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Prognostic importance of left ventricular hypertrophy in patients undergoing dobutamine stress testing

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Objective

To determine if left ventricular hypertrophy (LVH) influences the prognostic utility of dobutamine cardiovascular magnetic resonance (DCMR) stress test results.

Background

Although LVH is associated with adverse cardiovascular outcomes and occurs in 10% to 25% of patients referred for clinical DCMR stress testing, the influence of LVH on the prognostic utility of DCMR wall motion stress test results is unknown.

Methods

Three hundred sixty-two (362) participants, aged 64 ± 12 years (55% men) underwent DCMR for determination of inducible ischemia, and then were followed for 6 ± 2 (range 0.5 to 11.5) years to assess the post-DCMR occurrence of MI or cardiac death assessed by researchers blinded to the results of DCMR. Using previously established criteria, LVH was defined as > 96 g/m^2 in men and > 77 g/m^2 in women.

Results

LVH was present in 56 participants (16% of the men and.15% of the women, referred for testing; p = 0.77). Abnormal LV geometry was identified in 40% of the participants with 24% concentric remodeling, 6% concentric hypertrophy, and 10% eccentric hypertrophy. Seventy-one (20%) participants experienced a MI or cardiac death. The MI and cardiac death rate was more frequent in those with versus those without LVH (32% vs. 17%, p = 0.01). In a multivariable analysis that accounted for the presence of pre-existing coronary artery disease, hypertension, diabetes, stress-induced ischemia, or reduced resting LVEF, LVH was the independent predictor of MI and cardiac death (HR 1.8, 95% CI 1.05-3.22, p = 0.032) Figure 1.

Conclusion

LVH forecasts future MI and cardiac death in patients with chest pain referred for dobutamine cardiac stress testing. LVH should be measured and reported in non-invasive cardiac stress tests, particularly those without inducible ischemia, in which otherwise one would assume a favorable cardiac prognosis.

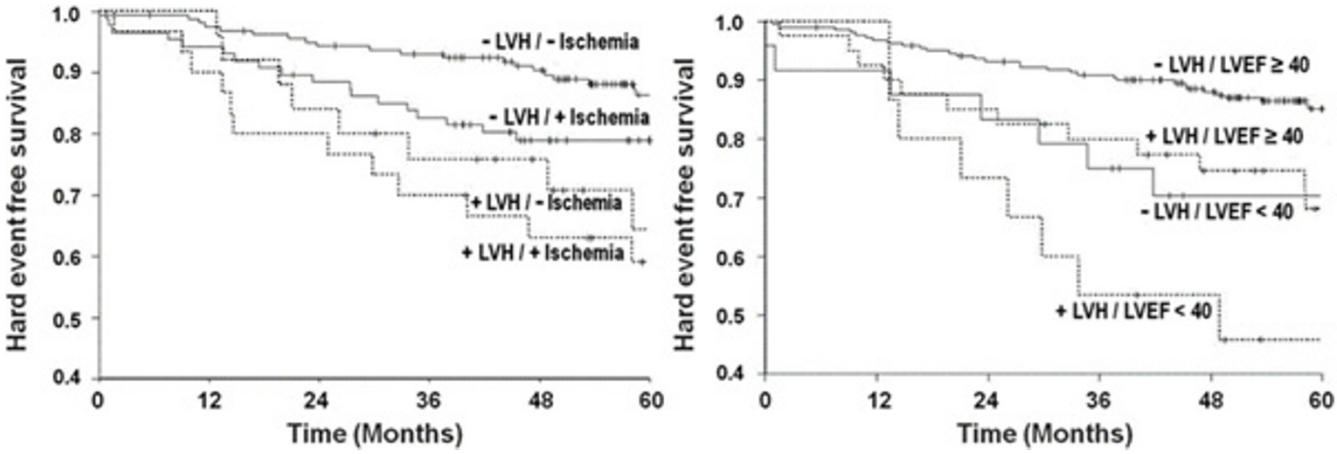

Figure 1