation and multiple pituitary hormone deficiency as on first case have panhypopituitrism and non fused spheno-occiptal synchondrosis. while seond case have Growth hormone deficiency (GHD) and seondary amenorrhea without presence of malformation.Also,This support variable presentation of PSIS which links in some study to visibility of pituitary stalk(5).Morover, second case have GHD and later on secondary amenorrhea.This support that this syndrome have progressive worsening of pituitary hormone that need long term follow up(3).
Conclusions: To conclude this syndrome have variable presentation could present as isolated growth hormone deficiency or multiple pituitary hormone deficiency. It also have progressive course which indicate the need for long-term follow up.

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ENDOCRINE DISORDERS AFTER RADIO- AND CHEMOTHERAPY FOR POSTERIOR FOSSA TUMORS

Ilya Amergoolov[1], Maria Pavlova[1], Yulia Sytch[1], Ekaterina Bobrova[2], Ekaterina Gubernatorova[3], Tatiana Tselovalnikova[4], Alla Yudina[1], Nadezhda Mazerkina[5], Olga Zheludkova[6], Olga Golounina[1], Anna Dzyuba[1], Maria Semenova[1]
[1]I.M. Sechenov First Moscow State Medical University (Sechenov University), Endocrinology No. 1, Moscow, Russian Federation, [2]Medical devison 119 of FMBA, -, Moscow, Russian Federation, [3]Hospital of Centrosoyus, -, Moscow, Russian Federation, [4]University of Missouri, -, Cansas, United States of America, [5]Burdenko National Medical Research Center for Neurosurgery, -, Moscow, Russian Federation, [6]V.F. Voyno-Yasenetskiy Center of Special Medical Care for Children, -, Moscow, Russian Federation

Background and Aims: Modern modalities in therapy for posterior fossa tumors have substantially improved patients' survival and general outcomes. However, this therapy may have long term effects on other organs, including endocrine glands. Therefore we performed cross-sectional study in adult patients who had previously undergone radiotherapy and multiple chemotherapy for any posterior fossa tumor. The aim of the study was to estimate prevalence and risk of endocrine disorders among these patients.
Methods: We examined 167 consecutive patients (82 male; 85 female) after surgery, cranial or craniospinal radiotherapy (with bust dose on posterior fossa) and chemotherapy for posterior fossa brain tumors. We distributed the patients into two groups, according the age of the therapy. Group I - 117 patients with therapy at the age of < 16 years, median age of therapy of 12 years [9;14], median age at the moment of our study of 20 years [18;22], median of disease-free period of 7 years [4;10]. Group II – 50 patients with therapy at the age of 16–40 years, median age of therapy of 23 years [18;28], median age at the study period of 26 years [22;32], and median of disease-free period of 2 years [1;3]. We performed thyroid function tests, thyroid ultrasound in all patients, and fine needle aspiration biopsy (FNAB) in case of thyroid nodules. We also evaluated function of pituitary-adrenal axis and possible growth hormone deficiency in all patients using insulin hypoglycemia test.
Results: Hypothyroidism was found in 91 patients (54.5 %), and thyroid nodules - in 33 patients (19.5 %). Thyroid cancer (follicular, papillary and a combination of both types) was diagnosed in 6 patients (3.6%) (all in Group I). Growth hormone deficiency was established in 122 (73.1%) individuals, secondary adrenal insufficiency in 73 (43.7%), and impaired glucose tolerance in 4 cases(6.6 %). Hypogonadism occurred in 109 patients (65.3 %). Odds ratio for hypothyroidism after radio- and chemotherapy at young age (<16 yrs) was 5.38 (95%CI: 2.0-14.2). Risk of hypothyroidism or hypogonadism increased in 2.73 folds (95%CI: 1.3-5.7) and in 2.44 folds (95% CI: 1.16-5.12), respectively when remission period reached 5 years or more. Four courses of chemotherapy or more were strongly associated with hypogonadism, with odds ratio of 2.35 (95%CI: 1,05-5,3).
Conclusions: Chemoradiotherapy for posterior fossa tumors is associated with increased risk of endocrine disorders. This risk is higher for patients, treated at the age of 16 or younger. Hypothyroidism and growth hormone deficiency are the most common endocrine disfunction. Therefore, tjese patients should be supervised by endocrinologist.

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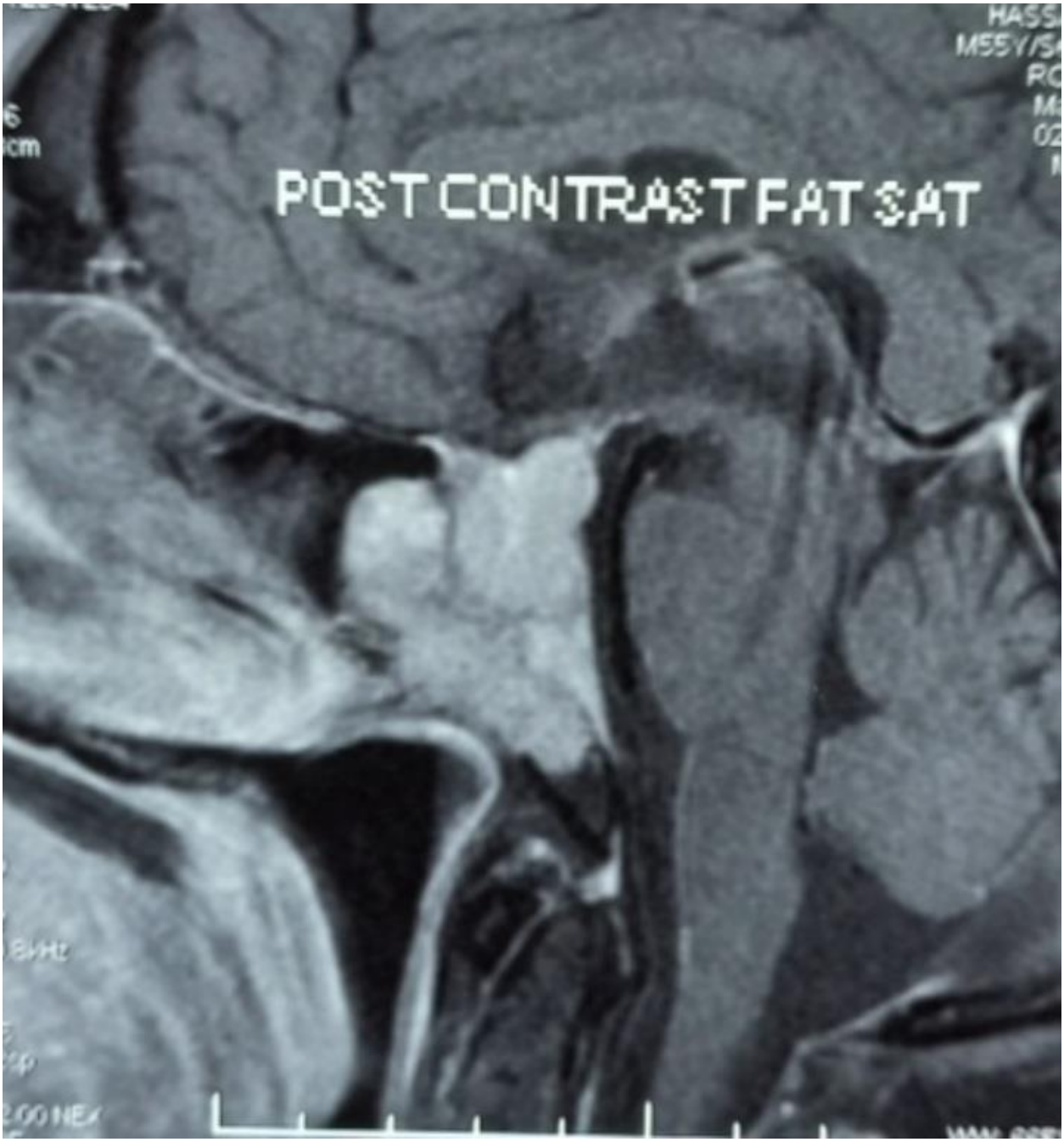
01-03-2024 07:00 - 18:00

AN INVASIVE GIANT PROLACTINOMA WITH SURROUNDING BONE INFILTRATION DESPITE EXCELLENT BIOCHEMICAL RESPONSE AND TUMOR RESOLUTION – A CASE ABSTRACT.

Gayan Gajaweera, Charles Antonypillai, Amalka Premadasa, Dulashiha Jegavanthan, Nishan Ravindu
National Hospital Kandy, Diabetes And Endocrine Unit, Kandy, Sri Lanka

Background and Aims: Introduction – Prolactinomas are generally benign pituitary adenomas and usually present as macroprolactinomas. When the macroprolactinomas exceed 4 cm in diameter with no co-secretory of any other hormones, it is defined as a giant prolactinoma. This case abstract demonstrates a giant prolactinoma that responded to medical therapy but showed local bone infiltration. Case presentation – A 58-year-old male presented with a chronic headache and erectile dysfunction for 06 months and a recent onset of visual impairment. He didn't have galactorrhea, seizures and was not on long-term medications. Past medical and family history were unremarkable. On examination, he had bitemporal hemianopia with preserved visual acuity. Cranial nerves were normal. He had no gynecomastia. There were no features to suggest co-secretion of other hormones or hypopituitarism. His initial serum prolactin level was 12590 ng/ml with normal levels of other pituitary hormones. MRI– brain showed a giant pituitary adenoma with the size of 4.1 cm* 3.8 cm * 4.0 cm with optic chiasmal compression (figure 1). The diagnosis was a giant prolactinoma. After 03 weeks of cabergoline therapy, he developed CSF rhinorrhea. Cabergoline was withheld temporarily. CSF cisternogram confirmed a mild degree of leakage of CSF most likely due to shrinkage of the tumor. There were no bony erosions in the base of the skull at the time. After settling of CSF rhinorrhea, cabergoline was restarted. Within 06 months he responded well to the treatment, biochemically and with resolution of both intrasellar and suprasellar components of the tumor. From the beginning, the repeated MRIs of the brain showed persistent signal changes and abnormal enhancement of the sphenoid sinus and clivus which were most likely due to the surrounding bone infiltration (figure 2 A, B, C). Radiologically chordoma was unlikely. The diagnosis was an invasive giant prolactinoma. Discussion – Importantly in giant prolactinomas, the normalization of the biochemical parameters and tumor resolution may not indicate successful recovery as they can silently invade the surrounding bony structures. It is also important to consider the possibility of Chordoma as a differential diagnosis as chordomas can mimic an invasive giant prolactinoma.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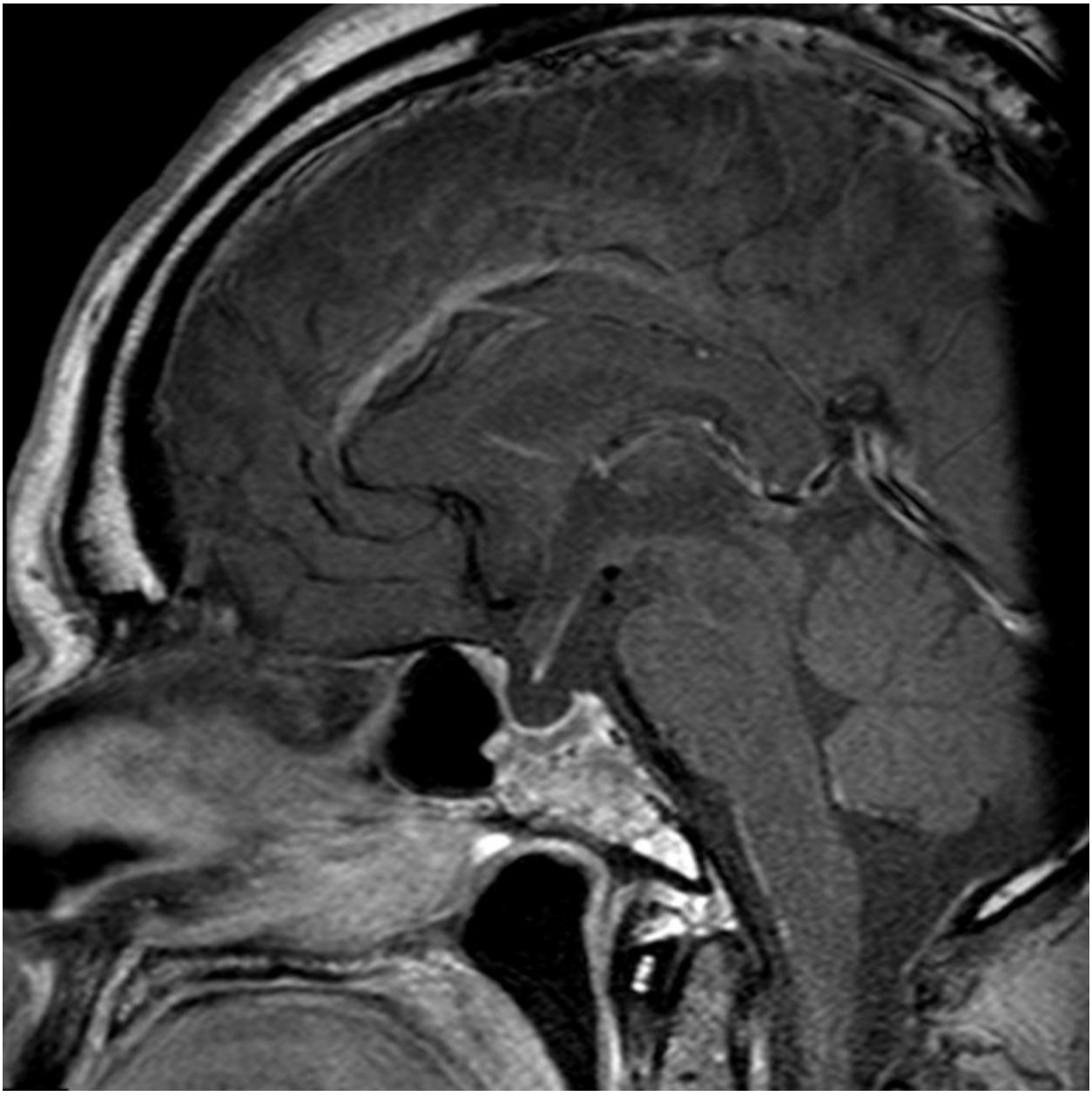

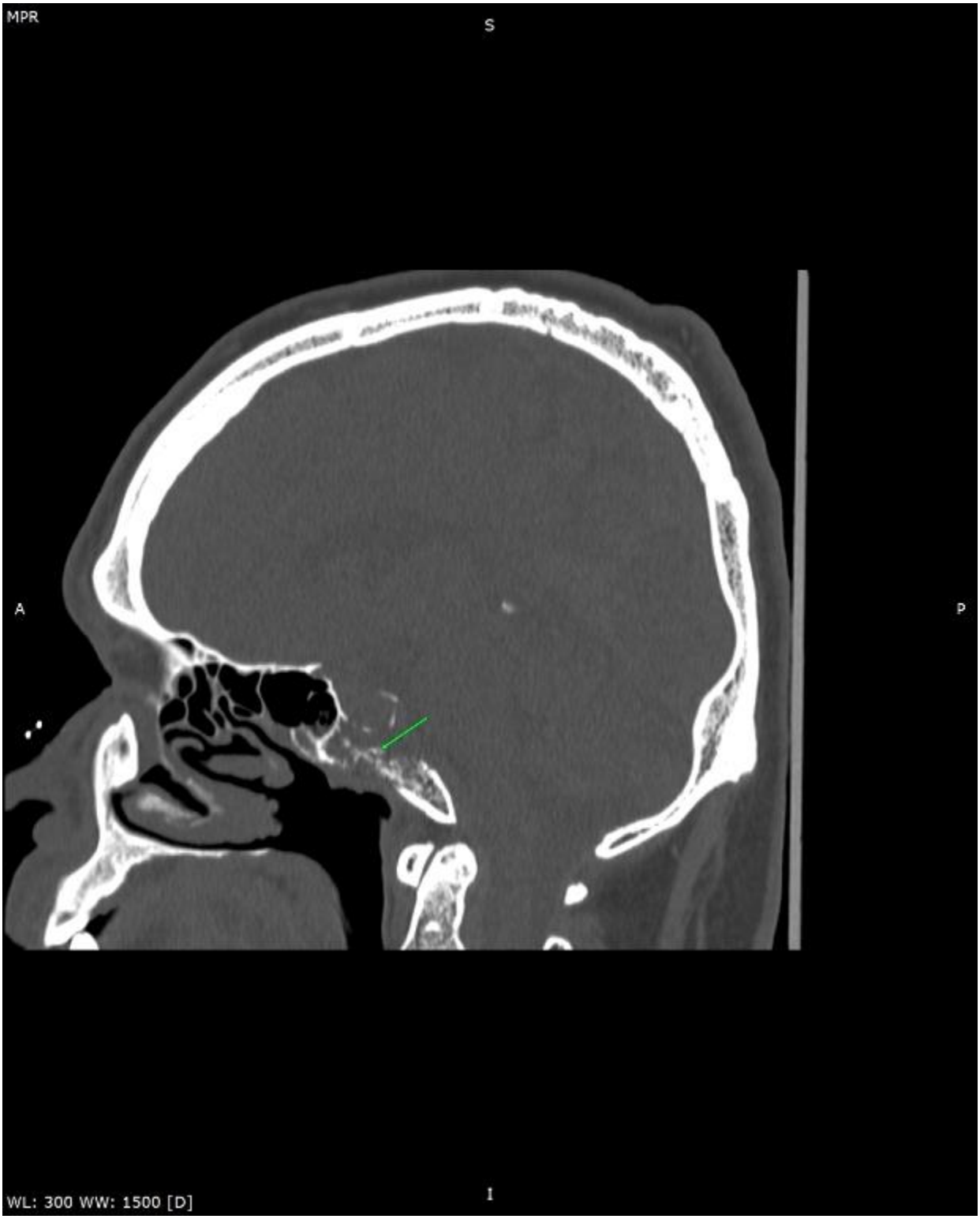

Methods: As above mentioned in the case abstract.

Results: As above mentioned in the case abstract.
Conclusions: As above mentioned in the case abstract.

PV292 / #1928

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01-03-2024 07:00 - 18:00

ASSOCIATION OF GRAVES DISEASE, IDIOPATHIC INTRACRANIAL HYPERTENSION, AND PITUITARY HYPOPLASIA

Mohamed Khairi Arous, Najla Bchir, Sabrina Ayari, Anaam Ben Chhida, Chadia Zouaoui, Haroun Ouertani
Military Hospital of Tunis, Department Of Endocrinology, Tunis, Tunisia

Background and Aims: Graves' disease (GD) is the most common cause of hyperthyroidism. It shares with idiopathic intracranial hypertension (IIH) the same preferential field of onset; in women aged 30-40. However, pituitary hypoplasia (PH) is rarely diagnosed in adulthood. We report the case of a female patient suffering from GD, IIH, and PH.
Methods: 41-year-old woman, mother of 2, consulted for palpitations and weight loss with polyphagia. Clinical examination revealed a vascular goiter. Primary hyperthyroidism was diagnosed (FT4= 41.2pmol/L, TSH=0.04mUI/L). It was related to Graves' disease considering the presence of positive TSH receptor antibodies. Cervical ultrasound showed a non-nodular hypervascular goiter and scintigraphy showed diffuse homogeneous hyperfixation. The patient was treated with antithyroid drugs and propranolol with good clinical and biological evolution.
Results: The patient consulted 2 years later for psychomotor slowing. Her biology was consistent with central hypothyroidism, hence the interruption of antithyroid therapy for 6 months. The patient also reported intense and permanent helmet headaches and visual blurring. A fundus examination was performed showing papilledema and the brain scan revealed persistent intracranial hypertension syndrome. A ventriculoperitoneal bypass was performed. perioperatively, the patient had acute adrenal insufficiency (hyponatremia with cortisol levels at 27.6nmol/L) with low ACTH value of 17.3pg/mL. The rest of the hypophysiogram was normal. Hypothalamic-pituitary MRI revealed PH with a glandular thickness of 2mm, a thin median pituitary stalk, and the posthypophysis in place with the usual hypersignal. Hormone replacement therapy has led to clinical and biological improvement. Given the context of autoimmunity and the evolving context, autoimmune hypophysitis was the most likely diagnosis.
Conclusions: Our case illustrates a surprising evolution of GD. We initially considered the transition to hypothyroidism as a remission of GD. The literature on pituitary hypoplasia diagnosed in adulthood is very limited. It is classically described in the pediatric population in the context of growth retardation, sometimes associated with interruption of the pituitary stalk. This hypoplasia may be a consequence of cranial hypertension, although cases published tend to refer to pituitary hyperplasia. The association of IIH and GD has been reported in the literature. Autoimmune hypophysitis must be considered in face of hypopituitarism occurring in the context of an associated autoimmune disease such as Graves' disease. Its non-specific symptoms and radiological signs as well as the poor sensitivity and specificity of the antibodies make the diagnosis difficult.

PV293 / #891

E-Poster Viewing
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A RARE CASE OF PITUITARY METASTASIS FROM COLONIC ADENOCARCINOMA

Navya Basavaraju, Tanvir Hussain, Probal Moulik
Royal Shrewsbury Hospital, Department Of Endocrinology And Diabetes, Shrewsbury, United Kingdom

Background and Aims: Introduction: Pituitary metastases are rare, accounting for about 1% of all surgically treated pituitary lesions, with 50% from lung and breast malignancies. We present a rare case of pituitary metastasis from colonic adenocarcinoma.
Methods: Case: 67-year-old gentleman presented with persistent headache for 3months, gradual onset of blurred and double vision. He had a background of prediabetes, hypertension, moderately differentiated colonic adenocarcinoma (T4N1b) treated with right hemicolectomy and adjuvant chemotherapy 2.5years ago. Computed Tomography/Positron Emission Tomography confirmed 14mm metastatic nodule in right lower lobe of the lungs, which was resected. There was bitemporal upper quadrantanopia, dilated right eye pupil with third nerve palsy. Magnetic Resonance Imaging (MRI) pituitary confirmed 12mm sellar tumour with apoplexy, significant extension to the right internal carotid artery, suprasellar extension and displacement/distortion of the chiasm. Biochemistry confirmed anterior hypopituitarism with disconnection hyperprolactinemia but no evidence of diabetes insipidus (DI); commenced on hydrocortisone, levothyroxine. Multidisciplinary team consensus was to repeat MRI in 2weeks due to cavernous sinus involvement and apoplexy. His right eye vision deteriorated with only perception to light. MRI pituitary revealed increase in post apoplexy tumour with acute haemorrhage, increase in suprasellar extension and distortion of right optic nerve with oedema extending within optic chiasm. Endoscopic transsphenoidal surgery revealed necrotic tumour, which was debulked. Post-operatively, he developed DI and commenced on desmopressin, but no improvement in vision. Histopathology revealed metastatic colorectal adenocarcinoma. He received adjuvant radiotherapy to the brain with high dose dexamethasone, developed steroid induced diabetes mellitus and myopathy. MRI spine showed T7-8,T11 vertebral body fracture with bone marrow oedema. Sadly, he continued to deteriorate despite best efforts.
Results: Discussion: Incidence of intracranial metastasis from colorectal cancer is between 1-3%. There are only six reported cases of pituitary metastasis from colonic malignancy since 2001. Recent increase in pituitary metastasis could be attributed to improvements in neuroimaging, laboratory testing, and increased longevity with cancer. Pituitary metastasis is difficult to distinguish from benign lesion on imaging. Parasellar extension is associated with external ophthalmoplegia and cavernous sinus invasion, while suprasellar extension results in visual field defects. Pituitary metastases have poor prognosis, as it mostly occurs with advanced disease with estimated survival between 6-22 months. Glucocorticoid replacement and correction of other pituitary dysfunctions can improve quality of life, chemotherapy tolerance, but no treatment has shown significant improvement with survival.
Conclusions: Conclusion: Pituitary gland should not be overlooked as a site of metastasis and sellar symptoms could be the first presentation of neoplastic disease.

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LONG-TERM HORMONAL AND IMAGING OUTCOMES AFTER ADJUNCTIVE GAMMA KNIFE RADIOSURGERY IN PATIENTS WITH NON-FUNCTIONING PITUITARY ADENOMAS

Aasim Maldar[1], Phulrenu Chauhan[1], Reema Pradhan[2], Basant Misra[2], Nishit Shah[1], Milind Sankhe[2], Ketan Desai[2], Manoj Chadha[1]
[1]P. D. Hinduja Hospital and Medical Research Center, Department Of Endocrinology, Mumbai, India, [2]P. D. Hinduja Hospital and Medical Research Center, Department Of Neurosurgery And Gamma Knife, Mumbai, India

Background and Aims: Gamma Knife Radiosurgery (GKRS) is a recognized treatment modality for non-functioning pituitary adenomas (NFPA). We evaluated the long-term endocrine and imaging outcomes following the adjunctive GKRS in individuals with NFPA.
Methods: An analysis of 123 patients with NFPA who received adjunctive GKRS from a single center, from 1996 to 2022, was performed.
Results: Follow-up data of 73 (59.5%) patients was available, with the median follow-up period of 52 months (range, 6-280). At a median time of 42 months (range, 8-99), 46 (of the 158 uninvolved axes, 29.1%) new hormonal deficiencies developed. Median time to hypocortisolism, hypothyroidism, and hypogonadism was 38.5 months (range, 8-99), 45 months (range, 12-97), and 45 months (range, 27-75) respectively. The actuarial risk of developing a new pituitary hormone deficit was 1.9%, 11.4%, 25.9%, 27.2%, and 29.1% at 1, 3, 5, 7, and 10 years, respectively. A decrease in adenoma size was seen in 42 (57.6%), an increase was seen in 8 (10.9%), and the size remained unchanged in the rest 23 (31.5%) patients. The overall tumor control rate was 89.1%. Five (4.1%) patients required additional treatment (surgery or radiotherapy) after GKRS. Two (1.6%) patients had worsening of headache and one (0.8%) each had optic atrophy and cerebellar infarct after GKRS therapy.
Conclusions: Adjunctive GKRS is well tolerated, with a high tumor control rate, and favorable long-term preservation of pituitary hormone functions.

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INVESTIGATING THE EFFECT OF MATERNAL SEPARATION ON CENTRAL CONTENT OF LEPTIN AND OCCURRENCE OF DEPRESSIVE-LIKE BEHAVIOR IN ADULT MALE RAT OFFSPRING UNDER SOCIAL DEFEAT STRESS

Farzaneh Eskandari[1], Mina Salimi[2], Homeira Zardooz[3]
[1]Shahid Beheshti University of Medical Sciences, Neurophysiology Research Center, Tehran, Iran, [2]Ardabil University of Medical Sciences, Physiology, Ardabil, Iran, [3]Shahid Beheshti University of Medical Sciences, Department Of Physiology, School Of Medicine, Tehran, Iran

Background and Aims: Adverse experiences in early life may lead to neuroendocrine dysfunction and cause depression and anxiety in later life. Also, exposure to stress in early life can change lipid metabolism and peripheral and central levels of leptin, as factors involved in depressive-like behavior. Therefore, the present study aimed to investigate the effect of maternal separation stress on lipid profile, peripheral and central content of leptin, and occurrence of depressive like behavior under chronic social defeat stress in adult male rat offspring.
Methods: During the first two postnatal weeks, the male pups were either exposed to maternal separation (MS) or left undisturbed with their mothers (Std). Subsequently, starting on postnatal day 50 (PND50), the animals of each group were either left undisturbed in the standard group housing (Con) or underwent CSDS for three weeks. Totally, there were four groups (n=10/group), namely Std-Con, Ms-Con, Std-CSDS, and MS-CSD. During the last week of the CSDS exposure, in the light phase, the behavioral tests, were performed. Finally, fasting blood samples were collected and plasma was stored at -80°C to measure cholesterol, triglyceride, HDL, LDL, leptin and corticosterone concentrations. Brain of the animals was also removed to measure the leptin content.
Results: Maternal separation decreased immobility time in the forced swim test in response to CSDS. The time spent in the open arm in the EPM anxiety test was significantly reduced in all stress groups. Maternal separation significantly increased the weight of adrenal glands, the plasma concentration of corticosterone and LDL in response to CSDS. While, no significant change in leptin plasma concentration and a significant decrease in brain leptin content were observed in MS-CSDS group. In both the MS-CSDS and CSDS groups, the plasma concentration of cholesterol increased.
Conclusions: It seems that maternal separation could prevent the occurrence of depressive-like behavior in response to CSDS, independent of plasma corticosterone elevation and brain leptin reduction.

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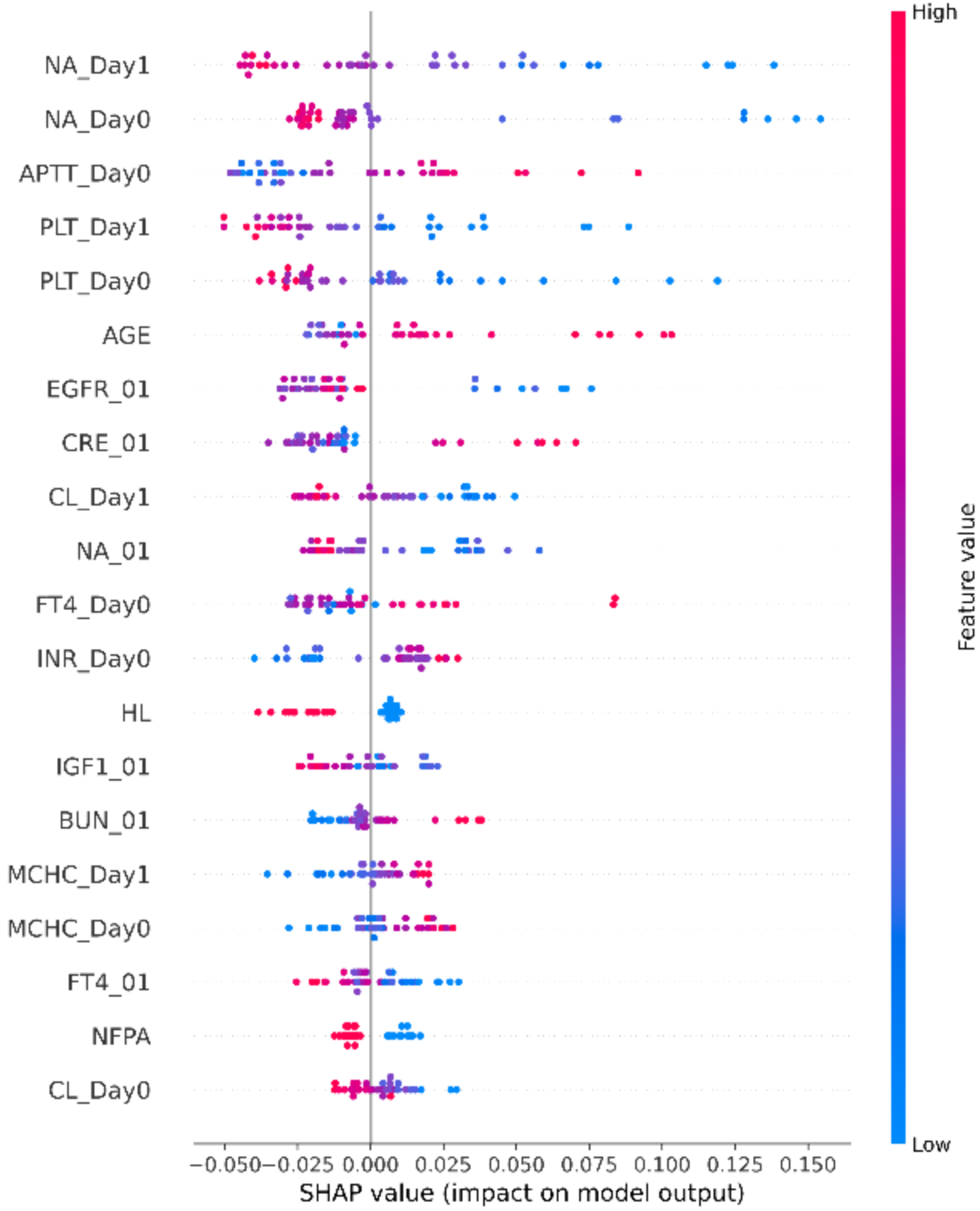
EXPLAINABLE AI PREDICTION OF DELAYED HYPONATREMIA AFTER PITUITARY SURGERY

Yutaro Fuse[1,2], Kazuhito Takeuchi[1], Hiroshi Nishiwaki[3], Yuichi Nagata[1], Kinji Ohno[3], Ryuta Saito[1]
[1]Nagoya University Graduate School of Medicine, Department Of Neurosurgery, Nagoya, Japan, [2]Nagoya University Graduate School of Medicine, Academia-industry Collaboration Platform For Cultivating Medical Ai Leaders (ai-mails), Nagoya, Japan, [3]Nagoya University Graduate School of Medicine, Division Of Neurogenetics, Nagoya, Japan

Background and Aims: Delayed hyponatremia (DHN) stands out as a significant complication following pituitary surgery. DHN is characterized by a rapid decrease in blood sodium levels within a week, which can manifest as confusion and seizures. Although predicting DHN is of paramount importance, traditional statistics provide limited predictive insights, and standard machine learning models lack transparency. This study seeks to address these challenges by predicting DHN onset using explainable AI (XAI) techniques.
Methods: In this single-center, retrospective study, 193 patients with pituitary adenomas who underwent endoscopic transsphenoidal surgery were analyzed. The dataset encompassed 120 input variables including patient demographics, postoperative MRI, complications, hormone levels, and blood tests. The target variable was the presence or absence of DHN, defined by a blood sodium concentration below 135 mEq/L between postoperative days 3-9. Data was partitioned into 80% for training and 20% for testing. Following data preprocessing, four machine learning models—logistic regression (LR), support vector machine, random forest (RF), and light gradient boosting machine—were developed and subjected to five-fold cross-validation. For the top-performing model, the Shapley Additive Explanations (SHAP) values were evaluated, accompanied by a SHAP summary plot and a force plot, illustrating the influence of each variable on the output.
Results: Out of the 193 patients analyzed, 62 (32%) exhibited DHN, with 19 (31%) manifesting symptoms. The RF model showcased the largest area under the receiver operating characteristic curve (ROC-AUC) at 0.759 (±0.039), an accuracy of 0.715 (±0.061), an F1 score of 0.647 (±0.042), and a sensitivity of 0.827 (±0.190). All other models registered an ROC-AUC above 0.7, signifying a moderate prediction capability. Notably, the RF model surpassed the LR model across all performance metrics. With 24 input variables, the RF model's SHAP value analysis identified postoperative and preoperative blood sodium concentration, preoperative and postoperative platelet count, preoperative activated partial thromboplastin time, and age as the top contributing factors to the prediction outcome (Fig. 1).The SHAP force plot provided an instance where a patient with DHN had their predictive value amplified from 0.31 to 0.46 due to a combination of factors like age, platelet count, and blood sodium level (Fig. 2).


NA_Day1
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INR_Day0
HL
IGF1_01
BUN_01
MCHC_Day1
MCHC_Day0
FT4_01
NFPA
CL_Day0
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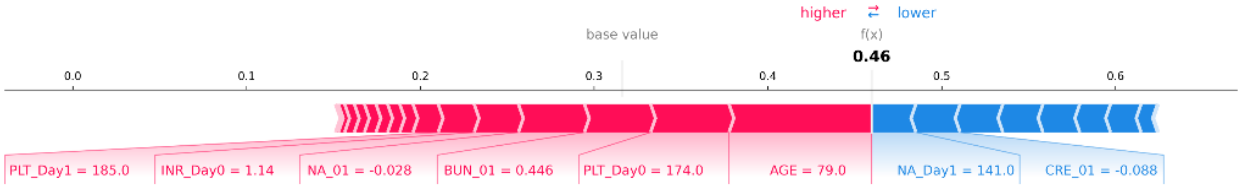
SHAP value (impact on model output)
High
Feature value
Low



Conclusions: This research demonstrates that machine learning can effectively predict DHN. The use of SHAP analysis not only enabled a comprehensive visualization of the influence of each input variable on the prediction but also provided individualized insights. This transparent XAI model offers significant promise for clinical applications.

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E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

CENTRAL DIABETES INSIPIDUS: AN UNUSUAL PRESENTATION OF EXPANDED DENGUE SYNDROME

Juan Pablo Hayes Dorado, Gerben Justiniano Vargas, Claudia Cintia Gorena Montalvo, Ivana Chiri Porcel, Pedro Cardona Flores, Freddy Ovando Canizares, Juan Fernando Limpias Hurtado, Cristian Moreno Sandoval
Caja Petrolera de Salud, Santa Cruz de la Sierra, Bolivia

Background and Aims: Dengue infection may manifest as dengue fever (DF), dengue hemorrhagic fever (DHF), and dengue shock syndrome (DSS). The World Health Organization (WHO) came up with the term expanded dengue syndrome (EDS) to designate cases which do not fall into either DHF or DSS, with unusual manifestations in other organs.
Methods: We report a case of 15 years male adolescent with central diabetes insipidus (CDI), an unusual presentation of EDS. Previously healthy male was admitted with a history of fever associated with myalgia, arthralgia, headache, and abdominal pain for 6 days. He was diagnosed as DF with a positive Dengue NS 1 antigen test on day 3. He experienced polydipsia and polyuria; nocturia with sleep disturbance. The patient was drinking about 6-8 L of water per day, and urinated every 2 hours at night with a daily urinary output of 5-7 L. His laboratory data on admission were as follows: white blood cells, 4100/μL; hemoglobin, 14.8 g/dL; platelets, 15 × 104/μL); total protein, 7.1 g/dL; albumin, 4.3 g/dL; aspartate aminotransferase, 29 U/L; alanine aminotransferase, 30 U/L; lactate dehydrogenase, 199 U/L; alkaline phosphatase, 177 U/L; total cholesterol, 161 mg/dL; triglyceride, 97 mg/dL; serum glucose, 73 mg/dL; creatinine, 0.71 mg/dL; sodium, 149 mEq/L; potassium, 4.6 mEq/L; C-reactive protein, 0.3 mg below/dL; urinalysis: sugar (-); protein (-); urine osmolality, 79 mOsm/kg; adrenocorticotropin, 32.5 pg/mL; prolactin, 19.8 ng/mL; thyroid-stimulating hormone, 3.03 μU/mL; cortisol, 18.3 μg/dL; antidiuretic hormone, 0.2 pg/mL. Gadolinium-enhanced T1-weighted magnetic resonance imaging revealed a diffusely stained pituitary gland and enlarged pituitary stalk.
Results: The patient was diagnosed with CDI, and the severity of his symptoms (polydipsia, polyuria and nocturia) were stabilized by the use of a desmopressin. The patient made a successful recovery by 3 weeks.
Conclusions: CDI should be considered one of the top differential diagnoses of any EDS patients presenting with polyuria and polydipsia. The sensible knowledge about EDS helps to establish the diagnosis and prompt the appropriate treatment for dengue with unusual manifestations. Further studies are required to understand if CDI is an active manifestation of EDS.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

A RARE PRESENTATION OF GIANT PROLACTINOMA

Zunera Jahanzeb[1], Misbah Jabeen[1], Umar Yousaf[1], Fareeha Khalil[2]
[1]Shifa International Hospital, Endocrinology, Islamabad, Pakistan, [2]Shifa International Hospital, Nephrology, Islamabad, Pakistan

Background and Aims: Giant Prolactinomas are rare pituitary tumors that measure more than 40mm, with an estimated prevalence of 1-5 %[1]. Rarely, Giant prolactinomas can present with the nephrotic-range proteinuria[2]. We report a case that mentions nephrotic-range proteinuria associated with Giant Prolactinoma. 1 Shimon et al.(2019) 2 Heras et al.(2008)
Methods: CASE REPORT A 32 year old,Asian male presented with two years history of worsening fronto-occipital headache along with Diplopia,vertigo,and ataxia He also complained of frothy urine.His Spot Urine Protein was 49 mg/dL and the Spot Urine Creatinine levels 36.7 mg/dL at the time of presentation. Investigations to rule out other causes of Nephrotic syndrome,such as ANA,ENA,C3,C4 and Hepatitis screaning were un-remarkable.Plain MRI Brain revealed a large,well-defined,lobulated,heterogenous soft tissue mass extending into the suprasellar cistern,the cavernous sinuses,the CP angles,pterygoid plates bilaterally and measured at 5 x 4, 6 x 4.5 cm (CCxAPxTR).Serum Prolactin levels were > 47000 ng/ml. He was started on 0.25mg of Cabergoline on alternate days.Keeping in mind the extensive size and mass effects,the Trans-sphenoidal surgery was done to achieve spontaneous debulking.Two weeks later there was a substantial reduction in patient's Prolactin levels along with reduction in Spot Urine protein,coming down from 49mg/dl to16mg/dl and Spot Urine Creatinine,coming down from 36.7mg/dl to 24.4mg/dl. Further follow-up includes serial monitoring of the tumor size,serum Prolactin,Spot urine protein,and Spot urine Creatiine levels.
Results: In our patient , there was an association between levels of Prolactin and Nephrotic range proteinuria.As the Prolactin level came down with oral Cabergoline, nephrotic-range proteinuria also improved. In patients presenting with nephrotic-range proteinuria, Giant Prolactinoma can be a rare cause and should be considered in differential diagnosis.
Conclusions: Giant Prolactinomas have a predilection for males.About 75% of females present with amenorrhea and 61% of males with hypogonadotrophic hypogonadism (Erectile dysfunction and galactorrhea). First-line treatment for Giant prolactinomas is the medical therapy with dopamine agonists (bromocriptine and cabergoline),followed by Trans-sphenoidal surgery and Radiotherapy, if resistant to Dopamine agonists.Therapeutic goals for Prolactinomas include normalization of hormone levels,reduction of tumor size,relief of mass effect, and restoration of gonadal function. Giant Prolactinomas can rarely present with proteinuria. However, treatment with Dopamine agonists and surgery can lead to reduction in proteinuria depending on the reduction in prolactin levels.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

EVALUATION OF HYPOTHALAMIC-PITUITARY-ADRENAL AXIS AFTER SHORT COURSE OF SYSTEMIC STEROIDS

Jaya Bhanu Kanwar, Pooja Jadhao, Swayamsiddha Mangaraj, Jayshree Swain, S L Sravya
Institute of Medical Sciences and Sum Hospital, Endocrinology, Bhubaneswar, India

Background and Aims: Effect of short-term steroid therapy (with any dose) on the hypothalamic-pituitary-adrenal (HPA) axis has not been systematically evaluated previously. In our study we have examined the temporal pattern of HPA axis suppression and recovery after a short course of glucocorticoids and identified its predictors.
Methods: A total of 229 patients, prescribed steroids for a short duration between 5 to 45 days for various underlying conditions were recruited; of whom 121 completed the study. Testing of the HPA axis was done by 8 am baseline serum cortisol (BC) level, and when required 1-µg ACTH stimulated cortisol (SC); at baseline before starting steroid therapy and after completion of therapy on day 3, 10, 17, 24 and 31.
Results: The mean age of our study group was 45.07±14.61 years and mean serum cortisol before starting steroid treatment was 11.12±2.91 µg/dl. The mean cumulative prednisolone equivalent dose of steroid received and duration of therapy was 858.6±134.64 mg (ranging from 100 mg to 6250 mg) and 15.98±9.51 days respectively. HPA axis suppression was seen in 57(47%) subjects on day 3 after completion of steroid course; diagnosed by BC in 43 subjects and by SC in 14 subjects. On day 10, 18(31.5%) subjects had persistent HPA axis suppression while 39(68.5%) recovered. On day 17, 4(7%) subjects had persistent HPA axis suppression while 14(24.5%) recovered. All patients had recovery of HPA axis by day 31. Logistic regression analysis showed HPA axis suppression on day 3 after completion of steroid therapy negatively correlated with age (p=0.018), baseline cortisol before therapy (p=0.036) and tapering of steroid dose (p=0.049).
Conclusions: After short course of steroid therapy, HPA axis suppression is transient and it recovers in majority by one month after completion of steroid therapy. Cumulative dose of steroid, duration of steroid therapy or type of steroid used did not predict HPA axis suppression after short course of steroid therapy.

PV301 / #837

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

TRANSPLANTATION OF ACTH-SECRETING HUMAN PLURIPOTENT STEM CELL (HPSC)-DERIVED PITUITARY CELLS.

Tatsuma Kondo[1,2], Hidetaka Suga[2], Hiroo Sasaki[1], Shiori Taga[3], Hiroshi Arima[2], Ryuta Saito[1]
[1]Nagoya University Graduate School of Medicine, Department Of Neurosurgery, Nagoya, Japan, [2]Nagoya University Graduate School of Medicine, Department Of Endocrinology And Diabetes, Nagoya, Japan, [3]Regenerative & Cellular Medicine Kobe Center, Sumitomo-Pharma Co., Ltd, Regenerative Ophthalmology Group, Kobe, Japan

Background and Aims: Background This study seeks to develop an innovative therapeutic approach for hypopituitarism, a disorder resulting from various hormonal imbalances that lead to diverse symptoms. Particularly critical is the potential life-threatening adrenal crisis caused by lowered ACTH levels. The current treatment involves hormone replacement therapy (HRT), yet its inability to adequately mimic the body's finely-tuned hormone fluctuations contributes to a higher risk of sudden death compared to healthy individuals. The goal is to create pituitary hormone-producing cells that respond to the environment like the human body, offering a more effective treatment than current HRT. Aims Starting in 2016, our research group achieved a 30% success rate in generating pituitary-hypothalamus organoids from human embryonic stem cells (hESCs). In 2020, we replicated this success using human induced pluripotent stem cells (hiPSCs). In 2023, we developed an efficient method for creating highly pure pituitary hormone-secreting cells, including ACTH-producing cells, achieving nearly 100% success. Previously, pituitary organoids (POs) derived from pluripotent stem cells were transplanted into mice under the renal subcapsular site. However, this approach used for transplantation is significantly invasive. The study aims to identify a less invasive approach that would also allow easier graft removal if necessary due to tumor development, and mitigate concerns of renal injury.
Methods: Pituitary organoids were transplanted into the subcutaneous tissue of SCID mice with pituitary dysfunction (hypopituitarism model mouse). Pituitary function was evaluated thereafter for 6mo, assaying basal plasma ACTH and ACTH response to corticotropin-releasing hormone (CRH) stimulation. Histopathologic examination of organoids 150d after transplantation assessed engraftment. Mice were monitored for weight changes, and activity levels were assessed.
Results: Pituitary organoids were transplanted into the inguinal subcutaneous fatty tissue of mice in which the pituitary gland had been removed (a mouse model of pituitary insufficiency). The transplanted cells were viable for more than six months and increased blood ACTH levels and improved physical activity in hypopituitary mice. Histopathologic study found ACTH-producing human pituitary-cell clusters in allografts, which had acquired a microvasculature.
Conclusions: We will continue to investigate the efficacy of other sites of subcutaneous transplantation in mice for monkey transplantation and evaluate the pituitary organoids efficacy in cynomolgus monkeys using immunosuppressive agents and confirm products' functionality after transplantation. Solving these issues will bring us closer to clinical application in humans.

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01-03-2024 07:00 - 18:00

TRANSSPHENOIDAL SURGERY CONSIDERATION IN PATIENT WITH MICROPROLACTINOMA AND SCHIZOAFFECTIVE MIXED TYPE

Nur Rusyda Kuddah[1], Tri Juli Edi Tarigan[2]
[1]Faculty of Medicine Universitas Indonesia/Dr. Cipto Mangunkusumo General Hospital, Division Of Endocrinology, Metabolism, And Diabates, Department Of Internal Medicine, Jakarta, Indonesia, [2]Faculty of Medicine Universitas Indonesia/Dr. Cipto Mangunkusumo National General Hospital, Division Of Endocrinology, Metabolism, And Diabetes, Department Of Internal Medicine, Jakarta, Indonesia

Background and Aims: Background. Schizoaffective disorder is one of the most misdiagnosed psychiatric disorders in clinical practice. The pathogenesis of both mood disorders and schizophrenia is multifactorial and covers a range of risk factors. Antipsychotics had been used to target psychosis and aggressive behavior in schizoaffective disorder, works as block dopamine receptors. These antipsychotic also effect on prolactin elevations.Prolactinomas are the most common pituitary tumors and are most often managed by use of dopamine-agonist medications, which lower serum prolactin and decrease the size of the tumors. In premenopausal women, it may present with infertility, oligo/amenorrhea, or galactorrhea. An increasing number of reports emphasized dopamine-agonist psychological side effects, either de novo or as exacerbations of prior psychiatric disease. Aim. To review a case of prolactinoma with schizoaffective and its complexity management.
Methods: Method. This is a case report of a 28-years-old married female with relapse of schizoaffective disorder and long standing microprolactinoma treated with combination of cabergoline since 5 years and prolactin sparing anti-psychotic aripiprazole, anti-depressant sertraline, mood stabilizer valproic acid and anti-anxiety clonazepam. Better psychotic condition achieved after discontinuation of cabergoline, in combination with psychoterapy and psychoeducation. But considering prevention of the third schizoaffective exacerbation and contradicting dopamine antagonist versus dopamine agonist medication in this case, tumor resection had been chosen and medical team and patient agreed.
Results: . Patient was finally undergone transsphenoid tumor resection after 3 months discontinuation cabergoline exposure and administration of psychiatric medication, and patient preferrence to get pregnant in future after physically and psychologically stable. There were reduction in serum prolactin level and galactorrhea, although irregularity in menstrual period still persist.
Conclusions: Conclusion. Transsphenoid tumor resection could be considered as treatment option in long standing microprolactinoma coexist with schizoaffective disorder in a woman desire to become pregnant.

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E-Poster Viewing
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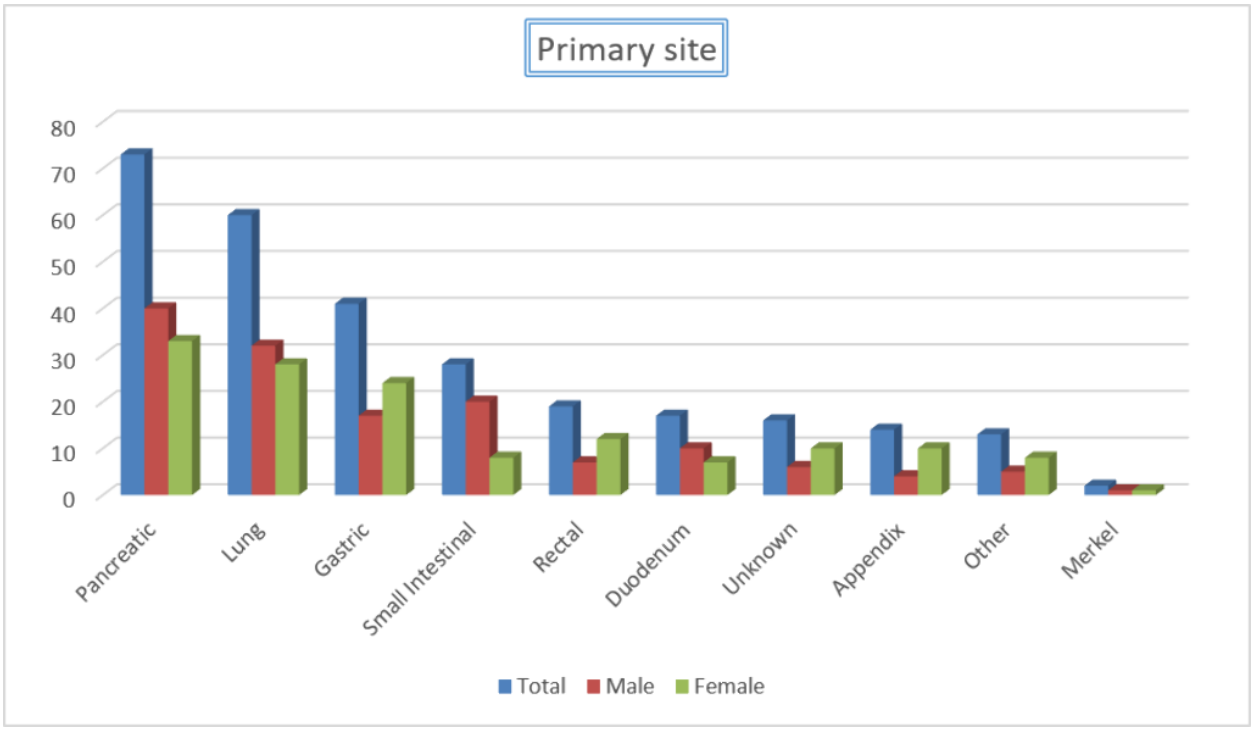
01-03-2024 07:00 - 18:00

GENDER DIFFERENCES IN SPORADIC NEUROENDOCRINE TUMORS: ANALYSIS OF A MONOCENTRIC COHORT.

Alessia Liccardi[1], Roberto Minotta[1], Giuseppe Cannavale[1], Elio Benevento[1], Gianfraco Di Iasi[1], Roberta Modica[1], Annamaria Colao[2]
[1]Federico II University of Naples, Department Of Clinical Medicine And Surgery, Operative Unit Of Endocrinology, Andrology And Diabetology, Napol, Italy, [2]Federico II University of Naples, Department Of Clinical Medicine And Surgery, Operative Unit Of Endocrinology, Andrology And Diabetology, Napoli, Italy

Background and Aims: BACKGROUND Neuroendocrine tumors (NET) are heterogeneous tumors, usually sporadic and non-functioning, with a favorable long-term prognosis if localized. No consistent data are available about gender differences in NETs, probably due to their low prevalence comparing to other malignancies. AIM To investigate gender differences in a monocentric cohort of sporadic NET.
Methods: MATERIALS AND METHODS Clinical data of pts with histologically confirmed sporadic NET, referred to the Endocrinology Unit of Federico II University of Naples from 2012 to 2023, were evaluated retrospectively. The Kaplan-Meier method and Fisher test were used for survival analysis and comparison between groups.
Results: RESULTS We included 272 pts (137 F/135 M; 50.3%/49.7%) with sporadic NET, mean age at diagnosis 55.3 years (11-89), 57.1 y (16-89) in M and 53.5 y (11-85) in F. Mean follow up was 46.2 months (m) (3-276). Overall the majority were non-functioning (244; 89.7%) without gender difference. The most common primary sites were pancreas (73; 26.8%), lung (47; 17.3%), stomach (41; 15.1%), small intestine (SiNET) (28; 10.3%). SiNETs were significantly more common in M (14.8%in M vs 5.8% in F; p: 0.016). Metastatic disease was found in 125 pts (45.9%), mainly in the liver (80, 29.4%) and with significant prevalence in M (44.4% in M vs 35% in F; p< 0.03). Surgery was performed in 134 of 272 pts (50.9%), 71 (52.3%) F and 63 (47%) M with no statistic difference between genders. Mean global overall survival (OS) was 51.9 m (49.9 m in M; 53.9 in F), mean OS was 46.2 m in metastatic disease and 56.8 m in localized disease. Kaplan Meier analysis showed a better survival in no metastatic pts, with no difference between genders (F p=0.001 and M
p<0.001).

-	Total	Male	Female
N	272	135	137
Mean age diag.	55,3y(11-89)	57,12y(19-89)	53,53y(11-85)
OS (mean)	51,9m	49,9m	53,9m
PFS (mean)	44,5	40,2m	48,9m


Primary site
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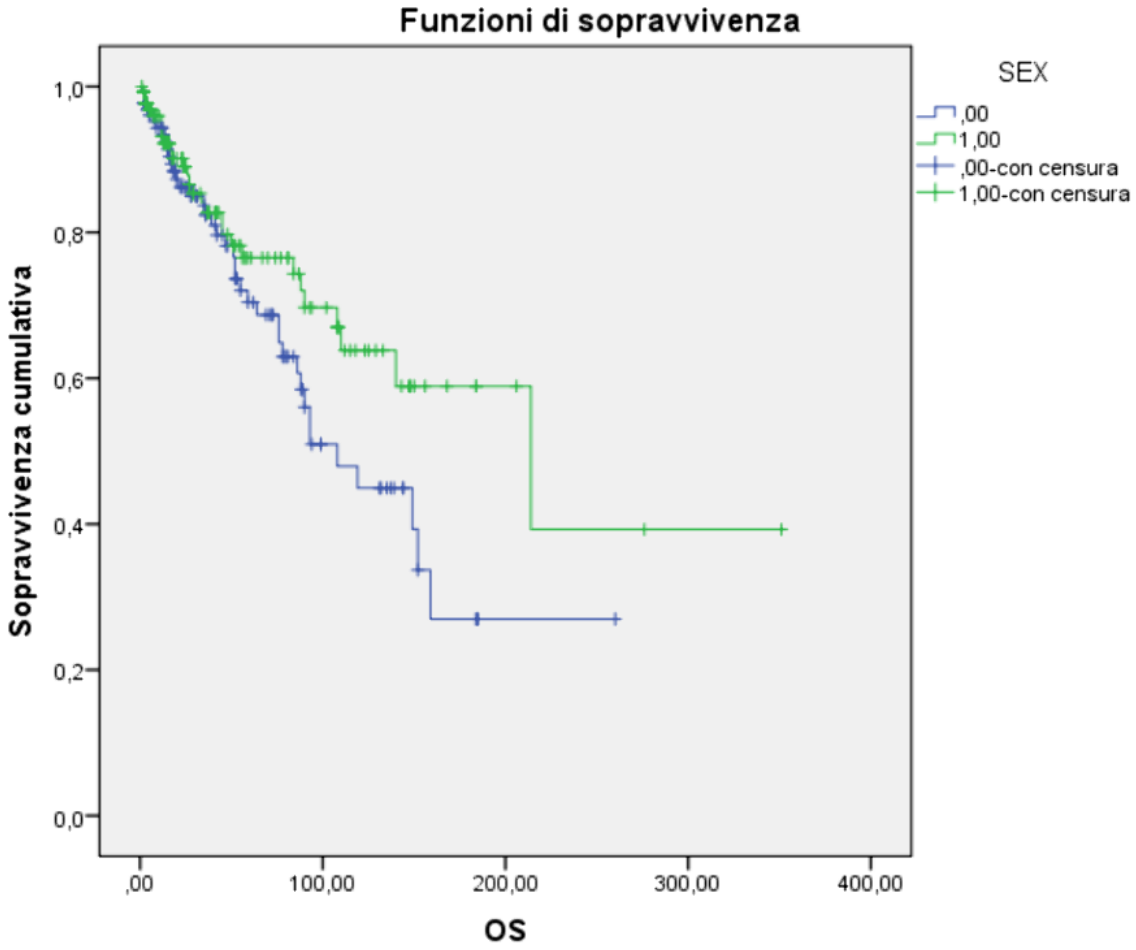
70
60
50
40
30
20
10
0
Pancreatic
Lung
Gastric
Small Intestinal
Rectal
Duodenum
Unknown
Appendix
Other
Merkel
Total
Male
Female



Conclusions: CONCLUSIONS These data show that NET onset is similar in both genders and are mainly non functioning. SiNET prevalence is higher in the male sex, while there was no gender difference for the other primaries. Interestingly metastatic disease is mainly associated with male gender, with liver as main metastatic site. Data in larger groups are needed to identify gender-tailored strategies to improve patients' outcomes.

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E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

NEUROENDOCRINE EFFECTS OF TRAUMATIC BRAIN INJURY AND SUBSEQUENT EXPOSURE TO THE GENERAL ANESTHETIC SEVOFLURANE IN YOUNG ADULT MALE RATS AND THEIR FUTURE UNEXPOSED OFFSPRING

Anatoly Martynyuk
University of Florida, Anesthesiology, Gainesville, United States of America

Background and Aims: Traumatic brain injury (TBI) is a dominant cause of neurological disability in young adults. Patients with a history of TBI frequently require general anesthesia/surgery or just sedation to treat injuries occurring at the time of TBI or conditions unrelated to TBI. Here we tested whether the effects of surgery, TBI, and subsequent repeated exposure to the general anesthetic sevoflurane (SEVO) interact to induce neuroendocrine abnormalities in the exposed young adult male rats and/or in their future offspring.
Methods: Sprague-Dawley male rats (F0 generation) underwent a moderate TBI via a midline fluid percussion injury on postnatal day 60 (P60) that involved craniectomy (surgery) under 3% SEVO for 40 min followed by anesthetics (2.1% SEVO for 3 h) on P62, P64, and P66 (injury group). Rats in the SEVO group had only SEVO exposure on P60, P62, P64, and P66. Rats in the surgery group had a craniectomy but not TBI on P60. They also had SEVO exposure on P62, P64, and P66. A subset of F0 male rats was sacrificed 1 h after recovery from SEVO anesthesia on P66 to study acute neuroendocrine effects. The remaining F0 males were mated with naive females on P90 to generate male and female offspring (F1 generation). The F0 and F1 rats were sequentially evaluated in the elevated plus maze (EPM), for prepulse inhibition (PPI) of acoustic startle, in the Morris water maze (MWM) and for resting and stress levels of serum corticosterone starting on ~P125 (F0) and ~P60 (F1), followed by tissue collections for further analyses.
Results: Acutely, F0 injury rats exhibited the greatest increases in serum corticosterone, interleukins 1β and 6, and activation of the hippocampal microglia. Long term, compared to controls, F0 injury rats had the most exacerbated corticosterone levels at rest and after restraint, increased interleukins 1β and 6, and reduced expression of hippocampal glucocorticoid receptor (Gr) and brain-derived neurotrophic factor genes. They also exhibited greater behavioral deficiencies. A similar (more profound) pattern of neuroendocrine abnormalities was evident in their offspring, predominantly in F1 males. The reduced Gr expression in F1 male, but not female, hippocampi was accompanied by matching Gr promoter hypermethylated CpG sites in F0 spermatozoa and F1 male, but not female, hippocampi.
Conclusions: The findings of this study demonstrate that the effects of surgery, TBI, and subsequent exposure to SEVO in young adult male rats interact to induce intergenerational neuroendocrine abnormalities.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

EPIDEMIOLOGY OF HYPOTHALAMIC-PITUITARY DISEASES IN CATALONIA AND ANALYSIS OF THE HEALTHCARE PROVIDED TO PATIENTS

Manel Mateu-Salat[1,2], Xavier Bonfill Cosp[3,4,5,6], Maria Teresa Puig Reixach[3,4,6,7], Cristina Mallol[8], Joan Albert Escofet[9], Susan M. Webb[1,6,10], Anna Aulinas[1,2,10,11]
[1]Institut De Recerca Sant Pau (IR Sant Pau), Research Center For Pituitary Diseases, Barcelona, Spain, [2]Universitat de Vic - Universitat Central de Catalunya (UVic-UCC), Department Of Medicine, Doctoral College, Vic, Spain, [3]Institut de Recerca Sant Pau (IR Sant Pau), Epidemiology And Public Heatlh, Barcelona, Spain, [4]Hospital de la Santa Creu i Sant Pau, Department Of Epidemiology And Public Health, Barcelona, Spain, [5]Instituto de Salud Carlos III, Ciber De Epidemiología Y Salud Pública, Madrid, Spain, [6]Universitat Autònoma de Barcelona (UAB), Department Of Medicine, Bellaterra, Spain, [7]Instituto de Salud Carlos III, Ciber De Enfermedades Cardiovasculares, Madrid, Spain, [8]Departament de Salut, Generalitat de Catalunya, Servei Català De La Salut (catsalut), Barcelona, Spain, [9]Health Quality and Assessment Agency of Catalonia (AQuAS), Barcelona, Spain, [10]Instituto de Salud Carlos III, Centro De Investigación Biomédica En Red De Enfermedades Raras (ciberer, Unidad 747), Madrid, Spain, [11]Hospital de la Santa Creu i Sant Pau, Department Of Endocrinology And Nutrition, Barcelona, Spain

Background and Aims: Background and aims: Hypothalamic-pituitary diseases (HPD) are rare and determine severe, chronic and multisystemic morbidity and complex syndromes of low prevalence that require multidisciplinary and lifelong care. Few epidemiological studies have evaluated incidence and prevalence of HPD and are usually limited to a small number of patients, a single center or region and/or one pituitary disorder. Substantial differences in incidence are reported for the same pituitary disorder, reflecting methodological variations such as access to diagnostic facilities, earlier diagnoses, trends related to specific populations and coding differences. Epidemiological data are pivotal to estimate disease burden in populations and are used to calculate health care resource distribution within and among clinical specialties. There is currently a lack of well-designed epidemiological studies on HPD in adult populations in Spain. The uncertainty regarding their prevalence and incidence has motivated this ambitious epidemiological study. Primary endpoint: To determine prevalence and incidence rates of HPD in Catalonia in 2022-2023. Secondary endpoints: Describe demography, morbidity, and quality of life; analyse the healthcare received (including costs); and compare to data collected by the Catalan Health Service and from other international population studies of HPD.
Methods: Data are collected with a double approach, from clinical records in reference hospitals where patients with HPD are attended in Catalonia (n=17) by a devoted endocrinologist to ensure reliability, and complementary data from a nation-wide platform (PADRIS program), that integrates socio-demographic and health-related information from different sources (hospitals, primary care, and other). Study variables include sociodemographic characteristics, clinical information related to HPD (diagnosis, date of diagnosis, initial symptoms, neuroimaging), comorbidities (cardiovascular, skeletal, psychopathology, quality of life), treatment (surgery, radiotherapy, medical treatment for HPD and substitution therapy), follow-up and use of healthcare resources (admissions, emergency room consultations, healthcare associated costs, etc.) and mortality.
Results: Data from 2306 patients have been collected to date (around 24% of the estimated total) and will be presented.
Conclusions: To our knowledge, this study will be to date the most complete epidemiological analysis on HPD including all patients in a region with a population of 7.7 million. Collected epidemiological/clinical

and healthcare resources data will provide invaluable information to foster strategies to improve resource distribution for the management of HPD in our region and will set the foundation and inspire future research to optimize diagnostic/management strategies and improve outcome for these patients internationally. Acknowledgements: Funded by the Catalan Society of Endocrinology and Nutrition and a grant from HRA Pharma Rare Diseases.

