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Sports and Exercise Cardiology

THE ASSOCIATION OF LEFT VENTRICULAR HYPERTROPHY WITH INTRAVENTRICULAR DYSSYNCHRONY AT REST AND DURING EXERCISE IN HYPERTENSIVE PATIENTS

Poster Contributions

Poster Sessions, Expo North

Monday, March 11, 2013, 9:45 a.m.-10:30 a.m.

Session Title: Sports and Exercise Cardiology: Unique Observations during Cardiac Testing

Abstract Category: 29. Sports and Exercise Cardiology: Diagnostic Testing: ECG Exercise or "The Older Athlete"

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Authors: *Hye-Sun Seo, Youn-Haeng Cho, Jae Huk Choi, Jon Suh, Nae-Hee Lee, Soonchunhyang University Hospital, Becheon, South Korea*

Background: Impaired exercise tolerance with dyspnea is common in hypertensive patients and this may be due to the exaggeration of nonuniform ventricular activation during exercise. So we want to evaluate the effect of left ventricular hypertrophy (LVH) on systolic intraventricular dyssynchrony during exercise.

Methods: A total of 85 patients with hypertension who having exertional dyspnea and 30 control individuals were enrolled. Exercise stress echocardiography was performed using a symptom limited, multistage supine bicycle test. To evaluate the dyssynchrony of LV, we calculated the standard deviation (SD) of the averaged time-to-peak systolic velocity (TPS-SD, ms) of 12 middle and basal LV segments obtained from the three standard apical views at rest and peak exercise.

Results: There was no significant difference in systolic blood pressure (BP) and heart rate between the two groups. TPS-SD was significantly higher in patients with LVH at rest (32.6 ± 10.9 vs. 23.8 ± 12.1 ms, $p=0.011$) with exaggeration of the degree at peak exercise. (41.4 ± 13.0 vs. 25.1 ± 12.9 ms, $p<0.001$) Multiple regression analysis showed LV mass index was independently associated with LV dyssynchrony at peak exercise ($\beta=0.515$, $P=0.001$) when controlled for age, sex, and systolic BP at peak exercise

Conclusions: Intraventricular systolic dyssynchrony during exercise is significantly associated with the degree of LVH in hypertensive patients.