LETTER TO THE EDITOR

ECG in athlete: “Normal or pathologic variant?”

Dear Editor,

We read with interest the case reported by Noyes and Schulman titled “Normal variant T-wave changes in an athlete with structurally normal cardiac anatomy and function” (Noyes and Schulman 2016). The authors describe a challenging case, showing a common controversy—interpretation of athlete’s electrocardiogram (ECG). They described a 26-year-old black competitive athlete with occasional episodes of very fast heartbeat unrelated to exertion, associated with mild dizziness, and ECG changes (deep T-wave inversions in inferior-lateral leads). Further investigations did not detect pathology and the ECG findings were classified as a “normal variant.”

We have some comments regarding the management of this case. Independently of the criteria used, the ECG is clearly abnormal and although unremarkable results in imaging tests, we think that it is abusive to classify these findings as a “normal variant” (Papadakis et al., 2011; Pelliccia et al., 2008). This expression may mislead the readers, leading to wrong interpretations with potential adverse clinical impact. As cited in the discussion, abnormal ECGs may represent the initial expression of underlying cardiomyopathies, point that should have been deeply discussed. If these changes were a “normal variant” or an extreme expression of physiological adaptations, a more pronounced structural remodeling would be expected. In the brief description of echocardiogram and cardiac magnetic resonance, it seems to not occur, but the description of “minimal increase in left ventricular wall thickness with slightly greater thickness in the apical region” is intriguing (early manifestation of apical hypertrophic cardiomyopathy, commonly presented with similar ECGs?). Furthermore, the global shape and geometry of the left ventricle do not suggest adaptation to exercise. Other fundamental point is the fact that the athlete was symptomatic. Although not exercise-related and unspecific, those symptoms can be present in disorders as arrhythmias, and exercise testing and 24-hr Holter could help the investigation. In these cases it is mandatory a closer follow-up, but no data were given how the ECG and imaging tests behave in the following 3 years.

Controversial cases in sports cardiology are common and sharing experiences add value to a best approach. This ECG pattern is markedly abnormal and suggestive of pathology until proven otherwise, being important to remember that imaging phenotype may arise later and obscure underlying cardiomyopathy. On the other hand it have been referred warning symptoms and family history “that was concerning for an inherited cardiomyopathy.” We must be very cautious in assessing this type of ECG changes, because its classification as “normal variant” may be a wrong message.

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