Clinical Outcome of Cardiac Resynchronization Therapy in Patients with Heart Failure Due to Valvular Cardiomyopathy After Corrective Surgery

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Introduction: Cardiac resynchronization therapy (CRT) is beneficial and well-established therapy in heart failure patients with LVEF ≤35% and electrical dyssynchrony. Little data is available about the usefulness of CRT in heart failure due to valvular heart disease. The objective of the present study is to describe the long-term follow-up of clinical characteristics and effect of CRT on left ventricular remodelling in patients with heart failure of valvular etiology who had undergone prosthetic valve replacement.

Methods: Between 2008-2018, a total 400 underwent CRTs at Care hospital, Hyderabad. Among them 15 consecutive patients with heart failure due to valvular heart disease who had undergone prosthetic valvular replacement were included in this retrospective analysis. The clinical characteristics, implantation data and follow-up analysis of electrocardiographic and hemodynamic remodeling following CRT implantation were studied. Response to CRT was defined as improvement in NYHA class by 1 and reduction end systolic volume (ESV) by 15% post CRT.

Result: The baseline characteristics of the patients are shown in Table 1. The median duration of valvular surgery and CRT implantation was 72 [3-312] months. Patients were followed up for 29 (17-125) months. CRT-P was performed in 6 patients and remaining underwent CRT-D. Acute lead related procedural complications occurred in 2 patients. At the end of 1 year follow up, QRS duration (167.86 + 14.15 vs 135.29 + 10.93, P<0.01) ms, NYHA class (3.2 + 0.56 vs 2.13 + 0.51, P<0.01), HF related hospitalisation [2 (2-3) vs 0 (0-1) P<0.01] and ESV (121.5 + 29.76 vs 66.5 + 37.38, P<0.01) ml showed significant improvement. The non-responders at one year follow up was 3 (20%). The following complications occurred on long-term follow up, lead related (n=3, 20%), mortality (n=1, 6.6%).

Conclusion: Both clinical and LV remodeling improvement occurs in patients with advanced heart failure due to valvular cardiomyopathy.