

Arrhythmia intervention

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PULMONARY VEIN ISOLATION FOR ATRIAL FIBRILLATION USING A NOVEL MULTIELECTRODE CATHETER: A FEASIBILITY AND EFFICACY STUDY

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Objectives To evaluate the feasibility and safety of a novel multi-electrode pulmonary vein ablation catheter (PVAC) combining circular mapping and duty-cycled multi-electrode radiofrequency (RF) energy delivery, and guided by three-dimensional rotational angiography (3D-RTA) for atrial fibrillation (AF).

Methods 47 patients (aged 62 ± 11 years) with symptomatic AF 32 cases for paroxysmal AF and 15 cases for persistent AF were enrolled to undergo pulmonary vein isolation (PVI) with PVAC guided by 3D-RTA.

Results Mean total procedural time was 126.4 ± 29.5 min (123.7 ± 15.7 min for the paroxysmal AF patients and 132.0 ± 36.6 min for

the persistent AF patients, $p>0.05$); mean fluoroscopy time was 30.3 ± 11.3 min (29.4 ± 9.8 min for the paroxysmal AF patients and 32.3 ± 14.2 min for the persistent AF patients, $p>0.05$); mean PVAC ablation time was 21.6 ± 7.7 min (20.5 ± 6.0 min for the paroxysmal AF patients and 24.0 ± 10.4 min for the persistent AF patients, $p>0.05$). A total of 172 PVs (172/183, 94.0%) were completely isolated. Two cases of mild pericardial effusion were detected on the first postprocedural day and absorbed in a week. No incidence of PV stenosis was observed during the follow-up. At follow-up (mean 8 ± 5 months, range 3–22 months), 32 (68.1%) patients reported significantly improved symptoms or were entirely asymptomatic. 29 of 47 (61.7%) patients were free from AF.

Conclusions The novel technology of the PVAC catheter using duty-cycled bipolar and unipolar RF energy and guided by 3D-RTA suggests a feasible, safe, and promising alternative to conventional point-by-point ablation.