

Mechanisms of Recurrent Atrial Fibrillation: Comparisons Between Segmental Ostial Versus Circumferential Pulmonary Vein Isolation

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摘要

Abstract

Background: Electrical isolation of pulmonary veins (PVs) is an effective therapy for atrial fibrillation (AF). Both segmental ostial PV ablation and circumferential ablation with PV–left atrial (LA) block have been implicated to eliminate AF. However, the mechanism of the recurrent AF after undergoing either strategy remains unclear.

Methods and Results: Of the 73 consecutive patients with symptomatic AF that underwent PV isolation and had recurrences of AF, Group 1 consisted of 46 patients (age 56 ± 13 years old, 35 males) who underwent PV isolation by segmental ostial PV ablation and Group 2 consisted of 27 patients (age 51 ± 11 years old, 24 males) who underwent circumferential ablation with PV–LA block. In Group 1, the earliest ectopic beat or ostial PV potentials were targeted. In Group 2, circumferential ablation with PV–LA block was performed by encircling the extraostial regions around the left and right PVs. During the first procedure, all patients had PV–AF. There was no difference in the non-PV ectopy between Group 1 and Group 2. During the second procedure, the incidence of an LA posterior wall ectopy initiating AF was significantly lower (20% vs. 0%, $P = 0.01$) in Group 2. There was no difference in the PV ectopy initiating AF during the second procedure.

Conclusion: Circumferential ablation of AF with PV–LA block may eliminate the LA posterior wall ectopy and decrease the incidence of LA posterior wall ectopy initiating AF during the second procedure.

