Atrioventricular junction ablation with cardiac resynchronization therapy

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Introduction: Atrioventricular junction (AVJ) ablation improves the outcomes of cardiac resynchronization therapy (CRT) in patients with atrial fibrillation (AF). We report our initial results of AVJ ablation in patients with CRT.

Methods: Eight consecutive patients who underwent AVJ ablation between May 2017 and June 2019 were included. Clinical, electrocardiographic, and echocardiographic data were reviewed and analyzed.

Result: The mean age was 69.2 years, and 4 patients had non-ischemic cardiomyopathy. Left bundle branch block was present in 6 cases. Two patients who were unsuitable for AF ablation (high-risk) underwent AVJ ablation. Seven patients had persistent AF, and 1 had a paroxysmal AF/organized atrial flutter. AVJ ablation (using an external irrigation catheter) was successful using a right-sided approach in 7 patients and a left-sided approach in 1. Left ventricular (LV) lead dislodgement occurred in 1 case. Immediate decreases in the left atrial size (from 53.4±6.5 mm to 43.7±19.5 mm, p=0.27) and left ventricular end-systolic volume (from 136.6±40.2 mL to 104.7±38.8 mL, p=0.13), with improvement in LV ejection fraction (from 27.8±4.8% to 36.4±8.4%, p=0.01), were observed. Of 3 patients with >6 months of echocardiographic follow-up data, LV ejection fraction improved to 50.7±2.1% (p=0.02). The AV conduction resumed in the first case 24 months after AVJ ablation.

Conclusion: AVJ ablation is highly effective for reverse remodeling of the left ventricle and improving ventricular function in patients with AF and severe LV dysfunction.