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PRACTICE GUIDELINE

Risk Stratification for Arrhythmic Events in Patients With Asymptomatic Pre-Excitation: A Systematic Review for the 2015 ACC/AHA/HRS Guideline for the Management of Adult Patients With Supraventricular Tachycardia

A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society

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ABSTRACT

OBJECTIVE To review the literature systematically to determine whether noninvasive or invasive risk stratification, such as with an electrophysiological study of patients with asymptomatic pre-excitation, reduces the risk of arrhythmic events and improves patient outcomes.

METHODS PubMed, EMBASE, and the Cochrane Central Register of Controlled Trials (all January 1, 1970, through August 31, 2014) were searched for randomized controlled trials and cohort studies examining noninvasive or invasive risk stratification in patients with asymptomatic pre-excitation. Studies were rejected for low-quality design or the lack of an outcome, population, intervention, or comparator of interest or if they were written in a language other than English.

RESULTS Of 778 citations found, 9 studies met all the eligibility criteria and were included in this paper. Of the 9 studies, 1 had a dual design—a randomized controlled trial of ablation versus no ablation in 76 patients and an uncontrolled prospective cohort of 148 additional patients—and 8 were uncontrolled prospective cohort studies (n=1,594). In studies reporting a mean age, the range was 32 to 50 years, and in studies reporting a median age, the range was 19 to 36 years. The majority of patients were male (range, 50% to 74%), and <10% had structural heart disease. In the randomized controlled trial component of the dual-design study, the 5-year Kaplan-Meier estimates of the incidence of arrhythmic events were 7% among patients who underwent ablation and 77% among patients who did not undergo ablation (relative risk reduction: 0.08; 95% confidence interval: 0.02 to 0.33; p<0.001). In the observational cohorts of asymptomatic patients who did not undergo catheter ablation (n=883, with follow-up ranging from 8 to 96 months), regular supraventricular tachycardia or benign atrial fibrillation (shortest RR interval >250 ms) developed in 0% to 16%, malignant atrial fibrillation (shortest RR interval ≤250 ms) in 0% to 9%, and ventricular fibrillation in 0% to 2%, most of whom were children in the last case.

CONCLUSIONS The existing evidence suggests risk stratification with an electrophysiological study of patients with asymptomatic pre-excitation may be beneficial, along with consideration of accessory-pathway ablation in those deemed to be at high risk of future arrhythmias. Given the limitations of the existing data, well-designed and well-conducted studies are needed.

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