

Single-Sweep Pulmonary Vein Isolation using the new third-generation laser balloon – Evolution in ablation style using endoscopic ablation system

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May 28, 2021

Abstract

Background: The endoscopic ablation system (EAS) is an established ablation device for pulmonary vein isolation (PVI) in patients with atrial fibrillation (AF). The novel X3 EAS is now equipped with a contiguous circumferential ablation mode (RAPID mode). **Aim:** To determine the feasibility of single-sweep ablation using X3. **Methods:** Consecutive patients who underwent AF ablation using X3 were enrolled. We assessed the acute procedural data focusing on “Single-sweep PVI” defined as PVI with a single energy application using RAPID mode to complete the circular lesion set, and on “first-pass isolation” defined as successful visually guided PVI after initial circular lesion set. **Results:** One-hundred AF patients (56% male, age 68 ± 10 years, 66% paroxysmal AF) were analyzed. A total of 379 of 383 PVs (99%) were isolated with X3. Single-sweep isolation and first-pass-isolation were achieved in 214 PVs (56%) and in 362 PVs (95%), respectively. Single-sweep isolation rates varied across PVs with higher rates at the superior PVs (61.2% vs. inferior PVs:49.5%, $P=0.0239$) and at PVs with maximal ostial diameter $<24\text{mm}$ (57.6% vs. $>24\text{mm}$: 36.8%, $P=0.0151$). The mean total procedure and fluoroscopy times were 43.0 ± 10 and 4.0 ± 2 mins, respectively. In none of the patients an acute thromboembolic event (stroke or transient ischemic attack) or a pericardial effusion/tamponade occurred. A single transient phrenic nerve palsy was observed. **Conclusion:** The new X3 EAS allows for single-sweep PVI in 56% of PVs. The new RAPID ablation mode leads to an improved rate of first-pass isolation associated with very short procedure times without compromising safety.

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