Safety and efficacy of radiofrequency catheter ablation of atrioventricular nodal re-entrant tachycardia in paediatric patients

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Introduction: Although there is abundant data regarding the catheter ablation of the slow pathway (SP) in adult patients with atrioventricular nodal re-entrant tachycardia (AVNRT), little is known about the long-term outcomes in children. The objectives of this study were to describe the short term success, safety, and long term outcomes of radiofrequency catheter ablation of AVNRT in paediatric patients.

Methods: Data of all paediatric patients who underwent catheter ablation for supraventricular tachycardias was retrospectively analysed. Details about clinical presentation, diagnosis, ablation procedure, and long term outcomes were extracted from the hospital database. With regards to AVNRT ablation, successful procedural endpoint was defined as SP ablation (no residual dual atrioventricular nodal physiology) or SP modification (residual SP conduction allowing for a maximum of one atrial echo beat).

Result: Catheter ablation of 163 patients with supraventricular tachycardia was attempted between January 2008 and January 2019. Among these patients, 36 (22.1%) had AVNRT. The mean age was 12.7 + 4.7 years and 20 (55.6%) of the children were girls. Ten patients (27.8%) were less than 10 years. All but one of the patients (post atrial septal defect closure) had structurally normal hearts. Acute success was achieved in all 36 patients (100%). No complications (heart block, vascular access, stroke, pericardial effusion) occurred during the hospital admission. One patient was lost for follow up. During a long term follow up of 81.3 + 51.6 months, there was no recurrence of AVNRT or requirement of medication in any of the patients. In addition, no late complications including atrioventricular block were noted.

Conclusion: Radiofrequency catheter ablation of AVNRT was effective in 100% of our paediatric patients during long term follow up. No long term adverse complications were noted.