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Meeting abstract

100 Prognostic significance of post-procedural irreversible myocardial injury detected by cardiovascular magnetic resonance imaging

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Introduction

Controversy remains over the prognostic significance of revascularization procedure related myocardial injury. Delayed enhancement cardiovascular magnetic resonance imaging (DE-CMR) has been shown to reliably identify areas of irreversible myocardial injury.

Purpose

In the present study, we evaluated the prognostic significance of procedure related myocardial injury in a consecutive series of patients undergoing high risk PCI or CABG.

Methods and Results

152 patients underwent DE-CMR for assessment of new irreversible injury pre and 1 to 6 days post elective PCI or CABG. Primary endpoint was defined as total mortality, non-fatal myocardial infarction (MI), ventricular arrhythmia terminated by ICD (VA), and unstable angina or heart failure requiring hospitalization. Secondary endpoint was the composite of total mortality, non-fatal MI and VA. During a median follow-up of 2.9 years, 27 patients (18%) reached the primary endpoint and 12 patients (8%) the secondary endpoint. 49 patients (32%) had evidence of new myocardial hyperenhancement (HE) with a median mass of 5.0 g (IQR 2.7–9.8). In a univariate analysis, age, LV ejection fraction post intervention, and presence of new HE were predictive of the primary outcome. Elevated troponin (at 24 h) showed a trend towards poorer outcome. In a multivariate Cox regression analysis only age and presence of new HE (Hazard ratio 2.7, 95% CI 1.03, 5.79) remained independently correlated with occurrence of the primary endpoint. New myocardial HE was the single independent predictor of the composite secondary endpoint (HR 4.2, 95% CI 1.07, 16.12).

Conclusion

Even small amounts of procedure-related myocardial injury are associated with poorer medium term clinical outcomes. CMR identified myocardial injury may be a stronger prognostic marker than cardiac troponin in the setting of coronary revascularization.