

## PW2-4

### Natural course of right ventricular dilation in severe pulmonary regurgitation after repair of tetralogy of Fallot

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#### Introduction:

Tetralogy of Fallot (TOF) can be surgically repaired in the first months of life with low mortality. During long-term follow up, severe pulmonary regurgitation (PR) leads to right ventricular (RV) dilatation, impaired RV function and potentially lethal arrhythmias. Timely pulmonary valve replacement (PVR) may prevent these sequelae. However, the correct timing for performing PVR remains an open debate.

We sought to assess the rate of progression of RV dilatation in presence of severe PR.

#### Methods:

34 patients after TOF repair with PR and severe RV dilatation, age  $12.4 \pm 5$  y, weight  $45.8 \pm 18.3$  kg, underwent at least two consecutive MR examinations for evaluation of RV volume and function. The time interval since surgical repair was 11y (4-23). Time interval between first and last MR scan was 3y (1.1- 6).

Ventricular volumes were calculated on a stack of short-axis images covering both ventricles acquired with the steady-state free precession sequence. A difference of  $>8\%$  between two measurements was considered significant.

#### Results:

Initial RV dilation was more severe in patients after transannular patch (RVEDV  $171 \pm 32$  ml/m<sup>2</sup>) than in others ( $145 \pm 18$  ml/m<sup>2</sup>) ( $p < 0.05$ ). No significant changes in volume and function occurred in the overall patient's group (table).

Methods: □RV volume enlarged in 13/34 patients, remained unchanged in 11, and decreased in 10. In 14 patients with severe RV dilatation (RVEDV  $> 150$  ml/m<sup>2</sup>), RVEDV increased in 5, remained unchanged in 6 and decreased in 3. The overall mean rate of volume change was  $2 \pm 7$  ml/m<sup>2</sup>/year for the left ventricle and  $0.1 \pm 12$  ml/m<sup>2</sup>/year for the RV, without correlation with the technique of repair or the degree of dilatation.

#### Conclusions:

During a period of 3 years progressive RV dilatation occurred in 38% of patients with severe PR. Increase rate did not correlated with the technique of repair, or the degree of RV dilatation. Analysis of different risk factors may help in properly selecting patients for PVR.

	MR 1	MR 2
RV EDV (ml/m <sup>2</sup> )	149 (±35)	152 (±38)
RV ESV (ml/m <sup>2</sup> )	78 (±35)	81 (±29)
RV EF%	48 (±7)	48 (±8)
LV EDV (ml/m <sup>2</sup> )	73 (±13)	75 (±13)
LV ESV (ml/m <sup>2</sup> )	34 (±7)	34 (±9)
LV EF %	55 (±6)	56 (±7)