Circumferential mapping and electric isolation of pulmonary veins in patients with atrial fibrillation.

Information about the clinical efficacy and complications of the circumferential mapping and isolation of the pulmonary veins (PVs) in patients with atrial fibrillation (AF) is still limited. The present study included 75 patients (mean age 58 +/- 11 years, 20 women) with paroxysmal (n = 69) or persistent AF (n = 6). Mapping of PVs was performed with a circumferential mapping catheter. After preferential PV-left atrium (LA) electric inputs were defined, radiofrequency ablation was performed until complete isolation of the PVs from the LA was achieved. A total of 226 PVs were mapped; 195 (86%) showed typical PV potentials. Complete isolation of PVs from the LA was achieved in 173 PVs (89%). Detailed follow-up, including 7-day Holter monitoring at 1, 4, 9, and 12 months after intervention was performed. If AF reoccurred, PVs were mapped and reisolated. After a mean follow-up period of 230 +/- 133 days, 38 of 75 patients (51%) were in sinus rhythm. At 1, 4, and 9 months of follow-up, 31 of 65 patients (48%), 36 of 53 patients (68%, p = 0.04 as compared with the first month), and 21 of 28 patients (75%, p = 0.025 as compared with the first month), respectively, were in sinus rhythm. During follow-up, 30 patients (40%) underwent a second ablation procedure due to recurrence. Recurrences were related to
resumption of PV muscle-left atrial conduction (27 patients) and/or extra PV foci (12 patients) or nonablated PVs (8 patients). Complications occurred in 17 patients (22%). PV stenosis was detected in 13 patients (25% to 50% in 7 patients and >50% in 6 patients). Pericardial effusion occurred in 4 patients. It was concluded that isolation of the PV from the LA is moderately effective in the prevention of AF recurrence and could be associated with serious acute and long-term complications.