P-119

Exercise rehabilitation for children with congenital heart disease

Plante A. (1), Mathieu M.E.(1,2), Dahdah N.(2), Miro J.(2), Bigras J.L.(2), Curnier D.(1,2). Université de Montreal, Departement de Kinesiologie, Montreal, QC, Canada (1); Service de Cardiologie Pédiatrique, Centre de recherche CHU Sainte Justine, Montreal, QC, Canada (2)

INTRODUCTION: The improvement in medical diagnosis and treatment, from pharmacology to surgery, induced an increased survival in children with congenital diseases. In adults with cardiovascular diseases several randomised control trials show beneficial effects of exercise training. Meta analyses have validated the benefits of cardiovascular rehabilitation but none in children with congenital diseases.
AIMS: Determine the benefits of cardiovascular rehabilitation using Meta analysis methods in children with congenital heart diseases.
METHODS: Research criteria used were: exercise training, rehabilitation, readaptation, heart disease, heart failure, limited to article in English or French, for subjects' age < 25 years and to randomised control trials (RCT) published between January 1966 and December 2010 in database from Pub Med, Embase, Web of Science and CINAHL. All the references were reviewed by 2 independent scientists.
RESULTS: 5 RCT studies (n subjects=173) met the selection criteria. The mean differences reach : 4,21 [1,69-6,73], p=0,001 for maximal oxygen uptake (ml.kg.min-3) ; 9,4 [3,2-15,6], p=0,003 for maximal power (watts) and 5,9 [-0,4-12,2], p=0,03 for heart rate (beat.min-2) at maximal exercise.
CONCLUSIONS: The results observed in children with congenital heart disease are in agreement and conformity with those observed in adult subjects for the parameters analysed. Exercise training improved significantly maximal oxygen uptake and peak power at maximal exercise. Despite these positive observations, this meta analysis suffer from the limited number of subjects and the lack of data concerning the major acute cardiovascular events which do not permit to extrapolate the entire benefits observe in an adult population. To our best knowledge there is no study evaluating the impact of exercise training in morbid-mortality in a congenital heart disease population from children to adults.