

<https://doi.org/10.35336/VA-1364>

DOES A COMPLETE ATRIAL BLOCK EXIST?

M.M.Medvedev

Saint-Petersburg State University, Russia, Saint-Petersburg, 7/9 Universitetskaya emb.

Terminological problems associated with the definition of intra- and interatrial conduction disorders, the possibility of forming complete interatrial block and criteria for its electrocardiographic diagnosis are discussed.

Key words: atrial cardiomyopathy; interatrial conduction; Bachmann bundle; P-wave parameters; Bayes syndrome; electrocardiography

Conflict of Interest: none.

Funding: none.

Received: 12.05.2024 **Accepted:** 20.05.2024

Corresponding author: Medvedev Mikhail, E-mail: mikhmed@mail.ru

M.M.Medvedev - ORCID ID 0000-0003-4903-5127

For citation: Medvedev MM. Does a complete atrial block exist? *Journal of arrhythmology*. 2024;31(2): e24-e25. <https://doi.org/10.35336/VA-1364>

In recent years, medical literature has increasingly focused on atrial cardiomyopathy and the indices characterizing it. These indices reflect the duration, amplitude, and position of the electrical axis of the P wave and its individual components. In the current issue of the *Journal of Arrhythmology*, an article has been published discussing the role of interatrial block and the characteristics of the electrocardiographic (ECG) P wave as predictors of atrial fibrillation (AF) development and thromboembolic complications. Based on a comprehensive study involving 211 patients, the authors have convincingly demonstrated the significance of advanced interatrial block and other atrial indices. This conclusion is supported by thorough examinations using ECG, Holter monitoring, echocardiography, and contrast-enhanced cardiac magnetic resonance imaging, along with long-term follow-up. Appropriate mathematical models are proposed, and their performance should likely be tested on independent control samples to validate their effectiveness.

In this editorial note, our primary focus is not on the ECG characteristics of P waves, atrial indices, and their prognostic significance, which have been extensively covered in numerous publications, including the current consensus document. Instead, we aim to address issues pertaining to terminology. In this context, it is appropriate to refer to the recommendations provided by the American College of Cardiology (ACC), American Heart Association (AHA), and Heart Rhythm Society (HRS) for the evaluation and management of patients presenting with bradycardia and conduction disorders. Unfortunately, these guidelines do not address intra- and interatrial conduction abnormalities, but there are very important observations that are certainly worth considering. Thus, when describing first-degree atrioventricular block (AVB), it is stated that it is more accurate to call it AV conduction slowing because P waves are not blocked. It is advisable to pay close attention to the definition of complete AVB, which is characterized by

the absence of any signs of AV conduction. This definition naturally raises questions regarding the duration for which these features have been absent and the certainty that they will not reappear in the future. At the same time, it seems reasonable to try to transfer these approaches to the definition of first- and third-degree AVB and to interatrial conduction.

Unlike AV conduction, where normally the atria and ventricles are only connected by the AV connection (which can be blocked), the right and left atria have a larger number of communications that have been described in detail [3]. It is quite challenging to assume that all interatrial connections would spontaneously block simultaneously, preventing the depolarization of the left atrium from following that of the right atrium. However, if we entertain this scenario as plausible, we should anticipate that in complete interatrial block during sinus rhythm, the P wave would comprise solely the right atrial component. Consequently, it would manifest as positive in the inferior leads and relatively «narrow» in appearance. It is likely that the spontaneous occurrence of complete interatrial block can only be assessed in dynamics, precisely on the basis of the «narrowing» of the sinus P wave.

However, life progresses, and in the literature, one can find descriptions of the induction of artificial complete interatrial block during the invasive treatment of AF. The illustration provided in the article not only depicts sinus P waves formed due to the depolarization of the right atrium only, which are distinctly visible following the cessation of AF, but also shows the same waves recorded amidst ongoing AF. This combination of fibrillation in the left atrium and sinus rhythm in the right atrium confirms the creation of complete interatrial block. It is worth noting that clinical observations describing a «combination of left atrial fibrillation/flutter and sinus rhythm» have been reported previously, without any association with invasive or surgical treatment. Upon detailed examination, it was realized that

this ECG pattern was associated with registration artifacts. For ethical reasons, it is not appropriate to cite references to these publications.

Previously, a true combination of AF and sinus rhythm was observed only in patients after heart transplantation. In these cases, AF was present in the recipient's atrial stump, which was completely electrically isolated from the donor heart, while sinus rhythm was registered in the donor heart. Obviously, in the absence of heart transplantation data, it was extremely difficult to interpret such ECGs.

In accordance with the above, it seems reasonable to use the term «deceleration» when referring to interatrial conduction. Meanwhile, the term «block» is appropriate for describing the absence of conduction (whether permanent or temporary) along certain in-

teratrial pathways, such as the Bachmann bundle. Of course, this is merely the author's perspective, as even the ACC/AHA/HRS recommendations suggest that it is «more accurate» to refer to AV conduction slowing rather than first-degree AVB. The term «far-advanced interatrial block» is already widely accepted in medical practice and is unlikely to be replaced by alternatives such as «marked slowing of interatrial conduction» or «complete Bachmann bundle block» in the foreseeable future. On the other hand, it is hoped that the term «complete interatrial block» will be used exclusively in cases where there is no excitation of the left atrium following the depolarization of the right atrium, resulting in no subsequent contraction of the left atrium. This can be verified through echocardiography.

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