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PV306 / #663

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

NEW INSIGHTS INTO GENDER RELATED DIFFERENCES OF METABOLIC ASSOCIATED FATTY LIVER DISEASE (MAFLD) IN HYPOPITUITARISM

Dragana Miljic[1], Sandra Pekić[1], Mirjana Doknić[1], Marko Stojanović[1], Zvezdana Jemuović[1], Ivana Cekić[1], Ivan Jevtić[2], Milan Petakov[1], Marina Nikolić- Đurović[1]
[1]Clinic for Endocrinology, Diabetes and Metabolic Diseases, Neuroendocrinology, Belgrade, Serbia, [2]University of Belgrade - School of Medicine, Neuroendocrinology, Belgrade, Serbia

Background and Aims: Hypopituitarism is characterised by multiple pituitary hormone deficiencies causing an adverse metabolic milleu and body composition changes including visceral adiposity and insulin resistance, leading to triglyceride accumulation in hepatocytes. Our aim was to investigate the prevalence of metabolic syndrome (MetS) and metabolic fatty liver disease (MAFLD), in patients with hypopituitarism, including gender related differances and to explore the role of surrogat markers of visceral and liver adiposity (LAP and FLI) and insulin resistance (HOMA IR and Matsuda index).
Methods: A retrospective study of 282 patients (136 women and 146 men) with hypopituitarism, treated from 2007 to 2017 has been performed. The average age was 49.2±15.1 years, and the body mass index- BMI 27.9±5.8 kg/m2. The most common cause of hypopituitarism was non-functioning pituitary tumor n=140 (49.6%). Antropometric, metabolic and clinical parametars were collected and indexes of insulin resistance, sensitivity, visceral and liver adiposity calculated and analyzed using ANOVA and Searman correlation test.
Results: Prevalence of MetS was higher in female compared to male patients with hypopituitarism according to IDF (63.2 vs 51.4%, $p<0.05$) and ATP III criteria (54.4 vs 43.2%, $p<0.05$). However, male patients with hypopituitarism had significantly higher FLI values than females (11.1±18 vs 5.5±9.3; $p=0.027$) as well as higher prevalence of liver steatosis detected by utrasonography (15.8% vs 8.8%, $p=0.07$), abnormal liver function tests (19.2% vs 11.0%, $p=0.05$), greater waist circumference (98.6 vs 90.6 cm, $p<0.001$), lower HDL cholesterol (1.18 vs 1.27 mmol/l, $p<0.01$) and higher fasting blood glucose (4.72 vs 4.5 mmol/l, $p=0.046$). Indexes of insulin resistance (HOMA IR) and sensitivity (Matsuda index), both highly correlated with LAP and FLI ($p<0.001$). Significant correlations were found between MAFLD, MetS and visceral and liver adiposity surrogate markers LAP and FLI ($p<0.001$).
Conclusions: Female patients showed higher prevalence of MetS, while male patients with hypopituitarism had higher prevalence of MAFLD and FLI, surrogate marker of liver adiposity. Link between insulin resistance and visceral and hepatic adiposity was confirmed. Strategy for MetS and MAFLD management in patients with hypopituitarism is warranted.

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01-03-2024 07:00 - 18:00

MANAGEMENT OF WOMEN WITH PROLACTINOMAS DURING PREGNANCY

Diyora Mukhammedaminova, Khurshidakhon Nasirova
TASHKENT PEDIATRIC MEDICAL INSTITUTE, Endocrinology, Tashkent, Uzbekistan

Background and Aims: The article discusses the prevalence of prolactinomas, their treatment with dopamine agonists, and the challenges of managing prolactinomas during pregnancy due to the potential risk of tumor enlargement with a mass effect and visual loss. To discuss the safety of dopamine agonists (DAs) during pregnancy, with bromocriptine having more reported data on fetal exposure but no association with increased risk of pregnancy loss and premature delivery.
Methods: The study found a higher percentage of operative delivery in patients with prolactinomas compared to the control group. 78 patients with microprolactinoma and 21 with macroprolactinoma switched to a mixed diet due to a decrease and/or lack of lactation after breastfeeding until the end of the neonatal period. Cabergoline was also taken by patients during pregnancy to suppress prolactin secretion.
Results: It has been revealed that PRL secretion increased during pregnancy, reaching a maximum in the third trimester. Moreover levels of ovarian steroid hormones responsible for prolonging pregnancy and childbirth throughout pregnancy are depressed, possibly due to hyperprolactinemia. The level of progesterone was more than 10 times lower than control values in patients in the first trimester of pregnancy, leading to the appointment of dydrogesterone to all patients with prolactinomas up to 16 weeks of pregnancy. Patients with prolactinoma showed signs of premature maturation of the placenta, hemodynamic disturbances in the aorta and middle cerebral artery of the fetus, and chronic fetal hypoxia. Thus, the use of inhibin A as a marker for diagnosing pregnancy complications, and the level of inhibin A during pregnancy in patients with prolactinomas was found to be higher than in the control group. The level of inhibin A gradually increased from early pregnancy, and in the first trimester, the level was higher in patients with microprolactinomas and macroprolactinoma compared to the control group. In the second and third trimesters, the level of inhibin A was also higher in patients with prolactinomas compared to healthy pregnant women.
Conclusions: The characteristics of patients with prolactinomas during pregnancy, include a high risk of miscarriage, toxicosis in the first half of pregnancy, and untimely discharge of amniotic fluid. The study also found that despite ongoing therapy, hyperprolactinemia was observed throughout pregnancy, leading to relative hypoestrogenemia and hypoprogesteronemia, which can cause miscarriage and fetal hypoxia. It is apparent that diagnostic and prognostic coefficients can help predict the risks and outcomes of pregnancy for patients with prolactinomas.

PV308 / #1704

E-Poster Viewing
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01-03-2024 07:00 - 18:00

UNPRECEDENTED SEVERE HYPONATREMIA WITH A SODIUM LEVEL OF 94 MMOL/L: A SUCCESSFUL OUTCOME

Mohsin Mukhtar, Aftab Mirza
St. Luke's Hospital, Kilkenny, Ireland

Background and Aims: Abstract: Severe or profound hyponatremia, defined by a serum sodium level below 125 mmol/L[5], presents a critical challenge with potential grave neurological consequences. We present a case of a 57-year-old female patient who exhibited an extraordinary serum sodium level of 94 mmol/L, which we believe to be the lowest ever recorded in reported literature[1], with a successful outcome. The underlying causes included a combination of diarrhoea, vomiting, and medication, ultimately resulting in hypovolemic hyponatremia and SIADH. Another intriguing aspect of this case is the lack of any neurological symptoms even at this low serum sodium level. The favourable outcome following meticulous management underscores the importance of individualized care and comprehensive understanding of the complex interactions underlying electrolyte imbalances.
Methods: A middle-aged woman in her late 50s with a history of depression, bipolar affective disorder, chronic gastritis and hyperlipidaemia presented to the acute medical assessment unit with a five-day history of severe vomiting, profuse diarrhoea, generalized lethargy, dizziness and multiple falls in the last 3 days. She had just finished a course of antibiotics for the treatment of unspecified lymphadenitis. She was also on escitalopram and olanzapine for depression and bipolar disorder. The patient appeared well oriented in time, place and person but lethargic and dehydrated upon examination. Her vital signs revealed a blood pressure of 134/89 mmHg, heart rate of 94 beats per minute, and respiratory rate of 16 breaths per minute with an Oxygen saturation of 100% on room air.
Results: Initial laboratory analysis demonstrated a strikingly low serum sodium level of 94 mmol/L, a chloride of 65 mmol/L accompanied by a serum potassium level of 2.5 mmol/L, blood urea nitrogen (BUN) of 8.8 mmol/L, serum creatinine of 331 umol/L and eGFR of 13mL/min/1.73m2. Arterial blood gas analysis showed a normal pH of 7.43, bicarbonate level of 19.9 mmol/L, a normal glucose of 5.0 mmol . Unfortunately, the samples sent for serum osmolality and urine osmolality were not suitable for testing, but the calculated serum osmolality was <216 mOsm/kg. Urine sodium testing done on day 5 of admission showed a reading of 56mmol/L corresponding to a serum sodium level of 135 mmol/L.
Conclusions: Rapid and meticulous management was initiated, involving the cessation of the escitalopram and olanzapine, intravenous fluid replacement with isotonic saline, with a target correction of serum sodium no more than 10meq/day and frequent neurological monitoring. There was close monitoring of serum electrolytes, every 6 hours.

PV309 / #1527

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

TSH SECRETING PITUITARY MACRO ADENOMA: SURPRISING CAUSE OF HYPERTHYROIDISM

Raghavendra Nayak[1], Sahana Shetty[2]
[1]Kasturba Medical College Hospital , Manipal, MAHE, Neurosurgery, Manipal, India, [2]KASTURBA MEDICAL COLLEGE, MANIPAL, MANIPAL ACADEMY OF HIGHER EDUCATION, MANIPAL, Endocrinology, Manipal, India

Background and Aims: Thyroid-stimulating hormone (TSH)-secreting pituitary adenomas are a rare cause of hyperthyroidism . They account for 0.5 to 3 percent of all functioning pituitary tumors [2] and much less than 1 percent of all cases of hyperthyroidism. Diagnosis and management have been discussed.
Methods: 20 year old female presented was presented to the endocrinology outpatient department with the complaints of amenorrhea, weight loss, fatigue and palpitation. Examination showed the presence of tremors, tachycardia, warm moist skin and a goiter. Provisional diagnosis of primary hyperthyroidism was done. But, the biochemical examination showed increased T3, FT4 and TSH. Presence of amenorrhea, hyperthyroid clinical features were suggestive of central hyperthyroidism. Presence of seller- suprasellar tumor on magnetic resonance imaging was also supportive of the diagnosis
Results: Endoscopic trans-sphenoidal excision of the tumor was done. Patient was cured clinically and biochemically.
Conclusions: TSH secreting adenomas are rare but do exits. Surgical excision is the main treatment.

PV310 / #1295

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

CHALLENGING ABNORMAL THYROID FUNCTION TESTS; TSHOMA: A CASE REPORT

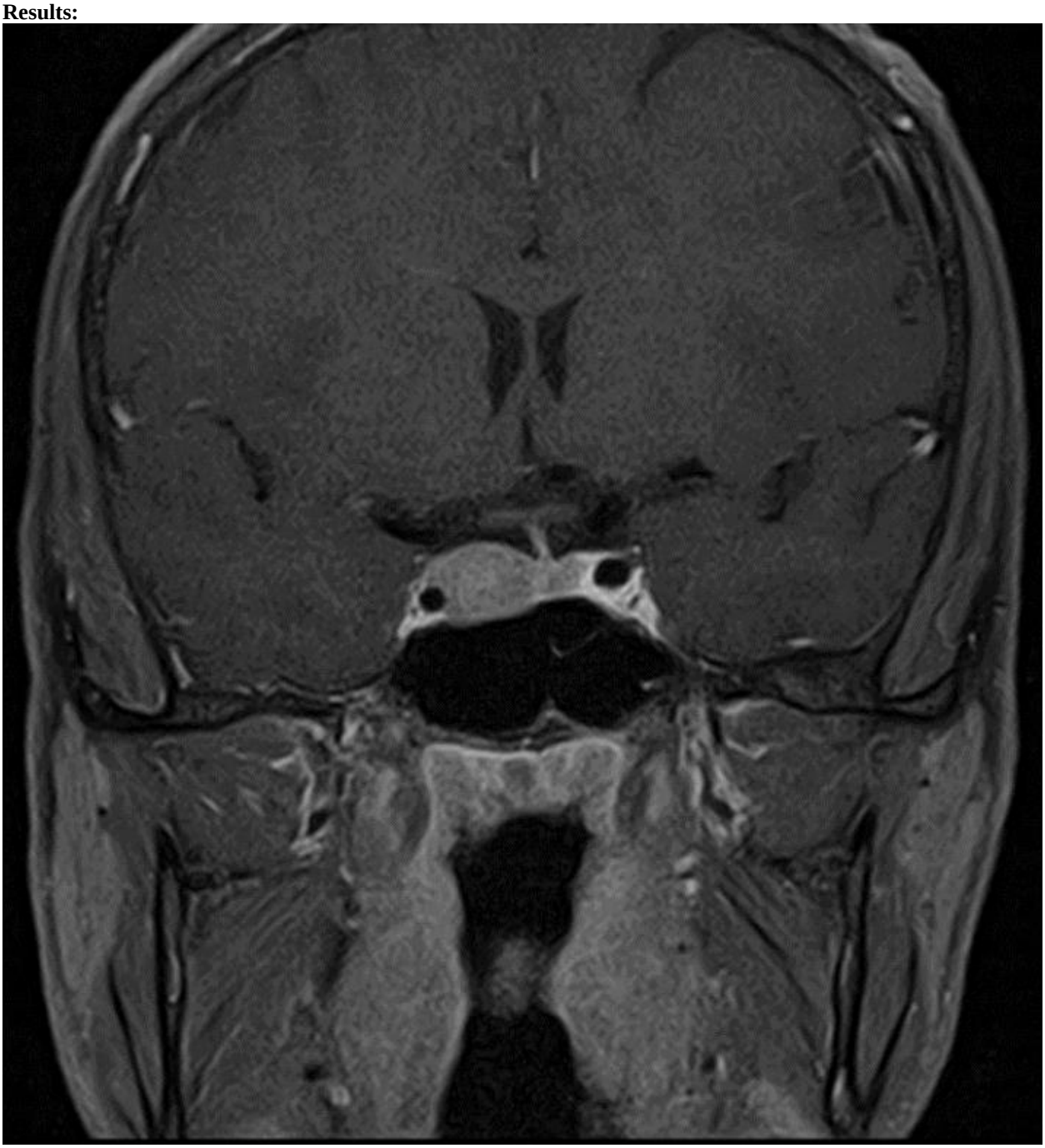
Wania Rafaey, Waqas Shafiq, Ahmed Imran Siddiqi, Sara Ashfaq
Shaukat Khanum Cancer Memorial Hospital and Research Centre, Internal Medicine, Lahore, Pakistan

Background and Aims: BACKGROUND: Thyroid stimulating hormone secreting tumors are very rare, characterized by high free thyroid hormones (FT4, FT3) in the presence of non-suppressed serum TSH concentration. They are occasionally misdiagnosed as thyrotoxicosis and inappropriate thyroid ablation is done. Moreover, it remains a clinical challenge in most cases to differentiate between TSH-secreting adenoma and Resistance to Thyroid Hormone, rare causes of inappropriately raised TSH. CASE PRESENTATION: A 37-year-old male presented to clinic with complaints of palpitations, weight loss, and easy fatigability. On examination, he was a thin-built male with a BMI of 19kg/m^2, had resting tachycardia with a pulse of 104bpm, regular. He had hand tremors and neck swelling with thyroid bruit bilaterally but no eye signs of hyperthyroidism.He had been treated as a case of thyrotoxicosis for 7 years and was given anti-thyroid medications and RAI therapy. He was started on levothyroxine post-RAI therapy. The dose of levothyroxine was gradually increased to the maximum dose but TSH remained raised and symptoms of hyperthyroidism persisted. Initial workup showed TSH of 48 µIU/mL (0.35 - 5.5), FT4: 4.8 ng/dL (0.89 - 1.76) and FT3 : >20 pg/mL (2.4 - 4.2). Raised FT4, FT3 in the presence of non-suppressed TSH suggested a central cause of hyperthyroidism. Differentials were TSH-secreting adenoma or Resistance to thyroid hormones. MRI Brain showed a 9x12mm mass in the sellar region.The rest of the pituitary profile was normal except for raised testosterone with inappropriately normal values of LH and FSH. Pituitary Dynamic tests including TRH stimulation test, T3 suppression tests, alpha subunit and molar ratio of alpha subunit to TSH could not be done due to non-availability in our country.However, SHBG was markedly raised, favoured the diagnosis of TSHoma.Based on clinical, biochemical radiological features, TSHoma was diagnosed. Octreotide was given but TFTs did not improve, not responded to even maximum dose of octreotide LAR. Since, other somatostatin analogues are not available in our country, carbimazole was given to optimize TFT before surgery. He became euthyroid after 4 weeks and underwent endoscopic transsphenoidal surgery. Post operatively,TFTs decreased to their normal range and symptoms of hyperthyroidism resolved.
Methods:

Prolactin	3
LH	8
FSH	6
IGF-1	4

Testosterone	1
Sex hormone-binding globulin (SHBG)	>
Free testosterone	2

Results:



MRI Brain: Sellars Mass

Conclusions: -TSHoma though very rare pituitary tumor, however, it does exist. -

Difficult to differentiate between TSHoma and Resistance to thyroid hormone in resource limited developing countries.

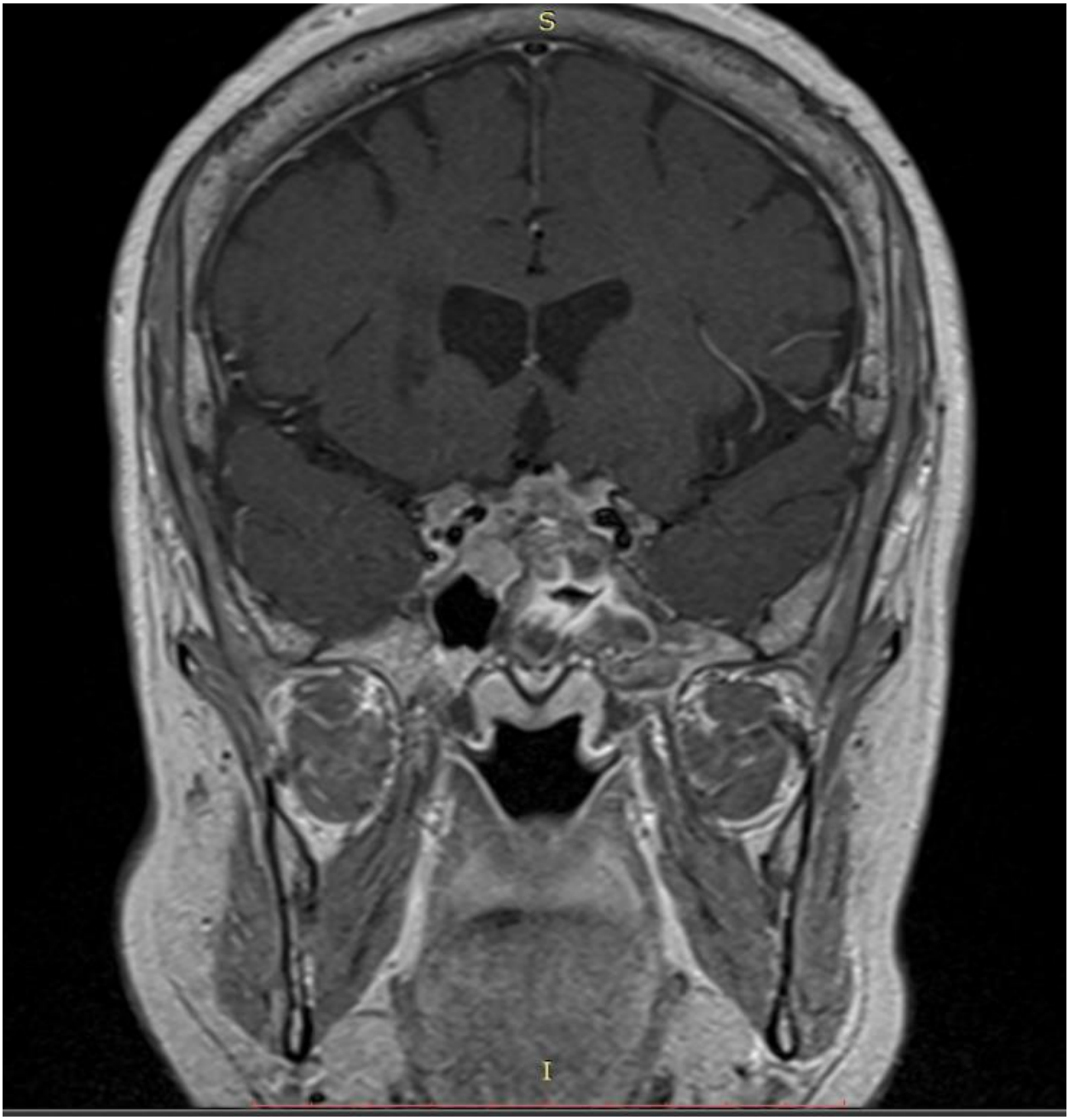
PV311 / #1416

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

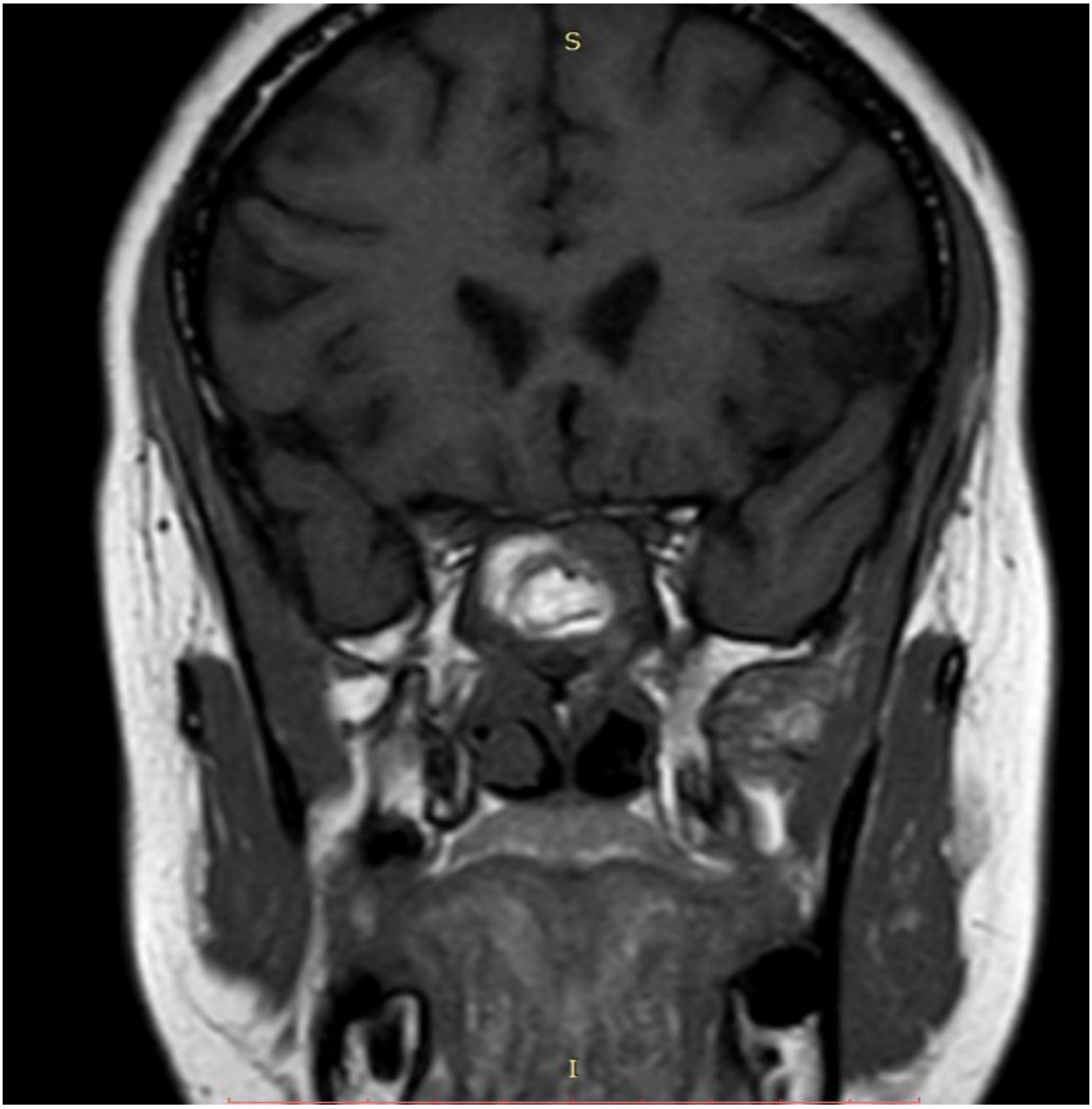
INVASIVE MACROPROLACTINOMA COMPLICATED BY CSF LEAK: A CASE SERIES

Wania Rafaey, Ahmed Imran Siddiqi, Waqas Shafiq, Sara Ashfaq
Shaukat Khanum Memorial Cancer Hospital and Research Centre, Internal Medicine, Lahore, Pakistan

Background and Aims: CSF rhinorrhea is a rare complication of prolactin-secreting pituitary macroadenomas(macro prolactinomas) that is usually subsequent to medical treatment. A case series of three patients suggests that invasive macroprolactinomas are at higher risk of this complication.
Methods: We present clinical features, imaging, and biochemical characteristics of three cases with invasive prolactin-secreting pituitary macroadenomas that were complicated by early CSF leaks.
Results: Three cases of macroprolactinomas are presented who later developed CSF rhinorrhea. Two were female, 31 years old and 29 years old and the third was 38 years old male. In these cases, the size of the pituitary tumor was more than 4 cm (4.5x3.8cm in females and 6.5x4 cm in males) extending into the suprasellar and parasellar region. Serum prolactin level pretreatment was more than 7 times the upper normal limit in all of them. Two cases were given dopamine agonist, bromocriptine, and one was given XRT and cabergoline. All of them presented with complaints of profuse watery nasal discharge within 4 weeks of initiation of medical treatment. One female patient underwent nasal/sinus endoscopy and surgical sphenoidectomy and a lumbar drain was inserted in another female as she had already undergone transsphenoidal resection of the tumor. In the case of a male patient, transfrontal debulking and repair of the CSF leak were done. Medical treatment was continued after surgery and no further CSF leak was noted in these
patient.



MRI Brain: large sellar and parasellar mass lesion, extending down to involve the left sphenoid sinus and extending superiorly into the suprasellar and laterally in the parasellar regions.



MRI Brain: Large intrasellar mass with suprasellar extension

Conclusions: Early diagnosis and treatment of CSF rhinorrhea depend on the awareness regarding this complication in patients with pituitary macroadenomas, more in invasive prolactin-secreting pituitary macroadenomas presenting with profuse nasal watery discharge to avoid misdiagnosis and fatal sequel of this complication.

PV312 / #603

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

"A 26 YEAR OLD FILIPINO FEMALE WITH WOLFRAM-ASSOCIATED SYNDROME : A CASE REPORT"

Arline Sicat
Far Eastern University - Dr. Nicanor Reyes Medical Foundation, Internal Medicine, Quezon City, Philippines

Background and Aims: Wolfram syndrome is a very rare autosomal recessive disease characterized by constellation symptoms progressing from childhood to adulthood. These symptoms brought forth its other name DIDMOAD which comprises Diabetes insipidus, Diabetes mellitus, Optic Atrophy and Deafness. In this report, we describe a young woman diagnosed with Type 1 diabetes and optic atrophy who consulted due to severe headache, fever, urinary frequency and urgency. During the course of her admission, she had symptoms of persistent thirst, polyuria and nocturia. Further workup then confirmed that she had urological abnormalities and Diabetes insipidus leading to a diagnosis of Wolfram-associated Syndrome.
Methods: Our patient presented with the typical features of Wolfram Syndrome from childhood. During her admission, she manifested with persistent thirst, polyuria and nocturia which led to a high suspicion for Diabetes insipidus. Patient responded to a trial of Desmopressin which supports Diabetes insipidus - central in origin and ultrasound revealed renal tract abnormalities. According to EURO-WABB, the diagnosis of Wolfram syndrome requires the presence of 2 major or 1 major and 2 minor criteria. The major criteria being diabetes mellitus <16 years, optic atrophy <16 years while the minor criteria includes diabetes insipidus, diabetes mellitus >16 years, optic atrophy >16 years, sensorineural deafness, neurological signs, renal tract abnormalities, loss of function mutation in WS1/CISD2, and/or family history of the Wolfram syndrome.
Results: For this case, the patient met 2 major criteria and 2 minor criteria. She is diagnosed Diabetes mellitus at age 5 years and Optic atrophy at age 9 years. On this admission she was diagnosed with Diabetes insipidus and renal tract abnormalities. A thorough history and physical examination is vital for the diagnosis of WS but genetic testing is useful to confirm the diagnosis.
Conclusions: The diagnosis should be considered in all patients with juvenile onset Diabetes mellitus and optic atrophy especially those who presented in the first decade of life. The main goals of treatment of the disease is to halt progression and to replace damaged tissues. Wolfram patients still have a poor prognosis with death occurring at a median age of 39 years old due to progressive respiratory dysfunction secondary to brain atrophy. As healthcare providers, a high suspicion for Wolfram Syndrome should be a standard in patients who present with early onset diabetes mellitus and optic atrophy. Early recognition and diagnosis will guide us to the proper management and help improve the patient and their family's quality of life.

PV313 / #993

E-Poster Viewing
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01-03-2024 07:00 - 18:00

CHARACTERIZATION OF RNA EXPRESIÓN AND CLINICAL OUTCOMES IN PATIENTS WITH AGGRESSIVE PITUITARY TUMORS TREATED WITH TEMOZOLOMIDE

Pablo Remon-Ruiz[1], Eva Venegas-Moreno[1], Elena Dios-Fuentes[1], Rosario Oliva[1], Eugenio Cardenas Ruiz-Valdepeñas[2], Ariel Kaen[2], Raul Luque[3], Miguel E G-Garcia[4], David A Cano[1], Alfonso Soto-Moreno[1]
[1]Instituto de Biomedicina de Sevilla (IBiS), Hospital Universitario Virgen del Rocío/CSIC/Universidad de Sevilla, Unidad De Gestión Clínica De Endocrinología Y Nutrición, Seville, Spain, [2]Hospital Universitario Virgen del Rocio, Ugc Neurocirugía, Seville, Spain, [3]University of Cardoba, Maimonides Biomedical Research Institute of Cordoba (IMIBIC), Oncobesity And Metabolism Group, Cordoba, Spain, [4]University of Cordoba, Maimonides Biomedical Research Institute of Cordoba (IMIBIC), Oncobesity And Metabolism Group, Cordoba, Spain

Background and Aims: Temozolomide has been recognized for its therapeutic potential in aggressive pituitary tumors. While clinical outcomes have been reported, the relationship between clinical variables and molecular characterization remains under investigation. This study aims to describe the clinical results of treatment with temozolomide in aggressive pituitary tumors and to evaluate the potential association of clinical variables with molecular characterization.
Methods: This retrospective descriptive study focused on the clinical outcomes and RNA expression in aggressive pituitary tumors treated with temozolomide. RNA expression in tumor samples was standardized to reference genes, including GH, POMC, PRL, αsub, FSH, LH, TSH, sst1, sst2, sst3, sst5, sst5b, sst5c, DR1, DR2T, DR2L, DR4, DR5, Ghrelin, In1-Ghrelin, GOAT, GHRR1b, AVPR1b, GHRH-R, GnRH-R, Ki-67, and PTTG1.
Results: Ten patients were treated, consisting of 30% (3) women and 70% (7) men. The tumors included 30% (3) prolactinoma, 30% (3) Cushing, and 40% (4) AHNF. Of these, 30% (3) were carcinomas. The median initial size was 32 [30-37] mm, with a historical maximum size of 33 [30-37] mm. At presentation, 80% (8) showed cavernous sinus invasion, and 90% exhibited suprasellar invasion. Regarding immunohistochemical expression, 50% (5) displayed ACTH, 10% (1) exhibited null cells, 10% (1) showed GH, 20% (2) showed both PRL and isolated GH, and 10% (1) showed PRL. Ki-67 was greater than 3% in 80% (8) of the cases, with Ki-67 exceeding 10% in 40% (4) of them. There was variability in RNA gene expression; however, an association between PTTG1 and GHRELIN in patients with more aggressive tumors was observed. The median maximum size before temozolomide was 23 [19-30] mm, and after 6 months of treatment, it reduced to 17.5 [14-23] mm. A partial response, as per RECIST, was seen in 40% (4) of the cases at 6 months, with one patient meeting partial response criteria after over 6 months. The median time to maximum response was 0.48 [0.38-1.29] years. Progression was observed in 40% (4) of the cases, with a median time to progression from the start of temozolomide of 1.61 [1.11-2.32] years. Currently, 50% (5) of patients are not undergoing temozolomide treatment; 30% (3) due to progression and additional treatments, and 10% (1) because of patient relocation.
Conclusions: Temozolomide is a safe treatment for aggressive pituitary tumors, providing initial responses and medium-term stability. The expression of certain RNA (Ghrelin, PTTG1) may indicate aggressiveness and mortality in pituitary tumors.

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01-03-2024 07:00 - 18:00

NOVEL THERAPEUTIC VALUES PROVIDED BY HUMAN PSC-DERIVED PITUITARY CORTICOTROPH DIFFERENTIATED AND PROCESSED FOR CLINICAL USE.

Hidetaka Suga[1], Tatsuma Kondo[1,2], Ryuta Saito[2], Hiroshi Arima[1]
[1]Nagoya University Graduate School of Medicine, Department Of Endocrinology And Diabetes, Nagoya, Japan, [2]Nagoya University Graduate School of Medicine, Department Of Neurosurgery, Nagoya, Japan

Background and Aims: Three-dimensional pituitary organoids (3D-pituitaries) are promising graft sources for transplantation as a treatment strategy for hypopituitarism. We have previously developed a self-organizing culture to generate pituitary-hypothalamic organoids using human pluripotent stem cells (hPSCs). Here, we developed methods to generate 3D-pituitaries using feeder-free (Ff) hPSCs and to purify pituitary cells.
Methods: We aimed to generate 3D organoids containing pituitary and hypothalamus tissues using hPSCs under Ff-culture conditions. We evaluated the quality of the generated pituitary-hypothalamic organoids generated at several time points. In order to generate pituitary tissue for transplantation, we tried to control the quality of the hPSC-derived pituitary tissue. Next, we investigated whether the purified spheres matured and exhibited functions similar to those observed Ff-hPSC-derived pituitary-hypothalamic organoids. Finally, to investigate the in vivo function of the purified spheres, we performed transplantation experiments using a hypophysectomised model of severe combined immunodeficiency (SCID) mice.
Results: The 3D-pituitaries were robustly generated through preconditioning of undifferentiated hPSCs and regulating Wnt and TGFβ signaling after differentiation. Cell sorting using EpCAM, a pituitary cell-surface marker, was able to purify pituitary cells to reduce the number of off-target cells. The purified pituitary cells reaggregated to form pituitary spheres, which exhibited a high adrenocorticotropic hormone (ACTH) secretory capacity and responded to both positive and negative regulators. When transplanted into hypopituitary mice, the engrafted pituitary spheres survived for half a year, during which time blood ACTH levels were improved. In addition, hormone secretion control and response to pseudo-infection stress were confirmed.
Conclusions: By enabling the generation of highly efficient and highly pure pituitary hormone-producing cells from hPSCs, we have taken a step forward toward the practical application of regenerative medicine for patients with impaired pituitary function. In the future, based on the results of this research, we will investigate clinical protocols such as clinical administration methods and concomitant drugs, manufacturing methods such as large-scale production of clinical cells with higher efficiency, and non-clinical safety evaluations. We will continue research and development to realize regenerative medicine for the pituitary gland.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

ANTI-RABPHILIN-3A ANTIBODIES AS A BIOMARKER FOR THE DIAGNOSIS OF LYMPHOCYTIC INFUNDIBULO-NEUROHYPOPHYSITIS (LINH) AND THE INVOLVEMENT OF RABPHILIN-3A IN THE PATHOGENESIS OF LINH

Yoshihisa Sugimura[1], Haruki Fujisawa[1], Naoko Iwata[2], Atsushi Suzuki[1]
[1]Fujita Health University, Department Of Endocrinology, Diabetes And Metabolism, Toyoake, Japan, [2]Daido Hospital, Department Of Endocrinology And Diabetes, Aichi, Japan

Background and Aims: Arginine Vasopressin Deficiency (AVP-D), known as central diabetes insipidus (CDI) can be caused by several diseases. Lymphocytic infundibulo-neurohypophysitis (LINH) is an increasingly recognized entity among cases of CDI. The differential diagnosis from other pituitary diseases including tumors can be difficult because of similar clinical and radiological manifestations. The definite diagnosis of LINH requires an invasive pituitary biopsy. The pathophysiological and pathogenetic mechanisms underlying LINH are largely unknown. There have been no reports regarding animal models of LINH and the involvement of specific autoantigens in LINH. The study was designed to identify the autoantigen(s) in LINH and thus develop a diagnostic marker based on serum autoantibodies. In addition, we attempted to create a LINH model by immunizing mice with candidate autoantigens to investigate the pathogenesis of LINH.
Methods: Rat posterior pituitary lysate was immunoprecipitated with IgGs purified from the sera of patients with LINH or control subjects. The immunoprecipitates were subjected to liquid chromatography-tandem mass spectrometry to screen for pituitary autoantigens of LINH. Subsequently, we made recombinant proteins of candidate autoantigens and analyzed autoantibodies in serum by Western blotting.
Results: Anti-rabphilin-3A antibodies were detected in 22 of the 29 (76%) patients (including 4 of the 4 biopsy-proven samples) with LINH. In contrast, these antibodies were absent in patients with biopsy-proven sellar/suprasellar masses without lymphocytic hypophysitis (n=34), including 18 patients with CDI. Rabphilin-3A was expressed in posterior pituitary and hypothalamic vasopressin neurons but not anterior pituitary, suggesting the role of rabphilin-3A in the pathology. We found that immunization of mice with rabphilin-3A led to neurohypophysitis. Lymphocytic infiltration of CD3+ T cells was observed in the posterior pituitary and supraoptic nucleus. Mice immunized with rabphilin-3A showed an increase in the volume of hypotonic urine. In addition, abatacept, which is a chimeric protein that suppresses T-cell activation, decreased the number of T cells specific for rabphilin-3A in peripheral blood mononuclear cells. It ameliorated lymphocytic infiltration in the neurohypophysis of mice that had been immunized with rabphilin-3A.
Conclusions: Our data suggest that anti-rabphilin-3A antibodies serve as a biomarker for the diagnosis of LINH and be useful for the differential diagnosis in patients with CDI. In addition, we suggest that rabphilin-3A is a major pathogenic autoantigen in LINH and that T cells specific for rabphilin-3A are involved in the pathogenesis of LINH.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

AN INTERESTING CASE OF MULTIPLE PITUITARY HORMONE DEFICIENCY WITH STALK INTERRUPTION

Jayshree Swain, Jaya Bhanu Kanwar, Brij Teli, Kasukurti Lavanya, Vejendla Soma Srinivas, Sidharth Panigrahi, Pooja Jadhao, S. L. Sravya
Institute of Medical Sciences and Sum Hospital, Endocrinology, Bhubaneswar, India

Background and Aims: Pickardt syndrome (Pituitary Stalk Interruption Syndrome - PSIS) is a rare, congenital disorder, belonging to the spectrum of holoprosencephaly related congenital defects. It is characterized by tertiary hypothyroidism, hyperprolactinemia and other pituitary hormone deficiencies resulting from interruption of the portal blood supply of the anterior pituitary via the infundibulum. It consists of a classical triad of a thin or interrupted pituitary stalk, aplasia or hypoplasia of the anterior pituitary, and absent or ectopic posterior pituitary (EPP) seen on MRI. PSIS is very heterogeneous with respect to its hormonal, clinical, and radiological presentation.
Methods: The patient described is an 18-year-old male who presented with complaints of short stature and underdeveloped secondary sexual characteristics with weight and height of less than third percentile for his age and gender. His siblings and parents were healthy, with normal height. The secondary sexual characteristics were absent. His testes were between 1 and 3 mL in size, soft, with a 3.5 cm stretch penile length. Lab Investigations- clonidine stimulated growth hormone <0.05 ng/ml (0.01-3) at 0,30,60,90 & 120 min. thyroid stimulating hormone - 14.02 uIU/ml, FT3- 2.39 pg/ml (2.02-4.4), FT4- 0.47 ng/dl (0.93-1.7), Prolactin- 94.05 ng/ml (4.04-15.2), 8 AM cortisol- 1.75 ug/dl (4.3-22.4), total testosterone- <0.025 ng/ml (2.02-8), follicular stimulating hormone- 0.4 mIU/ml (1.5-12.4), luteinizing hormone <0.1 mIU/ml (1.2-7.8). Wrist X-ray showed a bone age of 11 years. Dexa scan suggested low bone mass. Pituitary MRI showed marked thinning with hypo enhancement of pituitary stalk with ectopic location of posterior pituitary bright spot in the floor of 3rd ventricle confirming the diagnosis of PSIS. Treatment was initiated with replacement of levothyroxine, hydrocortisone, testosterone & growth hormone.
Results: More cases of PSIS are now being recognized, after the use of MRI as a primary radiological modality in patients with panhypopituitarism, which was previously being missed.
Conclusions: Early identification of hormonal deficiencies and hormonal replacement influences both the prognosis and the quality of life in patients with hypopituitarism. If PSIS patients are identified before the fusion of epiphyses, they have an excellent opportunity to reach their normal height, prevent short stature and optimize quality of life.

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E-Poster Viewing
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A CASE OF RECURRENT MACROPROLACTINOMA CONTEMPLATING PREGNANCY

Tania Tofail
Bangabandhu Sheikh Mujib Medical University, Department Of Endocrinology, Dhaka, Bangladesh

Background and Aims: Macroprolactinoma cases which require surgery for optic nerve compression (knops score- grade 4) usually recur; do not achieve endocrine or surgical remission. In such cases fertility prospect is guarded. In this clinical case, we describe a case of recurrent macropolactinoma who had limited resection followed by medical therapy attains successful pregnancy outcome after accidental conception.
Methods: By clinical examination, investigations, treatment & follow up.
Results: A 27-year-old female presented with primary subfertility 5 years following limited resection of macroprolactinoma. She was lost to follow up. Evaluation reveals presence of macroadenoma (knops score- grade 4) along with hypogonadotrophic hypogonadism and secondary hypothyroidism. She was started with cabergoline and dose was gradually increased to achieve medical remission. Thyroxine supplementation initiated. Patient was reluctant to have another neurosurgical follow up because of recurrence.Though she did not have any resumption of menstrual period after 5 months of treatment she was able to concieve. During her pregnancy, cabergoline was continued and at term she gave birth to a healthy female child via C-section. Lactation was not possible. Currently she is having regular menstrual cycle.
Conclusions: Cases of macro-prolactinoma even after surgery may have natural conception but risks should be taken into account.

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IDENTIFICATION OF A NEW SUMOYLATION PROCESS REGULATING NUCLEAR RECEPTOR NOR1 AND NEURONAL FUNCTIONS

André Tremblay[1], Jonathan Gagnon[2], Véronique Caron[2]
[1]CHU Ste-Justine and University of Montreal, Obstetrics & Gynecology, And Biochemistry & Molecular Medecine, Montreal, Canada, [2]CHU Ste-Justine, Research Center, Montreal, Canada

Background and Aims: Neuron-derived orphan receptor Nor1/NR4A3 is a member of the NR4A subfamily of nuclear receptors that play pivotal roles in in controlling tissue-specific gene expression pathways in development, cell homeostasis and neurological functions. However, Nor1 is still considered an orphan receptor, as its natural ligand remains unclear for mediating transcriptional activation. This study aims at characterizing regulatory activation signals that modulate Nor1 activity and investigating their precise role in the transcriptional control of neurological functions.
Methods: We used mutagenesis, transcriptional luciferase reporter gene assays, gene expression profiling, cell growth assays and tubulin analysis to assess the identification and functional role of SUMO modifications of Nor1 receptor in neuronal cells.
Results: Here, we demonstrate that Nor1 is a non-conventional target of SUMO2/3 conjugation at Lys-137, contained in an atypic ψKxSP motif referred to as the phosphorylated SUMO motif or pSuM. Nor1 pSuM SUMOylation differs from the canonical process as it requires the phosphorylation of Ser-139 to create the obligate negatively charged interface for conjugating SUMO. Interestingly, additional phosphorylation sites near the pSuM also contributes to maximizing Nor1 Lys-137 SUMOylation through the coordinated action of the Ras and CK2 kinase pathways, defining an extended pSuM motif. We have also identified Lys-89 as a SUMO1 conjugating site, whci is part of a canonical motif, adding to the intricate regulation of Nor1 by SUMO input signals. Using mouse HT-22 hippocampal neuronal cells and human neuroblastoma SH-SY5Y cells, we demonstrate that both sites participate in opposite ways in Nor1 transcriptional regulation of genes involved in cell proliferation and metabolism, affecting the survival of neuronal cells. Critical antioxidant genes, such as catalase, superoxide dismutase 1, and microsomal glutathione S-transferase 2, were identified as responsive targets of Nor1 under pSuM regulation, highlighting a role of Nor1 in redox homeostasis of neuronal cells. Also, we have determined that Nor1 SUMOylation regulates key genes associated with microtubule dynamics and stability. Perturbations in either SUMOylation site in Nor1 resulted in divergent changes in microtubule integrity and resistance to depolymerization through deregulated expression of microtubule severing genes.
Conclusions: Our findings thus unveil a hierarchical SUMO-mediated regulation of Nor1 transcriptional control, which governs neuroprotective redox sensitivity and microtubule network resistance against disturbances and neurotoxic insults often associated with neurodegenerative diseases.

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01-03-2024 07:00 - 18:00

A CASE OF A COMBINATION OF RECCURENT INSULINOMA, GRAVES DISEASE AND ADRENAL ADENOMA NOT ASSOCIATED WITH MEN1 SYNDROME

Olga Ulyanova[1], Zhaksylyk Doskaliev[2], Larissa Kozina[3]
[1]National Scientific Medical Center, Endocrine Disturbances, Astana, Kazakhstan, [2]Astana city hospital #2, Deputy Chairman Of The Board For Surgery, Astana, Kazakhstan, [3]National Scientific Medical Center, Clinical Laboratory, Astana, Kazakhstan

Background and Aims: Multiple endocrine neoplasia type 1 (MEN1) is a rare endocrine tumor syndrome with high penetrance, also know as Wermer syndrome. It primarily causes neoplasia of the parathyroid glands, the anterior pituitary gland and the neuroendocrine tissue of gastro-entero-pancreatic organ systems. Pancreatic neuroendocrine tumors occur in 60% of cases. Less frequently, MEN1 may cause adrenal gland tumors, thyroid gland tumors or neuroendocrine tumors in other organs. The difficulties of diagnosing and treating the combination of recurrent insulinoma, Graves' disease and adrenal adenoma not associated with MEN1 syndrome are presented in our case. .
Methods: The plasma glucose, potassium, sodium, glicated hemoglobin, insulin, C-peptide, TSH, T4, T3, anibodies TSH receptors, ACTH, cortisol, aldosterone, PTH levels, CT scan, PET CT scan (18F-FDG) and genomic DNA sample and were analyzed in a 57-year-old man not suffering from diabetes mellitus wih hypoglycemic syncope episodes, obesity (body mass index - 30.3 kg|m2) and arterial hypertension (up to 200 mm Hg).
Results: Laboratory tests indicated: the plasma daily glucose fluctuation - from 2.0 mmol/l to 5,4 mmol/l, potassium – 4,5 mmol/l, sodium- 142,0 mmol/l, creatinine -94,0 mmol/l, HbA1C - 4,7% (normal range 4,8-5,9), insulin – 24,98 mME/ml (normal range 2,6-24,9), C-peptide - 4,22(1,1-4,4), ACTH – 7,35 pg/ml (7,2-63,3), cortisol – 175,5 nmol/l (normal range150,0-660,0), Aldosterone – 219,51 pg/ml (normal range 0,25-315,0). CT scan: Incindentaloma – 23,2*24,6*26,2 mm, 1-5 HU of right adrenal gland. PET CT scan (18F-FDG):metabolically active mass with a diameter of 1.0 cm in the head of the pancreas. The operation with insulinoma enucleation in the head of the pancreas and the right adrenalectomy (tumor d=6cm) were performed by laparotomy simultaneously as a first stage of treatment. Pathology diagnosis: Insulinoma. Adenoma of right adrenal gland. The total thyroidectomy as a treatment of the Graves disease was performed after 6 mounths as the second stage of the treatment. The second operation with re-enucleation of insulinoma by right laparotomy was performed after 1 year after the first laparotomy due to repeated hypoglicemic states. Genomic DNA sample did not reveal mutations regarding MEN1 gene.
Conclusions: The combination of reccurent insulinoma, Grave's disease and adrenal adenoma may not always be manifestation of MEN 1 syndrome.

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PREVALENCE OF MAFLD IN PATIENTS WITH CUSHING'S DISEASE

Pablo Remon-Ruiz[1], Eva Venegas-Moreno[1], Manuel Romero[2], David A Cano[1], Alfonso Soto-Moreno[1]
[1]Instituto de Biomedicina de Sevilla (IBiS), Hospital Universitario Virgen del Rocío/CSIC/Universidad de Sevilla, Unidad De Gestión Clínica De Endocrinología Y Nutrición, Seville, Spain, [2]Virgen del Rocío University Hospital. SeLiver group at Institute of Biomedicie of Seville (IBIS). University of Seville., Ucm Digestive Diseases, Seville, Spain

Background and Aims: The metabolic complications of Cushing's disease, particularly hepatic steatosis and fibrosis, remain a topic of concern. This study seeks to understand the prevalence of these liver complications in patients with Cushing's disease.
Methods: Descriptive cross-sectional study. Fifty-nine patients with Cushing's disease were included. Hepatic steatosis (measured in dB/m using CAP) and fibrosis (measured in kPa using Fibroscan[tm]) were determined. Clinical variables related to the disease were studied and their implications in the presence of non-alcoholic fatty liver disease were analyzed.
Results: 11.9% (7) men and 88.1% (52) women. Mean age of 52 [43-61] years. 67.8% (40) cured and 32.2% (19) not cured with controlled hypercortisolism. The median duration of hypercortisolism was 2.13 [0.76-5.17] years, with a median follow-up of 9.4 [3.7-18] years. 44.1% (26) had some pituitary hormonal deficit, 30.5% (18) had ACTH deficiency, 11.9% (7) had sexual hormone deficiency and 27.6% (16) had TSH deficiency. Regarding metabolic comorbidities, 27.1% (16) had type 2 diabetes mellitus, 49.2% (29) obesity, 50.8% (30) hypertension and 49.2% (29) dyslipidemia. During follow-up, 5.1% (3) had suffered an acute myocardial infarction, 3.4% (2) had a stroke and 6.8% (4) had chronic kidney disease. 55.9% were diagnosed with some degree of hepatic steatosis, with a median CAP of 265 [212-288] db/m. 3.4% (2) had levels of kPa diagnostic of a high probability of advanced hepatic fibrosis (F3-F4), with a median kPa of 4.2 [3.2-5.5]. NAFLD was associated with obesity, time in hypercortisolism, cure, type 2 diabetes mellitus, and hypertriglyceridemia.
Conclusions: The prevalence of NAFLD in patients with Cushing's disease is high and higher than previously described in other studies. Hepatic steatosis is associated with variables associated with metabolic syndrome and the cure of Cushing's disease. It is possible that despite adequate control of hypercortisolism, an increased risk of steatosis persists in uncured patients. The prevalence of fibrosis is low despite the high prevalence of hepatic steatosis.

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01-03-2024 07:00 - 18:00

NEUROSARCOIDOSIS PRESENTING WITH HYPOTHALAMIC-PITUITARY DYSFUNCTION

V Vinitharan, S W Gnanathayalan, S Pathmanathan, M Sumanatilleke
National Hospital of Sri Lanka, Diabetes And Endocrinology Unit, Colombo, Sri Lanka

Background and Aims: Sarcoidosis is a chronic multi-system disorder with nervous system involvement present in 5-15% of patients. Hypothalamic-pituitary involvement as an only manifestation of neurosarcoidosis is rare. We report the case of a patient with sarcoidosis with hypothalamic-pituitary involvement.
Methods: 45 year old business man presented with postural dizziness, weakness and polyurea which had been progressing for one year. He also complained of erectile dysfunction and loss of libido. He had cervical and inguinal lymphadenopathy. He had been already diagnosed with mediastinal sarcoidosis seven years ago when he presented with chronic dry cough and exertional shortness of breath. At the time, he had isolated bilateral hilar lymphadenopathy without lung parenchymal involvement and transbronchial needle aspiration (TBNA) of mediastinal lymphnodes showed non-caseating granulomas in histology. Calcium and serum ACE level were within normal range. He had then defaulted the followup as his symptoms improved with short-term inhaled steroids.
Results: At current presentation, inguinal lymph node biopsy again confirmed the presence of non-caseating granulomas. Tuberculosis was excluded as culture and polymerase chain reaction (PCR) were negative. Table 1 shows the laboratory results which confirmed the presence of hypogonadotrophic hypogonadism, secondary hypocortisolism, secondary hypothyroidism and cranial diabetes insipidus (CDI). MRI brain confirmed the presence of hypothalamic-pituitary involvement with low signal intensity of hypothalamus, stalk and pituitary gland in T1W images with thickened pituitary stalk (4.7 mm) on gadolinium enhancement. There were no pachymeningial thickening or leptomeningeal enhancement. However, lumbar puncture showed slightly increased CSF protein. He was commenced on replacement doses of thyroxine, hydrocortisone, testosterone along with desmopressin nasal spray for CDI and he had great improvement in symptoms and quality of life. He was treated with high dose of intravenous methylprednisolone for 3 days followed by high dose oral prednisolone (1 mg/kg) for 6 weeks and azathioprine, but there was no improvement in terms of pituitary function. Currently prednisolone is being tailed off.

Table 01: Laboratory results

Test	Results	Test
9.00 am cortisol	72.2 nmol/L	Sodium
TSH	3.5 microIu/mL	Potassium
FT4	0.63 ng/dL	Serum osmolality
Prolactin	1183.4 mIU/L	Urine osmolality
FSH	0.69 IU/L	Calcium
LH	0.03 IU/L	Urine Ca/Cr ratio
Total testosterone	<0.24 nmol/L	HbAIC

Conclusions: Hormonal changes secondary to hypothalamic-pituitary involvement of sarcoidosis are often irreversible especially with delayed presentation. Although data on hormonal reversibility are minimal, early diagonsis and prompt treatment will increase the chance of recovery.

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GENETIC CHARACTERISTICS IN PEDIATRIC PATIENTS WITH CUSHING'S DISEASE FROM SINGLE CENTER.

Eda Yanar[1], Anna Kolodkina[2]
[1]Institute of Pediatric Endocrinology, Москва, Russian Federation, [2]Institute of Pediatric Endocrinology, Moscow, Russian Federation

Background and Aims: The hallmark of Cushing`s disease (CD) in children is high frequency of germline monogenic defects associated with the development of different multiple neoplasia syndromes. It has been shown that somatic mutations in the USP8 gene are the most common genetic defects in corticotropinomas in adult patients with a frequency of 30- 60%. Aim: To determine the frequency of germline and somatic genetic drivers of CD in children.
Methods: 35 pediatric patients with CD underwent genetic testing using NGS panel (AIP, CASR, CDKN1A, CDKN1B, CDKN1C, CDKN2A, CDKN2C, CDKN2D, DICER1, GNAS, CDC73, MEN1, POU1F1, PRKAR1A, PRKCA, PTTG2, SDHA, SDHB, SDHC, SDHD). Additional 14 pediatric patients with CD whose formalin fixed paraffin embedded corticotroph tumors and blood samples for DNA extraction were available underwent germline and tumor WES.
Results: Genetic variants in MEN1 gene were identified in 4 patients (11%). The median age of diagnosis was 10.5 years. In all patients corticotropinoma was the first component of the disease, corticotropinoma size was less than 10 mm in all cases. In two patients hyperparathyroidism was also found at the time of examination due to CD; in one patient, hyperparathyroidism was detected during dynamic observation. One patient had a pathogenic variant in DICER1 gene; CD was diagnosed under the age of1 year along with another component of the syndrome (dysplasia of the upper lobe of the right lung). 3 different somatic variants in USP8 gene were identified in 3 out of 14 patients (21%). One variant was previously described as pathogenic, the other two novel variants were described as likely pathogenic. The median age of diagnosis in patients carryingUSP8 variants was 15.2 years. In the group of patients, carrying USP8 variants one patient had a macroadenoma, tumor size of another patient was 9 mm. In the group of patients without USP8 mutations, only one patient had tumor size more than 8 mm. Not a statistical difference but tendency was found ($p=0.038$, significant $p<0.02$ after the Bonferroni correction). The duration of follow-up was from 1 to 6 years, no recurrence of CD was occurred.
Conclusions: We report an estimate of the contribution of germline and somatic genetic defects underlying CD in children. Further research is required to unveil molecular abnormalities in patients with CD, which can be useful for effective disease management and development of novel therapeutic targets.

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E-Poster Viewing
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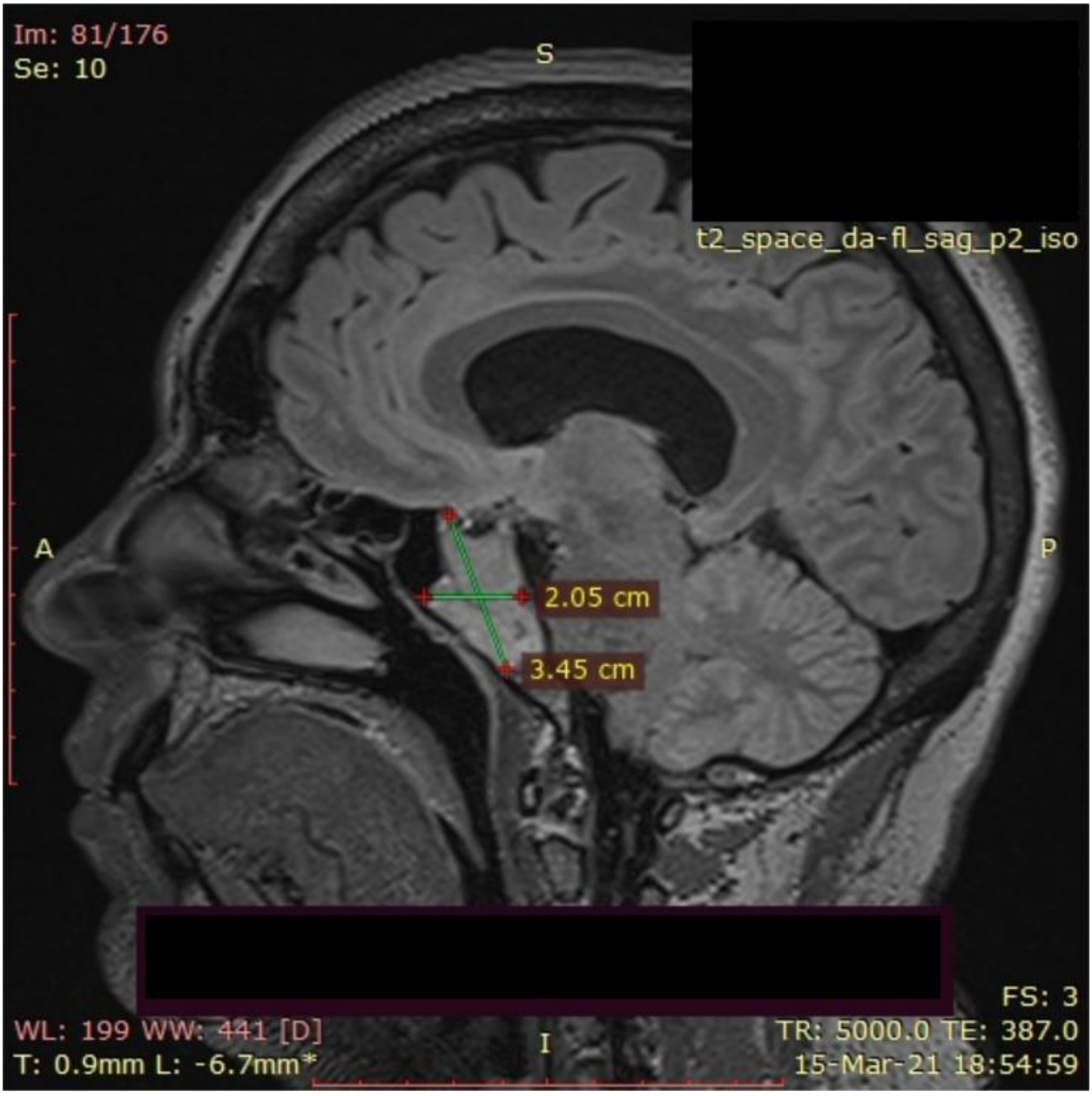
A CASE OF MICROMEGALY DUE TO A PITUITARY MACROADENOMA WITH INVASION IN RIGHT CAVERNOUS SINUS, SPHENOID SINUS AND CLIVUS

Veronica Zaharia, Gheorghe Șerpoi
Clinical Hospital CF no2, Endocrinology Department, Bucharest, Romania

Background and Aims: Acromegaly is caused by pituitary tumors secreting GH or rarely by extrapituitary disorders. Micromegaly (Dimaraki et al., 2002) describes a subgroup of patients with clinically evident acromegaly and elevated IGF-I, with apparently normal basal GH and often glucose-suppressed GH of <1 ng/mL at diagnosis.
Methods: Case discusses patient with sellar macroadenoma, associated with micromegaly.
Results: 55-year-old woman came in April-2021 for evaluation of sellar tumor, discovered during MRI-exam (isointense tumor in T1/T2), developed from right-half of pituitary gland, with extension into right cavernous sinus (grade-4 Knosp), sphenoidal sinus and clivus (Fig. 1,A&B). Patient complained of dizziness, headaches with right hemicrania, hypersweating, no visual disturbances/vomiting. Clinical exam showed thickened-skin (not wearing rings), she reported increase of one shoe size, although no changes in hand size or facial physiognomy, had no clinical manifestations of carpal-tunnel syndrome, breast examination-no palpable nodules/galactorrhea, thyroid investigation-polynodular goiter with dominant nodule in right lobe, cytologically verified. Biochemical evaluation: IGF-1=450 ng/ml (2.3xULN), hGH =1.61 ng/ml (normal), PRL=16.52 ng/ml (5.18-26.56), Cortisol (9 am)=5.6 mcg/dl (4.8- 19.4). Normal thyroid function. Glucose tolerance test was performed, without suppression of GH-level (1.72 ng/ml at 120 min of hyperglicemia). Established diagnosis was acromegaly with reduced secretory activity (i.e. micromegaly due to hypersecretion on GH-IGF1-axis, with moderately-increased IGF-1 [2.3xULN] and with normal-basal GH, unsuppressible after hyperglycemia), caused by pituitary macroadenoma with sellar/parasellar invasion was made. Recommended investigations were: polysomnography (sleep-apnea diagnosis), abdominal ultrasound (bilateral renal microlithiasis), colonoscopy, fundus examination and eye-exam. Latter three were unremarkable. Tumor was approached by trans-sphenoidal route. Immunohistochemistry revealed mixed somatotrophic-lactotrophic pituitary adenoma, positive-ki67 (nuclear index-3%), positive-p53 (nuclear index-15%). SSTR receptor analysis: positive-SSTR2 (increased intensity reaction, 33-66%) and positive-SSTR5 (moderate-intensity reaction >66% in tumor cells) Postoperatively, patient entered into biochemical remission, according to consensus (Giustina et al.,2023) (GH after OGTT <0,4 ng/ml and IGF<1.3xULN). Follow-up MRI scans showed persistence of unresectable tumor remnants, in right cavernous sinus and clivus. Patient monitoring showed continuous fulfillment of biochemical criteria for acromegaly inactivation. Fig 1. MRI-Pituitary macroadenoma with parasellar/infrasellar invasion. A-sagittal section. B-coronal
section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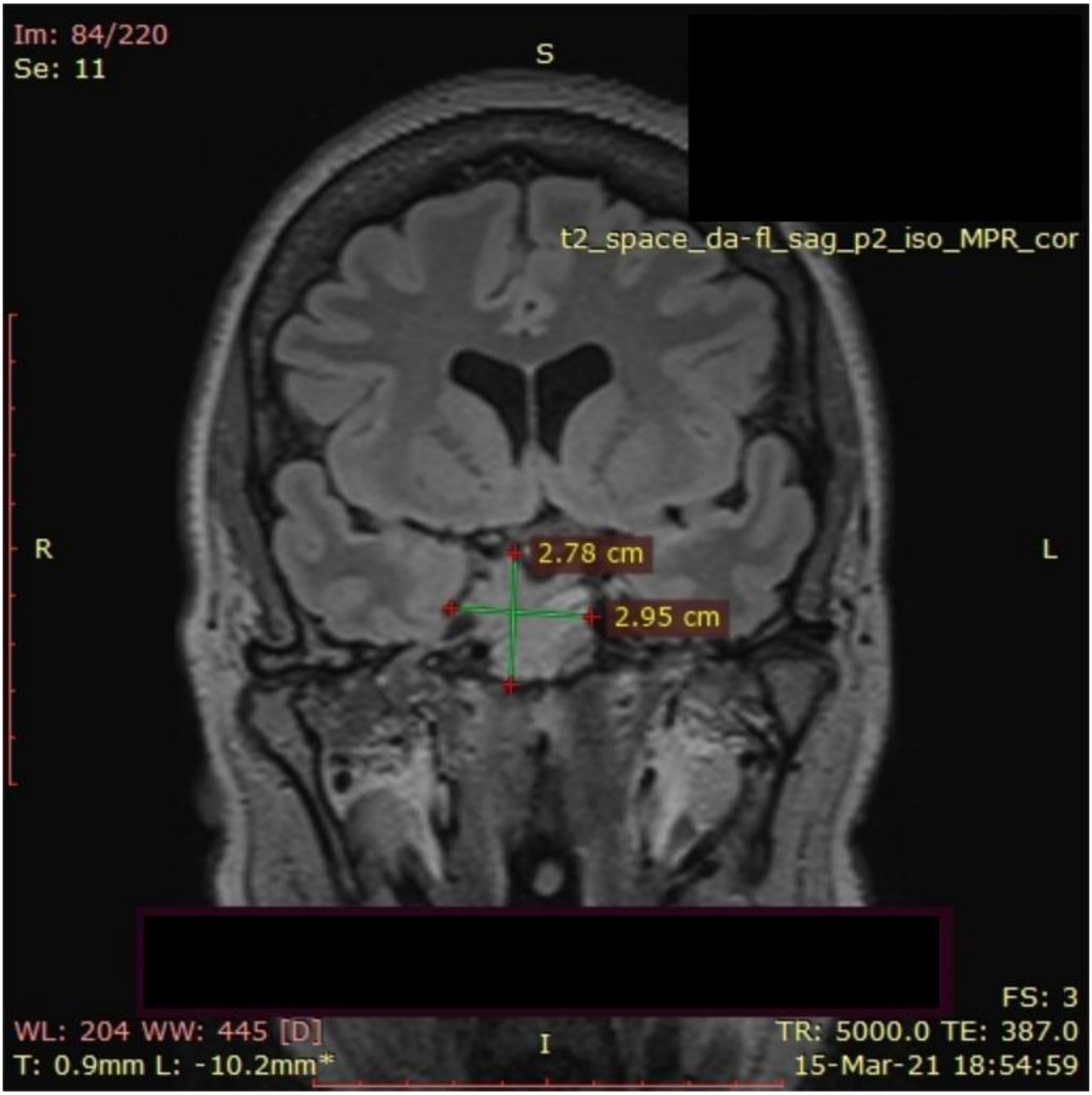

Conclusions: Case discuses pituitary macroadenoma with parasellar/infrasellar invasion. Differential diagnoses are considered, with ectopic pituitary adenoma (intraclival/sphenoidal) or with non-secreting parasellar tumor, associated with GH-secreting pituitary microadenoma. Active acromegaly (increased IGF1) with reduced GH secretion (normal, unsuppressible) represents a form of "micromegaly". According to Dimaraki et al.(2002), 5%-8%, 25%-Butz et al.,(2016), 33%-Wade et al.,(2011) of consecutive patients with adenomas proven to be GH-secreting cells are clinically-silent with "normal" GH and increased IGF-1.

