The efficacy and the safety of left atrial appendectomy in patients with persistent atrial fibrillation at increased risk of thromboembolism

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**Introduction**: Oral anticoagulants (OACs) therapy is the choice for prevention of thromboembolic events in patients with atrial fibrillation (AF). However, a few patients with OACs experienced thromboembolic events. Moreover bleeding events occurred in some patients with OACs. Thoracoscopic left atrial (LA) appendectomy is a potential alternative to life-long OACs therapy for preventions of LA appendage thrombus formation without OAC in patients with persistent AF. The aim of this study was to evaluate the efficacy and the safety of LA appendectomy in patients with persistent AF at increased risk of thromboembolism after ablation for AF.

**Methods**: In this retrospective study, a total of 59 patients with persistent AF (average age: 65.8 ± 9.4 years old, men/women=43/16, persistent AF/long-standing persistent AF (>1 year) = 21/38) underwent ablation for AF. The mean duration of sustained AF of all patients was 2.4 years (3 months to 15 years). Fourteen of all patients had received LA appendectomy before ablation for AF, for the purpose of prevention of LA appendage thrombus formation and bleeding events caused by OACs therapy.

**Result**: All patients were successfully performed ablation for AF, including pulmonary vein isolation, superior vena cava isolation, cavo tricuspid isthmus blockline, linear ablation and complex fractionated atrial electrogram ablation. The CHADS2 scores and CHA2DS2 VASc scores in patients with LA appendectomy were significantly higher than those in patients without LA appendectomy (CHADS2; 2.7 vs 1.6; p=0.012, CHA2DS2 VASc; 3.9 vs 2.6; p<0.05). Over a median follow-up of 579 ± 432 days after ablation, OACs therapy was discontinued significantly more frequent in 13 patients with LA appendectomy (92.9%) than in 5 patients without LA appendectomy (11.1%; p<0.001). All of 13 patients with LA appendectomy quitted OACs 3 months after ablation and only 1 patient with LA appendectomy had continued antiplatelet therapy for percutaneous coronary intervention. All patients had no experience of thromboembolic events. However, a composite of all bleeding events and all cause of deaths did not occur in patients with LA appendectomy, although 9 events which included 1 death, 1 cerebral hemorrhage and 7 minor bleeding events occurred in patients without LA appendectomy. (p=0.09).

**Conclusion**: In this study, LA appendectomy could lead to estimated freedom from OACs in 93% patients with persistent AF after ablation. Furthermore, LA appendectomy could prevent both thromboembolic events and bleeding events. This study showed that thoracoscopic LA appendectomy was effective for prevention of thromboembolism and provided freedom from not only OACs but also a risk of bleeding events even for patients with high CHADS2 score after ablation for AF.