**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.