

## **Site Localization of Painful Lesions during Radiofrequency Ablation of Pulmonary Veins Using PVAC® Multi-Electrode Catheter**

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### **Background:**

Previous data have demonstrated that pain sensation is relatively common during RF ablation of pulmonary veins (PVs) with an 8-mm catheter at 48W and 51°C. No correlation was found between pain and location of esophagus, nor with generator power setting. Pain was more common in the left PVs. No data exist regarding site location of pain during pulmonary vein isolation (PVI) using the multi-electrode Pulmonary Vein Ablation Catheter (PVAC®; Medtronic Ablation Frontiers).

### **Methods:**

We studied prospectively 52 consecutive patients with atrial fibrillation (AF) who underwent PVI using PVAC® between 7/2011 and 11/2012. Patients were given conscious sedation as needed. Each RF energy application was delivered simultaneously through 8-10 electrodes for one minute in a temperature controlled manner (power 3-10W, temperature 45-65°C) and an energy mode of 2:1 bipolar to unipolar ratio (4:1 for areas with close proximity to esophagus). Site location of pain reaction was marked for each patient. Association of pain and PV size was analyzed in a subgroup of 30 patients with available PV angiograms.

### **Results:**

A total of 52 patients (58% men, 60±10 years, 78.8% paroxysmal, 5.7% redo) were studied. 47 patients (90.4%) had at least one lesion associated with pain during ablation. There was no significant difference in the dosage of pain medications for patients with versus without pain (pethidine, P=0.4; dormicum, p=0.9). The distribution of pain showed: 91.5% LSPV, 6.4% LIPV, 6.4% RSPV, 2% RIPV. Pain was found in 31% of the largest PV (95%CI 15.3-50.8 p=0.061, Kappa=0.017).

### **Conclusions:**

Using PVAC® for PVI caused pain sensation more commonly in LSPV. There was no correlation between pain and PV size. Our findings are similar to PVI using an 8 mm ablation catheter, despite using a lower energy and a different pattern of energy application. Thus, location of pain is probably not catheter dependent but rather a reflection of autonomic physiology.