Pulmonary vein electrogram characteristics in patients with focal sources of paroxysmal atrial fibrillation

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摘要

Abstract

INTRODUCTION: The major source of ectopic beats initiating paroxysmal atrial fibrillation (AF) is from pulmonary veins (PVs). However, the electrogram characteristics of PVs are not well defined. METHODS AND RESULTS: Group I consisted of 129 patients with paroxysmal AF. Group II consisted of 10 patients with a concealed left-sided free-wall accessory pathway. All group I patients had spontaneous AF initiated by ectopic beats, including 169 ectopic foci originating from the PVs. We analyzed PV electrograms from the 169 ectopic foci during sinus beats and ectopic beats. During AF initiation, most (70%) ectopic beats showed PV spike potential followed by atrial potential; 16% of ectopic beats showed PV fragmented potential followed by atrial potential; and 14% showed fusion potentials. The coupling interval between the sinus beat and the ectopic beat was significantly shorter in the inferior PVs than in the superior PVs (171 +/- 48 msec vs 222 +/- 63 msec, P = 0.001) and was significantly shorter in the distal foci than in the ostial foci of PVs (206 +/- 52 msec vs 230 +/- 56 msec, P = 0.01). The incidence of conduction block in the PVs during AF initiation was significantly higher in the inferior PVs than in the superior PVs (12/24 vs 37/145, P = 0.03) and was significantly higher in the distal foci than in the ostial foci of PVs (43/121 vs 6/48, P = 0.04). The maximal amplitude of PV potential was significantly larger in the left PVs than in the right PVs, and the maximal duration of PV potential was significantly longer in the superior PVs than in the inferior PVs during sinus beats in both group I and II patients. CONCLUSION: PV electrogram characteristics were different among the four PVs. Detailed mapping and careful interpretation are the most important steps in ablation of paroxysmal AF originating from PVs.