Catheter ablation of atrial fibrillation benefits the patients with heart failure and preserved ejection fraction as well as those with heart failure and reduced ejection fraction

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Background: Although catheter ablation of atrial fibrillation (AF) has recently been shown to improve the cardiac function and even mortality in patients with heart failure (HF) and reduced ejection fraction (HFrEF), few studies have examined the outcomes of AF catheter ablation in patients with HF with preserved ejection fraction (HFpEF).
Purpose: To verify the impact of AF catheter ablation on the cardiac function and HF status in patients with HFpEF.
Methods: We studied 306 patients with HF who had a history of an HF hospitalization and/or preprocedural serum BNP levels >100pg/ml (age, 68.9±8.2 years old; male, 66.3%; non-paroxysmal AF, 63.1%, left atrial diameter [LAD], 42.5±6.3 mm; left ventricular ejection fraction [LVEF], 60.6±12.0%) out of 596 consecutive patients who underwent pulmonary vein isolation-based catheter ablation of AF. The patients with an LVEF ≥50% were defined as having HFpEF (n=262; age, 69.0±8.2 years old; male, 64.5%; non-paroxysmal AF, 61.8%, LAD, 42.1±5.9 mm; left LVEF, 64.0±8.2%) and the remaining patients with an LVEF <50% were defined as having HFrEF (n=44, age, 67.9±8.7 years old; male, 77.0%; non-paroxysmal AF, 70.5%, LAD, 44.9±8.2 mm; LVEF, 40.1±10.2%). The patients received periodic follow-ups for 12 months after the catheter ablation. The cardiac function parameters including the echocardiographic findings and HF functional status of the patients were compared between baseline and 12 months, stratified by the HF subgroup.
Results: AF recurred in 60 patients with HFpEF (22.9%) and in 14 with HFrEF (31.8%) during the 12 month follow-up (p=0.27), however, sinus rhythm was maintained at 12 months in most of the patients (253 patients with HFpEF [96.6%] and 42 patients with HFrEF [95.5%]) (p=0.71). Figure 1 compares the changes in the cardiac function parameters and NYHA functional class from baseline to the 12-month follow-up stratified by the HF subgroup. Both the patients with HFpEF and HFrEF had significant improvements in the serum BNP levels, chest thorax ratio, and LVEF determined by echocardiography. LA reverse remodeling as shown by a significant reduction in the LAD was observed in both HF subgroups, however, the E/E', an index of the LV diastolic function, did not significantly change in either of the subgroups. Similar to the patients with HFrEF, an improvement in the NYHA functional class was seen in those with HFpEF.
Conclusions: Catheter ablation of AF may benefit patients with HFpEF as well as those with HFrEF. Sinus rhythm maintenance achieved by AF catheter ablation in patients with HFpEF may lead to LA reverse remodeling and a better LV systolic function, thereby improving the NYHA functional class. It is unclear whether changes in the LV diastolic function may contribute to this favorable process.