

## MP2-8

### **Speckle tracking strain echocardiography unmasks left ventricular systolic dysfunction in patients after neonatal coarctation repair**

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**Introduction:** Patients with neonatal, critical coarctation of the aorta often suffer from ventricular dysfunction pre-operatively. This contrasts to patients in whom coarctation of the aorta becomes evident at an older age who usually have left ventricular hypertrophy with preserved systolic function. If these differences remain present during long-term follow-up is as yet unclear.

**Methods:** We compared the echocardiographic results of patients who underwent coarctectomy within the first 30 days of life (group A; N=132) and those who underwent coarctectomy at an older age (Group B; N=137) after a follow-up period of  $7.5\pm 6.5$  years. A commercially available echosystem was used (Vivid-7.0 General Electric Vingmed Ultrasound). Mitral inflow parameters (E, A and deceleration time) were measured in 4-chamber view, as well as measurement of the mitral valve annulus. Long axis view was used to measure LV end systolic and end diastolic dimensions as well as left ventricular thickness of the septum and posterior wall. Shortening fraction (SF) was defined as  $((LVED-LVES)/LVED)*100\%$ . Global longitudinal strain was measured from an apical 4-chamber view as the average of all six predefined LV segments.

**Results:** Age did not differ between the two groups ( $9\pm 7$  versus  $9\pm 7$  years). There was no difference in mitral valve annulus ( $21\pm 6$  versus  $21\pm 5$  mm) nor in residual flow velocity at the previous coarctation site ( $2.2\pm 0.6$  versus  $2.2\pm 0.5$  m/sec). No difference was found in LV septal thickness or in posterior wall thickness. LV diastolic function did not differ between the two groups (MVE  $1.2\pm 0.2$  versus  $1.3\pm 0.2$  m/sec; MVA  $0.7\pm 0.3$  versus  $0.7\pm 0.3$  m/sec) as did systolic function conventionally measured (LVED  $41\pm 9$  versus  $42\pm 10$  mm; LVES  $25\pm 7$  versus  $25\pm 7$  mm; SF  $40\pm 7$  versus  $41\pm 7$  %). However, there was a small, but significant difference in global longitudinal strain ( $18\pm 3\%$  versus  $19\pm 4\%$ ;  $P<0.05$ ). Both groups differed significantly in strain from a group of 117 normal controls (global longitudinal strain  $22\pm 2\%$ ;  $P<0.001$ ).

**Conclusions:** LV systolic performance as assessed by speckle tracking strain echocardiography shows a lower global longitudinal strain in patients after coarctectomy which is most prominent in those who undergo neonatal coarctation repair. This emphasizes careful follow-up of LV systolic performance, especially in neonatal coarctation patients.