The mid-term outcome of catheter ablation for atrial fibrillation in patients with hypertrophic cardiomyopathy

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Introduction: Atrial fibrillation (AF) is the most common arrhythmia in hypertrophic cardiomyopathy (HCM), and its occurrence is usually influential in the prognosis. It is generally accepted that sinus rhythm should be restored aggressively and maintained in these patients. Unfortunately, the efficacy of antiarrhythmic drugs is limited because of side effects. Radiofrequency catheter ablation (RFCA) may be a promising potion for treatment of drug-resistant AF in patients with HCM. However, the studies of AF catheter ablation in this cohort are relatively scant. Thus, the aim of this study was to assess the safety and efficacy of catheter ablation of AF in patients with HCM.

Methods: Twenty-three consecutive patients (mean age 56.9±8.7 years; 10 females) with HCM who underwent a first-time catheter ablation for drug-refractory symptomatic AF in our hospital were enrolled in the present study. Twelve patients with paroxysmal AF, and 11 patients with persistent AF. According to the outcomes of ablation, the patients were divided into 2 groups, success group and recurrence group. The relationship between the ablation success and clinical variables (including age, gender, duration of AF, type of AF, NYHA functional categorization, left atrial diameter, left ventricular end diastolic diameter, LV ejection fraction, etc.) were analyzed. COX multivariate analysis was implemented to find out the independent determinants of AF recurrence post-ablation. In addition, during the follow-up the ablation strategy was the same for the patient who AF recurrence wanted to repeat ablation.

Result: All of the 23 patients were complete the AF ablation, the total procedures were 30 for all patients, each patient was 1.3±0.5 procedures. At 12 months, stable sinus rhythm was present in 70% patients, 6 patients (50%) with paroxysmal AF and 2 patients (18%) with persistent AF. After an average of 29.1±17.6 months of follow-up by single ablation 35% patient was with stable sinus rhythm. After an average of 1.3±0.5 procedures and 36.3±16.4 months of follow-up 52% patient was with stable sinus rhythm. The left atrial diameter and left ventricular end diastolic diameter in the success group were lower than the recurrence group (left atrial diameter: 39.8±2.1mm vs. 46.4±4.1mm, P<0.05; left ventricular end diastolic diameter: 46.9±1.7mm vs. 50.2±4.1mm, P<0.05). Cox multivariate analysis revealed LAD was the independent risk factor of AF recurrence (HR 1.493, 95%CI: 1.209-1.843, P<0.05).

Conclusion: The mid-term clinical outcome of catheter ablation in HCM with paroxysmal AF is significantly better than persistent AF. The left atrial dimension is associated with the AF substrate, and it may be the potential reason that persistent AF in HCM patients with a higher recurrence rate post-ablation.