Correlation between cardio-pulmonary exercise test variables and health-related quality of life among children with congenital heart diseases

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Background peak oxygen uptake (VO2) correlates with health related quality of life (QoL) in adults with heart failure. Cardio-pulmonary exercise test (CPET) is recommended in the follow-up of adults with congenital heart diseases (CHD). Few data is available as regards correlation between CPET and QoL among children with CHD.

Methods and results From September 2014 to May 2015, 115 adolescents and young adults followed 202 CHD children aged 8 to 18 performed a CPET (treadmill n=96, cycle-ergometer n=106). CHD severity was stratified into 4 groups. All children and parents filled out the KidScreen QoL questionnaire. Peak VO2, anaerobic threshold (AT), oxygen pulse followed a downward significant trend with increasing CHD severity and conversely for VE/VO2 slope. Self-reported and parent-reported physical well-being QoL scores correlated with peak VO2 (respectively r=0.27, p<0.001 and r=0.43, p<0.001), percentage of predicted peak VO2 (r=0.28, p<0.001 and r=0.41, p<0.001), and percentage of predicted VO2 at AT (r=0.22, p<0.01 and r=0.31, p<0.001). Significant correlations were also observed between several QoL dimensions and VO2 percentage of predicted peak VO2 (r=0.28, p=0.0001 and r=0.41, p<0.0001). The strongest correlations were observed in the treadmill group, especially between peak VO2 and physical well-being for parents (r=0.57, p<0.0001) and self (r=0.40, p<0.0001) reported QoL.

Conclusions peak VO2 and anaerobic threshold are the two CPET variables which best correlated with self and parents-reported QoL in this large pediatric cohort. If QoL is involved as a “patient related outcome” in a clinical trial in pediatric cardiology, we suggest to use parents related QoL scores.

Prognostic value of invasive hemodynamic parameters in Eisenmenger syndrome

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Background Adolescents with heart disease have complex health needs and require lifelong cardiology follow-up. Interventions to facilitate paediatric to adult healthcare transition are recommended. We sought to determine the educational needs of adolescents and young adults with heart disease and the impact of a transition intervention on improving knowledge and self-management skills among this population.

Methods and results From September 2014 to May 2015, 115 adolescents and young adults with congenital heart disease or cardiomyopathy (mean age 17±2 years old, 47 girls) were consecutively enrolled. Twenty two have been included in a structured educational program 11 months before (educated group). The 93 others were allocated to usual care (non-educated group). Knowledge in all the patients was assessed using a same questionnaire exploring specific issues related to heart disease. In the non-educated group we observed significant gaps in knowledge: only 61% knew the name of their heart disease, 20% were aware of the recommended follow-up, 43% knew preventive measures of infectious endocarditis, and 8% of the girls were informed on the maternal risk of pregnancy. The mean total knowledge score in the educated group was significantly higher as compared to the non-educated (score=11.7±2.3 vs 8.6±3.2; p<0.01). In this group, the best scores concerned knowledge on follow-up, cardiac symptoms, prevention of endocarditis, and pregnancy risk (p<0.01). In multivariate analysis, provision of structured education was the only determinant of higher levels of knowledge (R=0.40, p<0.01) after adjustment for age, sex, heart disease complexity, school level and family status.

Conclusion Education at transition period has a significant impact on the adolescent knowledge above all those concerning their follow-up and their cardiovascular risk. Structured education program should improve adult understanding of their heart condition, and could prevent potential complications.

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