Clinical and electrophysiological characteristics predicting the re-ablation outcome for atrial fibrillation patients

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Introduction: Re-ablation has an important role in the control of recurrent atrial fibrillation (AF) post the first ablation. The present study was to report the outcome of AF re-ablation for patients who recurred after initial ablation, and to characterize the clinical and electrophysiological features predicting recurrence after redo ablation.

Methods: From January 2012 to May 2017, patients undergoing re-ablation for AF in our hospital were consecutively enrolled. Clinical and electrophysiological data for the initial and second procedure were collected retrospectively and prospectively, respectively. All patients were followed up for one year and recurrences during the time were reported.

Result: Totally 259 patients entered into the analysis (age, 58.4±10.5 years; 169 men). At the end of one-year follow-up, 85 patients recurred with atrial arrhythmias (32.8%). In the multivariate analysis, higher CHA2DS2-VASC score (p=0.023, 95% CI 1.03-1.53), shorter time to recurrence after the initial ablation (p=0.001, 95% CI 0.93-0.98, Figure 1A) were clinical factors predictive of one-year recurrence after the repeat ablation. The reconnection of the right pulmonary vein (PV) (p=0.034, 95% CI 0.31-0.96, Figure 1B) and the absence of not eliminated non-PV trigger at the second procedure (p=0.032, 95% CI 1.25-142.80) independently predicted the better re-ablation outcome.

Conclusion: About one-third of patients recurred after one year following re-ablation. CHA2DS2-VASC score and time to recurrence after the initial ablation were independent clinical factors predicting recurrence. Also, electrophysiological findings during the repeat ablation (the right PV reconnection and absence of not eliminated non-PV trigger) were associated with better outcome during one-year of follow-up.