Pre-Procedural Diastolic Function and Early Recurrence Are Related with Reverse Remodeling of Left Atrium after Catheter Ablation of Atrial Fibrillation: 1 Year Follow-Up Echocardiographic Data

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Background: Although it has been known that radiofrequency catheter ablation (RFCA) of atrial fibrillation (AF) induces reverse remodeling of atrium, its mechanism has not been evaluated yet.

Methods: We included 156 patients with AF (male 78.1%, 56.3±10.7 years old, paroxysmal AF 66.7%) who underwent RFCA, and compared pre-procedural echocardiography and post-RFCA 1-year follow-up echocardiography.

Results: 1. LA anterior-posterior diameter (pre 42.1±5.8mm vs. post 39.1±5.5mm, p<0.001), early transmitral flow velocity (E; pre 0.72±0.19m/sec vs. post 0.68±0.16m/sec, p=0.005), and mitral annular velocity (E 7.8±2.3cm/sec vs. post 7.1±2.2cm/sec, p<0.001) were decreased 1 year after AF ablation. 2. When we compared the patients with reduced LA size (n=114) and those without LA reverse remodeling (n=42), pre-procedural E/E' was significantly higher (10.4±4.0 vs. 8.4±2.5, p=0.002) in spite of similar left ventricular ejection fraction (p=0.294), and the early recurrence rate within 3 months of ablation was lower (27.7% vs. 45.2%, p=0.028) in patients with LA reverse remodeling. 3. However, duration of RF energy delivery or late recurrence rate were not different between 2 groups.

Conclusion: Pre-procedural diastolic dysfunction, but not the duration of RF energy delivery, was closely related with reverse remodeling of LA after AF catheter ablation, and those without reverse remodeling of LA more frequently suffered from early recurrence of AF after ablation.

Keywords: atrial fibrillation, left atrium, transthoracic echocardiography