P-83

Impact of Right Ventricular Volume Change on Exercise Capacity:
A Comparison of Repaired Tetralogy of Fallot and Ebstein's Anomaly

Bambul Heck P. (1), Baquet M.(1), Schreiber Ch. (2), Sarikouch S. (3), Hager A. (1), Hess J. (1), Fratz S. (1).
Deutsches Herzzentrum München, Klinik für Kinderkardiologie und Angeborene Herzfehler, Germany (1);Deutsches Herzzentrum München, Klinik für Herz- und Gefäßchirurgie, Germany (2);Medizinische Hochschule Hannover, Klinik für Herz-, Thorax-, Transplantations- und Gefäßchirurgie, Germany (3).

Background*:* Patients after surgical repair of tetralogy of Fallot (rTOF) often develop pulmonary regurgitation, which leads to right ventricular enlargement. This is also observed in patients with Ebstein's anomaly due to tricuspid valve regurgitation. In the present study we compared the recovery of peak oxygen uptake (peak VO_2) and right ventricular enddiastolic volume (RVEDV) after surgery for pulmonary or tricuspid regurgitation.
Patients and Methods: We studied 10 patients with rTOF and pulmonary regurgitation (mean age [± SD] 20± 7 years) without significant pulmonary stenosis and 10 Patients with Ebstein's anomaly (39±19 years). Patients with rTOF underwent surgical pulmonary valve replacement and patients with Ebstein's anomaly underwent surgery for tricuspid regurgitation. Right ventricular size was assessed with cardiovascular magnetic resonance (CMR). Cardiopulmonary exercise performance was evaluated by determination of the peak VO_2. CMR and exercise testing were performed in both groups prior and 6-30 months after the operation.
Results: After surgical valve repair, there was a significant decrease in the right ventricular enddiastolic volume (RVEDV) in both groups ($p_{Ebstein} = .007$; $p_{rTOF} = .005$) [Table1]. Peak VO2 did not significantly change in either group ($p_{Ebstein} = .38$; $p_{rTOF} = .54$) [Table1].
Conclusion*:* After surgical treatment of pulmonary and tricuspid regurgitation, right ventricular size decreased in patients with rTOF and Ebstein's anomaly. Although RV volume load and RV enddiastolic volume were significantly reduced after surgery, a significant impact on peak VO2 was not detected in both groups.

Table1: Mean RVED and mean peak VO2 values of patients with rTOF and Ebstein, pre- and post-surgery, respectively.

	Ebstein's anomaly	rTOF
RVEDV (ml/ m^2) pre-surgery	190 ± 83	174 ± 30
RVEDV (ml/ m^2) post-surgery	121 ± 60	120 ± 24
Peak VO2 (ml/ kg/ min) pre-surgery	20.6 ± 4.8	29.8 ± 7.0
Peak VO2 (ml/ kg/ min) post-surgery	22.0 ± 7.5	30.2 ± 7.0
Peak VO2 change in %	6.2	5.2