

# **MULTI-ELECTRODE CATHETERS USING LOW ENERGY PHASED RADIOFREQUENCY FOR ABLATION OF CHRONIC ATRIAL FIBRILLATION**

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## **Background:**

Delivery of high power standard radiofrequency (RF) energy in the left atrium has been associated with complications such as embolic events and atrioesophageal fistulas. Newly developed multi-electrode catheters can reduce RF to 3-5 W (max 10W) per electrode by delivering phased unipolar and bipolar RF delivered individually to each electrode pair by a multi-channel RF Generator.

## **Methods:**

In 39 patients with persistent AF for  $3.2 \pm 3.6$  yrs (range 1-15), three catheters including a multi-electrode Pulmonary Vein Ablation Catheter (PVAC) for pulmonary vein isolation (PVI), a Multi-Array Septal Ablation Catheter (MASC) for ablation of complex fractionated electrograms (CFAE) at the septum and a Multi-Array Ablation Catheter (MAAC) for CFAE ablation in the left atrium were used. Follow up is  $4.6 \pm 1.8$  months. A six month 7 day continuous ECG recording is currently available in 23 patients.

## **Results:**

During a mean procedure time of  $150 \pm 35$  min a total of  $48 \pm 12$  min of fluoroscopy and  $62 \pm 15$  min RFA were used. PVI was successful in 37/39 patients (95%). 2 patients needed additional standard RF applications to achieve isolation. CFAE ablation on the septum and the left atrium was successful using MASC and MAAC in all patients. Conversion to SR occurred in 4 pts and to atrial flutter in 3. One cardiac tamponade occurred after transseptal puncture, otherwise no complications were noted. After a single procedure, 19/23 patients (83%) are free of persistent AF (10/19 are in sinus rhythm on AAD therapy or have self terminating AF episodes). Long term results on all patients will be available in June, 2008.

## **Conclusion:**

Multi-electrode mapping and ablation catheters using phased unipolar/bipolar RF require lower energies and are safe in routine clinical use. Procedure times are acceptable after a short learning curve. Short term results are promising.