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Pericardial/Myocardial Disease

LEFT VENTRICULAR OUTFLOW TRACT OBSTRUCTION IMMEDIATELY AFTER EXERCISE IN PATIENTS WITH NON-OBSTRUCTIVE HYPERTROPHIC CARDIOMYOPATHY

ACC Moderated Poster Contributions

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Background: Despite latent obstruction (LO) having been shown to be associated with poorer prognosis in patients with non-obstructive hypertrophic cardiomyopathy (HCM), its hemodynamic and geometric determinants are not fully understood. Therefore, we evaluated the hemodynamic and geometric determinants of LO in patients with non-obstructive HCM.

Method: A total of 35 patients with non-obstructive HCM underwent stepwise supine bicycle exercise echocardiography. Trans-left ventricular (LV) outflow tract pressure gradients, mitral geometric parameters, LV ejection fractions and LV end-systolic and diastolic dimensions were measured at each stage.

Results: The highest peak LV outflow tract pressure gradient predominantly occurred immediately after exercise (n=32, 91%) rather than during peak exercise (n=3, 9%). Significant LO developed in nine patients (25%). Patients with LO were related to lower LV end-systolic dimension, longer residual mitral leaflets (defined as residual portions of leaflets after coaptation; 4±4 vs. 13±4 mm, p<0.001) and higher resting LV outflow tract pressure gradients (7.4±3.7 vs. 12.9±5.8 mmHg, p=0.001). Substantial decreases in mitral annular diameters from peak exercise to recovery immediate after exercise were observed in the LO group, while continuous increased in the non-LO group (Δchange; -7.0±2.1 vs. 0.5±2.0 mm, p=0.001).

Conclusion: The highest peak LV outflow tract pressure gradient predominantly occurred immediately after exercise rather than during peak exercise, regardless of LO. Abrupt decrease in mitral annular diameter immediately after exercise, a longer residual mitral leaflet and a higher resting LV outflow tract pressure gradient at rest might be related to LO.