

Assessment of AV Conduction Following Cryoablation of Atrioventricular Nodal Reentrant Tachycardia in Children

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Introduction: Cryoablation is an effective and safe treatment for children with atrioventricular nodal reentrant tachycardia (AVNRT). Early-onset transient atrioventricular block (AVB) can be seen rarely following cryoablation of AVNRT, despite lack of any AVB at the end of the ablation procedure. The purpose of this prospective study was to assess AV conduction shortly after successful cryoablation of AVNRT in children.

Methods: From October 2010 to December 2011, a total of 33 children (14 females, 19 males) underwent cryoablation for AVNRT. A 6-mm tip cryoablation catheter was used in 30 patients (91%). An 8-mm tip catheter was used in 3 patients. The efficacy of the procedure was assessed in terms of disappearance of dual-AV node physiology and/or lack of inducibility of AVNRT. Inducibility of AVNRT was checked 30 minutes following last ablation lesion on and off metaproterenol. ECGs and 24-hour ambulatory Holter monitoring were performed prior to and following the ablation procedure. All procedures were one using the EnSite system (St. Jude Medical, St. Paul, MN).

Results: The mean age and weight was 12.3 ± 3.6 years and 44.5 ± 15.1 kg, respectively. Congenital heart disease was present in 3% of the patients. The acute success rate was 91%. The mean procedure time was 124.9 ± 50 minutes. Total cryoablation time was 2219 ± 1206 sec. Fluoroscopy was used only 3 patients and the mean fluoroscopy time was 4 ± 2.9 minutes. No major complications occurred. Two (6%) patients had variable degrees of transient AV block despite having normal AV conduction at the end of the procedure. One of these patients developed 2nd degree AVB which lasted for 2 hours and second patient experienced 2:1 AVB which lasted for 8 hours. Both patients had complete resolution of the AVB which was also documented at follow-up Holters.

Conclusion: Transient AVB can rarely occur shortly after cryoablation of AVNRT. Patients should be monitored at least for 24 hours in the hospital following cryoablation of AVNRT.