

12. Extra-Pulmonary Vein Triggers Contribute to Poor Rhythm Outcomes After Post-Ablation Early Recurrence of Atrial Fibrillation

Yoon Jung Park, Hee Tae Yu, Tae-Hoon Kim, Jae-Sun Uhm, Boyoung Joung, Moon-Hyoung Lee, Hui-Nam Pak, Yonsei University College of Medicine, Seoul, Republic of Korea

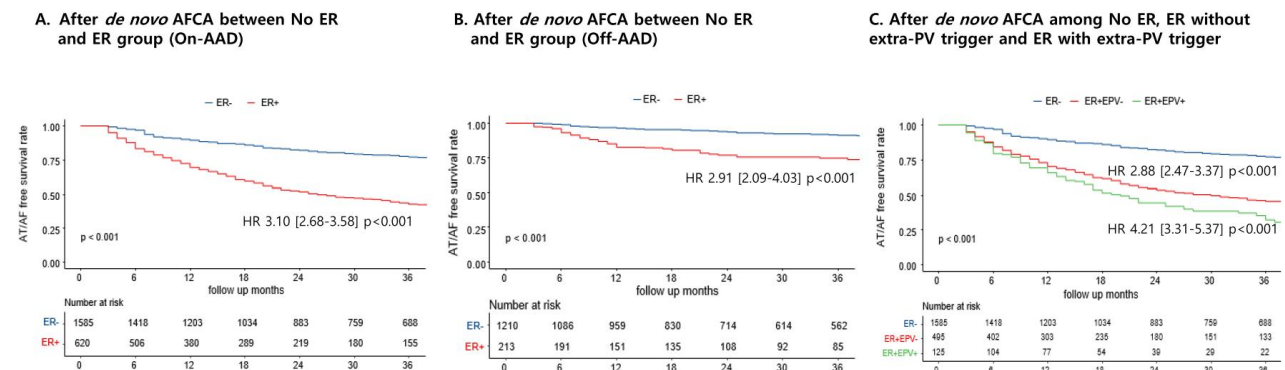
Body

Background: Although early recurrence (ER) within 3 months after atrial fibrillation (AF) catheter ablation (AFCA) was recently reported to be a reliable predictor of late recurrence (LR), the mechanism is not clear. We explored the potential mechanisms of ER based on mapping during de novo and repeat AFCA.

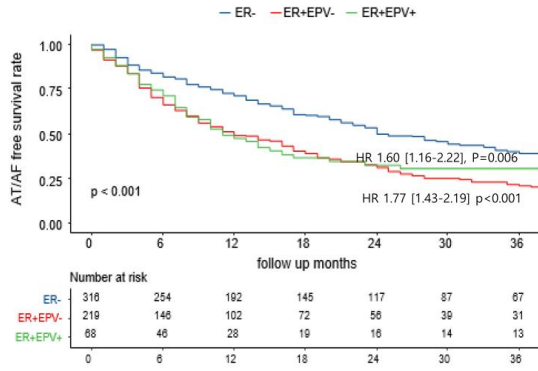
Methods: We included 2205 patients who underwent de novo AFCA (59.0±10.9 years old, 66.3% paroxysmal AF) with isoproterenol provocation after pulmonary vein (PV) isolation to detect extra-PV triggers. We evaluated the characteristics of patients experiencing ER and responses to the antiarrhythmic drug (AAD) and repeat procedures.

Results: Among the 2205 patients, 28.1% experienced ER and 33.9% experienced LR. Among the LR patients, 80.6% (603/748) used AADs and 31.0% (232/748) underwent repeat procedures. ER was independently associated with the existence of extra-PV triggers (HR 2.66 [2.09-3.37], $p < 0.001$). The LR risk was significantly higher in the ER with extra-PV triggers group than in ER without extra-PV triggers or no ER groups (Log-rank $p < 0.001$) at 52.3±39.1 months of follow-up. AAD responses after LR were worse in the ER group (Log-rank $p < 0.001$), but did not differ between the ER with extra-PV triggers and ER without extra-PV triggers groups. The rhythm outcome of the second procedure was worse in the ER with extra-PV triggers group than in ER without extra-PV triggers or no ER groups (Log-rank $p < 0.001$).

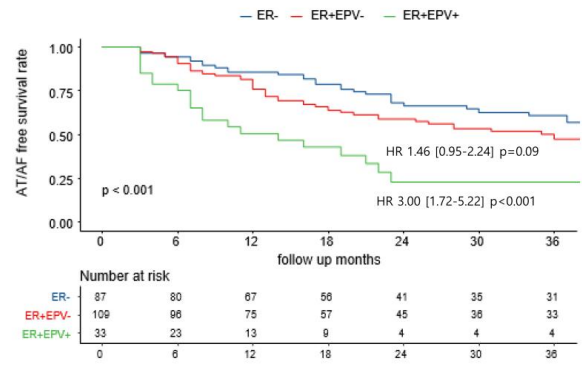
Conclusion: ER was independently associated with LR after de novo and redo-AFCA, and extra-PV triggers played crucial roles in ER and LR after AFCA.



A. After AAD use



B. After repeat AFCA



Clinical Implications: My study will help enable cardiovascular clinicians to determine which mechanisms are associated with early recurrence and also influence clinical recurrence after atrial fibrillation catheter ablation.