ACC.14
TCT@ACC-i2 | innovation in intervention

A842
JACC April 1, 2014
Volume 63, Issue 12

Heart Failure and Cardiomyopathies

LEFT VENTRICULAR HYPERTROPHY IN ATHLETES: THE "GRAY-ZONE" REVISITED

Poster Contributions
Hall C
Saturday, March 29, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Heart Failure and Cardiomyopathies: Diagnostic, Prognostic and Therapeutic Strategies in Cardiomyopathies
Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical
Presentation Number: 1147-196

Authors: *Stefano Caselli, Martin Maron, José Angel Urbano Moral, Natesa Pandian, Barry Maron, Antonio Pelliccia, Institute of Sports Medicine and Science, Rome, Italy, Tufts University Medical Center*

Background: Differential diagnosis of hypertrophic cardiomyopathy (HCM) from athlete's heart is challenging when absolute left ventricular (LV) wall thickness falls into the gray-zone. Aim of the study was to reassess criteria for differential diagnosis between HCM and athlete's heart when LV wall thickness ranges 13-15 mm.

Methods: Twenty-eight athletes free of cardiovascular disease were compared to 25 HCM patients, matched for LV wall thickness (13-15 mm), age, gender, race and body size. Clinical, electrocardiographic (ECG) and morphologic variables were compared.

Results: Athletes had larger end-diastolic LV cavity (60±3 vs. 45±5mm; p<0.001), aortic root (34±3 vs. 30±3; p<0.001) and left atrium (42±4 vs. 33±5mm; p<0.001) than HCM patients. LV end-diastolic diameter of 54 mm was the best criterion to distinguish HCM from athlete's heart (sensitivity and specificity, 100%; p<0.001). Diastolic function in athletes showed lower A-wave velocity (44±8 vs. 57±18cm/s; p<0.001) and E/e' ratio (6.6±1.2 vs. 9.2±2.5; p<0.001). The e' velocity was higher in HCM patients (12.5±1.9 vs. 9.3±2.3; p<0.001) and values <11.5 cm/s yielded high accuracy for HCM diagnosis (sensitivity 81%; specificity 61%; p<0.001). Finally, absence of diffuse T-wave inversion on ECG (specificity 92%) and negative family history of HCM (specificity 100%) also proved useful for excluding HCM.

Conclusion: In athletes with LV hypertrophy falling in the gray-zone of overlap with HCM, LV diastolic cavity size appears the most reliable criterion, with a cut-off value of 54 mm for differentiation from physiologic athlete's heart. Additional criteria, derived from TDI-imaging, electrocardiogram and family screening provide additional information to aid in the differential diagnosis.