Alterations of heart rate variability after radiofrequency catheter ablation of focal atrial fibrillation originating from pulmonary veins.

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摘要

Abstract

Background— Transient sinus bradycardia and hypotension have been reported as complications during radiofrequency (RF) ablation of focal atrial fibrillation (AF) originating from pulmonary veins (PVs). This study used heart rate variability (HRV) to evaluate the effects of focal PVs ablation on autonomic function.

Methods and Results— Thirty-seven patients with paroxysmal AF were referred for ablation. The study group included 30 patients who underwent transseptal ablation of PVs, and the control group included 7 patients who underwent the transseptal procedure without ablation. The mean sinus rate and time-domain (standard deviation of RR intervals and root-mean-square of differences of adjacent RR intervals) and frequency-domain (low frequency, high frequency, and low-frequency/high-frequency ratio) analyses of HRV were obtained by use of 24-hour Holter monitoring before and 1 week, 1 month, and 6 months after ablation. All the triggering points of AF were from PVs, and they were successfully ablated. Severe bradycardia and hypotension were noted during ablation of PVs in 6 patients (group IA); 24 patients without the above complication belonged to group IB. Compared with preablation values, a significant increase in mean sinus rate and low-frequency/high-frequency ratio and a significant decrease in standard deviation of RR intervals, root-mean-square of differences of adjacent RR intervals, low frequency, and high frequency were noted in groups IA and IB patients 1 week after ablation. The changes in HR and HRV recovered spontaneously in the 2 subgroups by 1 month later. These parameters of HRV did not change in the control group after the transseptal procedure.

Conclusions— Transient autonomic dysfunction with alterations in HR and HRV occurred after ablation of focal AF originating from PVs