



Abstract 85985

Abstract Preview**ESC Congress 2023**

Doctor Maria Baturova (EUD ID : 438160)
 Parkhomenko Street 18-7
 194156 - St Petersburg Russian Federation
 Phone : +7 46 46172435 - Fax : +7 7 8122357041
 Email : mbaturova@mail.ru

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M. Baturova¹, P. Van Dam², L SB. Johnson³, G. Smith⁴, P. Platonov⁴ - (1) St Petersburg state university, St Petersburg, Russia and Lund University, Department of Cardiology, Clinical Sciences, Lund, Sweden (2) University Medical Center Utrecht, Utrecht, Netherlands (The) (3) Lund University, Department of Clinical Sciences, Malmö, Sweden (4) Lund University, Department of Cardiology, Clinical Sciences, Lund, Sweden

Background:

Biphasic P waves in inferior leads categorizes interatrial block (IAB) into partial or advanced subtypes. P-wave morphology is highly variable, and visual assessment of P-wave morphology is subjective, especially in case of low-amplitude P waves. CineECG is a non-subjective approach which is not sensitive to signal amplitude, and which can also calculate terminal P-wave angle.

Purpose:

To assess the relationship between P-wave morphology in inferior ECG leads, categorization of the IAB subtypes and terminal P-wave angle using CineECG in an elderly epidemiologic cohort.

Methods:

We included participants with sinus rhythm on an ECG collected 2002-2006 in the general-population based Malmö Preventative Project (n=983, age 70±5 years, 38% females). ECGs were digitally processed using the Glasgow algorithm. IAB was defined as a P-wave ≥ 120 ms and classified regarding as partial (pIAB, P waves affected in none [pIAB-0] or only 1 inferior lead III [p-IAB-1]) or advanced (aIAB, P waves affected in leads III and aVF [aIAB-2] or all 3 inferior leads [aIAB-3, typical aIAB]). All ECGs were also processed using CineECG. The vectorcardiogram was computed from the 12 lead ECG and a generic model of the atria and torso, with average body build and heart orientation. We used the terminal P-wave angle as the variable which describes the direction of the terminal part of P wave in the frontal plane (Figure).

Results:

IAB was documented in 413 (42%) subjects: 344 (35%) had pIAB (199 (20%) with pIAB-0; 145 (15%) with pIAB-1) and 60 (6.5%) had aIAB (45 (5%) with aIAB-2 and 15 (1.5%) with aIAB-3 or typical aIAB). P wave morphology could not be categorized by these definitions in 9 subjects. Terminal P wave angle correlated with P wave morphology (Spearman's $r=0.127$, $p<0.001$) and progressively increased with increase of P wave morphology class from pIAB-0 to aIAB-3 (Figure, Table).

Conclusion:

Morphology variants of IAB can be classified depending on the degree of the terminal P wave angle which correlates with the order and number of bipolar inferior leads. CineECG provides an instrument for 3D quantification of the terminal atrial depolarization direction which can be used to detect IAB in an earlier stage.

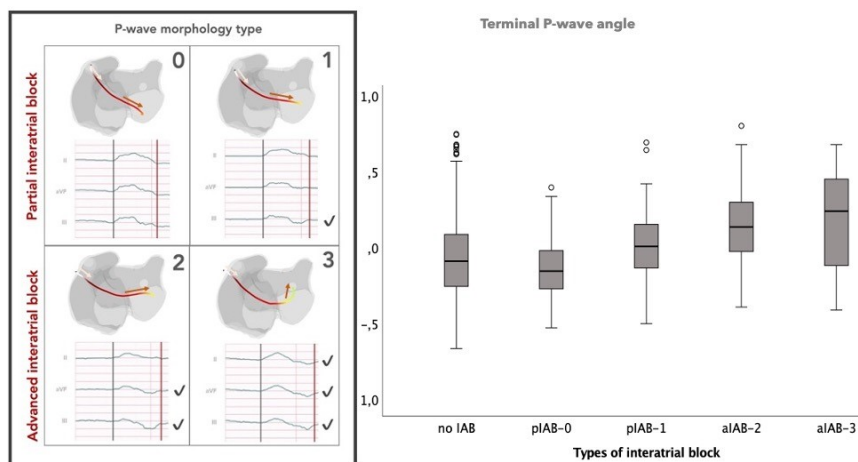


Figure. Atrial depolarisation and IAB.

Table. Terminal P wave angle according to different classes of interatrial block (IAB).

	Mean ± std	P value vs no IAB	P value vs pIAB-0	P value vs pIAB-1	P value vs aIAB-2
No IAB	-0.07± 0.27				
pIAB-0	-0.14± 0.19	0.021			
pIAB-1	0.01± 0.21	<0.001	<0.001		
aIAB-2	0.14± 0.29	<0.001	<0.001	0.044	
aIAB-3	0.18± 0.37	<0.001	<0.001	0.170	0.992