INTRODUCTION

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 transseptal 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 10 min 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 ablation 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, safely and successfully performed using the described procedural modifications.

PROCEDURE TIME

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