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Long-term follow-up after catheter ablation of accessory pathways in children

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Background: Catheter ablation of the accessory pathway (AP) is treatment of choice for children with WPW syndrome. Data on long-term results ≥ 3 years after AP ablation in pediatric patients is limited.

Patients and Methods: Between 10/2002 and 06/2015, a total of 268 patients <18 years of age had successful AP ablation. Median age at ablation was 11.6 (IQR 7.9-14.3) years, median follow-up was 5.6 (IQR 3.1-9.1) years, minimal follow-up was 1 year. Recurrence after ablation was defined as documentation of either pre-excitation on ECG or SVT attributable to AP.

Results: During follow-up, a total of 29/268 subjects experienced recurrence. 13/29 (45%) patients had recurrence within the first month post ablation, and 23/29 (79%) within the first year. After successful ablation, calculated freedom from SVT or ventricular pre-excitation was 91% after one year, 90% after three years, 90% after five years and 88 % after eight years. In a Cox regression model of the whole study group, left-sided AP localization, low number of RF applications, short fluoroscopy and short procedure times were associated with long term success while presence of structural heart disease and multiple APs were associated with recurrence. Age, body weight and pre-excitation on ECG prior to ablation did not impact long-term success. No late complications attributable to AP ablation were observed.

Conclusions: RF ablation of AP in children was associated with early recurrence within the first post-ablation year in approximately 9% of the patients. Late recurrences after 3 years were rare.