Abstract: P300

LVEF Reserve- Is it a strong independent predictor of severe myocardial ischemia in CAD patients

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Introduction

Changes in LV function between rest and stress MPI have increased diagnostic and prognostic significance.

Aim

Our aim is to evaluate the relevance of LVEF reserve in patients with established coronary artery disease.

Methods

105 patients ( M : F = 65 : 35) with angiographically proven CAG underwent same day stress – rest gated myocardial perfusion SPECT (exercise : pharmacological = 72 : 33) between Jan 2015-17 using ECAM dual head variable angle gamma camera. Visual & quantitative analysis was performed. Perfusion defects were scored using a 17-segment model. A fall in LVEF was considered significant if the post-stress LVEF was =5% below the rest value. Follow-up data were available in 75 patients for the occurrence of cardiac death, nonfatal myocardial infarction, or unstable angina requiring revascularization.

Results

20 % (21/105) patients showed a fall in post-stress LVEF by =5% and also exhibited a higher summed stress score (p < 0.05), summed difference score (p < 0.001), and rest LVEF (p < 0.001) compared to patients with no change in LVEF. Conversely, summed rest score, a measure of infarct size, was comparable between the two groups. At multivariable analysis, summed difference score and rest LVEF were independent predictors (both p < 0.001) of post-stress LVEF reduction. Abnormal findings were evident in a higher number of pts undergoing pharmacological stress. Perfusion abnormalities noted in 63% patients with post-stress LVEF reduction in 57% of those without a change (p = 0.16). The overall event-free survival was lower in patients with post-stress LVEF reduction than in those without (log rank ?2 7.7, p < 0.005). After adjusting for clinical data and MPI variables, the hazard ratio for cardiac events for post-stress LVEF reduction was 1.52 (p < 0.01). Patients with left main or triple vessel CAD showed a mean LVEF reserve of -7.6%. Patients with LVEF reserve of +5% have a negative predictive value of 94% for excluding severe left main or triple vessel disease. An LVEF reserve of less than 0 is associated with a 1.5 fold increase in cardiac events in our study.

Conclusion

Our study shows that LVEF reserve is an independent strong predictor of post-stress LVEF reduction in patients with CAD. Reduction in LVEF post-stress is found to increase the risk of subsequent cardiac events.
LVEF reserve is found to be very predictive of severe disease especially in patients undergoing pharmacologic stress MPI.