

## MP2-3

### **Global longitudinal diastolic and systolic right ventricular function decreases during medium-term follow-up of children with Hypoplastic Left Heart Syndrome.**

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Basics: Serial assessment of right ventricular (RV) function in children with Hypoplastic Left Heart Syndrome (HLHS) is important after 3 stage palliation with total cavopulmonary connection (TCPC). For this purpose, echocardiographic two-dimensional Speckle Tracking (2DST) is a promising technique as limitations related to geometry or angle of insonation are lacking. Therefore, it was used to evaluate RV global longitudinal peak systolic strain (GS) and peak strain rate in systole (GSRs), early (GSRe) and late (GSRa) diastole in HLHS patients. During medium-term follow up global strain rate has been shown to be valid surrogate parameter of myocardial elastance.

Methods: RV-GS and -GSRs, -GSRe, and -GSRa of 42 HLHS patients (median age at TCPC 31.5 (28.1 to 35.2) months) were obtained at two times: early after TCPC at a median interval of 18.8 (15.3 to 25.6) months after TCPC, and at a median interval of 61.2 (50.4 to 83.5) months after TCPC. GS and GSR values were compared using the non-parametric Wilcoxon-test.

Results: GS did not change between both examinations (median -18.5 (-16.2 to -22.3)% vs. -17.9 (-15.9 to -20.5)%,  $p=0.49$ ), however GSR in systole and diastole decreased significantly (GSRs: median -1.5 (-1.4 to -1.7)1/s vs. -1.35 (-1.13 to -1.5)1/s,  $p=0.003$ ; GSRe: median 2.1 (1.9 to 2.6)1/s vs. 1.9 (1.7 to 2.28)1/s,  $p=0.033$ ; GSRa: median 1.1 (0.9 to 1.4)1/s vs. 0.9 (0.61 to 1.1)1/s,  $p=0.01$ ).

Conclusions: In HLHS patients global systolic and diastolic strain rate decrease within a median period of 42.4 months. These findings indicate a decline of systemic right ventricular function in children with HLHS. The fact that in a previous study strain rate has been identified as a valid surrogate parameter of myocardial elastance, underlines the importance of our findings. Therefore, regular 2DST examinations should be part of echocardiographic follow up in all patients with HLHS after surgical palliation.