

## MP2-4

### Electroanatomic mapping-guided catheter ablation of supraventricular tachycardia in children with Ebstein's anomaly

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**Background:** In Ebstein's anomaly(EA), arrhythmias are common, tachycardia substrates are complex, and accessory pathway(AP) ablations are often challenging. Recent advances in electroanatomical mapping technologies have decreased or eliminated fluoroscopic exposure during catheter ablation procedures.

**Objective:** This study demonstrates the utility of the EnSite Velocity cardiac mapping system(St. Jude Medical, St Paul, MN) in the catheter ablation of supraventricular tachycardia (SVT) in children with EA.

**Methods:** Twenty patients (Female/Male = 8/12) with EA who underwent catheter ablation guided by the EnSite-Velocity system between December 2011 and December 2016 were retrospectively evaluated.

**Results:** Patient median age was 11.5 years (range: 2 years 9 months–18 years), and the median weight was 41 kg (range 11–73 kg). Five patients had severe EA (two in the univentricular repair pathway - fontan palliation), two had moderate EA, and thirteen had mild EA. Fourteen patients (70%) presented with Wolff-Parkinson-White(WPW) syndrome-related SVT, four (20%) with wide QRS tachycardia, and two with narrow QRS tachycardia. The most common indications for ablations were palpitations/syncope and treatment-resistant arrhythmias. Thirty-one tachycardia substrate foci (21 manifest WPW non-decremental-AP, 2 concealed-AP, 4 Mahaim-AP, 3 focal atrial tachycardias, and 1 typical atrioventricular nodal reentrant tachycardia) were detected in twenty patients in the electrophysiological study. There were multiple tachycardia substrates in eleven patients (55%). All WPW patients had right-sided APs (most commonly right posterior-posteroseptal), and six (6/14, 43%) of these patients were high risk. The patient-based acute procedure success rate was 19/20 (95%), and the tachycardia-based success rate was 30/31 (97%). The mean procedure time was  $170 \pm 43$  min (range: 90–265), and fluoroscopy was not used in 15 (75%) patients. The mean fluoroscopy time in the remaining five patients was  $3.6 \pm 2.9$  min(range:0.7–7.8). During a mean follow-up of  $35.1 \pm 20.3$  months (range:6–60), tachycardia recurred in four patients(4/19, 21%), two of whom underwent a second successful procedure. No complications were seen.

**Conclusion:** Catheter ablation of arrhythmias can be performed effectively and safely in pediatric EA patients by using a limited fluoroscopic approach with the help of electroanatomical mapping systems. However, the rate of tachycardia recurrence at follow-up remains high.