

Fluoroless catheter ablation of cardiac arrhythmias: a 5 year experience

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HIGHLIGHTS

This 5-year retrospective analysis examined 500 consecutive patients who underwent fluoroless cardiac catheter ablation from December 2010-March 2016, as described below.

Methods

- ▶ All transeptal punctures were done under ICE and three-dimensional (3D) mapping system guidance without the use of fluoroscopy.
- ▶ A combination of intracardiac electrograms (IE), electronic mapping (EAM) and intracardiac echocardiography (ICE) were used to position therapeutic and diagnostic catheters.
- ▶ 639 arrhythmias were ablated including atrioventricular reciprocating tachycardia (AVRT), atrioventricular nodal reentrant tachycardia (AVNRT), atrial fibrillation (AF), premature ventricular contractions (PVCs) and ventricular tachycardia (VT).

Results

- ▶ The average ablation length was 151.1 min (range of 22-501 min), with the mean procedural time decreasing with user experience (Figure 1). Using a conservative estimate of 10min of fluoroscopy time in a standard case, 83 hours of continuous fluoroscopy time was eliminated. Removal of fluoroscopy also allowed pregnant staff members to continue to work.
- ▶ Arrhythmia recurrence rates were in line with previously reported recurrence rates for fluoroscopy-guided ablations of various types of arrhythmias.
- ▶ The overall rate of major complications involving ablations for all types of arrhythmias was observed to be lower without fluoroscopy than using fluoroscopy (1% vs. 2.9-3.8%, respectively), even though there was a slightly higher rate of major complications observed with nonfluoroscopic ablations for focal atrial tachycardia (1.7%) compared to the traditional fluoroscopy-guided approach (0.8%).

Conclusions

- ▶ This study confirms that the use of new imaging and mapping technologies have enabled nonfluoroscopic ablations for a variety of arrhythmias without increasing procedural time, and without compromising safety and efficacy.

Procedure Time

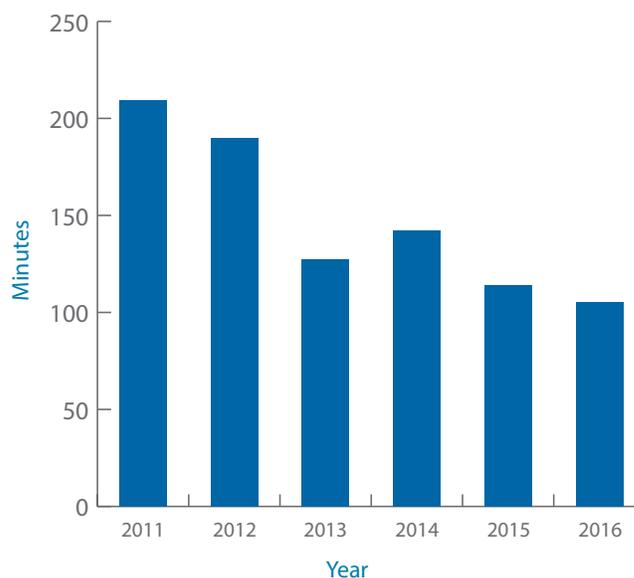


Figure 1. Mean Procedure duration in minutes by year: 2011 (209.6min), 2012 (189.8min), 2013 (127.4min), 2014 (142.4min), 2015 (114.2min), 2016 (105.3min).