

Right ventricular remodeling and prognostic relevance after ST-segment elevation myocardial infarction in patients treated with primary percutaneous coronary intervention

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Background: ST-segment elevation myocardial infarction (STEMI) often involves changes in right ventricular (RV) function and size over time. However, the prognostic implications of RV remodeling after STEMI are unknown. The aim of current study was to characterize RV remodeling in post-STEMI patients and to investigate its prognostic relevance.

Methods: RV remodeling in post-STEMI patients who underwent primary percutaneous coronary intervention (PCI) was defined by RV end-systolic area (RV ESA) change at 6 months after STEMI, compared to baseline. The optimal threshold of RV ESA change ($\geq 40\%$) to define RV remodeling was derived from spline curve analysis (Figure 1A). The primary endpoint was the composite of all-cause mortality and heart failure (HF) hospitalization. Long term outcomes were compared between patients with and without RV remodeling by means of a log rank test.

Results: A total of 2280 patients were analyzed (mean age 60 ± 11 years, 76% male) and RV remodeling was present in 320 patients (14%). After a median follow-up of 75 months (interquartile range 50–106 months), the composite endpoint of all-cause mortality and HF hospitalization occurred in 292 patients (13%). After adjustment for various risk factors, including tricuspid annular plane systolic excursion (TAPSE), post-STEMI RV remodeling was independently associated with a higher risk of all-cause mortality and HF hospitalization (HR=1.37, 95% CI 1.00–1.87, $p=0.049$). Finally, patients with RV remodeling were had a significantly lower event-free survival rate compared with patients without RV remodeling during follow-up (log-rank test $p=0.009$) (Figure 1B).

Conclusion: RV post-infarct remodeling is associated with mortality and HF hospitalization, independent of RV systolic function.

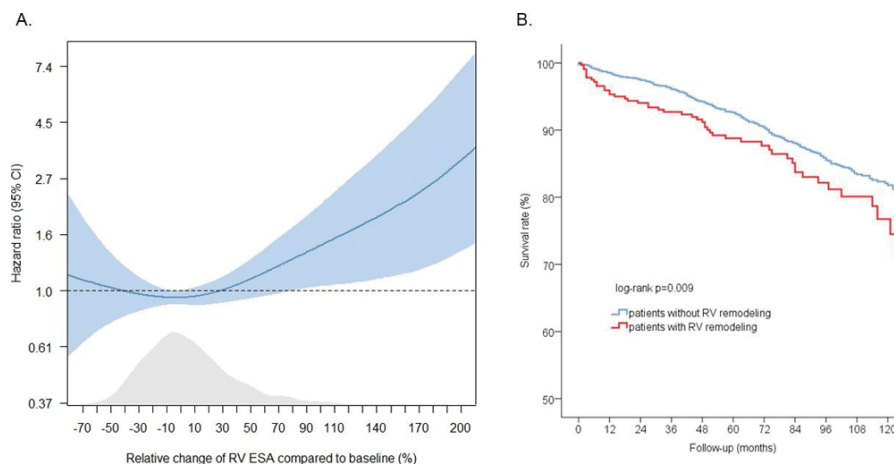


Figure 1. A) Spline and B) Kaplan-Meier curve