CLINICAL RESEARCH

Follow-up of children or teenagers with paroxysmal supraventricular tachycardia, but without pre-excitation syndrome

Suivi d’enfants ou adolescents ayant des tachycardies supraventriculaires paroxystiques mais pas de syndrome de pré-excitation ventriculaire

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KEYWORDS
Supraventricular tachycardia; Children; Follow-up; Ablation

Summary
Background. — Paroxysmal supraventricular tachycardia (SVT) is considered benign in children if the electrocardiogram in sinus rhythm is normal, but causes anxiety in parents, children and doctors.
Aims. — To report on the clinical and electrophysiological data from children with SVT, their follow-up and management.
Methods. — Overall, 188 children/teenagers (mean age 15 ± 2.8 years) with a normal electrocardiogram in sinus rhythm were studied for SVT, and followed for 2.3 ± 4 years.
Results. — SVT was poorly tolerated in 30/188 children (16.0%). SVT was related to atrioventricular nodal reentrant tachycardia (AVNRT) (n = 133) or atrioventricular reentrant tachycardia (AVRT) over a concealed accessory pathway (n = 55; 29.3%). Ablation of the slow pathway (n = 66) or the accessory pathway (n = 43) was performed without general anaesthesia, 2 ± 3 years after initial evaluation. Failure or refusal to continue occurred in 18/109 (16.5%) children: 7/66 with AVNRT (10.6%), 11/43 with AVRT (25.6%) (P < 0.001). Symptoms of SVT recurred in 20/91 children (22.0%) with apparently successful ablation: 6/91 (6.6%) had real SVT recurrence; 14/91 (15.4%) of children.

Abbreviations: AAD, antiarrhythmic drug; AP, accessory pathway; AVNRT, atrioventricular nodal reentrant tachycardia; AVRT, atrioventricular reentrant tachycardia; EPS, electrophysiological study; SVT, paroxysmal supraventricular tachycardia.

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had only a sinus tachycardia, more frequent in AVNRT (11/59; 18.6%) than AVRT (3/32; 9.4%) \((P < 0.05)\). In 13 children treated with an antiarrhythmic drug (AAD), SVT recurred in four; two presented AAD-related syncope. In 66 untreated children, one death was noted after excessive AAD infusion to stop SVT; the others remained asymptomatic or had well-tolerated SVT.

**Conclusions.** -- At the time of ablation, SVT management remains difficult in children. Indications for ablation are more common in AVRT than in AVNRT, but failures are frequent; 22.0% remained asymptomatic after successful ablation, but false recurrences were frequent (15.4%). Without ablation, one third had a spontaneous favourable evolution.

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**Background**

Paroxysmal supraventricular tachycardias (SVTs) are considered benign [1] if the electrocardiogram in sinus rhythm is normal, but their occurrence in children/teenagers is often associated with anxiety in parents, children and their doctors, and sometimes with embarrassing and invalidating symptoms.

Invasive evaluation of tachycardia is rarely indicated in children for several reasons, including misdiagnosis or fear of hospitalization. Frequently, children/teenagers who complain of palpitations or tachycardia are only considered to be anxious, and for several months or years a false diagnosis of sinus tachycardia is given. Our group [2–4] and other authors [5–9] have reported on the benefit of a transoesophageal electrophysiological study (EPS) in children/teenagers complaining of tachycardia. The results suggested that the method is safe, useful and effective for the evaluation of arrhythmia-related symptoms and the SVT mechanism, and can assist with choice of treatment. The method is associated principally with a more comprehensive evaluation in children complaining of tachycardia.

Our aim was to report on the clinical and electrophysiological data from children with SVT, and their follow-up and management.

**Methods**

**Population**

This was a retrospective chart review of 188 children and teenagers (99 boys, 89 girls), aged 6–19 years (mean 15 ± 2.8 years), with a normal electrocardiogram in sinus rhythm, and studied for spontaneous SVT from 27 November 1997 to 30 September 2015 (Table 1).
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