

The preparticipation screening in young trainers: What do we need exactly?

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Objectives: Studies have indicated that preparticipation screening of trainers may reduce the incidence of sudden cardiac death. The purpose of this study was to assess the utility and feasibility of a comprehensive cardiac screening protocol in young trainers before participation to sports.

Methods: A total of 380 young trainers referring pediatric cardiology clinic before participation to sports, between April 2014 and April 2015 were included in this study. The mean age was 12,4 years. A standart screening protocol has been applied to all, including personal and family history, physical examination, 12-lead electrocardiography (ECG), transthorasic echocardiography (TTE), 24-hour rhythm Holter analysis and exercise testing.

Results: The most frequent complaints were chest pain in 19 (5%) and dyspnea in 13 (3,4%) on exercise, dizziness and fainting in 5 subjects (1,3%). There was sudden death and arrhythmia in 41 subjects (10,7%) at family history. A heart murmur was present in 20 (5,6%) and hypertension in 10 subjects (2,6%) on physical examination. The 12-lead ECG was abnormal (right bundle branch block, ventricular hypertrophy, long QT, extra-systole) in 9 subjects (2,4%). The TTE was normal in 328 (86.3%) and mildly abnormal (rheumatic or structural valve disease, valve regurgitation, septal defect, valve stenosis) in 47 subjects (12,3%). In 5 subjects (1,3%) a structural heart disease (septal defect, ventricular hypertrophy) was detected by TTE. 24-hour rhythm Holter analysis was abnormal (non-sustained VT, sinus pause > 2.5 s, frequent extra-systole) in 6 (1,5%) and mildly abnormal (extra-systole in mid-frequency) in 4 subjects (1%). There was significant ST changes in 2 subjects (0,5%) on exercise testing with normal findings on myocardial perfusion scans. Adding 12-lead ECG, TTE, 24-hour rhythm Holter analysis and exercise testing to medical history, family history and physical examination identified a potentially serious condition in 70 subjects (18,4%).

Conclusions: This study demonstrated no relation between findings of screening protocol and 24-hour rhythm Holter analysis or exercise testing results ($p > 0.05$). Therefore, preparticipation screening in young trainers should consist of a targeted personal history, family history and physical examination. The other tests should be applied only if the screening indicates the presence of a cardiovascular disease.