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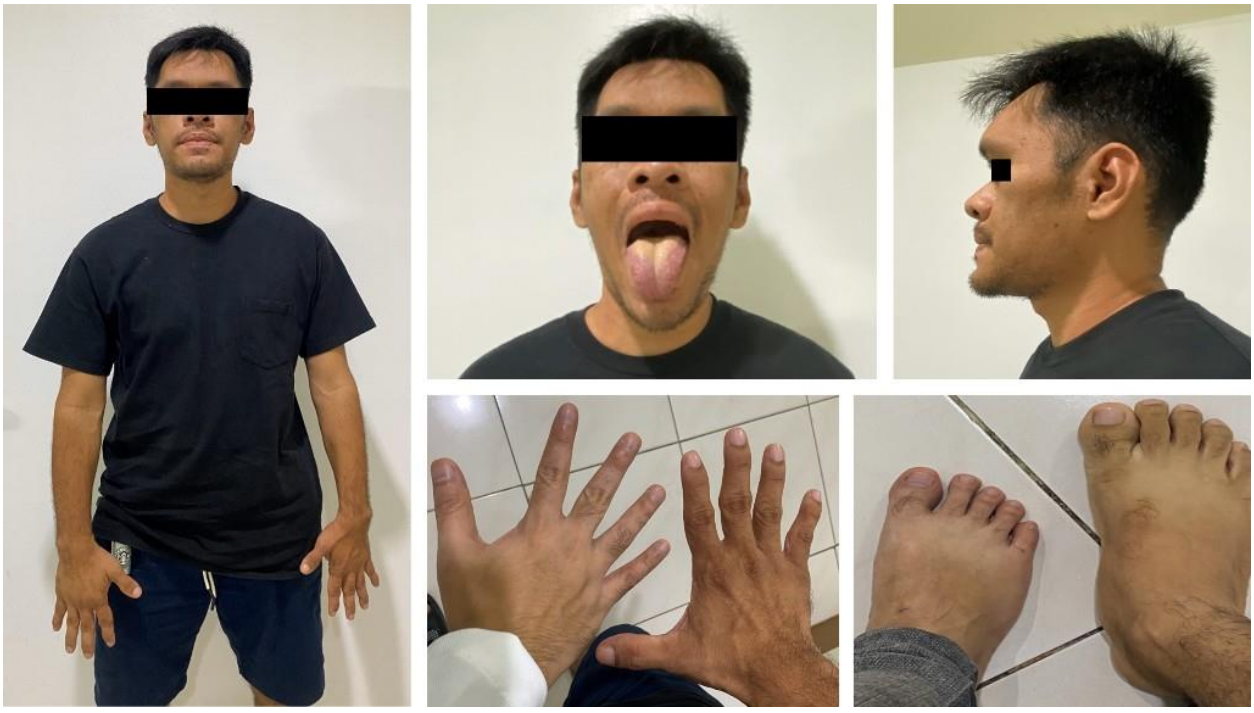
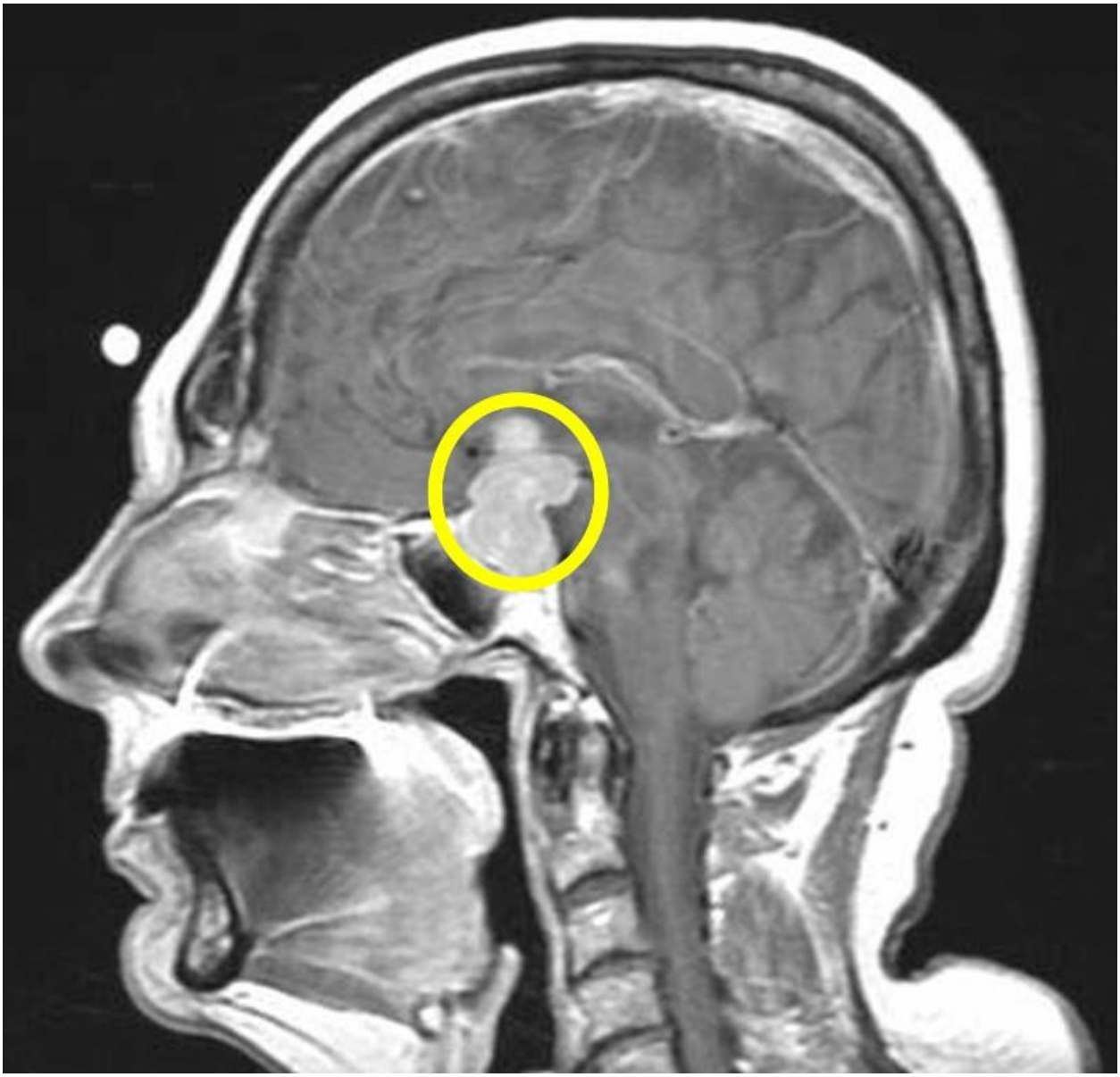
A CASE OF A 35-YEAR-OLD MALE WITH PITUITARY MACROADENOMA PRESENTING AS ACROMEGALY

Zamzam Zailon[1], Anlorenze Mae Conde[1], Theresa Leona Prudencio[1], Jay Karlou Regondola[1], Maria Carrissa Abigail Roxas-Panuda[2]
[1]Davao Medical School Foundation Hospital, Department Of Internal Medicine, Davao City, Philippines, [2]Davao Medical School Foundation Hospital, Department Of I, Davao City, Philippines

Background and Aims: Pituitary adenomas are non-malignant tumors of the pituitary gland, with prolactinoma accounting for 53% of cases, followed by non-functioning pituitary adenomas (30%), growth hormone (GH) secreting tumors (12%), and Cushing's disease (~4%). GH-secreting tumors are rare and can present differently per age group — gigantism in children and acromegaly in adults. In the Philippines, cases of acromegaly are undocumented due to the slow progression of the disease and the late onset of symptoms of mass effect such as headache, blurring of vision, and hormonal imbalances. This is a case of a 35-year-old man who was admitted due to complaints of headache with eventual blurring of peripheral vision. On physical examination, the patient was noted with prominent frontal bossing, thickened lips, prognathism, macroglossia, and larger appendages (Figure 1). Cranial magnetic resonance imaging (MRI) revealed pituitary macroadenoma measuring 1.9 x 2.4 x 3.0 cm in the anteroposterior, transverse, and craniocaudal dimensions (Figure 2). Initial Insulin Growth Factor - 1 (IGF-1) level was elevated at 562.23 ng/mL, while other pituitary hormones were within normal limits.





Methods: The patient underwent endoscopic intranasal transsphenoidal hypophysectomy.
Results: Significant improvement of the headache and blurring of vision was noted post-operatively and the patient was discharged. On follow-up after 3 months, there was recurrence of headache and repeat IGF-1 was still elevated at 758 ng/mL. Repeat MRI showed tumor recurrence and the patient was advised for gamma knife surgery of the pituitary stump. However, the tumor already impinged on the optic nerve, making it unresectable. Thus, the patient was advised medical therapy with Octreotide.
Conclusions: Based on a study by Lu et. al (2022), 32% of patients with adenoma residue experience recurrence of the tumor within 2.2-6.3 years. However, this patient presented with early recurrence in a span of 3 months. Complications of acromegaly may include cardiovascular, respiratory, metabolic, musculoskeletal, neurologic, and neoplastic comorbidities that might be irreversible with disease control. Progression to these complications and associated risk for mortality may be avoided with early diagnosis and adequate treatment. The ultimate goal of management is to control GH excess, primarily with surgical intervention, which was done in this case. Tumor recurrence may still be managed with surgery, however

in this case, anatomical complications necessitated medical management with somatostatin analogues or GH receptor antagonists.

PV325 / #1874

E-Poster Viewing
E-POSTER VIEWING: AS09. PITUITARY/NEUROENDOCRINOLOGY
01-03-2024 07:00 - 18:00

EFFECT OF STRESS DURING GESTATION AND LACTATION ON HYPOTHALAMIC INFLAMMATION AND LEPTIN CONTENT AS WELL AS ENERGY HOMEOSTASIS IN YOUNG ADULT MALE RAT OFFSPRING

Mina Salimi[1], Farzaneh Eskandari[1], Mehdi Hedayati[2], Homeira Zardooz[1]
[1]Shahid Beheshti University of Medical Sciences, Department Of Physiology, School Of Medicine, Tehran, Iran, [2]Shahid Beheshti University of Medical Sciences, 5cellular And Molecular Endocrine Research Center, Research Institute For Endocrine Sciences, Tehran, Iran

Background and Aims: The influence of negative events in early life on both behavioral and biological factors in adulthood is highly important. Accordingly, in the present study, the effect of gestation and / or lactation stress on plasma levels of corticosterone and IL-1β, a proinflammatory cytokine, as well as the content of hypothalamic leptin and IL-1β and energy homeostasis were investigated in young adult male rat offspring.
Methods: Pregnant female rats were randomly divided into 2 groups of with and without gestation stress, then each group was divided into two subgroups of with and without lactation stress. The dams of stress groups received variable stress during gestation and / or lactation periods. Therefore, the offspring were grouped as follows: with gestation stress (PS), with lactation stress (LS), with gestation and lactation stress (PLS), and without gestation and lactation stress (C). In the offspring, blood samples were taken to determine plasma concentrations of corticosterone, IL 1-β and leptin. Then the hypothalamus was isolated to determine its leptin and IL 1-β content. Moreover, the intra-abdominal fat weight was determined and changes in body weight, food intake and Lee index, as obesity index, were indicated until adulthood.
Results: In the PS, LS and PLS offspring groups, plasma corticosterone and leptin levels were increased. However, the plasma IL-1β levels did not change significantly. The animals in the PS, LS, and PLS groups showed an increase, decrease, and no change in hypothalamic leptin content, respectively. On the other hand, the IL-1β hypothalamic level in these groups respectively showed no change, decrease, and increase. Body weight and Lee index at birth showed no differences between the groups, while a significant decrease in the area under the curve of body weight changes from birth to 8 weeks of age and Lee index at 3 weeks of age was observed compared to the control group. Intra-abdominal fat and food intake showed a significant increase only in the PS group.
Conclusions: Exposure to variable stress during early life had a lasting impact on the offspring, leading to increased levels of plasma corticosterone and leptin in young adulthood. The absence of changes in plasma IL-1β levels among the study groups may suggest that the alterations in hypothalamic IL-1β occurred independently of systemic inflammation. It appears that the increase in plasma corticosterone levels plays a crucial role in determining the hypothalamic IL-1β and leptin content, as well as the energy homeostasis alterations observed in the offspring.

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PV326 / #1978

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

ASSOCIATION OF PCOS CANDIDATE GENES WITH METABOLIC PROFILE IN OMANI WOMEN

Maha Al-Khaduri[1], Malaak Al Fahdi[1], Hafsa Al Shabibi[1], Yahya Al Farsi[2]
[1]Sultan Qaboos University, Obstetrics And Gynecology, Muscat, Oman, [2]SQU, Famco, muscat, Oman

Background and Aims: Polycystic ovarian syndrome (PCOS) is a complex endocrine syndrome with many factors contributing to the outcome of the disease, however the exact etiology is not known. Current evidence shows that a combination of genetic and environmental factors may contribute to the causes. Prevalence of PCOS is the same across ethnicities and is 10-13 % globally by international guidelines. Patients with PCOS present with disturbed hormones secretion that is associated with metabolic disorders like: obesity, diabetes, fatty liver, hypertension, and many others. The aim of this study is to investigate the association of 8 candidate gene SNPs on metabolic disorders mainly on cardiovascular disease, as this may enhance management of the risk factors and complications associated with PCOS.
Methods: We conducted a prospective study on 50 PCOS cases and 50 control Omani females in reproductive age from the Gynecology clinic at the Sultan Qaboos University Hospital in Oman. A sample size of 49 cases and 49 controls was estimated for a significance level of 5% at 60% power, with minor allele frequencies of 12% and 1% in cases and controls. Cases fulfilled the Rotterdam criteria for PCOS. Controls were non pregnant women with no PCOS diagnosis. Patients with genetic disorders, congenital adrenal hyperplasia, androgen secreting tumors, Cushing syndrome, and hyperprolactinemia were excluded. Clinical and biochemical data was collected and analyzed. Statistical analysis was performed using SPSS for Descriptive statistics, Chi square test and Correlation analysis. Gene Panel Exome Sequencing was conducted on DNA extracted from blood samples for 8 genes and data analyzed using ANNOVAR software.
Results: The PCOS phenotypes among cases were A 23, B 0, C 5 and D 10. 69% of phenotype A were significantly associated with new pregnancies (16/23, P 0.03), 69% had significantly high AMH (p 0.00) and 74% obesity (p 0.05). Phenotype C had significantly higher (100%) hirsutism and (80%) AMH. In cases with hypertension there were 33% with Diabetes, 61% metabolic syndrome(p 0.04) and 20% hyperandrogenism (p 0.02). There was no association with cardiovascular disease as SNP of LEPR rs200779194 CC genotype (cases 98%, controls 100%), FSHR rs6165 CT+TT (cases 36%, controls 32%) and YAP1 rs112417656 AA (cases 98%, controls 100%).
Conclusions: Most PCOS cases had phenotype A that was associated with new pregnancies. Diabetes, hyperandrogenism and metabolic syndrome were significantly associated with hypertension in PCOS cases. SNPs in LEPR, LHCGR and YAP1 genes were not associated with cardiovascular disease in PCOS women of Arab ethnicity.

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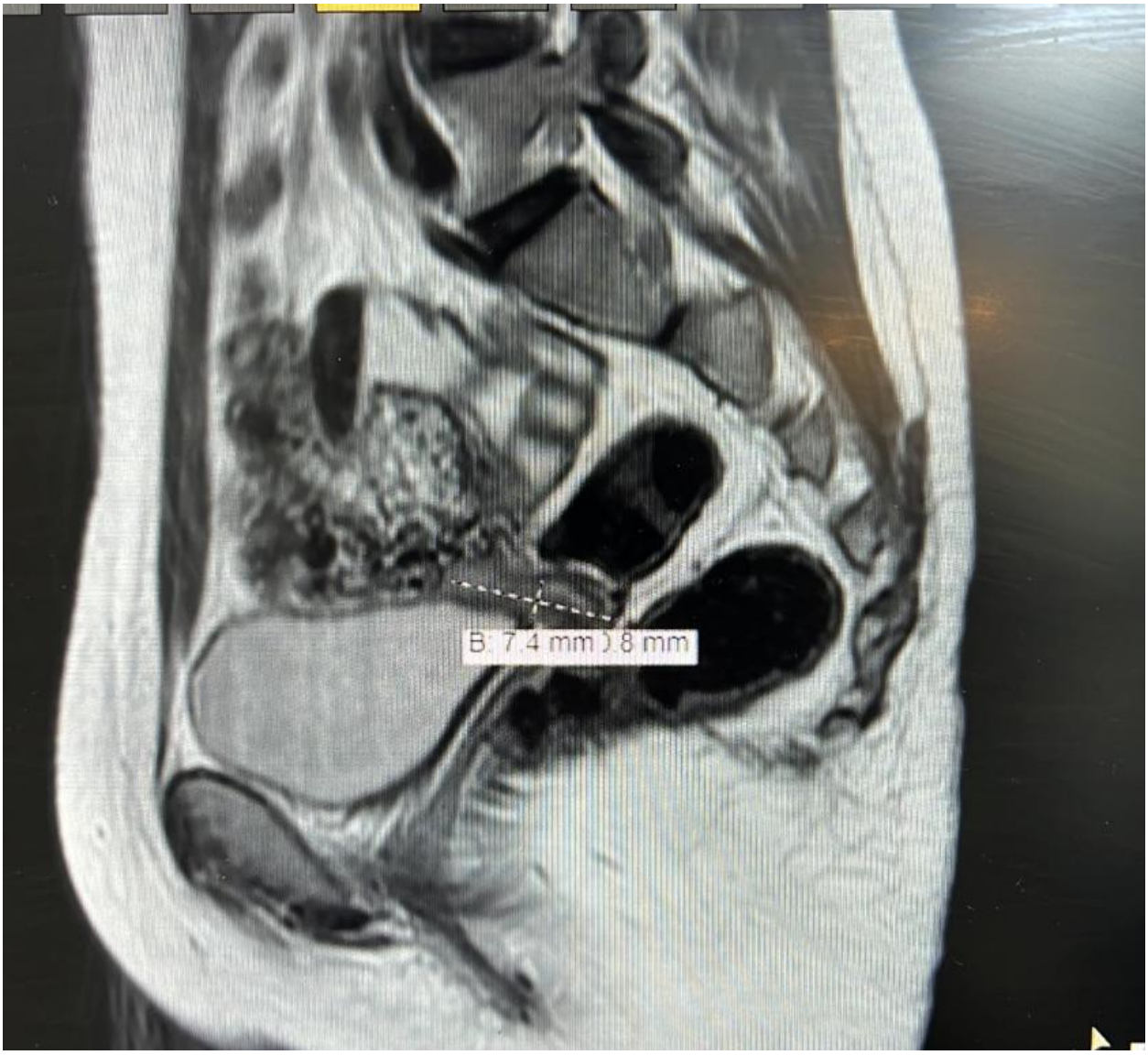
PV327 / #898

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

PURE GONADAL DYSGENESIS 46 XX IN NEW ONSET HYPERTHYROIDISM CASE

Malak Alkhalifa[1], Abdullah Albin Saad[2], Hussain Alwesaibi[2]
[1]Ministry of health, Endocrinology, Dammam, Saudi Arabia, [2]Ministry of health, Internal Medicine, Dammam, Saudi Arabia

Background and Aims: Gonadal dysgenesis is an uncommon cause of primary amenorrhea (Less than 1:100,000) (1) . A rare form of it is a 46 XX pure gonadal dysgenesis. Herein we report a case of new onset hyperthyroidism with further evaluation diagnose as pure gonadal dysgenesis 46 XX.
Methods: 15-year-old female presented with hyperthyroidism symptoms, found that she did not get her menstrual cycle with absence of secondary sexual characteristics. There was no features suggestive of turner syndrome. Her height 153 cm, mother height 164 cm, father 164 cm, MPH 153 cm. Further exam revealed palpable diffuse goiter, breast tanner stage I, pubic hair tanner stage II and unambiguous female external genitalia. Hormonal studies showed pictures of primary hyperthyroidism and hypergonadotrophic hypogonadism, Pelvis US revealed rudimentary uterus/vaginal vault with no normal differentiation into body and cervix and no detectable ovarian tissue. MRI of pelvis showed that the uterus around 30 x 7.8 x 24.7 mm, vaginal walls can be visualized with difficulty to identify the ovaries. Chromosomal analysis revealed Karyotype 46 XX, Interphase FISH of examined cells 100% showed XX signals.So, diagnose as Pure gonadal dysgenesis 46 XX and started on estradiol therapy, with excellent response inform of development of secondary sexual characteristics and pelvis US showed that the uterus 6.7 x 3.1 cm in its maximum dimensions, endometrial thickness is 5 mm. The right ovary can't be visualized. The left ovarian volume is 3.2
ml.



Results: Pure gonadal dysgenesis is form of gonadal dysgenesis (dysplastic uterus and streak gonad) (2) without chromosomal or phenotypic abnormalities. The phenotype is female without features suggestive of turner syndrome.Usually present with amenorrhea, delayed secondary sexual characteristic and normal external genetalia. Hormonal profile show picture of hypergonadotropic hypogonadism. There are two main types of pure gonadal dysgenesis: 46,XX karyotype, and another with a 46,XY karyotype(2).Patient with 46 XY karyotype have high risk of malignant tumor such as gonadoblastoma and Dysgerminoma. It is highly important to differentiate it from Swyer syndrome which is reserved for XY gonadal dysgenesis which is form of (Male pseudo-hermaphroditism) (3) with pure feminine external genetalia. During articles review, there are few cases reported association between turner syndrome and graves' disease (4).One case reported association between 46 XY gonadal dysgenesis (Swyer syndrome) and graves' disease (5).

Conclusions: Our case reported the association between pure gonadal dysgenesis 46 XX and hyperthyroidism. In addition, we highlight the importance of careful evaluation to differentiate between different types of gonadal dysgenesis.

PV328 / #740

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

ROLE OF OXIDATIVE STRESS AND OBESITY FOR CAUSING INFERTILITY IN WOMEN: A CASE-CONTROL STUDY

Saima Amjad[1], Abbas Ali Mahdi[2], Sujata Deo[3], Mohammad Kaleem Ahmad[4]
[1]King George's Medical University, Biochemistry, Lucknow, India, [2]King George's Medical University, Biochemistry, Lucknow, India, [3]King George's Medical University, Obstetrics And Gynaecology, Lucknow, India, [4]King Georges Medical University, Biochemistry, Lucknow, India

Background and Aims: Background: Primary infertility in women is a global rising issue, and many factors are responsible. Among these factors, obesity and environmental toxicants play an important role in reproductive impairment such as menstrual disorders, anovulation, unable to conceive, miscarriages /recurrent miscarriages, and pregnancy defects outcomes. Additionally, the endocrine and immunological system also plays an important role in causing infertility in some females. Aim: Identify the role of BMI, oxidative stress, and anti-inflammatory cytokines IL-10 to cause infertility in women.
Methods: Methodology: The clinical investigation was performed among infertile and healthy married female patients aged 18-45. Patients (50 fertile and 50 infertile women) were randomly selected from the Department of Obstetrics & Gynaecology, King George's Medical University, Lucknow, India. Written consent and lifestyle information of patients were collected during blood sample collection. Oxidative stress, antioxidants biomarkers, and IL10 were determined by the sandwich Elisa method and data were statistically analyzed by t-test at $p < 0.05$.
Results: Demographically, it was observed that most of the subjects were vegetarian (69%) as compared to non-vegetarian (31%) as per their diet intake. Most of the women, who belonged to the rural areas, were not literate, and around 46% of subjects were suffering from irregular menstrual cycles. Approximately 48% were obese and overweight and 11% of women were underweight. The study observed GPx and CAT enzyme activities were higher in infertile patients when compared with the control subjects. The Lipid peroxide levels were found to increase in cases compared to controls. The enzyme activity of SOD and GR activity was declined in the case of subjects as compared to control subjects. Still, statistically, no significant difference was observed between the case and control subjects. Anti-inflammatory cytokine was increased in IL-10 in infertile women when compared with fertile women.
Conclusions: Conclusion: The results of this study demonstrated an imbalance in oxidative-antioxidative levels and obesity affects fertility in infertile women. Reactive oxygen species produces (ROS) adversely affect health and oxidative stress affects the age-related decline in fertility.

PV329 / #1756

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

RESULTS OF SURGICAL TREATMENT OF GIRLS WITH GONADAL DYSGENESIS

Alexander Anikiev, Dmitry Brovin, Elena Volodko, Alexey Okulov
Endocrinology Research Center, Ministry of Health of Russia, Pediatric Surgery, Moscow, Russian Federation

Background and Aims: Feminizing genitoplasty is an integral part of multidisciplinary rehabilitation of patients with virilization of the external genitalia (EG) as a result of disorder of sex development (DSD), including gonadal dysgenesis (GD). The choice of the tactics of feminizing genitoplasty is an actual issue due to the rarity of the disease, frequent concomitant abnormalities of vital organs, including malignant formations, the need to choose gender and long-term multidisciplinary rehabilitation. The aim of the study was to formulate the tactics of feminizing surgery in girls with GD.
Methods: The study included 33 girls with various GD variants and virilization of EG: 23 with partial GD 46,XY; 7 with mixed GD 45,X/46,XY; and one patient each with such variants as Swyer syndrome 46,XY; Turner syndrome 46,X,SRY(+); GD 46,XX and partial gonadal dysgenesis 46,XY+mar. In all cases, the reason for the primary examination of patients was the ambiguous EG. All patients underwent gonadectomy and a number of feminizing genitoplastis, depending on age and sexual development - clitoroplasty, vaginoplasty, colpoelongation. A comprehensive assessment of the results was carried out within a period of 1 to 8 years. The criteria for evaluating the results were female-type genitalia with urethra and vagina opening separately and corresponding to age sizes; urination in a wide stream without urine flowing into the vagina; retention of urine; absence of relapses of chronic genitourinary infection; values of oncomarkers (alphafetoprotein, CA195, human chorionic gonadotropin) corresponding to reference values in patients with identified germinogenic tumors (gonadoblastoma and dysgerminoma); absence of residual gonadal tissue after gonadectomy; in the period of artificial puberty, the patient's self-identification in the female field.
Results: The result satisfying the comprehensive assessment was obtained in 83% of girls who reached puberty (12) and 94% of pre-puberty age (18). Complications were received in three. Recurrence of the urogenital sinus and urethrovaginal fistula in two during puberty, the gonad left in the abdominal cavity was detected in one in the pre-puberty period.
Conclusions: After gonadectomy, staged feminizing genitoplasty, including clitorolasty, vaginoplasty and colpoelongation, is a rational approach that allows achieving satisfactory treatment results in the vast majority of patients with DH while maintaining a clear self-identification in the female field.

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E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

EXPLORING THE LINK BETWEEN THE INTENSITY OF MENOPAUSAL SYMPTOMS, DIABETES MELLITUS, AND OBESITY INDICES IN MIDDLE-AGED WOMEN

Eleni Armeni[1], Stylianos Kopanos[1], Eleni Verykouki[2], Areti Augoulea[3], Stavroula A Paschou[4], Iliana Karagkouni[1], Ifigenia Avgousti[1], George Kaparos[5], Makarios Eleftheriadis[3], Anna-Bettina Haidich[2], Dimitrios Goulis[6], Nikolaos Vlahos[3], Irene Lambrinoudaki[1]
[1]Aretaieio Hospital, National and Kapodistrian University of Athens, 2nd Department Of Obstetrics And Gynecology, Athens, Greece, [2]Aristotle University of Thessaloniki, Department Of Hygiene, Thessaloniki, Greece, [3]National and Kapodistrian University of Athens, 2nd Department Of Obstetrics And Gynecology, Athens, Greece, [4]National and Kapodistrian University of Athens - Faculty of Medicine, 2nd Department Of Obstetrics And Gynecology, Athens, Greece, [5]National and Kapodistrian University of Athens, Department Of Biochemistry, Athens, Greece, [6]Aristotle University of Thessaloniki, Medical School, Unit Of Reproductive Endocrinology, First Department Of Obstetrics And Gynecology, Thessaloniki, Greece

Background and Aims: Ovarian senescence, as well as the severity of the climacteric symptomatology, are associated with increased cardiovascular risk. We aimed to evaluate the association between menopausal symptoms and cardiometabolic risk factors in a cohort of apparently healthy middle-aged women.
Methods: This retrospective cohort study consisted of 2793 peri- and postmenopausal women. We included only women between 40 and 65 years, not on treatment with menopause hormone therapy at any point, with a maximum follow-up of 20 years. We assessed demographic and anthropometric parameters. Fasting venous samples were obtained for biochemical and hormonal assessment. The Greene Climacteric Scale (GCS) was used to stratify the severity of menopausal symptoms.
Results: The participating women had an average age of 53.8±7.7 years at baseline. Using linear mixed model analysis, we observed that the mean values of the GCS-total score were associated with values of body mass index (BMI, b-coefficient = 0.12, 95% CI: 0.04 to 0.20), the diagnosis of type 2 diabetes mellitus (T2DM (b-coefficient = 2.10, 95% CI: 0.06 to 4.15), and late-postmenopause (b-coefficient = -1.24, 95% CI: -2.17 to -0.33). GCS-Physical Score values were associated with central obesity (b-coefficient = 0.18, 95% CI: 0.02 to 0.34), BMI (b-coefficient = 0.06, 95% CI: 0.03 to 0.09), and the postmenopausal state (early- or late-postmenopause compared to perimenopause, b-coefficient = -0.36, 95% CI: -0.59 to -0.13 and b-coefficient = -0.65, 95% CI: -0.97 to -0.34, respectively). The mean values of the GCS-psychological score were associated with values of BMI (b-coefficient = 0.06, 95% CI: 0.00 to 0.11). The values of all assessed GCS scores were negatively associated with age. Values of the GCS-Sexual Score were associated with early-postmenopause (incidence rate ratio (IRR)=1.53, 95% CI: 1.21 to 1.94), central obesity (IRR=1.18, 95% CI: 1.00 to 1.39), age, current smoking, diastolic blood pressure. Cox-regression analysis showed that incident T2DM was positively associated with moderate-to-severe vasomotor symptoms (VMS, OR=1.045, 95% CI: 1.011 to 1.079) as well as increasing age, BMI, daily alcohol consumption, and negatively with moderate-to-strenuous physical activity. These associations persisted only in lean but not in obese women.
Conclusions: In this cohort of peri- and postmenopausal women, the severity of menopausal symptoms is associated with T2DM, current smoking, and obesity. The severity of VMS was associated with incident T2DM, particularly in lean women. The associations between climacteric symptomatology and cardiometabolic risk factors must be considered when implementing primary and secondary prevention strategies.

PV331 / #1026

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

DENND1 GENE POLYMORPHISMS IN BANGLADESHI WOMEN WITH POLYCYSTIC OVARY SYNDROME

Hurjahan Banu[1], Zinia Haidar[2], Md Shahed Morshed[1], Abu Ashfaqur Sajib[2], Muhammad Abul Hasanat[1]
[1]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh, [2]University of Dhaka, Genetic Engineering & Biotechnology, Dhaka, Bangladesh

Background and Aims: Polycystic ovary syndrome (PCOS) is a polygenic complex pathophysiological condition with high heritability. The DENND1A gene is a strong candidate, variants of which are correlated with susceptibility to PCOS in different populations. The aim of this study was to calculate the genotype and allele frequencies of two loci (rs10818854 and rs10986105), as well as to evaluate the association of genotypic and allelic distribution in disease and control groups and correlate the genotypic data to their phenotypic features.
Methods: The 95 PCOS-diagnosed women were recruited under the revised Rotterdam criteria, 2003, along with 79 matched healthy controls with their clinical, biochemical, hormonal, and imaging characteristics. A multiplex allele-specific polymerase chain reaction protocol was devised to genotype individuals selected randomly. Two allele-specific primer sets were designed according to the web-based allele-specific primer algorithm, and allele-specific PCR conditions were extensively optimized to enhance the specificity and sensitivity of genotyping reactions. After successful genotyping of the study participants of genomic DNA extracted from blood samples, results from allele-specific PCR were confirmed by DNA sequencing of randomly selected samples.
Results: The calculated frequencies of the variant alleles in the PCOS group were 0.111 (T allele for rs10818854) and 0.095 (G allele for rs10986105), respectively. A significant association was found between genotypic and allelic distribution of the rs10986105 variant and PCOS, but not for the other. The association between genotype frequency distribution in PCOS and control individuals was significant for the dominant and over-dominant models (p-value = 0.0103 in both cases) only in the rs10986105 locus. The D' values of 0.47 and 0.42 in the PCOS and control group respectively suggest that there is a weak to moderate level of linkage disequilibrium between the two variants in the haplotype.
Conclusions: The rs10986105 variant of the DENND1 gene may be associated with Bangladeshi women with PCOS.

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E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

CAROTID INTIMA-MEDIA THICKNESS BETTER CORRELATES WITH CARDIOVASCULAR RISK FACTORS THAN HOMOCYSTEINE IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

Md Shahed Morshed, Md Shahmim Hossan, Hurjahan Banu, Muhammad Abul Hasanat
Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Carotid intima-media thickness (CIMT) and serum homocysteine (Hcy) are important cardiovascular (CV) risk markers. Their association with polycystic ovary syndrome (PCOS) is not adequately evaluated. The aim of this study was to assess the association of CIMT and Hcy in women with PCOS and its manifestations.
Methods: This cross-sectional study was done in the Department of Endocrinology, BSMMU which enrolled 40 newly diagnosed PCOS patients (18- 35 years) and an equal number of controls. After collecting clinical data, fasting blood was drawn to measure glucose, lipid profiles, and hormones including insulin, total testosterone, and Hcy using glucose oxidase, peroxidase, and chemiluminescent immunoassay respectively. Ultrasonography of pelvic organs was done in the early follicular phase. A B-mode ultrasound image of the common carotid artery using an 08 to 12 MHz high-resolution linear ultrasound probe was done by a single sonologist.
Results: CIMT was significantly higher in PCOS than in control [0.63 (0.60, 0.65) vs. 0.45 (0.41, 0.50), mm, median (IQR), <0.001]. PCOS participants had significantly higher mean CIMT compared to controls ($p<0.001$ for all) when they were categorized based on body mass index (BMI≥25 kg/m^2), waist circumference (WC≥80 cm) and insulin resistance (IR by HOMA-IR≥2.6). Considering CIMT ≥75th percentile of control, all patients with PCOS had a high CIMT. CIMT correlated with WC ($r=0.337$, $p=0.039$) and triglyceride (TG) ($r=0.315$, $p=0.048$) in PCOS. However, Hcy levels were statistically similar between the study groups. There was no significant association or correlation between CIMT and Hcy in patients with PCOS.
Conclusions: CIMT correlates better with CV risk factors than Hcy in women with PCOS.

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PV333 / #1366

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

INSULIN RECEPTOR (RS2059807) AND INSULIN RECEPTOR SUBSTRATE 1 (RS1801278) GENES POLYMORPHISMS IN POLYCYSTIC OVARY SYNDROME

Md Shahed Morshed, Hurjahan Banu, Zinia Haidar, Abu Ashfaqur Sajib, Muhammad Abul Hasanat
Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh

Background and Aims: Insulin resistance (IR) plays a central role in the pathogenesis of polycystic ovary syndrome (PCOS). Alteration of single nucleotide polymorphisms (SNP) of gene encoding insulin receptor (INSR) and insulin receptor substrate 1 (IRS1) may be associated with insulin resistance and the development of PCOS. The aim of this study was to see the allele frequency of INSR (rs2059807) and IRS-1 (rs1801278) genes polymorphisms and their associations with Bangladeshi women with PCOS.
Methods: This cross-sectional study was done among 93 PCOS women (13-35 years) and 79 age-matched healthy controls in the Department of Endocrinology, BSMMU. Clinical, biochemical, and hormonal profiles were recorded. Venous blood was taken in a fasting state to measure blood glucose, insulin, and genotypes. Blood glucose was analyzed by glucose oxidase and insulin by chemiluminescent microparticle immunoassay. SNP genotyping was done by commercial sequencing services.
Results: The risk allele (G) frequency for INSR (rs2059807) (p=1.00) and risk allele (T) for IRS-1 (rs1801278) (p=0.367) were statistically similar. Considering dominant, recessive, co-dominant, and over-dominant models, there were no significant differences between the study groups for both genes. Among the different manifestations percentage of IR was significantly raised in the wild group of only the IRS1 gene.
Conclusions: This study failed to reveal any association between PCOS and INSR (rs2059807) and IRS1 (rs1801278) gene polymorphism. Only the percentage of IR was found higher in the wild group than in the mutant group in the IRS1 gene.

PV334 / #816

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

THE TRANSCRIPTOME ANALYSIS ON MOUSE OVARIAN TISSUE REVEALED THE DYNAMICS OF MITOCHONDRIAL GENES THROUGHOUT THE ESTRUS CYCLE

Yovita Permata Budi[1], Giovanny Angelita[1], Meng-Chieh Hsu[2], Chih-Hsien Chiu[2], Yi-Fan Jiang[1]
[1]National Taiwan University, School Of Veterinary Medicine, Taipei, Taiwan, [2]National Taiwan University, Department Of Animal Science And Technology, Taipei, Taiwan

Background and Aims: The intricate regulation of ovarian function plays a pivotal role in mammalian reproduction. The ovarian cycle encompasses many ovarian events, such as the dynamics of follicular formation, growth, and ovulation and also their transition to form corpus luteum. Thus, the energy demands within the ovarian tissue fluctuate throughout the cycle. Since the mitochondria are the primary sites for Adenosine Triphosphate (ATP) production in mammalian tissue, mitochondria play an important role in the physiology of a dynamic organ such as the ovary. As these processes are intricately interconnected, deciphering the dynamics of mitochondrial genes becomes imperative to understand ovarian function.
Methods: In this study, the ovary and serum of 8-week-old female ICR mice were collected from different time points of each estrous cycle phase. Daily vaginal smear were performed to determine the estrus stage. To reveal the mitochondrial-related gene expression, the ovaries were submitted for transcriptome analysis, and the COX (Cytochrome-c Oxidase) staining was performed on the ovarian tissue to indicate the location of the mitochondrial activity.
Results: The PCA (Principal Component Analysis) showed higher similarity within the ovaries collected from the estrus to the diestrous stage. GO (Gene Ontology) analysis was performed on the filtered DEGs (Differentially Expressed Genes) and indicated significant enrichment terms associated with the mitochondria inner membrane and mitochondrial protein complex where the members of the genes are expressed during the Diestrous and Proestrus stages, with the peak in the early Proestrus stage. The gene set enrichment analysis (GSEA) is similar to our post-filter GO analysis, where a series of mitochondrial-related gene sets were found in ovaries collected during the Proestrous and Diestrous stages. The COX staining result shows that the number of corpus luteum expressing strong COX signals is higher in ovaries collected during the Diestrous and Proestrous stages. In contrast, the number of follicles that express a stronger COX signal is higher in ovaries collected during the Estrus and Metestrous stages.
Conclusions: Overall, our study provides a new insight into mitochondria activity throughout the estrous cycle in the ovarian tissue.

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PV335 / #1643

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

LA CHAPELLE SYNDROME, A RARE CAUSE OF HYPERGONADOTROPHIC HYPOGONADISM

Rita Pinto Ribeiro, Valentim Lopes, Patrícia Cunha Brito, Ana Margarida Monteiro
Hospital de Braga, Department Of Endocrinology, Braga, Portugal

Background and Aims: La Chapelle syndrome is a rare disorder of sex development associated with a 46, XX karyotype and characterized by male external genitalia with associated testosterone deficiency. The presentation depends on the presence of the SRY gene, with SRY-positive cases (80-90% of the cases) usually involving otherwise normal men who present after puberty with short stature, normal pubic hair and penile size but small testes, gynecomastia and azoospermia-related infertility.
Methods: A 60-year-old male patient, with normal pubertal development, was referred to the Endocrinology Department of a tertiary center at the age of 28 years due to painful bilateral gynecomastia, without associated galactorrhoea and sexual dysfunction.
Results: The analytical study revealed a hypergonadotrophic hypogonadism. The patient initiated, at that time, replacement with intramuscular enanthate testosterone 250 mg every 4 weeks with both analytical and clinical improvement. The karyotype revealed a chromosomal constitution of two X chromosomes and the absence of Y chromosome. Additionally, in one of the X chromosomes a structural alteration in the terminal portion of the small arm was identified. Subsequent DNA analysis of the peripheral blood (through polymerase chain reaction technique) confirmed the presence of Y chromosome material (gene SRY). This was consistent with a diagnosis of La Chapelle syndrome. The patient remains in clinical and analytical follow-up in the Endocrinology consultation treated with enanthate testosterone 250 mg every 4 weeks, without symptoms of hypogonadism and adverse effects of the replacement with testosterone.
Conclusions: La Chapelle syndrome is a rare disorder of sex development associated with a 46, XX karyotype. The main differential diagnoses are 45,X/46,XY mixed gonadal dysgenesis, 47,XXY Klinefelter syndrome, 46,XX ovotesticular DSD and sex chromosome mosaicisms. SRY-positive cases, such as our patient, are generally not inherited because they are usually associated with infertility. The mainstay of treatment is testosterone replacement therapy to correct hormonal imbalance, prevent gynecomastia and to induce development of male secondary sex characteristics. Management of male hypogonadism reduces complications.

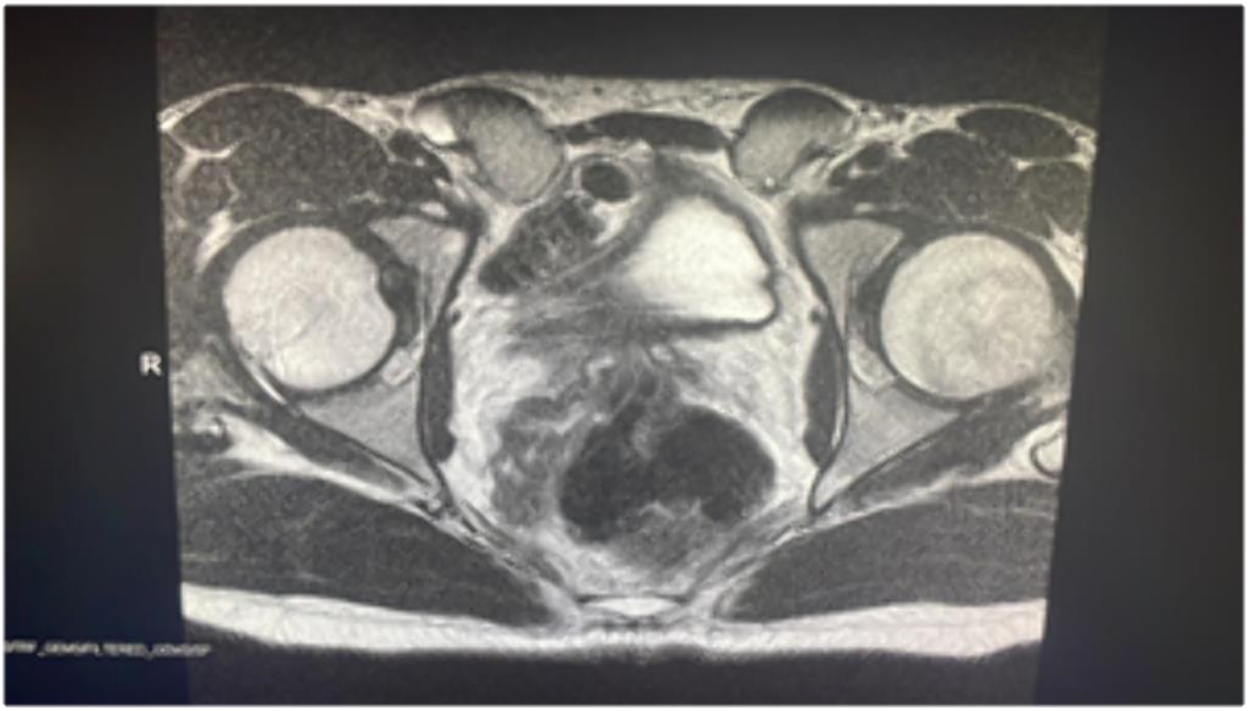
PV336 / #1514

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

AN ADOLESCENT FEMALE WITH VIRILIZATION AND PRIMARY AMENORRHEA DISCOVERED TO HAVE A HOMOZYGOUS HSD17B3 MUTATION

Gadeer Emsaad
MOH, dammam, Saudi Arabia

Background and Aims: 17-β-Hydroxysteroid dehydrogenase type 3 deficiency is a rare autosomal recessive, cause of 46, XY disorder of male DSD. HSD17B3 isoenzyme is present exclusively in the testes and converts delta 4 androstenedione to testosterone, and its deficiency result in a clinical phenotype similar to 5-α-reductase type 2 deficiency and partial androgen insensitivity syndrome[1] Worldwide, A total of 70 different HSD17B3 mutations have so far been reported[4]. Here we reported a female with 46, XY karyotypes, presented during puberty with virilization.
Methods: A 13-year-old female presented with hirsutism, amenorrhea, and a deep voice started 2 years prior to presentation. She was delivered with a female genitalia. There is 4th-degree consanguinity between parents. On examination: normotensive, has male androgenic hair distribution, deep voice, breast tanner stage I, and clitoromegaly stage III, with palpable testes at the inguinal area.
Results:



Investigations:FSH: 6.8 iu/L, LH: 22 iu/L,Testosterone11 nmol/L ,DHT:43 ng/dl ,Estradiol 112pmol/L, Hemoglobin14.4 g/dl , Renal lytes are normal,Karyotype: normal male 46 XY Imaging study:

Pelvis ultrasound: Absent uterus and ovaries Pelvis MRI: at the inguinal regions, 2 oval shape structures measuring 2.4*1.7 cm on the right side and 2.6 cm*1.7 cm on the left side, representing testicles, with male shape urethra, genital lips are reminiscent of female labia.

The initial working diagnosis was 5-alfa reductase deficiency till the Whole exome sequencing showed: HSD17B3.NM_000197.2: c.16defp.Glu6AsntsTer20: Homozygous) The patient and her parents had a multidisciplinary team including psychologists and psychiatrists and she was reassigned to male.

Conclusions: 17b-HSD3 deficiency represent 4% of total 46,XY DSD subjects[4] In individuals reared as females, if the diagnosis was not established in infancy, they seek medical attention due to amenorrhea and virilization[6]. At puberty, a significant increase in the testicular secretion of androstenedione can presumably be partially converted to testosterone by 17-β-HSD3 residual activity or by other isoenzymes, and as a result, severe virilization occurs[4]. The degree of virilization varies from increased body hair, deepening of the voice, development of male body habitus, and clitoral enlargement, the testes are often found in the inguinal canal or in a bifid scrotum [6]. Wolffian derivatives are present [2]. References: 1 Tuhan, Hale Unver, et al. 438 (2015): 154-156. 2 Yang, Zuwei, et al. 174 (2017): 141-145. 3 Çiftci, Nurdan, et al. 14.2 (2022): 233. 4 Gonçalves, Catarina I., et al. 23.17 (2022): 10026. 5 Mendonca, Berenice B., et al. 165 (2017): 79-85. 6 Gangaher, Arushi, et al.20.4 (2016): 536.

PV337 / #735

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

UNUSUALLY LOW PHOSPHATE CONCENTRATIONS IN A COHORT OF PATIENTS WITH KLINEFELTER SYNDROME (KS)

Andrea Graziani[1], Riccardo Maria Pollis[1], Riccardo Selice[2], Giuseppe Grande[2], Antonella Di Mambro[2], Alberto Ferlin[2]
[1]University of Padua, Department Of Medicine, Padua, Italy, [2]University of Padua, Andrology And Reproductive Medicine Unit, Padua, Italy

Background and Aims: Patients with KS might present with different conditions concerning hypogonadism, including cardiovascular, metabolic and bone disorder. The aim of our study was to phosphate concentrations in patients with KS and evaluate a possible association between phosphate levels and hormonal and bone parameters.
Methods: We performed a retrospective single center-study, enrolling 310 patients with KS. Phosphate, calcium, PTH and 25-OH-vitamian D levels were evaluated at the time of the first visit. Moreover, hormonal, metabolic and other bone parameters were evaluated. Statistical analysis was performed, calculating Pearson correlation coefficient (r), and p values ≤ 0.05 were considered statistically significant. Moreover, a linear and binary logistic regression analysis was performed.
Results: Mean age at first visit was 31.97 +/- 0.61 years, mean phosphate 0.95 +/- 0.01 nmol/L, mean 25-OH-vitamin D level 58.38 +/- 1.67 nmol/L, mean calcium 2.44 +/- 0.01 nmol/L, mean PTH 38.50 +/- 1.64 ng/L, and mean TT 10.09 +/- 0.33 nmol/L. 119/312 patients (38.14%) were found to have phosphate below the lower normal limit (< 0.9 nmol/L). Statistical univariate analysis showed significant negative correlations between phosphate and both age at first visit (r -0.25, p < 0.0001) and estradiol levels (r -0.17, p < 0.005). Those results were confirmed with the linear and binary logistic regression analysis. Otherwise, we did not find significant association between phosphatemia and bone density parameters nor other sex hormones. Moreover, we did not find a significant difference in prevalence of hypophosphatemia among patients with normal and low 25-OH-vitamin D levels.
Conclusions: This is the first study evaluating phosphate concentrations in patients with KS. The association between phosphate and age at first visit might have different explanations. On the other hand, the association between phosphate and estradiol is more complex and even vague. In fact, estradiol might have a phosphaturic effect, lowering phosphate concentrations. Moreover, vitamin D might have a connecting role between estradiol and phosphate. Notwithstanding this data and previous evidence regarding the association between estradiol and phosphate, further studies are needed to understand the association between hormonal and bone parameters and phosphate concentrations in patients with KS.

PV338 / #153

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

METABOLIC ASSOCIATION OF SERUM PROLACTIN IN POLYCYSTIC OVARY SYNDROME: A RETROSPECTIVE ANALYSIS OF 840 PATIENTS IN BANGLADESH

Abm Kamrul Hasan[1], Fatema Tuz Zahura Aalpona[2]
[1]Mymensingh Medical College, Endocrinology, Mymensingh, Bangladesh, [2]Khaliajuri Upazila Health Complex, Gynecology And Obstetrics, Netrokona, Bangladesh

Background and Aims: Data relating the serum prolactin levels with clinical, hormonal, and especially metabolic parameters in polycystic ovary syndrome (PCOS) are scarce in the available literature. This study explored the metabolic influence of prolactin in subjects with PCOS.
Methods: This retrospective cross-sectional study analyzed data of women newly diagnosed with PCOS attending the Endocrinology outpatient department of a tertiary hospital in Mymensingh, Bangladesh, during 2017-2022. Clinical, anthropometric, and laboratory data, including results of oral glucose tolerance test, measurements of serum lipids, total testosterone (TT), thyroid-stimulating hormone (TSH), and prolactin, were extracted and analyzed.
Results: 840 cases [median age 21.5 (18.0-25.7) years] were considered for final analysis; 17.1% had hyperprolactinemia. Serum prolactin had significant negative correlations ($P < 0.05$) with age ($r_s = -0.153$), body mass index (BMI) ($r_s = -0.172$), waist circumference ($r_s = -0.193$), triglyceride ($r_s = -0.174$), and TT ($r_s = -0.133$) levels, and the presence of metabolic syndrome ($r_s = -0.073$) and positive correlations with TSH ($r_s = 0.090$). In multiple regression analysis, prolactin was inversely associated with fasting plasma glucose and positively associated with TSH after correcting for age and BMI.
Conclusions: An inverse association exists between serum prolactin levels and some metabolic risk factors in women with PCOS.

PV339 / #988

E-Poster Viewing
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01-03-2024 07:00 - 18:00

46 XY, 5-ALPHA REDUCTASE 2 DEFICIENCY SYNDROME IN A 19-YEAR-OLD PHENOTYPIC FILIPINO FEMALE

Hernessa Hernandez, Elizabeth Paz-Pacheco
Philippine General Hospital, Endocrinology Diabetes And Metabolism, Manila, Philippines

Background and Aims: Steroid 5-a-reductase 2 deficiency is a rare autosomal recessive disease caused by mutations in the SRD5A2 gene that encodes for the enzyme that converts Testosterone to Dihydrotestosterone (DHT). DHT mediates the development of the male external genitalia and prostate during fetal growth. Many SRD5A2 mutations arise from countries with high coefficients of co-sanguinity such as in Turkey, Italy, and Brazil. To our knowledge, there are no published case reports on 5-alpha reductase 2 deficiency among Filipinos. We present this case to share our approach to diagnosis and its challenges.
Methods:

Case: The case is a nineteen-year-old, Filipino, born from a none co-sanguineous marriage, identified and reared as female by the gross inspection of the genitals during birth, who presented with primary amenorrhea. At the age of thirteen, she had deepening of voice and enlargement of vocal cords with no development of breast and widening of hips. On examination, there were two palpable inguinal masses. The external genitalia shows an acuminate pubic hair at Tanner stage four, a three centimeter phallus-like structure, with fused labio-scrotal folds with ruggae, an empty scrotal sac, and a three centimeter blind vaginal pouch where urination occurs. Pelvic MRI revealed the presence of vas deferens, epididymis, seminal vesicles, penile structure and hypoplastic prostate. The karyotype result revealed a male, 46- XY chromosome with no aberrations. The genetic analysis showed two pathogenetic variants of SRD5A2 gene. After a multidisciplinary discussion and counseling, the patient adopted the male gender.
Results: Disorder of sexual development (DSD) is a medical emergency, as the trauma associated with gender re-assignment is less if the early diagnosis has been made. The presence of ambiguous genitalia, undescended testes, or the absence of pubertal development warrants DSD investigation. Patients with 5

alpha-reductase 2 deficiency presents with external genitalia that are often are predominately female at birth, that later undergo virilization during puberty due to the action of SRD5A1 isoenzyme. The management of 5-alpha-reductase deficiency 2 syndrome focuses on the psychological impact of gender re-assignment, functional anatomy,fertility, and surveillance for gonadal tumors.

Conclusions: Disorders of Sexual Development (DSD) such as 5-alpha reductase deficiency syndrome remains to be a diagnostic challenge particularly in low-resource populations with different social and cultural expectations, and as such, remain unrecognized. Clinicians need to identify DSDs at an early age and work with the tests that are available and cost-effective to optimize their ability to assess, diagnose, and treat patients, and prevent further psychological turmoil.

PV340 / #1317

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

ASSESSMENT OF THE MARKER OF POLYCYSTIC OVARY SYNDROME IN FEMALE WITH PREDIABETES AND TYPE 2 DIABETES MELLITUS

Iryna Kostitska[1], Mariana Ivanishchak[2]
[1]Ivano-Frankivsk National Medical University, Endocrinology, Ivano-Frankivsk, Ukraine, [2]Communal Non-commercial Enterprise “Regional Clinical Hospital of Ivano-Frankivsk Regional Council”, Endocrinology, Ivano-Frankivsk, Ukraine

Background and Aims: The prevalence of infertility if female with prediabetes is increasing in the world. It constitutes a major risk factor associated with syndrome of insulin resistance (IR), obesity and polycystic ovary syndrome (PCOS). Anti-mullerian hormone (AMH) is reliable marker for the diagnosis of PCOS. Nevertheless, AMH level is influenced by age, carbohydrate metabolism and body mass index (BMI).
Methods: The female were divided into two groups: Group 1 (Gr 1) prediabetes: 16 subjects (glycosylated hemoglobin (HbA_1C) - 5,81±0,11), Group 2 (Gr 2) type 2 diabetes mellitus (DM): 16 patients (HbA_1C - 6,84±0,23). The mean age of the females were 39,7±2,21 years in Gr 1 and 38,9±3,44 years in Gr 2.PCOS was diagnosed according to the Rotterdam criteria.The aim of our study was to analyze the performance of the (LH x AMH)/FSH ratio in the diagnosis of PCOS in females with prediabetes and type 2 DM.
Results: The mean BMI in Gr 1 was 29,8±2,51 kg/m^2 and 31,2±2,66 kg/m^2 in Gr 2. PCOS was diagnosed in 5females of Gr 1 and 6 patients with type 2 DM. The prevalence of PCOS was higher in Gr 2 compared to Gr 1 (37,5 % vs 31,3%) but without significant difference. The mean waist circumference was higher in Gr 2 (115,6±3,45 cm vs 111,9±2,68 cm). The (LH x AMH)/FSH ratio was positively correlated with HbA_1C and index HOMA, but this ratio wasn’t correlated with age, body weight, BMI, and waist circumference.
Conclusions: Our results showed a significant association between (LH x AMH)/FSH ratio and PCOS and mean level of HbA_1C and syndrome of insulin resistance. So, it may be a gain screening tool for PCOS in women reproductive age with prediabetes and type 2 DM.

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PV341 / #1908

E-Poster Viewing
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01-03-2024 07:00 - 18:00

BIOELECTRIC IMPEDANCE ANALYSIS OF VISCERAL FAT IN WOMEN WITH PCOS AND THE EFFECT OF EXERCISE- A PILOT STUDY

Pratap Kumar, Preetha Ramachandra
Kasturba Medical College, Manipal Academy of Higher Education, Manipal 576 104, Karnataka, India, Reproductive Medicine & Surgery, MANIPAL, India

Background and Aims: Introduction & Aim Amongst Polycystic ovarian syndrome (PCOS) women approximately 40-50% of women with PCOS are overweight or obese compared with their age matched controls. Obesity in women with PCOS causes insulin resistance, impairs ovulation and adversely affects endometrial development and implantation. it is important that the weight that is lost is fat rather than lean mass. Body composition can be measured using various techniques and Bioelectric Impedance Analysis (BIA) is one of the methods. BIA is a machine which has body composition monitor with a scale. It measures the impedance to flow of a safe low level electric current through the body fluids and determines the amount of total body fat, visceral fat and subcutaneous fat. BIA is simple, easy, fast, non-invasive and reasonably accurate measure of body fat.
Methods: Materials and methods It is a prospective exercise interventional study over a period of 9 months (July 2014- March 2015) conducted in women who presented with PCOS (Rotterdam Criteria) The subjects were advised to do these exercises 3 times a week. Data was collected at baseline and again after 2 months of exercise.
Results: BMI and visceral fat showed significant difference whereas reduction in total body fat was not significant. Total body fat showed a significant drop in the overweight group ($p<0.05$) and to a lesser extent in the normal BMI group ($p=0.047$). The drop-in obese group though present, did not reach statistical significance. Visceral fat on the other hand showed a statistically significant improvement in both the overweight and obese group. On follow up, 5 of the subjects reported regularisation of their menstrual cycles. All the 5 women belonged to the overweight group and had shown reduction in their BMI, total and visceral fat. Four pregnancies were reported. Visceral fat showed a statistically significant improvement in both the overweight and obese group. The limitations of this study are the small number of subjects.
Conclusions: Conclusion This pilot study shows that total body fat and visceral fat can be cost-effectively measured by a simple tool called BIA. They tend to be abnormal in the overweight and obese segment of women with PCOS. Tailor-made exercises based on individual tolerance are effective in improving these parameters even when done over a short duration. These improvements do positively impact the menstrual dysfunctions and subfertility.

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PV342 / #1420

E-Poster Viewing
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01-03-2024 07:00 - 18:00

LEVELS OF LEPTIN, ADIPONECTIN, C-REACTIVE PROTEIN, AND INTERLEUKIN-6 AND THEIR ASSOCIATION WITH BODY MASS INDEX IN THE FIRST TRIMESTER AMONG WOMEN FROM SOUTH INDIA

Namita Patel[1], Subitha Lakshminarayanan[1], Haritha Sagili[2], Jayaprakash Sahoo[3], Balasubramaniyan Vairappan[4]
[1]Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Department Of Preventive And Social Medicine, Puducherry, India, [2]Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Department Of Obstetrics And Gyanecology, Puducherry, India, [3]Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), Department Of Endocrinology, Puducherry, India, [4]Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Department Of Biochemistry, Puducherry, India

Background and Aims: Maternal early pregnancy body mass index (BMI) and levels of different biomarkers strongly correlate with pregnancy outcomes. Altered concentrations of leptin, adiponectin, C-reactive protein, and interleukin-6 during the first trimester are found to be associated with maternal and foetal complications such as pre-eclampsia, gestational diabetes mellitus (GDM), pre-term birth, abnormal intrauterine growth, etc. They can anticipate some adverse pregnancy complications. The objective of the study is to determine the levels of leptin, adiponectin, C-reactive protein, and interleukin-6 and their association with body mass index in the first trimester among South Indian women.
Methods: The current study is part of an ongoing cohort study among pregnant women to determine gestational weight gain, postpartum weight retention, an altered cardiometabolic profile, and its associated factors. Pregnant women with uncomplicated singleton pregnancies (<12 weeks) were enrolled from selected urban and rural primary health centres in South India. The sample size for the study is 220. Data were collected on socio-demographic and clinical information and anthropometric measurements. Blood samples were collected to assess the lipid profile and levels of leptin, adiponectin, C-reactive protein, and interleukin-6. Data analysis was carried out in STATA version 14.
Results: The mean (SD) age of the study participants was 26 (3.8) years. Median (IQR) levels of leptin were found to be 28.7 (18.3–48.4) ng/ml, adiponectin was 7.3 (5.2-10.0) ug/ml, C-reactive protein was 0.6 (0.3–1.2) mg/dL, and interleukin-6 was 3.5 (1.9–6.5) pg/ml. The pre-pregnancy BMI was categorised based on the WHO BMI classification. In our study, 27.7% (n = 61) women were overweight (25-29.9 kg/m^2) and 10.9% (n = 24) were obese (≥30 kg/m^2). Serum leptin correlated positively with a higher maternal weight and body mass index. Median serum adiponectin levels were lower among women with overweight and obesity [6.4 (4.8-8.1) ug/ml]. Waist circumference was higher (≥88 cm) for 26% (n = 57), and 57% (n = 125) women had a waist-hip ratio of ≥0.85. The mean (SD) body fat was 29 (8.4%), and visceral fat was 7.1 (5.0%). In our study, 13.6% (n = 30) women showed hypertriglyceridemia, 25.5% (n = 56) showed hypercholesterolemia, 21.3% (n = 47) had increased LDL cholesterol, and 57.3% (n = 126) had low HDL cholesterol.
Conclusions: Pregnant women with lower adiponectin and higher leptin levels at the 1st trimester have higher levels of insulin resistance. It can act as an early marker for the development of GDM and other metabolic syndromes in later stages of pregnancy.

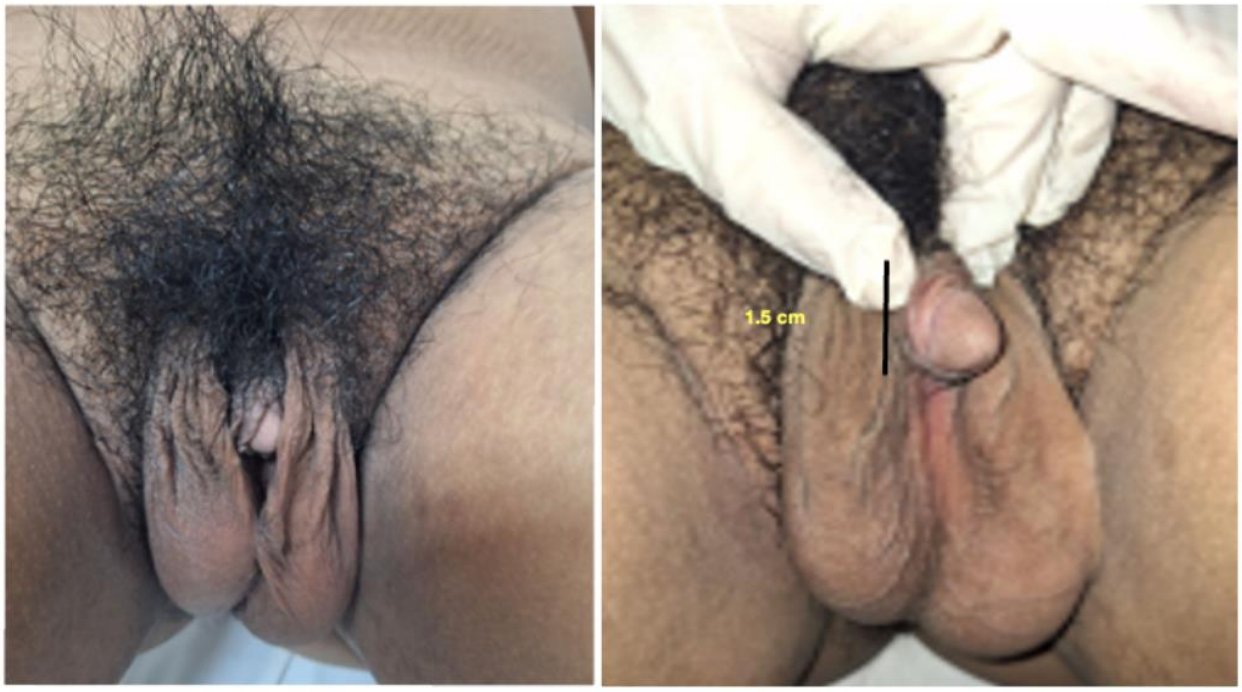
PV343 / #1251

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

PERSISTENT PUBERTAL GYNECOMASTIA IN A FILIPINO MALE

Catrine Jell Perez
University of the Philippines - Philipppine General Hospital, Division Of Endocrinology, Diabetes And Metabolism, Manila, Philippines

Background and Aims: Partial Androgen Insensitivity Syndrome (PAIS) is a rare genetic disorder with a wide range of symptoms due to partial androgen responsiveness. It occurs in one in 130,000 births and the prevalence among Asians, particularly Filipinos, are not yet known. Here, we present a case of a Filipino male with persistent pubertal gynecomastia as the first manifestation in PAIS with male phenotype. A 22-year-old Filipino male presented with gynecomastia at puberty, associated with some breast tenderness. Aside from this, he did not experience the typical development of secondary sexual characteristics, such as deepening of voice and growth of facial hair. Birth and childhood history was unremarkable. No other family members had gynecomastia. Relevant physical examination findings included the absence of facial hair, sparse axillary hair, Tanner stage 5 breasts, Tanner stage 4 pubic hair distribution, a micropenis measuring 1.5 cm, and descended testes.
Methods: The approach to diagnosis poses a challenge as males presenting with persistent pubertal gynecomastia involves an array of differentials. Karyotyping confirmed male sex with an XY genotype. Hormonal testing showed elevated estradiol and testosterone, normal LH, FSH, progesterone, diluted BHCG, TSH, and prolactin. Pelvic ultrasound showed presence of small prostate gland (5.21g) and scrotal ultrasound showed bilateral hydrocele. Genetic testing detected mutation in AR gene: c.2528T>C (p.Ile843Thr), which confirms
PAIS.



