CARDIAC MAGNETIC RESONANCE IMAGING AND PROGNOSIS IN ST-ELEVATION MYOCARDIAL INFARCTION: DATA FROM 1217 PATIENTS DERIVED FROM MULTICENTER STUDIES

Oral Contributions
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Authors: Suzanne de Waha, Ingo Eitel, Georg Fuernau, Philipp Lurz, Jochen Woehrle, Henning Suenkel, Josefine Meissner, Sebastian Kerber, Bernward Lauer, Matthias Pauschinger, Ralf Birkemeyer, Christoph Axthelm, Rainer Zimmermann, Steffen Desch, Matthias Gutberlet, Gerhard Schuler, Holger Thiele, University of Leipzig - Heart Center, Leipzig, Germany

Background: Data on the impact on clinical outcome of cardiac magnetic resonance imaging (CMR) parameters in patients with ST-elevation myocardial infarction (STEMI) are limited due to analysis of single-center cohorts and small study sample sizes. Aim of the current study was to investigate the prognostic value of infarct size, microvascular obstruction (MO) and myocardial salvage index (MSI) in comparison to traditional outcome markers in a large cohort of STEMI patients derived from multicenter studies.

Methods: STEMI patients (n=1217) reperfused by primary percutaneous coronary intervention (PCI) within 12 hours after symptom onset underwent CMR at 8 centers in Germany. CMR was performed in median 3 days after the index event (interquartile range [IQR] 2-4). Infarct size and MO were measured 15 minutes after gadolinium injection. T2-weighted and contrast-enhanced CMR were used to calculate the MSI. Traditional outcome markers including age, gender, diabetes, TIMI-flow pre- and post-PCI, as well as ST-segment resolution and left ventricular ejection fraction were assessed in all patients. The primary endpoint was defined as a composite of death, non-fatal myocardial reinfarction and congestive heart failure (MACE). Clinical follow-up was conducted in median after 12 months (IQR 11;13).

Results: Infarct size, MO and MSI were significantly associated with MACE in univariable Cox regression analysis (all p<0.001). In multivariable Cox regression analysis including infarct size, MO and MSI as well as traditional outcome markers such as age, gender, diabetes, TIMI-flow pre- and post-PCI, ST-segment resolution and left ventricular ejection fraction, MSI was independently associated with the occurrence of MACE (hazard ratio 0.98, 95%CI 0.97-0.99, p=0.004).

Conclusion: In this so far largest reported multi-center cohort of reperfused STEMI patients undergoing CMR, infarct size as well as MO and MSI were significantly associated with the occurrence of death, non-fatal myocardial reinfarction and congestive heart failure. Even after adjustment for traditional outcome markers, MSI was identified as an independent predictor for adverse clinical outcome after STEMI.