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Cardiac rehabilitation in postoperated Tetralogy of Fallot children: an useful tool?

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INTRODUCTION: exercise capacity of children with cardiac heart disease is often depressed, partly because physical inactivity.
The object of this study was to describe the effect of exercise by cardiac rehabilitation program (CRP) in postoperated Tetralogy of Fallot patients using echocardiography and ergoespirometry tests.

METHODS: twelve children with total correction of Tetralogy of Fallot were chosen under precise criteria. All patients underwent ergospirometry plus rest and post-stress echocardiography.
Systolic (LVSF and RVSF) and diastolic (LVDF and RVDF) biventricular function were determined by echocardiography at rest and after exercise (during 3 first minutes of recuperation period). We measured: LVEF (Simpson´s method), LVSF (M mode), TAPSE, RVFAC, E/E´, E´ and Tei index. VO2, VE/VCO2 slope and VAT were collected from ergospirometry.
After 3 months of CRP with column table and respiratory physiotherapy included, we repeated the same tests. This results were compared with those obteined previously.
We performed quality of life tests to check the psicological effects.

RESULTS: After CRP, ergospirometry demonstrated an improvement in tolerance under maximal stress in 9:12 patients. VO2 also showed amelioration in 8:12 patients. We found a discrete increase in average values of LVSF (EF 62.5% to 65.9% and SF 32.67% to 34.67%) and RVSF (TAPSE 13.44% to 14.71% and FAC 46.28% to 51.65 %) in rest conditions when pre and post CRP results where compared. After stress test biventricular systolic function improved in 3:12 patients, 1 also showed LVDF improvement, 1 presented isolated LVSF amelioration and 2 RVSF improvement. Biventricular diastolic function was reduced in 2 patients, however, 1 of them showed RV systolic amelioration. Only 1 patient had RVDF improvement and another RVSF isolated. Only 1 had no changes in cardiac function despite CRP. 3 patients exhibit worsening in diastolic function. Remaining patients presented no significant functional parameter changes.
At the end of the CRP all children showed increased selfconfidence in establishing social relations.

CONCLUSIONS: cardiac rehabilitation could improve the exercise performance and quality of life in POTF. Routine use of cardiac rehabilitation may reduce the morbidity and safely improves physical conditions in POTF without mayor adverse effects.