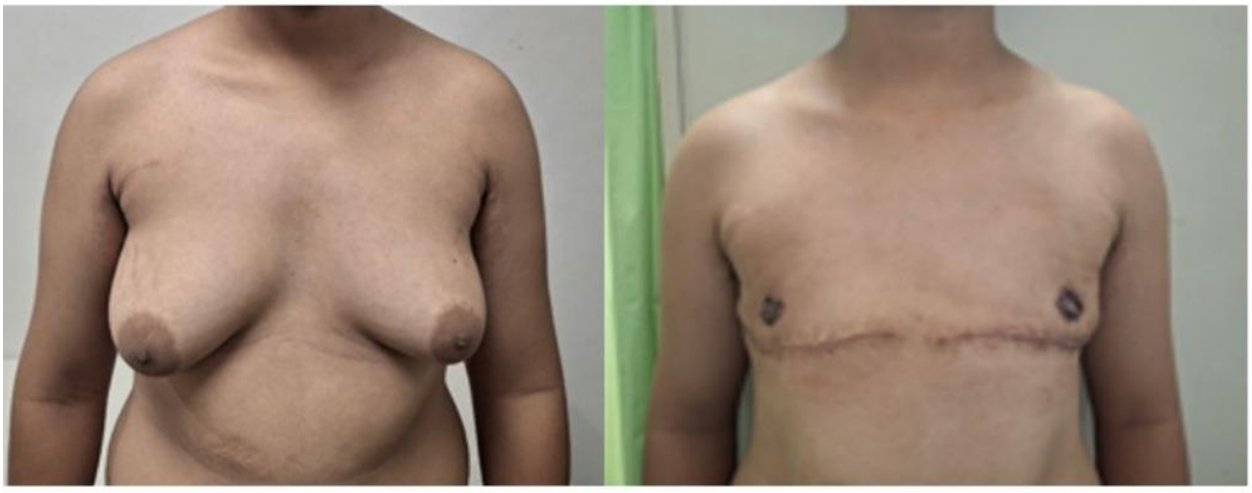


Table 1. Laboratory findings

Parameters	Values	Normal Values (male)
Estradiol (pg/ml)	40.42	0-39.8

FSH (mIU/ml)	2.67	0.96-11.96
LH (mIU/ml)	6.83	0.57-12.07
Progesterone (ng/ml)	0.2	<0.1-0.2
Testosterone (mol/l)	35.56	8.33-30.19
DHT (ng/ml)	0.23	0.33-1.20
Diluted bHCG (mIU/ml)	<1.2	<5.0
Prolactin (ng/ml)	8.56	3.46-19.40
TSH (uIU/ml)	1.5295	0.35-4.94

Results: The patient was referred to plastic surgery and he successfully underwent bilateral subcutaneous mastectomy with free nipple grafting. Psychiatric care was also rendered. He is on constant follow up with Endocrinology because he desires to undergo androgen therapy.

Conclusions: PAIS presents both diagnostic and therapeutic challenges, necessitating a multidisciplinary approach. It is important to note that persistent pubertal gynecomastia caused by PAIS does not typically resolve with hormonal therapy alone, highlighting the importance of surgical management as an option.

PV344 / #443

E-Poster Viewing
E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

MANAGING A PREGNANCY IN A MEN-1 PATIENT

Fareeha Rizvi
Barts health NHS Trust, Endocrinology And Diabetes, london, United Kingdom

Background and Aims: We present the case of a 30year old female, with a diagnosis of MEN 1, as we managed her first pregnancy. This is an unsual case, with only 1-2 similar published cases in the literature. We wish to share our treatment protocol at the time of writing this abstract, the patient is 28 weeks pregnant- will share the final findings (further bloods, scan results etc) on the poster Patient background: MEN-1
-Gastrin secreting tumour of pancreas
Stable small lesion on annual pancreas survelliance.
Stable elevated gastrin - Hyperparathyroidism
3.5 gland parathyroidectomy in 2017.
Bordeline Ca 2.65 since 2017
Ca 2.9 with emesis in early pregnancy, latest 2.71 (June 2023)
PTH 5.5. -Pituitary microadenoma detected 2023: 3-4mm
No pre-pregnancy pituitary profile
Frequent headache: pressure over right eye, predates pregnancy. Labelled as fibromyalgia in past.
No visual symptoms
No galactorrhoea Hypertension - not currently treated
Methods: clinical monitoring with review of results
Results: will add results of blood tests, growth scan, Uterine artery dopplers and OGTT to the posters, including trend of Calcium which was a real challenge during pregnancy
Conclusions: We present the management of a complex case, managed under a multidisciplinary team of specialists

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PV345 / #956

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E-POSTER VIEWING: AS10. REPRODUCTIVE HEALTH
01-03-2024 07:00 - 18:00

IMPROVING THE MANAGEMENT OF DIABETIC EMERGENCIES ON A BUSY MATERNITY UNIT THROUGH STRUCTURED EDUCATION

Fareeha Rizvi
Barts health NHS Trust, Endocrinology And Diabetes, london, United Kingdom

Background and Aims: Under the guidance of a Diabetologist (Dr Fareeha Rizvi) and an Obstetrician, we developed a novel, interactive training programme for Junior doctors, Senior doctors, medical students, Midwives and student midwives related to the management of Diabetic emergencies in pregnancy (in both type 1 and type 1 Diabetic Mothers). These Diabetic emergencies scenarios included - The management of Diabetic Ketoacidosis in pregnancy (use of Fixed rate insulin infusions) -The acute management of Hypoglycaemia -The management of hyperglycaemia in pregnancy
Methods: For each emergency, we developed a structured, written scenario and script, acted out by Education fellows, These were were presented to staff as an interactive session, with practical demonstrations of how to correctly check blood ketones, administer the correct fluids (varying doses of dextrose concentration), glucagon etc. We encouraged staff to follow a comprehensive clinical assessement of the patient with prompting of each step if needed.
Results: Prior to the developement of this project, all staff at the start of their shift, were approached, to see if they could join some Ad-Hoc teaching sessions, which led to poor uptake and engagement due to clinical pressures/commitments. With knowledge of this, we developed interactive, reproducible educational content to train all members of the MDT. At the Time of writing this abstract, this project is in the first stages of developement, we will have the final content available in the next few days, for presentation at the conference
Conclusions: Prior to the developement of this project, all staff at the start of their shift, were approached, to see if they could join some Ad-Hoc teaching sessions, which led to poor uptake and engagement due to clinical pressures/commitments.We were able to use clinicians time much more effectively, with teaching they had experienced once and could then access as many times again as needed. This is completely different to the previous set up

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MANAGEMENT OF SEVERE HYPERTRIGLYCERIDAEMIA IN PREGNANCY: REPORT OF TWO CASES

Anabelle Siyan Seah[1], Ying Jie Chee[2], Yun Qing Koh[2], Kevin Kwek[2], Serene Pei Ting Thain[3], Timothy Peng Lim Quek[2], Seng Kiong Tan[4], Ray Tian Rui Lai[2]
[1]National Healthcare Group, Internal Medicine, Singapore, Singapore, [2]Tan Tock Seng Hospital, Endocrinology, Singapore, Singapore, [3]Kandang Kerbau Women's and Children's Hospital, Gynaecology And Obstetrics, Singapore, Singapore, [4]Khoo Teck Puat Hospital, Endocrinology, Singapore, Singapore

Background and Aims: Severe hypertriglyceridaemia in pregnancy is associated with significant morbidity and mortality. The management is complex as there are implications for both maternal and foetal outcomes. We present here the cases of two sisters who developed severe hypertriglyceridaemia during their pregnancies. We discuss their pharmacotherapeutic management up to the time of delivery, and review the available literature on the management of hypertriglyceridaemia in pregnancy.
Methods: The first patient was 30 years old at presentation, and had known hypertriglyceridaemia complicated by two previous episodes of acute pancreatitis in pregnancy. She was admitted with a triglyceride level of more than 60 mmol/L (5314 mg/dL) at 25 weeks' gestation. She was fasted and received omega-3 fish oil, niacin and gemfibrozil. However, this failed to control her triglyceride levels and she was started on an intravenous insulin infusion.
The second patient was 35 years old at presentation, with a background of four prior episodes of hypertriglyceridaemia-induced pancreatitis and obesity. She was admitted with a triglyceride level of more than 60 mmol/L (5314 mg/dL) at 33 weeks' gestation of a dichorionic diamniotic twin pregnancy. She received omega-3 fish oil and gemfibrozil, and was fasted and treated with an intravenous insulin infusion.
Both patients received intramuscular dexamethasone for foetal lung maturation.
Results: In the first patient, use of intravenous insulin resulted in improvement of triglyceride levels to 34 mmol/L (3011 mg/dL). She underwent a Caesarean section at 31 weeks' gestation. The baby developed respiratory distress syndrome post-delivery, necessitating intubation.
The second patient underwent Caesarean section at 34 weeks' gestation, and delivered two healthy babies uneventfully.
Neither patient developed pancreatitis.
Conclusions: These cases demonstrate the safe and effective employment of intravenous insulin infusion as a treatment modality for severe hypertriglyceridaemia in pregnancy. Hypoglycaemia was avoided with the use of high-volume dextrose-containing fluids, and the use of dexamethasone for foetal lung maturation (which might worsen hypertriglyceridaemia) was not precluded in either case. The latter is especially relevant, as patients with hypertriglyceridaemia are at increased risk of preterm delivery.
Our report adds to the body of evidence which suggests that gemfibrozil may be used safely for the treatment of pregnancy-induced hypertriglyceridaemia.
Existing evidence for the optimal timing of delivery for these patients is limited and can be explored in future studies.

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GALACTOGOGUES FOR PROMOTING BREAST MILK SECRETION: A NETWORK META-ANALYSIS.

Kannan Sridharan[1], Gowri Sivaramakrishnan[2]
[1]Arabian Gulf University, Pharmacology And Therapeutics, Manama, Bahrain, [2]Ministry of Health, Oral Health, Manama, Bahrain

Background and Aims: A plethora of allopathic and complementary and alternative medicines were explored for enhancing the breast milk production. We carried out a network meta-analysis comparing these interventions.
Methods: Randomized clinical trials evaluating the effect of any drug (or other interventions) on breast milk volume, serum prolactin concentrations, and adverse events were included. Random effects model was used. Cohen's d and odds ratio (OR) with 95% confidence intervals (95% CI) were the mixed treatment comparison pooled effect estimates for continuous variables (breast milk volume and serum prolactin levels), and adverse events, respectively.
Results: Fifty-eight studies (4468 patients) were included. Domperidone (d: 0.95, 95% CI: 0.01, 1.9), banana flower (d: 0.9, 95% CI: 0.08, 1.1), Bu Xue Sheng Ru (d: 7, 95% CI: 4.2, 9.3), Chanbao liquid (d: 6.7, 95% CI: 4.2, 9.3), Cui Ru soup (d: 2.1, 95% CI: 1.6, 2.6), Femaltiker formula (d: 4.3, 95% CI: 3.5, 5.1), fenugreek (d: 0.7, 95% CI: 0.2, 1.3), fenugreek+ginger+turmeric (d: 2, 95% CI: 1.3, 2.6), ginger (d: 0.8, 95% CI: 0.3, 1.4), oxytocin (d: 6, 95% CI: 2.4, 9.8), palm dates(d: 1.8, 95% CI: 1.2, 2.4), Sheng Ru He Ji (d: 2.2, 95% CI: 1.9, 2.6), thyrotrophin releasing hormone (d: 1.3, 95% CI: 0.3, 2.3), torbagun (d: 1, 95% CI: 0.13, 1.9), and Xian tong Ru (d: 1.4, 95% CI: 0.9, 1.8) were observed with significantly greater breast milk volume. Metoclopramide (d: 0.86, 95% CI: 0.36, 1.36), domperidone (d: 1.21, 95% CI: 0.42, 1.99), thyrotrophin releasing hormone (d: 1.9, 95% CI: 0.8, 3), sulpiride (d: 2.45, 95% CI: 1.47, 3.43), recombinant human prolactin (d: 2.8, 95% CI: 0.51, 5.09), laser+domperidone (d: 2.8, 95% CI: 1.35, 4.26), and electroacupuncture+domperidone (d: 4.4, 95% CI: 2.84, 5.96) were observed with significantly greater serum prolactin levels. Sub-group analyses in mothers with lactation deficiency and those nursing preterm neonates were also carried out. Either low or very low strength of evidence was observed.
Conclusions: We observed significant therapeutic effects with various drugs/interventions in terms of increased breast milk volume and serum prolactin concentrations. However, caution is required in interpreting the current evidence as the estimates are likely to change with the future studies.

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ADDING TESTOSTERONE TO "CLASSIC" MENOPAUSAL HORMONE THERAPY IMPROVES NOCTURIA, MUSCLE MASS AND SEXUAL FUNCTION

Yuliya Tishova[1], George Mskhalaya[2]
[1]K-Medicine, Endocrinology, Moscow, Russian Federation, [2]European Medical Center, Preventive Medicine, Moscow, Russian Federation

Background and Aims: Menopause is accompanied with variety of symptoms affecting general quality of life. Menopausal hormone therapy (MHT) with estrogen and progesterone improves most of climacteric symptoms but certain problems tend to remain unresolved. There are data that decreased libido, nocturia and loss of muscle mass could be the symptoms of age-related testosterone deficiency in women. In our pilot case-control study we aimed to assess the effects of adding testosterone preparations to "classic" regimens of MHT.
Methods: 47 women aged 56 years [52;58] taking "classic" MHT (estradiol gel or tablets 1-2 mg/day + micronized progesterone 100-200 mg per day or didrogesterone tablets 5-10 mg per day) for a period at least 1 year (mean 14 months [12; 16]) and complaining for low libido and who had at least 1 symptom of nocturia were divided into 2 groups: group 1 (n= 27) signed an inform consent to use testosterone transdermal gel 50 mg 1% 1/5 sachet (10 mg) per day). Group 2 (n= 20) formed a control group. Muscle mass was assessed with body composition analysis, nocturia was assessed by quantity of self -reported episodes per night and sexual function was assessed subjectively during survey at visit. The duration of testosterone therapy was 12 month [9;16]. No adverse events were registered during this period.
Results: In group 1 was noticed a muscle mass gain - muscle mass changed from 21.8 [19.6; 24,2] kg to 23.1 [21,1; 24,8] kg ($p<0.001$), quantity of nocturia episodes lowered from 2 [1;3] to 0 [0;2] ($p<0.001$), and 70% (n=19) of women reported normalization of libido. There were no significant changes in the control group.
Conclusions: Adding testosterone to "classic" menopausal hormone therapy may represent an option for women suffering from nocturia and decreased libido. Testosterone therapy in menopause may represent an anabolic option to fight age-related sarcopenia. Further large studies are needed to support administration of testosterone in menopausal women and to widen the indications for testosterone preparations.

PV349 / #1980

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A GIRL WITH HYPOGONADOTROPHIC HYPOGONADISM 3 IN COMBINATION WITH A DEFECT IN SMELL SENSATION AND DEAFNESS DUE TO PROKR2 MUTATION.

Elena Pisareva, Nataliya Volevodz
Endocrinology Research Centre, Moscow, Russian Federation

Background and Aims: Hypogonadotrophic hypogonadism is a heterogeneous group of diseases caused by mutation in different genes. Some mutations in PROKR2 gene have been shown in girl with hyposmic or normosmic variant of hypogonadotrophic hypogonadism.
Methods: A 17 years 11 months girl was referred in our center with complains of absent menses. She was born at 39 week of gestation with a normal birth length (51 cm, SDS +0,91) and overweight (4190 g, SDS +1,96). Partial optic atrophy was identified in infancy. Deafness was diagnosed at 3 years. Brain MRI showed no pathological changes. Cochlear implants were installed at the age of 15. Karyotype 46, XX. On physical examination in our clinic: height 154,5 cm (SDS = -1,26), weight 51,7 kg, BMI 21,66 kg/m2 (SDS = 0,22). Tanner stage: B1, P3, Me abs. Dismorfic features. Family history of normal pubertal development. Bone age was 13 years. She had olfactory complaints. We found low level gonadotropin hormones (LH 0,04, FSH 0,19) and estradiol. Thyroid hormone and prolactine was normal. GnRH test showed no response of LH. Pelvic ultrasound examination revealed uterus hypoplasia (27*10*13 mm). Estrogen administration was initiated at low doses in order to start puberty. Due to the presence hypogonadotrophic hypogonadism, olfactory complaints and deafness, genetic form was suspected.
Results: The molecular genetic study of the PROKR2 gene was carried out and revealed a heterozygous pathogenic variant c.254G>A (p. Arg85His) exon 2, which has been described in literature before.
Conclusions: The present case represents a patient with hypogonadotrophic hypogonadism 3 in combination with a defect in smell sensation and deafness due to PROKR2 mutation.

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EFFECTIVENESS OF FACE-TO-FACE PHYSIOTHERAPY TRAINING AND EDUCATION FOR WOMEN WHO ARE UNDERGOING ELECTIVE CAESAREAN SECTION: A RANDOMIZED CONTROLLED TRIAL

Kalani Weerasinghe[1], Mohamed Rishard[2], Subhani Brabaharan[2]
[1]The Faculty of Medicine, University of Colombo, No. 25, Kynsey Road, Colombo 8, Sri Lanka., Health And Wellness Unit, Colombo, Sri Lanka, [2]The Faculty of Medicine, University of Colombo, No. 25, Kynsey Road, Colombo 8, Sri Lanka., Department Of Obstetrics And Gynecology, Colombo, Sri Lanka

Background and Aims: Caesarean Section (CS) is associated with numerous post-operative problems. The current literature reveals that physiotherapy interventions such as pelvic floor rehabilitation and post-surgical rehabilitation enable enhanced recovery in the post-operative period. The purpose of this study was to investigate the effectiveness of face-to-face physiotherapy training and education prior to elective CS in improving post-operative outcomes.
Methods: A single blind parallel randomized controlled study was carried out at De Soysa Hospital for Women (DSHW), Colombo. Fifty-four women who were to undergo elective CS were recruited to the study. The women in the intervention group (n=27) received face-to-face physiotherapy training and education; the control group (n=27) received only the standard nursing care. Outcome measures such as perception of post-operative pain, dosage of additional analgesics required, pain upon returning to functional activities and length of hospital stay were collected. Results were analyzed using IBM SPSS 20 using descriptive statistics and independent samples t-test.
Results: Mean post-operative pain score (Control group;6.22±1.12 vs. Intervention group;1.73±0.99) and doses of additional analgesics required were significantly higher in the control group than that of the intervention group. Pain upon returning to functional activities decreased significantly within 2 days in both groups, and values were lower in the intervention group. The intervention group showed a shorter hospital stay than the control group (Control group;3.89±0.32 vs. Intervention group;3.00±0.00) ($p < 0.05$).
Conclusions: Face-to-face physiotherapy training and education prior to elective CS appears to be a promising intervention to improve the post-operative outcomes by reducing post-operative pain, doses of additional analgesics required, pain upon returning to functional activities and lengths of hospital stay.
Trial Registration: SLCTR/2019/029-APPL/2019/028; Registered on 6th of September 2019

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GLYCEMIC CONTROL IN PATIENTS WITH TYPE 1 DIABETES: COMPARISON OF HOLIDAYS VERSUS SCHOOLDAYS

Mohammed Al Dawish[1,2]
[1]Prince Sultan Military Medical City, Riyadh, Saudi Arabia, [2]Prince Sultan Military Medical City, Diabetes, Riyadh, Saudi Arabia

Background and Aims: To critically examine the influence exerted by school life in children and adolescents with type 1 diabetes (T1D) through a comparison of the glycemic control and Ambulatory Glucose Profile (AGP) between the holidays and schooldays.
Methods: This is a retrospective study conducted on 147 patients with T1D (14-19 years) who used an intermittently scanned Continuous Glucose Monitoring (isCGM) system to self-test their glucose levels during the periods of school time and holiday time. A record was maintained of the Continuous Glucose Monitoring (CGM) metrics i.e., Glucose Variability (GV) (%), mean Time in Range (TIR), Time above Range (TAR), Time below Range (TBR), and average time period of the hypoglycemic events during schooldays and the holidays.
Results: The study revealed crucial differences between the recorded values during the holidays and schooldays, in % in target 70-180 mg/dL (38.2 vs 49.5; p = 0.039), mean glucose (194 vs 185; p = 0.048), frequency of low glucose events (9.2 vs 5.1; p = 0.036), mean duration of low glucose levels (117 vs 65; p = 0.021), % below 70 mg/dL (2.9 vs 1.45; p = 0.023), % below 54 mg/dL (1.1 vs 0.51; p = 0.031), TAR 181-250 mg/dL (21.1 vs 16.5; p = 0.037) and TAR >250 mg/dL (8.9 vs 6.5; p=0.043). On comparing the HbA1c levels of the study population recorded during the holidays (8.34%) with those recorded during the schooldays (8.13%), the HbA1c values during the school days were observed to be lower; however, no significant changes were noted in the HbA1c level between the holidays and schooldays. With respect to the FreeStyle Libre (FSL) scanning, the frequency during the holidays (n=6.2) was significantly lower than during the schooldays (n=9.5) (p=0.042).
Conclusions: From the findings, it appears that children with T1D have good diabetes control during schooldays rather than during the holidays. In order to improve their glucose control during the holidays, these patients may also benefit from receiving greater attention and guidance.

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INTERMITTENTLY SCANNED CONTINUOUS GLUCOSE MONITORING USE IN A REAL-WORLD IN PATIENTS WITH TYPE 1 DIABETES POPULATION: THE SAUDI ARABIAN EXPERIENCE

Mohammed Al Dawish
Prince Sultan Military Medical City, Riyadh, Saudi Arabia

Background and Aims: To investigate the glycemic control as assessed by Ambulatory Glucose Profile (AGP) metrics while patients with type 1 diabetes (T1D) worn Flash Glucose Monitoring (FGM) system for one-year.
Methods: This prospective study was performed among 187 patients with T1D (13-40 yrs) who switched from conventional finger pricking to FGM system. Mean glucose level, low glucose events hemoglobin A1c (HbA1c), sensor scans frequency were collected at baseline, 3, 6, 9 and 12 months. CGM metrics i.e., glucose variability (GV) (%), glucose management indicator (GMI), mean time in range (TIR), time above range (TAR) time below range (TBR), average duration of hypoglycemic events, and time sensor in active were collected at 3 months, 6 months and 12 months.
Results: Compared to 3 months values, no significant changes ($p > 0.05$) were noticeable in terms of the GV, GMI, % in target (70-180 mg/dL), TAR (181-250 mg/dL) and %>250 mg/dL at 6 and 12 months. However, a significant differences were observed on mean glucose level at 3 ($p = 0.027$), 9 ($p = 0.041$) and 12 months ($p = 0.32$) compared to baseline. When compared to 3 months value, no significant change ($p > 0.05$) noticeable in terms of the mean glucose at 6, 9 and 12 months. Compared to the baseline values, a significant changes were noticeable in terms of the low glucose events at 3 months ($p = 0.028$), 6 months ($p = 0.048$), 9 months ($p = 0.022$) and 12 months ($p = 0.038$). However, no significant changes were observed on percentage below 70 mg/dL (except 12 months $p = 0.046$), the average duration of the hypoglycemic events and percentage of glucose level below 54 mg/dL. Baseline glucose monitoring frequency through BGM was 2.7/day; however, after the patients employed the FSL, a higher degree of frequency of glucose monitoring was evident at 3 months (8.9/day; $p < 0.0001$), 6 months (7.3/day, $p < 0.0001$), 9 months (7.1/day, $p < 0.0001$) and 12 months (7/day, $p < 0.0001$). Similarly, HbA1c showed a significant decline at 3 ($p = 0.044$), 6 ($p = 0.039$), 9 ($p = 0.031$) and 12 months ($p = 0.047$) compared to the baseline values.
Conclusions: Switching from conventional finger pricking to FGM system improved markers of glycemic control to a substantial degree, and the effect was sustained for up to 1 year.

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EFFECT OF USING THE MYSUGR® APP IN GLYCEMIC CONTROL FOR T2D PATIENTS - A REAL-WORLD ANALYSIS FROM EGYPT

Duaa Alashqar[1,2], Heather Mikulski[3], Caterina Pesenti[1], Bernhard Ruch[4]
[1]Roche Diabetes Care, Medical Affairs, Dubai, United Arab Emirates, [2]Roche Diabetes Care, Medical Affairs, UAE, United Arab Emirates, [3]Roche Diabetes Care, Market Access, Spain SL, Spain, [4]mySugr GmbH, Data Analysist, Vienna, Austria

Background and Aims: Objectives: To describe the use of the mySugr mobile application by people with Type 2 Diabetes (T2D) and the impact on their glycemic control based on estimated HbA1c (eHbA1c).
Methods: Retrospective analysis of mySugr users with a self-reported diagnosis of T2D in Egypt who had at least two blood glucose logs a day on 14 days (Class G2D14) of each month. Class G2D14 is the lowest testing adherence needed to calculate eHbA1c. Users were selected based on consistent testing over three months and six months with a logging class of G2D14 or more.
Results: Data was captured from active users of the mySugr application from 2018 to 2023 and accounted for 16,486 users, of which 36% had Type 2 Diabetes. The monthly user base for these users in 2023 was 1,093 people. The average change in glycemia was associated with self-monitoring of blood glucose (SMBG), which was documented in the mySugr application. People with Type 2 Diabetes who met the inclusion criteria were included in the analysis (n=152). The average eHbA1c at baseline was 6.9 % and after three months had decreased to 6.6%, representing a decrease of 0.3% ($p < 0.05$). Users in the six month cohort (n=60) demonstrated a similar and sustainable reduction in eHbA1c. The average eHbA1c at baseline was 6.5% and after six months had decreased to 6.3%, representing a decrease of 0.2% ($p<0.05$).
Conclusions: Conclusion: In a real-world setting, the use of the mySugr app was associated with a clinically relevant and statistically significant reduction in eHbA1c in the three and six month cohorts of seemingly well-controlled T2D users. Given the correlation between glycemic control and the development of complications, the use of the mySugr app in combination with regular blood glucose testing could potentially help people with diabetes to achieve better glycemic control, reduce the incidence of complications and improve their quality of life.

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E-Poster Viewing
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EVALUATION OF CLINICAL ACCURACY OF A MOBILE INSULIN TITRATION ALGORITHM FOR TURKEY'S DIABETIC POPULATION

Selahattin Çolakoğlu, Zeynep Pelin Polat, Aslı Yıldız
Albert Health, Istanbul, Turkey

Background and Aims: The management of diabetes involves adjusting insulin doses to achieve optimal glucose control, which can be challenging for both patients and doctors. The role of mobile technology in diabetes management is increasing. However, there is insufficient data regarding the effectiveness and reliability of an algorithm that is compatible with clinical practice and guidelines representing the specific diabetic population in Turkey. This study aims to evaluate how well a mobile basal insulin titration algorithm (Albert Rx) aligns with guidelines and clinicians' recommendations for diabetic patient populations in Turkey.
Methods: For the validation study, 105 different simulation-based diabetic patient profiles were created based on the TEMD (Turkish Endocrinology and Metabolism Association) guidelines. These profiles were designed to reflect realistic and comprehensive scenarios representing the diabetic population in Turkey. Glucose target ranges for simulated patients were set at 80-130 mg/dL, 100-150 mg/dL, and 150-180 mg/dL. Glucose inputs were made with values ranging from 30 to 1000 mg/dL, varying between 1 and 6 days. Values outside of this range were considered extreme. An internal medicine specialist determined the ideal insulin dose for each simulated patient data. Patient data were entered into the mobile algorithm, and a dose recommendation was obtained. The insulin doses recommended by the algorithm were compared by a software validation expert with the doses determined by the internal medicine specialist and with the recommendations of the ADA (American Diabetes Association) diabetes guideline.
Results: The study team generated 103 simulated patient scenarios. For all 103 simulated patient data, the insulin doses recommended by the mobile algorithm were found to be in complete alignment with the doses determined by the internal medicine specialist. The results recommended by the algorithm showed similarity when compared with the ADA guideline recommendations. Specifically, for glucose values below 30 and above 1000, the algorithm provided appropriate clinical warnings, such as suggesting re-measurement of glucose and urgent treatment for values below 70.
Conclusions: The study demonstrates that the mobile basal insulin titration algorithm is consistent with the recommendations of internal medicine specialists and diabetes guidelines. The algorithm can be considered as a reliable and effective tool for different blood sugar target ranges. However, clinical trials are needed to evaluate its usability, effectiveness, and safety with actual patient populations.

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DEVELOPMENT OF A PATIENT-CENTRIC MACHINE LEARNING MODEL FOR DIABETES RISK PREDICTION

Mustafa Durmuş, Zeynep Pelin Polat, Aslı Yıldız, Rabia Eda Yılmaz, Selahattin Çolakoğlu
Albert Health Ltd, Istanbul, Turkey

Background and Aims: Detecting the risk of diabetes is of vital importance for both diagnosing the disease and preventing it. Despite the numerous calculation methods and scientific studies, a significant portion of these studies rely on laboratory tests and yet demonstrate low sensitivity or specificity. We aimed to develop a machine learning model for diabetes risk prediction, considering demographic, clinical, and lifestyle variables that are gathered solely by patients.
Methods: An open-source dataset is employed with features of age, gender, hypertension, heart disease, BMI, smoking history, glucose level, and A1C. The preprocessing phase involved filtering for age (>18), and BMI (14-50), excluding entries with unknown gender, dropping null values, and excluding the A1c column. Traditional models (KNN, Decision Tree, Random Forest, Gradient Boosting, XGBoost, and Logistic Regression) were employed. SMOTE, a widely utilized oversampling technique, was employed to address the imbalance in the representation of the diabetic class by generating synthetic data. Evaluation utilized cross-validation, assessing accuracy, F1-score, precision, and recall.
Results: Correlation analysis revealed notable associations: glucose level (44%), age (28%), BMI (22%), hypertension (19%), heart disease (17%), smoking history (9%), and gender (4%). The XGBoost model outperformed, achieving a Cross Validation score of 0.94. The model achieved strong performance across both diabetic (class 1) and non-diabetic (class 0) categories, with F1 scores of 0.90 and 0.95, precision of 0.95 and 0.93, recall of 0.85 and 0.98, respectively. Excluding the glucose level feature maintained robust performance with a Cross-Validation score of 0.86. The F1 score, precision, and recall values for class 1 dropped to 0.77, while they slightly decreased for class 0.
Conclusions: This study demonstrates the efficacy of machine learning in diabetes risk prediction. By developing a model capable of accurate assessments even without direct glucose-level measurements, we offer a valuable tool for early intervention and improved healthcare outcomes. This approach holds promise for enhancing diabetes prevention strategies and ultimately improving the quality of patient care. To confirm the model's real-world applicability and effectiveness, further evaluation with real-life patient data and outcomes is necessary.

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POST MARKET ASSESSEMENT OF ANALYTIC ACCURACY OF A BLOOD GLUCOSE MONITORING SYSTEM ACCORDING TO ISO 15197 :2013, EXPERIENCE IN CLINICAL SETTING

Kamel Gasmi[1], Said Gari[1], Samir Aouiche[2], Houssem Baghous[3], Said Azzoug[4]
[1]Vital care SPA, Medical Affairs, algiers, Algeria, [2]Diabetology, Endocrinology-Diabetology Department CHU Mustapha pacha, Faculty of Medicine Algiers 1, Algiers, Algeria, algiers, Algeria, Diabetology, Algiers, Algeria, [3]Diabetology, Diabetology, Endocrinology-Diabetology Department CHU Mustapha pacha, Faculty of Medicine Algiers 1, Algiers, Algeria, algiers, Algeria, Algiers, Algeria, Diabetology, algiers, Algeria, [4]Endocrinology-Diabetology Department CHU Mustapha pacha, Faculty of Medicine Algiers 1, Algiers, Algeria, Diabetology, algiers, Algeria

Background and Aims: Capillary blood glucose monitoring is essential component for effective self-management of diabetic patients. Mathematical models' studies highlighted the impact of inaccurate blood glucose monitoring systems (BGMs) on glucose control, severe hypoglycemia rates, insulin errors dosage and calibration of some Continuous Glucose Monitoring systems (CGMs). Patients need a reliable and accurate tool to achieve safe glucose control. Our primary objective was an independent clinical assessment according to ISO15197:2013 criteria and procedures, of the analytical accuracy of SBGMs whose glucose test strips are manufactured locally.
Methods: This is a mono-centric, prospective, non-interventional open-label, analytical comparison study of capillary blood glucose measurements by BGMs and those obtained by reference method with the YSI -2500 analyzer, conducted between November 2022 and December 2022 at the diabetology department of Algiers university hospital. 1080 blood glucose tests carried out, from 180 patients and duplicate tests performed on three different lots of test strips. We used the software available in Diabetes science and technology site to determine the surveillance error grid (SEG) and analyzed different graphical presentation of BGMs accuracy data.
Results: The BGMS showed an overall analytic accuracy with 98,7% of the values meeting ISO standard. Passing-Bablok regression revealed a range of constant differences between the system and the reference method (+ 6.9 mg/dL to +8.63 mg/dL). The proportional mean difference was 9% (slope ranges: 0.92 to 0.93). Correlation was found between BGMs values and the YSI 2500 analyzer (R^2 = 0.98). Calculated bias was 0.7%, 03% and -0.1% for batches A, B, and C, respectively. The overall bias or systematic error was 0.3%. The random error was 5.5%, reflecting intra-batch and inter-batch variability. The modified Bland-Altman plot showed 1,3% outliers. Results within zones A & B of the PARKES grid were 100%. SEG revealed 96.3% in the non-risk category and 3.7% in the slight lower risk. The radar plot shows overestimation on low glycemic range (< 80 mg/dl) and underestimation in high glycemic range (> 200 mg/dl). Rectangle plots was useful for estimating lot-to-lot variability
Conclusions: The analytic accuracy was demonstrated despite the slight lot-lot variability. Error and systematic bias impact BGMs accuracy and drive clinical outcomes. Variations between different BGMS and the lot-to-lot variability can impede the strict glycaemic goals. Patients and health care professionals should be conscious of the extent and presence of these differences. The choice of SBGMS must be individualized based on the need of diabetic patients to optimize daily self management .

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01-03-2024 07:00 - 18:00

"TIME IN RANGE" IN BLOOD SUGAR MONITORING- A BIBLIOMETRIC ANALYSIS AND FUZZY AHP APPROACH

Vinaytosh Mishra, Mahir Jallo, Mohan Tanniru, Jayadevan Sreedharan
Gulf Medical University,UAE, Ajman, United Arab Emirates

Background and Aims: Time in Range (TIR) is more than just a metric; it represents a paradigm shift in diabetes management. By focusing on the broader landscape of glucose control, TIR prioritizes overall well-being, daily experiences, and long-term health. As technology and understanding evolve, patients and healthcare professionals must harness the power of this metric, optimizing diabetes care for the future.
Methods: This study uses bibliometric analysis to analyze the rising interest in TIR in diabetes management. The study uses metanalysis to analyze the advantage of TIR over HbA1c. The study utilizes open-source tools such as VOSviewer for Bibliometrix for bibliometric analysis. At the same time, it uses a narrative review of extant literature to analyze the advantage of TIR over the prevailing method of monitoring glycemic control. The study then uses Fuzzy -Analytical Hierarchy Approach to prioritize the challenges to implementing TIR in clinical practice. The focus group used for decision-making included fifteen experienced professionals working in diabetes speciality clinics in India with experience using continuous glucose monitoring (CGM) in their clinical settings.
Results: The results of the study suggest that there is rising interest in TIR among the researchers. The narrative review of the results suggests that the major advantages of TIR are a Holistic View of Blood Sugar, Enhanced Personalization, Immediate Feedback, Improved Quality of Life, Reduced Risk of Complication, and Patient Empowerment. The challenges identified in the study are the Cost of Device, Accuracy Concern, Data Overwhelm, Physical Discomfort, Mental and Emotional Strain, and Education Gap. The study finds that the Cost of the Device is the most important concern in adopting CGM and using TIR in clinical settings. Contrary to belief, Accuracy concern was the least important challenge.
Conclusions: Time in the range has significant advantages over traditional approaches of glucose monitoring, such as HBA1c. The study highlights its importance in diabetes management. The study further analyses the challenges associated with adopting TIR in clinical settings, thus providing a framework for using TIR in diabetes management. The study findings are useful for practitioners and policymakers in diabetes management.

PV358 / #1012

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A NEXT-GENERATION INTEGRATED CONTINUOUS DIABETES MONITORING SYSTEM

Muhammad Mujeeb-U-Rahman, Mehmet Sencan, Abdullah Muhammad Ashfaq Nadir, John Heithaus
Integrated Medical Sensors Inc., Engineering, Irvine, United States of America

Background and Aims: Diabetes management has traditionally been done by using glucose monitoring. However, as the field is progressing, the value of multi-analyte monitoring has been highlighted by different researchers. Electrochemical sensing platforms dominate the current diabetes monitoring market. These devices use analog sensors that utilize the control and processing electronics outside the sensing site (tissue). This makes multiplexing signals from different sensors into a single data stream difficult. We report a semiconductor-based electrochemical sensing platform that uses on-chip electronics to multiplex data from multiple on-chip sensing electrodes. This enables the platform to monitor multiple analytes using a single flexible sensor. The sensor can measure the analyte concentration in the interstitial fluid and report it to a skin-worn transmitter, which sends the data to a smartphone reader. This study aimed to test the platform's ability to measure glucose and lactate or glucose and ketones in vitro. This would demonstrate that the system can sense multiple analytes using a single sensing platform. This will eliminate the need for the user to wear multiple sensors to monitor metabolites.
Methods: The sensing platform uses a semiconductor chip with multiple on-chip working electrodes to sense the different analytes. The corresponding working electrodes are coated with the suitable enzyme (e.g., Glucose Oxidase and Lactate Oxidase). The sensors are tested in different concentrations of one analyte without changing the other. The current from both working electrodes is read, digitized, and sent to the external transmitter by the on-chip electronics. The transmitter sends it to the reader for display and further data processing.
Results: The results indicate that the sensors show excellent sensitivity and practically negligible interference. The sensors are able to read both analytes in their physiological concentrations.
Conclusions: These results demonstrate the feasibility of monitoring multiple metabolites (e.g., glucose and lactate, glucose and ketones) using an integrated sensor array on a single semiconductor device. The next step is to perform these studies in vivo.

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EMPOWERING DIABETES SELF-MANAGEMENT THROUGH CONSISTENT MOBILE APP USAGE: A RETROSPECTIVE DATA ANALYSIS ON FASTING GLUCOSE LEVEL IMPROVEMENT

Zeynep Pelin Polat, Aslı Yıldız, Selahattin Çolakoğlu
Albert Health, Istanbul, Turkey

Background and Aims: The number and usability of mobile applications designed specifically for diabetes management have been increasing recently. The Albert Diabetes Program aims to empower patients in managing their diabetes by encouraging them to measure and record their blood glucose levels, providing valuable insights. This retrospective study analyzes the changes in fasting blood glucose levels (FBG) in patients who use the Albert Health mobile application to measure their blood sugar levels.
Methods: In this retrospective study, FBG recording data extracted from patients using the Albert Health App was analyzed. Users who had monitored their FBG levels for more than 30 days and had recorded a minimum of 4 measurements were identified as engaged patients in glucose measurement. As a result, a total of 92 engaged users were included. Users were divided into two groups: those recording levels 30 times or more (n=39), and those recording levels less than 30 times (n=53). 30 times or more measurements were accepted as the indicator of regular blood glucose measurement. Improvement in FBG levels between the groups was assessed for statistical significance using the chi-square test and $p<0,05$ were considered significant.
Results: A significant improvement rate of 66.67% (n=26) was identified amongst participants who engaged with the app 30 times or more, compared to a 41.51% improvement rate (n=22) in the less frequent recording group. The comparison of improvements in FBG levels between the two groups showed statistical significance, with individuals who recorded 30 times or more having better glucose outcomes than those who recorded less than 30 times (OR: 2.82 [CI: 1.19, 6.67], p=0.017). This significant difference demonstrates the positive role of consistent app usage in aiding diabetes management and improving FBG levels.
Conclusions: This retrospective analysis suggests that regular blood glucose monitoring induced through digital apps designed for diabetes management may lead to improved blood glucose control. Engaging with these applications allows for active health monitoring, significantly aiding in improving FBG levels among users. This active engagement, facilitated by the app, enables patients to embrace lifestyle changes, dietary plans and target glucose levels, essential for efficient diabetes management. However, larger prospective studies involving a broader population are needed for more precise conclusions.

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DSD INTERPRETER, A MOBILE APPLICATION-BASED POINT-OF-CARE TOOL FOR THE EVALUATION OF CHILDREN WITH ATYPICAL GENITALIA

Dhvani Raithatha[1], Vibha Yadav[2], Alapan Mahapatra[2], Shalmi Mehta[3], Rachna Keshwani[4], Ankita Rawat[5], Abhinav Sharma[6], Fouzia Khan[6], Anurag Bajpai[1]
[1]Regency CDER, Pediatric Endocrinology, kanpur, India, [2]Regency CDER, Pediatric Endocrinology, Kanpur, India, [3]Endokids Clinix, Pediatric Endocrinology, Ahmedabad, India, [4]Surya Hospital, Pediatric Endocrinology, Mumbai, India, [5]Venkateshwara Institute of Medical Sciences, Pediatrics, Gajraula, India, [6]Regency Healthcare, Pediatrics, Kanpur, India

Background and Aims: Background: Atypical genitalia represents an important medical and social emergency. Timely evaluation of children with atypical genitalia is key to reducing morbidity, mortality, and familial anxiety. Lack of training in Pediatric Endocrinology and restricted access to Pediatric Endocrinologists makes developing tools for point-of-care guidance for children with atypical genitalia desirable. Objective: To develop and validate a point-of-care mobile application to guide the assessment of children with atypical genitalia.
Methods: Study Design: We developed the DSD interpreter, a mobile application-based tool to provide algorithmic guidance for the evaluation and classification of children with atypical genitalia based on key clinical parameters (the presence of gonads, and Mullerian structures) and targeted investigations. The interpreter guidance was compared to that provided by two pediatric endocrinologists, a neonatologist, a pediatrician, and a pediatric trainee and validated against final diagnosis in 40 children with atypical genitalia presenting to our Pediatric Endocrine Clinic (17 with XX DSD, 21 with XY DSD, and two with gonadal dysgenesis) from January 2020 to June 2023.
Results: The concordance score for DSD interpreter (100%) and experts (76.7% and 86.7%) was significantly greater than that for neonatologists (66.7%), pediatricians (67.5%), and trainees (46.7%). Initial guidance provided by the DSD interpreter established the correct diagnosis in 17 cases each with XX DSD (100%) and XY DSD (80.9%). The interpreter's guidance would have established the diagnosis in the remaining four children with XY DSD where initial classification was impossible (one each with sex chromosome mosaicism, XX male, Smith-Lemli-Optiz syndrome, and DHX37 mutation). The diagnosis of CAH variants requiring urgent management (salt wasting 21 hydroxylase deficiency, 11 hydroxylase deficiency, 3 beta HSD deficiency, and 17 hydroxylase deficiency) was erroneous in nine subjects in the neonatologist’s group, two in the pediatrician group, and eight in the trainee group. Major discordance with therapeutic implications was observed in 33 instances for nonexperts (27.5%). The use of the tool would have avoided 78 instances of discordance (39%) across the study cohort.
Conclusions: Conclusion: The findings of our study confirm the accuracy of DSD interpreter in guiding the evaluation of children with atypical genitalia. The widespread availability of a simple tool accessible on an offline mode is expected to allow the early and correct diagnosis of children with atypical genitalia. There is a need for multicentric validation before widespread use.

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IMPROVEMENT IN OOCYTE CALCIUM LEVEL AND SUBSEQUENT EMBRYO DEVELOPMENT IN VITRIFIED OOCYTES WITH IRON OXIDE MAGNETIC NANOPARTICLES

Pegah Shayegh[1], Farzaneh Baniasadi[1], Hasan Rajabi Maham[2], Rouhollah Fathi[1]
[1]Royan Institute, Reproductive Biomedicine, Tehran, Iran, [2]Shahid Beheshti University, Faculty Of Modern Medical Sciences And Technologies, Tehran, Iran

Background and Aims: Mammalian oocytes are vitrified for fertility preservation in cancer-stricken women and girls by storing them for a long time. However, thawing of the oocytes lowers their quality and viability. Recent studies are looking for ways to enhance freezing procedures and reduce cryo-damages. To this end, 5 nm Fe_3O_4 nanoparticles were used for the vitrification of germinal vesicle oocytes.
Methods: Thirty adult female NMRI mice were used to collect the GV oocytes, which were subsequently divided into three groups: non-vitrified, vitrified & vitrified + 0.004%w/v MNPs. The GV oocytes were initially subjected for 8 min to an equilibration solution (HSA in HamsF10 & EG + DMSO). They were then transferred to a vitrification solution (DMSO, EG, 0.5 M sucrose) for less than one minute. The VS was made with or without Fe_3O_4 NPs. They were subsequently put on a Cryotop and placed immediately into liquid nitrogen. Seven days later, warming was done in W_1(1.0 M sucrose) for under a min at 37°C, W_2 (0.5 M sucrose) for 3 min, and W_3 (0.25 M sucrose) for 3 min at room temperature. IVM and in IVF have examined the GV oocytes. After 16 hours of incubation, the MII were transferred to the IVF medium. 7-8h later, zygotes were moved to the SAGE medium to continue developing and reach the blastocyst stage. In addition, Fura-2 AM staining was used to investigate the intracellular calcium levels in GV and MII oocytes in control and experimental groups.
Results: Based on our data, the IVM rate in vitrified oocytes with NPs (89.08% ± 1.64%) has significantly increased compared to the vitrified group (72.29% ± 1.30%). The 2-cell rate of the embryos significantly increased in Vit_NPs (97.78% ± 2.22%) as compared to the Vit group (82.27% ± 3.63). The difference in blastocyst rate in the Vit_NPs group (40.36% ± 7.85%) was also meaningfully higher than those of the nVit (44.93% ± 8.53%) and Vit groups (17.09% ± 2.49%). Also, intracellular calcium mean fluorescence in GV and MII oocytes belonging to Vit (8.20 ± 0.38 and 9.53 ± 0.38) and Vit_NPs (8.49 ± 0.38 and 9.05 ± 0.38) groups had considerably higher than the control nVit group (7.29 ± 037 and 6.88 ± 0.17).
Conclusions: Fe_3O_4 NPs can improve the vitrification outcomes (IVM, IVF, & blastocyst formation rates) of mouse GV oocytes. In addition, it seems that increasing the Calcium in Vit_NPs groups was beneficial for the subsequent in vitro embryo development.

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CASE REPORT OF ATYPICAL CORNELIA DE LANGE SYNDROME DIAGNOSED VIA WHOLE EXOME SEQUENCING

Kristina Kokoreva[1,2], Nataliya Volevodz[1,2], Elena Pisareva[1], Anna Rodnova[2], Valentina Shesterikova[2]
[1]Endocrinology Research Centre, Moscow, Russian Federation, [2]Moscow Regional Clinical Research Institute named after M.F. Vladimirsky (MONIKI), Moscow, Russian Federation

Background and Aims: To report an atypical clinical case of Cornelia de Lange Syndrome (CdLS) with epilepsy but no typical facial dysmorphia, limb malformations and growth retardation diagnosed by whole exome sequencing.
Methods: We report the clinical case of a 1-year-old girl who admitted to Endocrinology Research center with the complaints of recurring seizures manifested at the age of 0.6 years. On the moment of admission the girl had no growth retardation (70 cm, -1.4 SD) and had good weight gain (weight 9,5 kg, SD BMI = 0.1 SD). Neonatal screening was not provided. Marriage was no closely related. Provided lab tests excluded endocrine etiology of seizures: Ca 2.5 mmol/l, glucose 3.9 nmol/l, insulin 1.9 pmol/l, Na (sodium) 140 mEq/L, K (potassium) 4.5 mEq/L, 17 hydroxyprogesterone 1.79 nmol/l. Brain MRI revealed no defects. EEG revealed focal epileptic activity. The girl became seizure-free with valproic acid and lamotrigine.
Results: Due to infantile epilepsy the genetic testing were provided. Whole exome sequencing revealed heterozygous pathogenic variant c.298+1G>A in gene SMC1A (X-linked recessive defect, OMIM 300040), NM_006306.4, which is associated with atypical CdLS. Due to genetic testing results girl was provided with heart and renal ultrasound in order to diagnose other components of the syndrome. No defects were diagnosed.
Conclusions: X-linked recessive atypical CdLS associated with defect in gene SMC1A is characterized with no typical facial dysmorhism, no limb malformations and no growth retardation. Only one component of CdLS was infantile epileptic seizures which was the reason to provide whole exome sequencing. This clinical case shows how genetic testing can help to diagnose the atypical forms of the disease.

PV363 / #1881

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WHOLE-ORBIT-BASED MULTIPARAMETRIC ASSESSMENT OF DISEASE ACTIVITY OF THYROID EYE DISEASE ON DIXON MRI

Duojin Xia[1], Haiyang Zhang[2], Xuefei Song[2], Huifang Zhou[2]
[1]University of Shanghai for Science and Technology, shanghai, China, [2]Department of Ophthalmology, Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, shanghai, China

Background and Aims: Magnetic resonance imaging (MRI) is commonly used to assess the disease activity of thyroid eye disease (TED). Previous radiological research seldom evaluates multiple orbital structures. This study aims to explore the diagnostic value of whole-orbit-based multiparametric assessment on Dixon MRI for the evaluation of the TED activity.
Methods: The retrospective study enrolled patients diagnosed as TED and obtained their axial and coronal Dixon MRI scans. Multi-parameters were assessed, including water fraction (WF), fat fraction (FF) of EOMs, orbital fat (OF), and lacrimal gland (LG). The thickness of OF and herniation of LG were also measured. Univariate and multivariate logistic regression was applied to construct prediction models based on single or multiple structures. Receiver operating characteristic (ROC) curve analysis was also implemented.
Results: A total of 49 patients were finally enrolled. Univariate logistic analysis revealed that WF of superior rectus (P = 0.018), FF of medial rectus (P=0.029), WF of OF (P = 0.004), herniation of LG (P = 0.012) exhibited significant differences between active and inactive patients. Multivariate logistic analysis and ROC analysis attained the area under the curve (AUC) values of 0.774, 0.771, and 0.729 for EOMs, OF, and LG, respectively. Combining the four parameters from three orbital structures into modeling derived a final AUC of 0.909.
Conclusions: Dixon MRI provided a fine multiparametric assessment of orbital structures. The combination of imaging parameters of the whole orbit significantly improves the diagnostic value of TED disease activity, thus assisting clinicians with proper decision-making.

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DEVELOPMENT AND VALIDATION OF BONE AGE-GUIDED INTERPRETATION OF GROWTH (BIG), WEB-BASED TOOL FOR EVALUATION OF CHILDREN AND ADOLESCENTS WITH GROWTH AND PUBERTAL DISORDERS

Vibha Yadav[1], Dhvani Raithatha[1], Alapan Mahapatra[1], Rahul Jahagirdar[2], Amitesh Yadav[3], Shriya Chaware[2], Nupur Mathur[4], Anurag Bajpai[1]
[1]Regency CDER, Pediatric Endocrinology, kanpur, India, [2]Bharti Vidyapeeth, Pediatrics, pune, India, [3]GSVM medical college, Pediatrics, kanpur, India, [4]Regency, Health, Pediatrics, kanpur, India

Background and Aims: Background- Lack of systematic evaluation of growth and pubertal disorders results in unnecessary work-up for physiological causes while missing pathological causes. We have developed Bone age assisted interpretation of growth (BIG), a web-based tool, that provides guidance for diagnosis and management for children and adolescents with growth and pubertal concerns. Aim- To develop and validate BIG in growth and pubertal disorders.
Methods: Method- Validated algorithms for growth and pubertal disorders were loaded on the web portal and used to provide diagnostic guidance based on clinical inputs (height, weight, age, birth weight, pubertal status, sitting height, and parental height) and bone age (self-reported or assessed). The validation study was done in 250 children and adolescents with growth and pubertal concern (165 with growth concern, 67 with early puberty, and 18 with delayed puberty) presenting to our Pediatric Endocrinology Clinic from December 2022 to July 2023. The guidance provided by BIG was compared to that of pediatric endocrinologist, pediatric endocrine trainee, pediatrician, and pediatric trainee. The level of discordance between the guidance provided by BIG and clinicians compared to the final diagnosis was assessed.
Results: - The concordance score for BIG (94.8%) with the clinical diagnosis was substantially higher than that for the pediatrician (45.4%) and the pediatric trainee (50.8%). Discordance with management implications was observed in 150 instances for nonexperts (30%). This would have led to a missed diagnosis of pathological cause in 12 (4.8%), deferred diagnostic work-up or endocrine referral in 68 (27.2%), and unnecessary workup in 65 (26%) instances. The use of BIG would have prevented 96.5% of these errors.
Conclusions: Conclusion- The diagnosis and guidance provided by BIG were highly concordant with clinical diagnosis. The use of BIG would have prevented clinician discordances avoiding missed diagnosis on one hand and over-investigation on the other.

PV365 / #1316

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

MYOSITIS- A RARE CLINICAL MANIFESTATION OF HYPOTHYROIDISM: A CASE SERIES STUDY FROM KARACHI-PAKISTAN

Tasnim Ahsan, Heer Dilawar
Medicell Institute of Diabetes, Endrinology and Metabolism, Internal Medicine & Endocrinology, Karachi, Pakistan

Background and Aims: Hypothyroidism can rarely lead to myopathy and pseudo-hypertrophy of calf muscles-Hypothyroidism-induced myositis is a type of inflammatory myopathy that causes proximal muscular weakness, fatigue, stiffness, myalgia/ tenderness, and delayed tendon reflexes-This condition can be confirmed by elevated levels of muscle enzymes like creatine kinase (up to 10 times the normal levels), nonspecific electromyographic (EMG) abnormalities, and pathological findings in muscle biopsy-Patients are usually treated with thyroid hormone and corticosteroids in some cases-It may take several months for muscle symptoms to resolve-In this case series, we present a comprehensive analysis of nine patients diagnosed with hypothyroid myositis, evaluating their clinical features, diagnostic workup, treatment outcomes and follow-up-
Methods: A retrospective review of nine patients diagnosed with Hypothyroid Myopathy, was conducted at MediCell Institute of Diabetes, Endocrinology & Metabolism (MIDEM)-Karachi-Pakistan, from 1st September 2017 to 31st May 2023. These patients primarily presented with muscle weakness, muscle stiffness or pain. All cases were diagnosed through history, examination findings, and confirmed through laboratory investigations. We carefully evaluated all patients' charts and recorded their demographic characteristics, comorbidities, clinical features, investigations, and treatment outcomes using a standard proforma.
Results: There were six females and three-males, with their age ranging from 28 to 74 years (mean age 45.8 years), who primarily presented with muscle The most common clinical features in our case series were proximal muscle weakness, myalgia and fatigue. Pseudo- hypertrophy of calf muscle was noted in five patients (55%). TSH and CPK enzymes were found to be high in all patients. Other autoimmune workup was negative including ANA levels. All patients had received oral replacement thyroxine therapy and showed good response as most of the patients reported improvement of their symptoms 6 to 12 weeks post thyroxine therapy. However, pseudo-hypertrophy persisted in all patients. In six patients (66.6%), CPK levels and TSH levels normalized after three to six months, while in three patients (33.3%) CPK level normalized after 2 years.
Conclusions: To the best of our knowledge, this is the first case series of hypothyroidism presenting simultaneously with muscle weakness and rhabdomyolysis in literature. This case series highlights the importance of thyroid function tests in patients with proximal myopathy enabling timely diagnosis and management of this condition. Even though a vast majority of the patients respond within 6 months, some of them can take years to improve in CPK levels. We strongly suggest conducting thyroid function tests for patients presenting with unexplained muscle weakness, stiffness and pain.

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KIMURA'S DISEASE MASQUERADING AS GRAVE'S ORBITOPATHY.

Tasnim Ahsan[1], Heer Dilawar[2], Ameet Kumar[3]
[1]Medicell Institute of Diabetes, Endrinology and Metabolism, Endocrine, Karachi, Pakistan, [2]Medicell Institute of Diabetes, Endrinology and Metabolism, Internal Medicine & Endocrinology, Karachi, Pakistan, [3]Medicell Institute Of Diabetes & Endocrinology (MIDEM), Endocrine, Karachi, Pakistan

Background and Aims: Kimura's disease is a rare, chronic inflammatory disorder with an unknown aetiology. It typically affects young Asian males, with a male-to-female ratio ranging from 3.5:1 to 9:1. The disease is characterized by the presence of subcutaneous nodules in the head and neck region, along with lymphadenopathy and salivary gland involvement. Orbital involvement is rare, when it does occur, it usually affects the eyelid and lacrimal gland.
Methods: We are reporting a case of a 59 year old female who came to our clinic with symptoms suggestive of Graves' ophthalmopathy affecting her left eye and also had bilateral parotid enlargement with regional lymphadenopathy. She responded initially after two doses of weekly IV high dose Methylprednisolone plus Mycophenolate Mofetil, but her symptoms relapsed while she was still on steroid therapy. All her thyroid antibodies, including TRAb were negative. She subsequently developed swelling in the right eye also, and bilateral parotid gland enlargement persisted, with some regression of lymphadenopathy after 6 to 8 weeks of therapy. She was evaluated for alternative diagnoses, i.e. Kimura's disease, sarcoidosis, tuberculosis, IgG-4 disease and lymphoma. On subsequent investigations, she was found to have markedly raised IgE levels, which led to the diagnosis of Kimura's disease. She was switched to a tapering dose of oral steroid and continues to be in remission with her current dose of Prednisolone 5 mg daily, along with Lefluonamide, five months after initiating steroid therapy, a normal IgE level was recorded 3 months after initiating ttreatment.
Results: This case highlights the need to include rare illnesses like Kimura's disease in the differential diagnosis of inflammatory diseases of the orbit initially misdiagnosed as Grave's orbitopathy. Diagnosing this condition requires a multidisciplinary approach, including clinical assessment, imaging, and biopsy to confirm the diagnosis and ensure the best possible care.
Conclusions: This case highlights the need to include rare illnesses like Kimura's disease in the differential diagnosis of inflammatory diseases of the orbit initially misdiagnosed as Grave's orbitopathy. Diagnosing this condition requires a multidisciplinary approach, including clinical assessment, imaging, and biopsy to confirm the diagnosis and ensure the best possible care.

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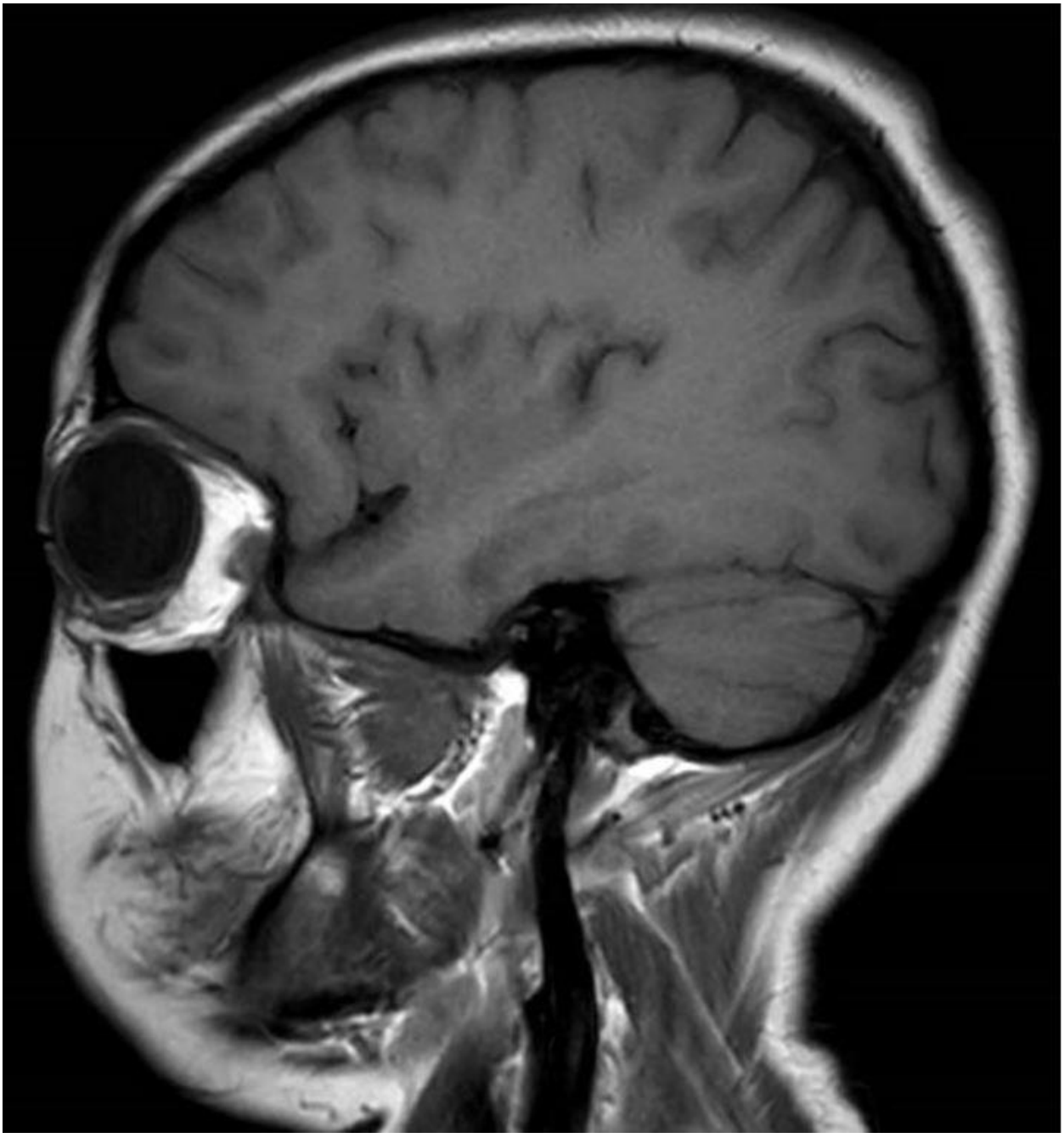
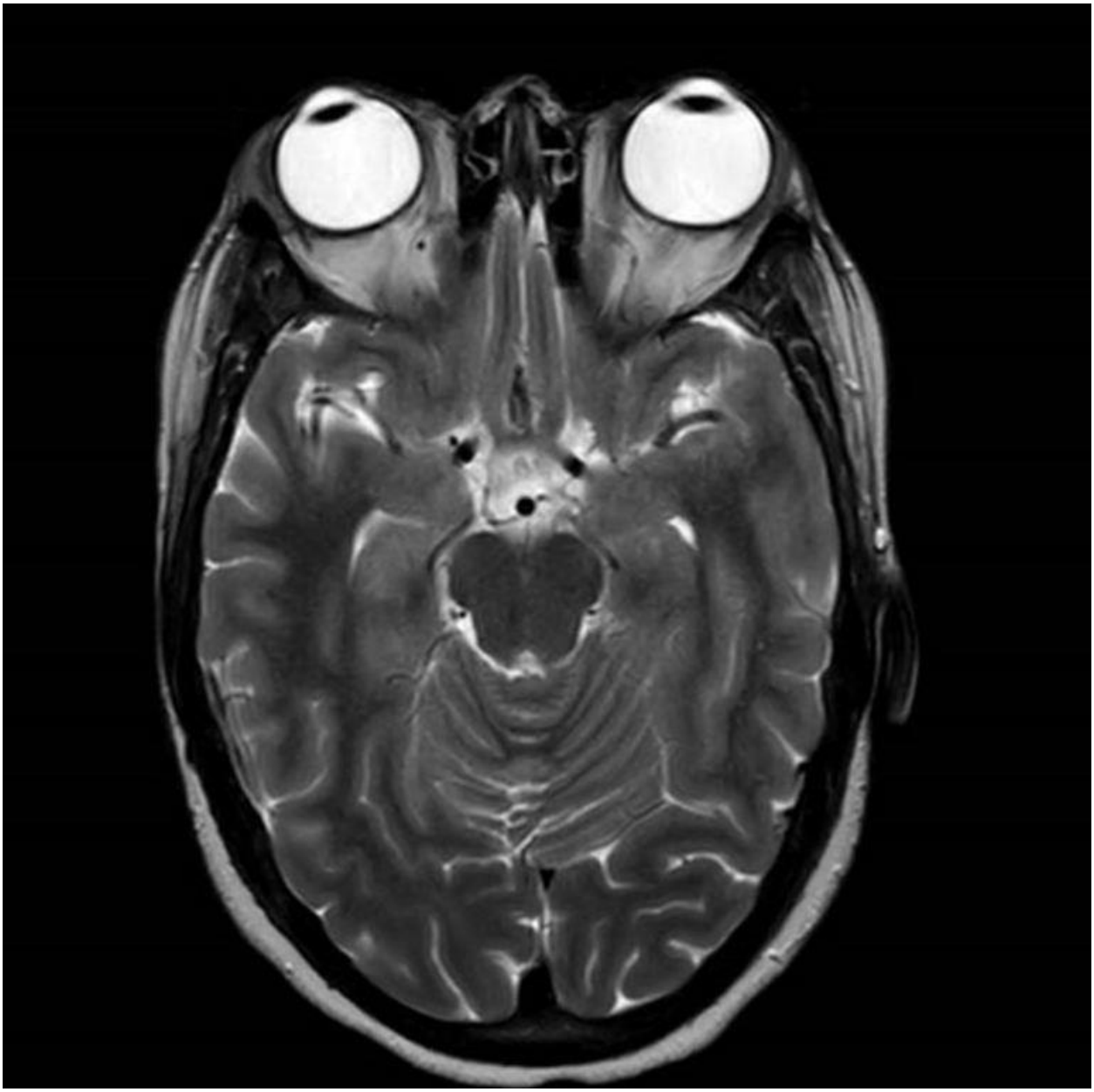
MODERATE TO SEVERE GRAVE'S ORBITOPATHY IN THE FIRST TRIMESTER

Zainab Akram Yousif[1], Shah Khalid Shinwari[1], Reena Kumari[2], Shujah Dar[1]
[1]University Hospitals Birmingham, Endocrinology And Diabetes, Birmingham, United Kingdom, [2]University Hospitals Birmingham, Ophthalmology, Birmingham, United Kingdom

Background and Aims: Despite pregnancy being a state of enhanced immune tolerance, Grave's orbitopathy (GO) may occur or worsen in 0.2–0.4% of pregnant ladies. We report a case of moderate-severe GO diagnosed in the first trimester which necessitated prompt initiation of anti-thyroid medications, urgent ophthalmology review and immunosuppression.
Methods: A 19-year-old female presented with three weeks history of episodic palpitations, unintentional weight loss, sweating, tremors, proximal muscles weakness (struggling to climb upstairs), and itchy and watery eyes. Examination revealed smooth soft and diffuse symmetrical goitre, audible thyroid bruit, eye-lid retraction, chemosis, and proptosis (Image 1).

