P1-92

Exercise-based cardiac rehabilitation programme in children with Congenital Heart Disease increased LV - ejection fraction.

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Introduction:
Role of pediatric cardiac rehabilitation has been shown to lead to sustained improvements in exercise response and clinical correlation to lesser heart failure manifestations. However, in Europe these programmes are still only beggining to be implemented.
Aim:
To demonstrate feasability, safety and to evaluate the cardiovascular effects of a formal exercise programme in a population of patients with Congenital Heart Disease.
Methods:
Selected patients had a complete clinical, ECG and echocardiogram, spirometry and CPET with Bruce protocol before and after the programme. Exercise training sessions in hospital, with continuous ECG and saturation telemetry, consisted of respiratory kinesyotherapy and muscular entrainement of inspiratory muscles and diaphragma and aerobic training of 10-15 minutes with intervals, during 3 months, twice/weekly, individual heart rate goal was the heart rate at anaerobic treshold on CPET. Perceived intensity in Borg scale was moderate to rather strong. Results are presented as mean ±SD and pre and post RHB values were compared (2-sided T-test, $p<0.05$).
Results:
Twenty one patients were included in the programme, during the last five years. Mean age was 10.8 years-old (6-22), height 110- 166 cm, weight 24-51 Kg. The population was: two heart transplant patiens, two Fontan circulation and the remaining were TOF submitted to complete correction, with clinical heterogenous features: variable degrees of pulmonary valve regurgitation (mild to severe), one patient had a percutaneous pulmonary valve implanted 2 years before and another patient had VEs, couplets, bigeminy and non-sustained TV on 24h-Holter previous to the programme. However, during CPET the VEs disappeared and no arrythmic events during the programme were observed. Of the results obtained we point out that the there was a significative increase of the ejection fraction from 61.3% to 68% ($p= 0.04$). No complications or adverse events were observed during CPETs nor exercise sessions in this population.
Conclusions:
In a selected population, this exercise- based cardiac rehabilitation programme led to an increase in LV ejection fraction, that is meaningfull in these patients.