

Clinical management of young competitive athletes with premature ventricular beats: a prospective cohort study

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Background. Premature ventricular beats (PVBs) are not an unusual finding and their interpretation is sometimes challenging. Unfortunately, few data on the characteristics of PVBs that correlate with the risk of an underlying heart disease are available in athletes.

Objectives. The aim of this prospective study was to investigate the diagnostic and prognostic value of PVBs characteristics in competitive athletes.

Methods. From a cohort of 1,751 athletes evaluated at our sports cardiology centre, we enrolled 112 competitive athletes <40 years of age (mean age 21 ± 10 years) and with no known heart disease referred for PVBs. All athletes underwent physical examination, ECG, 12-lead ambulatory ECG monitoring, exercise testing, and echocardiography. Further investigations including cardiac magnetic resonance were performed for abnormal findings at first-line evaluation or for specific PVBs characteristics.

Results. The majority (79%) of athletes exhibited monomorphic PVBs with a fascicular or infundibular pattern (common morphologies). A definitive diagnosis of cardiac disease was reached in 26 athletes (23% of the entire population) and correlated with uncommon PVBs morphology ($p < 0.001$) and arrhythmia complexity ($p < 0.001$). The number of PVBs/24-hour was lower in athletes with cardiac disease than in those with normal heart ($p < 0.05$). During the follow-up a spontaneous reduction of PVBs and no adverse events were observed.

Conclusions. Infundibular and fascicular PVBs were the most common morphologies observed in athletes with ventricular arrhythmias referred for cardiological evaluation. Morphology and complexity of PVBs, but not their number, predicted the probability of an underlying disease. Athletes with PVBs and negative investigation showed a good prognosis.

Abstract Figure.

