

Meeting abstract

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238 T2-weighted magnetic resonance imaging as marker for area at risk in acute myocardial infarction

Martin Hadamitzky*, Franziska Hermann, Eva Hendrich, Stefan Martinoff and Albert Schömig

Address: Deutsches Herzzentrum München, Munich, Germany

* Corresponding author

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Purpose

Increased signal intensity in T2-weighted magnetic resonance imaging (MRI) is a typical finding in acute myocardial infarction. In an animal model a strong correlation between the area of increased T2 signal and the perfusion defect (area at risk) could be demonstrated, but clinical data for the role of T2 imaging as a marker for the area at risk are limited.

Methods

22 patients with acute myocardial infarction (interval between start of symptoms and intervention below 24 h) underwent both myocardial single photon emission computed tomography (SPECT) with 99 mTc-Sestamibi applied before coronary intervention and cardiac MRI with fat suppressed T2-weighted turbo spin echo sequences 3 ± 2 days after intervention. The area of increased T2 signal was quantified visually. In SPECT the area of risk was defined as area of intensity below 50% of maximum. Both values were expressed as fraction of left ventricular myocardial volume.

Results

The defect size ranged between 0% and 58% (23% median) in T2 weighted MRI and between 0% and 57% (29% median) in SPECT. There was a highly significant correlation between the two measurements with a correlation coefficient of 0.82 as depicted by the image below. T2 weighted MRI underestimated the defect size by 17% compared with SPECT (Figure 1).

Conclusion

Although the number of patients is small, this study clearly demonstrates the potential of T2 weighted MRI as a marker for the area at risk in acute myocardial infarction avoiding the radiation associated with conventional SPECT imaging.

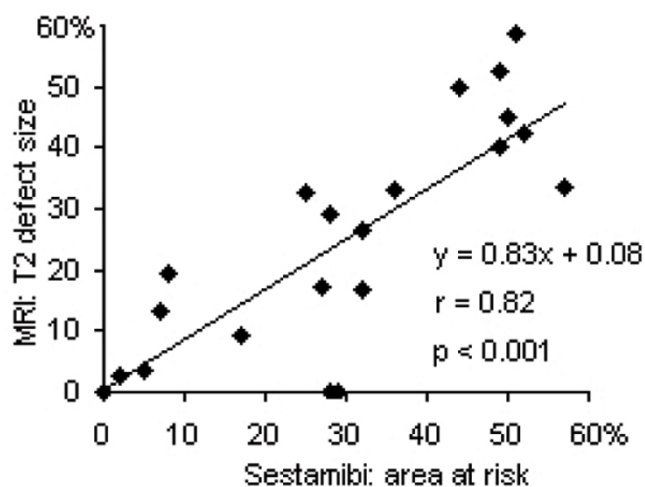


Figure 1

Showing a strong correlation between T2 weighted MRI and preinterventional SPPECT imaging in acute myocardial infarction this study demonstrates the potential of T2 weighted MRI as a marker for the area at risk in acute myocardial infarction.