



Imaging

ASSOCIATION BETWEEN GLOBAL LEFT VENTRICULAR LONGITUDINAL STRAIN AND LEFT VENTRICULAR REMODELING AFTER STEMI

Poster Contributions

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Background: Myocardial infarct size is a major determinant of subsequent left ventricular (LV) remodeling after ST-segment elevation myocardial infarction (STEMI). Global longitudinal strain (GLS) has been proposed as a novel marker of infarct size. We aimed to assess whether baseline LV GLS is associated with 3- and 6-month LV remodeling in a large contemporary STEMI population.

Methods: Consecutive patients with first STEMI treated with primary percutaneous coronary intervention were included. Baseline LV GLS was measured with 2-dimensional speckle-tracking echocardiography and patients were dichotomized based on the median value. The independent relation between LV GLS groups and LV end-diastolic volume (EDV) at 3- and 6-months (adjusted for important confounding clinical and echocardiographic variables) was assessed.

Results: LV GLS measurement was feasible in 1068 (98%) of STEMI patients (60±12 years, 76% male). Median LV GLS was -14.9%. Baseline LVEDV did not differ significantly between LV GLS groups (98±31mL for GLS ≤-14.9% (n=539) vs. 108±36mL for GLS >14.9% (n=529), p=0.1). However, those with baseline LV GLS >-14.9% compared to ≤-14.9% exhibited greater LV dilatation at 3- and 6-months (LVEDV 124±43 vs. 107±36mL, p<0.001 and 122±44 vs. 102±34mL, p<0.001 respectively; group-time interaction term p<0.001). This association retained the same statistical significance after adjustment for age, gender, presence of diabetes and/or multivessel disease, cardiac troponin T (TnT), left anterior descending (LAD) infarct, discharge heart rate, mitral regurgitation grade, Killip class, symptom to balloon time and beta-blocker and/or angiotensin converting enzyme-inhibitor prescription at discharge. Furthermore, LV GLS provided incremental value for LV remodeling prediction to a model containing other significant clinical predictors (male gender, LAD infarct, TnT, discharge heart rate) plus wall motion score index (global X2 624, 762 and 788 respectively, p<0.001).

Conclusion: LV GLS measurement prior to discharge after STEMI provides a novel, widely available tool to predict follow-up LV remodeling independent of variables more traditionally used to assess infarct size.