Poster presentation

Magnetic resonance imaging allows acute and long-term identification of myocardial injury in patients receiving pulmonary vein isolation

Anil-Martin Sinha*[1], Nathan Burgon[2], Christian Mahnkopf[1], Guido Ritscher[1], Thom Haslam[2], Maximilian Kunzelmann[1], Martin Schmidt[1], Harald Marschang[1], Nassir F Marrouche[2] and Johannes Brachmann[1]

Address: [1]Klinikum Coburg, Coburg, Germany and [2]University of Utah, School of Medicine, Salt Lake City, UT, USA

* Corresponding author

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Introduction
Pulmonary vein antrum isolation (PVAI) is regarded as an effective therapy in patients with atrial fibrillation (AF). Extension and location of ablation lesions often remain unclear during the procedure.

Purpose
To report a new approach on visualization of myocardial injury using cardiac magnet resonance imaging (CMR) during PVAI procedures, and to compare the results with long-term data.

Methods
Patients who underwent PVAI, received CMR before, at the terminal phase of PVAI, and 13 ± 3 weeks after PVAI. Delayed enhancement (DE) sequences were applied, and maximum intensity projections (MIP) obtained. Myocardial injury size was then measured on manually segmented 3D images by a computer algorithm using dynamic thresholding.

Results
20 patients (13 male, age 62 ± 9 years) received CMR (Siemens Espree 1.5 T, Germany) before, during and after the PVAI procedure. Using DE-MRI, the average lesion to healthy myocardium ratio was 15.3 ± 7.2% during, and 15.7 ± 6.4% long-term after PVAI. Figure 1 shows an example of MIP of a DE scan in 2D (A-C) and 3D segmentation (D-F) in a anterior view pre (A, D), during (B, E), and long-term after PVAI (C, F). Myocardial injury is iden-
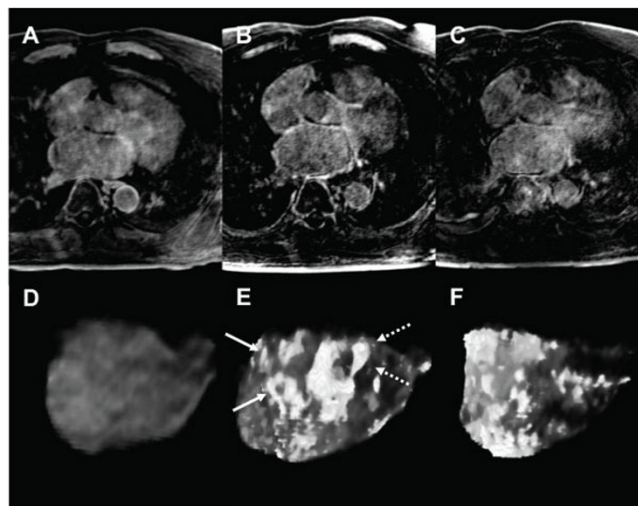

Figure 1

tifiable as white tissue around PV single ostia (full arrows) and common trunk (dashed arrows).

Conclusion

CMR is feasible during and after ablation procedures, and allows identification of acute and long-term myocardial injury. Extension of scar tissues seemed to be stable during long-term follow-up. Therefore, this new CMR approach might support current ablation techniques, and thus might improve long-term success of PVAI.