Biochemical profile showed TSH <0.01 iU/l (0.4-4.9mIU/l), fT4 60.7pmol/l (9.0-19.0pmol/l), fT3 >30.7pmol/l. Given low blood pressure and fatigue, random cortisol was checked and it was 72nmol/l (110-460nmol/l) and ACTH was 6ng/l (0-50ng/l), this necessitated starting Hydrocortisone replacement. Meanwhile, her thyroid antibodies were strongly positive, her TSH receptor antibodies were 41.9IU/l(0-9IU/l) and her TPO antibodies were 975mUl/ml (0-6 mUl/ml). The pregnancy test was positive and the patient was commenced on propylthiouracil and propranolol. The patient was re-admitted 4 weeks later (11 weeks into her pregnancy) with worsening eye proptosis, diplopia, photosensitivity, pain and excessive tearing. Her CAS score was 7 and she was considered moderate-to-severe GO as per EUGOGO's classification. This is on a background of non-compliance with anti-thyroid medications due to miscommunication. She was referred urgently for an ophthalmology review. No threats to optic discs were identified. MRI orbits revealed a symmetrical marginal increase in the bulk and the signal intensity on T2-weighting of most of the extraocular muscles. Optic nerves looked normal (Image 2&3).





Given GO grade, a discussion with the obstetrics team concluded commencing Azathioprine as a safe immunosuppression option during pregnancy to halt GO progression. Now, the patient remains under close and joint follow-up with endocrinology, obstetrics, and ophthalmology teams, and her thyroid functions are closely monitored. TSH receptor antibodies titres dropped to 6.3IU/l. She is currently 37 weeks pregnant with no pregnancy-related concerns.

Results: There is limited data on the course of GO during pregnancy, particularly in the first trimester. 5 out of 9 with mild GO developed proptosis during pregnancy. It is believed that hypervolemia-related physiological changes during pregnancy are major contributors to worsening GO. In sight-threatening GO, high doses of anti-thyroid drugs and steroids are required which may lead to adverse pregnancy outcomes.

Conclusions: GO poses vision threats, this necessitates high vigilance, prompt diagnosis, severity assessment, and swift treatment initiation to prevent progression.

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E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

7 YEARS' EXPERIENCE OF THYROID NODULE ULTRASOUND GUIDED FNA OUTCOME IN A SINGLE CENTER

Zahra Al Ghareeb[1], Fatimah Alhamad[1], Sanaa Alyousif[1], Hassan Al-Mubarak[1], Shatha Alfaraj[2], Basem Abualsaud[3], Ghada Alqudaihi[4], Zahra Al Sahow[1]
[1]Qatif Central Hospital, Medicine, Qatif, Saudi Arabia, [2]Qatif Central Hospital, Histopathology, Qatif, Saudi Arabia, [3]Qatif Central Hospital, Radiology, Qatif, Saudi Arabia, [4]Qatif Central Hospital, Quality, qatif, Saudi Arabia

Background and Aims: Thyroid nodule is a common health condition, the main concern in the management is to exclude malignancy. US-guided FNA is considered an accurate tool in the assessment by placing the needle in the targeted nodule, especially if they are multiple nodules. Still the gold standard in the diagnosis is histology after thyroidectomy. Our study aims to evaluate the outcome of US guided thyroid nodule FNA in our center through analyzing the radiology, cytology, and histopathological results.
Methods: This is a retrospective study, conducted in Qatif Central Hospital (QCH), the main secondary care center of Qatif city in the east of Saudi Arabia. The inclusion criteria were patients aged 14 years old and above, who had performed US guided FNA for thyroid nodule followed by total-or hemi-thyroidectomy from January 2015- December 2021. Data was collected from both patient soft-and hard copy files, data then uploaded using SPSS version 21 software. A total of 76 nodule from 54 patients who met the inclusion criteria were analyzed looking at the radiology, cytology, and histopathology results. Variables like nodule size and ATA classification, number of samplings from each nodule, cytology in Bethesda scoring for the first sample taken, final histopathology diagnosis were performed using both frequencies and percentage all were analyzed.
Results: Over 7 years period, 76 nodules sampled from 54 patients in QCH who eventually had hemi- or total thyroidectomy (52% and 48% respectively), where more than 80% young and middle-aged female. Total number of samples from the 76 nodules were 113 times, 38% of the nodules were sampled twice with no significant correlation between size of the nodule and the number of times sampled (P=0.116). No significant correlation between nodule size and Bethesda score (P=0.491), while there was significant correlation between number of sampling and the Bethesda score (P=0.004). Final histopathology reports showed 40% benign and 38% PTC with significant correlation between histopathology with ATA classification and Bethesda classification (P< 0.001 and 0.007 respectively).
Conclusions: At QCH, there is a significant statistical correlation between FNA using Bethesda score, ATA classification and the final histopathological report. Although it is not a high-volume hospital, but the outcome in the management of thyroid nodule is keeping with the international standards, more studies are needed to compare our outcome with other centers in the Kingdome

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E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

SURGICAL TACTICS FOR THE TREATMENT OF PRIMARY HYPERPARATHYROIDISM IN CHILDREN

Alexander Anikiev, Dmitry Brovin, Anna Kolodkina, Anastasia Benina, Olga Bezlepkina
Endocrinology Research Center, Ministry of Health of Russia, Pediatric Surgery, Moscow, Russian Federation

Background and Aims: Introduction: Primary hyperparathyroidism (PHPT) is extremely rare in childhood (2-5:100,000). The largest number of observations was described in the Mayo Clinic – 52 cases over 87 years (from 1930 to 2017). Insufficient experience in the treatment of such patients, late diagnosis often leads to irreversible consequences and early disability. Aim: To improve the results of treatment of children with PHPT
Methods: During 2016-2022, 28 patients with PHPT aged 9 to 17 years were operated on, 17 girls and 11 boys. All children underwent a comprehensive examination, which included general clinical methods, laboratory, instrumental and molecular genetic studies.
Results: Visceral form of PHPT with diffuse changes in renal parenchyma, kidney stones and pyelectasia were diagnosed in 35.7% (n=10). In some children, abdominal pain was associated with destructive pancreatitis, cholelithiasis, gastroduodenitis. In 14.2% (n=4), the bone form with limb deformity, arthrosis, osteoporosis, osteopenia, muscular dystrophy was verified. 35.7% of patients (n=10) had a mixed bone-visceral form. Asymptomatic PHPT was observed in three patients (10.7%), in one child the disease occurred in the form of prolonged subfebrility. Variants of the MEN1 gene were identified in 4 patients (14.2%). the RET gene in one, and the CDC73 gene in one Patients with MEN1 underwent revision and removal of altered and unchanged parathyroid glands, in two cases out of 4 it was possible to implant unchanged parathyroid glands into the forearm muscles. One patient with variant of the RET gene and medular thyroid cancer underwent a thyroidectomy with central lymphadenectomy and removal of a parathyroid adenoma. Two children with intrathyroid adenomas had to undergo lobectomies. In the absence of known mutations, only removal of parathyroid adenomas was performed. In one case of parathyroid cancer, a girl with a variant of CDC73 gene had a lobectomy, a central lymph node dissection with partial excision of the fat and neck muscles due to the prevalence of the process. According to morphological examination of biopsy material in 27 patients, the disease is caused by solitary adenoma of the pancreas, in one child adenocarcinoma.
Conclusions: In more than 20% of cases, PHPT is a consequence of pathogenic mutations in genes. Surgical tactics are significantly influenced not only by topical verification, but also to a large extent by the results of molecular genetic research, which makes it necessary to consider it necessary when preparing a patient for surgery.

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E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

LYMPH-NODE METASTASES DETECTION BY SERUM THYROGLOBULIN AND NECK ULTRASONOGRAPHY, AND LONG-TERM FOLLOW-UP IN PAPILLARY OR FOLLICULAR THYROID CANCER PATIENTS EARLIER TREATED WITH RADIOIODINE AND/OR SURGERY

Poupak Fallahi[1], Silvia Martina Ferrari[2], Giusy Elia[3], Francesca Ragusa[3], Sabrina Rosaria Paparo[3], Eugenia Balestri[3], Chiara Botrini[3], Armando Patrizio[4], Valeria Mazzi[3], Gabriele Materazzi[3], Paolo Miccoli[3], Alessandro Antonelli[3]
[1]University of Pisa, Department Of Translational Research And Of New Technologies In Medicine And Surgery, University Of Pisa, Pisa, Italy, Pisa, Italy, [2]University of Pisa, Department Of Clinical And Experimental Medicine, University Of Pisa, Pisa, Italy;, Pisa, Italy, [3]University of Pisa, Department Of Surgical, Medical And Molecular Pathology And Critical Area, Pisa, Italy, [4]University of Pisa, Department Of Emergency Medicine, Azienda Ospedaliero-universitaria Pisana, Italy, Pisa, Italy

Background and Aims: Background and aims: The aim of this study was to evaluate the early detection of metastatic lateral neck lymph nodes (LNL) in patients with papillary or follicular differentiated thyroid cancer (DTC), and long-term follow-up after radioiodine I^{131} and/or surgery treatment.
Methods: We enrolled 720 patients and their LNL evaluation was performed by thyroglobulin (Tg) measurement and neck ultrasonography (NU). These patients were affected by DTC and had been treated previously with a near-total thyroidectomy and I^{131} ablation of residual tissue, and then followed up by Tg measurement, NU, diagnostic and post-therapy whole body scan (WBS), alone or in combination.
Results: In the LNL detection, the TSH-stimulated Tg alone had a sensitivity of 87%, and a negative predictive value (NPV) of 85%; while NU had a sensitivity of 72%, and NPV of 69%. The sensitivity reached the 98.5% by combining TSH-stimulated Tg plus NU, while the NPV reached the 97%. In patients with LNL uptaking radioiodine and then subjected to a I^{131} treatment, we reported the following data: 51% responded after a median of 4 cycles (median 354 mCi, cumulative dose; 7.4 years median follow-up) with “disappearance of uptake at post-therapy WBS and Tg<1 ng/ml” (complete remission, CR); 13% of not responding cases had CR following other treatments. A treatment with surgery, and subsequent I^{131} readministration was made on LNL patients not uptaking or not responding to I^{131} (11%), who showed a CR in 24% of cases (6.5 years median follow-up).
Conclusions: In conclusion, an early detection of LNL in DTC-patients could help in the achievement of a CR by I^{131} in 51% of them, after 4 or less I^{131} treatments. The combination of different treatments could help patients not responder/not uptaking I^{131} to reach a CR in 24% of cases.

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E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

THE THYROID HORMONE ENHANCES MOUSE EMBRYONIC FIBROBLASTS REPROGRAMMING TO PLURIPOTENT STEM CELLS: ROLE OF THE NUCLEAR COREPRESSOR 1

Constanza Contreras-Jurado[1], Ana Montero-Pedrazuela[1], Raul F. Pérez[2], Susana Alemany[3], Mario F Fraga[2], Ana Aranda[1]
[1]Instituto de Investigaciones Biomédicas "Alberto Sols" CSIC-UAM, Fisiopatología Endocrina Y Del Sistema Nervioso, Madrid, Spain, [2]Centro de Investigación en Nanomateriales y Nanotecnología (CINN), CSIC-UNIOVI, Epigenética Del Cáncer Y Metabolismo, Oviedo, Spain, [3]Instituto de Investigaciones Biomédicas, Metabolismo Y Señalización Celular, Madrid, Spain

Background and Aims: Somatic cells can be reprogrammed to induced pluripotent stem cells (iPSCs) with the introduction of the Yamanaka factors (Oct4, Sox2, Klf4 and c-Myc or OSKM). As iPSCs have the ability of self-renewal and the potential to differentiate into virtually any type of somatic cell, they provide an invaluable tool for the study of cell plasticity and have revolutionized the fields of regenerative medicine, tissue engineering and drug screening. The actions of the thyroid hormone T3 are initiated by binding to the thyroid hormone receptors (TRa and TRb) and regulate gene expression by recruiting coactivaors and copressors. The aim of this work has been to define the effect of T3 on reprogramming of mouse embryonic fibroblasts (MEFs) and to explore a possible role of the Nuclear Corepressor 1 (NCoR) in this process.
Methods: Mouse embryonic fibroblasts (MEFs) were transduced with the Yamanaka factors and iPSCs were identified by expression of embryonic markers such as alkaline phosphatase (AP), and expression of endogenous core pluripotency genes including Oct4, Sox2, Rex1 or Nanog. NCoR was silenced with lentiviral shRNA. AP+ colonies were expanded and used analysis of promoter metylation of pluripotency genes and for embryod body formation and differentiation.
Results: T3 enhances reprogramming of MEFs into iPSCs by the Yamanaka factors. The actions of T3 on reprogramming are mainly mediated by TRb, as the TRb-specific ligand GC-1 increases reprogramming and the hormone can enhance reprogramming of TRa but not TRb knockout MEFs. T3 can enhance iPSC generation in the absence of c-Myc and to a limited extent in the absence of Kl4, but cannot substitute Oct4. T3 increases expression of pluripotency genes and reprogramming even though it also induces expression of the cyclin kinase inhibitors p21 and p27, which are known to oppose acquisition of pluripotency. T3-induced iPSCs resemble embryonic stem cells in terms of the expression profile and DNA methylation pattern of pluripotency marker genes, and of their potential for embryod body formation and differentiation into the three major germ layers, displaying major hallmarks of pluripotency. NCoR appears to be required for the induction of cellular reprogramming, since depletion of the corepressor blocked to a significant extent basal reprogramming, as well as the number of iPSC colonies generated by T3, concomitantly inhibiting expression of pluripotency genes.
Conclusions: These results suggest that inclusion of T3 on reprogramming strategies could enhance the generation of functional iPSCs for studies of cell plasticity, disease and regenerative medicine.

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01-03-2024 07:00 - 18:00

GRAVES' DISEASE RELAPSE AFTER 30-YEAR REMISSION IN A FEMALE PATIENT DUE TO SARS-COV-2 INFECTION- A CASE REPORT

Dimitrios Askitis
Private Practice for Endocrinology, Private Practice, Alexandroupolis, Greece

Background and Aims: COVID-19 has been established as a multisystemic disease with the potential of affecting all the organs of the human organism including the thyroid gland which features ACE2 receptors for the cellular entry of SARS-CoV-2. Graves' disease comprises the most common cause of thyrotoxicosis, manifests in genetically predisposed individuals with an autoimmune background and may be triggered by a variety of environmental factors, including viral infections. A few cases of new-onset or relapsed Graves' disease related to SARS-CoV-2 infection have been reported globally. Herein, we present the case of an otherwise healthy patient who developed hyperthyroidism due to Graves' disease reactivation after 3 decades of remission following exposure to SARS-CoV-2.
Methods: Retrospective evaluation of the health status course of a female patient with Graves' disease relapse due to COVID-19
Results: A 65-year old female patient with a history of active Graves' disease over a period of 2 years and remission over the past 30 years presented for endocrinological evaluation due to newly detected hyperthyroidism. The patient had been tested positive for COVID-19 10 days ago with persistent fever over a period of 2 days and concomitant heart palpitations. The neck ultrasound revealed a pattern typical of autoimmune thyroiditis with diffuse heteroechogenicity and inhomogeneity accompanied by elevated blood flow bilaterally. The adjunctive laboratory evaluation showed a hyperthyroid state with elevated TRAb-titers and negative anti-Tg and anti-TPO autoantibodies. The patient was started on thyrostatic medication with methimazole 15 mg daily combined with propranolol 10 mg thrice daily. Biochemical and clinical euthyroidism was rapidly restored in 2 weeks and the methimazole dosis was progressively reduced till complete cessation 7 months after diagnosis. Neck ultrasound at that point showed a remission of the autoimmune process with normalization of the blood flow, whereas the laboratory assesment showed negative TRAb. The patient remained euthyroid without related medication since.
Conclusions: The above case presentation comprises the first official report of Graves' disease relapse following COVID-19 in northern Greece, as well as the case of autoimmune hyperthyroidism with the second longest remission duration before relapse due to SARS-CoV-2 infection in the literature. Clinicians should be aware of thyroid-related complications due to SARS-Cov-2, especially in individuals with a known history of autoimmune thyroid diseases and conduct the appropriate diagnostic and therapeutic procedures in cases of suspected infection-triggered thyroid dysregulation.

PV373 / #895

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

THYROID ASSOCIATED OPHTHALMOPATHY WITH HASHIMOTO'S THYROIDITIS: TWO INTERESTING CASE REPORTS

Navya Basavaraju, Probal Moulik
Royal Shrewsbury Hospital, Department Of Endocrinology And Diabetes, Shrewsbury, United Kingdom

Background and Aims: Introduction Thyroid associated ophthalmopathy (TAO) is most seen with Graves' hyperthyroidism, however can be associated with euthyroidism or hypothyroidism. We present 2 cases of TAO with Hashimoto's thyroiditis (HT), with only a few reported cases in the literature.
Methods: Case 1: 56-year-old male, smoker, presented with left eye bulging and redness. Autoimmune hypothyroidism was diagnosed 13 years ago, treated with Levothyroxine. 11years back, he developed left TAO, biopsy showed inflammatory cells, treated with methyl prednisolone and radiotherapy. 3years ago, he had right TAO, treated with steroids and Azathioprine. Current clinical activity scale(CAS) score was 7. He was euthyroid, Thyroid Stimulating Hormone receptor antibodies(TRAb) were negative (mildly positive 10years ago) with positive thyroid peroxidase antibodies(anti-TPO). He was commenced on methyl prednisolone with clinical improvement. Case 2: 77-year-old, non-smoker female, presented with diplopia and grittiness in both eyes for 6months. She had autoimmune hypothyroidism for 20years treated with Levothyroxine. She had right proptosis with chemosis, CAS score 2, no palpable goitre. Magnetic Resonance Imaging of orbits confirmed bilateral thyroid eye disease. She had positive TRAb and anti-TPO, biochemically euthyroid. She was commenced on selenium supplements, eye drops with clinical improvement.
Results: Discussion Prevalence of TAO with hyperthyroidism, euthyroidism and hypothyroidism is 86.2%, 7.9% and 10.36% respectively. Hashimoto's and Graves' diseases (GD) are autoimmune thyroid conditions, with TAO seen in 6% and 25% respectively. TAO in GD was mostly related to TRAb while pathogenesis of TAO with negative TRAb is unclear. When hypothyroid and euthyroid patients with TAO are TRAb negative, other conditions need to be considered including sphenoid meningioma, cavernous carotid fistula, orbital tumours, and IgG4-related disease. TAO in HT is associated with heavy smoking, older patients, longer duration of HT with TRAb positivity in 5.5%. Smoking increased risk by seven-eight-fold, worsens the course, prognosis, and response to treatment. Selenium has been shown to slow disease progression in mild TED. Studies have shown low vitamin D levels with HT and association with abnormal TFT and anti-thyroid autoantibodies. However, large prospective trials are required to identify role of vitamin D deficiency in development of TAO with HT.
Conclusions: Conclusion: Our first case highlights recurrent severe TAO with HT in the absence of TRAb. Even though minor ocular symptoms are prevalent with HT, severe orbitopathy, especially in absence of TRAb is rare. Our second case highlights mild TAO despite being TRAb positive and longer duration of HT. Patients with TAO and HT need careful and continued interdisciplinary management.

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01-03-2024 07:00 - 18:00

CD20+ T LYMPHOCYTES IN HASHIMOTO'S THYROIDITIS: A PYLOT STUDY

Marco Centanni[1], Ilaria Stramazzo[1], Giorgio Mangino[1], Giovanna Romeo[1], Silvia Capriello[1], Silvia Martina Ferrari[2], Poupak Fallahi[3], Maria Flavia Bagaglini[1], Camilla Virili[1]
[1]"Sapienza" University of Rome, Medico-surgical Sciences And Biotechnologies, Latina, Italy, [2]University of Pisa, Department Of Clinical And Experimental Medicine, Pisa, Italy, [3]University of Pisa, Department Of Translational Research And Of New Technologies In Medicine And Surgery, University Of Pisa, Pisa, Italy, Pisa, Italy

Background and Aims: The non-glycosylated protein CD20 is an immune phenotypic marker associated with B
lymphocyte population. However, it has been described a subset of T lymphocytes expressing this surface antigen. Indeed, up to 5% of circulating T lymphocytes are CD20 positive $CD3^+CD20^+$ T cells. These cells have been shown to produce higher levels of inflammatory cytokines than those of $CD3^+CD20^-$ T lymphocytes. Some reports described the role of $CD3^+CD20^+$ T cells in autoimmune disorders such as multiple sclerosis and rheumatoid arthritis. This study is aimed at describing the behavior of $CD3^+CD20^+$ T lymphocytes in patients with isolated Hashimoto's thyroiditis (HT), in relation with thyroid function, or when associated in a frame of poly-autoimmunity.
Methods: The study group encompasses 65 HT patients, 23 presenting in isolated form (IT) and 42 with an associated non-endocrine autoimmune disorder [16 with chronic atrophic gastritis (CAG), 15 with nonsegmental vitiligo (VIT) and 11 with celiac disease (CD)]. Twenty healthy donors act as control group (HD). The chronic use of interfering drugs, severe or chronic disorders, pregnancy and lactation were used as exclusion criteria. Whole blood samples (100 microliters) were stained with the fluorescent-labelled antibodies. Red blood cells were then lysed by adding 1 ml of hypotonic buffer and samples were acquired on a FACs ARIA II Flow Cytometer (BD). Gating strategy, starting from CD3 positive cells T lymphocytes, was based on the progressive exclusion of $CD16^+$ and $CD19^+$ (B lymphocytes), of CD56 (natural killer). Then $CD4^+$,$CD8^+$ and $CD4^-/CD8^-$ cells were characterized and the percentage of $CD20^+$ cells has been analyzed in each subset.
Results: $CD8^+CD20^+$, but not $CD4^+$ $CD20^+$ cells were higher in the whole group of autoimmune patients than in HD (p=0.0145). IT patients showed higher percentages of $CD3^+CD8^+CD20^+$ than in HD patients although not reaching statistical significance. Interestingly, hypothyroid patients showed a percentage of $CD8^+CD20^+$ cells almost doubled (ANOVA p= 0.0111) compared to both healthy donors and euthyroid HT patients (Dunn post test $p<0.05$ for both). In these patients, $CD8^+CD20^+$ percentages negatively correlated with FT4 levels (p=0.0171; r=-0.4921). Upon subdivision, HT patients with concomitant CAG group showed the highest percentage of this cells as compared to HD and CD (p=0.0058).
Conclusions: Despite the obvious limitations of a pilot study, these preliminary findings indicate that $CD8^+CD20^+$ T lymphocytes are higher in patients with autoimmune thyroiditis and differently modulated according to thyroid function, the phase of the autoimmune process and the autoimmune disorders associated with thyroiditis.

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PREVALENCE OF HYPOTHYROIDISM IN IRAN BASED ON IRANIAN MULTI-CENTER OSTEOPOROSIS STUDY (IMOS) 2021-2022

Sepideh Hajivalizadeh[1], Kazem Khalagi[1], Mohammad Javad Mansourzadeh[1], Amirhossein Aghakhani[1], Mahnaz Sanjari[1], Elahe Hesari[1], Fatemeh Hajivalizadeh[2], Gita Shafiee[3], Farshad Farzadfar[4], Farideh Razi[5], Nekoo Panahi[6], Alireza Raeisi[7], Bagher Larijani[8], Noushin Fahimfar[1], Afshin Ostovar[1]
[1]Osteoporosis Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran university of medical sciences, Tehran, Iran, [2]Center for Non-Communicable Disease Control & Prevention, Deputy of Public Health, Ministry of Health and Medical Education, Tehran, Iran, [3]Chronic Diseases Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, [4]Non-Communicable Diseases Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, [5]Metabolomics and Genomics Research Center, Endocrinology and Metabolism Molecular-Cellular Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, [6]Metabolic Disorders Research Center, Endocrinology and Metabolism Cellular and Molecular Institute, Tehran University of Medical Sciences, Tehran, Iran, [7]Department of Internal Medicine, Shiraz University of Medical Sciences, Shiraz, Iran, [8]Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran

Background and Aims: The thyroid gland, one of the most important components of the endocrine system, affects many organs involved in metabolism. Bone regulation and maintenance are under the influence of thyroid hormones as well. Hypothyroidism is one of the most common thyroid-related diseases that have complex effects on the function of different systems in the body and estimating its prevalence is substantial for investigating its significant impact on health conditions. Hence, we evaluated the prevalence of hypothyroidism in Iran based on the Iranian Multi-center Osteoporosis Study (IMOS) 2021-2022.
Methods: The study population of IMOS was 1450 individuals ≥ 50 years. In total, 31 provinces of Iran were stratified into five strata based on the distribution of osteoporosis risk factors in them. After stratifying them, one or two provinces were randomly selected from each stratum. Finally, people were selected randomly from 8 provinces. Data were collected by questionnaires, lab tests, Dual-energy X-ray Absorptiometry (DXA), and physical examination. Among data collected through lab tests and questioning, thyroid stimulating hormone (TSH) levels and drug history of Levothyroxine for each subject were extracted. Hypothyroidism was defined as elevated TSH or the use of Levothyroxine in drugs. We used survey weights in estimating prevalences and STATA was used for statistical analysis.
Results: After excluding missing data, statistical analysis was conducted for 1342 subjects. The total prevalence of hypothyroidism was 22.2% (95%CI: 19.7-25). Prevalence of hypothyroidism among men and women was reported as 13.3% (95%CI: 10.4-16.8) and 29.4% (95%CI: 25.7-33.5) respectively. The prevalence was 22% (95%CI: 19.1-25.3) for subjects <65 and 22.8% (95%CI: 18.3-28) for subjects ≥65 years. Prevalence of hypothyroidism was also reported based on areas as 19.2% (95%CI: 15-24.2) for rural and 23.3% (95%CI: 20.3-26.6) for urban areas.
Conclusions: The prevalence of hypothyroidism as one of the most prevalent thyroid-related diseases is one of the substantial reports for each country. Since IMOS was a national study with more than 1400 subjects, it was practical in estimating the prevalence of hypothyroidism in the country. Results indicated

that more than one person out of five is diagnosed with hypothyroidism in Iran. Accordingly, focusing on hypothyroidism and the impact of it is imperative.

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01-03-2024 07:00 - 18:00

MORE STABLE TSH LEVELS IN HYPOTHYROID PATIENTS UNDER THERAPY WITH LIQUID LEVOTHYROXINE (L-T4; VS. TABLET L-T4)

Poupak Fallahi[1], Silvia Martina Ferrari[2], Francesca Ragusa[3], Giusy Elia[3], Sabrina Rosaria Paparo[3], Eugenia Balestri[3], Chiara Botrini[3], Armando Patrizio[4], Valeria Mazzi[3], Alessandro Antonelli[3]
[1]University of Pisa, Department Of Translational Research And Of New Technologies In Medicine And Surgery, Pisa, Italy, [2]University of Pisa, Department Of Clinical And Experimental Medicine, Pisa, Italy, [3]University of Pisa, Department Of Surgical, Medical And Molecular Pathology And Critical Area, Pisa, Italy, [4]Azienda Ospedaliero-Universitaria Pisana, Department Of Emergency Medicine, Pisa, Italy

Background and Aims: Background and aims: About 5% of the population is affected by hypothyroidism, overall women and subjects over 60 years of age. The standard treatment for hypothyroidism is Levothyroxine (L-T4) which is administered under different formulations. The most used and common formulation is the tablet one. In the clinical practice once reached stable thyroid-stimulating hormone (TSH) levels in the normal range, patients are monitored by an annual test of the TSH levels to adjust the therapy, if necessary. Our aim was to evaluate if hypothyroid patients have more stable TSH levels under a L-T4 therapy in a liquid formulation, compared to the tablet one.
Methods: We compared two groups of patients, one including 708 hypothyroid patients in treatment with liquid L-T4, age- and gender-matched with another group of 355 hypothyroid patients receiving tablet L-T4. All patients did not report any malabsorption or drug interference issues, and had normal serum TSH levels at the basal evaluation. Patients were monitored for two years, and their serum TSH, FT3, FT4 levels were measured after one and two years.
Results: At the first abnormal TSH value, we evaluated age, gender, body mass index, history of chronic autoimmune thyroiditis, initial TSH, and L-T4 dosage. At the time of initial normal TSH, these parameters were not significantly associated with time to abnormal TSH values. We obtained the following results: after 1 year, TSH values were normal in 86% of the patients who received L-T4 liquid formulation, and only in 78% of patients treated with tablet L-T4; after 2 years, TSH values resulted normal in 83% of patients receiving L-T4 liquid formulation, and only in 74% of those with tablet L-T4 ($P<0.05$).
Conclusions: Since large population studies demonstrated an increased mortality in people with TSH in the hypothyroid range, the maintenance of a stable TSH level in the normal range is very important. In this study we showed a better control of TSH levels in the long-term follow-up in hypothyroid patients who received a liquid L-T4 therapy.

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SERUM TSH LEVELS NORMALIZATION IN PATIENTS WITH ENTERIC L-THYROXINE (L-T4) MALABSORPTION ISSUES, AFTER THE SWITCH FROM ORAL TABLET L-T4 TO THE LIQUID FORMULATION

Poupak Fallahi[1], Silvia Martina Ferrari[2], Giusy Elia[3], Francesca Ragusa[3], Armando Patrizio[4], Sabrina Rosaria Paparo[3], Eugenia Balestri[3], Chiara Botrini[3], Valeria Mazzi[3], Alessandro Antonelli[3]
[1]University of Pisa, Department Of Translational Research And Of New Technologies In Medicine And Surgery, Pisa, Italy, [2]University of Pisa, Department Of Clinical And Experimental Medicine, Pisa, Italy, [3]University of Pisa, Department Of Surgical, Medical And Molecular Pathology And Critical Area, Pisa, Italy, [4]Azienda Ospedaliero-Universitaria Pisana, Department Of Emergency Medicine, Pisa, Italy

Background and Aims: Background and aims: Many different factors can impair L-thyroxine (L-T4) absorption, such as enteric diseases (ED). It has been shown that patients with ED, such as Crohn disease, ulcerative colitis, colectomy performed for different disorders, can suffer from L-T4 tablets malabsorption. The aim of our study was to investigate if these issues can be overcome by using a different formulation of L-T4.
Methods: We enrolled 39 patients with ED, who received L-T4 in the tablet formulation and had elevated serum thyroid-stimulating hormone (TSH) levels. All the patients were switched to the oral liquid L-T4 formulation at the same dose.
Results: After the switch to the L-T4 liquid formulation (at the same tablet dose), we observed a reduction, or normalization, of serum TSH levels. Furthermore,12 patients were switched again to L-T4 in tablets (at the same dosage) for different reasons, and TSH levels got worse (reaching the hypothyroid range).
Conclusions: The results of our study support the use of L-T4 liquid formulation in overcoming the issues of the LT-4 absorption impairment in ED. Other conditions of altered L-T4 absorption need to be investigated in order to evaluate if the liquid L-T4 formulation can perform better in the management of this kind of issues.

PV379 / #161

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ASSOCIATION BETWEEN SHOULDER CALCIFICATION TENDINOPATHY AND BENIGN THYROID NODULES.

Alin Pandea, Claudia Grigorov
Regina Maria, Orthopaedics, Bucharest, Romania

Background and Aims: Background It appears that there is an association between thyroid benign nodules and shoulder calcification tendinopathy. Aim To assess the association of thyroid disorders and shoulder calcification tendinopathy by comparing this group with controls without thyroid disease and with rotator cuff tendinopathy.
Methods: We evaluated 40 patients who presented benign thyroid nodules and shoulder pain. All of the participants answered the questionnaire on the following variables: age, gender, body mass index (BMI), occupation, physical activity, presence of thyroid disorders, shoulder disorders and other comorbidities, smoking and use of alcohol. Ultrasound examination was performed by the orthopaedic doctor and thyroid nodule ultrasound evaliotion was performed by the endocrinologist
Results: When comparing the thyroid nodules group with the control and rotator cuff groups, there is a specific association between the presence of thyroid disorders and shoulder tendinopathy. By calculating relative risk, it is possible to state that an individual with thyropathy has a higher chance of developing shoulder tendinopathy and frozen shoulder. Also, there was an association with gender, since women with frozen shoulder exceeded significantly the risk.
Conclusions: Thyroid disorders, especially hypothyroidism and the presence of benign thyroid nodules, are risk factors significantly associated with frozen shoulder, rising the chances to 3 times of developing frozen shoulder.

PV380 / #1776

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TUBERCULOUS THYROIDITIS

Juan Pablo Hayes Dorado, Gerben Justiniano Vargas, Marco Antonio Rossell Lopez, Jose Francisco Leon Arze, Gerardo Mauricio Vaca Torruella, Barbara Kathryn Barbehito Espinoza, Olivia Daniela Frias Eid, Angel Vladimir Perez Miranda
Caja Petrolera de Salud, Santa Cruz de la Sierra, Bolivia

Background and Aims: Tuberculosis of the thyroid gland is an extremely unusual diagnosis. In the rare thyroid involvement of tuberculosis infection, the clinical presentation is variable, though most frequently with a subacute manifestation.
Methods: We present a case of 14 years male adolescent with midline neck swelling for the past 4 months. He also had low-grade intermittent fever. There was no history of associated difficulty in swallowing or breathing. No features suggestive of hypothyroidism or hyperthyroidism were present. Thyroid gland was enlarged measuring 3.5 × 3.0 cm, firm in consistency and moving with deglutition. On ultrasonography, thyroid gland was diffusely enlarged with altered echotexture. Multiple ill-defined and few well defined nodules were seen in both lobes. Computed tomography (CT) scan neck showed large bilateral lobes of thyroid showing heterogeneous tissue density. X-ray chest revealed non-homogenous opacity in the lower zone of lung on the right side. Ultrasound of the abdomen revealed enlarged lymph nodes in periportal, portal, peripancreatic para-aortic regions. Erythrocyte sedimentation rate was 63 mm/h. T4, T3 and TSH were within the normal limits and anti-thyroid peroxidase antibody was negative. On fine needle aspiration yellowish material was obtained. Giemsa-stained smears showed large areas of caseous necrosis with few epithelioid cell granulomas and foamy histiocytes. Ziehl-Neelsen stain revealed occasional acid-fast bacilli.
Results: A final cytological diagnosis of tuberculous thyroiditis was made. Anti-tuberculous therapy with four drugs for two months followed by consolidation phase of two drugs for four months was advised. A follow-up examination at six months showed significant reduction in the size of swelling.
Conclusions: Involvement of the thyroid gland by tuberculosis is very rare and is usually secondary to disseminated infection. Cervical ultrasound, although necessary, is often non-specific, as are CT and MRI scans. Fine needle biopsy of lesions can be very useful. Complete resolution of thyroid tuberculosis is possible with appropriate and adequate duration of anti-tuberculous drug treatment. Surgical drainage or resection may be needed in patients with large abscess. Tuberculosis of the thyroid gland, although rare, should be considered in differential diagnosis of thyroid swelling, especially in endemic areas.

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HYPOTHYROID MYOPATHY

Juan Pablo Hayes Dorado, Carlos Eduardo Aliaga Valenzuela, Victor Hugo Cuellar Saucedo, Diego Ruben Salinas Encinas, Lidmar Esteban Padilla Vargas, Carlos Alberto Paz Roman, Reyna Ester Callisaya Calani, Luis Ernesto Dellien Bianchi, Juan Carlos Portugal Claros
GlobalPediatrics, Santa Cruz de la Sierra, Bolivia

Background and Aims: Muscular symptoms in hypothyroidism are common, including myalgia, fatigue and cramps; however, a significantly raised creatine kinase and muscle weakness are rare. Differential diagnosis of patients presenting with muscle weakness and a raised creatine kinase is wide, and hypothyroidism is rarely considered.
Methods: A 14-year-old female was attended with a 6 weeks history of global muscle weakness, myalgia and frequent muscle spasms. She also reported a history of weight gain and tiredness. She had no other past medical history. She was not on any prescription. Vital signs were within normal limits. Examination of the cardiovascular system, respiratory system, abdomen and extremities were unremarkable. There was evidence of proximal, symmetrical muscle weakness with muscle tenderness. The deep tendon reflexes were normal. There was no sensory disturbance or signs of encephalopathy. Her creatine kinase was elevated. Investigations were performed to exclude the causes of myopathy. These included viral screen (cytomegalovirus, Epstein-Barr virus and hepatitis B and C), serum cortisol, serum prolactin and 25OH vitamin D, all of which were normal. Rheumatological screening tests (including ESR, rheumatoid factor and auto-antibody screen) were normal. Primary hypothyroidism due to Hashimoto's thyroiditis was confirmed with a significantly raised thyroid-stimulating hormone (TSH) 89 mU/L (normal range 0.35–4.7), free T4 4.3 pmol/L (normal range 7.8–21) and free T3 2.3 pmol/L (normal range 3.8–6). Thyroid peroxidase antibodies were 760 U/mL (normal 0–75).
Results: The patient was commenced on levothyroxine replacement for her hypothyroidism. Treatment with levothyroxine led to normalization of creatine kinase and complete resolution of her proximal myopathy over a period of 3 months.
Conclusions: Myopathy can present with muscle weakness/myalgia and typically has a raised creatine kinase. There are numerous causes of myopathy including infectious, autoimmune and iatrogenic. Hypothyroidism commonly presents with muscular symptoms including myalgia, fatigue and cramps, however is rarely considered as a cause of proximal myopathy and a significantly raised creatine kinase. This case illustrates proximal myopathy can be secondary to hypothyroidism, symptoms can resolve with thyroxine replacement and emphasizes the importance of measuring thyroid function in patients with proximal weakness/myalgia and a significantly raised creatine kinase.

PV382 / #1411

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ASSOCIATION OF HUMAN LEUKOCYTE ANTIGENS (HLA) GENOTYPES WITH ANTITHYROID DRUG-INDUCED AGRANULOCYTOSIS AMONG FILIPINOS: A CASE-CONTROL STUDY

Hernessa Hernandez, Cecilia Jimeno
Philippine General Hospital, Endocrinology Diabetes And Metabolism, Manila, Philippines

Background and Aims: Human Leukocyte Antigen (HLA) allele; B* 27:05, and B*38:02 and DRB1*08:03 have been shown to be associated with anti-thyroid drug (ATD) -induced agranulocytosis among Caucasians and Asians. The frequency of these alleles may be different across populations. This study was conducted to determine the association of HLA genotypes with antithyroid drug-induced agranulocytosis among Filipinos. Furthermore, this study aims to describe the clinical characteristics of patients who developed ATD-induced agranulocytosis, and to investigate the association between agranulocytosis and the candidate genetic markers namely, HLA-B*38:02:01 and HLA- DRB1*08:03.
Methods: Human Leukocyte Antigens on B and DR regions were analyzed among patients with Graves' disease who had agranulocytosis, defined as ANC of less than 1500 cells/uL during the first three months of ATD treatment and the matched non-agranulocytic controls. The venous blood samples were sent to Philippine Genome Center. Sequence-based typing using the nested polymerase chain reaction approach was used for the analysis.
Results: ATD-induced agranulocytosis occurred in females more than in males, with a median age of 30 years (range 20 to 55 years). Sore throat and fever were the most common presenting symptoms. The mean duration from the anti-thyroid drug initiation to symptom onset was 10 days (range 3 to 232 days). Most case (n=26, 96%) were prescribed with methimazole and a dosage of 40 mg per day. The median Absolute Neutrophil Count (ANC) of the agranulocytosis group was 0 cells/uL (range 0 to 1,470 cells/uL). The target HLA-B*38:02:01 allele was not detected in both the case and control groups. A different allele, HLA-B*15:13:01 was identified among the cases and showed a strong positive association with agranulocytosis (OR:63.3, p=0.0002). The study failed to produce the HLA-DR PCR products.
Conclusions: Antithyroid drug-induced agranulocytosis can occur at any age group, and even months after treatment. The first two weeks of ATD initiation is the most critical phase, thus, health education as to the adverse effects of the drug is important. HLA B*38:02 was not detected among Filipinos who had ATD-agranulocytosis. A different allele, HLA-B*15:13:01 requires further investigation in large population as it has the potential to be used as a clinical marker to predict ATD-induced agranulocytosis among Filipinos, preventing deaths related to this complication. Its reproducibility may be challenging especially in resource-limited areas. Further studies are also needed on the methodologies to produce the PCR products in the DR region, as there may be specific alleles in this area also unique to Filipinos that predispose them to ATD-induced agranulocytosis.

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EFFECT OF YOGA PRACTICES ON CLINICAL & PSYCHO-BIOCHEMICAL PARAMETERS IN HYPOTHYROID PATIENTS: A RANDOMIZED CONTROLLED TRIAL

Khushbu Jain[1], Yazurved Sharma[2], Ratnesh Kanwar[3], Rashmi Aggrawal[4], Reena Wilfred[4], Kuntal Bhadra[4], Vikram Singh[5]
[1]Morarji Desai National Institute of Yoga, Ministry of Ayush, Govt. of India, Dept. Of Allied Sciences, 68, Ashoka Road, Delhi, India, [2]MORARJI DESAI NATIONAL INSTITUTE OF YOGA, Department Of Allied Sciences, 68, Ashoka Road, Delhi, DELHI, India, [3]Institute of Nuclear Medicine and Allied Sciences, DRDO, Timarpur, Crmm, DELHI, India, [4]Institute of Nuclear Medicine and Allied Sciences, DRDO, Timarpur, Crmm, Delhi, India, [5]Morarji Desai National Institute of Yoga, 68, Ashoka Road, Delhi, Delhi, India

Background and Aims: Hypothyroidism, the primary thyroid ailment in India, afflicts 11% of the population (in comparison to 2% in the UK and 4.6% in the USA).1 Most patients require lifelong thyroid hormone treatment which has possible side effects therefore, yoga can be used as a safe alternative treatment. According to yogic texts, the yogic practices such as Nabho Mudra (Yogic Mudra)[2] and Chaitanya Kendra Preksha might stimulate the endocrine gland (thyroid gland). Hence, the randomized controlled trial (RCT) was designed with the objective of enhancing the psycho-biochemical well-being in hypothyroid patients by such practices
Methods: The study registered 80 hypothyroid patients (both male and female) randomized into experimental (n=40) and controlled (n=40) group. The study is ongoing at present. The patients were referred by MBBS doctors from INMAS, DRDO, India. The yogic intervention (mainly comprise of Nabho Mudra and Chaitanya Kendra Preksha for 20 minutes) for 7 days/week was administered for 2 months. The parameters assessed were TSH drug dose, anxiety and depression (HADS), fatigue (Fatigue Severity Scale), sleep (Pittsburgh Sleep Quality Index), symptoms of constipation (PAC-SYM tool), BMI, Body Composition (BMR, TEE, SMM, BFM, PBF, VFL), serum TSH levels and Lipid Profile (TC, TG) at baseline and endline of intervention.
Results: As this is ongoing study at present, data given of 25 subjects.The intervention has remarkably significant results. The significant results emerged in reduction of TSH oral dose from (108.33±25.81) to (92.7±22.65) in experimental group ($p<0.05$), psychological symptoms, including decrease in the level of anxiety and depression ($p<0.05$), decrease in fatigue ($p\leq0.01$), improvement in sleep quality ($p<0.05$), and decrease in symptoms of constipation ($p<0.05$) were observed at post-intervention. Decrease in BMI, BFM, PBF ($p<0.05$) were also observed. Non-significant positive trends were observed in the BMR (↑), TEE (↑), SMM (↓), VFL (↓). Significant improvements were evident, with serum TSH levels ($p<0.05$) and Lipid Profile ($p<0.05$) demonstrating notable reductions. Conversely, the control group has no significant changes.
Conclusions: This RCT unequivocally confirms the efficacy of Nabho Mudra and Chaitanya Kendra Preksha in relieving clinical, psychological and biochemical symptoms in hypothyroid individuals. Promisingly, these results suggested reduced drug/medicine dosage of TSH in experimental group and improved symptoms of patients. Clinical Trial Registry of India registration number: CTRI/2023/06/053550
Abbreviations: ↑: Increase; ↓: Decrease; BMI: Body Mass Index; BMR: Basal Metabolic Rate; TEE: Total Energy Expenditure; SMM: Skeletal Muscle Mass; BFM: Body Fat Mass; PBF: Percent Body Fat; VFL: Visceral Fat Level; TSH: Thyroid Stimulating Hormone; TC: Total Cholesterol; TG: Triglycerides

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HEALTH RELATED QUALITY OF LIFE AMONG WOMEN WITH THYROID DYSFUNCTION IN A TERTIARY ENDOCRINE CENTER IN NEPAL

Ansumali Joshi, Srijana Karmacharya, Prajina Mishra, Renuka Adhikari
Kathmandu Diabetes and Thyroid Center, Endocrine, Lalitpur, Nepal

Background and Aims: Thyroid dysfunction is a common endocrine disorder and is more prevalent in women. It can impact their physical and emotional wellbeing. This study aimed to evaluate the health-related quality of life (HRQOL) among women with thyroid dysfunction under medication for at least 6 months.
Methods: A cross-sectional, observational study was conducted in our center. HRQOL was measured by a validated Nepali version of short- form 36 (SF-36) questionnaire. The SF-36 included 8 domains which were physical functioning, role limitation due to physical health, role limitation due to emotional problem, energy/fatigue, emotional wellbeing, social functioning, pain and general health perceptions. Scores ranged from 0 to 100. Lower scores denote more disability; higher scores denote less disability. Socio-demographic, health related and lifestyle related variables and self-rated health perception on HRQOL were recorded for analysis. Data was collected in kobo toolbox and analyzed using IBM SPSS v 16. The association between HRQOL and different variables were assessed using ANOVA test. Pearson correlation coefficient was used to assess the relationship between different domains of HRQOL.
Results: 422 female patients with thyroid dysfunction under medication were enrolled in this study. The mean age of the patients was 36.2±10.6 years. The mean score of HRQOL domains were the following: physical functioning 75.4±21.4, role limitation due to physical functioning 48.9±12.5, role limitation due to emotional problems 55.8±17.3, energy/ fatigue 47.1±10.4, emotional wellbeing 54.1±12.7, social functioning 56.5±18.7, pain 51.5±25.7 and general health 51.4±15.5. Energy/ fatigue domain, with the least score was significantly associated with ethnicity (p=0.008) and marital status (p=0.047). Role limitation due to physical functioning,another domain with lower score, was significantly associated with ethnicity (p=0.001), marital status (p=<0.001), residence (p=<0.001), education (p=0.004) and physical functioning (p=<0.001). There were statistically significant positive correlations among all the domains of HRQOL. Presence of co-morbidities were significantly associated with deceleration in physical functioning (p=<0.001), role limitation due to physical functioning (p value=<0.001), role limitation due to emotional wellbeing (p value=<0.001) with mean score of (45.04±22.2, 59.5±19.4 and 33.5±13.5) respectively.
Conclusions: Majority of the domains of HRQOL were reduced in women with thyroid dysfunction. Energy/Fatigue and role limitation due to physical functioning had lower score compared to other domains of HRQOL. Women with co-morbidities and reproductive health problems perceived diminished general health status in comparison to other categories. All health care personnel should be aware of poor health related quality of life in women with thyroid dysfunction and provide supportive care as well.

PV385 / #1907

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IODINE-INDUCED TRANSIENT HYPOTHYROIDISM IN A FULL-TERM INFANT DUE TO THE MATERNAL USE OF IODINE-CONTAINING ANTISEPTICS

Natalia Kalinchenko
Endocrine Research center, Moscow, Russian Federation

Background and Aims: A full-term infant was born by Cecarian section due to severe trauma of both legs of the mother on the 36th week of gestation. The mother was involved in a serious car crash accident, caused multiple bone fractures of both legs. After the accident an iodine-containing antiseptics have been used up to the delivery. Baby girl was born healthy and underwent routine newborn screening for hypothyroidism on day 3. TSH was more than 100 mIU/L, T4 free within normal range. Retest showed no changes and US of thyroid gland revealed normally positiones thyroid tissue with normal volume of 0.9 cm^3. Primary hypothyroidism (PH) was diagnosed and Levothyroxine therapy was initiated with unusual for PH small dose 10 mkg/day (3.5 mkg/kg). One week later TSH dropped to 2.5 mIU/L. Levothyroxine was discontinued at the age of 5 mo, and one month later TSH level was 2,3 mIU/L.
Methods: National screening test: TSH are assayed on filter-paper blood specimens by a time-resolved fluoroimmunoassay procedure (AutoDELFIA system; Perkin-Elmer; normal range for TSH, <9 mU/L at more than 48h of age
Results: Normal level of TSH without treatment was consistent with a diagnosis of Iodine-induced transient hypothyroidism.
Conclusions: This case emphasize the need of careful evaluation of medical history in newborns with positive Thyroid screening test.

PV386 / #1445

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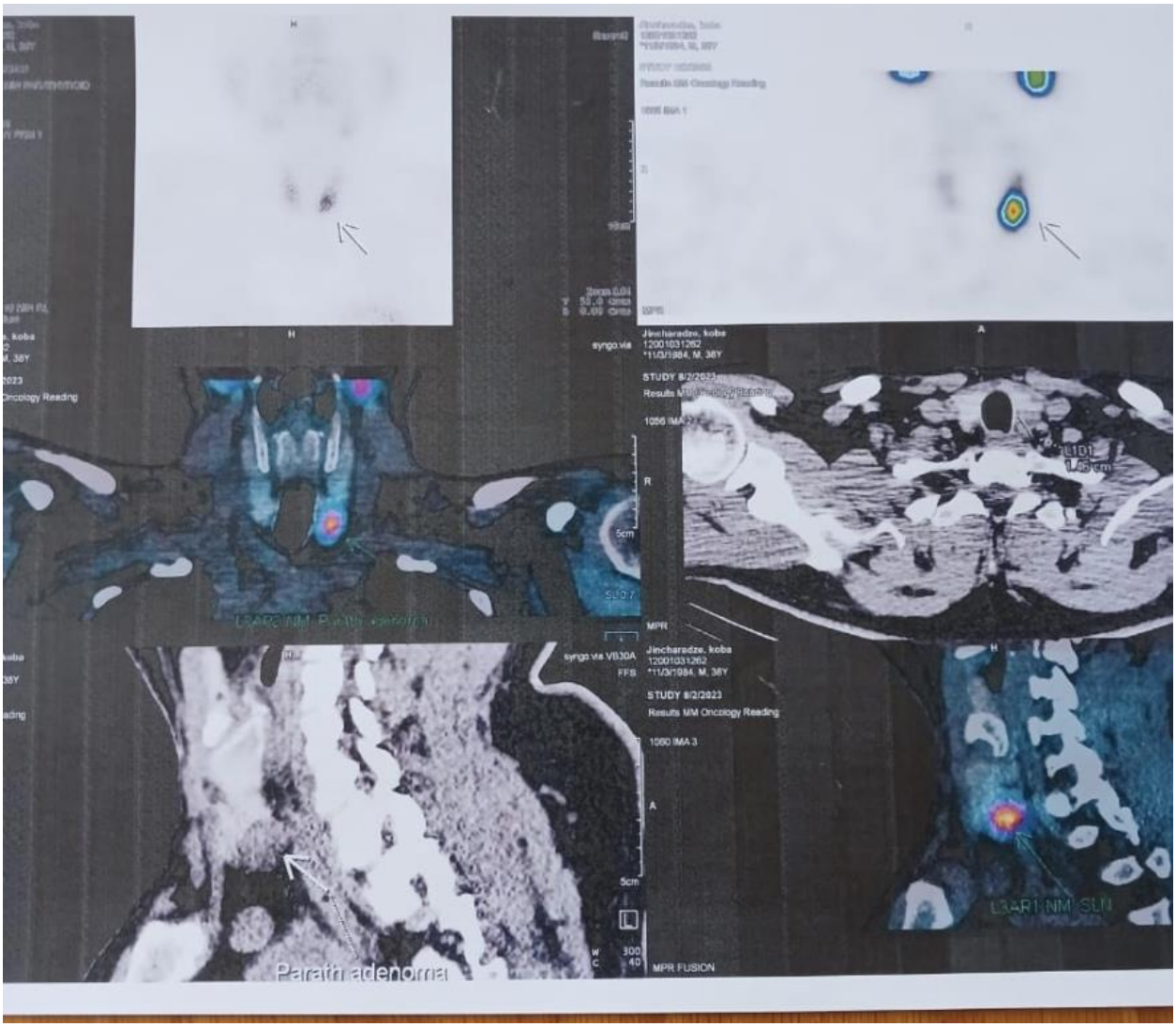
COMPLEX ENDOCRINE AND METABOLIC DISORDERS IN A 42-YEAR-OLD MALE

Teona Kandinashvili
National center of surgery clinic “New life”, Endocrinology, Tbilisi, Georgia

Background and Aims: Patient presented to the Endocrinology Department with a variety of symptoms, including dizziness, weight gain, lethargy, headaches, polydipsia, increase blood pressure, muscle weakness. He noted in the anamnesis nephrolithiasis, that hi often comes in emergency with an acute episode of renal colic. He also made lithotripsy several times but inspite of this few moment, later new stones would arise production. Patient also said that for 2 monthes he was on fasting and he did not take milk, milk product and meat.
Methods: We began clinical laboratory research.
Results: Result: TSH-70mIU/l (reference range -0,4-4) , FT4-0,4ng/dl, (reference range -0,8-1,8) HBA1C-7.8%, (reference range -4-5,6%) Ionized calcium-1,60mmol/l (reference range -1.13-1.32). After this result the thyroid gland ultrasound was made, result: a nodule 8x3x10mm in the left thyroid lobe was identified(EU- TI- RADS 4) and extra glandular of thyroid hyperplasic parathyroidal gland or paratraceal cyst. The laboratory results indicated low levels of thyroxine (FT4) and elevated levels of thyroid-stimulating hormone (TSH), consistent with primary hypothyroidism. Patient initiated levothyroxine therapy to address primary hypothyroidism and thyroid dysfunction. Also metformin, Diet and Lifestyle Modifications for type 2 diabetes mellitus, and he was given recommendation of additional clinical laboratory studies (Parathyroid hormone (PTH), total calcium, phosphorus, vitamin D, creatinine, lipid spectrum, biopsy of thyroid nodule, Single Photon Emission Computed Tomography scan with a CT (Computed Tomography) scan. RESULT: PTH- 80,76pkg/ml reference range-15-65 TOTAL CALCIUM-3,16mmol/l, reference range-2,15-2.5 PHOS-0.70mmol/l, reference range-0.81-1.45 Vitamin D-23.9 ng/ml reference range-30-100. A SPECT-CT scan confirmed the presence of a parathyroid adenoma.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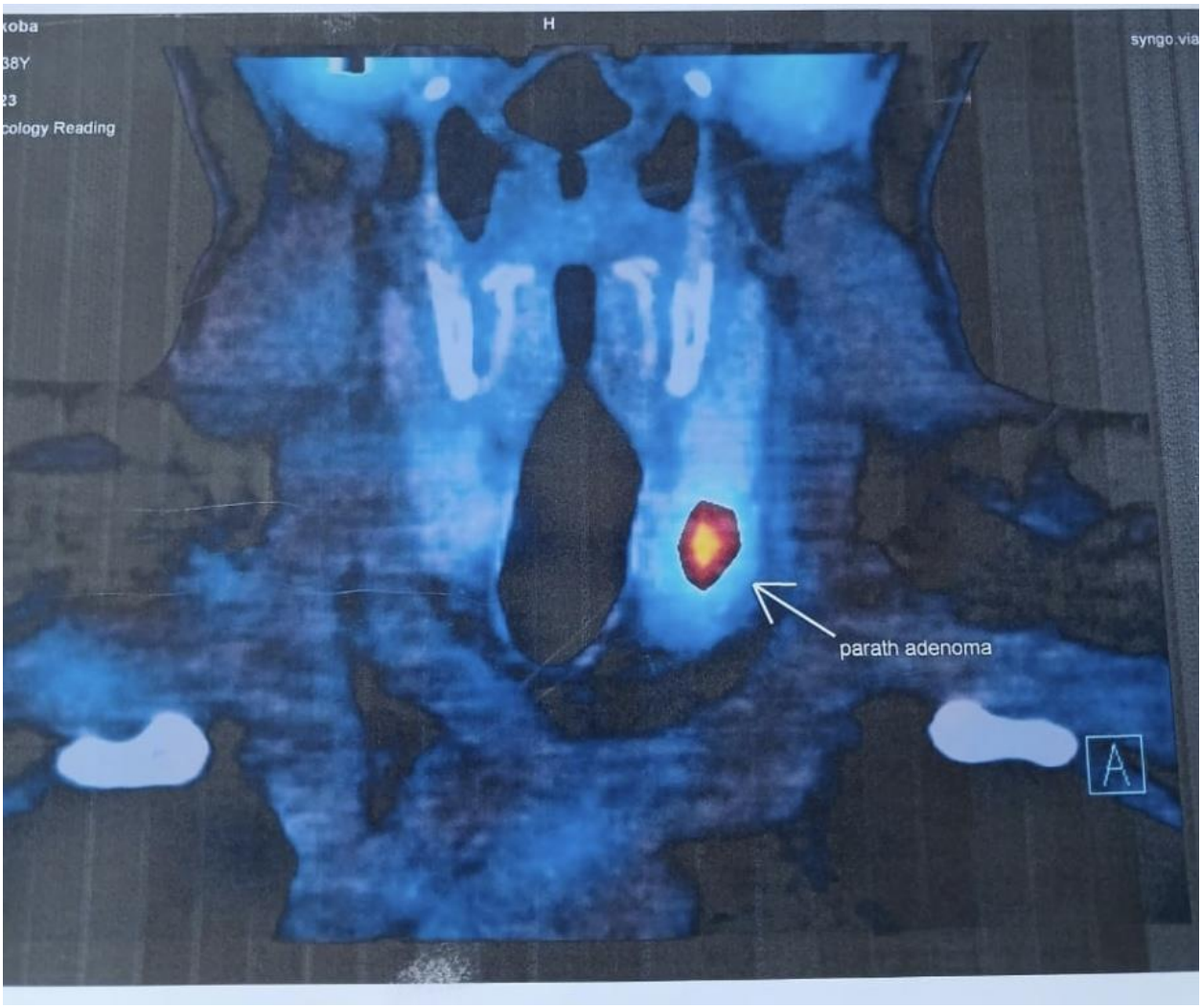

SPECT-CT - parathyroid adenoma. Thyroid nodule biopsy -(Bethesda II) did not suggest malignancy. Primary hyperparathyroidism was diagnosed, patient was consulted by surgen, and the operation was planed.

Conclusions: This case presented a challenging clinical scenario involving the coexistence of primary hyperparathyroidism, non-toxic thyroid nodules, primary hypothyroidism and diabetes mellitus in a 42-year-old male patient. Also important mesuring of calcium when patient has nephrolithiasis and when patient does not take food rich in calcium. All this disease increase risk of cardiovascular disease and mortality. so the diagnosis and management of these interconnected endocrine and metabolic disorders required a multidisciplinary approach, involving endocrinology and surgery. Comprehensive evaluation, including laboratory tests, imaging studies, and biopsies, allowed for accurate diagnoses and treatment planning. The successful management of complex endocrine and metabolic disorders emphasizes the importance of timely diagnosis and treatment in achieving favorable outcomes.

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QUALITY OF LIFE IN PATIENTS UNDERGOING ENDOSCOPIC THYROIDECTOMY VS. CONVENTIONAL OPEN THYROIDECTOMY.

Kamal Kataria[1], Vaibhav Aggarwal[1], Shipra Agarwal[2]
[1]All India Institute of Medical Sciences, Delhi, Surgical Disciplines, Delhi, India, [2]All India Institute of Medical Sciences, Delhi, Pathology, Delhi, India

Background and Aims: Thyroidectomy is the preferred modality of treatment in many patients and is conventionally done by an open approach using a cervical incision. However, the concerns for neck scars led to the development of endoscopic thyroidectomy (ET), the most popular being the bilateral axillo breast (BABA) approach and axillo-breast approach (ABA). We determined whether endoscopic thyroidectomy (ET) is associated with better health-related quality of life (HRQOL) compared to open thyroidectomy (OT).
Methods: We randomly assigned 28 patients aged;18 years or above, having Bethesda IV or less on cytology and a gland volume of approximate 40 ml. These patients underwent hemithyroidectomy via either open or endoscopic (ABA/ BABA) technique. The primary outcome was QOL scores on the SF-36 and Thyroid Specific Questionnaire (TSQ) at 2, 6 and 12 weeks post-surgery. Secondary outcomes were postoperative complications, hospital stay and pain scores.
Results: The generic QOL scores based on SF-36 were statistically non-significant between the two groups. QOL scores based on TSQ were statistically significant (P value < 0.05) favoring OT in the following domains: numbness at 2, 6 and 12 weeks (P values = 0.04, 0.004 & 0.005 respectively); shoulder impairment at 2 weeks (P = 0.017) and favoring ET in cosmesis at 6 & 12 weeks (P = 0.037 & 0.02 respectively). ET has longer operative time (104.6 ± 25.4 min vs 123 ± 8.9 min; P value = 0.03), longer hospital stays (2.8 ± 0.4 vs 2.4 ± 0.5; P value = 0.056) and higher pain scores at 2 & 6 weeks (P = 0.007 & 0.012 respectively) but decreased intraoperative bleeding (33.5 ml ± 6.4 ml vs 29.1 ± 3.7 ml; P value = 0.037).
Conclusions: Endoscopic Thyroidectomy has higher cosmetic satisfaction, increased numbness and shoulder movement Impairment during short-term post-surgery follow-up. Both techniques are similar in impacting General physical, mental and social HRQOL.

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01-03-2024 07:00 - 18:00

REVERSE TRIIODOTHYRONINE (RT3) AND CLINICAL EFFICACY OF INDIVIDUALS WITH ACUTE BRAIN INFARCTION OR MYOCARDIAL INFARCTION

Nijolė Kažukauskienė, Aurelija Podlipskytė, Saulius Taroza, Narseta Mickuvienė
Lithuanian University of Health Sciences, Laboratory Of Behavioural Medicine, Neuroscience Institute, Palanga, Lithuania

Background and Aims: Background. The reverse T3 (rT3) is the third most common circulating iodothyronine the thyroid gland releases into the bloodstream acting via non-genomic pathways, which is by interaction with cell plasma membrane receptors (Domingues et al., 2018). Furthermore, most of the studies agree that the first five days of acute coronary syndromes are the most crucial for changes in T3 and rT3 (Iltumur et al. 2005). In the case of stroke, thyroid axis participation shows frequently determined thyroid serum parameter alterations, usually manifesting as low T3 syndrome, making it an effective prognostic marker of worse stroke outcomes (Lamba et al. 2018). Therefore, the aim of our study was to evaluate the correlation between rT3 levels with clinical efficacy of individual with acute cerebral or myocardial infarction
Methods: . The study population was comprised of 220 patients with acute myocardial infarction (74% men and 26% women; mean age, 61.1±10.7 (30-80) years) and 244 with acute cerebral infarction (59 % men and 41% women; mean age, 67.5±9.6 (33-80) years). Blood samples were taken within 24 hours of patients' admission to the intensive care unit. Eligible participants were evaluated for socio-demographic factors and clinical characteristics: neurological impairment according to National Institutes of Health Stroke Scale (NIHSS) in patients with acute cerebral infarction and Killip class in patients with acute myocardial infarctiontion. Blood was centrifuged and the serum was frozen at –80° C. Serum samples of fT3 and rT3 were analysed in a single batch after completion of the study using an automated enzyme immunoassay analyser.
Results: . Spearman's rank correlation coefficient (r) was calculated for the correlation of clinical efficacy with rT3. It is pertinent to point here that increased concentration of rT3 was observed in acute myocardial infarction (rT3 r=0.139 [p=0.036]; fT3 r=0.166 [p=0.012]); while in the case of stroke, we have shown a negative correlation between rT3 levels with clinical efficacy (rT3 r = –0.107 [p=0.096]; fT3 r= –0.166 [p=0.012]).
Conclusions: . Our study found that increased concentration of rT3 is observed in acute myocardial infarction. In case of stroke rT3 remains significantly lower. Further studies are warranted to further explore the mechanistic basis of rT3 neuroprotective action in ischemic brain and testing its clinical efficacy. Acknowledgements. This research is funded by a grant (No. S-MIP-23-103) from the Research Council of Lithuania.

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EXPRESSIONAL & MUTATIONAL DEREGULATIONS OF MIRNA-146B AND MIRNA-181B IN PAPILLARY THYROID CARCINOMA

Rashida Khan[1], Ruqia Baig[2], Qaisar Mansoor[3]
[1]Institute of Biomedical & Genetic Engineering (IBGE) Islamabad, Department Of Human Genetics, Islamabad, Pakistan, [2]PMAS Arid Agriculture University Rawalpindi, Zoology, Wildlife & Fisheries, Rawalpindi, Pakistan, [3]Institute of Biomedical & Genetic Engineering (IBGE) Islamabad, Pakistan, Human Genetics, islamabad, Pakistan

Background and Aims: Background: Thyroid cancer is considered to exist among most common cancers and at the same time it is the most recurrent malignancy of the endocrine system. The most frequent type of thyroid cancer is papillary thyroid cancer (PTC), which contributes more than 80% globally & prevalent in females of Eastern and Western Asia, America and Iceland. The genetic elements known as MicroRNAs (miRNAs), endogenous non-coding RNAs operating as post-transcriptional regulators involved in development, proliferation and differentiation. miRNAs are gaining fame as druggable biomarkers and clinical management of neoplasm. The momentous stackeholding of miRNAs by virtue of gene expression variations in the cancer microenvironment has been witnessed in the PTC onset, amplification and apoptosis. The growing body of knowledge highlights the modifiable play at the miRNA level harbors potential in lessening the perpetuation of the disease with safe handlers. The genetic information leads to a big highway which can replace the unified yardstick to tailor PTC with the more targeted personalized disease treatment by monitoring the disease risk and aggression modalities. Objectives: The study aims to speculate the characteristic involvement of expression level changes in the miRNA genes miRNA-146b and miRNA-181b as tangible biomarkers for papillary thyroid cancer.
Methods: The present study was conducted on the PTC in Pakistan, a genetically less explored South Asian country. Specimen of cancer tissue, normal samples and multi nodular goiter (MNG) samples from patients were collected. The anthropometric and clinical parameters of patients were recorded after informed consent. Total RNA was isolated and cDNA was synthesized. Gene expression profile for miRNA-146b and miRNA-181b was done by quantitative Real-Time PCR. Relative gene expression was identified as fold change and mutational deregulations were checked through DNA sequencing showing the involvement of these miRNAs in PTC.
Results: The statistically significant relative expression of genes miRNA-146b; 5 to 20 folds and miRNA-181b; 4-60 folds were observed in PTC in comparison to MNG and healthy tissue specimens.
Conclusions: The boosted gene expression of the miRNA genes miRNA-146b and miRNA-181b manifests the plausible misregulations in deployment of these molecular musketeers as foes in PTC. This forged maladaptation of the miRNA-146b and miRNA-181b in the cancer microenvironment may warrant analytically, therapeutically and genetically surmountable miRNA targets for PTC clinical management prevention

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TIME-DEPENDENT CHANGES OF THE RISK OF ATRIAL FIBRILLATION IN PATIENTS WITH GRAVES' DISEASE RECEIVING RADIOACTIVE IODINE TREATMENT COMPARING TO ANTI-THYROID DRUG: A NATIONWIDE COHORT STUDY

Kyeong Jin Kim, Jimi Choi, Kyoung Jin Kim, Sin Gon Kim
Korea University College of Medicine, Internal Medicine, Seoul, Korea, Republic of

Background and Aims: Graves' disease (GD) has been known for the increased risk of atrial fibrillation (AF) compared to the general population. However, whether treatment modalities, especially for radioactive iodine (RAI) therapy for GD are associated with the risk of AF remains controversial with discordant results.
Methods: Using the Korean National Health Insurance Service-National Health Information Database (NHIS-NHID, 2002–2020), we investigated time-dependent hazard ratios (HRs) of overall cardiovascular disease (CVD) and AF in patients with GD receiving RAI therapy compared to the age-, sex-, and health check-up data matched patients with GD receiving only anti-thyroid drugs (ATD) in a 1:5 ratio.
Results: Of 69,270 patients with GD (46,638 women and 22,632 men; mean age [SD], 44 ± 13.6 years), 11,545 received RAI therapy and 57,725 received only ATD therapy. The median (IQR) follow-up duration was 8.5 years (interquartile range [IQR]: 4.5–12.1). During 2004–2020, the overall CVD incidence rates were 6.47 and 6.29 per 1,000 person-years in the RAI and ATD groups, respectively, with an unadjusted HR of 1.04 (95% CI, 0.96–1.13); this remained at 1.03 (95% CI, 0.92–1.15) after adjustment for multiple clinical confounding factors. For AF, incidence rates were 8.20 and 7.85 per 1,000 person-years in the RAI and ATD groups, respectively, with an adjusted HR of 1.04 (95% CI, 0.94–1.15): however, the risk of new-onset AF peaked at 3 years since RAI therapy (HR 1.21, 95% CI, 1.08–1.35), then decreased gradually with statistical significance (HR 0.61, 95% CI 0.48–0.77).
Conclusions: This study identified that the overall CVD and AF risks in GD patients with RAI therapy compared to those with ATD only were not significant in Korea. However, the risk of a new onset AF increased until 3 years and then decreased significantly. Further long-term studies are needed in terms of AF risks and the advantages of RAI in patients with GD.

