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Fifteen year experience with accessory pathway ablation in children and young adults with congenital heart disease by a single pediatric electrophysiology team

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Introduction: Catheter ablation (CA) of accessory pathways (APs) has evolved from a procedure usually performed after failure of medical therapy to the main therapeutic approach in children and congenital heart disease (CHD) patients.The purpose of this study was to report our experience accumulated over the past 15 years with CA of APs in children and CHD patients.

Methods: Review of a database of consecutive CA procedures performed by a single pediatric electrophysiology team.

Results: Two-hundred and twenty nine patients aged 0.28-35,85 years (10,97± 4,05), underwent CA of AP; 31 pts had CHD (13.5%), the most common being Ebstein's anomaly (12 pts). Five pts had complex CHD. Forty-two pts (18.3%) had asymptomatic preexcitation, 10 (4.4%) had permanent junctional reciprocating tachycardia (PJRT), 3 (1.3%) had Mahaim fibers and the remaining (75.9%) had orthodromic reciprocating tachycardia. Acute success was achieved in 96.5% and recurrence was observed in 13.1% of patients (7 left, 16 septal and 8 right-sided), including 3 of 12 with Ebstein's anomaly. After repeat ablation procedures (1-3) in 28 pts, only 4 pts remained with a functioning AP (final success rate: 98.2%). Fluoroscopy time decreased from a mean of 31.30±27.98 min to a mean of 8.54±9.45 min after the introduction of a system of non-fluoroscopic navigation (NavXTM, St Jude Medical). Complications occurred in 12 pts (5.2%), but only 3 were considered significant, including 1 patient each with aortic insufficiency, mitral insufficiency, and AV block lasting for 5 days, and none requiring intervention.

Conclusions: Catheter ablation has evolved to an extremely efficacious and safe therapeutic approach for the treatment of arrhythmias related to accessory pathways in pediatric and CHD pts. Despite the difficulty imposed by certain types of CHD, equal long-term success can be achieved in these patients as well as in those with structurally normal hearts.