Predicting Favorable Outcomes in the Setting of Radiofrequency Catheter Ablation of Persistent Atrial Fibrillation – A Pilot Study Assessing the Value of Left Atrial Appendage Peak Flow Velocity

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Aims: We hypothesized that left atrial appendage peak flow velocity (LAV) assessed by echocardiography was able to accurately predict successful catheter ablation as well as favorable outcome in the setting of long-standing persistent atrial fibrillation (AF).

Methods: This prospective pilot study enrolled 40 patients with long-standing persistent AF (age 60±11 years, persistence of AF 4.2±2 years) who underwent first catheter ablation procedure, using a standardized sequential stepwise protocol. LAV was assessed prior to catheter ablation procedure besides classical factors (age, gender, left atrial area, AF cycle length, AF duration, and left ventricular ejection fraction), and were tested using logistic regression for (i) restoration of sinus rhythm during catheter ablation as well as (ii) absence of recurrence during a one-year follow-up.

Results: Eighteen patients (45%) experienced AF termination during the procedure, and 18 patients (45%) did not develop any recurrence during the first 12-months. Multivariate analysis demonstrated that high LAV (>0.3 m/s) was the only independent predictor of AF termination (OR=5.91, 95%CI: 1.06-32.88, p=0.04) and absence of recurrence at one year (OR=4.33, 95%CI: 1.05-17.81, p=0.04).

Conclusions: This pilot study demonstrated the feasibility and the importance of LAV measurement in the setting of long-standing persistent AF in order to predict successful catheter ablation and favorable mid-term outcome.

Left atrial flutter occurring after atrial fibrillation ablation: ablation using remote magnetic navigation versus manual technique

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Introduction: Limited data exist on the efficacy and safety of remote magnetic navigation (RMN) ablation of iatrogenic left atrial flutter (LAF) occurring after atrial fibrillation (AF) ablation.

Methods: LAF ablation procedures (proc) were reviewed. Patients (pts) were divided into 2 groups (gr): RMN gr if proc were performed remotely using the Niobe system (Sterotaxis) and conventional gr (CON) if proc were performed with manually driven catheters. Open-irrigated 3.5 mm-tip catheters were used in all pts. Activation LA maps were realized in all pts using Carto or EnSite). Acute (defined as sinus rhythm- SR- resumption during ablation) and long-term (defined as SR maintenance) proc success, proc duration, fluoroscopy and radiofrequency (RF) times, and the mechanism of arrhythmias were studied.

Results: In 46 pts (38 males, 60.8±10.19 y) 57 LAF ablation proc were performed. Age and LA size were similar. Activation maps showed: a unique macro-reentrant circuit 46%, multiples successive macro-reentrant circuits 26%, focal pulmonary vein tachycardia 9%, micro-reentrant circuit 19%. Results are showed in the table. Complications occurred in 3 proc: 1 in the RMN gr (groin hematoma) and 2 in the CON gr (1 transient ischemic attack and 1 cardiac perforation with tamponade). Perimital flutter that occurred at any stage of the proc was associated with significantly higher rate of acute failure (persistent perimital flutter at the end of the proc, both gr): 44% vs 12% for other types of flutter, p=0.02.

Conclusions: As compared to manual proc, RMN guided ablation for LAF after AF ablation provides comparable acute and long-term success rate but is potentially safer.