ECG screening and interpretation patterns among physicians performing preparticipation physical evaluations (PPE)

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BACKGROUND

The role of ECG screening in the preparticipation exam to reduce the risk of sudden cardiac arrest (SCA) and sudden cardiac death (SCD) remains an ongoing discussion. The Preparticipation Physical Evaluation (PPE) monograph is now in the 5th edition and includes information from the AHA, ACC, and AMSSM regarding ECG screening, including a new framework to evaluate the role of ECG screening in the athletic population. The PPE monograph also recommends that if ECGs are utilized, athlete-specific criteria for interpretation should be used. We sought to better understand current practices of physicians performing PPEs with respect to obtaining screening ECGs and interpreting them.

METHODS

A cross-sectional study was performed via online survey provided to pediatric and family medicine providers in the state of Wisconsin. Physicians were asked to report on experiences with ECG screening with PPEs, including how often they are obtained, indications for obtaining them, and how they are interpreted. Additional data, including practice type, was also gathered.

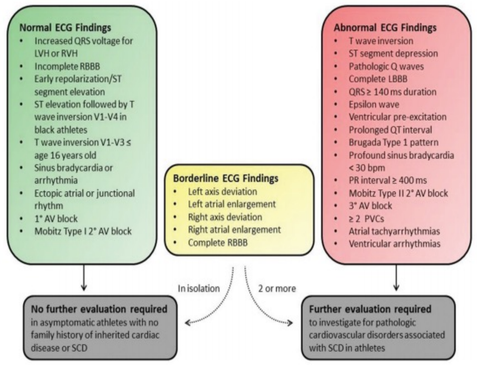

Figure 1 International consensus standards for ECG interpretation in athletes. AV, atrioventricular; LBBB, left bundle branch block; LVH, left ventricular hypertrophy; PVC, premature ventricular contraction; RBBB, right bundle branch block; RVH, right ventricular hypertrophy; SCD, sudden cardiac death.

Primary care providers more often use history and physical exam to determine need for ECG screening during the PPE as opposed to obtaining universal ECGs when evaluating athletes.

For physicians who do obtain ECGs, only a small number use an athlete-specific criteria when interpreting the ECG.

RESULTS

Variable	Overall (N=58)
ECG	
How often are you receiving an electrocardiogram as part of a preparticipation physical evaluation (PPE)?	
0-24% of evaluations	36 (62%)
Only if medically relevant	18 (31%)
Other	4 (7%)
If obtaining an electrocardiogram (ECG) as part of a preparticipation physical evaluation (PPE), what was the indication for ordering an ECG?	
Family History/Cardiovascular symptoms/Physical exam finding	47 (81%)
Universal screening	3 (5%)
When obtaining an ECG, what criteria is being used to interpret the ECG of an athlete?	
Standard adult/pediatric	42 (72%)
Athlete-specific criteria (Seattle, International, European Society of Cardiology)	4 (7%)
Pediatric Cardiologist interpretation	6 (10%)

Variable	Overall (N=58)
Age (n=49)	51.53 (29.65)
Sex	
Female	39 (67%)
Male	18 (31%)
Prefer not to say	1 (2%)
Years in Practice	17.1 (11.1)
Practice Type	
General Pediatrics	30 (52%)
General Family Medicine	16 (27%)
Other	12 (21%)

CONCLUSIONS

Pediatric and family medicine providers predominately take into consideration elements of the personal history, family history, and physical exam to determine the need for ECG screening during the PPE with a small number performing universal screening. When interpreting ECGs, providers generally use a standard approach as compared to athlete-specific criteria.

ADDITIONAL KEY INFORMATION

Additional Resources

Bernhardt D, Roberts W, eds. *PPE: Preparticipation Physical Evaluation*. 5th edition. Itasca, IL: American Academy of Pediatrics; 2019.

Drezner JA, Sharma S, Baggish A, et al. International criteria for electrocardiographic interpretation in athletes: consensus statement. *Br J Sports Med.* 2017;51(9):704-731.

Drezner JA, O'Conner FG, Harmon KG, et al. AMSSM position statement on cardiovascular preparticipation screening in athletes: current evidence, knowledge gaps, recommendations and future directions. *Br J Sports Med* 2017;51(3):153-167.

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