

Long-term Fate of Patients With Congenital Heart Disease Undergoing Cardiac Resynchronization Therapy

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Objectives: CRT is rarely used in pts with congenital heart disease (CHD) and follow-up in available studies is too short. We sought to evaluate long-term impact of CRT in pts with CHD.

Methods: 33 consecutive pts with structural CHD (N=32) or congenital AV block (N=1) aged median 13 (IQR 8-23) yrs were followed-up after primary (N=9) CRT-P (N=29) or CRT-P/D (N=4) implantation or upgrade from conventional pacing (N=24) for >6 (median 50, IQR 38-72) mos. Procedures were performed for treatment of dyssynchronous heart failure (HF, N=29) or to prevent systemic ventricular desynchronization in case of a bradycardic pacemaker indication (N=4) and associated with additional cardiac surgery in 12 pts. CRT response was defined as improvement of systemic ventricular EF or fractional are of change (FAC) by >10 points and improved or unchanged NYHA class at the end of follow-up.

Results: There were 6 adverse outcomes (18.2 %) with an actuarial probability of an uneventful therapy continuation at 5 yrs of 77.0 %: 1 HF related and 1 sudden cardiac death, 1 heart transplant, 1 pat suffering from neurological damage due to exit block and asystole and 2 therapy terminations because of lead fracture and infection, resp.. Among 29 pts treated for dyssynchronous HF (initial median EF or FAC=23, IQR 16-31 %, mean NYHA=2.3) long-term CRT response was observed in 8/12 pts with systemic LV and 5/17 pts with systemic RV or single ventricle, P=0.07. Decrease in NYHA class and in the z-score of systemic ventricular end-diastolic dimension was larger in pts with systemic LV (P=0.038 and 0.006, resp.). 8 surgical CRT system revisions had to be performed in 7 pts (generator replacement for ERI in 6/8) with a reintervention-free survival probability at 5 yrs of 81.6 %. **Conclusions:** Long-term CRT led to sustained improvement of systemic ventricular function in ~2/3 of pts with systemic LV and ~1/3 of pts with systemic RV or single ventricle. It was associated with a significant incidence of heart failure-related adverse events and device complications, resp.. Surgical revisions were mainly due to battery depletion. (Supported by the research project of University Hospital Motol MZOFNM2005)