

Role of atrial electrophysiology and autonomic nervous system in patients with supraventricular tachycardia and paroxysmal atrial fibrillation.

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摘要

Abstract

Objectives. The purposes of this study were to evaluate the atrial electrophysiology and autonomic nervous system in patients who had paroxysmal supraventricular tachycardia (PSVT) associated with paroxysmal atrial fibrillation (PAF).

Background. PAF frequently appeared in patients with PSVT. However, the critical determinants for the occurrence of PAF were not clear.

Methods. This study population consisted of 50 patients who had PSVT with (n = 23) and without (n = 27) PAF. Atrial pressure, atrial size, atrial effective refractory periods (AERPs), and AERP dispersion were evaluated during baseline and PSVT, respectively. Twenty-four hour heart rate variability and baroreflex sensitivity (BRS) were also examined.

Results. There was greater baseline AERP dispersion in patients with PAF than in those without PAF. The atrial pressure, atrial size, AERPs in the right posterolateral atrium and distal coronary sinus, and AERP dispersion were increased during PSVT as compared with those during baseline. Patients with PAF had greater AERP dispersion than those without PAF during PSVT. The differences of atrial size, right posterolateral AERP, and AERP dispersion between baseline and PSVT were greater in patients with PAF than in those without PAF. BRS, but not heart rate variability, was higher in patients with PAF than in those without PAF. Univariate analysis showed that higher BRS (>4.5 ms/mm Hg, $p = 0.0002$, odds ratio = 16.1), AERP dispersion during PSVT (>40 ms, $p = 0.0008$, odds ratio = 9.7), and increase of right atrial area during PSVT (>2 cm², $p = 0.016$, odds ratio = 10.7) were significantly correlated with the occurrence of PAF in patients with PSVT.

Conclusions. Disturbed atrial electrophysiology and higher vagal reflex could play important roles in the genesis of PAF in patients with PSVT.