The Role of Prophylactic Cavotricuspid Isthmus Ablation in Patients Undergoing Atrial Fibrillation Ablation

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Introduction: The aim of this study is to investigate the role of prophylactic cavotricuspid isthmus (CTI) ablation after single atrial fibrillation (AF) ablation among AF patients without atrial flutter (AFL).

Methods: From October 2005 to May 2017, we analyzed 132 patients who had received AF ablation for the first time and had not been documented for AFL prior to and during the procedure. CTI ablation was performed at the physicians discretion. Occurrence of any type of atrial tachycarrhythmia (ATa) was observed 3 months post blanking period to 3 years, according to CTI ablation implementation status.

Result: Among 132 patients, prophylactic CTI ablation was performed on 87 patients, while the remaining 45 patients did not undergo the procedure. With exception to CTI, there was no difference in the procedural contents of the two groups. The CTI ablation group had a higher percentage of non-paroxysmal AF (non-PAF) (7 of 45 [15.6%] vs 39 of 87[44.8%], p value=0.002), and reported a significantly longer AF duration before the procedure (835.2±598.3 days vs 1224.4±1135.8 days, p value=0.011). None of the patients reported AFL occurrence until the third year, and there was no significant difference in incidence rates of AF and ATa between the two groups (log rank p value=0.12 and 0.42, respectively). Analysis based on PAF vs non-PAF groups showed that the rate of CTI implementation was higher in non-PAF group (55.8% vs 84.8%, p value=0.002). Although the rate of class Ic or III antiarrhythmic drug use was significantly higher among non-PAF patients within the first year, no significant difference was found in any ATa recurrence rate of the two groups throughout the three-year observation period (log rank p value=0.89).

Conclusion: For single AF ablation, prophylactic CTI ablation with maintaining AAD after the blanking period could be beneficial for prevention of AF and ATa, especially in non-PAF patients.