Electrophysiologic Profile and Results of Invasive Risk Stratification in Asymptomatic Children and Adolescents With the Wolff-Parkinson-White Electrocardiographic Pattern

Abstract

Background: Data on the results and clinical effect of an invasive risk stratification strategy in asymptomatic young patients with the Wolff-Parkinson-White electrocardiographic pattern are scarce.

Methods and results: Eighty-five consecutive patients aged<18 years with a Wolff-Parkinson-White pattern and persistent preexcitation at maximum exercise undergoing invasive risk stratification were retrospectively studied. Adverse accessory pathway (AP)
properties were defined according to currently consented criteria as any of the following: shortest preexcited RR interval during atrial fibrillation/rapid atrial pacing≤250 ms (or antegrade effective refractory period≤250 ms if shortest preexcited RR interval was not available) or inducible atrioventricular re-entrant tachycardia. Age at evaluation was median 14.9 years. Eighty-two patients had a structurally normal heart and 3 had hypertrophic cardiomyopathy. A single manifest AP was present in 80, 1 manifest and 1 concealed AP in 4, and 2 manifest APs in 1 patient. Adverse AP properties were present in 32 of 85 patients (37.6%) at baseline and in additional 16 of 44 (36.4%) after isoproterenol. Ablation was performed in 41 of these 48 patients. Ablation was deferred in the remaining 7 for pathway proximity to the atrioventricular node. In addition, 18 of the low-risk patients were ablated based on patient/parental decision.

Conclusions: Adverse AP properties at baseline were exhibited by 37.6% of the evaluated patients with an asymptomatic Wolff-Parkinson-White preexcitation persisting at peak exercise. Isoproterenol challenge yielded additional 36.4% of those tested at higher risk. Ablation was performed in a total of 69.4% of patients subjected to invasive risk stratification.

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