

### **Outcomes of Radiofrequency Ablation and Cryoablation in Children and Adolescents.**

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**Introduction:** Radiofrequency ablation (RF) and cryoablation are now accepted as routine treatments in older children and adolescents. However, data from the current era is limited particularly in relation to cryoablation in children. We aimed to review the safety and efficacy of our approach. We primarily use RF and reserve cryoablation for locations where there is an increased risk of heart block.

**Methods:** Data from 126 consecutive cases undertaken at a regional children's hospital between January 2006 and January 2010 was studied. All the procedures were carried out under general anaesthesia.

**Results:** The patients' ages ranged from 5 to 18 years (mean 13.8 years, SD +/- 2.4). Their weights ranged from 16 to 94kg (mean 53.8kg, SD +/- 14.5), 61 (54%) were male. The follow up period was between 6 to 54 months (median 26). Indication included focal atrial tachycardia in 3, Right ventricular outflow tract ventricular tachycardia in 1, Fascicular ventricular tachycardia in 2, Atrioventricular nodal re-entrant tachycardia in 48, Wolff Parkinson White syndrome in 63. RF was used in 117 patients, 2 of these patients had congenital heart disease and electro-anatomic navigation was used in both. On table success was seen in 95% (111/117). Recurrence was seen in 8% (9/111). Repeat procedures were performed in 7 patients. At a minimum 6 month follow up and including repeat procedures overall success with RF was 93% (108/117). Cryoablation was used in 9 patients, all of whom had Anteroseptal accessory pathways. On table success was seen in 66% (6/9). Following repeat procedures success was seen in all except 1 patient. In this patient there was temporary heart block secondary to cryocatheter pressure. Overall success for cryoablation was therefore 77% (8/9) at minimum six month follow up. Screening time per case was 5-48 minutes (mean 14.2, SD +/-9.4), there was no significant difference between RF and cryoablation. There was no permanent heart block and morbidity was limited to a skin burn in 1 patient.

**Conclusion:** Catheter ablation in children and adolescents appears to be safe. An approach incorporating cryoablation further improves safety particularly in ablation proximal to native conduction tissue.