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EVALUATION OF A SELF-LEARNING METHOD SIMILAR TO DEEP LEARNING FOR DIAGNOSING THYROID NODULES

Daham Kim[1], Yoon-A Hwang[1], Youngsook Kim[1], Hye Sun Lee[2], Eunjung Lee[3], Hyunju Lee[4], Jung Hyun Yoon[4], Vivian Youngjean Park[4], Miribi Rho[4], Jiyoung Yoon[4], Si Eun Lee[5], Jin Young Kwak[4]
[1]Yonsei University College of Medicine, Department Of Internal Medicine, Seoul, Korea, Republic of, [2]Yonsei University College of Medicine, Biostatistics Collaboration Unit, Seoul, Korea, Republic of, [3]Yonsei University, School Of Mathematics And Computing, Seoul, Korea, Republic of, [4]Yonsei University College of Medicine, Department Of Radiology, Seoul, Korea, Republic of, [5]Yongin Severance Hospital, Yonsei University College of Medicine, Department Of Radiology, Yongin, Korea, Republic of

Background and Aims: Deep learning enables computer programs to automatically learn from large datasets of ultrasonographic images. Recently, we demonstrated that a learning approach similar to deep learning significantly increased the diagnostic accuracy for thyroid nodules in six college freshmen. This study investigates the potential of a proposed self-learning method as an auxiliary approach to one-on-one education in residency training.
Methods: This study was conducted between March and December 2022. Internal medicine residents underwent three repeated learning sessions with a “learning set” comprising 3,000 thyroid nodule images. Diagnostic performances before the study and after every learning session, as well as those of radiology residents before and after one-on-one education, were evaluated using a “test set,” comprising 120 thyroid nodule images. Finally, all residents repeated the same test using artificial intelligence computer-assisted diagnosis (AI-CAD). Diagnostic performance was evaluated by calculating the area under the receiver operating characteristic curve (AUROC) and other metrics.
Results: Twenty-one internal medicine and eight radiology residents participated in this study. Before the study, the AUROC of the internal medicine residents was significantly lower than that of the radiology residents (0.578 vs. 0.701, $P < .001$); however, it improved after the final learning session (0.578 to 0.709, $P < .001$). The increased value was similar to that of the radiology residents (0.709 vs. 0.735, $P = .17$). The AUROCs of the internal medicine and radiology residents further improved with AI-CAD assistance (0.709 to 0.755, $P < .001$; 0.735 to 0.768, $P = .03$).
Conclusions: The proposed iterative self-learning method using a large volume of ultrasonographic images can assist beginners/novices in thyroid imaging to differentiate benign and malignant thyroid nodules. Additionally, artificial intelligence computer-assisted diagnosis can improve the diagnostic performance of readers with varying levels of experience in thyroid imaging.

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EXPERIENCE OF USING TRIIODOTHYROACETIC ACID IN A 12-YEAR-OLD GIRL WITH PAPILLARY THYROID CANCER AND THYROID HORMONE RESISTANCE SYNDROME

Sofya Mikhalina, Anna Kolodkina, Natalia Kalinchenko
Institute of Pediatric Endocrinology, Moscow, Russian Federation

Background and Aims: Currently, about 20 cases of papillary thyroid cancer have been described in patients with thyroid hormone resistance syndrome. Postoperative management of such patients is difficult, due to continued increase in thyrotropin levels during the isolated therapy with sodium levothyroxine. There is evidence of a positive experience with triiodothyroacetic acid therapy suppressive effect on TSH levels in this group of patients.
Methods: Laboratory studies are carried out in one laboratory in order to reliable Identification of the thyroid profile dynamics.
Results: At the age of 8.5 years diagnosis of “Thyroid hormone resistance syndrome” was established based on the thyroid profile - lack of suppression of TSH 4.35 mIU/l (0.51-4.82) against the background of high FT4 levels 32.71 pmol/l (11.2-18.6) and FT3 levels 15.93 pmol/l (4.1-7.1). A genetic test revealed a heterozygous variant C.949G>A.A 317 T in the THRB gene. At the age of 12.5 years, thyroid USG in the left lobe of the thyroid gland showed hypoechoic nodule with uneven border with increased blood flow and 15x11x14 mm in size (TI-RADS 5). A FNA cytogram was performed, papillary cancer was suspected (Bethesda V). Patient underwent thyroidectomy with central lymphadenectomy and was pathomorphologically diagnosed with thyroid gland papillary adenocarcinoma, T1bN0M0. After surgical treatment, levothyroxine sodium was prescribed at an initial dose of 1.8 µg/kg/day, against which the patient experienced a marked increase in TSH to 100 mIU/l with normal levels of FT4 (15.26 pmol/l) and FT3 (4.5 pmol/l). Despite increasing the dose of levothyroxine sodium to 3.6 µg/kg/day, there was a persistent increase in TSH levels (74 mIU/l), and therefore triiodothyroacetic acid was added to the therapy at a starting dose of 0.35 mg/day. Against the background of therapy with triiodothyroacetic acid 1.05 mg/day and levothyroxine 200 µg /day, there is a positive trend in the form of a decrease in TSH to 16 mIU/l. The dose of triiodothyroacetic acid has not been increased due to the difficult accessibility of the drug; the dose of levothyroxine sodium is currently being adjusted. There is no evidence of recurrence of papillary thyroid cancer.
Conclusions: The use of triiodothyroacetic acid in this group of patients allows to achieve suppression of TSH levels without symptoms of hyperthyroidism and reduces the risk of recurrence of papillary thyroid cancer. The inability to use this therapy forces clinicians to use high doses of levothyroxine sodium in order to suppress TSH, which can lead to cardiac complications.

PV393 / #1348

E-Poster Viewing
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01-03-2024 07:00 - 18:00

ACUTE SUPPURATIVE THYROIDITIS WITH THYROTOXICOSIS CAUSED BY DISSEMINATED METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS INFECTION IN A PATIENT WITH TYPE 1 DIABETES

Nami Lee, Seung Jin Han
Ajou University School of Medicine, Department Of Endocrinology And Metabolism, Suwon-si, Gyeonggi-do, Korea, Republic of

Background and Aims: Acute suppurative thyroiditis (AST) is uncommon because the exceptional anatomy of the thyroid gland makes it resistant to microbial colonization. It occurs more frequently in patients with anatomical deformities such as pyriform sinus fistula and in immunocompromised patients. Since this is an endocrine emergency that is potentially fatal, early diagnosis and prompt management are important. Here, we report a case of AST caused by methicillin-resistant Staphylococcus aureus (MRSA) in patient with type 1 diabetes, which is initially difficult to differentiate from subacute thyroiditis.
Methods: A 32-year-old woman with type 1 diabetes and untreated ocular myasthenia gravis reported right-sided neck swelling, dysphagia, and bilateral thigh pain. The patient was diagnosed with subacute thyroiditis and prescribed prednisolone and ibuprofen. Four days later, she presented to the emergency department reporting presyncope and worsening symptoms. The patient underwent a physical examination, laboratory analysis, computed tomography (CT), and ultrasonography (US).
Results: Physical examination revealed tachycardia (114 beats per minute) and mild right thyroid tenderness to palpation. In the laboratory analysis, the patient had elevated inflammatory parameters (WBC 16.0 × 10^3/μL, ESR 94 mm/hr, CRP 34.23 mg/dL). Thyrotoxicosis (Thyroid stimulating hormone (TSH) 0.01 μIU/mL, free thyroxine (fT4) 5.13 ng/dL) had reported without TSH receptor antibodies. She had acute kidney injury (creatinine 1.28 mg/dL), and elevated CK-MB levels (3.61 μg/L). The patient initially had neither hyperglycemia (134 mgdL) nor acidosis despite a high hemoglobin A1c level (10.3%). However, follow-up blood pressure dropped to 74/44mmHg. Empirical antibiotic (ceftriaxone) and prednisolone treatment was started. CT scan revealed hypodense masses with peripheral enhancement consistent with abscesses in the right thyroid gland, right axilla, chest wall, right kidney, and both thighs. The patient also had pulmonary septic embolism with pleural effusion on CT scan and pericarditis with pericardial effusion on echocardiography. For diagnostic and therapeutic purposes, US-guided aspiration of the thyroid abscess and percutaneous drainage of the pericardial effusion were performed. MRSA was isolated from thyroid pus, pericardial effusion, urine, and blood. Ceftriaxone was changed to vancomycin, a susceptible antibiotic. After 5 days, no MRSA was identified in the blood. Two weeks later, she was prescribed levothyroxine due to converted into hypothyroidism (TSH 6.13 μIU/mL, fT4 0.44 ng/dL).
Conclusions: This case is a life-threatening disseminated MRSA infection affecting the thyroid gland and several other organs, and was initially difficult to distinguish it from subacute thyroiditis. Therefore, prompt diagnosis and treatment of AST is strongly required, especially in patients refractory to steroid treatment for subacute thyroiditis.

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VITAMIN D ADD-ON THERAPY IMPROVES DYSLIPIDEMIA AMONG HYPOTHYROID PATIENTS

Sidrah Lodhi, Shivam Kumar Thakur, Rana Sohail, Fawad Ahmad Randhawa
King Edward Medical University, Medicine, Lahore, Pakistan

Background and Aims: Hypothyroidism is a treatable cause of secondary dyslipidemia. Institution of levothyroxine therapy leads to 9% and 14% decline in total cholesterol and low density lipoprotein respectively. Add-on therapies may confer additional benefit. Vitamin D insufficiency is linked to dyslipidemia in hypothyroidism. Elsewhere, Vitamin D supplementation is beneficial for dyslipidemia improvement with no trials in hypothyroid patients. The objective of this study was to compare the effectiveness of Vitamin D and levothyroxine combination therapy and levothyroxine therapy alone on serum lipid profile in hypothyroid patients.
Methods: This randomized controlled trial conducted in King Edward Medical University from January to August 2023 included 60 patients (30 in each group) who were biochemically hypothyroid, aged more than 18 years with vitamin D level between 10-70ng/ml, total cholesterol (TC) <250mg/dl, LDL 70-144mg/dl and triglycerides 150-499mg/dl. Patients with known atherosclerotic cardiovascular disease, BMI>35kg/m2, alcohol intake >14 units/week, current beta blocker or lipid lowering drug use were excluded. Baseline, thyroid function test, fasting lipid profile and 25(OH)D levels were done. Patients were randomly allocated to receive either levothyroxine alone (control group) or in combination with Vitamin D supplementation (VitD group). Levothyroxine started at 1.6mcg/kg/day was titrated at 8 weeks if required. Thyroid functions & fasting lipid profile were retested at 24 weeks. Data was analyzed using SPSS 26.0. Paired t-test was used for comparison of groups before & after therapy keeping p-value ≤ 0.05 as significant.
Results: The mean ages of participants in VitD & control groups were 43.57±11.3 & 43.79±12.64 years (p-value 0.942) respectively. At baseline, in Vit D & control groups TSH was 17.30±4.65 & 17.76±6.26 mIU/L (0.75), FT3 was 2.50±0.5 & 2.76±0.435 pmol/L (0.041), FT4 was 9.17±1.31 & 9.93±1.31 pmol/L (0.029), TC was 196.80±21.72 & 200.52±23.13 mg/dL (0.527) and LDL-C was 119.23±26.471 & 105.62±18.224 mg/dL (0.029) respectively. After 24 weeks of therapy, TSH, FT3 and FT4 were similar in VitD and control groups with p-values 0.086, 0.17 & 0.76 respectively. From baseline, TC showed a reduction of 9.91±2.95% & 6.25±8.86% (0.000) in VitD and control groups while LDL-C had a decline of 22.29±14.11% & 13.49±2.58% (0.000) respectively. Vitamin D supplementation was effective in reducing TC >9% from baseline in 24 (80%) patients vs 3 (10%) in control group and in reducing LDL-c >14% from baseline in 29 (96.67%) patients vs 13 (43.33%) in control group.
Conclusions: When added to levothyroxine therapy, Vitamin D confers additional benefits in improving dyslipidemia among hypothyroid patients.

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POSSIBLE PROGNOSTIC BIOMARKERS OF THYROID DYSFUNCTION DEVELOPED BY ICIS TREATMENT OF NSCLC AND CC

Ketevan Lomidze[1,2], Marine Gordeladze[3]
[1]Ltd "Israeli-Georgian Medical Research Clinic- Healthycore, Clinical Trials, Tbilisi, Georgia, [2]Tbilisi State Medical University, Immunology, Tbilisi, Georgia, [3]Tbilisi State Medical University, Endocrinology, Tbilisi, Georgia

Background and Aims: Immune checkpoint inhibitors (ICIs) for advanced cancers can be associated with the development of immune-related adverse events (irAEs), severe enough to require cessation of life-saving tumor immunotherapy. Aims: To identify predictive inflammatory markers of the development of immune-related thyroid dysfunctions in patients with cervical cancer (CC) and non–small cell lung cancer (NSCLC) treated by ICIs.
Methods: A retrospective study was conducted on twenty-seven patients with CC and NSCLC treated by ICIs. The data were extracted before treatment and 12 weeks after treatment. Complete blood count-derived inflammatory markers: dNLR (derived neutrophil to lymphocyte ratio), NLR (neutrophil to lymphocyte ratio), SSI (systemic inflammation index), PLR (platelet to lymphocyte ratio), WHR (white blood cells to hemoglobin ratio) were calculated. Information on thyroid functional tests was collected. Data analysis was performed by STATISTICA (Stat soft, Inc, USA).
Results: Five out of twenty-seven patients with CC treated with PD-1 and CTLA-4 inhibitors who developed hypothyroidism showed significantly higher baseline PLR and low WHR compare to patients without clinical symptoms of hypothyroidism and normal levels of TSH and FT4. The association between NLR, dNLR, SSI, and thyroid dysfunction was not observed.
Conclusions: Our research shows a tight correlation between hypothyroidism and WHR, and PLR biomarkers. Therefore, the use of these biomarkers for early detection of hypothyroidism contributes not only to the treatment of thyroid dysfunction but also to better outcomes of cancer immunotherapy.

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EFFICACY OF IMMUNOHISTOCHEMISTRY CK19 AND CD56 IN DIAGNOSING PAPILLARY CARCINOMA THYROID IN DIVERSE CHALLENGING SCENARIOS

Divya Madhala, Priyathersini N, Subalakshmi B, Arti M, Sandhya Sundaram
Sri Ramachandra Institute of Higher Education and Research, Pathology, Chennai/Tamil Nadu, India

Background and Aims: Background The most common malignant epithelial tumour of the thyroid is papillary carcinoma. They may have varied presentation. However few lesions such as papillary microcarcinoma, follicular patterened thyroid lesions including papillary microcarcinoma, follicular variant of papillary thyroid carcinoma and non invasive follicular thyroid neoplasms with papillary like features(NIFTP) pose as a major diagnostic challeneg. In the initial cytology screening procedure they may present in a follicular pattern and may puzzle the pathologist. Some of the lesions are diagnosed as Bethesda category II. The routine histopathology slides of the resected specimen may also show very confusing features. It is very critical in diagnosing these cases as the prognosis and further management for each entity varies. Aim To evaluate Cytokeratin 19 (CK19) and CD56 immunohistochemical as useful and efficiant diagnostic markers in distinguishing papillary thyroid carcinoma from other mimicking thyroid lesions.
Methods: 10 Challenging thyroid neoplasms diagnosed at the department of Pathology, Sri Ramachandra Institute of Higher Education and Research from January 2023 to September 2023 were collected. The clinical details of the patients including radiology and cytology were recorded from the lab system. 10 cases of thyroid lesions were submitted for immunohistochemical staining of CK19 and CD56.The results are compared with various parameters.
Results: A total of 10 thyroid lesions were identified, of which there were seven were female patients and three were male patients. Cytology was available for 6 cases, all the 6 cases were diagnosed as Bethesda category II - thyroid follicular nodular disease. 8 cases were hemithyroidectomy specimens and 2 were total thyroidectomy specimens. Immunohistochemistry for CK19 and CD56 was done for all the 10 cases. CK19 was positive in areas of papillary thyroid carcinoma and whereas CD 56 was negative in all thyroid malignancies.
Conclusions: Definite histological criterias are available in helping a pathologist to diagnose thyroid neoplasms. However few overlapping features among the benign and malignant entities like the follicular patterns and papillary microcarcinomas may pose as a major diagnostic challenge. Cytology may be a useful test but the various presentations of papillary carcinoma may befog us in giving a proper cytological diagnosis. Immunohistochemistry for CD56 and CK 19 appears promising and their combined use is helpful in discriminating papillary thyroid carcinoma and its variants from other mimicking thyroid lesions. However a good radiological, cytological and morphological correlation along with ancillary testing will help the pathologist decode these mysteries.

PV398 / #1864

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"COLLOID LEAK"-A LIGHTENING EFFECT

Sabaretnam Mayilvaganan
SGPGIMS, Endocrine Surgery, Lucknow, India

Background and Aims: Thyroidectomy is the common most common endocrine surgical procedure varies
from Scalpel to Robotic transoral thyroidectomy. Colloid nodules are common and easily operable without any difficulty. We report a phenomenon where in the surgery becomes difficult and lead to complications if not thought with this phenomenon – colloid leak.
Methods: The endocrine surgeon (Additional Professor) has been involved in training of over 25 superspeciality endocrine trainers over a period of nine years in a tertiary referral high volume center. He has participated in 700 Thyroidectomies of which 250 thyroidectomies for colloid goiter. We have observed this phenomenon in 5 patients over 5 years in a tertiary referral centre in north India
Results: 5 male patients (46.7±12.1 years) had this colloid leak. Mean BMI was (22.4±2.9). FNAC was colloid in all patients. 3 had colloid leak in all planes.2 had only per thyroidal leak. All patients had Recurrent Laryngeal nerve identified. In 1 patient only 1 parathyroid gland could be identified. Mean duration of surgery was 120± 12 minutes. Mean blood less was 10 ml ± 2.5ml.Mean duration of stay after surgery was 48.± 12 hours. No permanent complication was observed. All patients operated within 2 weeks of FNAC. All HPT was colloid.Immunohistochemistry revealed IgG4 stained plasma cell aggregates in the line of colloid leak.
Conclusions: This phenomenon was observed in muscular males in the colloid goiters where in there is leak of colloid after FNAC and this colloid elicited an inflammatory response in the surrounding tissues as evidenced by IgG4 positive immunohistochemistry staining for plasma cells. This phenomenon was more pronounced 5 to 7 days after FNAC. The planes were stuck and mobilization of
gland was difficult in one patient a small cuff of muscle had to be removed.This fact of colloid leak causing chronic inflammation may be a harbinger of chronic changes and may a role in tumorogenesis Conclusion:
Astute Endocrine Surgeon should be aware of this colloid leak phenomenon and when found the dissection should be very careful to present complications during thyroidectomy.

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PV399 / #1613

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

A COMPARISON OF THYROID HORMONE CONCENTRATIONS IN INDIVIDUALS WITH ACUTE BRAIN OR MYOCARDIAL INFARCTION

Narseta Mickuvienė, Aurelija Podlipskytė, Saulius Taroza, Nijolė Kažukauskienė
Lithuanian University of Health Sciences, Laboratory Of Behavioural Medicine, Neuroscience Institute,, Palanga, Lithuania

Background and Aims: Background. Low triiodothyronine syndrome is a strong predictor of poor prognosis of critical diseases. It appears to be a complex mix of physiologic adaptation and pathologic response to acute illness and is defined by low serum levels of FT3 and high levels of rT3 followed by normal or low levels of FT4 and TSH. The aim of this study is to determine thyroid hormone concentrations in patients with acute myocardial infarction (AMI) and acute brain infarction (ABI). Both brain and myocardial infarction are severe acute events of the same cardiovascular ischemic disease.
Methods: . The study population was composed of 220 patients with acute myocardial infarction (74% men; mean age, 61.1±10.7 (30-80) years) and 244 with acute brain infarction (59% men; mean age, 67.5±9.6 (33-80) years). Blood samples were taken within 24 hours of patients' admission to the intensive care unit. The serum was frozen at –80° C. Serum samples were analysed in a single batch after completion of the study. Serum levels of FT3, FT4, rT3 and TSH were analysed using an automated enzyme immunoassay analyser (Advia Centaur XP; Siemens Osakeyhtio).
Results: . Thyroid axis hormones TSH, FT4 and FT3 were within normal limits and rT3 was in high level in all patients. Significant higher level of rT3 was in AMI women and men compared with ABI group. TSH concentration was significantly lower and FT4 was significantly higher in women AMI group compared to the women ABI group. We did not find such differences in men.

Craracteristics
Men
Thyroid-stimulating hormone (mIU/l), median (interquartile ranges)
Reverse Triiodothyronine (pmol/L), median (interquartile ranges)
Free Thyroxine (pmol/l), mean±SD
Free Triiodothyronine (pmol/l), mean±SD
Women
Thyroid-stimulating hormone (mIU/l), median (interquartile ranges)
Reverse Triiodothyronine (pmol/L), median (interquartile ranges)
Free Thyroxine (pmol/l), mean±SD
Free Triiodothyronine (pmol/l), mean±SD

Conclusions: . rT3 in ABI remains significantly lower compared to AMI but T3 concentrations are not different. TSH, FT4 are significantly different only in women when comparing all the patients between AMI and ABI. Additional studies are necessary to clarify the mechanism-determining differences in thyroid hormone levels

in infarction of different localization. Acknowledgment. This research is funded by a grant (S-MIP-23-103) from the Research Council of Lithuania.

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E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

PROGNOSTIC SIGNIFICANCE OF THYROGLOBULIN ANTIBODIES IN DIFFERENTIATED THYROID CANCER: A LONG TERM FOLLOW UP IN A COHORT OF 722 PATIENTS

Lakshmi Nagendra[1], Revathy Nair[2], Usha Menon[2], Vasantha Nair[2], Nisha Bhavani[2], Praveen Pavithran[2], Nithya Menon[2], Harish Kumar[2]
[1]JSS Medical college, JSS Academy of Higher Education and Research, Mysore, India, Endocrinology, Mysore, India, [2]Amrita Institute of Medical Sciences, Endocrinology, kochi, India

Background and Aims: Recent studies on the prognostic significance of thyroglobulin antibodies in differentiated thyroid cancer have shown conflicting results. We aimed to determine whether Tg-Ab titre positivity and/or Tg-Ab trends can serve as a surrogate marker for disease recurrence in patients with well differentiated thyroid cancer during long-term follow-up.
Methods: This was a retrospective analysis of 722 patients who underwent total thyroidectomy for differentiated thyroid cancer. Patients on follow up for atleast 3 years after initial therapy with atleast 3 values of TgAb on follow up to were included.
Results: Of the 722 patients, 283 (39.1%) patients had positive TgAb titres at 6 months after initial treatment. At 6 months post primary treatment, thyroglobulin antibody was associated with female sex , age < 55 years, lymphocytic infiltration on histopathology. There was no association between any markers of disease severity with TgAb positivity at 6 months. However during long term follow up, TgAb positivity and increasing/stable trends of TgAb with <50% decline in titres was associated with disease persistence/ recurrence
Conclusions: Rising titres of Tgab or TgAb positivity with <50% fall in titres on long term follow up warrants further investigations to detect persistence/ recurrent disease

PV401 / #1312

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

THYROID CHARACTERISTICS OF OLDER PATIENTS VISITING A TERTIARY CARE IN CENTRAL INDIA

Rachita Nanda
All India institute of Medical Sciences Raipur, Biochemistry, Raipur, India

Background and Aims: Background and aims: Aging is associated with a change in hypothalamic-pituitary thyroid axis resulting in a change in thyroid hormones. Currently, all individuals with hypothyroidism are treated as a homogenous grp irrespective of age to aim for serum TSH levels within the population reference range. Thyroxine metabolism is altered in advanced age, and “age-adjusted” ref. ranges are not employed. Therefore, early identification and treatment of thyroid disorders is crucial in the older age group.
Methods: Retrospective data analysis of thyroid function of patients age more than 60 years from LIS of the Dept of Biochemistry AIIMS Raipur from Nov 2021 – Jan 2022. Serum TSH, FT4 and FT3, thyroid peroxidase antibodies (TPOAb) and demographics were retrieved from LIS. The first thyroid profile data was collected in patients who had more than one data set. Data of patients in IPD or emergency, and with incomplete data were excluded. All the thyroid investigations were carried out using the Advia Centaur XP Immunoassay analyser(Siemens Diagnostics Corp). The 2.5^{th} and 97.5^{th} percentile was used to calculate the reference interval of TSH in the euthyroid group in the different age ranges of older population.
Results: Majority(62.22%) of the elderly patients were euthyroid. The prevalence of thyroid dysfunctions was overt hypothyroidism(22.27%), overt hyperthyroidism(8.51%), with similar prevalence of subclinical hypothyroidism and hyperthyroidism(3.49%). There is a higher prevalence of thyroid dysfunction in women($p<0.05$) is consistent of females having more incidences of thyroid dysfunction. Majority of the population with thyroid dysfunction were in the age group 60-65 years. In the euthyroid population, the median TSH levels changed by 0.11mIU/L, 0.03 mIU/L, 0.03 mIU/L in the age group from 66-70, 71-75 and >75years respectively. The 97.5^{th} percentile in the above age groups was 4.97mIU/L, 5.25 mIU/L and 5.85 mIU/L respectively.
Conclusions: Serum TSH increases with age in the euthyroid population. The increase in median and the upper reference limit of TSH with increasing age suggests age-related alterations in TSH set points or due to reduced bioactivity rather than thyroid disease. Therefore, additional attention to thyroid dysfunction and screening in this age group is recommended.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

CLINICAL FEATURES OF MULTINODULAR GOITER IN DICER1 SYNDROME

Evgeniya Novokreshennih[1,2], Anna Kolodkina[2,3]
[1]Endocrinology Research Centre, Moscow, Russian Federation, [2]Institute of Pediatric Endocrinology, Moscow, Russian Federation, [3]Endocrinology Research Center, Ministry of Health of Russia, Pediatric Surgery, Moscow, Russian Federation

Background and Aims: DICER1 syndrome is a rare autosomal dominant disorder characterized by the progressive development of benign and malignant lesions, predominantly in childhood. This syndrome is based on dysfunction of the endoribonuclease DICER, which is involved in the processing of microRNAs with further regulation of the control of the oncogenes and tumor suppressor genes expression. Clinical manifestations may include endocrine manifestations – multinodular goiter, differentiated thyroid cancer, ovarian stromal tumors, pituitary blastoma, and non–endocrine formations - pleuropulmonary blastoma, cystic nephroma, pineoblastoma. Multinodular goiter is the most common endocrine component of the DICER1 syndrome. The rapid progressive growth of nodular formations and the high risk of differentiated thyroid cancer in young children requires an integrated approach and personalized tactics for managing these patients.
Methods: The study included patients from 0 to 18 years of age with multinodular goiter and genetically confirmed DICER1 syndrome. All patients underwent a comprehensive examination, including laboratory, instrumental, and cytological research methods. Many patients also underwent surgical treatment followed by histological examination.
Results: The study group included 30 patients, gender distribution was 5 boys and 25 girls (1:5). The mean age of diagnosis was 12 years (7;16). 4 patients (13%) have previously been diagnosed with cystic lung formations. 2 girls (6.6%) were also operated on for androgen-producing ovarian formations from Sertoli-Leydig cells. 1 child (3.3%) at the age of 14 years was diagnosed with pineoblastoma due to increasing neurological symptoms. 21 patients with multinodular goiter (70%) underwent surgical treatment, 15 (50%) with thyroidectomy. 6 patients (20%) underwent hemithyroidectomy; subsequently, 4 children (66%) required repeat surgery to include thyroidectomy due to progression of the growth of nodular formations in the remaining lobe. According to the results of histological examination, diffuse colloid goiter was detected in 5 patients (16.6%). In 11 operated children, differentiated thyroid cancer (36%) in combination with diffuse goiter was noted, and follicular adenoma was found in 5 patients (16.6%). Metastasis to regional lymph nodes was not observed in all cases.
Conclusions: Multinodular hyperplasia of the thyroid gland in DICER1 syndrome manifests mainly in adolescence. Considering the multinodular nature of the lesion, the possibilities of performing FNA of all formations are limited. Due to the tendency towards progressive growth of nodular formations and the high probability of the differentiated thyroid cancer presence, thyroidectomy is preferable in childhood.

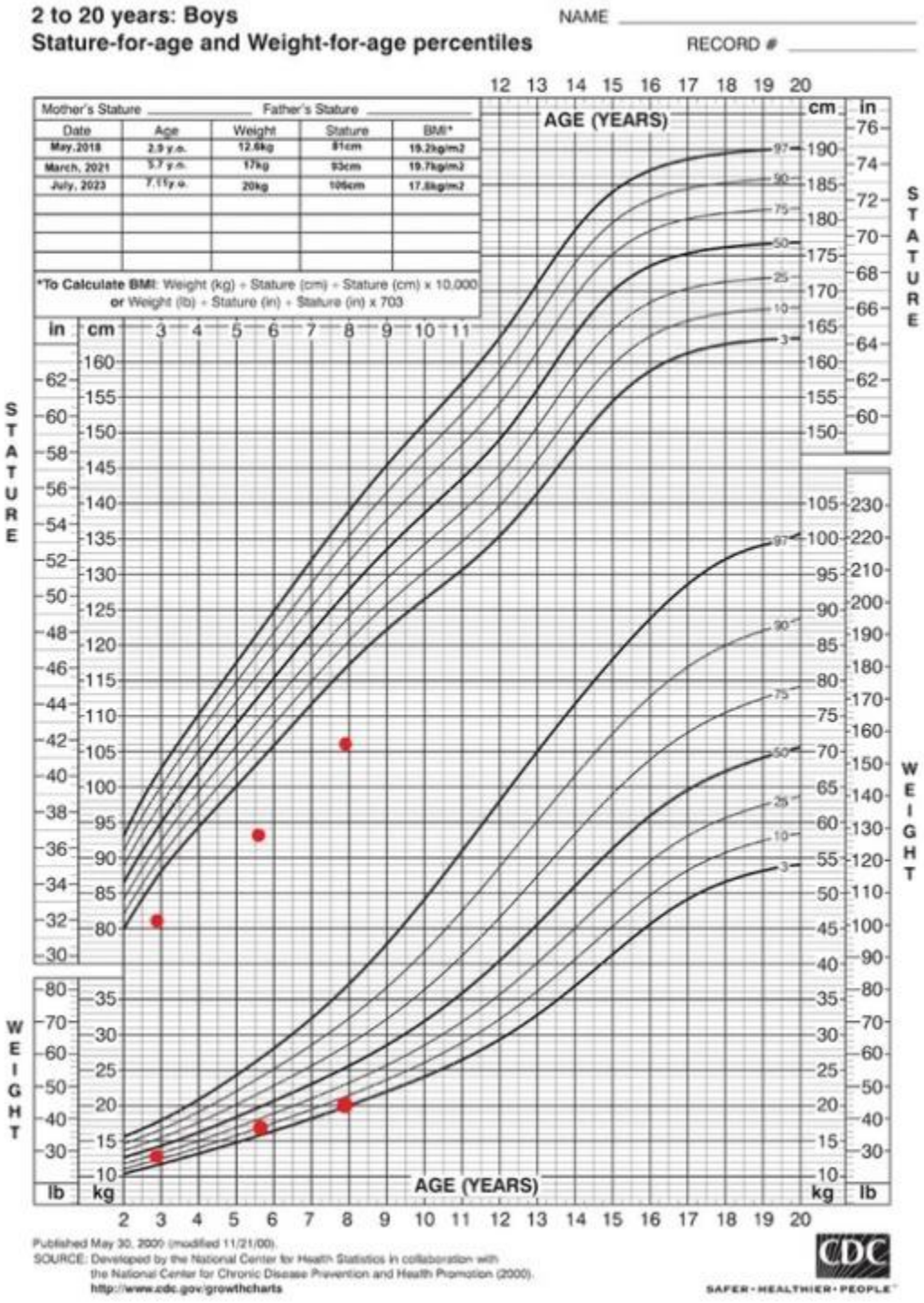
PV403 / #1484

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

LATE-DIAGNOSED CONGENITAL HYPOTHYROIDISM AND ITS CONSEQUENCES

Alina Alzhaxina[1], Assiya Nurgaliyeva[1], Gulnur Slyamova[1], Kristina Baikadamova[1], Marzhan Rakhimzhanova[2]
[1]CF "UMC", Internal Medicine, Astana, Kazakhstan, [2]CF "UMC", Clinical Academic Department Of Pediatrics, Astana, Kazakhstan

Background and Aims: Congenital Hypothyroidism (CH) is one of the most common neonatal endocrine disorders, with an incidence rate 1:2000 to 1:4000 live births worldwide. The prevalence of CH 1.6 times higher in Asian population than in other regions. This disorder results from inadequate production or action of thyroid hormones during early fetal development, which are vital for metabolism, tissue differentiation, and brain development. Early treatment within the first 2 weeks of life significantly reduces complications' risks such as physical and psychomotor retardation. We aim to analyze a clinical case, revealing complexities in diagnosis, addressing hormone replacement therapy challenges, and emphasizing early intervention's role in reducing developmental risks.
Methods: 7-year-old male patient was admitted to the pediatric department with complaints of stunting, constipation, dry skin, muscle hypotension, poor academic performance, apathy, drowsiness and fatigue. According to objective data, there is dry, flaky skin, cold to the touch; hair is brittle, dry, without shine, falls out intensively; swelling of the face, lips, eyelids, a half-open mouth with a wide "spread" tongue, body proportions similar to chondrodystrophic, underdevelopment of the facial skeleton, a wide sunken bridge of the nose, hypertelorism. The patient also has mild psychomotor retardation and speech delay, diagnosed by a psychologist. At 5.7 y.o. was diagnosed with CH. Patient's parents despite guidance regarding adherence to the prescribed therapy, neither administered therapy nor sought medical assistance. Figure 1. Physical
development



Tab. 1 Laboratory and instrumental studies

	28/04/2022	14/07/2023
TSH	326.65 µIU/mL	353.80 µIU/mL (ref range 0.28 -
FT3	5.1 pmol/l	2.98 pmol/l (ref range 3.88 - 8.02
FT4	4.2 pmol/l	4.87 pmol/l (ref range 12.50 - 21
TPOAb		10.8 IU/mL(ref range 0.00-34.00
Thyroid Ultrasound		the visualization of the thyroid gl
Left wrist X-ray		Bone age corresponds to 2-3 ye

Results: According to the results of CDC, laboratory and instrumental tests, patient was diagnosed with CH, complicated by a delay in physical and mental development. Subsequently, hormone replacement therapy with Levothyroxine 100 mcg daily was prescribed.

Conclusions: Newborns with CH might not show clear signs initially, moreover screening gaps in remote areas of developing countries lead to instances being overlooked. Enhancing screening quality requires multifaceted efforts, such as training, protocols, quality control, equipment access, diagnostic support, community engagement, and ongoing evaluation.

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E-Poster Viewing
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01-03-2024 07:00 - 18:00

AN UNUSUAL PRESENTATION OF COUGH: A RARE CASE OF WIDELY INVASIVE ONCOCYTIC CELL THYROID CARCINOMA IN A 77 YEAR-OLD MALE - A CASE REPORT

Kurt Bryan Tolentino[1], Maria Susana Panganiban[2], Shaira Ann Macahilas[3], Hannie Mae Lycca Lugo[4], Bryan Jason Bantigue[5], Michael Villa[6]
[1]St. Luke's Medical Center - Global City, Section Of Endocrinology, Caloocan, Philippines, [2]St Luke's Medical Center- Global City, Internal Medicine - Endocrinology, Taguig, Philippines, [3]St. Luke's Medical Center - Global City, Endocrinology, Taguig, Philippines, [4]St. Luke's Medical Center - Global City, Internal Medicine, Taguig, Philippines, [5]Rizal Medical Center, Internal Medicine, Pasig, Philippines, [6]St. Luke's Medical Center- Global City, Section Of Endocrinology, Diabetes And Metabolism, Quezon City, Philippines

Background and Aims: Widely invasive oncocytic cell carcinoma, also known as Hurthle cell carcinomas, is a rare type of thyroid cancer with an incidence of 3-5% of thyroid cancers in the world. A study done in the Philippines by Sandoval et al in 2011 showed that only 3 out of 1084 patients developed Hurthle cell carcinomas. This case report aims to show a rare case of a widely invasive oncocytic cell carcinoma in an elderly Filipino male with an acute history of cough that was incidentally seen by routine chest X-ray.
Methods: The is a report about a 77 year-old male with a 10 day history of cough not resolving on routine antibiotics upon which a chest x-ray was done showing a widened mediastinum prompting further investigation.
Results: Due to his persistent coughing episodes, he was seen at an outpatient clinic where a chest x-ray was done showing a round soft tissue mass at the superior mediastinal area extending to the thoarcic inlet region about 10.1cm associated with rightward deviation and slight compression of adjacent intrathoracic and lower cervical portions of the trachea. He was subjected to a positron emission tomography scan showing a soft tissue mass predominantly in the superior mediastinum appearing to be an extension of the left thyroid mass measuring 6.0 x 7.0 x 9.8cm with a heterogenous FDG activity, with central necrosis and few intralesional calcifications. There were no metastatic lesions noted. Thyroid panel tests revealed a TSH of 2.298uIU/ml (0.55-4.78uIU/mL), FT4 of 0.94ng/dl (0.89-1.76ng/dL), and an FT3 of 4.07 (2.3-4.2 pg/mL). Due to these findings, he was admitted for median sternotomy, and total thyroidectomy. Thyroid histopathology revealed that the mass was a widely invasive oncocytic cell carcinoma, left lobe (9.6 cm.), tumor necrosis present, multiple foci of capsular invasion identified, no extrathyroidal extension to skeletal muscle, no definite perineural invasion identified, with a AJCC pathologic stage classification of pT3a. Galectin-3 and HMBE-1 stains were negative. The patient tolerated the procedure well with no complaints and was discharged 4 days post

operation.

Conclusions: Widely invasive oncocytic cell cancer is still a rare type of thyroid cancer and should be suspected in patients presenting with a mediastinal mass. Chest X-ray can be a tool to screen patients

having a invasive type of thyroid cancer,. Healthcare professionals should have a high index of suspicion of a more invasive type of thyroid cancer when thyroid masses present as large masses beyong the thyroidal bed.

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PREOPERATIVE FACTORS THAT AID IN DETERMINING PROBABLE TYPE OF EBSLN AND IDENTIFICATION OF EBSLN DURING THYROIDECTOMY SURGERY

Aadarsh Raghavan
Madras Medical College, Endocrine Surgery, Chennai, India

Background and Aims: Background:

Background: The external branch of the superior laryngeal nerve is very important for the pitch and timber of our voice Its position in relationship to the superior pole of the thyroid gland is varied and because of this it is the most common nerve damaged during surgery of the thyroid gland Its proper identification and preservation plays one of the key roles in preventing postoperative voice change
Aim: To identify the preoperative factors that help in intraoperative identification of the EBSLN

Methods: Inclusion criteria: All Total/Hemi thyroidectomy patients Age > 12 years Exclusion criteria: Recurrence following previous thyroid surgery All patients undergoing hemi/total thyroidectomy in Dept of Endocrine Surgery during the study period 314 patients Study Period: January 2022-January 2023 All patient details such as gender, age, BMI, Volume of each lobe of the thyroid gland by USG, associated malignancy detected by FNAC/post-op HPE, associated toxicity determined by Thyroid function test are recorded. All USG measurements are done by the same person using the same US machine In the patient undergoing thyroidectomy or hemithyroidectomy, the EBSLN is visually identified and categorised into either type I, IIa or IIb based on the CERNEA Classification All the above data will be analysed to find any correlation with the preoperative factors that help point towards possible type of EBSLN and help in surgical planning to help identify the nerve.
Results: the volume of the gland was classified as high volume or low volume with a cut off value of 50ml per lobe. it was found that volume of the gland when larger, the association was significant with more number of IIA and IIB nerves increasing their chance of being injured during thyroidectomy surgery. associated hyperthyroidism was another factor with significant association in finding a lower nerve when the factors of significance such as volume of the lobe of the gland and hyperthyroidism were associated together, the association was stronger
Conclusions: volume of the gland and associated hyperthyroidism play a significant part in type of EBSLN encountered in surgery. this will help search or assess the type of

EBSLN during thyroid surgeries. volume of each lobe is considered high volume if the measured volume is 50ml. the larger the gland and associated hyperthyroidism, higher the chances of identifying a lowly placed nerve. the other factors were not found to be significant.

PV406 / #545

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

EFFICIENCY OF LOW DOSE 30MCI OF I-131 FOR LOW TO INTERMEDIATE RISK THYROID CANCERS USING TRIPLE NEGATIVE CRITERIA.

Asifa Jamali, Nanik Ram, Farah Khalid, Najmul Islam
Aga Khan University Hospital, Internal Medicine (Endocrine), KARACHI, Pakistan

Background and Aims: Radioiodine-131 ablation (RAI) of residual functioning thyroid tissue is a staple in the treatment of many Thyroid Cancer patients after surgery. However, it is debated and reexamined to avoid overtreatment of low-risk carcinomas and improve the detection of tumors that are more aggressive. We determined the difference in treatment response during one year after ablation. Moreover, we investigated differences between patients who did not undergo RAI Treatments and compared them to patients receiving a low dose of iodine (30 mCi).
Methods: This was a retrospective study conducted at Aga Khan University Hospital (AKUH) in Karachi, Pakistan. The study population was patients with low to intermediate risk of well Differentiated thyroid cancers(DTC). A descriptive analysis was done. Categorical variables were represented as frequencies and percentages. The comparison was done by Chi-square.
Results: Out of 102 participants, mean age was 41.88 years and the majority were females (73.5%). The common diagnosis was papillary thyroid carcinoma (84.3%). A low recurrence risk was reported in 89.2%. 98% of patients were given a 30-mci dose of RAI. The majority 83.3% of participants reported a Post-ablative Whole-body iodine scan showing no distant metastasis 1 year after RAI ablation. 55.8% of participants reported an excellent response to treatment, followed by 17.65% of participants having incomplete biochemical responses.
Conclusions: This study concludes that a low dose of RAI provided an excellent response to treatment in contrast to patients who had no RAI dose. After 1 year of follow-up, ultrasound imaging showed negative structural recurrence in the majority of patients which proves that a low dose of RAI can help for a disease-free follow-up.

PV407 / #1744

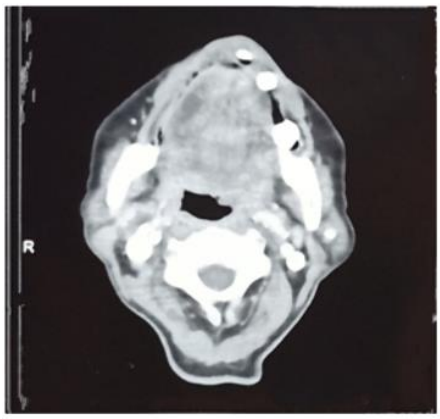
E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

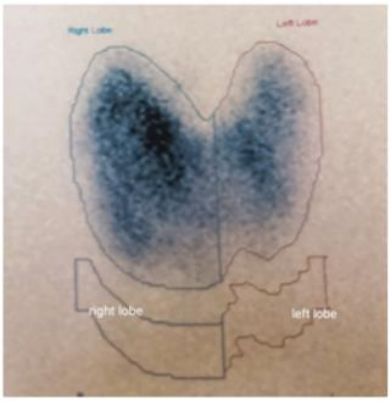
APATHETIC THYROTOXICOSIS DUE TO GRAVE'S DISEASE AND MULTI NODULAR GOITER PRESENTING WITH HYPERCALCEMIA

Thanikai Sasikanth, Rameshkumar Thevarajah, Prasad Katulanda
Faculty of Medicine, University of Colombo, University Medical Unit, Colombo, Sri Lanka

Background and Aims: Thyrotoxicosis is well known to be associated with hypercalcemia. Thyrotoxicosis can present with loss of appetite and weight loss. Here we report an elderly patient with thyrotoxicosis due to Graves' disease and multinodular goiter, who also had non para thyroid hormone mediated hypercalcemia.

Methods:





A 58 years old lady was investigated for fatigue, loss of appetite and weight loss. she denied any palpitation, heat intolerance and loose stool. she had a long standing goiter once treated with thyroxine but she defaulted follow up. She had mild degree of exopthalmos without evidence of active Grave's eye disease. she had an asymetrical nodular goiter. Her TSH was <0.0025 mIU/L, FT4 was 2.510 ng/dL. Her TSH-Receptor antibodies, anti TPO antibody and anti thyroglobulin antibodies were significantly high. Thyroid scintigraphy demonstrated hot and cold nodules in both lobes associated with generalized increased uptake. She had hypercalcemia (12.6mg/dl) with normal phosphate (3.6mg/dL), vitamin D (35 ng/ml) and low normal PTH (9.9pg/ml) levels. She was extensively investigated for malignancy including whole body imaging. Multiple myeloma screening also became negative. She was managed with carbimazole and lithium carbonate added to achieve euthyroidism.
Results: After few months of medical management, hypercalcemia settled (8.6mg/dl). She underwent total thyroidectomy, and currently on thyroxine replacement.
Conclusions: Toxic multinodular goiter can occur in the background of thyroid auto immunity. Due to the apathetic nature of thyrotoxicosis and associated non PTH mediated hypercalcemia, extensive malignancy screening was performed to rule out hypercalcemia of malignancy. Normalization of calcium level with euthyroidism confirmed thyrotoxicosis as the cause of hypercalcemia.

PV408 / #604

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

TOCILIZUMAB FOR "LONG" THYROID EYE DISEASE

Jan Schovánek[1], Marta Karhanova[2], David Karasek[1]
[1]University Hospital Olomouc, Department Of Internal Medicine Iii – Nephrology, Rheumatology And Endocrinology, Olomouc, Czech Republic, [2]University Hospital Olomouc, Department Of Ophthalmology, Olomouc, Czech Republic

Background and Aims: A male patient, currently 64 years old, was diagnosed with TED (Thyroid Eye Disease) in 1993. According to the records, he underwent surgery for "exophthalmos" in both eyes (likely decompression surgery), followed by a total thyroidectomy one year later. He had received twice radioiodine for persistent thyroid eye disease and intravenous/per oral corticosteroids. For the first time, he was seen at our University clinic in 2016 after five years of ongoing problems with bilateral lids edemas, eye tiredness, tearing and redness, without diplopia. Due to the unusual course of TED, we excluded myasthenia gravis and IgG4-related disease. For recurrent progressions of TED since 2016, we treated him with intravenous pulses of methylprednisolone (cumulative dose of 7.5g), three times 100mg dose of rituximab, prolonged per oral therapy with prednisone and one-year treatment of cyclosporine. While on cyclosporine, he developed exposure keratopathy, which required tarsorrhaphy. The CAS score remained high (>3) for all the years.
Methods: In October 2022, he was switched to tocilizumab 162 mg s.c. weekly.
Results: After receiving the treatment, we started seeing dramatic changes in his appearance (decreased swelling, decreased redness, improved eye motility, CAS decrease). A lowering in TED activity was also present on the MRI scans, as well as the reduction of orbicular muscle volume. His TSI (Thyroid Stimulating Immunoglobulin), which was till tocilizumab (at least since 2016) all the time above the detection threshold (>40 mIU/l), started to decrease.
Conclusions: To conclude, we report successful treatment with tocilizumab in a patient with an unusually long duration of active TED. This work was supported by the Ministry of Health of the Czech Republic - Conceptual development of research organization (FNOL, 00098892) and grant no. NU21J-01-00017.

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01-03-2024 07:00 - 18:00

PATTERN OF PRACTICE FOR DIAGNOSIS AND MANAGEMENT OF THYROID DISORDERS AMONG PHYSICIANS OF BANGLADESH: A CROSS-SECTIONAL STUDY

Shahjada Selim[1], Marufa Mustari[1], Abm Kamrul Hasan[2]
[1]Bangabandhu Sheikh Mujib Medical University, Endocrinology, Dhaka, Bangladesh, [2]Mymensingh Medical College, Endocrinology, Dhaka, Bangladesh

Background and Aims: The management of thyroid disorders is challenging, especially in resource-poor settings of low- and middle-income countries like Bangladesh. The present study aimed to evaluate the practice pattern of physicians for the diagnosis and treatment of thyroid disorders in Bangladesh.
Methods: The present cross-sectional study was conducted among 662 physicians of different levels from different hospitals of Bangladesh from January to June 2023. A self-administered semi-structured questionnaire including information about demographics, and practice patterns for diagnosis and management of thyroid disorders was used for data collection. Descriptive statistics were used for analyzing data.
Results: One-third of the physicians (38%) had a clinical experience of five to ten years while almost 59% of them consulted less than twenty patients daily. Majority of the physicians admitted that their patients had a poor to average level of knowledge regarding thyroid disease. American Thyroid Association guideline was the most followed guideline for diagnosis and management of thyroid disorders (57%) followed by American Association of Clinical Endocrinologist guideline (14%) and European Thyroid Association guideline (6%). Serum TSH, free T3 and free T4 levels were most frequently used diagnostic test for evaluation and follow-ups of both hypothyroid and hyperthyroid states in adults, pregnant women as well as children followed by total T3 and total T4 levels. Other tests such as anti-TPO antibody, anti-TG antibody, anti-TPO, ultrasound scan of thyroid gland etc. were rarely used by the participating physicians. Almost one-third of the participants preferred Institute of Nuclear Medicine and Allied Sciences, Bangladesh for tests while other third preferred private facilities. Levothyroxine at a dose of 25 to 50mcg and carbimazole at a dose of 30 to 45mg were the most frequently used drugs for hypothyroid and hyperthyroid patients respectively. Almost 65% of the physicians suggested routine thyroid function test before surgery. More than 80% of the physicians reported that their patients regularly came for follow-up visits as suggested. Besides, more than 90% of the physicians agreed that thyroid screening for pregnancy, neonates, school children as well as adults would be mandatory.
Conclusions: The majority of the physicians participating in our study followed relevant guidelines for the diagnosis and management of thyroid disorders in Bangladesh. However, there is still some gaps to be improved as a good number of physicians did not follow specific guidelines for these disorders.

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E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

REAL WORLD EXPERIENCE WITH MYCOPHENOLATE MOFETIL IN COMBINATION WITH INTRAVENOUS METHYLPREDNISOLONE FOR MODERATE TO SEVERE THYROID EYE DISEASE: A TERTIARY CENTRE EXPERIENCE

Sheeba Shaikh[1], Susmita Chatterjee[1], Abigail Hopkins[2], Anne Cook[2], Shaishav Dhage[1]
[1]The Christie NHS Foundation Trust, Endocrinology, Manchester, United Kingdom, [2]Manchester Royal Eye Hospital, Manchester University NHS Foundation Manchester, UK., Ophthalmology, Manchester, United Kingdom

Background and Aims: Background Thyroid eye disease also known as Grave`s orbitopathy is an important extrathyroidal manifestation of Grave`s Thyrotoxicosis. Up to 50 % of patients with Grave`s disease may have some features of thyroid eye disease. Though only 5 to 10% of these patients have moderate to severe manifestations of thyroid eye disease, the management can be very challenging. Until recently, intravenous methylprednisolone was the only recommended first line treatment for immunosuppression in these patients. Second line treatments are available including tocilizumab, cyclosporine, azathioprine, rituximab, and mycophenolate. A few newer treatments include anti IGF1 monoclonal antibody Teprotumumab, anti FcRN antibody Batoclimab, anti IGF1R inhibitor Linsinitinib, anti TSH receptor antibody and anti-CD-40 antibody Iscalimab. At present Teprotumumab is the only FDA approved treatment which has shown good improvement in terms of proptosis and diplopia. Other medications are still in trial phase. The major drawback of Teprotumumab is very high cost. We follow EUGOGO guidelines published in 2021 as part of our treatment protocol and manage our thyroid eye patients as part of joint MDT service shared between Ophthalmologists and Endocrinologists. We are currently using combination therapy of intravenous methylprednisolone and oral mycophenolate mofetil for treatment of moderate to severe thyroid eye disease. Aims and objectives. To assess the difference in various Ophthalmological parameters in the patients who were treated with intravenous methyl prednisolone alone versus those treated with combination therapy of intravenous methylprednisolone and oral mycophenolate mofetil. This study is completed as a quality improvement project following local protocols.
Methods: Before June 2022, we have used intravenous methylprednisolone alone, as first line treatment and from June 2022 combination therapy of intravenous methyl prednisolone and oral mycophenolate mofetil was used as standard first line treatment. The data from intravenous methylprednisolone alone group is from before June 2022, whilst the data from combination treatment group is after June 2022 till date. Data has been collected retrospectively and analysis of various Ophthalmological parameters comparing these two groups will be presented.
Results: Please note we are currently analysing the data at the time of submission of this abstract and will be happy to share the results and conclusion before publication of the abstract. Findings and analysis of the study will be presented in the discussion and conclusion.
Conclusions: Please note we are currently analysing the data at the time of submission of this abstract and will be happy to share the results and conclusion before publication of the abstract.

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AUTOIMMUN HYPOTHYROIDISM AND THE GENOTYPE OF TURNER SYNDROME: ARE THERE ANY CORRELATIONS?

Khawla Rhouzali[1], Latifa Yaagoubi[1], Magouri Oumaima[2], Chaymae Hamdane[1], Rouf Siham[3], Hanane Latrech[3]
[1]hospital University Centre of Mohammed-VI Oujda, Endocrinology Diabetology And Nutrition, Oujda, Morocco, [2]hospital University Centre of Mohammed-VI Oujda, Endocrinology Diabetology And Nutrition, OUJDA, Morocco, [3]Hospital University Centre of Mohammed-VI-Oujda , Faculty of Medicine and Pharmacy Mohammed First University Oujda, Endocrinology Diabetology And Nutrition, Laboratory Of Epidemiology, Clinical Research And Public Health, Oujda, Morocco

Background and Aims: Turner syndrome (TS) is a rare genetic disorder characterized by an aberration of the X chromosome. TS can be associated with autoimmune diseases, particularly those affecting the thyroid gland. Autoimmune hypothyroidism is a frequent pathology in ST, and often infraclinical. The aim of this study is to evaluate the correlation between the autoimmune profile of hypothyroidism and the genetic characteristics of patients with Turner Syndrome.
Methods: This is a descriptive and analytical retrospective study of 22 patients diagnosed with Turner syndrome at the Department of Endocrinology, Diabetology and Nutrition at the University Hospital of Oujda-Morocco. All patients were screened for thyroid function.
Results: The average age of our study group is 16 ± 12 years, with a median age of 11.5 years at the time of hypothyroidism diagnosis. Six patients (27.2%) were diagnosed with hypothyroidism. Therefore, all patients had positive thyroid autoantibodies and were on replacement therapy with thyroxine. 66.67% of hypothyroid cases had a mosaic karyotype, while the monosomic form was found in only 33.3%. Our study did not demonstrate a significant correlation between the Turner Syndrome genotype and thyroid autoimmunity (P >0.05).
Conclusions: Although our study didn't reveal a correlation between karyotype and thyroid autoimmunity. However, this could be explained by the limited number of our cases. Furthermore, thyroid function screening should be systematic in patients with Turner syndrome, and regular biological monitoring is recommended.

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RELATIONSHIP BETWEEN DIABETES AND THYROID DYSFUNCTION IN AN ADULT POPULATION

Hatri Sihem
hospital AIN NAADJA, Pharmacie, Algiers, Algeria

Background and Aims: the coexistence of diabetes and dysthyroidism suggests a polyendocrinopathy with multiple pathophysiological mechanisms. It has been shown that thyroid disorders and diabetes mellitus influence each other and that there is a strong association between them: on the one hand, thyroid hormones help regulate carbohydrate metabolism and pancreatic function. The aim of this work is to study the impact of type 1 and 2 diabetes on thyroid dysfunction and to estimate the prevalence of thyroid disorders in the diabetic population and to identify factors associated with thyroid dysfunction during type 1 and 2 diabetes in order to avoid complications.
Methods: the prospective study concerns 60 type 1 and 2 diabetic patients at the diabetic-endocrinology department of the HCA Ain naadja during the 3-month period [January March 2023], All our patients benefited from a complete biochemical workup.
Results: The frequency of thyroid dysfunction without autoimmun markers was 26.67%:16 out of 60 diabetic patients including 5 T1D(8.33%) and 6 T2D (10%). Among patients with thyroid dysfunction, signs of thyroid autoimmunity, defined by a positive level of anti-TPO and/or anti-TG antibodies, were noted in 10 patients, i.e., 16.67% of cases.
Conclusions: Thyroid disorders predominate in women, and their occurrence in diabetics is related to age and influenced by the duration of diabetes. Heredity plays an important role in the development of dysthyroidism,a disturbed lipid profile is observed in diabetics with dysthyroidism, TSH measurement in diabetics is necessary to prevent dysthyroidism, autoimmunity is present through ATPO and ATG positivity, an association has been found between diabetes and dysthyroidism.

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TENSION-FREE THYROIDECTOMY WITH MEDIAL APPROACH TO THE RECURRENT LARYNGEAL NERVES AND MODIFIED BLOOD VESSELS PREPARATION AS A NEW PARADIGM OF THYROID SURGERY

Ilya Sleptsov, Roman Chernikov, Konstantin Novokshonov, Alexander Pushkaruk, Ilya Sablin, Natalia Timofeeva, Ksenia Gerasimova
St.Petersburg University Hospital, Endocrine Surgery, St.Petersburg, Russian Federation

Background and Aims: The method of TFT was suggested by our team in 2021. Since then, several changes were made to TFT technique. Current TFT principles are the following: - all the steps of the surgery are performed with the thyroid kept inside the neck to avoid excessive traction of the anatomical structures surrounding the thyroid – vessels, fascia, nerves etc.; - the dissection of every vein should be preceded by a dissection of an artery to avoid blood hypertension in the thyroid tissue and excessive bleeding, the lateral (Kocher's) vein should be protected till the end of surgery as the main way of the blood drainage from the thyroid; - the surgery should start from a complete dissection of Berry's ligament in medial-to-lateral direction and a complete release of the thyroid lobe from the recurrent laryngeal nerve (RLN) and the trachea; - the traction should be applied to the thyroid lobe only in lateral and downward direction, avoiding the traction in lateral and upward direction as it is done in conventional surgery; - the division of the parathyroid glands (PG) from the thyroid should be performed before the extraction of the thyroid. In this work we'd like to estimate the results of TFT use in different time periods.
Methods: Results were calculated in a group of 700 consecutive patients who underwent TFT. Indications for surgery were cancer, Graves disease, follicular neoplasia (Bethesda IV result of fine needle aspiration biopsy), nodular toxic and compressive goiter. Intraoperative neuromonitoring was used in all the cases (5 mV). Laryngoscopy was used prior and after the surgery to evaluate vocal cords mobility. Calcium and parathormone levels were measured in patients after total thyroidectomy on the 1st, 14th, 30th, 90th postoperative days.
Results: Unilateral RLN palsy was observed in 0,9% from RLN at risk. In all but 1 case it was transient and resolved, the rate of permanent RLN palsy was 0,12%. Complete unintentional PG removal appeared in 0,3% of PGs at risk, a fragment of PG tissue with diameter of less than 2 mm was removed in 3,8% of PGs at risk. Hypoparathyroidism occurred in 9,2% of patients with TT. In all but 1 case the PG function was restored, the rate of permanent hypoparathyroidism was 0,6%.
Conclusions: The paradigm of TFT with medial approach to the RLN gives the opportunity to decrease the rate of specific surgical complications, such as permanent RLN palsy and permanent hypoparathyroidism.

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01-03-2024 07:00 - 18:00

DURABILITY OF TEPROTUMUMAB FOR THE TREATMENT OF THYROID EYE DISEASE (TED) IN CLINICAL TRIALS

George J. Kahaly[1], Prem S. Subramanian[2], Elizabeth Conrad[3], Robert J. Holt[3], Terry J. Smith[4]
[1]Johannes Gutenberg University Medical Center, Endocrinology, Mainz, Germany, [2]Sue Anschutz-Rodgers University of Colorado Eye Center, Neuro-ophthalmology, Aurora, United States of America, [3]Horizon Therapeutics, Medical Affairs, Deerfield, United States of America, [4]Kellogg Eye Center-Michigan Medicine and University of Michigan, Department Of Ophthalmology And Visual Sciences And Department Of Internal Medicine, Ann Arbor, United States of America

Background and Aims: Teprotumumab has demonstrated efficacy for the treatment of thyroid eye disease (TED). To assess durability of responses to teprotumumab over the longer term, pooled clinical trial data were assessed beyond the 24-week treatment period for patients in phase 2, OPTIC, and OPTIC-X studies, in patients who received a full course of teprotumumab.
Methods: Observed rates for proptosis, clinical activity score, diplopia, overall, and composite responder status were assessed out to 51 weeks (study week 72) post-final teprotumumab infusion. Additional TED therapy administered up to Week 120 (i.e. 99 weeks post-therapy) was also examined. Studies differed in the timing of follow-up visits and data were not available at every time period for all patients.
Results: Response rates among patients receiving a full course of teprotumumab (N=112) were largely maintained 51 weeks after the final teprotumumab infusion at study Week 72: proptosis 38/56 (67.9%); CAS 48/57 (84.2%); diplopia 33/48 (68.8%); overall 37/56 (66.1%) and composite 48/57 (84.2%). The mean reduction in proptosis was 2.68 (SD 1.92) mm (N=56) and disease inactivation, defined as CAS of 0 or 1, was noted in 64.9% (37/57). Post-teprotumumab treatment, 17.9% (19/106) of reporting patients received TED treatment (systemic steroids or teprotumumab) and/or remedial periocular surgery as of 99 weeks after the last dose (to study Week 120).
Conclusions: At Week 72, nearly one year post-therapy completion, responses to teprotumumab were similar to the formal study end at Week 24. Both CAS and ophthalmic composite responses were identified in 84% of observed patients. Diplopia and proptosis responses were observed in nearly 70%. Additionally, a low percentage of patients required additional treatment for TED nearly two years after therapy completion.

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METABOLIC SYNDROME COMPONENTS IN NEWLY DETECTED HYPOTHYROIDISM -POSSIBLE ASSOCIATION & RISK FACTORS FOR THE DEVELOPMENT OF OVERT HYPOTHYROIDISM

Jayshree Swain, Brij Teli, Kasukurti Lavanya, Vejendla Soma Srinivas, Sidharth Panigrahi, S. L. Sravya, Pooja Jadhao
Institute of Medical Sciences and Sum Hospital, Endocrinology, Bhubaneswar, India

Background and Aims: Thyroid hormones have multiple effects on glucose & lipid metabolism, blood pressure (BP) regulation and energy consumption. This study aims to correlate the parameters of metabolic syndrome with thyroid function test (TFT) in newly detected overt and subclinical hypothyroidism (SCH). The objective is to compare the parameters of metabolic syndrome i.e. BMI, waist circumference (WC), BP, fasting plasma glucose (FPG), fasting lipid panel (FLP), fasting insulin & insulin resistance) with SCH and overt hypothyroidism (OH) and identify risk factors for development of OH.
Methods: This cross-sectional study was conducted over 6 months with newly diagnosed OH & SCH. Patients with past history of HTN, T2DM, CKD, CLD, CCF, PCOS, any acute illness, intake of drug modifying TFT & FLP (Statins, OCPs, etc) were excluded. Height, weight, BMI, WC, BP were noted and fasting samples taken for TFT, FPG, insulin, FLP (Chol, TG, HDL, LDL, VLDL). HOMA-IR was calculated.
Results: Out of 112 patients, data of 100 subjects were analysed of which, 42 had OH and 58 had SCH, (70% females, 30% males). Mean: age -46.6 ± 8.56, BMI-27 ± 1.83, WC-97.6 ± 7.34, SBP-139 ± 15.7, DBP-86.2 ± 9.7, FPG-134 ± 23.6, TC-195 ± 34.3, HDL-45.3 ± 6.16, LDL-90.7 ± 50.4, VLDL-36.7 ± 11, TG-163 ± 49.9, T3-80.7 ± 22.5, T4-4.55 ± 2.42, TSH-11.6 ± 7.02, insulin-11.1 ± 6.44, HOMA-IR-2.67 ± 1.66. Amongst 2 groups, FPG-126.79 ± 21.53 in Overt vs 144.76 ± 22.65 in SCH, P <0.001, TC-188.03 ± 29.96 in overt vs 204.81 ± 37.87 in SCH, p 0.015, VLDL 34.17 ± 9.29 in overt vs 40.29 ± 12.17 in SCH, p-0.005, insulin 9.75 ± 5.27 in overt vs 12.94 ± 7.44 in SCH p-0.014 and HOMA–IR 2.41 ± 1.52 in overt vs 3.03 ± 1.79 (p=0.066). Independent risk factors for development of OH included TC>200 mg/dl (p-0.025, OR-5.06053), FPG>126 mg/dl (p-0.041, OR-3.44571), WC>90 cm (p-0.046, OR-13.33772), LDL-100 mg/dl (p-0.041, OR-1.04056). FPG significantly correlated with increase in TSH levels (ß=0.366, p value<0.001). TG, TC, LDL and VLDL significantly correlated with increase in TSH levels (ß=0.235, p-0.019; ß=0.281, p-0.005; ß=0.381, p<0.001; ß=0.403, p<0.001, respectively). Insulin and HOMA–IR significantly correlated with increase in TSH levels (ß=0.444, p<0.001; ß=0.422, p<0.001, respectively).
Conclusions: FPG and WC strongly predict the development of OH. TC, LDL, VLDL are also independent predictors. Life style modifications for reductions of central obesity, early screening and treatment of dyslipidemia and dysglycemia will prevent overt hypothyroidism.

