

Meeting abstract

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241 Cardiac T2* MRI at 3.0 Tesla for the detection of myocardial ischemia

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Introduction

Alterations of myocardial oxygenation/microcirculation can be studied by measurements of the transverse relaxation time T2*, which represents a measure for the oxygenation level of hemoglobin.

Purpose

Purpose of this study was to evaluate the diagnostic performance of cardiac T2* measurements during adenosine stress for the detection of myocardial ischemia.

Methods

16 patients (mean age 63 ± 9 years, 6 female) suspected of having coronary artery disease and being scheduled for invasive coronary angiography underwent cardiac MR (CMR) imaging at 3.0 T (Philips Achieva, Best, NL). T2* measurements were performed in 3 short axis slices of the heart (6 echoes per slice) at rest and under adenosine stress (140 µg/kg/min over 6 min).

Quantitative coronary angiography served as standard of reference (significant luminal diameter narrowing ≥ 50%). Average T2* values of the myocardium were calculated from the mean value of the signal intensities in the ROI using the standard 16 segment model.

Results

7 patients (44%) had significant coronary disease; T2* measurement resulted in a sensitivity and specificity of

86% and 67%, respectively (patient based analysis; area-under-curve from ROC-analysis: 0.65).

Conclusion

Cardiac T2* measurements under adenosine stress at 3 T can detect myocardial ischemia in the presence of coronary artery stenosis.