Cardiac Resynchronization Therapy in Patients with Aortic Valve Disease

Minsoo Kim  
Jun Kim  
Ungjeong Do  
Min Soo Cho  
Gi-Byoung Nam  
Kee-Joon Choi  
You-Ho Kim

Introduction: The efficacy of cardiac resynchronization therapy (CRT) is unknown in patients with aortic valve disease. We aimed to evaluate outcomes of CRT in patients with aortic valve disease.

Methods: We analyzed 14 consecutive patients with aortic valve disease who underwent CRT from 2004 to 2019. Clinical and electrocardiographic data were reviewed. Procedural and echocardiographic outcomes were analyzed.

Result: In the 14 patients (age, 69.6±9.1 years; men, 10), the aortic diseases were as follows: surgical aortic valve replacement (n=9), transcatheter aortic valve implantation (n=2), moderate aortic regurgitation (n=2), and low-gradient severe aortic stenosis (n=1). Coronary artery disease was present in 3 patients. Other prior cardiac procedures included mitral valve replacement (n=4), coronary artery bypass graft (n=2), tricuspid valvuloplasty (n=1), and maze operation (n=1). Left bundle-branch block was present in 12 patients; intraventricular conduction disturbance, in 1 patient; and paced rhythm in 1 patient. Atrial arrhythmia was present in 6 patients. A CRT pacemaker was implanted in 6 patients. AV junction ablation was performed in 1 patient. Atrial lead revision was performed in 1 patient. QRS duration decreased from 176.4±27.5 ms to 158.6±25.8 ms (p=0.003) after CRT. Left ventricular end-systolic volume decreased from 174.0±91.5 ml to 134.8±68.1 ml (n=13) acutely after CRT (p=0.073). Left ventricular ejection fraction increased from 25.9±6.8% to 33.2±5.8% (n=13) acutely after CRT (p=0.003) and further increased to 41.2±15.4% (n=11) at last follow-up.

Conclusion: Cardiac resynchronization therapy was effective for reverse remodeling and improving the left ventricle in the patients with aortic valve disease in this study.