

Results: Ninety-two PVAI patients had OSA and CAF. Patient demographics are given in table 1. There was no significant difference in baseline characteristics. Twelve patients were lost due to inadequate follow up data. The success rate in Group 1 (treated) was 53.1% versus 39.5% in Group 2 (untreated) $p=0.02$.

Conclusion: Our results show that there was a trend suggesting that AF recurrence is less in OSA treated patients; however, further more extensive and larger randomized studies are necessary to determine whether this trend is indeed due to the treatment effect.

P2621 Multi-electrode ablation with duty-cycled low power bipolar/unipolar RF energy for chronic AF



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Background: Widespread adaptation of radiofrequency catheter ablation (RFCA) of chronic atrial fibrillation (CAF) has been limited by long procedure times and low efficacy. This study was designed to evaluate the safety and efficacy of multi-electrode catheters delivering low power duty-cycled radiofrequency energy for RFCA of CAF.

Methods: Fifty-three patients (51 male, 57±6 years) with documented CAF were enrolled in a multi-center European study. Inclusion criteria included a failed class I or III AAD and a DCCV. Three anatomically specific catheters (PVAC, MASC, and MAAC, Ablation Frontiers Inc, Carlsbad CA) were used to isolate the pulmonary veins (PVI) and eliminate complex fractionated atrial electrograms (CFAEs) on the septum and left atrial wall. Bipolar/unipolar alternating radiofrequency energy (GENius, Ablation Frontiers Inc, Carlsbad CA) was delivered simultaneously through operator selected electrodes at ratios of 1:1, 2:1, or 4:1, depending on location and the desired lesion depth. All ablations were 60 seconds with a maximum power limit of 10 W/electrode to produce a target temperature of 60°C at each electrode pair. An early additional procedure (which reset the follow up period) was allowed for patients if sinus rhythm was not maintained after 2 months. Anti-arrhythmic drugs were discontinued at 3 months. The chronic efficacy endpoint was measured as an 80% reduction in AF burden, assessed with a continuous 7-day Holter recording at 6 months post procedure.

Results: Fifty of 53 patients (94%) had documented successful PVI, with CFAE ablation at the septum, LA roof, posterior wall, and mitral valve annulus, with SR post procedure. Once trans septal puncture was complete procedure time was 145±44 minutes, with fluoroscopy time of 49±21 min. Current follow up is 172±58 days with a 6 month Holter recording completed in 47 patients. No AF was present in 36 of 47 patients, while 2 additional patients had PAF for less than 10% of the 7-day Holter recording. The current cumulative efficacy for CAF at 6 months is 81%, with 34 of 38 patients off all AADs after 4 months. The two-procedure rate was 51%. Five of the 8 efficacy failures did not receive a retreatment procedure. Serious complications included 1 transient neurologic event, 1 cardiac tamponade secondary to the transeptal puncture and 2 groin hematomas.

Conclusions: Multi-electrode catheters in conjunction with low power duty-cycled bipolar-unipolar RF energy may allow safe and efficient procedures for RFCA of CAF, with a current efficacy at 6 months of 81%.

P2622 Relationship between catheter forces, lesion characteristics, popping, and char formation: experience with robotic navigation system



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Introduction: Popping, char and perforation are complications that can occur following catheter ablation.

We measured the amount of grams applied to the endocardium with a robotic system. We evaluated the relationship between lesion formation, pressure, and such complications using different catheter pressure and power settings.

Methods: Using a robotic navigation system, lesions were placed in the LA atrium at 6 settings (Table 1), using a constant duration (40 sec) and flow rate with an open irrigated catheter (OIC). Necropsy was then performed.

Results: Lesions using 30 W were more likely to be transmural at higher (>40 gr) than lower (<30 gr) pressures (50% vs 16.7% $p<0.05$). The majority of lesions placed using higher power (45W) with higher pressures (>40 gr) were associated with char and crater formation (66.1%). No lesions using 10 gr of pressure were transmural, regardless of the power. Significantly higher number of lesions using >40gr of pressure demonstrated "popping" and crater formation as compared to lesions with 20-30gr of pressure (41.7% vs 16.7%, $p<0.05$). Lesions placed with a power setting ≤ 35 Watts were more likely to result in relative sparing of the endocardial surface than lesions at a power settings higher than 35 Watts (77.8% vs 38.9%) regardless of pressure.

