

Effect of cardiac resynchronization therapy in children with dilated cardiomyopathy and refractory heart failure with a narrow QRS complex.

Balderrábano-Saucedo N.A. (1), Townsend-Nava S. (2), Becerra-Becerra R. (1), Tamayo-Espinosa T. (1), Cano-Hernández K.S. (1), Arévalo-Salas A. (1), Romero-Cárdenas P. (1), Ruíz-González S. (1), Bolio-Cerdán A. (1), Erdmenger-Orellana J.(1)

Children´s Hospital of Mexico Federico Gómez, Mexico city, Mexico. (1)

National Institute of Cardiology Ignacio Chávez, Mexico city, Mexico. (2)

Introduction and objective. Dilated cardiomyopathy (DCM) is the most common cardiomyopathy in children . In México, half of the cases die on the waiting list for a heart transplant. Cardiac resynchronization therapy (CRT) has demonstrated efficacy with an improvement in functional class, ventricular function and survival in the adult population with a QRS complex >150 msec. Currently there are no guidelines for the application of CRT in children with heart failure (HF). The objective of the study was to analyze the effect of CRT on ventricular function and functional class in children with refractory HF secondary to DCM with or without a QRS complex >150 msec.

Methods. Open clinical trial, uncontrolled, non-randomized (intervention study of a single group, with assessment before and after). Cardiac dyssynchrony was assessed with real-time three-dimensional echocardiography obtaining an index of asynchrony (IA).

Results. Seven children with DCM received CRT from october 2013 to november 2014. Four girls. Age 3.02 - 14.6 years , weight 11.3 - 61 kg, QRS: 93 ± 31.5 , ejection fraction (LVEF) 8-30 %, AI) 5 - 11.9. Four children were in functional class III, Two in II and one in IV. Two implants were performed via epicardial and endocardial via 5. Time of hospitalization was 2-12 days. A girl with DCM secondary to anthracycline in functional class IV with dysfunction in more than 2 organs, died at 11 days after implantation. In the six living children, the functional class improved by at least 1 category, the LVEF improved at least 40% from baseline and the IA was less than 5 in all. No complications were associated with the implant.

Conclusions. CRT showed improvement in functional class and in ventricular function in a small group of children with refractory HF secondary to DCM with a narrow QRS complex.