PV416 / #158

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01-03-2024 07:00 - 18:00

A RARE ASSOCIATION OF HASHIMOTO THYROIDITIS WITH AN AMPULLAR NON-SECRETING NEUROENDOCRINE TUMOR, PHEOCHROMOCYTOMA AND INTRACAVERNOUS CAROTID ANEURYSM IN A NEUROFIBROMATOSIS TYPE 1 PATIENT

Daniela Telehuz, Ioana Rada Popa Ilie
Emergency Clinical County Hospital, Endocrinology, Cluj-Napoca, Romania

Background and Aims: Neurofibromatosis type 1 is an autosomal dominant disease caused by mutation of NF1 gene, which leads to cell growth and tumor formation, with a wide variability of phenotype.
Methods: It does not apply: it is a clinical case.
Results: Case Presentation We present the case of a 40-year-old female who had a history of optical glioma. In 2022 the patient was hospitalized in the gastroenterology department for jaundice and vomiting. The abdominal ultrasound showed hepatic fibrosis and bile duct dilatation, confirmed by magnetic resonance cholangio-pancreatography. The CT scan showed a right adrenal tumor suggestive of pheochromocytoma. There was also a Vater ampullary tumor, further confirmed by ERCP when a prothesis of biliary tract was installed and biopsy was performed. The histological result showed a G1 neuroendocrine tumor with Ki67 of 1%. Extensive explorations were made with final diagnosis of biliary obstruction cirrhosis and severe hepatic sinusoidal hypertension. The patient was afterwards hospitalized in endocrinology, where clinically we noticed that the patient had a small stature (140 cm), kyphoscoliosis, café-au-lait macules, multiple thoracic lesions suggestive of neurofibromas (later confirmed by biopsy), Lisch nodules of the right eye. The patient had no classical signs of pheochromocytoma and no signs that would be consistent with a secreting neuroendocrine tumor. The 24-hour urinary metanephrines were confirmatory of pheochromocytoma. Chromogranin A was slightly above the upper limit. Further investigations showed a thyroid profile suggestive of Hashimoto thyroiditis with confirmatory ultrasound and antibodies. An intracavernous carotid artery aneurysm was also discovered on the cerebral scan. Surgical cure of both tumors and of the carotid aneurysm was indicated, but postponed due to severe portal hypertension. The hepatic function has improved significantly, so the pheochromocytoma has been removed recently without complications. The cephalic duodenopancreatectomy is currently being reconsidered, in the meanwhile the patient being treated with somatostatin analogs.
Conclusions: NF1 related vasculopathies and pheochromocytomas affect up to 5 % of patients but digestive neuroendocrine tumors are rarer (1%). Association with autoimmune diseases is exceptional. This clinical case aimed to remind physicians of the importance of searching extensively for wide phenotypical presentations in NF1 patients, while also raising the question of a possible association with autoimmune diseases. Lack of function of neurofibromin induces a resistance to apoptosis of CD4+ T cells, which might be a plausible theory of a link between autoimmune diseases and NF1. Further research is needed to provide future insight in the association.

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THE CLINICAL UTILITY OF THYROGLOBULIN MEASUREMENT IN FINE-NEEDLE ASPIRATION WASHOUT FLUID OF CERVICAL LYMPH NODE AND THYROID BED NODULES SUSPICIOUS OF DIFFERENTIATED THYROID CANCER METASTASIS

Jamie Hong Im Teoh[1,2], Kathleen Su Yen Sek[2], Tze Ping Loh[3], Lizhen Ong[3], Samantha Peiling Yang[2]
[1]Hospital Sultanah Aminah, Medicine, Johor Bahru, Malaysia, [2]National University Hospital, Medicine, Singapore, Singapore, [3]National University Hospital, Laboratory Medicine, Singapore, Singapore

Background and Aims: Fine needle aspiration cytology (FNAC) is commonly used to assess enlarged or ultrasonographically suspicious cervical lymph nodes (CLNs) and thyroid bed nodules in patients treated for differentiated thyroid cancer. As inconclusive or false-negative results are not uncommon, thyroglobulin (Tg) measurement from fine needle aspiration washout fluid (FNA-Tg) is used as an adjunct to the cytologic examination of FNA specimens to confirm or exclude CLN metastases or recurrences. Positive FNA-Tg is defined as > 1 ng/mL and positive FNA-Tg/ serum Tg ratio is defined as > 1. This study aimed to evaluate the clinical utility of FNA-Tg, the significance of serum anti-Tg antibodies (TgAb) in FNA-Tg concentration, and the association between FNA-Tg, FNA-Tg/ serum Tg ratio and ultrasound features and CLN metastases from DTC.
Methods: A retrospective study evaluating 31 suspicious CLNs or thyroid bed nodules from 25 patients undergoing ultrasound-guided FNA for cytology, Tg and TgAb measurements from January 2014 to March 2023. The sensitivity and specificity of FNA-Tg concentration and FNA-Tg/ serum Tg ratio were evaluated using the final diagnosis as reference. The relationship between serum Tg and FNA-Tg in the presence of serum TgAb was evaluated using Mann-Whitney Test. The relationship between each ultrasound feature and CLN metastases from DTC was evaluated using Fisher's Exact Test.
Results: FNAC of seventeen (54.8%, 17/31) nodules showed metastatic DTC, of which four (23.5%, 4/17) were from thyroid bed nodules. FNA-Tg ranged from 0.5 to 9451 ng/mL in metastatic LNs/ thyroid bed nodules [median; 166.0 (IQR 3352.0) ng/mL], and 0.1 to 0.5 ng/mL in non-metastatic/ non-diagnostic lymph nodes [median; 0.1 (IQR 0.3) ng/mL]. By using the FNA-Tg cutoff of > 1ng/mL, the sensitivity and specificity are 84.2% and 91.7%, respectively. With the FNA-Tg/ serum Tg ratio of > 1, the sensitivity and specificity are 88.2% and 100%, respectively. In 19 patients that had positive serum TgAb, FNA Tg concentration [median; 9.4 (IQR 477.9) ng/mL] is higher than serum Tg [median; 1.3 (IQR 3.2) ng/mL] (p=0.136). The internal punctate calcifications (p=0.008) and abnormal Doppler pattern or vascularity (p=0.016) from ultrasound CLNs were significantly associated with metastatic DTC cytology.
Conclusions: We concluded that FNA-Tg is useful as an ancillary test to FNAC and its measurement is not affected by serum TgAb. The presence of microcalcifications and abnormal vascularity from ultrasound best predict positive CLN metastases from DTC.

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RHABDOMYOLYSIS AS INITIAL PRESENTATION OF GRAVES' DISEASE

Bernadette Diane Vista, Colleen Ann Caragay, Celeste Ong-Ramos, Kayla Pamela De La Cerna
St. Luke's Medical Center-Quezon City, Section Of Endocrinology, Diabetes And Metabolism, Quezon City, Philippines

Background and Aims: Rhabdomyolysis is potentially life threatening syndrome involving rapid dissolution of damaged or injured skeletal muscle. We present a case of a patient who developed rhabdomyolysis associated with hyperthyroidism.
Methods: Case Report
Results: This is a case of a 25 year-old male, with no known comorbidities, who presented with a 9-day history of bilateral arm pain which started after doing a pull-up exercise comprising of 3 sets of 10 repetitions with 60-90 seconds rest between. He regularly plays golf and goes to the gym once a week. He was not dehydrated, and denies intake of protein supplementation, statins and heavy carbohydrate meal before exercise. There were no other muscle pains, hematuria and decrease in urine output. He initially took Ibuprofen 200mg, however there was persistence with increase in severity of symptoms PS 10/10, hence sought ER consult. On admission, he had normal vital signs, with tenderness on bilateral arm. On physical examination, he was found to have exophthalmos, and a symmetric, smooth, and diffuse goiter (WHO Grade II). No thyroid bruit was heard. Laboratory evaluation showed normal electrolytes (Na 140 mmol/L and K 4 mmol/L) and renal function (creatinine 0.67mg/dL eGFR 137) . Serum creatinine kinase-MM was elevated at 20, 126 (35- 232) U/L. Urine dipstick test was positive for blood. Thyroid function test showed suppressed TSH 0.01 uIU/mL and elevated FT4 5.13 (0.89-1.76) ng/dL and FT3 17.19 (2.30-4.20) pg/mL. The overall findings suggested rhabdomyolysis secondary to a single bout of regular exercise in a hyperthyroid state. Patient received aggressive fluid resuscitation and was started on Methimazole 20mg/tab BID and Propranolol 40mg/tab TID. His symptom significantly improved and serum creatinine kinase level gradually decreased without electrolyte imbalance or acute kidney injury after 5 days. The patient was discharged home with stable condition and had a radioactive iodine uptake done demonstrating high radioactive iodine uptake with homogenous activity consistent with Graves' disease.
Conclusions: Hyperthyroidism, although rare, may cause rhabdomyolysis by means of cellular hypermetabolism associated with depletion of muscle energy stores and substrates. Currently, there have only been 7 reported cases of rhabdomyolysis as a result of thyrotoxicosis. We are reporting the 1st case of such association in the Philippines. Hence, in patients who developed rhabdomyolysis, hyperthyroidism should be considered in the differential diagnosis. This case highlights the importance of recognizing and addressing thyroid dysfunction in individuals presenting with rhabdomyolysis, ensuring timely and appropriate management.

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THE ASSOCIATION BETWEEN RENIN AND THYROID-RELATED BIOMARKERS WITH CLINICAL OUTCOMES IN HYPERTHYROIDISM PATIENTS

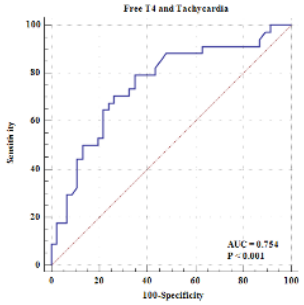
Han-Yun Wang, Cheng-Wei Lin
Chang Gung Memorial Hospital at Linkou, Division Of Endocrinology And Metabolism, Taoyuan City, Taiwan

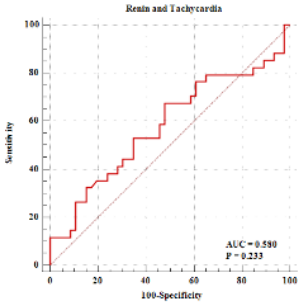
Background and Aims: Some studies imply the association between thyroid hormone and the renin-angiotensin-aldosterone system; however, the clinical application is scanty and not well established. Our investigation aims to verify the correlation between renin and other thyroid-related biomarkers. The additional purpose was to elucidate if the initial biomarkers measured when diagnosed hyperthyroidism are associated with further treatment outcomes.
Methods: The study recruited eighty consecutive patients treated for hyperthyroidism in the Chang Gung Memorial Hospital between 2021 to 2023. Among participants, 53 were newly diagnosed, and 27 were recurrent cases. Laboratory measurements were made to assess plasma renin concentration (PRC) and other thyroid-related biomarkers since patients have been treated. We analyzed the demographic data between the new-onset and recurrent groups and calculated the correlation for biomarkers. The association of biomarkers and clinical symptoms was analyzed via ROC curve. Time to euthyroid state was calculated and the clinical variables were entered into the Cox regression model to identify the independent risks associated with remission time.
Results: In comparison with the recurrent hyperthyroidism group, the new-onset patients had relatively higher thyroid hormone levels, TSH receptor antibody (TSHRAb), and PRC, as well as clinical symptoms including tachycardia and hypertension, though not reaching statistical significance.
The correlation matrix showed that free-T4 was positively correlated either with T3 ($r=0.755$, $P<0.001$) or PRC ($r=0.341$, $P=0.002$) but not with plasma aldosterone concentration ($r=0.055$, $P=0.631$). In ROC analysis for biomarkers and clinical symptoms, either free-T4 (AUC=0.754, $P<0.001$) or TSHRAb (AUC=0.645, $P=0.026$) demonstrated effective prediction of tachycardia; however, PRC was slightly positive for tachycardia without statistical significance (AUC=0.58, $P=0.233$). Regarding thyrotoxic periodic paralysis (TPP), the PRC showed significant prediction power (AUC=0.727. $P=0.021$) rather than free-T4 (AUC=0.543, $P=0.748$) or TSHRAb (AUC=0.688, $P=0.063$).
The median remission time was 166 days for new-onset patients and 216 days for recurrence, but the time-to-event curves showed no difference (log rank $P=0.728$). Under Cox regression modeling, the TSHRAb was found to independently predict the late remission (Hazard ratio 0.946, 95% Confidence interval 0.901–0.993, $P=0.026$), and the PRC had no impact on the remission time (HR 0.995, 95% CI 0.987–1.003,
$P=0.215$).

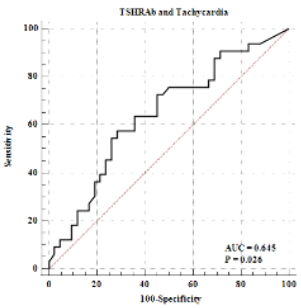
Table.2 Correlation matrix

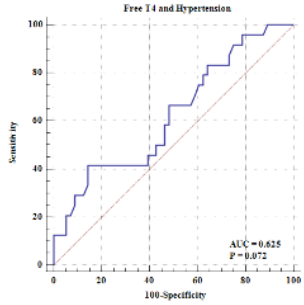
Variable	Aldo	Renin	TSH	Free T4	T3	TSHRAb	antiTPOAb	ALT	K	WBC	Hb
Aldo	--										
Renin	0.446**	--									
TSH	-0.067	-0.074	--								
Free T4	0.055	0.341**	-0.193	--							
T3	-0.026	0.215	-0.152	0.755**	--						
TSHRAb	-0.070	0.031	-0.050	-0.055	0.035	--					
antiTPOAb	0.074	-0.054	-0.105	0.018	-0.007	0.204	--				
ALT	0.169	0.202	-0.055	0.142	0.077	-0.002	0.051	--			
K	0.056	-0.034	0.047	-0.184	-0.129	0.020	-0.121	-0.008	--		
WBC	-0.107	-0.133	0.258*	-0.033	-0.184	-0.066	-0.112	-0.324**	0.058	--	
Hb	0.053	0.061	-0.118	-0.206	-0.171	0.112	-0.095	0.108	0.503**	0.132	--

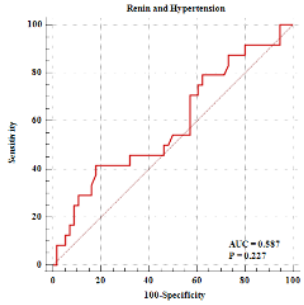
* $p < 0.05$

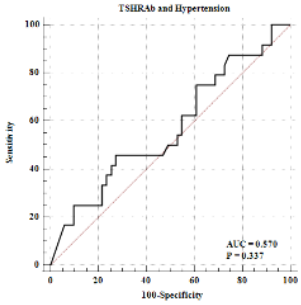

Free T4 and Tachycardia
Sensitivity
100-Specificity
AUC = 0.754
P < 0.001

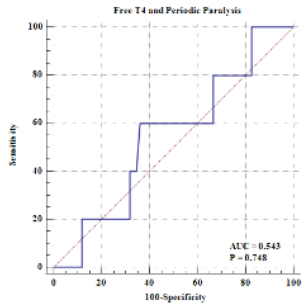

Renin and Tachycardia
Sensitivity
100-Specificity
AUC = 0.580
P = 0.233

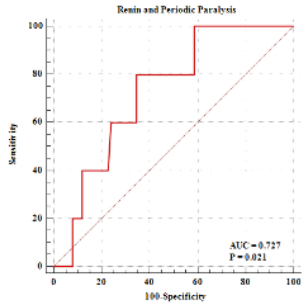

TSHRAb and Tachycardia
Sensitivity
100-Specificity
AUC = 0.645
P = 0.026

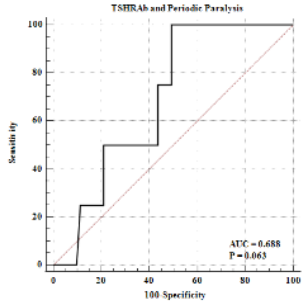

Free T4 and Hypertension
Sensitivity
100-Specificity
AUC = 0.625
P = 0.072

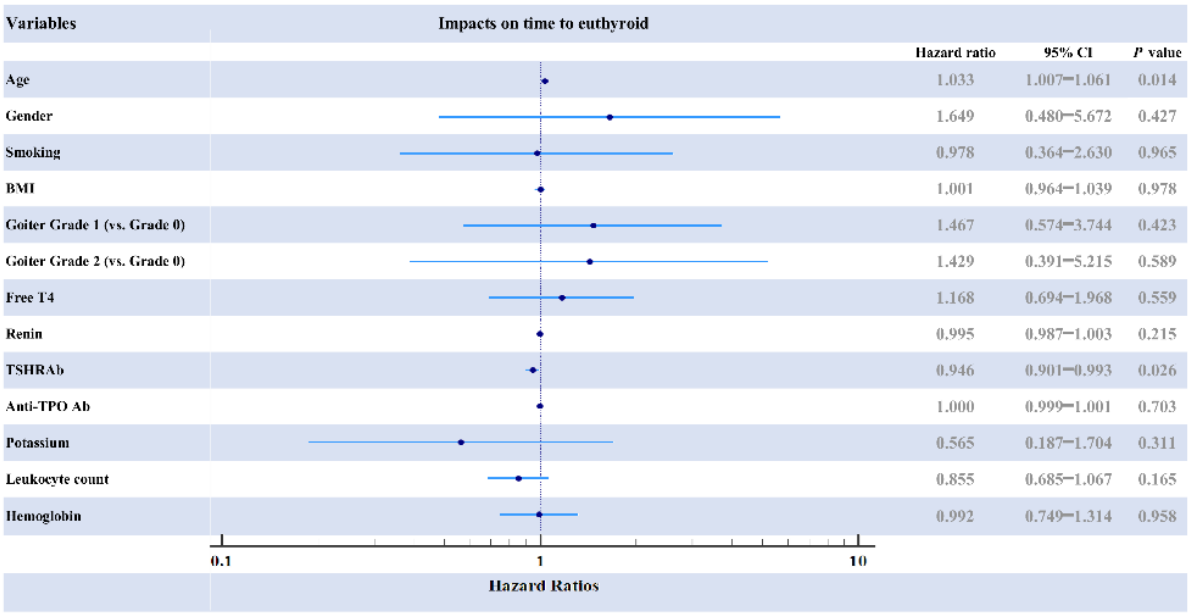

Renin and Hypertension
Sensitivity
100-Specificity
AUC = 0.587
P = 0.227


TSHRAb and Hypertension
Sensitivity
100-Specificity
AUC = 0.570
P = 0.337


Free T4 and Periodic Paralysis
Sensitivity
100-Specificity
AUC = 0.543
P = 0.748


Renin and Periodic Paralysis
Sensitivity
100-Specificity
AUC = 0.727
P = 0.021


TSHRAb and Periodic Paralysis
Sensitivity
100-Specificity
AUC = 0.688
P = 0.063



Conclusions: Plasma renin concentration but not aldosterone was positively correlated with free-T4. Some biomarkers measured when hyperthyroidism was diagnosed were associated with clinical symptoms. Free-T4 and TSHRAb might predict tachycardia, and the PRC might predict the TPP. Regarding outcome, nevertheless, higher TSHRAb was associated with later remission of hyperthyroidism rather than PRC or free-T4.

PV420 / #864

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

PREDICTORS OF COURSE OF TPO-NEGATIVE INDIAN CHILDREN AND ADOLESCENTS WITH SUBCLINICAL HYPOTHYROIDISM

Vibha Yadav, Alapan Mahapatra, Dhvani Raithatha, Rishi Shukla, Anurag Bajpai
Regency CDER, Pediatric Endocrinology, kanpur, India

Background and Aims: Introduction- Subclinical hypothyroidism is a common presentation posing a therapeutic dilemma. The course of TPO-negative children and adolescents is unclear. Aim- To study the course and predictors of progression of TPO-negative children and adolescents with subclinical hypothyroidism
Methods: Method- Records of children and adolescents presenting with subclinical hypothyroidism to our clinic were assessed for follow-up course and the need for treatment. The predictive role of clinical (family history, pubertal status, body mass index) and laboratory parameters (TSH level and Bioimpedance derived body fat) for the progression of disease was assessed.
Results: - Out of the 114 subjects thyroid replacement was started in 38 at presentation (30 with TPO positivity, five with goiter, two with dysthymia, and one with a history of neck radiation). TPO-negative 76 subjects (50 boys, 26 girls; age 10.9 ± 3 years, TSH levels 7 ± 1.3 mU/L) were followed for 2.4 ± 2 years. During the study period, TSH levels normalized in 26 (34.2%), remained in the subclinical range in 37 (48.7%), and progressed to levels above 10 mU/L in 13 (17.1%). Maximum progression occurred within the first year (13 within six months and 11 between 6-12 months) with progression in two subjects each in the second and third years of follow-up. Subjects requiring treatment had lower BMI SDS (1.5 + 1.6 as against 2.1 + 0.7, p = 0.02), body fat percentage (42.9 + 7.6 % as against 47.5 + 5.7 %, p = 0.02), and weight SDS (1.3 + 1.5 as against 1.9+ 0.9 SD, p = 0.04) than those not needing treatment. No difference in age (10.4 + 3.6 as against 11.1 + 2.9 years , p =0.36), TSH (6.9 + 1.2 as against 7.0 + 1.5 mU/L, p =0.58), and height SDS (0.2 + 0.9 as against 0.3 + 0.8, p =0.51) was observed in the two groups. Gender (odds ratio 1.5, p=4.6), pubertal status (odds ratio 1.1,p=0.8), and family history of hypothyroidism (odds ratio 0.8, p=0.7) did not predict the progression of subclinical hypothyroidism.
Conclusions: Conclusion- A substantial proportion of children and adolescents with subclinical hypothyroidism require treatment irrespective of initial TSH levels suggesting careful follow-up, especially in the first year. Lower adiposity levels in those with the progressive form indicate the interplay of body fat and the hypothalamic-pituitary-thyroid axis that needs to be further studied.

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PV421 / #446

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

BEST PRACTICES FOR MANAGEMENT OF THYROID DYSFUNCTION DUE TO IMMUNE CHECKPOINT INHIBITORS: PREDICTION OF SUBSEQUENT HYPOTHYROIDISM AND DELAYED-ONSET WITH CHEMOTHERAPY COMBINATION

Ichiro Yamauchi[1], Takuro Hakata[1], Yoko Ueba[1], Taku Sugawa[1], Daisuke Kosugi[1], Haruka Fujita[1], Kentaro Okamoto[1], Kaori Ikeda[1], Yohei Ueda[1], Toshihito Fujii[1], Daisuke Taura[1], Norio Harada[1], Nobuya Inagaki[2]
[1]Graduate School of Medicine, Kyoto University, Department Of Diabetes, Endocrinology And Nutrition, Kyoto, Japan, [2]PIIF Tazuke-kofukai, Medical Research Institute Kitano Hospital, Osaka, Japan

Background and Aims: Immune checkpoint inhibitors (ICIs) frequently cause immune-related adverse events involving the thyroid gland (thyroid irAEs). We previously reported clinical features of thyroid irAE including the representative clinical course (Thyroid 2017;27:894-901., PLoS One 2019;14:e0216954.) and the relationship to good prognosis (PLoS One 2019;14:e0216954.). Here we aimed to elucidate best practices for management of thyroid irAE.
Methods: Retrospective cohort analyses were performed using the medical records of patients who started nivolumab, pembrolizumab, or atezolizumab at Kyoto University Hospital until 2020.
Results: As for ICI monotherapy, we analyzed 50 patients with overt thyroid irAEs by dividing into the following groups: thyrotoxicosis with subsequent hypothyroidism (Toxic-Hypo, n = 21); thyrotoxicosis without subsequent hypothyroidism (Toxic, n = 9); and hypothyroidism without prior thyrotoxicosis (Hypo, n = 20). The Toxic-Hypo group developed thyroid irAEs earlier than the Toxic group (26 vs 91 days; $p < 0.001$) and had higher serum free T4 levels (3.210 vs 1.880 ng/dL; $p = 0.011$). Anti-thyroglobulin antibodies at thyroid irAE onset were more commonly positive in the Toxic-Hypo group (93.3%) than in the Toxic group (0.0%; $p = 0.005$) and Hypo group (44.4%; $p = 0.007$). The Toxic-Hypo group developed severe hypothyroidism and required larger levothyroxine doses than the Hypo group (75 vs 25 µg/day; $p = 0.007$). Subsequently, we elucidated ICI combination therapy by another retrospective cohort study of the following groups: pembrolizumab monotherapy (Pem-mono), pembrolizumab plus chemotherapy (Pem-combi), atezolizumab monotherapy (Atezo-mono), and atezolizumab plus chemotherapy (Atezo-combi). There were no differences in the incidence of overt thyroid irAEs: Pem-mono, 12 of 151 patients (7.9%) versus Pem-combi, 4 of 56 patients (7.1%) ($p = 0.85$) and Atezo-mono, 5 of 27 patients (18.5%) versus Atezo-combi, 5 of 57 patients (8.8%) ($p = 0.20$). Through detailed analyses of patients with thyrotoxicosis, we found that delayed-onset thyroid irAEs were only observed in the combination therapy groups: Pem-combi or Atezo-combi, 3 of 8 patients versus Pem-mono or Atezo-mono, 0 of 10 patients.
Conclusions: In ICI monotherapy, rapid-onset severe thyrotoxicosis in patients with TgAbs correlated with a high likelihood of subsequent hypothyroidism. On the other hand, longer monitoring of thyroid function is needed when ICIs are used in combination with chemotherapy because thyroid irAE development can be delayed.

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E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

UNRAVELING TREATMENT RESPONSE OF INTRAVENOUS GLUCOCORTICOIDS IN ACTIVE THYROID EYE DISEASE WITH LOW CLINICAL ACTIVITY SCORE

Haiyang Zhang[1], Ting Lu[2], Xuefei Song[1], Huifang Zhou[1], Xianqun Fan[1]
[1]Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Ophthalmology, Shanghai, China, [2]Shanghai Ninth People's Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, Shanghai, China

Background and Aims: To evaluate and predict the treatment response to intravenous glucocorticoids (IVGC) in patients with thyroid eye disease (TED) whose clinical activity score (CAS) <3 but present with active intraorbital lesions on magnetic resonance imaging (MRI).
Methods: We retrospectively analyzed the clinical data of 91 active TED patients with low CAS (<3) that received IVGC treatment (4.5 g, 12 weeks). In terms of treatment response evaluation, the EUGOGO standard (Two-Item Standard) and a One-Item Standard modified on this basis were implemented. Univariate and multivariable logistic regression analyses were used to establish prediction models. Receiver operating characteristic (ROC) curve analysis was performed and the area under the curve (AUC) was calculated.
Results: Under Two-Item Standard, 31 of the 91 patients (34.1%) were determined as responsive to IVGC, and 60 (65.9%) were unresponsive. MRD-1 were significantly different between responsive and unresponsive groups (P-value <0.05). Under One-Item Standard, 43 (47.3%) were determined responsive, and 48 (52.7%) were unresponsive. MRD-2 and exophthalmos were significantly different between two groups (P-value <0.05). By implementing multivariable regression, the reliability of predicting treatment response of IVGC in active TED patients with low CAS reached AUC = 0.709 under the Two-Item Standard and AUC = 0.792 under the One-Item Standard.
Conclusions: TED patients with low CAS (<3) are recommended to receive MRI examination for detecting intraorbital active lesions. Clinical assessment and radiological evaluations are valuable for predicting IVGC treatment response and achieving precision treatment.

PV423 / #101

E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

THYROID FUNCTION TEST ABNORMALITIES IN TWIN PREGNANCIES

Yong Zhang, Jianxia Fan
Shanghai Jiaotong University, Obestetrics, Shanghai, China

Background and Aims: Compared with singletons, a twin pregnancy is associated with a larger thyroid hormone demand and an increased stimulation of gestational thyroid function due to higher concentrations of human chorionic gonadotropin. However, such effects have been sparsely quantifified. The aim of this study was to evaluate thyroid function and thyroid function test abnormalities in twin pregnancies during early and late pregnancy compared with singletons.
Methods: We included 1208 twin pregnancies and 46,834 singleton pregnancies with thyroid function tests available. Thyroid function test abnormalities were defifined using population-based reference ranges. The analyses were adjusted for potential confounders including maternal age and body mass index.
Results: Compared with singletons, a twin pregnancy was associated with a lower thyrotropin (TSH) (β = -0.46 [95% confifidence interval, CI -0.49 to -0.44], $p < 0.001$) and a higher free thyroxine (fT4) (β = 0.91 [CI 0.69–1.16], $p < 0.001$) during early pregnancy. During late pregnancy, a twin pregnancy was associated with a higher TSH (β = 0.35 [CI 0.29–0.42], $p < 0.001$) while fT4 did not differ (β = -0.11 [CI -0.22 to 0.01], $p = 0.065$). During early pregnancy, a twin pregnancy was associated with a higher risk of overt hyperthyroidism (odds ratio, OR= 7.49 [CI 6.02–9.33], $p < 0.001$), subclinical hyperthyroidism (OR= 5.26 [CI 4.17–6.64], $p < 0.001$), and isolated hypothyroxinemia (OR= 1.89 [CI 1.43–2.49], $p < 0.001$), but with a lower risk of subclinical hypothyroidism (OR = 0.27 [CI 0.13–0.54], $p < 0.001$). In late pregnancy, a twin pregnancy was associated with a higher risk of subclinical hypothyroidism (OR= 4.05 [CI 3.21–5.11], $p < 0.001$), isolated hypothyroxinemia (OR = 1.48 [CI 1.04–2.10], $p = 0.028$), and subclinical hyperthyroidism (OR = 1.76 [CI 1.27–2.43], $p < 0.001$).
Conclusions: During early pregnancy, a twin pregnancy was associated with a higher thyroid function and a higher risk of (subclinical) hyperthyroidism, as well as a higher risk of isolated hypothyroxinemia. During late pregnancy, a twin pregnancy was associated with a higher TSH concentration and a higher risk of subclinical hypothyroidism, as well as a persistently higher risk of isolated hypothyroxinemia and subclinical hyperthyroidism.

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E-Poster Viewing
E-POSTER VIEWING: AS12. THYROID
01-03-2024 07:00 - 18:00

INTRAOPERATIVE NEUROMONITORING OF THE LARYNGEAL NERVES DURING SURGERY FOR THYROID CANCER IN CHILDREN: METHODOLOGY AND RESULTS OF USE IN 365 PATIENTS

Viktor Makarin, Arseny Semenov, Roman Chernikov, Natalya Gorskaya
Saint Petersburg State University, Saint Petersburg, Russian Federation

Background and Aims: Every year the number of operations on the thyroid gland increases, which requires the introduction of safe surgical methods and the prevention of specific complications. The goal was to develop a technique for intraoperative neuromonitoring of the laryngeal nerves during operations for thyroid cancer in children.
Methods: The study included 365 children with an average age of 14.8 years. Diagnosis upon admission to the clinic “thyroid cancer”: papillary, medullary and follicular cancer. Distribution by volume of surgery: hemithyroidectomy – 108, hemithyroidectomy + selective parathyroidectomy – 1, hemithyroidectomy + central lymphadenectomy of the VI level – 33, hemithyroidectomy + central lymphadenectomy of the VI level + lateral lymphadenectomy – 1, resection of the isthmus – 6, resection of the isthmus + central lymphadenectomy Level VI ectomy – 2, thyroidectomy – 79, thyroidectomy + central lymphadenectomy of level VI – 72, thyroidectomy + central lymphadenectomy of level VI + bilateral lateral lymphadenectomy of levels II, III and IV of the neck – 6, thyroidectomy + central lymphadenectomy of level VI + unilateral lateral lymphadenectomy of II, III and IV neck levels – 57.
During the operations, intraoperative neuromonitoring was used with the installation of laryngeal electrodes on the endotracheal tube. The study used two types of monitoring: variable and constant with the installation of a Delta electrode on the vagus nerve.
The study identified possible types of damage to the laryngeal nerves and described the electrophysiological phenomenon Loss of signal. All patients had vocal fold mobility monitored using ultrasound in the postoperative period.
Results: A technique has been developed for variable and continuous monitoring of the laryngeal nerves during thyroid surgery in children. Possible types of damage to nerve structures are shown: segmental and global types of damage, and the role of the occurrence of LOS. An algorithm for mapping the laryngeal nerves when performing surgical interventions during operations on the thyroid gland is proposed.
Conclusions: Intraoperative neuromonitoring makes it possible to predict and to prevent violation of the laryngeal muscles during operations on the thyroid gland in children.
The proposed monitoring algorithm requires implementation in surgical practice for children surgeons performing operations on the thyroid gland.

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nan Aldons Chua	PV004	**COMPARING HEALTH-RELATED QUALITY OF LIFE (HRQOL) OUTCOMES OF SURGICAL INTERVENTION VERSUS MEDICAL THERAPY IN PRIMARY ALDOSTERONISM: A SYSTEMATIC REVIEW**	**E-Poster Viewing: AS01. Adrenal**

nan Alessandro Antonelli	PD057	**IMMUNE-MODULATING EFFECT OF MYCOPHENOLIC ACID, AND/OR RAPAMYCIN, ON TH1 AND TH2 CHEMOKINES SECRETION, IN RETRO-ORBITAL CELLS OF PATIENTS WITH GRAVES' OPHTHALMOPATHY**	**E-Poster Discussion: Endocrine Cancers/Thyroid**
nan Alessandro Antonelli	PV370	**LYMPH-NODE METASTASES DETECTION BY SERUM THYROGLOBULIN AND NECK ULTRASONOGRAPHY, AND LONG-TERM FOLLOW-UP IN PAPILLARY OR FOLLICULAR THYROID CANCER PATIENTS EARLIER TREATED WITH RADIOIODINE AND/OR SURGERY**	**E-Poster Viewing: AS12. Thyroid**
nan Alessia Liccardi	PV303	**GENDER DIFFERENCES IN SPORADIC NEUROENDOCRINE TUMORS: ANALYSIS OF A MONOCENTRIC COHORT.**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Alexander Anikiev	PV329	**RESULTS OF SURGICAL TREATMENT OF GIRLS WITH GONADAL DYSGENESIS**	**E-Poster Viewing: AS10. Reproductive Health**
nan Alexander Anikiev	PV369	**SURGICAL TACTICS FOR THE TREATMENT OF PRIMARY HYPERPARATHYROIDISM IN CHILDREN**	**E-Poster Viewing: AS12. Thyroid**
nan Alfonso Soto-Moreno	PV186	**CARE MODELS IN TYPE 2 DM: CLINICAL OUTCOMES FROM AN APPROACH BASED ON MULTIDISCIPLINARY TEAMS AND EHEALTH**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Alfonso Soto-Moreno	PV313	**CHARACTERIZATION OF RNA EXPRESIÓN AND CLINICAL OUTCOMES IN PATIENTS WITH AGGRESSIVE PITUITARY**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**

		TUMORS TREATED WITH TEMOZOLOMIDE	
nan ALI ALHAQWI	PD054	**DESIRE AND PREFERENCE OF PATIENTS WITH DIABETES AND DYSLIPIDEMIA FOR PROVISION OF INFORMATION TOWARD GREATER INVOLVEMENT IN SHARED CARE**	**E-Poster Discussion: Health Care Systems**
nan Ali Ghasem-Zadeh	PD021	**BONE MICROARCHITECTURE AND ESTIMATED FAILURE LOAD ARE DETERIORATED WHETHER PATIENTS WITH CHRONIC KIDNEY DISEASE HAVE NORMAL BONE MINERAL DENSITY, OSTEOPENIA OR OSTEOPOROSIS**	**E-Poster Discussion: Bone 01**
nan Ali Ghasem-Zadeh	PD038	**BONE FRAGILITY IS THE RESULT OF BONE LOSS FROM FRUGALLY ASSEMBLED LARGER BONES AND ROBUSTLY ASSEMBLED SMALLER BONES**	**E-Poster Discussion: Bone 02**
nan Ali Raza Naqvi	PV163	**INSULIN INJECTION PRACTICES AT A TRANSPLANT CENTER: A CLINICAL AUDIT**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Alka Bishnoi	PV211	**PREVALENCE OF VARIOUS ENDOCRINOPATHIES RESULTING FROM USE OF IMMUNE CHECKPOINT INHIBITORS - A PROSPECTIVE STUDY FROM TERTIARY CARE CENTRE IN INDIA**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Alka Bishnoi	PV226	**GROWTH HORMONE THERAPY IN CHILDREN WITH SYNDROMIC SHORT STATURE : EXPERIENCE**	**E-Poster Viewing: AS06. Growth Hormone**

		FROM A SINGLE TERTIARY CARE CENTRE	
nan Alka Bishnoi	PV227	**OFF LABEL USE OF RECOMBINANT HUMAN GH TO TREAT SHORT STATURE IN SIBLING PAIR WITH DENT'S DISEASE**	**E-Poster Viewing: AS06. Growth Hormone**
nan Ana Aranda	PV371	**THE THYROID HORMONE ENHANCES MOUSE EMBRYONIC FIBROBLASTS REPROGRAMMING TO PLURIPOTENT STEM CELLS: ROLE OF THE NUCLEAR COREPRESSOR 1**	**E-Poster Viewing: AS12. Thyroid**
nan Ana Carolina Gadelha	PD008	**PASIREOTIDE LAR TREATMENT IS ABLE TO NORMALIZE IGF-I LEVELS EVEN IN ACROMEGALY PATIENTS COMPLETELY RESISTANT TO FIRST-GENERATION SOMATOSTATIN RECEPTOR LIGANDS.**	**E-Poster Discussion: Pituitary**
nan Anabelle Siyan Seah	PV346	**MANAGEMENT OF SEVERE HYPERTRIGLYCERIDAEMIA IN PREGNANCY: REPORT OF TWO CASES**	**E-Poster Viewing: AS10. Reproductive Health**
nan Anatoly Martynyuk	PV304	**NEUROENDOCRINE EFFECTS OF TRAUMATIC BRAIN INJURY AND SUBSEQUENT EXPOSURE TO THE GENERAL ANESTHETIC SEVOFLURANE IN YOUNG ADULT MALE RATS AND THEIR FUTURE UNEXPOSED OFFSPRING**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan André Tremblay	PV318	**IDENTIFICATION OF A NEW SUMOYLATION PROCESS REGULATING NUCLEAR RECEPTOR NOR1 AND NEURONAL FUNCTIONS**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**

nan Andrea Graziani	O034	**A CRYPTOZOOSPERMIC INFERTILE MALE WITH Y CHROMOSOME AZFC MICRODELETION AND LOW FSH LEVELS DUE TO A SIMULTANEOUS POLYMORHISM IN THE FSHB GENE**	**Oral Abstract Presentations - Reproductive Health**
nan Andrea Graziani	PD035	**CARDIOMETABOLIC, LIVER FIBROSIS AND STEATOSIS INDICES IN A COHORT OF PATIENTS WITH KLINEFELTER SYNDROME (KS)**	**E-Poster Discussion: Reproductive Health 02**
nan Andrea Graziani	PV337	**UNUSUALLY LOW PHOSPHATE CONCENTRATIONS IN A COHORT OF PATIENTS WITH KLINEFELTER SYNDROME (KS)**	**E-Poster Viewing: AS10. Reproductive Health**
nan Anggi Wicaksana	O041	**A META-ANALYSIS FOR EFFICACY OF SELF-HELP INTERVENTIONS FOR GLYCEMIC AND BEHAVIOURAL OUTCOMES AMONG PEOPLE WITH DIABETES**	**Oral Abstract Presentations - Diabetes 04**
nan ANJU JACOB	PV255	**CASE REPORT: MASSIVE OBESITY SECONDARY TO A HOMOZYGOUS MC4R MUTATION IN A 3-YEAR-OLD BOY**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Anna Alieva	PV084	**COAGULATION STATE IN PATIENTS WITH TYPE 2 DIABETES DEPENDING ON THE A/C POLYMORPHISM OF THE MTHFR1298 GENE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Anna Alieva	PV085	**GENETIC POLYMORPHISM OF THE METHYLENETETRAHYDROFOLATE REDUCTASE GENE MTHFR 677 MAY BE ASSOCIATED WITH THE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

		DEVELOPMENT OF MACROVASCULAR COMPLICATIONS OF DIABETES MELLITUS	
nan Anna Alieva	PV086	**TREATMENT OF SEVERE HYPOGLYCEMIA: GLUCOSE NEEDED IS MAXIMUM IN YOUNG CHILDREN**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Anna Kolodkina	PV230	**EFFECTIVENESS OF RHIGF-1 THERAPY IN A PATIENT WITH GROWTH HORMONE RESISTANCE**	**E-Poster Viewing: AS06. Growth Hormone**
nan Anna Kolodkina	PV240	**CLINICAL POLYMORPHISM OF PRIMARY HYPERPARATHYROIDISM IN CHILDREN**	**E-Poster Viewing: AS07. Health Systems/Care**
nan Anna Kolodkina	PV392	**EXPERIENCE OF USING TRIIODOTHYROACETIC ACID IN A 12-YEAR-OLD GIRL WITH PAPILLARY THYROID CANCER AND THYROID HORMONE RESISTANCE SYNDROME**	**E-Poster Viewing: AS12. Thyroid**
nan Ansumali Joshi	PV135	**ATTITUDE AND PREVENTIVE PRACTICES REGARDING DIABETIC COMPLICATIONS AMONG DIABETIC PATIENTS IN A TERTIARY ENDOCRINE CENTER IN NEPAL**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Ansumali Joshi	PV384	**HEALTH RELATED QUALITY OF LIFE AMONG WOMEN WITH THYROID DYSFUNCTION IN A TERTIARY ENDOCRINE CENTER IN NEPAL**	**E-Poster Viewing: AS12. Thyroid**
nan ANUDEEP GADDAM	PV039	**PRIMARY HYPERPARATHYROIDISM CAUSED BY AN ECTOPIC PARATHYROID ADENOMA IN AN UNUSUAL ANATOMIC LOCATION**	**E-Poster Viewing: AS02. Bone**

nan ARCHANA GAUR T	PV115	**ASSESSMENT OF NEUROPATHY BY TEMPERATURE THRESHOLD TESTING (TTT) IN TYPE II DIABETES MELLITUS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Arline Sicat	PV312	**"A 26 YEAR OLD FILIPINO FEMALE WITH WOLFRAM-ASSOCIATED SYNDROME : A CASE REPORT"**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Arshad Hussain	PV131	**AN UNDER-DIAGNOSED IMPORTANT ENTITY: PANCREATIC DIABETES (TYPE 3C DIABETES)-A CASE SERIES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Arshad Hussain	PV132	**CROSS-BORDER PERSPECTIVES: UNDERSTANDING AND BRIDGING DISPARITIES IN TYPE 2 DIABETES AMONG PAKISTANI AND AFGHANI PATIENTS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Arshad Hussain	PV229	**UNVEILING THE ENIGMA: EXPLORING MISDIAGNOSED AND UNDERDIAGNOSED MAYER-ROKITANSKY-KÜSTER-HAUSER (MRKH) SYNDROME: A SERIES OF CASES OF A RARE AND COMPLEX DISORDER.**	**E-Poster Viewing: AS06. Growth Hormone**
nan Arunkumar Pande	PV164	**DIAGNOSING MODY FROM NON-INSTITUTIONAL-BASED DIABETES CARE CLINICS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Ashani Wickramarachchi	PV031	**OVARIAN STEROID CELL TUMOUR MIMICKING CONGENITAL ADRENAL HYPERPLASIA WITH VERY HIGH 17OHP.**	**E-Poster Viewing: AS01. Adrenal**
nan Ashani Wickramarachchi	PV205	**YOUNG ONSET DIABETES IN SRI LANKA: A PRELIMINARY ANALYSIS OF THE MULTICENTRE DATABASE FOR PATIENTS WITH**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

		YOUNG-ONSET DIABETES IN SRI LANKA (DYOD-SL)	
nan Asma Deeb	O006	**SAFETY AND EFFICACY OF ADVANCED HYBRID CLOSED LOOP SYSTEM IN FASTING RAMADAN BY PEOPLE WITH T1D**	**Oral Abstract Presentations - Diabetes 01**
nan Assiya Nurgaliyeva	PV403	**LATE-DIAGNOSED CONGENITAL HYPOTHYROIDISM AND ITS CONSEQUENCES**	**E-Poster Viewing: AS12. Thyroid**
nan Atikah Isna Fatya	PV251	**INTESTINAL FATTY ACID-BINDING PROTEIN (I-FABP) AND GUT MICROBIOTA PROFILES IN OBESITY WITH AND WITHOUT TYPE 2 DIABETES MELLITUS**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Ayah Shaheen	PD063	**POSTPRANDIAL GLUCOSE, INSULIN RESPONSE TO MEAL SEQUENCE AMONG HEALTHY UAE ADULTS: A RANDOMIZED CONTROLLED CROSSOVER TRIAL**	**E-Poster Discussion: Diabetes 12**
nan Azza BinHussain	PV100	**ROLE OF CHEMOKINES AS A BIOMARKER OF PERIPHERAL NEUROPATHY AMONGST SUBJECTS WITH TYPE 2 DIABETES IN THE UAE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan B Anjum	PD053	**CIRCADIAN RHYTHM OF STRESS AND SLEEP HORMONES AND ITS ASSOCIATION WITH 24 HOURS CHRONOMICS OF AMBULATORY BLOOD PRESSURE/ HEART RATE IN NIGHT SHIFT NURSING PROFESSIONALS**	**E-Poster Discussion: Health Care Systems**
nan Banshi Saboo	PD039	**DKD SCREENING – REAL WORLD EVIDENCE – A WAY TO PREVENT FUTURE COMPLICATIONS**	**E-Poster Discussion: Diabetes 07**

nan Banshi Saboo	PV173	**DIABETIC KIDNEY DISEASE – EVALUATION OF RISK FACTORS: REAL WORLD EVIDENCE FOR INDIAN PATIENTS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Barbara McGowan	PV261	**THE ROCZEN PROGRAMME: REAL-WORLD DATA OF A DIGITALLY ENABLED TIME RESTRICTIVE EATING PROGRAMME ON BIOMETRIC OUTCOMES IN AN ETHNICALLY DIVERSE POPULATION IN THE UK**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Bashair M Mussa	PD045	**INVESTIGATING THE ROLE OF BECLIN-1 AND C-FOS AS BIOMARKERS OF HYPOGLYCEMIA-ASSOCIATED AUTONOMIC FAILURE**	**E-Poster Discussion: Diabetes 08**
nan Beatrice Louis	PV014	**A NOVEL SGPL1 MUTATION AS A CAUSE OF PRIMARY ADRENAL INSUFFICIENCY AND NEPHROTIC SYNDROME**	**E-Poster Viewing: AS01. Adrenal**
nan Běla Bendlová	PV096	**FASTING PROINSULIN LEVELS DECLINE WITH AGE IN NON-DIABETIC INDIVIDUALS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Bernadette Diane Vista	PV418	**RHABDOMYOLYSIS AS INITIAL PRESENTATION OF GRAVES' DISEASE**	**E-Poster Viewing: AS12. Thyroid**
nan Bobby Fokidis	PV006	**UNCOVERING THE ROLE OF EXOSOME SIGNALING IN EXTRA-ADRENAL STEROIDOGENESIS**	**E-Poster Viewing: AS01. Adrenal**
nan C V HARINARAYAN	PV121	**INSULIN AUTOIMMUNE SYNDROME IN A MIDDLE-AGED MALE WITH DORSAL AGENESIS OF THE PANCREAS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Camilla Virili	PD025	**FAECAL MICROBIOTA COMPOSITION IN**	**E-Poster Discussion: Thyroid 02**

		HASHIMOTO'S THYROIDITIS PATIENTS WITH DIFFERENT LEVOTHYROXINE REQUIREMENT	
nan Caroline Hoong	PD037	**NATURAL HISTORY OF NORMOCALCEMIC HYPERPARATHYROIDISM WITH AND WITHOUT PARATHYROIDECTOMY: A RETROSPECTIVE COHORT**	**E-Poster Discussion: Bone 02**
nan CATRINE JELL PEREZ	PV343	**PERSISTENT PUBERTAL GYNECOMASTIA IN A FILIPINO MALE**	**E-Poster Viewing: AS10. Reproductive Health**
nan Chanhee Jung	PV136	**RELATIONSHIP OF HANDGRIP STRENGTH WITH CARDIAC AUTONOMIC NEUROPATHY IN PATIENTS WITH TYPE 2 DIABETES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Charles Antonypillai	PV291	**AN INVASIVE GIANT PROLACTINOMA WITH SURROUNDING BONE INFILTRATION DESPITE EXCELLENT BIOCHEMICAL RESPONSE AND TUMOR RESOLUTION – A CASE ABSTRACT.**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Cheri Deal	O016	**RESULTS FROM THE OPEN-LABEL EXTENSION OF A GLOBAL PHASE 3 STUDY OF ONCE-WEEKLY SOMATROGON IN PEDIATRIC PATIENTS WITH GROWTH HORMONE DEFICIENCY**	**Oral Abstract Presentations - Thyroid**
nan Cherng Jye Seow	PV023	**MANAGEMENT OF PRIMARY ALDOSTERONISM DURING PREGNANCY**	**E-Poster Viewing: AS01. Adrenal**
nan Chhavi Mehra	PD031	**THE IMPACT OF SLEEP DURATION ON GLYCEMIC VARIABILITY (GV) THE NEXT DAY IN INDIVIDUALS**	**E-Poster Discussion: Diabetes 06**

		WITH TYPE 2 DIABETES (T2D)	
nan Chhavi Mehra	PD032	**GENDER-SPECIFIC GLYCEMIC OUTCOMES IN AGE- AND BODY MASS INDEX (BMI)-MATCHED MALE AND FEMALE INDIVIDUALS: A COMPARATIVE STUDY OF PRE OBESE PARTICIPANTS**	**E-Poster Discussion: Diabetes 06**
nan Cigdem Ozkan	O039	**CORRELATION OF SLEEP TO GLYCEMIC CONTROL: A CROSS SECTIONAL STUDY CONDUCTED AT GLUCARE.HEALTH SHOWCASING THE IMPORTANCE OF CONTINUOUS SLEEP MONITORING**	**Oral Abstract Presentations - Diabetes 04**
nan Claudia Grigorov	PV379	**ASSOCIATION BETWEEN SHOULDER CALCIFICATION TENDINOPATHY AND BENIGN THYROID NODULES.**	**E-Poster Viewing: AS12. Thyroid**
nan Daham Kim	PV391	**EVALUATION OF A SELF-LEARNING METHOD SIMILAR TO DEEP LEARNING FOR DIAGNOSING THYROID NODULES**	**E-Poster Viewing: AS12. Thyroid**
nan Dana Amirkhanova	PV091	**ANALYSIS OF RISK FACTORS FOR THE DEVELOPMENT OF NEW-ONSET DIABETES MELLITUS IN COVID-19**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Daniela Telehuz	PV416	**A RARE ASSOCIATION OF HASHIMOTO THYROIDITIS WITH AN AMPULLAR NON-SECRETING NEUROENDOCRINE TUMOR, PHEOCHROMOCYTOMA AND INTRACAVERNOUS CAROTID ANEURYSM IN A NEUROFIBROMATOSIS TYPE 1 PATIENT**	**E-Poster Viewing: AS12. Thyroid**

nan Daniela Vejražková	PV201	**BIORHYTHMS AND SLEEP PATTERNS IN RELATION TO MELATONIN RECEPTOR GENE VARIABILITY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Daria Gusakova	PV040	**DECREASED EFFICACY OF VITAMIN D3 THERAPY IN PATIENTS WITH GENETIC POLYMORPHISM IN THE CYP27B1 GENE**	**E-Poster Viewing: AS02. Bone**
nan Daria Lizneva	PV259	**ORG43553, A LOW-MOLECULAR-WEIGHT AGONIST OF THE HUMAN LUTEINIZING HORMONE RECEPTOR, INDUCES LEANNESS AND ENERGY EXPENDITURE IN MICE**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Davood Khalili	PV061	**CHANGES OF CARDIOVASCULAR DISEASE RISK SCORES IN RURAL AND URBAN AREAS IN IRAN DURING THE PAST DECADE**	**E-Poster Viewing: AS03. Cardiometabolic**
nan Davood Khalili	PV062	**STATIN'S HARMS AND BENEFITS AND THE OPTIMAL CARDIOVASCULAR RISK THRESHOLDS FOR STATIN THERAPY IN THE GENERAL POPULATIONS' AND HEALTH-CARE PROVIDERS' POINTS OF VIEWS**	**E-Poster Viewing: AS03. Cardiometabolic**
nan Dewi Ratna Sari	PV270	**MID-UPPER ARM CIRCUMFERENCE IN RELATION TO ABDOMINAL ADIPOSITY AND BLOOD PRESSURE MEASUREMENTS IN YOUNG ADULTS**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Dhvani Raithatha	PV054	**DETERMINANTS OF BONE MINERAL CONTENT IN INDIAN PRETERM NEONATES**	**E-Poster Viewing: AS02. Bone**
nan Dhvani Raithatha	PV360	**DSD INTERPRETER, A MOBILE APPLICATION-BASED POINT-OF-CARE**	**E-Poster Viewing: AS11. Technology**

		TOOL FOR THE EVALUATION OF CHILDREN WITH ATYPICAL GENITALIA	
nan DIĀNA STŪRĪTE	PV224	**MANAGEMENT AND OUTCOMES OF ASYMPTOMATIC PRIMARY HYPERPARATHYROIDISM (APHPT) AT RIGA EAST CLINICAL UNIVERSITY HOSPITAL (RECUH) – SINGLE-CENTER EXPERIENCE (A PILOT TRIAL)**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Dicky Tahapary	PV191	**GUT MICROBIOTA PROFILES OF DYSGLYCEMIA SPECTRUM IN THE INDONESIAN POPULATION AND ITS ASSOCIATION WITH METABOLIC PARAMETERS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Diego Ferone	O024	**A RANDOMIZED PHASE 3 TRIAL TO ASSESS EFFICACY AND SAFETY OF A NOVEL FORMULATION OF OCTREOTIDE SUBCUTANEOUS DEPOT IN PATIENTS WITH ACROMEGALY**	**Oral Abstract Presentations - Bone/Pituitary/Neuroendocrinology**
nan Dimitrios Askitis	PV372	**GRAVES' DISEASE RELAPSE AFTER 30-YEAR REMISSION IN A FEMALE PATIENT DUE TO SARS-COV-2 INFECTION- A CASE REPORT**	**E-Poster Viewing: AS12. Thyroid**
nan Divya Madhala	PV397	**EFFICACY OF IMMUNOHISTOCHEMISTRY CK19 AND CD56 IN DIAGNOSING PAPILLARY CARCINOMA THYROID IN DIVERSE CHALLENGING SCENARIOS**	**E-Poster Viewing: AS12. Thyroid**
nan Diyora Mukhammedaminova	PV307	**MANAGEMENT OF WOMEN WITH PROLACTINOMAS DURING PREGNANCY**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**

nan Dragana Miljic	PV306	**NEW INSIGHTS INTO GENDER RELATED DIFFERENCES OF METABOLIC ASSOCIATED FATTY LIVER DISEASE (MAFLD) IN HYPOPITUITARISM**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Duaa Alashqar	PV353	**EFFECT OF USING THE MYSUGR® APP IN GLYCEMIC CONTROL FOR T2D PATIENTS - A REAL-WORLD ANALYSIS FROM EGYPT**	**E-Poster Viewing: AS11. Technology**
nan Dudi Nikitha	PV015	**CONGENITAL ADRENAL HYPERPLASIA WITH INFERTILITY,REGULAR CYCLES AND HYPERTENSION**	**E-Poster Viewing: AS01. Adrenal**
nan Dukhabandhu Naik	PV053	**ASSESSMENT OF BONE MINERAL DENSITY, TRABECULAR BONE SCORE AND FRACTURES IN SLE -A CROSS-SECTIONAL STUDY**	**E-Poster Viewing: AS02. Bone**
nan Duojin Xia	PV363	**WHOLE-ORBIT-BASED MULTIPARAMETRIC ASSESSMENT OF DISEASE ACTIVITY OF THYROID EYE DISEASE ON DIXON MRI**	**E-Poster Viewing: AS11. Technology**
nan Eda Yanar	PV322	**GENETIC CHARACTERISTICS IN PEDIATRIC PATIENTS WITH CUSHING'S DISEASE FROM SINGLE CENTER.**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Elena Sechko	PV178	**FAMILY CASE OF NEONATAL DIABETES MELLITUS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Eleni Armeni	PV330	**EXPLORING THE LINK BETWEEN THE INTENSITY OF MENOPAUSAL SYMPTOMS, DIABETES MELLITUS, AND OBESITY INDICES IN MIDDLE-AGED WOMEN**	**E-Poster Viewing: AS10. Reproductive Health**

nan Elisabetta Ferretti	PV112	**CIRCULATING MICRORNA NETWORKS INVOLVED IN MOLECULAR MECHANISMS IN SUBJECTS WITH TYPE 2 DIABETES AND CARDIOVASCULAR DISEASE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Emilda Rajan	PV241	**UNDERSTANDING OF ILLNESS INTRUSIVENESS IN GERIATRIC DIABETICS - FOCUSING ON COGNITIVE AND FUNCTIONAL ABILITY: COMMUNITY-WIDE STUDY**	**E-Poster Viewing: AS07. Health Systems/Care**
nan Eva Venegas-Moreno	PV203	**CARE MODELS IN TYPE 2 DM: RESULTS FROM THE "ORGANIZATIONAL MODELS PROJECT IN THE CARE OF TYPE 2 DIABETES MELLITUS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Eva Venegas-Moreno	PV320	**PREVALENCE OF MAFLD IN PATIENTS WITH CUSHING'S DISEASE**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Evgeniya Novokreshennih	PV402	**CLINICAL FEATURES OF MULTINODULAR GOITER IN DICER1 SYNDROME**	**E-Poster Viewing: AS12. Thyroid**
nan Fahimeh Soheilipour	O040	**DETERMINATION OF THE PREDICTIVE VALUE FOR EACH OF HYPOGLYCEMIC SYMPTOMS IN DIABETIC PATIENTS**	**Oral Abstract Presentations - Diabetes 04**
nan Fahimeh Soheilipour	PV185	**COMPARISON OF THE EFFECT OF HONEY AND SUCROSE ON BLOOD GLUCOSE AND C-PEPTIDE IN PATIENTS WITH DIABETES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Fahimeh Soheilipour	PV274	**COMPARISON OF VITAMIN D DEFICIENCY IN MORBID OBESE PATIENTS BEFORE AND AFTER BARIATRIC SURGERY**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Fareeha Rizvi	PV055	**LONG TERM SURVIVOR OF DI-GEORGE SYNDROME**	**E-Poster Viewing: AS02. Bone**

nan Fareeha Rizvi	PV344	**MANAGING A PREGNANCY IN A MEN-1 PATIENT**	**E-Poster Viewing: AS10. Reproductive Health**
nan Fareeha Rizvi	PV345	**IMPROVING THE MANAGEMENT OF DIABETIC EMERGENCIES ON A BUSY MATERNITY UNIT THROUGH STRUCTURED EDUCATION**	**E-Poster Viewing: AS10. Reproductive Health**
nan FARID NAKHOUL	PV161	**THE MOLECULAR EFFECT OF SGLT2I ON THE AUTOPHAGY & KLOTHO PATHWAYS IN TYPE II DIABETES MELLITUS MICE MODEL, AND ITS VASCULAR COMPLICATIONS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan FARZANA FERDOUS	O037	**DIABETES AND HYPERTENSION RATES AMONG POSTPARTUM WOMEN IN BANGLADESH**	**Oral Abstract Presentations - Reproductive Health**
nan Farzaneh Eskandari	PV295	**INVESTIGATING THE EFFECT OF MATERNAL SEPARATION ON CENTRAL CONTENT OF LEPTIN AND OCCURRENCE OF DEPRESSIVE-LIKE BEHAVIOR IN ADULT MALE RAT OFFSPRING UNDER SOCIAL DEFEAT STRESS**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Fateme Binayi	PV099	**LONG-TERM HIGH-FAT DIET DECREASED HEPATIC CONTENT OF INSULIN-DEGRADING ENZYME THROUGH INDUCTION OF OXIDATIVE AND ENDOPLASMIC RETICULUM STRESS IN ADULT MALE RATS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Fatemeh Esfahanian	PV038	**VERTEBRAL FRACTURES AND ASSOCIATED FACTORS AMONG OLDER ADULTS: RESULTS FROM THE BUSHEHR ELDERLY HEALTH (BEH) PROGRAM**	**E-Poster Viewing: AS02. Bone**

nan Fatih Tangi	PV192	**THE EFFECT OF TIRZEPATIDE DURING WEIGHT LOSS ON METABOLIC ADAPTATION, FAT OXIDATION AND FOOD INTAKE IN PEOPLE WITH OBESITY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Fatima Qayyum	PV018	**ALDOSTERONE PRODUCING ADENOMA VS BILATERAL ADRENAL HYPERPLASIA AS A CAUSE OF PRIMARY ALDOSTERONISM: THE DIAGNOSTIC DILEMMA - A CASE REPORT**	**E-Poster Viewing: AS01. Adrenal**
nan Francesco Dotta	PV111	**A SET OF CIRCULATING MICRORNAS BELONGING TO THE 14Q32 CHROMOSOMIC LOCUS IDENTIFIES TWO CLINICALLY AND PHENOTYPICALLY DIFFERENT SUBGROUPS OF TYPE 1 DIABETIC SUBJECTS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
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nan Giuseppe Grande	PD014	**COMPREHENSIVE APPROACH TO MALE FACTOR INFERTILITY ALLOWS DEFINING THE DIAGNOSIS AND RESTORING NATURAL FERTILITY**	**E-Poster Discussion: Reproductive Health 01**
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nan Haiyang Zhang	O015	**A PHASE 2 STUDY TO EVALUATE EFFICACY AND SAFETY OF IBI311 IN CHINESE SUBJECTS WITH ACTIVE THYROID EYE DISEASE**	**Oral Abstract Presentations - Thyroid**
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nan HATRI SIHEM	PV412	**RELATIONSHIP BETWEEN DIABETES AND THYROID DYSFUNCTION IN AN ADULT POPULATION**	**E-Poster Viewing: AS12. Thyroid**

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nan Hessa Al-Kandari	PD059	**PREVALENCE OF OVERWEIGHT AND OBESITY AMONG CHILDREN NEWLY DIAGNOSED WITH TYPE 1 DIABETES IN KUWAIT**	**E-Poster Discussion: Diabetes 10**
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nan Humayun Bashir	PV237	**NUCLEAR MEDICINE AND ENDOCRINOLOGY - IN THE AGE OF PRECISION MEDICINE**	**E-Poster Viewing: AS07. Health Systems/Care**
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nan Hurjahan Banu	PV332	**CAROTID INTIMA-MEDIA THICKNESS BETTER CORRELATES WITH CARDIOVASCULAR RISK FACTORS THAN HOMOCYSTEINE IN WOMEN WITH POLYCYSTIC OVARY SYNDROME**	**E-Poster Viewing: AS10. Reproductive Health**
nan Hurjahan Banu	PV333	**INSULIN RECEPTOR (RS2059807) AND INSULIN RECEPTOR SUBSTRATE 1 (RS1801278) GENES POLYMORPHISMS IN POLYCYSTIC OVARY SYNDROME**	**E-Poster Viewing: AS10. Reproductive Health**
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nan Hyuk-Sang Kwon	PV144	**REDUCED SEVERE HYPOGLYCEMIA RISK WITH SGLT2 INHIBITORS COMPARED TO DPP4 INHIBITORS IN TYPE 2 DIABETES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
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nan Iroda Tillyashaykhova	PV194	**NEWLY DIAGNOSED DIABETES MELLITUS DURING COVID-19**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
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nan Iryna Kostitska	PV142	**THE CHALLENGE OF TREATING NONALCOHOLIC STEATOHEPATITIS OF DAPAGLIFLOZIN IN PATIENTS WITH TYPE 2 DIABETES MELLITUS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

nan Iryna Kostitska	PV340	**ASSESSMENT OF THE MARKER OF POLYCYSTIC OVARY SYNDROME IN FEMALE WITH PREDIABETES AND TYPE 2 DIABETES MELLITUS**	**E-Poster Viewing: AS10. Reproductive Health**
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nan Mahir Jallo	PV357	**"TIME IN RANGE" IN BLOOD SUGAR MONITORING- A**	**E-Poster Viewing: AS11. Technology**

		BIBLIOMETRIC ANALYSIS AND FUZZY AHP APPROACH	
nan Mahmoud A. M. Alfaqih	PV244	**HIGH SERUM LEPTIN LEVELS ARE ASSOCIATED WITH IMPAIRED WALKING STEADINESS/STABILITY**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Mahsa Arabzadeh	PD058	**EFFICACY OF PLATELET-RICH PLASMA (PRP) IN CLEAN DIABETIC FOOT ULCERS TREATMENT: A RANDOMIZED CONTROLLED TRIAL**	**E-Poster Discussion: Diabetes 10**
nan Maïmouna Touré	PV196	**ROLE OF CD36 GENE POLYMORPHISM IN THE PATHOPHYSIOLOGICAL LINK BETWEEN OBESITY AND TYPE 2 DIABETES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Maïmouna Touré	PV197	**FREQUENCY OF APOE GENE POLYMORPHISMS AND ITS IMPACT ON CARBOHYDRATE AND LIPID METABOLISM IN TYPE 2 DIABETIC IN A POPULATION OF SENEGALESE FEMALES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Malak Alkhalifa	PV289	**PITUITARY STALK INTERRUPTION SYNDROME, CASE SERIES WITH VARIABLE PRESENTATION.**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Malak Alkhalifa	PV327	**PURE GONADAL DYSGENESIS 46 XX IN NEW ONSET HYPERTHYROIDISM CASE**	**E-Poster Viewing: AS10. Reproductive Health**
nan MAMADOU ALPHA DIALLO	PV060	**FACTEURS ASSOCIÉS À LA MORTALITÉ DES PATIENTS COVID-19 HOSPITALISÉS DANS LES CT-EPI DE CONAKRY, DE 2020 À 2022**	**E-Poster Viewing: AS03. Cardiometabolic**
nan Manal Mustafa	PV052	**THREE YEARS OF BUROSUMAB TREATMENT IN A CHILD WITH CUTANEOUS SKELETAL**	**E-Poster Viewing: AS02. Bone**

