PROGNOSTIC IMPLICATIONS OF SUBMAXIMAL (<85% MPHR) STRESS ECHOCARDIOGRAPHY

ACC Moderated Poster Contributions
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Background: Submaximal stress testing, <85% maximum predicted heart rate (MPHR) may be non-diagnostic in evaluating coronary artery disease. The purpose of this study was to evaluate the prognostic implications of submaximal stress echocardiography (SEcho).

Methods: We evaluated 811 patients (60 ± 13 years; 55% male) with submaximal SEcho (<85% MPHR). Resting left ventricular ejection fraction and regional wall motion were assessed. The left ventricle was divided into 16 segments and scored on 5-point scale of wall motion. Abnormal SEcho was defined as stress-induced ischemia (wall-motion score of ≥1 grade). Follow-up (3.2 ± 1.5 years) for non-fatal myocardial infarction (n = 29) and cardiac death (n = 49) were obtained.

Results: By univariate analysis, both resting ejection fraction (p<0.0001) and number of new ischemic wall motion abnormalities (p<0.0001) were significant predictors of cardiac events. Cumulative survival in patients with <85% MPHR was significantly worse in patients with abnormal (ischemic) vs. normal (nonischemic) SEcho (4.5%/year vs. 1.4%/year, p<0.0001)(Graph). Multivariate logistic regression analysis identified number of new ischemic wall motion abnormalities as the strongest predictor of cardiac events (RR 2.8, 95% CI 1.5-4.9, p=0.001).

Conclusions: In normal SEcho, the inability to achieve 85% MPHR conferred an event rate >1.0%/year. Abnormal SEcho at submaximal heart rate conferred a high event rate (4.5%/year) and poor prognosis.

![Graph showing cumulative survival with normal and abnormal SEcho](image-url)