

## O10-7

### **The impact of cardiac resynchronization therapy on outcome of infants with severe congestive heart failure due to dilated cardiomyopathy ----the importance of detecting “optimal pacing site” in OR**

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Background: The prognosis of dilated cardiomyopathy (DCM) with onset in infancy has been still dismal and poor, although cardiac resynchronization therapy (CRT) showed suboptimal improvements of some cases with electro-mechanical dyssynchrony

Aim: To investigate the outcome of DCM with onset in infancy after CRT using epicardial leads and scrutinizing the search for optimal pacing site by intra-operative transthoracic (TTE) and transesophageal echocardiographic (TEE) monitoring using radial strain of speckle tracking imaging.

Subjects: 5 consecutive patients with DCM age at onset were ranged 2 -6 months, and age at CRT ranged 9-13mo, weight of 6-7 Kg. All 5 patients were in NYHA class IV and their left ventricular fractional shortening (LVFS) were 1-7% with dyssynchrony (Ts-SD: 65-164ms), BNP 1720-7680pg/ml under catecholamine d.i.v..

Method of CRT: Because of small body size, we used a DDD pacemaker (ADDR01, Medotronics) with Y-shaped epicardial ventricular lead instead of InSynclIII. The optimal pacing site for LV epicardial lead was defined at both preoperatively and intra-operatively, as the latest contraction site of LV on radial and circumferential strain by TEE and TTE. Then RV pacing site was set with maximal trans-aortic flow velocity integral (VTI) and minimum dyssynchrony index. Finally the optimal atrio-ventricular delay time (AVDT) was set by maximum Ao-VTI and minimum QRS duration of ECG.

Results: 4 of 5 pts improved NYHA class from IV to I, but one was lost by sepsis. The 4 survivors improved LVFS from 5 +/- 2% to 38 +/- 5%, reduced BNP from 4093 +/- 2890 to 15.8 +/- 6 pg/ml. All dyssynchrony index (Ts-SD-TDI, Td-TDI, Ts-SR, Td-SR) were improved significantly all through the follow-up period (22-112 mo).

In conclusion: CRT for infants with severe DCM, using epicardial lead, is feasible and promising treatment and could avoid transplantation, once one could assess the optimal pacing site appropriately and could set during operation by TTE or by TEE.