

Conclusions: Our study suggests that hybrid ablation therapy is necessary in most patients to achieve PV disconnection after a maximum of 4 blinded applications of balloon-cryotherapy (especially in inferior PVs), with a significant short-term success rate.

PO03-35

GANGLIONATED PLEXI ABLATION FOR PAROXYSMAL AND PERSISTENT ATRIAL FIBRILLATION: A PROSPECTIVE RHYTHM ANALYSIS WITH CONTINUOUS ECG MONITORING

Evgeny Pokushalov, MD, PhD, Alexander Romanov, MD, Alexey Turov, MD, Pavel Shugaev, MD, Sergey Artemenko, MD and Nataliya Shirokova, MD. State Research Institute of Circulation Pathology, Novosibirsk, Russian Federation

Introduction: Rhythm follow-up after catheter ablation of atrial fibrillation (AF) is mainly based on Holter electrocardiogram (ECG), tele-ECG or on patients' symptoms. Ablation of ganglionated plexi (GP) is a promising method for the treatment of AF. However, studies using 7-day Holter or tele-ECG follow-up revealed a significant number of asymptomatic recurrences.

Methods: Radiofrequency ablation of the main clusters of GPs in the left atrium was performed in 125 patients with paroxysmal (n = 86) and persistent (n = 39) AF. In all patients, an ECG monitoring device (Reveal XT) was implanted immediately after AF ablation and data were analyzed monthly over a 12-month follow-up period.

Results: The number of patients free of AF gradually increased with a simultaneous decrease in the number of patients taking AADs during the first 4 months follow up. The time course in the number of AF episodes in patients with AF recurrences after catheter ablation showed a decrease in the number of AF episodes in patients with paroxysmal AF and an increase in patients with persistent AF (p<0.05). However, the duration of AF episodes in both groups significantly decreased throughout the follow-up period (p<0.05). In patients with AF recurrences after catheter ablation, short AF episodes of up to 2-h duration accounted for about 90% of all episodes.

In the analysis of all symptom-triggered ECG recordings during the 12-month follow-up, AF was documented only in 31% (5321) of cases. In the remaining 69% (11843) of the cases, there was SR. A detailed analysis of symptom-triggered ECG recordings of the SR showed that patients responded to premature beats (31%), sinus tachycardia (11%), and bradycardia (7%).

Patients with recurrent AF had higher SDNN values (98.7 ± 21.6 vs. 78.4 ± 26.9 m; p < 0.001), higher rMSSD values (31.4 ± 6.7 vs. 19.7 ± 8.3 ms; p < 0.001), and lower LF/HF (1.19 ± 0.09 vs. 1.58 ± 0.08; p < 0.001), indicating less marked parasympathetic denervation compared to patients free of AF as a result of effective RF ablation.

Conclusions: Freedom from AF can be achieved by ganglionated plexi ablation in a high percentage of patients.

PO03-36

MULTI-ELECTRODE PULMONARY VEIN ISOLATION AND LEFT ATRIAL CFAE ABLATION FOR CHRONIC AF WITH BIPOLAR AND UNIPOLAR RF ENERGY: LONGTERM RESULTS AND FOLLOW-UP

Anton Mulder, MD, Maurits Wiffels, MD, PhD, Eric Wever, MD, PhD and Lucas Boersma, MD, PhD. St. Antonius Hospital, Nieuwegein, Netherlands

Introduction: Ablation for chronic AF remains a long and difficult procedure. We evaluated the long term results of a novel standardized multi-electrode catheter approach with alternating bipolar and unipolar RF energy.

Methods: Pts with recurrent chronic AF despite anti-arrhythmic drugs and cardioversion were treated with 3 catheters (Ablation Frontiers Inc) with no additional imaging besides biplane fluoroscopy. The 10-polar PVAC was used for PV isolation, the 3-arm 12-polar MASC for septal CFAE ablation, and the 4-arm 8 polar MAAC for the LA roof, mitral isthmus, LA floor, and posterior wall CFAE ablation. Applications lasted 60 sec at 60°C target temperature at 10W maximum power with duty-cycled bipolar:unipolar RF energy (PVAC 4:1, MASC/MAAC 1:1). Follow-up visits were performed at 3, 6, and 12 mo with repetitive ECG and 7-day Holter recordings. Drugs were stopped at 3 mo if pts became asymptomatic. A second procedure was scheduled when AF recurred >2mo. PV MRI was performed before and >6 mo after the ablation.

Results: Since July 2006, 40 pts (age 59±8 yr, 7 female) underwent the 3 catheter ablation procedure. Procedure and fluoroscopy time decreased from 174±51 and 54±46 min for the first to 100±13 and 19±17 min for the last twenty procedures. The number of applications for PVAC decreased from 29±8 to 23±5 min, but remained the same for MASC (7±3 min) and MAAC (8±5 min). Median FU was 10 mo (range 0-30 mo) with 27 pts>6 mo and 16 pts>12 mo. In 8 of 40 pts a second procedure was performed for early AF recurrence. A 7-day Holter in asymptomatic and/or ECG in symptomatic pts showed freedom of AF in 22/27 pts (81%) at 6 mo, and 11/16 pts (69%) at 12 mo. In all cases where a redo procedure was performed 1 or more PV reconnections were observed. Angiography during the second procedure as well as MRI follow-up showed no evidence for PV stenosis. No other complication like stroke, bleeding, tamponade, or phrenic nerve damage were observed throughout follow-up.

Conclusions: A standardized multi-electrode catheter approach for chronic AF is feasible, time-efficient, and safe. Longterm results beyond 12 mo show 69% freedom of AF.

PO03-37

BIPOLAR ELECTROGRAM REDUCTION IS AN UNRELIABLE ENDPOINT FOR ATRIAL ABLATION

Thomas McElderry, MD, Robbie Robichaux, MD, Heath Carter, MS, Liane Teplitzky, MS, Cheryl Killingsworth, DVM and Takumi Yamada, MD. University of Alabama at Birmingham, Birmingham, AL, St. Jude Medical, Minnetonka, MN

Introduction: Consistent transmural lesion formation is the goal of catheter ablation in order to maximize both safety and efficacy. Bipolar electrogram reduction (EgmR) has been proposed as an endpoint for local atrial ablation. Although commonly employed, there are little data to support this practice. We hypothesized that EgmR directly correlates with lesion volume, depth, and transmural injury in atrial myocardium.

Methods: Twenty-two pigs underwent an ablation procedure utilizing 3 different ablation catheters; two open irrigated (2.5 and 3.5mm electrode tip) and one 8mm standard RF catheter. Four 30sec focal lesions were placed in the LA, posterior RA and along the cavotricuspid isthmus (12 lesions/animal). RF energy was applied in a clinical range (2.5mm = 25W, 55°C; 3.5mm = 30W, 40°C, 8mm = 70W, 55°C). Electrogram amplitude was recorded immediately pre and post-ablation. The animals were sacrificed acutely. The hearts were stained and analyzed at gross necropsy. Lesion measurements and transmural injury were recorded, and correlation to electrogram data was assessed.

Results: A total of 204 lesions were studied. Lesion EgmR > 77% ensured transmural injury (n=19); however, there was no correlation between the degree of EgmR and lesion volume, depth, or transmural injury for any of the catheters. Across the catheters, independent of location, R2 values ranged from 0.002-0.03 for lesion depth, 0.005-0.05 for lesion volume and 0.003-