Predictive value of left atrial enlargement on long-term recurrence rate after radiofrequency ablation of atrial fibrillation

Min Soo Cho
Jun Kim
Minsoo Kim
Ungjung Do
Gi-Byoung Nam
Kee-Joon Choi
You-Ho Kim

Introduction: The clinical impact of left atrial enlargement (LAE) on long-term recurrence of atrial fibrillation (AF) after radiofrequency ablation (RFCA) has not been established. We investigated the predictive value of LAE on recurrence of AF after RFCA.

Methods: We retrospectively reviewed records of 800 consecutive patients with paroxysmal (n = 577, 72.1%) or persistent (n = 223, 27.9%) AF who underwent first-time RFCA between 2010 and 2018. Outcomes after the index procedure were compared between patients with no LAE (n = 325) and those with mild (≥ 41 mm in males; ≥ 39 mm in females), moderate (≥ 47 mm in males; ≥ 43 mm in females), and severe LAE (≥ 52 mm in males; ≥ 47 mm in females). The primary endpoint was recurrence of atrial fibrillation (AF) or flutter (AFL) after a blanking period of 3 months.

Result: Patients with severe LAE were more likely to be female, older, have higher BMI, and have higher prevalence of baseline comorbidities and persistent AF. Those patients underwent more extrapulmonary vein target ablations and therefore associated with longer procedure time and ablation times. During 2 years of follow-up, patients with any degree of LAE had higher incidence of atrial fibrillation or tachycardia (AF/AFL) recurrence compared to patients with no LAE (22.3% vs. 37.1% vs. 45.2% vs. 40.7% for no, mild, moderate, and severe LAE, respectively, P < 0.001). However, there was no significant difference between patients with mild, moderate, and severe degree of LAE. Predictive performance of degree of LAE on AF/AFL recurrence was only modest (area under curve 0.591, 95% CI 0.550-0.631).

Conclusion: Patients with any degree of LAE had higher incidence of AF/AFL recurrence than those without LAE. However, degree of LAE was not a good predictor of recurrent AF/AFL and it cannot prohibit the decision on the performing AF-RFCA.