

## Right Ventricular Myocardial Deformation and Ventricular-Ventricular Interaction in Adults with Corrected Tetralogy of Fallot.

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### Objectives:

Due to pulmonary regurgitation, most adult patients with corrected tetralogy of Fallot (cToF) have right ventricular (RV) volume overload. Using speckle-tracking echocardiography, we evaluated regional RV and left ventricular (LV) deformation in patients with cToF and in healthy controls.

### Methods:

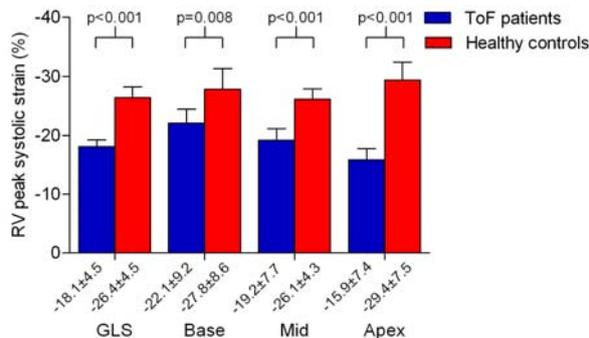
Echocardiograms including the standard apical views were acquired in adult patients with cToF and in healthy controls. With speckle-tracking echocardiography, we analyzed longitudinal strain of the RV lateral wall, LV septum, and LV lateral wall.

### Results:

We included 148 subjects: 95 patients with cToF (61% male, age  $33.0 \pm 9.6$  years, age at correction  $3.7 \pm 4.4$  years) and 53 healthy controls (49% male, age  $29.7 \pm 6.8$  years). RV global longitudinal strain (GLS) of the lateral wall was significantly lower in cToF patients than in controls (Figure 1). Of all three RV segments, the apical segment had the lowest strain in cToF patients, whereas it had the highest in controls. LV GLS was also significantly lower in cToF patients ( $-17.5 \pm 2.5\%$ ) than in controls ( $-19.8 \pm 2.2\%$ ,  $p < 0.001$ ), mainly due to reduced longitudinal strain of the interventricular septum. LV GLS was positively correlated with RV GLS ( $r = 0.44$ ,  $p < 0.001$ ).

### Conclusions:

RV longitudinal strain is reduced in cToF patients, especially in the apical segment. This suggests that apical function is more affected in these volume overloaded RVs. With regard to the LV, particularly the strain of the septum is reduced which suggests that there is a negative influence on LV function due to the mechanical coupling of the ventricles.



**Figure 1.** RV global and segmental longitudinal strain of the lateral wall.