Introduction: The restoration of sinus rhythm (SR) with catheter ablation (ABL) for atrial fibrillation (AF) results in significant improvements in left atrium (LA) and left ventricle (LV) function. However, the relationship between the recurrence of AF and the improvements in LA and LV function remains unclear. The aim of this study was to investigate the functional changes of the LA and LV in patients with sustained SR after ABL.

Methods: We enrolled 37 patients with persistent AF presenting for radiofrequency ABL. All patients underwent pulmonary vein isolation, cavotricuspid isthmus ablation and left atrial roof ablation. The changes of brain natriuretic peptide (BNP), LA volume and left ventricular ejection fraction (EF) before and after six months ABL and recurrence of AF were evaluated. All patients were divided into the following 2 groups with (recurrence group: 13 patients) or without recurrence of AF (SR group: 24 patients).

Result: Before and after ABL, SR group significantly improved EF (before and after, 51.0±14.7% and 59.3±11.2%, \(p=0.001\)), and BNP (before and after, 264±225 pg/ml and 101±194 pg/ml, \(P<0.001\)). On the other hand, recurrence group no significantly improved EF (before and after, 48±14% and 50±15%, \(P=\text{n.s.}\)) and BNP (before and after, 253±172 pg/ml and 240±342 pg/ml, \(P=\text{n.s.}\)).

Conclusion: Keeping SR with ABL for AF improves cardiac function.