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Cryoablation with an 8-mm Tip Catheter for Supraventricular Tachycardia Substrates in Children

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Introduction: Cryoablation is utilized increasingly in children due to its safety profile. Recently, larger catheter tips are used more commonly in order to improve the long-term success rate. The aim of this study was to assess the safety and efficacy of 8-mm tip cryoablation of supraventricular tachycardias (SVTs) in children.

Methods: Electrophysiological procedures were performed using the EnSite electroanatomic system (St.Jude Medical Inc, St.Paul, MN) guidance. Procedures performed with an 8-mm tip cryoablation catheter were reviewed.

Results: Between July 2010 and November 2011 a total of 33 patients (mean age of 12.2 ± 3.8 years) underwent catheter ablations using an 8-mm tip cryoablation catheter. In 18/33 (55%) of these patients prior catheter ablation attempts using RF ablation or 6-mm tip cryoablation failed. The acute success rate was 13/18 (72%). In 15 patients, 8-mm tip catheter was the first choice of ablation and acute success rate was 14/15 (93%). The overall acute success rate was 27/33 (82%). Fluoroscopy was not used in 16/35 procedures. The mean fluoroscopy time in rest of the procedures was 4.1 ± 6.6 minutes (range: 0.1 to 25 minutes). The arrhythmia substrates and acute success rates were as follows: AV reentrant tachycardia: 19/24 (79%), AV nodal reentrant tachycardia: 6/6 (100%), focal atrial tachycardia: 1/2 (50%), intraatrial reentry tachycardia: 1/1 (100%). The overall recurrence rate was 8/27 (30%) at a mean follow-up of 6.7 ± 5.1 months. Two patients underwent successful second procedures. There were no complications.

Conclusions: The use of an 8-mm tip cryoablation catheter for SVTs in children appears to be safe and acutely effective in procedures where conventional ablation choices fail. However, recurrence rate is relatively high. Further studies are needed to assess the long-term efficacy.