		HYPOPHOSPHATEMIA SYNDROME: A CASE REPORT	
nan Manal Mustafa	PV264	**SIX YEARS FOLLOW UP OF A CHILD WITH FAMILIAL CHYLOMICRONEMIA SYNDROME: DISEASE COURSE AND EFFECTIVENESS OF GEMFIBROZIL TREATMENT: CASE REPORT AND LITERATURE REVIEW**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Manar Abu Asaba	PV127a	**FIVE-YEAR CLINICAL OUTCOMES FROM A MULTI-DISCIPLINARY ADULT INSULIN PUMP CLINIC IN THE UNITED ARAB EMIRATES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Manaswini Mangaraj	O032	**LYSYL OXIDASE (LOX) AND INTERFERON- GAMMA (IFN-_), A REGULATORY CROSSTALK IN TYPE 2 DIABETES WITH AND WITHOUT NEPHROPATHY**	**Oral Abstract Presentations - Diabetes 03**
nan Manel Mateu-Salat	PV305	**EPIDEMIOLOGY OF HYPOTHALAMIC-PITUITARY DISEASES IN CATALONIA AND ANALYSIS OF THE HEALTHCARE PROVIDED TO PATIENTS**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Marco Centanni	PV375	**CD20+ T LYMPHOCYTES IN HASHIMOTO'S THYROIDITIS: A PYLOT STUDY**	**E-Poster Viewing: AS12. Thyroid**
nan Maria Susana Panganiban	PV404	**AN UNUSUAL PRESENTATION OF COUGH: A RARE CASE OF WIDELY INVASIVE ONCOCYTIC CELL THYROID CARCINOMA IN A 77 YEAR-OLD MALE - A CASE REPORT**	**E-Poster Viewing: AS12. Thyroid**
nan Maria Vorontsova	PV030	**DETECTION OF TRANSCRIPTOMIC TRANSFORMATIONS IN**	**E-Poster Viewing: AS01. Adrenal**

		POPULATIONS OF MICE ADRENOCORTICAL CELLS IN NORMAL CONDITIONS AND WITH CYP21A1 GENE KNOCKOUT	
nan Marina Berkovskaia	PV238	**OBESE OR OVERWEIGHT PATIENT: THE PRACTICAL COURSE FOR DOCTORS OF ANY SPECIALTIES**	**E-Poster Viewing: AS07. Health Systems/Care**
nan Markéta Vaňková	PD003	**AGE-RELATED CHANGES IN GLUCAGON LEVELS DURING PHYSIOLOGICAL AND PATHOPHYSIOLOGICAL AGEING**	**E-Poster Discussion: Diabetes 01**
nan Martin Emmanuel Pe Benito	PV016	**PRIMARY HYPERALDOSTERONISM PRESENTING AS BARTTER/GITELMAN SYNDROME MIMIC IN A PATIENT WITH UNCONTROLLED DIABETES**	**E-Poster Viewing: AS01. Adrenal**
nan Marufa Mustari	PV160	**SEXUAL DYSFUNCTIONS ARE MORE FREQUENT IN WOMEN WITH DIABETES THAN NON-DIABETIC WOMEN**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan MASATAKA KUSUNOKI	PV143	**THE EFFECT OF IMEGLIMIN IN JAPANESE PATIENTS WITH TYPE 2 DIABETES MELLITUS VARIES WITH THE LEVELS OF HBA1C.**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Md. Kamrul Azad	PV095	**THE COVID-19 AND DYSGLYCEMIA CONNECTION: UNVEILING THE TRUTH**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Meritxell Espino-Guarch	PV250	**OBESITY-INDUCED INFLAMMATION AND INSULIN RESISTANCE DEVELOPMENT IN QATARI CHILDREN**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Meshari F. Alwashmi	PV090	**THE USE OF THERMOGRAPHY AND COMPUTER VISION TO**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

		DETECT DIABETIC FOOT ULCERS: A VALIDATION STUDY	
nan Mingchuan Liu	PV064	**N-GLYCOSYLATION-MEDIATED CD147 ACCUMULATION INDUCES CARDIAC FIBROSIS IN THE DIABETIC HEART THROUGH ALK5 ACTIVATION**	**E-Poster Viewing: AS03. Cardiometabolic**
nan Minsoo Noh	O023	**UNVEILING THE THERAPEUTIC POTENTIAL OF DIMERIC [R25C]PTH(1-34) PEPTIDE AS A NOVEL ANABOLIC AGENT FOR OSTEOPOROSIS TREATMENT**	**Oral Abstract Presentations - Bone/Pituitary/Neuroendocrinology**
nan Misk Alsubaie	PD052	**MODIFIED FERRIMAN-GALWAY SCORE IN MIDDLE EASTERN WOMEN; POPULATION STUDY**	**E-Poster Discussion: Reproductive Health 03**
nan Misk Alsubaie	PV209	**A CASE REPORT OF THECOMA FIBROMA MASQUERADING AS PCOS: A RARE ETIOLOGY OF HIRSUTISM AND HYPERANDROGENISM**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Mohamed Abdalla	PV281	**THE CLINICAL CHARACTERISTICS, PRESENTATION, AND TREATMENT OUTCOMES OF PROLACTINOMAS AT GROOTE SCHUUR HOSPITAL**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Mohamed Hassanein	PV127	**SAFETY AND EFFECTIVENESS OF IGLARLIXI WITH OR WITHOUT SODIUM-GLUCOSE COTRANSPORTER-2 INHIBITORS IN PEOPLE WITH TYPE 2 DIABETES DURING RAMADAN FASTING: A SOLIRAM STUDY SUBANALYSIS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

nan Mohamed Taieb Ach	PV075	**INTEREST IN THE RESEARCH OF ANTITHYROID ANTIBODIES DURING THE DIAGNOSIS OF A CETOSIC ACIDIC DIABETES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Mohamed Taieb Ach	PV282	**SECONDARY AMENORRHEA REVEALING A GIANT HAMARTOMA OF THE TUBER CINEREUM**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Mohammad Jeeyavudeen	PV011	**GIANT ADRENAL CYST– AN UNCOMMON CAUSE OF ADRENAL INCIDENTALOMA**	**E-Poster Viewing: AS01. Adrenal**
nan Mohammad Khalifah	PV138	**CHANGES IN HBA1C AND AMBULATORY GLUCOSE PROFILE PARAMETERS IN IRZEPATIDE NAÏVE DIABETES PATIENTS WITH HYPERGLYCAEMIA**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Mohammad Saifuddin	PV176	**EVALUATION OF EFFICACY AND SAFETY OF EMPAGLIFLOZIN IN BANGLADESHI PATIENTS WITH TYPE 2 DIABETES MELLITUS (EFFISAEM STUDY)**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Mohammed Al Dawish	PV077	**THE IMPACT OF ADHERENCE TO GLUTEN-FREE DIET ON GLYCEMIC CONTROL AND QUALITY OF LIFE AMONG SAUDI ARABIAN PATIENTS WITH TYPE 1 DIABETES AND CELIAC DISEASE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Mohammed Al Dawish	PV078	**EVALUATING THE IMPACT OF RAMADAN FASTING ON AMBULATORY GLUCOSE PROFILE AMONG PATIENTS WITH TYPE 1 DIABETES: A COMPARATIVE STUDY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Mohammed Al Dawish	PV079	**CLINICAL EFFICACY OF ONCE-WEEKLY SEMAGLUTIDE FOR THE MANAGEMENT OF OBESE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

		SUBOPTIMALLY CONTROLLED PATIENTS WITH TYPE 2 DIABETES IN REAL-WORLD CLINICAL PRACTICE	
nan Mohammed Al Dawish	PV351	**GLYCEMIC CONTROL IN PATIENTS WITH TYPE 1 DIABETES: COMPARISON OF HOLIDAYS VERSUS SCHOOLDAYS**	**E-Poster Viewing: AS11. Technology**
nan Mohammed Al Dawish	PV352	**INTERMITTENTLY SCANNED CONTINUOUS GLUCOSE MONITORING USE IN A REAL-WORLD IN PATIENTS WITH TYPE 1 DIABETES POPULATION: THE SAUDI ARABIAN EXPERIENCE**	**E-Poster Viewing: AS11. Technology**
nan Mohsin Mukhtar	PV308	**UNPRECEDENTED SEVERE HYPONATREMIA WITH A SODIUM LEVEL OF 94 MMOL/L: A SUCCESSFUL OUTCOME**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Mone Zaidi	O005	**A SINGLE FSH-BLOCKING DRUG FOR OSTEOPOROSIS, OBESITY AND NEURODEGENERATION**	**Oral Abstract Presentations - Endocrine Cancers/Adrenal**
nan Monica Gadelha	O026	**ORAL PALTUSOTINE MAINTAINS IGF-I, GH, AND SYMPTOM CONTROL IN PATIENTS WITH ACROMEGALY SWITCHED FROM INJECTED SOMATOSTATIN RECEPTOR LIGAND MONOTHERAPY: PHASE 3, PATHFNDR-1 STUDY RESULTS**	**Oral Abstract Presentations - Bone/Pituitary/Neuroendocrinology**
nan Mostafa Abouobaiia	PV074	**EARLY WEIGHT LOSS AND LATE METABOLIC OUTCOMES IN TIRZEPATIDE-TREATED PARTICIPANTS WITH TYPE 2 DIABETES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

nan Mouza Alaleeli	PD022	**HISTOLOGICAL STUDY UNVEILING THE FRAGILE CORE: TRABECULAR BONE DETERIORATION IN TYPE 2 DIABETES MELLITUS**	**E-Poster Discussion: Bone 01**
nan Muhammad Mujeeb-U-Rahman	PV358	**A NEXT-GENERATION INTEGRATED CONTINUOUS DIABETES MONITORING SYSTEM**	**E-Poster Viewing: AS11. Technology**
nan Muhammed Kizilgul	O013	**MACHINE LEARNING PREDICTION OF PANCREATITIS RISK WITH METHIMAZOLE AND PROPYLTHIOURACIL: A NATIONWIDE RETROSPECTIVE OBSERVATIONAL STUDY**	**Oral Abstract Presentations - Thyroid**
nan Muhammed Kizilgul	PV045	**THE EFFECT OF HYPOPHOSPHATEMIA ON LABORATORY FINDINGS AND PRESENCE OF RENAL STONE IN PRIMARY HYPERPARATHYROIDISM: A NATIONWIDE RETROSPECTIVE OBSERVATIONAL STUDY**	**E-Poster Viewing: AS02. Bone**
nan Mussa Al Malki	PV286	**IMPULSE CONTROL DISORDERS IN PATIENTS WITH DOPAMINE AGONIST-TREATED PITUITARY ADENOMAS: A CROSS-SECTIONAL MULTICENTER STUDY**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Mussarrat Riaz	O021	**MATERNAL AND NEONATAL OUTCOMES OF WOMEN WITH TYPE 1 DIABETES AT A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN**	**Oral Abstract Presentations - Diabetes 02**
nan Mussarrat Riaz	PD027	**PROGRESSION OF GESTATIONAL DIABETES TO TYPE 2 DIABETES MELLITUS: A PROSPECTIVE**	**E-Poster Discussion: Diabetes 05**

		OBSERVATIONAL STUDY FROM A RESOURCE CONSTRAINT COUNTRY.	
nan Mussarrat Riaz	PV268	**TRENDS OF OBESITY IN PEOPLE WITH DIABETES- AN 18 YEARS FOLLOW-UP STUDY FROM PAKISTAN**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Nadia Haroon	PV122	**BARRIERS TO INSULIN THERAPY IN TYPE 2 DIABETICS; DISCIPLINE IN DIABETES.**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Nadia Haroon	PV123	**TYPE 2 DIABETICS WITH RENOCARDIAC SYNDROME**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Naira Chobanyan	PV106	**IS THE ASSOCIATION BETWEEN BMI AND INSULIN RESISTANCE IN WESTERN POPULATIONS A UNIVERSAL TRUTH? A PRELIMINARY ANALYSIS OF DATA FROM SINT MAARTEN**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Najmul Islam	PV042	**CORRELATION OF PREOPERATIVE LOCALIZATION OF PARATHYROID ADENOMA WITH IMAGING FINDINGS AND SURGICAL OUTCOME**	**E-Poster Viewing: AS02. Bone**
nan NAMI LEE	PV393	**ACUTE SUPPURATIVE THYROIDITIS WITH THYROTOXICOSIS CAUSED BY DISSEMINATED METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS INFECTION IN A PATIENT WITH TYPE 1 DIABETES**	**E-Poster Viewing: AS12. Thyroid**
nan Namita Patel	PV342	**LEVELS OF LEPTIN, ADIPONECTIN, C-REACTIVE PROTEIN, AND INTERLEUKIN-6 AND THEIR ASSOCIATION WITH BODY MASS INDEX IN THE FIRST TRIMESTER AMONG**	**E-Poster Viewing: AS10. Reproductive Health**

		WOMEN FROM SOUTH INDIA	
nan Nanik Ram	PV406	**EFFICIENCY OF LOW DOSE 30MCI OF I-131 FOR LOW TO INTERMEDIATE RISK THYROID CANCERS USING TRIPLE NEGATIVE CRITERIA.**	**E-Poster Viewing: AS12. Thyroid**
nan Narseta Mickuvienė	PV399	**A COMPARISON OF THYROID HORMONE CONCENTRATIONS IN INDIVIDUALS WITH ACUTE BRAIN OR MYOCARDIAL INFARCTION**	**E-Poster Viewing: AS12. Thyroid**
nan Nasser Al-Daghri	O031	**GLYCEMIC CONTROL IN PREDIABETES PATIENTS FAVORABLY ALTERS SERUM NLRP3 INFLAMMASOME AND RELATED INTERLEUKINS: A LONGITUDINAL STUDY**	**Oral Abstract Presentations - Diabetes 03**
nan Natalia Kalinchenko	PV385	**IODINE-INDUCED TRANSIENT HYPOTHYROIDISM IN A FULL-TERM INFANT DUE TO THE MATERNAL USE OF IODINE-CONTAINING ANTISEPTICS**	**E-Poster Viewing: AS12. Thyroid**
nan Nataliya Volevodz	PV233	**RARE GENETIC DISEASE DUE TO A DEFECT IN THE GROWTH HORMONE GENE (GH1): CLINICAL CASE**	**E-Poster Viewing: AS06. Growth Hormone**
nan Nataliya Volevodz	PV234	**CLINICAL CASE OF RARE GENETIC SWAMP ACCOMPANIED BY SEVERE GROWTH RETARDATION - RING CHROMOSOME 13.**	**E-Poster Viewing: AS06. Growth Hormone**
nan Nataliya Volevodz	PV349	**A GIRL WITH HYPOGONADOTROPHIC HYPOGONADISM 3 IN COMBINATION WITH A DEFECT IN SMELL**	**E-Poster Viewing: AS10. Reproductive Health**

		SENSATION AND DEAFNESS DUE TO PROKR2 MUTATION.	
nan Nataliya Volevodz	PV362	**CASE REPORT OF ATYPICAL CORNELIA DE LANGE SYNDROME DIAGNOSED VIA WHOLE EXOME SEQUENCING**	**E-Poster Viewing: AS11. Technology**
nan Navya Basavaraju	PV293	**A RARE CASE OF PITUITARY METASTASIS FROM COLONIC ADENOCARCINOMA**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Navya Basavaraju	PV373	**THYROID ASSOCIATED OPHTHALMOPATHY WITH HASHIMOTO'S THYROIDITIS: TWO INTERESTING CASE REPORTS**	**E-Poster Viewing: AS12. Thyroid**
nan Nawal Ibraheem	PV215	**RARE PRESENTATION OF DIFFRENTIATED MALIGNANT COLLISION THYROID TUMOR**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Nazma Akter	PD028	**ASSOCIATION BETWEEN GLYCEMIC CONTROL WITH GLOMERULAR FILTRATION RATE IN TYPE 2 DIABETES MELLITUS PATIENTS AT A TERTIARY CARE HOSPITAL**	**E-Poster Discussion: Diabetes 05**
nan Nijolė Kažukauskienė	PV388	**REVERSE TRIIODOTHYRONINE (RT3) AND CLINICAL EFFICACY OF INDIVIDUALS WITH ACUTE BRAIN INFARCTION OR MYOCARDIAL INFARCTION**	**E-Poster Viewing: AS12. Thyroid**
nan Nikolai Likhonosov	PV150	**FEATURES OF THE MOLECULAR BIOMARKER PROFILE DEPENDING ON THE PHENOTYPE OF DIABETES MELLITUS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Nino Tedoradze	PV057	**CHALLENGES IN MANAGEMENT OF CONCURRENT MULTIPLE PARATHYROID ADENOMAS**	**E-Poster Viewing: AS02. Bone**

nan Nitin Kapoor	O030	**LOW MUSCLE MASS AND CARDIOMETABOLIC HEALTH AMONG INDIVIDUALS OF SOUTH ASIAN DESCENT - FINDINGS FROM THE KERALA DIABETES PREVENTION PROGRAM**	**Oral Abstract Presentations - Diabetes 03**
nan Nitin Kapoor	PV257	**SLEEP DEPRIVATION IN PATIENTS WITH OBESITY - INSIGHTS FROM THE BHARAT DATASET (BAROPHENOTYPE ASSESSMENT AND REGIONAL VARIATIONS AMONG PEOPLE LIVING WITH OBESITY IN INDIA)**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Noor Ashikin Ismail	PV134	**THE DIAGNOSTIC VALUE OF GLYCATED ALBUMIN IN GESTATIONAL DIABETES : AN INTERIM ANALYSIS IN A MULTI-ETHNIC ASIAN SETTING**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Noura Al Hassani	PV081	**CHARACTERISTICS, GLYCAEMIC CONTROL AND OUTCOMES OF CHILDREN AND ADOLESCENTS WITH NEWLY DIAGNOSED TYPE 2 DIABETES MELLITUS IN UAE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Noushin Fahimfar	PD023	**IMPLEMENTATION OF FRACTURE LIAISON SERVICE (FLS) IN IRAN**	**E-Poster Discussion: Bone 01**
nan Noushin Fahimfar	PD036	**IRANIAN MULTI-CENTER OSTEOPOROSIS STUDY (IMOS): INVESTIGATION OF THE PREVALENCE OF OSTEOPOROSIS, OSTEOPENIA, SARCOPENIA AND RELATED FACTORS IN IRAN**	**E-Poster Discussion: Bone 02**
nan Noushin Fahimfar	PV376	**PREVALENCE OF HYPOTHYROIDISM IN IRAN BASED ON IRANIAN MULTI-**	**E-Poster Viewing: AS12. Thyroid**

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nan Ntethelelo Sibiya	PV180	**HIGH-FAT-, HIGH-CARB-DIET-INDUCED PREDIABETES PRECONCEPTION IN SPRAGUE-DAWLEY RATS AS A RISK FACTOR FOR THE DEVELOPMENT OF PREECLAMPSIA**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Nur Rusyda Kuddah	PV302	**TRANSSPHENOIDAL SURGERY CONSIDERATION IN PATIENT WITH MICROPROLACTINOMA AND SCHIZOAFFECTIVE MIXED TYPE**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Nusrat Sultana	PD062	**FATTY LIVER DISEASE IN NEWLY DETECTED YOUTH-ONSET DIABETES**	**E-Poster Discussion: Diabetes 11**
nan Nusrat Sultana	PV189	**GLYCEMIC EXCURSION IN NEWLY DIAGNOSED YOUTH-ONSET TYPE-2 DIABETES MELLITUS MAY BE RELATED TO _-CELL SECRETORY CAPACITY THAN INSULIN RESISTANCE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Nusrat Sultana	PV190	**DO BANGLADESHI YOUTH-ONSET DIABETES PATIENTS NEED GENETIC SCREENING FOR MODY?**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Ole Schmiedel	O028	**THE NEW ZEALAND EATING BEHAVIOR QUESTIONNAIRE - VALIDATION STUDY FOR A NOVEL ASSESSMENT TOOL TO DESCRIBE ACTIONABLE EATING BEHAVIOR TRAITS**	**Oral Abstract Presentations - Diabetes 03**
nan Olga Samburskaya	PV022	**STEROID HORMONE DEFICIENCY AS A CAUSE OF PSORIASIS**	**E-Poster Viewing: AS01. Adrenal**
nan Olga Samburskaya	PV221	**A CLINICAL CASE OF PROGESTERONE DEFICIENCY AS A CAUSE OF**	**E-Poster Viewing: AS05. Endocrine Cancers**

		ACNE AND PROSTATE CANCER.	
nan Olga Ulyanova	PV319	**A CASE OF A COMBINATION OF RECCURENT INSULINOMA, GRAVES DISEASE AND ADRENAL ADENOMA NOT ASSOCIATED WITH MEN1 SYNDROME**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan oumayma zarrouk	PD018	**AGRESSIVE BILATERAL ADRENAL LYMPHOMAS : ABOUT THREE CASE REPORTS**	**E-Poster Discussion: Adrenal 01**
nan Parvin Mirmiran	PV262	**ASSOCIATION OF POSTOPERATIVE DIETARY MACRONUTRIENT CONTENT AND QUALITY WITH TOTAL WEIGHT LOSS AND FAT-FREE MASS LOSS AT MIDTERM AFTER SLEEVE GASTRECTOMY**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Patrícia Cunha Brito	PV005	**PHEOCHROMOCYTOMA IN PREGNANCY – A CLINICAL CHALLENGE**	**E-Poster Viewing: AS01. Adrenal**
nan Patrícia Cunha Brito	PV107	**OBSTETRIC MORBIDITY IN POORLY CONTROLLED DIABETES - A CASE OF PERIPARTUM CARDIOMYOPATHY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Patrícia Cunha Brito	PV335	**LA CHAPELLE SYNDROME, A RARE CAUSE OF HYPERGONADOTROPHIC HYPOGONADISM**	**E-Poster Viewing: AS10. Reproductive Health**
nan Paulina Ormazabal	PV266	**THE ORIGANUM VULGARE L. ESSENTIAL OIL AMELIORATES FATTY ACID-IMPAIRED INSULIN SIGNALING AND GLUCOSE UPTAKE IN HUMAN ADIPOCYTES**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Pegah Shayegh	PD034	**IMPROVEMENT IN OOCYTE CALCIUM LEVEL AND SUBSEQUENT EMBRYO**	**E-Poster Discussion: Reproductive Health 02**

		DEVELOPMENT IN VITRIFIED OOCYTES WITH IRON OXIDE MAGNETIC NANOPARTICLES	
nan Pegah Shayegh	PV361	**IMPROVEMENT IN OOCYTE CALCIUM LEVEL AND SUBSEQUENT EMBRYO DEVELOPMENT IN VITRIFIED OOCYTES WITH IRON OXIDE MAGNETIC NANOPARTICLES**	**E-Poster Viewing: AS11. Technology**
nan Peijing Rong	PV269	**EFFECTS OF TRANSCUTANEOUS AURICULAR VAGUS NERVE STIMULATION ON ADIPOSE TISSUE PLASTICITY IN DIET-INDUCED OBESE RATS**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Phulrenu Chauhan	PV294	**LONG-TERM HORMONAL AND IMAGING OUTCOMES AFTER ADJUNCTIVE GAMMA KNIFE RADIOSURGERY IN PATIENTS WITH NON-FUNCTIONING PITUITARY ADENOMAS**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Polina Popova	PV166	**TIME IN RANGE TIGHTER THAN THE CURRENT RECOMMENDATION IS ASSOCIATED WITH LGA IN TREATED GDM**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Poupak Fallahi	PD011	**EFFECT OF TWO NOVEL TYROSINE KINASE INHIBITORS (CLM29 AND CLM3) IN PRIMARY ANAPLASTIC THYROID CANCER CELLS, OBTAINED BOTH FROM BIOPSY, OR FINE-NEEDLE ASPIRATION CITOLOGY.**	**E-Poster Discussion: Thyroid 01**
nan Poupak Fallahi	PV377	**MORE STABLE TSH LEVELS IN HYPOTHYROID PATIENTS UNDER THERAPY WITH LIQUID LEVOTHYROXINE (L-T4; VS. TABLET L-T4)**	**E-Poster Viewing: AS12. Thyroid**

nan Poupak Fallahi	PV378	**SERUM TSH LEVELS NORMALIZATION IN PATIENTS WITH ENTERIC L-THYROXINE (L-T4) MALABSORPTION ISSUES, AFTER THE SWITCH FROM ORAL TABLET L-T4 TO THE LIQUID FORMULATION**	**E-Poster Viewing: AS12. Thyroid**
nan PRAMILA KALRA	PD041	**HOSPITAL BASED MULTI CENTRIC DIABETES REGISTRY FROM INDIA**	**E-Poster Discussion: Diabetes 07**
nan Prasad Katulanda	PV043	**A NOVEL VARIANT (P.HIS463ARG) OF CALCIUM SENSING RECEPTOR ASSOCIATED WITH FAMILIAL HYPOCALCIURIC HYPERCALCAEMIA**	**E-Poster Viewing: AS02. Bone**
nan Prasad Katulanda	PV137	**DIABETES DISTRESS: UNDERSTANDING THE HIDDEN STRUGGLE AND ITS IMPLICATIONS ON SELF-MANAGEMENT AMONG SRI LANKANS LIVING WITH TYPE-2 DIABETES MELLITUS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan PRATAP KUMAR	PV341	**BIOELECTRIC IMPEDANCE ANALYSIS OF VISCERAL FAT IN WOMEN WITH PCOS AND THE EFFECT OF EXERCISE- A PILOT STUDY**	**E-Poster Viewing: AS10. Reproductive Health**
nan Pressilla Khajadourian	PD064	**TIRZEPATIDE REDUCES THE PREDICTED RISK OF DEVELOPING TYPE 2 DIABETES: SURMOUNT-1 POST-HOC ANALYSIS BY PREDIABETES STATUS**	**E-Poster Discussion: Diabetes 12**
nan Priya Jaisinghani	PV256	**GLP-1 RA USE IN A PATIENT WITH EXISTING GASTROPARESIS**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Puja Thadani	PV028	**HYPERTENSIVE CRISIS - UNMASKING THE UNCOMMON**	**E-Poster Viewing: AS01. Adrenal**

nan Qiang Li	O011	**NOMOGRAM FOR PREDICTING RECURRENCE OF PAPILLARY THYROID MICROCARCINOMA AFTER FIVE SURGICAL APPROACHES: A RETROSPECTIVE STUDY**	**Oral Abstract Presentations - Thyroid**
nan Rachita Nanda	PV162	**EVALUATION OF PLASMA OSTEOPONTIN IN DIABETES MELLITUS WITH AND WITHOUT NEUROPATHY: AN OBSERVATIONAL STUDY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Rachita Nanda	PV401	**THYROID CHARACTERISTICS OF OLDER PATIENTS VISITING A TERTIARY CARE IN CENTRAL INDIA**	**E-Poster Viewing: AS12. Thyroid**
nan Radka Taxová Braunerová	PV277	**TRENDS IN WAIST CIRCUMFERENCE AND OBESITY PREVALENCE IN CZECH 7-YEAR-OLD CHILDREN DURING YEARS 2008-2019**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Raghavendra Nayak	PV309	**TSH SECRETING PITUITARY MACRO ADENOMA: SURPRISING CAUSE OF HYPERTHYROIDISM**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Raghda Adi	PV076	**GLYCEMIC CONTROL, INFLAMMATORY, HORMONAL, AND NUTRITIONAL CHARACTERISTICS OF PATIENTS WITH POLYCYSTIC OVARY SYNDROME (PCOS): A CASE-CONTROL STUDY FROM THE SHARJAH/UAE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Rahaf Qari	PV017	**ADRENAL ADENOMA SECRETING CORTISOL, WITH INITIAL PRESENTATION OF HEART FAILURE AND OSTEOPOROSIS**	**E-Poster Viewing: AS01. Adrenal**

nan Rahila Bhatti	PV098	**CASE SERIES: USE OF GLP-1 RECEPTOR AGONIST IN TYPE 1 DIABETES AND SECONDARY DIABETES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Rahila Bhatti	PV210	**CASE REPORT: A PATIENT WITH MULTIPLE PARAGANGLIOMA TREATED WITH LONG-ACTING SOMATOSTATIN ANALOGUE**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Rahila Bhatti	PV249	**PREVALENCE OF OBESITY RELATED METABOLIC CONDITIONS FROM A MULTIDISCIPLINARY WEIGHT MANAGEMENT PROGRAM**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Rajeshwari Ashok	PV092	**GLYCATED SERUM PROTEIN NBT COLORIMETRIC ASSAY: OLD INEXPENSIVE WINE, BETTER BOTTLE AND POTENTIAL FOR GREATER USE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Rajeshwari Ashok	PV093	**MASS VENOUS BLOOD HAEMOGLOBIN A1C TESTING AT STREET-CAMPS FOR ENRICHED COMMUNITY PREDIABETES AND DIABETES SCREENING AND CARE: A UNIQUE FIRST-IN-WORLD SOCIAL AND PUBLIC HEALTH EXPERIMENT**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Rajeshwari Ashok	PV094	**COMPARISON OF DIFFERENT C-PEPTIDE BASED INDICES FOR QUANTITATION OF INSULIN RESISTANCE (IR) AND BETA-CELL FUNCTION (BCF) TOWARDS ANALYSING T2D PATHOGENETIC HETEROGENITY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Rajni Yadav	PD055	**EVALUATION OF MTOR PATHWAY IN PANCREATIC**	**E-Poster Discussion: Endocrine Cancers/Thyroid**

		NEUROENDOCRINE NEOPLASMS	
nan Rashida Khan	PV389	**EXPRESSIONAL & MUTATIONAL DEREGULATIONS OF MIRNA-146B AND MIRNA-181B IN PAPILLARY THYROID CARCINOMA**	**E-Poster Viewing: AS12. Thyroid**
nan Raya Al Mazrouei	PV002	**DIAGNOSTIC PERFORMANCE OF MORNING SERUM CORTISOL FOR ASSESSING ADRENAL RESERVE IN LOCAL POPULATION: A SINGLE CENTRE EXPERIENCE**	**E-Poster Viewing: AS01. Adrenal**
nan Raya Almazrouei	PV225	**HYPERGONADOTROPHIC HYPOGONADISM DUE TO TRANSALDOLASE DEFICIENCY: TWO CASE REPORTS AND LITERATURE REVIEW**	**E-Poster Viewing: AS06. Growth Hormone**
nan Reem Alshareef	PV089	**PERCEPTION AND ATTITUDE OF PATIENTS WITH TYPE 2 DIABETES TOWARD INSULIN THERAPY IN THE PRIMARY CARE IN JEDDAH, SAUDI ARABIA**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Reham Ghanim	O038	**SITOSTEROLAEMIA IN A 12-YEAR-OLD CHILD WITH SHORT STATURE**	**Oral Abstract Presentations - Reproductive Health**
nan Reham Ghanim	PV007	**A NOVEL NR5A1 GENE MUTATION IN A NEONATE WITH SEVERE ADRENAL INSUFFICIENCY AND SKIN PIGMENTATION**	**E-Poster Viewing: AS01. Adrenal**
nan Reham Ghanim	PV116	**MANAGING TRANSIENT NEONATAL HYPERGLYCEMIA IN AN EXTREME PREMATURE BABY WITH SUBCUTANEOUS INSULIN DEGLUDEC: A CASE REPORT**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

nan Reshma BV	PV101	**HEMOGLOBIN, SERUM ALBUMIN AND SERUM PROTEIN GLYCATION IN DIABETES: DIFFERENTIAL BIOLOGICAL BEHAVIOR AND CLINICAL COMPLEMENTARITY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Reshma BV	PV102	**DIABETOGENESIS AND SUBCLINICAL EXOCRINE PANCREATIC DYSFUNCTION: DETERMINANTS AND CLINICAL IMPLICATIONS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Reshma BV	PV103	**MITOCHONDRIAL CYTOPATHY (M.3243A>G) WITH DIABETES MASQUERADING AS "LATE-ONSET" SLOWLY PROGRESSIVE NON-AUTOIMMUNE TYPE 1 DIABETES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Riccardo Maria Pollis	O042	**CARDIOVASCULAR DISEASE IN TYPE 1 DIABETES. SEX DIFFERENCES**	**Oral Abstract Presentations - Diabetes 04**
nan Riccardo Maria Pollis	PV165	**KETOSIS-PRONE DIABETES PRESENTING WITH ACUTE ESOPHAGEAL NECROSIS OR "BLACK ESOPHAGUS": AN INTRIGUING NEW CLINICAL ASSOCIATION**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Riccardo Maria Pollis	PV267	**THE CHALLENGING DIFFERENTIAL DIAGNOSIS OF PSEUDO-CUSHING'S SYNDROME AND CUSHING'S SYNDROME IN PATIENT WITH OBESITY**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Risha Saxena	PV272	**PREDICTORS AND DETERMINANTS OF HEPATIC FIBROSIS IN OBESE INDIAN CHILDREN AND ADOLESCENTS**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Roshan Borkar	PD051	**METABOLOMIC ANALYSIS OF BISPHENOL AP ON MULTIGENERATIONAL**	**E-Poster Discussion: Reproductive Health 03**

		OUTCOMES OF FEMALE RATS AND THEIR FEMALE OFFSPRING IN ADULTHOOD.	
nan ROUF SIHAM	PV273	**THE RELATION BETWEEN METABOLIC PARAMETERS AND ANDROGEN SERUM CONCENTRATIONS IN WOMEN WITH POLYCYSTIC OVARY SYNDROME**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan ROUF SIHAM	PV411	**AUTOIMMUN HYPOTHYROIDISM AND THE GENOTYPE OF TURNER SYNDROME: ARE THERE ANY CORRELATIONS?**	**E-Poster Viewing: AS12. Thyroid**
nan Ruqia Baig	O012	**INVESTIGATING THE EXPRESSION PATTERNS OF RET/PTC AND THEIR ASSOCIATION WITH THE HIGH PREVALENCE OF THYROID CANCER IN PAKISTANI WOMEN**	**Oral Abstract Presentations - Thyroid**
nan Saad Bin Zafar Mahmood	PD042	**PREMATURE ATHEROSCLEROTIC CARDIOVASCULAR DISEASE IN PAKISTAN**	**E-Poster Discussion: Cardiometabolic 02**
nan Saad Bin Zafar Mahmood	PV049	**ECTOPIC PARATHYROID CARCINOMA PRESENTING AS A RARE CASE OF RECURRENT FRACTURES**	**E-Poster Viewing: AS02. Bone**
nan Saad Bin Zafar Mahmood	PV152	**COMPARATIVE ANALYSIS BETWEEN LINAGLIPTIN AND SODIUM-GLUCOSE COTRANSPORTER-2 INHIBITORS AND ITS IMPACT ON HBA1C LEVELS – A CROSS-SECTIONAL CORRELATIONAL STUDY FROM SOUTH ASIAN DIABETIC PATIENTS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Sabaretnam Mayilvaganan	PV050	**EFFECT OF BISPHOSPHONATES ON PARATHYROID ADENOMA IN PATIENTS UNDERGOING**	**E-Poster Viewing: AS02. Bone**

		FOCUSSED PARATHYROIDECTOMY FOR PRIMARY HYPERPARATHYROIDISM	
nan Sabaretnam Mayilvaganan	PV398	**“COLLOID LEAK”-A LIGHTENING EFFECT**	**E-Poster Viewing: AS12. Thyroid**
nan Sabrina Ayari	PV034	**PLACE OF CALCIMIMETICS IN THE MANAGEMENT OF PRIMARY HYPERPARATHYROIDISM: THREE ILLUSTRATIVE CASES.**	**E-Poster Viewing: AS02. Bone**
nan Sabrina Ayari	PV247	**UNUSUAL ENDOCRINE FEATURES OF BARDET-BIEDL SYNDROME**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Sabrina Ayari	PV292	**ASSOCIATION OF GRAVES DISEASE, IDIOPATHIC INTRACRANIAL HYPERTENSION, AND PITUITARY HYPOPLASIA**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Sabrina Chiloiro	O025	**THE ACRO-TIME SCORE: A NEW CLINICAL, PATHOLOGICAL AND IMMUNE INTEGRATIVE APPROACH TO EARLY IDENTIFY ACROMEGALY PATIENTS RESISTANT TO TREATMENT WITH FIRST GENERATION SOMATOSTATIN LIGANDS**	**Oral Abstract Presentations - Bone/Pituitary/Neuroendocrinology**
nan Sabrina Chiloiro	PD006	**BONE HEALTH AND SKELETAL FRAGILITY IN SECOND- AND THIRD-LINE MEDICAL THERAPIES FOR ACROMEGALY: PRELIMINARY RESULTS FROM A PILOT MONOCENTER EXPERIENCE**	**E-Poster Discussion: Pituitary**
nan SAHANA SHETTY	PV056	**LEAN MASS IS AN IMPORTANT PREDICTOR OF POSTMENOPAUSAL OSTEOPOROSIS**	**E-Poster Viewing: AS02. Bone**

nan SAHANA SHETTY	PV223	**NON-ISLET CELL TUMOUR HYPOGLYCEMIA IN A RECURRENT RETROPERITONEAL LIPOSARCOMA**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Saima Amjad	PV328	**ROLE OF OXIDATIVE STRESS AND OBESITY FOR CAUSING INFERTILITY IN WOMEN: A CASE-CONTROL STUDY**	**E-Poster Viewing: AS10. Reproductive Health**
nan Salwa Al Harrasi	PV080	**PREVALENCE OF DYSMAGNESEMIA AMONG PATIENTS WITH DIABETES MELLITUS (DM) AND THE ASSOCIATED HEALTH OUTCOMES: A CROSS-SECTIONAL STUDY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Sambit Das	PD046	**REAL-WORLD EVIDENCE-BASED COMPARATIVE STUDY ON THE EFFECTIVENESS OF DIFFERENT CLASSES OF SGLT2 INHIBITORS ON TYPE 2 DIABETES MELLITUS PATIENTS**	**E-Poster Discussion: Diabetes 08**
nan Sambit Das	PV036	**A CASE OF MCCUNE ALBRIGHT SYNDROME PRESENTING WITH MULTIPLE PATHOLOGICAL FRACTURES.**	**E-Poster Viewing: AS02. Bone**
nan Sapna Manjunath	PV153	**DIABETES CARE FOR THE BOTTOM OF THE SOCIOECONOMIC PYRAMID: FOUR DECADES OF SCIENCE, MEDICINE, CREATIVITY AND EMPATHY (SAMATVAM - INDIA MODEL; 1987 - 2023)**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Saptarshi Bhattacharya	PV248	**EVALUATING THE NECK CIRCUMFERENCE-HEIGHT RATIO (NHR) IN RELATION TO BMI AND EOSS: INSIGHTS FROM BAROPHENOTYPE ASSESSMENT AND REGIONAL VARIATIONS**	**E-Poster Viewing: AS08. Obesity/Lipids**

		AMONG PEOPLE WITH OBESITY IN INDIA	
nan Sara Al-Mahaynii	PV059	**HYPOCALCAEMIA AS A POTENTIALLY REVERSIBLE CAUSE OF HEART FAILURE WITH REDUCED EJECTION FRACTION**	**E-Poster Viewing: AS03. Cardiometabolic**
nan Sara Al-Mahaynii	PV087	**HYPERGLYCAEMIC, KETOTIC PRESENTATION OF NEW ONSET DIABETES: A PERSPECTIVE FROM BERMUDA**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Sathyanarayana Srikanta	O029	**BRINGING FULLY CLOSED-LOOP OPEN-SOURCE AUTOMATED INSULIN DELIVERY (OS-AID) TO INDIA: POTENTIAL MODEL FOR OTHER RESOURCE-LIMITED SETTINGS (PEERS-LED STAR CLINIC)**	**Oral Abstract Presentations - Diabetes 03**
nan Sathyanarayana Srikanta	PV027	**PRIMARY ALDOSTERONISM (PA) SCREENING IN RESISTANT HYPERTENSION (RH): EXPERIENCES FROM A SPECIALITY ENDOCRINOLOGY DIABETES CLINIC (SHOULD WE MARK "PRE-PRIMARY" ALDOSTERONISM?)**	**E-Poster Viewing: AS01. Adrenal**
nan Sathyanarayana Srikanta	PV188	**A NOVEL EARLY-ONSET SYNDROMIC DIABETES ASSOCIATED WITH PANCREATITIS, SEIZURES AND HEARING IMPAIRMENT IN AN ASIAN INDIAN FAMILY WITH EXTENSIVE CONSANGUINITY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Selahattin Çolakoğlu	PV354	**EVALUATION OF CLINICAL ACCURACY OF A MOBILE INSULIN TITRATION ALGORITHM FOR TURKEY'S DIABETIC POPULATION**	**E-Poster Viewing: AS11. Technology**

nan Selahattin Çolakoğlu	PV355	**DEVELOPMENT OF A PATIENT-CENTRIC MACHINE LEARNING MODEL FOR DIABETES RISK PREDICTION**	**E-Poster Viewing: AS11. Technology**
nan Shadi Wehbe	PV204	**MAGNITUDE OF INTENTIONAL WEIGHT REDUCTION AND ASSOCIATED CLINICAL OUTCOMES**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Shahd Ibrahim	PV254	**A CASE OF HYPERTHYROIDISM DUE TO CO-EXISTING TSH SECRETING PITUITARY ADENOMA AND GRAVES' DISEASE-A RARE ASSOCIATION**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Shahjada Selim	PV409	**PATTERN OF PRACTICE FOR DIAGNOSIS AND MANAGEMENT OF THYROID DISORDERS AMONG PHYSICIANS OF BANGLADESH: A CROSS-SECTIONAL STUDY**	**E-Poster Viewing: AS12. Thyroid**
nan Shahreen Ansar Khan	PV139	**DIETARY INTAKE OF INDIVIDUALS WITH TYPE 2 DIABETES DURING RAMADAN IN ACCORDANCE WITH RAMADAN NUTRITION PLAN (RNP) – DIABETES AND RAMADAN (DAR) GUIDELINES 2021.**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Shahreen Ansar Khan	PV140	**PREGNANT WOMEN WITH DIABETES PERSPECTIVE REGARDING MEDICAL NUTRITION THERAPY; ARE THEY REALLY AWARE?**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Shaoyuan Li	PV149	**INVOLVEMENT OF MELATONIN RECEPTOR ON THE HYPOGLYCEMIC EFFECT OF TRANSCUTANEOUS AURICULAR VAGUS NERVE STIMULATION**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

nan Sharjeel Hassan	PV008	**THE PUZZLE OF HYPOKALEMIA IN ADRENAL INSUFFICIENCY: A CASE OF AUTOIMMUNE POLYGLANDULAR SYNDROME TYPE 2**	**E-Poster Viewing: AS01. Adrenal**
nan Sharvil Gadve	PD050	**ORAL SEMAGLUTIDE VS. METFORMIN IN WOMEN WITH POLYCYSTIC OVARY SYNDROME: A RANDOMIZED CONTROLLED CLINICAL TRIAL**	**E-Poster Discussion: Reproductive Health 03**
nan Sheeba Shaikh	PV024	**BILATERAL PHEOCHROMOCYTOMA AS PRESENTING FEATURE IN A PATIENT WITH MULTIPLE ENDOCRINE NEOPLASIA TYPE 2A**	**E-Poster Viewing: AS01. Adrenal**
nan Sheeba Shaikh	PV410	**REAL WORLD EXPERIENCE WITH MYCOPHENOLATE MOFETIL IN COMBINATION WITH INTRAVENOUS METHYLPREDNISOLONE FOR MODERATE TO SEVERE THYROID EYE DISEASE: A TERTIARY CENTRE EXPERIENCE**	**E-Poster Viewing: AS12. Thyroid**
nan Shivtosh Kumar	O008	**AN AI-DRIVEN PERSONALIZED COACHING MODEL DEMONSTRATED SIGNIFICANT IMPROVEMENTS IN TIME IN RANGE (TIR) AND TIME ABOVE RANGE (TAR) IN 100 DAYS**	**Oral Abstract Presentations - Diabetes 01**
nan Shriya Gadve	PV212	**UNEXPECTED JOURNEY OF A RARE METASTATIC DISEASE**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Shu Teng Chai	PV104	**EFFECTS OF ADDING LUSEOGLIFLOZIN TO EXISTING ANTIDIABETIC TREATMENT IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A SINGLE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**

		CENTRE RETROSPECTIVE OBSERVATIONAL STUDY	
nan Shun Cheong Ho	PV041	**GENETIC CAUSALITY OF BONE MINERAL DENSITY WITH BLOOD CELL TRAITS: A MENDELIAN RANDOMIZATION ANALYSIS**	**E-Poster Viewing: AS02. Bone**
nan Shyn Yi Tan	O007	**DIABETES RAPID EVALUATION AND LOWER LIMB AMPUTATION MANAGEMENT(DREAM) SERVICE IMPROVES AMPUTATION-FREE SURVIVAL THROUGH PODIATRY-TRIAGED FAST-TRACK MULTIDISCIPLINARY SERVICE**	**Oral Abstract Presentations - Diabetes 01**
nan Sidrah Lodhi	PV395	**VITAMIN D ADD-ON THERAPY IMPROVES DYSLIPIDEMIA AMONG HYPOTHYROID PATIENTS**	**E-Poster Viewing: AS12. Thyroid**
nan SIHAM ROUF	PV020	**PARAGANGLIOMA: DIAGNOSIS AND MANAGEMENT DURING PREGNANCY: CASE REPORT AND REVIEW OF LITERATURE**	**E-Poster Viewing: AS01. Adrenal**
nan SIHAM ROUF	PV220	**ACUTE PANCREATITIS, AN UNCOMMON PRESENTATION OF MULTIPLE ENDOCRINE NEOPLASIA TYPE 2A: A CASE REPORT**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Silindile Hadebe	PV118	**TRANSDERMAL DELIVERY OF SYZYGIUM AROMATICUM-DERIVED OLEANOLIC ACID BY DERMAL PATCHES IN STREPTOZOTOCIN-INDUCED DIABETIC RATS: SOME SELECTED METABOLIC PARAMETERS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Simge EREN	PV037	**REGULATORY EFFECT OF HUMAN UMBILICAL CORD**	**E-Poster Viewing: AS02. Bone**

		MESENCHYMAL STEM CELLS-DERIVED EXOSOMES ON GROWTH PLATE CELL LINES IN VITRO	
nan Sin Gon Kim	PV390	**TIME-DEPENDENT CHANGES OF THE RISK OF ATRIAL FIBRILLATION IN PATIENTS WITH GRAVES' DISEASE RECEIVING RADIOACTIVE IODINE TREATMENT COMPARING TO ANTI-THYROID DRUG: A NATIONWIDE COHORT STUDY**	**E-Poster Viewing: AS12. Thyroid**
nan Sinenhlanhla Mthembu	PV065	**DOSE-DEPENDENT EFFECTS OF LIPID LOWERING AGENT, SIMVASTATIN ON THE ENDOGENOUS LEVELS OF COENZYME Q: ASSOCIATED MYOCARDIAL DAMAGE**	**E-Poster Viewing: AS03. Cardiometabolic**
nan Siow Ping Lee	PD060	**A QUALITY IMPROVEMENT PROJECT TO PREVENT INPATIENT HYPOGLYCEMIA IN MEDICAL WARDS AT A TERTIARY HOSPITAL IN MALAYSIA**	**E-Poster Discussion: Diabetes 10**
nan SOFIA ENIKEEVA	PD033	**TESTICULAR ADRENAL REST TUMORS IN X-LINKED ADRENOLEUKODYSTROPHY PATIENTS**	**E-Poster Discussion: Reproductive Health 02**
nan Soobong Choi	O020	**INSULIN PUMP THERAPY IN TYPE 2 DIABETES WITH EMPAGLIFLOZIN IMPROVED GLUCOSE CONTROL**	**Oral Abstract Presentations - Diabetes 02**
nan Soon Jib Yoo	PV206	**HIGH-DOSE STATIN IMPAIRS PROTEIN SYNTHESIS IN C2C12 MYOBLAST BY INDUCTION OF ER STRESS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Soumya S Inamadar	O036	**COMPARISON OF THE EFFECTS OF DAPAGLIFLOZIN VERSUS METFORMIN IN OVERWEIGHT AND OBESE NON-DIABETIC PCOS**	**Oral Abstract Presentations - Reproductive Health**

		WOMEN- AN INTERVENTIONAL STUDY	
nan Sriraam Rajagopal	PV019	**HYPOKALEMIC PARALYSIS PROBLEM: REFLUX NEPHROPATHY WITH INCOMPLETE DISTAL RTA**	**E-Poster Viewing: AS01. Adrenal**
nan Suheil Ashraf	PV127b	**COMPARABLE TOTAL EXPOSURE OF ONCE-WEEKLY INSULIN ICODEC BETWEEN DIFFERENT SUBCUTANEOUS INJECTION REGIONS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Sumana kunnuru	PV046	**TWO CASES OF HYPERPHOSPHATEMIC TUMORAL CALCINOSIS IN INDIAN PATIENTS WITH VARIED ETIOLOGY AND UNIQUE PRESENTATIONS**	**E-Poster Viewing: AS02. Bone**
nan Sumudu Seneviratne	PD013	**BREAKING BARRIERS: NEED FOR MULTIDISCIPLINARY CARE CENTERS TO ADDRESS CHALLENGES FACED BY CHILDREN WITH DIFFERENCES IN SEX DEVELOPMENT**	**E-Poster Discussion: Reproductive Health 01**
nan Sumudu Seneviratne	PD047	**HEALTH-RELATED QUALITY OF LIFE AND ASSOCIATIONS WITH SOCIAL DEMOGRAPHIC AND MEDICAL/TREATMENT-RELATED FACTORS AMONG CHILDREN AND ADOLESCENTS WITH CONGENITAL ADRENAL HYPERPLASIA IN A LOWER-MIDDLE INCOME COUNTRY**	**E-Poster Discussion: Adrenal 02**
nan Sumudu Seneviratne	PV222	**HYPOGLYCEMIC CONVULSIONS DUE TO INSULINOMA IN A TEN-YEAR-OLD GIRL.**	**E-Poster Viewing: AS05. Endocrine Cancers**
nan Sung Hoon Yu	PV071	**THE ASSOCIATION OF LDL CHOLESTEROL ON CARDIOVASCULAR DISEASE**	**E-Poster Viewing: AS03. Cardiometabolic**

		AND MORTALITY IN OLDER DIABETIC PATIENTS: POPULATION-BASED COHORT STUDY	
nan Susana Alemany	O014	**HYPOTHYROIDISM REDUCES PARASITEMIA AND IMPROVES RESPONSE TO INFECTION IN A NON-LETHAL MURINE MALARIA MODEL**	**Oral Abstract Presentations - Thyroid**
nan Suvyaktha Simha	O018	**YOUNG-ONSET DIABETES IN ASSOCIATION WITH INSULIN RECEPTOR SUBSTRATE 2 (IRS2) MUTATION SUGGESTS NOVEL SUBTYPE OF MONOGENIC DIABETES**	**Oral Abstract Presentations - Diabetes 02**
nan Suvyaktha Simha	PV181	**INSULIN SENSITIVITY AND SECRETION BIOMARKERS IN HOMOZYGOTE VS HETEROZYGOTE FAMILY MEMBERS FOR THE PATHOGENIC WRN GENE MUTATION (WERNER SYNDROME)**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Suvyaktha Simha	PV182	**THE “HAVE-NOTS” AND THE “HAVES” WITH TYPE 1 DIABETES: UNIVERSAL DREAM AND QUEST FOR HEALTH CARE PERFECTION (AN EXPERIENCE FROM INDIA)**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Syed Azmal Mahmood	PV151	**TCF7L2 RS12255372 MUTATION AMONG BANGLADESHI ADULT TYPE 2 DIABETES PATIENTS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Syed Hussain	PV009	**HYPERTENSIVE CRISIS IN ADRENOCORTICAL CARCINOMA-INDUCED ECTOPIC CUSHING'S SYNDROME: THE ROLE OF ETOMIDATE INFUSIONS**	**E-Poster Viewing: AS01. Adrenal**

nan Sylvia Riedel	PV172	**ASSESSMENT OF JEJUNAL EOSINOPHIL POPULATIONS IN DIABETIC DB/DB MICE FOLLOWING TREATMENT WITH A GREEN ROOIBOS EXTRACT**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Sylvia Sarwan	PV177	**THE EFFECT OF TIRZEPATIDE DURING WEIGHT LOSS ON FOOD INTAKE, APPETITE, FOOD PREFERENCE AND FOOD CRAVING IN PEOPLE WITH OBESITY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Tahir Ghaffar	PD049	**ENDOCRINE EVALUATION OF PATIENTS HOSPITALIZED WITH COVID 19 INFECTION, A CROSS SECTIONAL ANALYSES IN TERTIARY LEVEL HOSPITAL**	**E-Poster Discussion: Adrenal 02**
nan Tahmina Ferdousi	O019	**SERUM RESISTIN AND ADIPOCYTE FATTY ACID BINDING PROTEIN LEVEL IN DIFFERENT TRIMESTERS OF GESTATIONAL DIABETES MELLITUS**	**Oral Abstract Presentations - Diabetes 02**
nan Tahniyah Haq	PV252	**RISK FACTORS OF GRADE 2 AND 3 OBESITY IN BANGLADESHI CHILDREN – A HOSPITAL BASED STUDY**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Tania Tedjo Minuljo	PV232	**GIGANTISM DUE TO GH-SECRETING PITUITARY ADENOMA IN A 22 YEAR OLD MAN**	**E-Poster Viewing: AS06. Growth Hormone**
nan Tania Tofail	PV195	**POLYMORPHISM OF TCF7L2 RS12255372 AND ADIPOQ RS1501299 ARE NOT ASSOCIATED WITH GESTATIONAL DIABETES MELLITUS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Tania Tofail	PV317	**A CASE OF RECURRENT MACROPROLACTINOMA**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**

		CONTEMPLATING PREGNANCY	
nan Tarachand Devrajani	PV110	**RELATIONSHIP BETWEEN AGING AND CONTROL OF METABOLIC SYNDROME WITH TELOMERE SHORTENING- A CROSS-SECTIONAL STUDY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Tasnim Ahsan	PV033	**A DIAGNOSTICALLY CHALLENGING CASE OF HYPERCALCEMIA CAUSED BY A NOVEL HOMOZYGOUS VARIANT MISSENSE MUTATION IN CYP24A1 GENE**	**E-Poster Viewing: AS02. Bone**
nan Tasnim Ahsan	PV283	**12TH CRANIAL NERVE PALSY- A VERY RARE PRESENTATION OF PITUITARY MACROADENOMA**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Tasnim Ahsan	PV365	**MYOSITIS- A RARE CLINICAL MANIFESTATION OF HYPOTHYROIDISM: A CASE SERIES STUDY FROM KARACHI-PAKISTAN**	**E-Poster Viewing: AS12. Thyroid**
nan Tasnim Ahsan	PV366	**KIMURA'S DISEASE MASQUERADING AS GRAVE'S ORBITOPATHY.**	**E-Poster Viewing: AS12. Thyroid**
nan Tatjana Isailovic	PV133	**"SURPASS(ING)" AN ERA OF BASAL-BOLUS INSULIN THERAPY: TIRZEPATIDE VS INSULIN LISPRO TID ADDED-ON TO POORLY CONTROLLED BASAL INSULIN-TREATED TYPE 2 DIABETES!**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Tatsuma Kondo	PV301	**TRANSPLANTATION OF ACTH-SECRETING HUMAN PLURIPOTENT STEM CELL (HPSC)-DERIVED PITUITARY CELLS.**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**

nan Tatyana Shkeleva	PV242	**PREVALENCE OF COMMON VARIANTS IN TESTOSTERONE METABOLISM GENES IN PATIENTS WITH CLINICAL MANIFESTATIONS OF TESTOSTERONE DEFICIENCY.**	**E-Poster Viewing: AS07. Health Systems/Care**
nan Teona Kandinashvili	PV386	**COMPLEX ENDOCRINE AND METABOLIC DISORDERS IN A 42-YEAR-OLD MALE**	**E-Poster Viewing: AS12. Thyroid**
nan Terry J. Smith	PV414	**DURABILITY OF TEPROTUMUMAB FOR THE TREATMENT OF THYROID EYE DISEASE (TED) IN CLINICAL TRIALS**	**E-Poster Viewing: AS12. Thyroid**
nan Tetsuya Kawahara	O010	**ACTIVE VITAMIN D TREATMENT AND PREVENTION OF SARCOPENIA IN ADULTS WITH PREDIABETES: RANDOMIZED CONTROLLED TRIAL**	**Oral Abstract Presentations - Diabetes 01**
nan Thanikai Sasikanth	PV231	**BREAST CANCER IN A MALE PATIENT WITH ACROMEGALY AND NORMAL IGF-1 LEVELS**	**E-Poster Viewing: AS06. Growth Hormone**
nan Thanikai Sasikanth	PV407	**APATHETIC THYROTOXICOSIS DUE TO GRAVE'S DISEASE AND MULTI NODULAR GOITER PRESENTING WITH HYPERCALCEMIA**	**E-Poster Viewing: AS12. Thyroid**
nan Tharaka Athukorala	PD007	**A RETROSPECTIVE STUDY ON CLINICAL CHARACTERISTICS, TREATMENT APPROACHES AND OUTCOME DATA OF PATIENTS WITH PROLACTINOMA FOLLOWED UP AT A TERTIARY CARE CENTER IN SRI LANKA**	**E-Poster Discussion: Pituitary**

nan Tomohiro Tanaka	PV275	**DIETARY MEDIUM CHAIN TRIGLYCERIDE IMPAIRS OREXIGENIC ACTION OF GHRELIN**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Tomohiro Tanaka	PV276	**MULTI-OMICS-BASED ANALYSIS OF THE HYPOTHALAMIC REMODELING IN MURINE MODELS OF OBESITY**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Tomoyuki Sasaki	PV271	**VOLUNTARY WHEEL RUNNING IMPROVES A HIGH-FAT DIET-INDUCED INFLAMMATION AND INSULIN RESISTANCE IN HYPOTHALAMIC ARCUATE NUCLEUS AND VENTRAL TEGMENTAL AREA IN MALE MICE**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Tri Hartini Yuliawati	PV279	**WAIST-TO-HEIGHT RATIO CORRELATES WITH LIPID PROFILES IN ADULTS WITH INSULIN RESISTANCE**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Tri Hartini Yuliawati	PV280	**INCREASING PARAMETER OF WHITE BLOOD CELLS INDICATE LOW-GRADE SYSTEMIC INFLAMMATION IN OBESE CHILDREN**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan Trupti Prasad	O022	**EFFICACY OF TERIPARATIDE, ZOLEDRONATE OR DENOSUMAB IN POSTMENOPAUSAL WOMEN WITH TYPE 2 DIABETES MELLITUS AT HIGH-RISK OF FRAGILITY FRACTURES: A RANDOMIZED CONTROLLED PILOT TRIAL**	**Oral Abstract Presentations - Bone/Pituitary/Neuroendocrinology**
nan Tzu Lin Yeh	PV070	**THE ASSOCIATION BETWEEN NEUTROPHIL COUNT AND THE RISK OF CARDIOVASCULAR DISEASE: A COMMUNITY-BASED COHORT STUDY IN TAIWAN**	**E-Poster Viewing: AS03. Cardiometabolic**

nan Uchenna Ugwu	PD004	**KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING GESTATIONAL DIABETES MELLITUS AMONG PREGNANT WOMEN ON ANTENATAL APPOINTMENT IN GOVERNMENT APPROVED HEALTHCARE FACILITIES IN NIGERIA: A CROSS-SECTIONAL STUDY**	**E-Poster Discussion: Diabetes 01**
nan Uliana Frolova	PV239	**METABOLIC SYNDROME IN MEDICAL WORKERS: HEALTH RISKS AND WAYS TO OVERCOME THEM**	**E-Poster Viewing: AS07. Health Systems/Care**
nan Uma Dayashankar	PV108	**"GIVING TREE: T1D-100": EXPERIENCES FROM A PHILANTROPY BASED FREE TYPE 1 DIABETES COMPREHENSIVE CARE PROGRAM IN INDIA (1987-CURRENT)**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Umida Mirzaeva	PV263	**INDICATORS OF CARBOHYDRATE METABOLISM IN PATIENTS DURING THE ACUTE PERIOD OF COVID-19**	**E-Poster Viewing: AS08. Obesity/Lipids**
nan V Vinitharan	PD019	**A RARE MANIFESTATION OF A RARE DISEASE: ECTOPIC ACTH SYNDROME SECONDARY TO OLFACTORY NEUROBLASTOMA**	**E-Poster Discussion: Adrenal 01**
nan V Vinitharan	PV058	**A MIDDLE AGED MAN WITH TUMOUR INDUCED OSTEOMALACIA**	**E-Poster Viewing: AS02. Bone**
nan V Vinitharan	PV321	**NEUROSARCOIDOSIS PRESENTING WITH HYPOTHALAMIC-PITUITARY DYSFUNCTION**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan VAIA LAMBADIARI	PV258	**FAMILIAL PARTIAL LIPODYSTROPHY: CLINICAL FEATURES, GENETICS AND**	**E-Poster Viewing: AS08. Obesity/Lipids**

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nan Vibha Yadav	PV364	**DEVELOPMENT AND VALIDATION OF BONE AGE-GUIDED INTERPRETATION OF GROWTH (BIG), WEB-BASED TOOL FOR EVALUATION OF CHILDREN AND ADOLESCENTS WITH GROWTH AND PUBERTAL DISORDERS**	**E-Poster Viewing: AS11. Technology**
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nan Vinaya Simha	PV183	**RARE CASE OF CONGENITAL GENERALIZED LIPODYSTROPHY IN ASSOCIATION WITH MUSCLE WEAKNESS AND POOR EXERCISE CAPACITY**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
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nan VJOLLCA GODANCI KELMENDI	PV117	**SGLT2I IN PRIMARY AND SECONDARY GLOMERULAR DISEASE**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
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nan Wania Rafaey	PD020	**ECTOPIC GHRH SECRETION FROM ACC (ADRENOCORTICAL CARCINOMA): A CASE REPORT**	**E-Poster Discussion: Adrenal 01**
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nan Wasim Qasim	PV167	**EFFECT OF TECHNOLOGY ON GLYCEMIC CONTROL BY FREESTYLE LIBRE MONITORING AT IBRAHIM BIN HAMAD OBAIDULLAH HOSPITAL EHS**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
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nan Yanina Rebrova	PV068	**SIGNS OF DIABETIC KIDNEY DISEASE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AND HEART FAILURE**	**E-Poster Viewing: AS03. Cardiometabolic**
nan Yanina Saienko	PV175	**PARTICULARITIES OF PHENOTYPES OF PATIENTS WITH TYPE 2 DIABETES MELLITUS AND MYOCARDIAL INFARCTION**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Ygal Plakht	PV067	**LONG-TERM MORTALITY POST MYOCARDIAL INFARCTION AND ACUTE KIDNEY INJURY AMONG PATIENTS WITH AND WITHOUT DIABETES MELLITUS**	**E-Poster Viewing: AS03. Cardiometabolic**
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nan Yoshihisa Sugimura	PV315	**ANTI-RABPHILIN-3A ANTIBODIES AS A BIOMARKER FOR THE DIAGNOSIS OF LYMPHOCYTIC INFUNDIBULO-NEUROHYPOPHYSITIS (LINH) AND THE INVOLVEMENT OF RABPHILIN-3A IN THE PATHOGENESIS OF LINH**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**

nan YOTSAPON THEWJITCHAROEN	PV193	**URIC ACID CRYSTALLURIA FOLLOWING THE RECOVERY PHASE OF DIABETIC KETOACIDOSIS (DKA) – A LESSER KNOWN COMPLICATION OF DKA**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
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nan Yu Cheng Liang	PV013	**VARIABLES INFLUENCING THE ACCURACY OF POSTURAL STIMULATION TESTING IN PATIENTS WITH PRIMARY ALDOSTERONISM**	**E-Poster Viewing: AS01. Adrenal**
nan Yuan Zhang	PV207	**EXOSOMES OF GESTATIONAL DIABETES MELLITUS INDUCE OXIDATIVE STRESS AND REGULATE CELL AUTOPHAGY AND APOPTOSIS VIA TRANSFERRING MIR-152-5P**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Yug Garg	PD065	**PROFILE AND UTILITY OF C-PEPTIDE DERIVED HOMA INDICES IN TYPE 2 DIABETES (T2D) ON INSULIN THERAPY**	**E-Poster Discussion: Diabetes 12**
nan Yug Garg	PV114	**CLINICAL UTILITY OF SERUM C-PEPTIDE ASSAY: REAL LIFE EXPERIENCE FROM A SPECIALITY DIABETES CENTER AND LESSONS LEARNT**	**E-Poster Viewing: AS04. Diabetes / Diabetes Complications**
nan Yug Garg	PV213	**CHALLENGING CASE OF LOW-GRADE PARATHYROID CARCINOMA WITH COEXISTING GRANULOMATOUS LYMPHADENITIS**	**E-Poster Viewing: AS05. Endocrine Cancers**

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nan Yuliya Tishova	O035	**THE PREVALENCE OF ERECTILE DYSFUNCTION AND ITS ASSOCIATION WITH AGE IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA**	**Oral Abstract Presentations - Reproductive Health**
nan Yuliya Tishova	PV348	**ADDING TESTOSTERONE TO "CLASSIC" MENOPAUSAL HORMONE THERAPY IMPROVES NOCTURIA, MUSCLE MASS AND SEXUAL FUNCTION**	**E-Poster Viewing: AS10. Reproductive Health**
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nan Zahra Al Ghareeb	PV368	**7 YEARS' EXPERIENCE OF THYROID NODULE ULTRASOUND GUIDED FNA OUTCOME IN A SINGLE CENTER**	**E-Poster Viewing: AS12. Thyroid**
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nan Zainab Akram Yousif	PV284	**WHEN PTOSIS OPENS THE DOOR TO AN UNUSUAL CASE OF ACTH-DEPENDENT CUSHING'S SYNDROME**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
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nan Zainab Akram Yousif	PV367	**MODERATE TO SEVERE GRAVE'S ORBITOPATHY IN THE FIRST TRIMESTER**	**E-Poster Viewing: AS12. Thyroid**
nan Zamzam Zailon	PV236	**A CASE OF A 35-YEAR-OLD MALE WITH PITUITARY MACROADENOMA PRESENTING AS ACROMEGALY**	**E-Poster Viewing: AS06. Growth Hormone**
nan Zamzam Zailon	PV324	**A CASE OF A 35-YEAR-OLD MALE WITH PITUITARY MACROADENOMA PRESENTING AS ACROMEGALY**	**E-Poster Viewing: AS09. Pituitary/Neuroendocrinology**
nan Zanariah Hussein	PV010	**ADRENOCORTICAL CARCINOMA: EXPERIENCE IN A MALAYSIAN TERTIARY CENTRE**	**E-Poster Viewing: AS01. Adrenal**
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