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Prevalence of ECG abnormalities among healthy male adolescent athletes in two high schools in metro manila

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Background: Student athletes are routinely screened by physicians prior to engaging in sports. In the Philippines, obtaining an electrocardiogram (ECG) is currently not a routine part of the sports clearance but has shown to detect potentially life threatening cardiac diseases that are responsible for the occurrence of sudden cardiac death.

Objective: To determine the prevalence of ECG abnormalities in healthy male athletes aged 13-19 years in 2 high schools in Metro Manila.

Research Design: A prospective cross-sectional study

Methods: A questionnaire was given to the parents of the subjects to obtain information on the subjects' demographic data. Physical examination and medical history was done based on the AHA Guidelines for Pre-participation Cardiovascular Screening of Young Competitive Athletes. ECG was obtained from all subjects. Findings were classified as having no findings, normal-variant ECG changes and uncommon ECG findings for athletes.

Results: Out of the 61 high school athletes enrolled in the study, 3% had completely normal ECG and 25% have normal-variant ECG changes for athletes, most commonly sinus arrhythmia (47%) and sinus bradycardia (16%). The most frequently seen uncommon ECG finding is T-wave inversion in the right precordial leads (69%). Six athletes were identified to be needing referral to a specialist: 1 with biventricular hypertrophy and left atrial enlargement on ECG and a PE finding of a systolic murmur, 2 athletes with prolonged QT and 3 athletes with complete RBBB; none of them had significant findings on history and physical examination.

Conclusion: ECG abnormalities requiring referral to a specialist were detected in about 10% of the athletes who were generally asymptomatic. Adding electrocardiography to the pre-participation screening done in young athletes may increase the chances of detecting potentially fatal cardiac conditions and athletes with or without identifiable risk factors may benefit from it.

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