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Cardiac resynchronization therapy after atrioventricular junction ablation in patients with persistent atrial fibrillation

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Objective: to evaluate the effectiveness of biventricular stimulation after the destruction of AV-node in patients with persistent atrial fibrillation (AF) and chronic heart failure (CHF).

Materials and methods: The observational single-center study included 39 patients with mean age 61.8 ± 9.4 years. All the patients were diagnosed with CHF functional classes III, IV according to New York Heart Association (NYHA) and had poorly controlled persistent AF. At the enrollment point, patients received beta-blockers, ACE inhibitors, diuretics (including aldosterone antagonists), antiplatelet agents, anticoagulants, and statins (if indicated). Radiofrequency ablation of the AV node with implantation of a resynchronization device (biventricular stimulation) were performed in all patients. Before and 12 months after the intervention we utilized an echocardiography to evaluate cardiac structure and its functions.

Results: The follow-up showed that 12 months after the intervention, there was an increase in the left ventricular ejection fraction (EF) from 32.95 ± 6.84% to 42.89 ± 8.91% (p <0.0001). We observed a decrease in the end-systolic volume (ESV) from 113.32 ± 48.54 ml to 93.83 ± 38.3 ml (p <0.0001). There were no changes on the left ventricular stroke volume (73.41 ± 15.56 ml at the baseline compared with 74.26 ± 20.56 ml 12 months later, p <0.737). The six-minute walk test (SMWT) results increased from 241.3 ± 56.2 m to 362.1 ± 72.2 (p <0.0001).

Conclusions: Biventricular stimulation after radiofrequency ablation of AV node in patients with poorly controlled persistent atrial fibrillation, advanced CHF resulted with an EF, and SMWT improvement, as well as ESV decrease within 12 months observation period.