Cryoballoon Ablation is Superior to Conventional Point-by-Point Procedure in Reduction of Gap Related to Atrial Tachyarrhythmias Recurrence

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**Introduction**: Cryoballoon pulmonary vein isolation (CPVI) is known to be effective and useful for drug-refractory paroxysmal atrial fibrillation (AF). However, electrical and anatomical features in recurred patients after initial ablation procedure of CPVI strategy remains unclear, compared to these patients after conventional PVI strategy.

**Methods**: We examined electroanatomical and echocardiographical parameters in patients with recurred atrial tachyarrhythmias after initial procedure by CPVI or conventional PVI using irrigated ablation catheter with 3D mapping systems.

**Result**: There were no significant differences in echocardiographic features including LA dimension (39.7±6.2 vs 40.6±4.5 mm, P=NS) and LV ejection fraction (66.6±10.7 vs 59.8±11.9 %, P=NS) between 2 strategies. We performed subsequent ablation session for recurrences of atrial tachyarrhythmias after initial ablation procedure in CPVI (n=11/150) and conventional PVI (n=33/137), respectively. Atrial tachycardia or Flutter (AT/AFL) were detected after CPVI (N=4) and conventional PVI (N=11), respectively. Among them, seven AT/AFL after conventional PVI were gap-related, but no gap-related AT/AFLs were in CPVI. Three AT/AFLs after CPVI consisted of macro-reentries (2 LA- and 1 typical RA flutter). The number of ablation application to gap of left PVs after CPVI were fewer than those after conventional PVI (LPV:15.9±18.0 vs 6.0±5.8 P=0.08) in subsequent ablation procedures.

**Conclusion**: Compared to conventional PVI, CPVI procedure, not point-by-point procedure, is more effective for successful elimination of AT/AFL, probably due to reduction of the degree of gap in the vicinity of PV ostia and making secure facial ablated lesion.