Title:
Mapping of atrial tachycardia by remote magnetic navigation in postoperative patients with congenital heart disease.

Abstract:
The purpose of this study was to investigate if remote magnetic navigation (RMN) offers a reduction of fluoroscopy time when used for atrial tachycardia (AT) mapping in a spectrum of patients with congenital heart disease (CHD) after "simple" or "complex" atrial surgery. Data about AT mapping using RMN in larger populations of patients with CHD are scarce. RMN in combination with electroanatomic mapping was used for AT mapping in 22 patients. According to anatomic complexity, patients were classified into 3 groups: Group 1: patients after minor atrial surgery (n = 7); Group 2: patients after the Fontan operation (n = 9); and group 3: patients after the Senning/Mustard operation (n = 6). Atrial mapping with a nonirrigated tip RMN catheter was completed successfully in all patients. In Group 1 no significant reduction in fluoroscopy time was noticed over time (mean fluoroscopy time 7.9 minutes). In the 15 patients of group 2 and group 3 with complex CHD, the fluoroscopy time for mapping in the last 9 patients (6.4 +/- 2.8 minutes) was significantly shorter than in the first 6 patients (29.7 +/- 10.5 minutes, P< 0.0001). Acutely successful ablation was achieved in 21 of 22 patients (97%) using the RMN catheter (n = 3) or a conventional catheter (n = 18) without procedural complications. RMN for AT mapping in patients with complex atrial anatomy leads to a significant reduction of fluoroscopy time.