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Early predictors of left ventricular remodeling after primary percutaneous coronary intervention

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Introduction & Aim: Successful primary percutaneous coronary intervention (PPCI) reduced the mortality of patients with acute myocardial infarction (AMI). However, increased survival rate resulted in increased incidence of left ventricular (LV) remodeling. Ventricular remodeling is a predictor of heart failure thus it assumes a negative prognostic value. The aim of the study is to assess the percentage of LV remodeling and to identify early predictors of LV remodeling after PPCI.

Material & Methods: We included 152 patients diagnosed as acute STEMI who underwent successful PPCI. All patients were examined by transthoracic echocardiography at discharge and 6 months later. LV remodeling defined as increase in LV end diastolic volume index (LVEDVI) >20%. Patients grouped into LV remodeling group I and without LV remodeling group II. The following factors affecting LV remodeling were evaluated: Type of infarct related artery (IRA), number of vessels affected, use of thrombus aspiration, type of stent used, post PCI TIMI flow, time to reperfusion, wall motion score index (WMSI) and cardiovascular risk factors.

Results: Remodeling occurred in 32.2% of our patients. Anterior MI was significantly higher in group I patients (89.8%) vs. (44.7%) in group II patients (P value=0.00). Left anterior descending (LAD) artery affection was significantly more in group I patients (89.8%) vs. (45.6%) in group II patients (P value=0.00). Ejection fraction noticed to be significantly greater at baseline in group II patients (51±6.81%) vs. (41.4±6.59%) in group I patients (P value=0.00) while group I patients had significant higher WMSI (1.66±0.19) vs. (1.28±0.17) in group II patients (P value=0.00).

Conclusion: LV remodeling occurred in 32.2% of patients. Univariate regression analysis showed that patients with ECG diagnosis as (anterior MI), WMSI (>1.5), Ejection fraction (\leq 45%) and IRA as (LAD) were at high risk for LV remodeling (P<0.05). Multivariate regression analysis of significant predictors showed that WMSI (>1.5) and IRA as (LAD) are the only independent predictors for LV remodeling after PPCI (relative risk; 3.2 and 2.6, respectively).

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