The Differential Diagnosis of Supraventricular Tachycardia Using Clinical and Electrocardiographic Features

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Abstract

Introduction: Noninvasive determination of the mechanism of supraventricular tachycardia (SVT) is useful in order to decide on the appropriate mode of therapy. The aim of this study was to evaluate the usefulness of the clinical and electrocardiographic features in diagnosing the type of SVT.

Methods: Design—A retrospective review of case records and electrocardiograms (ECG) of patients with definitive diagnosis of the mechanism of supraventricular tachycardia (SVT) made during electrophysiological study (EPS) and catheter ablation. Setting—A tertiary referral centre for electrophysiological studies and radiofrequency catheter ablation of arrhythmias. Sample—One hundred consecutive patients with SVT who had EPS and catheter ablation at our institution.

Chief Outcome—Comparison of clinical and ECG pacemeters among 3 different types of SVT, namely atrioventricular nodal reentrant tachycardia (AVNRT), atrioventricular reentrant tachycardia (AVRT) and atrial tachycardia (AT).

Results: There were 68 atrioventricular nodal reentrant tachycardia (AVNRT), 26 atrioventricular reentrant tachycardia (AVRT) and 6 atrial tachycardia (AT). AVRT had the earliest mean age of presentation at 26.8 ± 11.9 years. Sex and age of onset of symptoms alone were, however, not valuable in diagnosing the type of SVT. P waves were more discernible in AVRT and AT than in AVNRT (69%, 67% and 44% respectively, P = 0.071). AVNRT had the shortest mean RP’ interval (86.3 ± 47.6 msec), while AT had the longest (187 ± 80.6 msec, P <0.0001). Conversely, for mean P’R interval, AT had the shortest (125 ± 30 msec), AVNRT had the longest (262.7 ± 73.7 msec, P = 0.001). AVNRT had the smallest mean RP’:P’R ratio (0.6 ± 0.9), while AT had the largest (2.2 ± 0.6, P = 0.001). The presence of pseudo r’ in V1 and pseudo s’ in II/III/aVF was diagnostic of AVNRT with a specificity of 90% and 100%, respectively, and positive predictive value of 97% and 100%, respectively. Conclusion: Pseudo s’ in II/III/aVF is highly predictive of AVNRT. Measurement of RP’ and PR’ interval and ratio are also useful in determining the SVT mechanism.

Key words: Ablation, Electrocardiogram, Supraventricular tachycardia

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