

Activity: Abstract

Visually-Guided Pulmonary Vein Isolation Using a Balloon Ablation Catheter to Treat Patients with Paroxysmal Atrial Fibrillation: One-Year Clinical Outcome Following a Single Ablation Procedure

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Introduction: During AF catheter ablation, placing contiguous point ablation lesions to electrically isolate the PVs can be technically challenging. A novel balloon catheter (EAS, Endoscopic Ablation System, Cardiofocus, Inc.) which utilizes an endoscope for real-time visualization of the LA-PV junction and adjustable arcs of ablative light energy was used to isolate the PVs. This report details the one-year follow-up results after a single treatment.

Methods: In this three-center study, 30 patients with a history of symptomatic drug-resistant paroxysmal AF were studied: Sex: M/F = 26/4 (87%/13%); Age 53 ± 11 years (28-73); AF duration: 6.0 ± 4.9 years (range 0.4-24.1); LA diameter: 4.3 ± 0.5 cm (range 3.1-4.9); LVEF $67.6 \pm 8.9\%$ (range 45-86). PV isolation using the EAS was confirmed using a circular mapping catheter. There were no exclusion criteria related to PV shape/number.

Results: Electrical PV isolation was achieved in 91% (105/116) of the targeted PVs. An average of 14 energy deliveries/PV were delivered (range 2-40). There was no significant PV stenosis. There were three primary adverse events. Following a 90-day blanking period, 70% (21/30) of patients were free from symptomatic AF episodes >1 min at 6-month follow-up, and 67% (20/30) were free from symptomatic AF episodes lasting >1 minute through one-year follow-up. Two treatment success were on AADs for indications other than AF. An examination of the treatment failures was conducted. There were no differences between chronic treatment successes and failures in sex ($p=0.56$), age ($p=0.22$), EF ($p=1.0$), LA diameter ($p=0.70$), years of AF ($p=0.30$) and acute PV isolation of all PVs versus less than all PVs ($p=0.66$). Most treatment “failures” did not require repeat AF ablation due to minimal symptoms. One underwent subsequent RF ablation for AF in follow-up; PV reconnections were noted.

Conclusions: A single treatment with the visually-guided EAS ablation system appears feasible, safe and efficacious to treat patients with paroxysmal AF.