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Meeting abstract



# 1024 A novel CMR-based myocardial salvage index predicts left ventricular remodeling after acute myocardial infarction: insights from T2-weighted and late gadolinium enhancement imaging

Hassan Abdel-Aty*, Anja Zagrosek, Ralf Wassmuth, Steffen Bohl, Philipp Boyé, Andre Rudolph, Daniel Messroghli, Wolfgang Utz, Rainer Dietz and Jeanette Schulz-Menger

Address: Franz-Volhard-Klinik, Charité Universitätsmedizin Berlin, Helios-Klinikum Berlin, Berlin, Germany
* Corresponding author

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## Background

Late gadolinium enhancement (LGE) accurately identifies irreversible injury after acute myocardial infarction (AMI). T2-weighted imaging has the ability to quantify the area at risk in the same setting. We investigated the value of a novel myocardial salvage index based on the difference between the extents of T2-weighted abnormality and LGE to predict long-term left ventricular remodeling after AMI.

## Methods

We enrolled 41 patients (31 males, 56 ± 11 y) 3 ± 2 days after successful infarct reperfusion by PCI. Thirty-five patients returned for follow up 15 ± 13 months (median 12 months) after the acute event. The CMR protocol consisted of cine steady state free precession, triple inversion recovery T2-weighted and late gadolinium enhancement imaging (10 minutes after the iv injection of gadolinium-DTPA). Left ventricular volumes and function were quantified independent from the tissue characterization analysis and by different observers. In the acute phase, T2-weighted and LGE images were analyzed by special software (CMR42R, CIRCLE, Calgary) to quantify volumes of abnormal signal, which were expressed as a percent of the total LV volume. The difference between T2 and LGE extents (T2-LGE) was then calculated as a measure of myocardial salvage. The primary end-points were the change in end-diastolic volume (delta-EDV) and end-systolic volume (delta-ESV) over time.

## Results

T2-weighted abnormalities were detected only during the acute phase. T2-LGE but not LGE alone ($p = 0.1$) correlated with the time to reperfusion ($r = -0.39$; $p = 0.014$). Both T2-LGE ($r = -0.52$; $p = 0.002$) and LGE alone ($r = 0.41$; $p = 0.018$) correlated with delta EDV. T2-LGE correlated with delta-ESV ($r = -0.39$, $p = 0.026$) but LGE alone did not ($p = 0.43$).

The relation between T2-LGE, delta EDV and delta-ESV remained significant after correcting for the inter-study duration, time to reperfusion, ejection fraction and LGE extent.

## Conclusion

We propose a myocardial salvage index based on the difference between T2-weighted abnormality and late gadolinium enhancement. This novel CMR-based parameter may have the potential to serve as a surrogate end-point in studies assessing the efficacy of infarct reperfusion strategies.