

# Supraventricular tachycardia ablation in the pediatric population: a single-center experience

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## **PURPOSE:**

Percutaneous ablation revolutionized the treatment of tachyarrhythmias and is currently the first-line treatment for many of these situations. The results of this procedure in the pediatric population is poorly studied.

Our aim was to evaluate the safety and efficacy of percutaneous ablation of tachyarrhythmias in our institution in children and young people up to 18 years of age.

## **METHODS AND RESULTS:**

Retrospective study of 157 patients (pts) aged  $\leq 18$  years who underwent electrophysiological study (EPS) with percutaneous ablation between Feb/2007 and Oct/2013 (mean age  $14 \pm 3$  years, 7 to 18, 68.2% male, 2 pts had both AVRT and AVNRT).

Treated arrhythmias included atrioventricular reentrant tachycardia (AVRT; n=123, 77.3%), atrioventricular nodal reentrant tachycardia (AVNRT; n=29, 18.2%), atrial tachycardia (AT; n=4, 2.5%), atrial fibrillation (AF; n=1, 0.6%), atrial flutter (AFI; n=1, 0.6%), and inappropriate sinus tachycardia (n=1, 0.6%). Six pts had structural heart disease: osASD (2), bicuspid aortic valve (2), Ebstein's disease (1), osASD and bicuspid aortic valve (1).

All cases were performed under sedation with propofol or fentanyl on spontaneous ventilation in the presence of an anesthesiologist.

Radiofrequency (RF) energy was used in 90% of cases, the remaining used cryoenergy (parahisian accessory pathways).

The overall immediate success rate was 92% (92.7% for AVRT due to accessory pathways, 93.1% for AVNRT, 50% for AT and 100% for AF, AFI and inappropriate sinus tachycardia). Long term clinical/ECG success was achieved in 84% of pts (median follow-up 35 [22-57] months): 87% in AVRT (77% in parahisian pathways, 90% in non-parahisian), 96.3% in TRNAV, 50% in AT, 100% in AF, atrial flutter and inappropriate sinus tachycardia. The lower success rate in parahisian pathways was due to the risk of AV node ablation and to the use of cryoenergy instead of RF.

There was no mortality and the complication rate was 2.4% (none permanent or disabling, namely CAVB).

## **CONCLUSION:**

In the studied pediatric population, percutaneous ablation of arrhythmias proved to be a safe and effective therapy, with recurrence and complication rates similar to those reported in adults, which suggests that the treatment should be offered without delay, not needing to wait for adulthood.