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

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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 (≥ 41mm in males; ≥ 39mm 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 extra-pulmonary 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.