The Characteristics and Outcomes of Second Procedure After Cryoballoon Ablation in Patients with Persistent Atrial Fibrillation.

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**Introduction**: Recurrence rate of atrial tachyarrhythmia (ATas) was low after cryoballoon ablation (CBA) for persistent atrial fibrillation (PeAF), but the data of repeat procedure was limited. The purpose of this study was to investigate the characteristics and outcomes of second procedure after CBA in patients with PeAF.

**Methods**: This was single center, retrospective analysis. Between March 2016 and December 2018, of 354 patients with PAF undergoing their first CBA, 38 patients (10.7%) required second procedure at 9±4 months.

**Result**: During follow-up, the incidence of AF, atrial flutter and atrial tachycardia was 73.7%, 10.5% and 15.8% respectively. 18 patients (47.4%) had at least one PV reconnections. Low voltage area (LVA) defined as <0.5mV in sinus rhythm was detected in 16 (42.1%) and all LVA were ablated. Additional strategy was following; SVC isolation with 13 (34.2%), non PV foci (except SVC) with 8 (21.1%), linear ablation for roof of left atrium (LA) with 19 (50.0%), for bottom of LA with 9 (23.7%), for mitral isthmus with 3 (7.9%), anterior wall of LA with 13 (34.2%) and CFAE ablation with 4 (10.5%). Freedom from recurrence of ATas was 78.9% after second procedure (median follow up periods after second procedure was 279 days).

**Conclusion**: This analysis showed the characteristics of second procedure after cryoballoon ablation for paroxysmal atrial fibrillation. Freedom from recurrence after second procedure was acceptable. It can be suggested that optimal strategy such as ablations for low voltage area, SVC and non PV foci is necessary and lead to good outcome.