

## MP2-21

### **Residual right ventricular outflow tract obstruction preserves right ventricular contractility in patients after repair of tetralogy of Fallot: a CMR feature tracking study**

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Background: Residual right ventricular outflow tract obstruction (RVOTO) is considered beneficial in patients after repair of tetralogy of Fallot (TOF) although underlying mechanisms are unknown. The aim of our study was to elucidate differences in myocardial contractility parameters in patients after TOF repair with and without residual RVOTO using dedicated cardiovascular magnetic resonance (CMR) feature tracking (FT) analysis.

Methods: Fifty-four patients (mean age  $16.4 \pm 8.4$  years) were assessed by CMR  $14.2 \pm 7.3$  years after repair of TOF. Residual RVOTO on echocardiography was defined as a peak systolic RVOT gradient  $>25$  mmHg. Right (RV) and left ventricular (LV) strain measurements were performed using CMR-FT software (TomTec, Unterschleissheim, Germany).

Results: The groups ( $n=27$ , respectively) were well matched for age at CMR-scan, time and type of surgical repair. There was no difference in the degree of pulmonary regurgitation (PR) and RV enddiastolic volume (RVEDV). Patients with RVOTO showed significant higher circumferential (CS) ( $-15.7 \pm 4.0$  vs  $-12.3 \pm 5.8$  %;  $p=0.02$ ) and radial strain (RS) ( $15.0 \pm 4.8$  vs  $11.8 \pm 5.3$  %;  $p=0.02$ ) values, whereas longitudinal strain (LS) did not differ between the two groups ( $-9.9 \pm 5.4$  vs  $-11.5 \pm 5.9$  %;  $p=0.39$ ). The magnitude of RVOTO showed a significant correlation with RV-CS ( $r=0.37$ ;  $p=0.006$ ) and RV-RS ( $r=0.30$ ;  $p=0.03$ ) while RV-LS was unrelated to RVOTO ( $r=0.06$ ;  $p=0.68$ ). RV strain parameters were not related to PR and RVEDV. Significant relationships between RV and LV strain parameters were only found in the RVOTO group. LV-LS was significantly lower in the group with RVOTO ( $-9.2 \pm 5.2$  vs  $-12.4 \pm 5.0$  %;  $p=0.03$ ).

Conclusions: Residual RVOTO seems to preserve RV contractility in patients after TOF-repair and may therefore possess an early protective effect on RV remodelling. RVOTO appeared to result in stronger RV-LV interactions although its potential negative impact on LV strain needs further investigation.