

Is exercise capacity of adults with repaired tetralogy of Fallot affected by type of repair?

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Purpose: Adult patients with repaired tetralogy of Fallot (rToF) have impaired exercise tolerance. The primary objective of this study was to determine whether different types of procedures affect the exercise capacity of these patients.

Methods: A retrospective analysis of the cardiopulmonary exercise testing results of a cohort of 33 patients (30% females) operated for tetralogy of Fallot was performed. Patients were divided into two groups, according to the type of reparative procedure: group A (n=18) operated with right ventricle to pulmonary artery conduit and group B (n=15) submitted to trans-atrial, trans-pulmonary repair. All patients underwent cardiopulmonary exercise testing. We measured peak oxygen consumption (peak VO₂), the slope of ventilation per unit of carbon dioxide production (VE/VCO₂) and calculation of peak VO₂ to predicted VO₂ according to age and sex (VO₂pred%) and oxygen pulse (O₂ pulse). Right ventricular end diastolic diameter (RVEDD) and right ventricular systolic pressure (RVSP) were measured with transthoracic echocardiography. NYHA functional class was also determined for all patients.

Results: Our results are depicted in the following table. 26 out of the 33 patients were classified as NYHA functional class I (78.8%). None of the parameters measured (Table) differed statistically significantly.

Conclusion: Type of surgical repair does not seem to affect the exercise ability of patients with rToF. Patients of both groups had impaired exercise capacity, while most of them were classified as NYHA functional class I. In order to estimate the true exercise capacity and prevent fatal events, it is very important to submit these patients to close follow up and evaluate them with cardiopulmonary exercise testing.

Table:

Cardiopulmonary testing results. Data are presented as mean ± SD. CPX: cardiopulmonary testing

DATA	Total No of Pts n=33	Group A n=18	Group B n=15	p value
Age at CPX (years)	17.6±8	17.7±7.5	17.6±8.9	0.74
Age at repair (years)	3±3.1	3±2.3	4.5±3.9	0.16
VO ₂ peak (ml/Kg/min)	29.4±9.7	29.3±8.9	28.8±9.2	0.59
VO ₂ peak (%predicted)	69.1±29.8	71.2±30.8	69.1±8.8	0.61
VE/VCO ₂	33±8.7	33.5±6.5	33±10.9	0.68
O ₂ pulse	8.2±2.6	10±3	6.9±2	0.40
EDDRV (mm)	32±7.9	30±8	37±7	0.39
RVSP (mmHg)	41±16.3	45±18.3	37±15.1	0.24