Trans-thoracoscopic left atrial appendage excision with pulmonary vein ablation as an alternative to oral anticoagulants for secondary thromboprophylaxis in atrial fibrillation patients

Minglong Chen
Mingfang Li
Yongfeng Shao
Xinjiang Zhang
Weidong Gu
Buqing Ni
Zidun Wang
Zhirong Wang
Li Zhu
Tieyu Tang
Zhongbao Ruan
Haiyan Li
Bing Yang
Fengxiang Zhang
Haibin Shi
Jingsong Zhang
Qi Wan
Xiangqing Kong
Gregory Y.H. Lip
Hung-Fat Tse

Introduction: While oral anticoagulants (OACs) are effective for thromboprophylaxis in atrial fibrillation (AF) patients with prior thromboembolic events, the long-term compliance and bleeding risks of OACs remain major hurdles. Therefore, searching for a permanent prophylactic strategy without OACs is an important project. The Objective of this study was to evaluate whether surgical mini-invasive trans-thoracoscopic left atrial appendage excision (LAAE) plus AF ablation is an effective approach for secondary thromboprophylaxis in such population.

Methods: In this multicentre, prospective, observational study, non-valvular AF patients aged 18–80 years with previous thromboembolic events were enrolled. Patients who underwent LAAE plus AF ablation (AF-LAAE group) stopped OAC therapy, while those unwilling to undergo surgical intervention were treated with OACs (AF-OAC group). The primary endpoint was the composite of thromboembolism, major bleeding, and all-cause mortality. This study was registered with ClinicalTrials.gov, ID: NCT 02478294.

Result: Between 2013-2017, 117 candidates underwent LAAE plus AF ablation, and 357 patients were on OACs. After propensity score adjustment, the AF-LAAE group had a lower incidence of the primary endpoint than the AF-OAC group (1.27 vs. 6.82 per 100 person-years, HR: 0.22 [95% CI 0.07-0.64, p=0.006]) over a median of 951.0 days (IQR: 578.5 to 1298.5 days). The risk of all stroke, major bleeding, and all-cause mortality was also decreased in the AF-LAAE group.
Conclusion: Trans-thoracoscopic LAAE plus AF ablation is an innovative and effective approach for secondary thromboprophylaxis in AF patients. Our findings merit further prospective RCTs in this high-risk cohort, and may be highly relevant to healthcare systems where OAC management remains challenging.