

P-160

Magnetic resonance imaging and cardiopulmonary test in adults after repair of tetralogy of Fallot: effects of pulmonary valve replacement

*Balducci A., Fabi M., Testa G., Gesuete V, Pessina A., Donti A., Montalti A., Prandstraller D., Picchio F. M., Bonvicini M., Pace C., Gargiulo G.,
Pediatric Cardiology and Adult Congenital Unit, University of Bologna, Italy*

Background: Pulmonary regurgitation (PR) is a common complication after total correction for Tetralogy of Fallot. Chronic PR leads to progressive right ventricular (RV) dilatation and dysfunction, reduction of exercise capacity and increased incidence of arrhythmias and sudden cardiac death. The optimal timing for elective pulmonary valve replacement (PVR) is unknown. In this study, MRI was used to assess the effects of PVR on RV function and PR. Furthermore exercise capacity was evaluated by VO₂ peak.

Methods and Results: We included twenty patients (60 % male, age 29 +/- 13 years). All patients underwent to exercise test at a median of 8.2 +/- 4.3 months before and 11.4 +/- 4.1 after PVR, with measurement of peak exercise oxygen uptake (VO₂ peak). Cardiac MRI was performed at a median of 9.3 +/- 3 months before and 10.6 +/- 4.2 months after PVR.

After PVR only 2 patients showed mild residual PR.

In the intervention group VO₂ peak didn't increased significantly (from 27.2 +/- 7.3 to 28.7 +/- 6.6 ml/min; p = 0.47).

RV end – diastolic volume (RV – EDV) decreased from 160.9 +/- 30.1 mL/m² to 90.16 +/- 11.6 mL/m² (P<0.005); and RV end-systolic volume (RV – ESV) decreased from 92. 2 +/- 12.1 mL/m² to 42 +/- 13.8 mL/m² (P<0.05).

No significant increased of RV – EF was found (from 44.1 +/- 4.3 to 48.1 +/- 4.9 %, P 0.1).

Conclusion: In our series of adult patients with tetralogy of Fallot and severe PR undergone to PVR, our results evidence a dramatic decreased of RV-EDV in absence of significant increased of exercise capacity, despite the timing of surgery was consistent to international guidelines.

We speculate that this findings suggest a more restrictive indications for timing for surgery of PVR.