

Poster presentation

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## Contrast-enhanced mri patterns early and later after heart transplantation

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### Introduction

In heart transplant (HTX) patients (pts.), contrast enhanced MRI (CE-MRI) allows myocardial tissue characterisation and identification of infarct- typical/-atypical C-MRI patterns which have prognostic implications. Recently it was shown that even pts. With mild transplant coronary artery disease (TCAD) on X-ray already suffered from myocardial infarction (MI) or fibrosis whereas scarce data exists about the time course of these events.

### Purpose

We sought to investigate CE-MRI patterns in pts. early and late after HTX.

### Methods

Group 1 (32 pts.; mean = 1,4 ys (range = 0.4-3.0 ys.) after HTX) and group 2 (31 pts.; mean = 8.8 ys (range = 3,4-16,8 ys) after HTX) were scanned on a 1.5 T MRI scanner (ACHIEVA, Philips, NL) with MRI contrast agent (Gadolinium:0.2 mmol/kg/bw) employing an inversion-recovery multislice T1-weighted TFE sequence (TR/TE = 3.0/1.1; slices = 11-22; matrix = 160/240, TF-factor = 35; TI190-250 ms). Infarct-typical CE-MRI areas were classified as sub-endocardial lesions. Infarct-atypical forms were divided into diffuse, spotted, intramural and infero-septal CE-MRI patterns and analysed with the 17-segment model. Groups were compared using ANOVA (p-values  $\leq 0.05$  = statistically significant).

### Results

Infarct-typical CE-MRI was already seen in 8/32 pts (25%) of group 1 (11/544 segments) and in 14/31 pts. (45%) of group 2 (26/527 segments;  $p < 0.01$ ). Conversely, atypical CE-MRI was extensively seen in 26/32 pts (81%) of group 1 (165/544 segments) but only in 16/31 pts. (52%) of group 2 (40/527 segments;  $p < 0.01$ ). Atypical CE-MRI forms of group 1 and 2 were statistically distributed equally ( $p = n.s.$ ).

### Conclusion

Even early after HTX already 25% of pts. suffered from MI whereas later after HTX almost half experienced an MI. In the early phase after HTX, atypical CE-MRI is by far more prevalent when compared to group 2, potentially due to disturbed integrity of the vasculature or due to infections or rejections. Once the early phase is overcome, long-term complications like MI will be more prevalent due to TCAD.