Group	Power (W)	Pressure (g)	% Transmurality	Endocardial sparing	% Complication (Char, popping)
Group 1	30	10	0%	0%	0%
Group 2	45	10	0%	0%	0%
Group 3	30	20-30	16.7%	50%	0%
Group 4	45	20-30	83.1%	16.7%	33.3%
Group 5	30	>40	50%	33.4%	16.7%
Group 6	45	>40	100%	0%	66.7%

Conclusions: Using OIC at lower power settings (< 35 Watts) and at lower/medium pressure, lesions were more likely have a relatively spared endocardial surface. Higher catheter pressure at higher power (>45 wats) were likely to result in a transmural lesion. However, this also appears to be related to char, crater formation and "popping". Moderate pressures (20-30g) were associated with transmuralities with lower incidence of complications.

P2623 Safety and efficacy of paediatric outpatient radiofrequency catheter ablations



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Purpose: Radiofrequency catheter ablations (RFA) are frequently performed as treatment for supraventricular tachycardia in children older than 4 years of age. Aim of this study was to evaluate safety and efficacy of paediatric outpatient RFA.

Patients and Methods: Between 06/2002 and 03/2007, 201 RFA were prospectively analyzed. Exclusion criteria for outpatient procedures were complex RFA in congenital heart disease, arterial access or distance to home more than 1 hour. All RFA were performed under general anaesthesia. In case of transeptal puncture, patients received a single-shot dose heparin. All patients underwent postprocedural echocardiography and electrocardiogram and were discharged within 6 hours after conclusion of RFA. To identify potential complications after discharge, parental follow-up phone calls the day after outpatient RFA procedure were performed.

Results: A total of 65/ 201 (32%) patients aged 13.6±3.8 years qualified for outpatient RFA. Accessory pathway ablations (n=33) and atrioventricular node modifications (n=28) were the most common RFA. A transeptal approach was performed in 24 RFA. Median procedure time was 1.5 hours (range: 1.1 – 4.3), with a median fluoroscopy time of 10 minutes (range: 5 - 86). RFA was successful in 63/65 (97%) patients. Postprocedural echocardiography with special attention for intracardiac thrombi, pleural effusion and inflow patterns from systemic veins or the coronary sinus were normal in all patients. Anaesthetic adverse events, predominantly post-interventional nausea and vomiting, were observed in 9 (10%) patients. Hospital discharge within 6 hours after conclusion of RFA was practicable in all but one patient due to ongoing nausea. Follow-up phone calls did not reveal further complications. Recurrence of tachycardia after RFA was observed in 4 of 65 (6%) patients.

Conclusions: Outpatient RFA are feasible and safe in selected paediatric patients. No RFA related complication was observed. Anaesthetic adverse events were nausea and vomiting due to general anaesthesia. Success rate and recurrence rate of tachycardia was favourable after outpatient RFA.

P2624 Feasibility and safety of radiofrequency catheter ablation in outpatients



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Purpose: Radiofrequency catheter ablation is now the treatment of choice of most of arrhythmias. Standard clinical practice has been to keep patients in the hospital for 2 or 3 days after the procedure. We sought to assess safety, feasibility and short-term outcome of routine radiofrequency catheter ablation (RCA) on an outpatient basis with discharge from the hospital on the same day.

Methods: The study population comprised 1270 consecutive patients (760 men, 510 women, mean age 57±17 years) who underwent RCA of the slow pathway for treatment of AV nodal reentrant tachycardia (426), cavotricuspid isthmus for atrial common flutter (585), atrial tachycardia (73) and accessory pathways (186) in two different volume activity centers. All patients were hospitalized in the morning, underwent RCA after venous (1189) or arterial (81) femoral access, and were discharged 4 to 8 hours later after systematic clinical exam, ECG and echocardiography after transeptal approach (28). Patients were scheduled for a one-month follow-up, and hospitalization and complication rates were prospectively collected.

Results: During the one-month follow-up, no death occurred and the hospitalization rate was 0.6%: 6 patients had significant local complications (4 hematoma, 2 arterio-venous fistula), requiring surgical repair within one week after the procedure in 4 cases, and 2 patients developed symptomatic delayed pulmonary embolisms. No symptomatic pericardial effusion was reported. In intention to treat, 92% of the overall planned outpatients (1380) were really discharged the same day. Moreover, we observed no significant association between complication rate and volume center activity ($p=0.37$).

Conclusions: In view of these findings, RCA for routine arrhythmias appears to