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TCT@ACC-12 | innovation in intervention

A288

JACC April 1, 2014

Volume 63, Issue 12

 **Arrhythmias and Clinical EP****TECHNOLOGICAL, PROCEDURAL AND PATIENT CHARACTERISTICS DETERMINE THE RISK FOR SILENT CEREBRAL LESIONS IN PATIENTS UNDERGOING ATRIAL FIBRILLATION ABLATION**

Oral Contributions

Room 146 C

Saturday, March 29, 2014, 9:00 a.m.-9:15 a.m.

Session Title: Cutting Edge Questions in Atrial Arrhythmias

Abstract Category: 4. Arrhythmias and Clinical EP: AF/SVT

Presentation Number: 902-07

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Background: Silent cerebral lesions (SCL) have been identified on magnetic resonance imaging (MRI) in asymptomatic patients after atrial fibrillation (AF) ablation. SCL represent irreversible cerebral damage, comparative analysis using a consistent MRI definition is missing and factors influencing the risk of SCL are poorly understood.

Methods: 297 Patients undergoing AF ablation underwent post-ablation cerebral MRI. SCL were identified based on a sensitive definition using a 1.5Tesla MRI including DWI and ADC-map (but not including FLAIR). AF ablation was performed either using irrigated single-tip radiofrequency (RF) ablation (group 1, N=44), phased RF pulmonary vein isolation (PVI) (group 2, N=129), PVI plus additional phased RF ablation of left atrial fractionated electrogram sites using multipolar catheters (group 3, N=13), endoscopically-guided laser balloon (group 4, N=27), cryo-balloon PVI (group 5, N=34) and irrigated RF multipolar catheters (nMARQ) (group 6, N=50). Differences in regard to SCL rates were analyzed.

Results: In group 1 20%, in group 2 37%, in group 3 87%, in group 4 37%, in group 5 21% and in group 6 32% of patients had documented SCL. The incidence of SCL was significantly higher in group 3 patients compared to all other groups. There was a significantly higher incidence of SCL in patients with compared to without exchanges of catheters over a single transseptal sheath (34% vs. 18%, $p=0.007$) and in patients with left atrial dilation (48% vs. 30%, $p=0.01$). In a subgroup analysis incidence of SCL was lower when patients were ablated under continued oral anticoagulation (11%) compared to novel oral anticoagulants (33%) or without continuous appropriate anticoagulation bridged with low-molecular weight heparin (45%).

Conclusions: When using a sensitive MRI definition of SCL incidences are relevantly higher compared to using the "old" definition including the FLAIR-sequence. Technology-associated and procedural characteristics associated with a higher risk of SCL have been identified. Modification of procedural steps of the AF ablation procedure may further reduce the risk of SCL.