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Screening young athletes – can we ignore that a negative standalone History & Physical Examination could skip high risk cardiac conditions ?

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## INTRODUCTION:

Pre-Participation (PPE) cardiovascular (CV) screening in young athletes is the cornerstone of any evaluation for detecting high-risk CV (hrCV) conditions responsible for sudden cardiac death (SCD) linked with exercise.(2,5) Sometimes, the PPE-CV protocols rely on the standalone History&Physical (H&P), such as the 14-Element AHA Recommendation.(4) Less apparent hrCV conditions may not be readily evident by standalone H&P (1); the association with resting electrocardiography (ECG) and echocardiography (ECHO) is mandatory for the correct diagnosis.

Retrospective study of PPE-CV athletes: To compare the standalone H&P (14-Element) with ECG and ECHO results, recorded for each athlete, according to the protocol. To evaluate the incidence of false positive (positive:  $\geq 1$  of the 14-Elements) (4) and false negative H&P vs ECG/ECHO data.

## METHODS:

Retrospective 6-year (2016-2021) study of 385 highly trained athletes (ath)-football .

Study Group: 211 ath (100% males; 17-37 yo); 178 (84.4%) caucasians, 33 (15.6%) afroamericans. All underwent PPE before competitions. Standard PPE included H&P, ECG (3) and ECHO (5).

## RESULTS:

Height 174 $\pm$ 2 cm; Weight 78 $\pm$ 1 kg; BSA 1.94 m<sup>2</sup>; BP 125 $\pm$ 5 mmHg.

211 ath: 191 (90.52%), normal H&P and ECG; 4 (1.89%) positive H&P; 16 (7.6%) normal H&P and borderline ECG (in time, 1 Brugada type I, 3 WPW). ECHO: 200 (94.7%) normal with normal H&P and 11 (5.3%) abnormal with 4 positive H&P: 2 hypertrophic cardiomyopathy, 2 right ventricular dilation, 1 abnormal origin of coronary artery, 1 dilated cardiomyopathy, 3 stenotic bicuspid aortic valve, 2 mitral prolapse. Coronarography, cardiac MRI indicated accordingly.

## CONCLUSION:

In most cases, standalone H&P correlated with ECG and ECHO, but failed to identify hrCV entities responsible for SCD in 11 (5.31%; 1 Brugada, 3 WPW, 7 abnormal ECHO). No false positive H&P. Asymptomatic rare cardiac conditions are sometimes overlooked by standalone H&P.

Conclusions. PPE-CV screening for identifying hrCV conditions shall include ECG/ECHO.

## References

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