

### **Cryoablation with an 8-mm Tip Catheter for Typical Atrioventricular Nodal Reentrant Tachycardia in Children: Single Center Seven Years' Experience**

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**Background:** In children with typical atrioventricular nodal reentrant tachycardia (tAVNRT), 8-mm-tip cryoablation is preferred because of its safety profile and long-term success rates. This study aimed to assess the utility of 8-mm-tip cryoablation catheters for tAVNRT in children.

**Patients and Methods:** A total of 103 patients (57 females,55%), who underwent cryoablation using an 8-mm-tip catheter for AVNRT ablation between January 2010 and December 2017 were evaluated retrospectively. Electrophysiological procedures were performed using the EnSite™ system (St. Jude Medical Inc., St. Paul, MN, USA).

**Results:** The mean patient age and weight were 14.3 years (6.2-20.7) and 54 kg (30-92), respectively. Ten patients (9.7%) had structural heart disease (including three Ebstein's anomalies and one single ventricle physiology with bidirectional cavopulmonary anastomosis). Seven patients (6.8%) had an additional arrhythmia substrate like ventricular tachycardia, Mahaim pathway and focal atrial tachycardia and six patients (5.8%) also had an atypical AVNRT. The mean procedural time was 157 minutes (90-365). Mean number of effective cryolesion and total duration of cryoapplications were 8 (4-17) and 2529 seconds (240-4920s) respectively. Fluoroscopy was used only in seven patients (%6.8) for diagnostic purposes in those with structural heart disease, or for vascular access. Mean fluoroscopy duration and mean radiation dose were 8 minutes (1.9-16) and 1001,6 mGy.cm<sup>2</sup> (106-2803) respectively. There were no complications except for a right bundle branch block and a transient atrioventricular block. Acute success rate of cryoablation was 98/103 (95%). In four of the remaining five patients, cryoablation failed and the procedure was completed successfully with radiofrequency (RF) ablation in the same session. In the patient with a single ventricle physiology and bidirectional cavopulmonary anastomosis, both cryoablation and RF ablation failed and medical therapy was carried on. During the mean follow-up period of 22 months (1-72) one patient with tAVNRT recurred 11 months later, and successfully ablated with RF in the second session. The resultant long-term success rate of AVNRT ablation was 102/103 (99%).

**Conclusions:** Cryoablation of AVNRT with an 8-mm-tip catheter in children appears to be safe and effective by using a limited fluoroscopic approach and can be preferred as a first choice.