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Catheter ablation outcome and heart failure hospitalization in atrial fibrillation patients: insights from the Kansai plus atrial fibrillation (KPAF) registry

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Background: Heart failure (HF) is the leading cause of death in patients with atrial fibrillation (AF). Radiofrequency catheter ablation (RFCA) for AF is effective to maintain sinus rhythm.

Purpose: We sought to clarify whether AF ablation outcome influenced incidence of HF hospitalization after the procedures.

Methods: We conducted a large-scale, prospective, multicenter, observational study. A total of 5010 consecutive patients who underwent an initial RFCA for AF in 26 centers were enrolled (average age, 64±10 years; non-paroxysmal AF, 35.6%). The median follow-up duration was 2.9 years.

Results: The 3-year cumulative incidence of AF recurrence after a single procedure was 40.2%. The 3-year incidence of hospitalization for HF was observed in 92 patients (1.8%) and was significantly higher in patients with AF recurrence than those without it (3.3% vs 0.84%, log-rank $p < 0.001$). Af-

ter adjustment by advanced age (≥ 65 years), reduced left ventricular ejection fraction ($\leq 50\%$), low estimated glomerular filtration rate (≤ 60 ml/min), and history of HF, all of which were statistically associated with a risk of HF hospitalization ($p < 0.1$, respectively), AF recurrence after the index RFCA was an independent predictor of HF hospitalization (hazard ratio [HR]; 3.17, 95% confidence interval [CI]; 2.06–5.04, $p < 0.001$). Even after multiple procedures (1425 re-ablation sessions in 1274 patients [25.4%]), AF recurrence after the last procedure was an independent predictor of HF hospitalization (HR; 2.83, 95% CI; 1.89–4.24, $p < 0.001$).

Conclusions: Among AF patients receiving RFCA, those with AF recurrence were at greater risk of heart failure hospitalization than were patients without AF recurrence. These differences should be noted when treating AF patients in actual clinical practice.