The Evaluation of Patients with Borderline Left Ventricle: Single Center Experience

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Introduction: Left heart hypoplasia is a spectrum of left heart structures varying from complete atresia to mild hypoplasia in which the favorable end of the spectrum, namely borderline left ventricle (BLV) may progress to undergo biventricular repair. We conducted a review of data of patients on follow up with the initial diagnosis of BLV.

Methods: The records of 15 patients with the initial diagnosis of BLV were analysed retrospectively. Age, gender, body weight, initial and follow up echocardiographic measurements and additional cardiac abnormalities, operative and interventional history and outcomes were recorded.

Results: The median age at diagnosis was 7 days (1-80 days). Cardiac abnormality was diagnosed prenatally in 3 of the 15 patients (20%). Twelve patients were operated, remaining 3 have still been on follow up.

Echocardiographic analysis: Left atrial isomerim was detected in a patient and 5 patients had persistant left superior caval vein with large coronary sinus. EFE was not demonstrated in any of our patients. Median mitral valve annulus z scores and aortic annulus z scores were statistically insignificant in between patient groups of non operated, single ventricle palliation and biventricular correction performed.

Surgical procedures and outcome: 12 patients were operated at the median age of 38 days (7-120). Biventricular correction could not be performed in 3 patients, and they were directed to single ventricle palliation. Nine patients had pulmonary banding or coarctation repair or arch reconstruction together with additional procedures (VSD closure, pulmonary banding, coarctation repair etc) depending on their initial additional diagnosis. Four patients died postoperatively. Three of them were patients in whom single ventricle palliation was performed and the last patient was the one with LVOT and RVOT obstruction. Postprocedural last ECHO was performed at a median age of 16 months (3-46). There were no statistically significant difference of echocardiographic measurements between patients not operated and biventricular correction performed.

Conclusion: The choice between single or biventricular management pathway is difficult in infants with BLV and very close clinical and echocardiographic monitoring seems to be required. Early orientation to single ventricle palliation is also important for desirable outcome.