Evaluation of aerobic exercise capacity and daily functioning of patients with cystic fibrosis

I. Eisenstadt1, R. Calderon2, N. Constantin3, S. Nicu4, E. Keren4, 1CF Center and Physiotherapy Department, Hadassah Hebrew University Hospital, Jerusalem, Israel; 2Braun Public Health School Hebrew University, Jerusalem, Israel; 3Sport Medicine Center, Hadassah Hebrew University Hospital, Jerusalem, Israel; 4CF Center and Pediatric Wing, Hadassah Hebrew University Hospital, Jerusalem, Israel

Introduction: Exercise capacity of CF patients is used as a parameter of disease status and progress. In Israel, there is no data on exercise capacity and daily function levels of CF patients.

Objectives: The target of this study was collecting data on CF patients’ aerobic capacity, validating a physical activity questionnaire in Hebrew and identifying exercise limits. Results will provide a basis for building individual home exercise programs to help stabilize patients’ clinical condition.

Methods: Patients (age ≥12 yrs) underwent cardiopulmonary exercise test, a six minute walk test and filled-in physical activity questionnaire. Correlations between test results were statistically analyzed.

Results: 17 patients [8 males, 9 females, mean age: 20.3 yrs ±6.4 (range: 12–34)] have completed the study. Pulmonary function test revealed mean FEV1/VC of 87.8% ±10.5. Exercise tests showed mean “6 minutes walk” test distance (m) of 629.9 ±41.0, mean VO2 max (ml/min/kg) for males: 46.3 ±87.8‰ and for females: 33.9 ±6.594, and Extracelular water from 10.60 ±3.274 to 11.47 ±2.422, p=0.0002.

Conclusions: Although male patients engaged with higher levels of physical activity compared to female patients, the VO2 max values of male patients correlated only with moderate aerobic capacity level. In addition to cardiopulmonary exercise test we found that a questionnaire is an effective tool to assess daily physical activity in CF patients. More patients are needed to assess correlations between test results.

Improvement of body composition parameters after an individualized training program in young patients with CF

B. Almajan-Guta1, C. Ayram2, A. Rusu3, O. Cluci2, I. Popa2, L. Pop4, Z. Popa4, S. Ghelfofoan2, Z.L. Popa2, 1National Cystic Fibrosis Centre, University Politehnica Timisoara, Timisoara, Romania; 2West University, Timisoara, Romania; 3CRAE Speranta, Timisoara, Romania; 4Romanian National CF Centre, Timisoara, Romania; 5Medicine University, Timisoara, Romania; 6USAMVB, Timisoara, Romania; 7University of Medicine and Pharmacy Victor Babes, Timisoara, Romania

Background: Despite significant improvements in the CF treatment, alteration in body composition is still a common problem which affects the quality of life.

Objectives: This study try to improve the elements of body composition and to observe the changes after 6 months of supervised physical individualized training on patients with CF.

Methods: We conducted a 6 months prospective study, on 20 patients (between 14–18 years), in the Romanian National C.F. Centre. The evaluation consisted in: analysis of corporal composition through bioimpedancy (In-Body 720 device). In order to rich our purpose regarding the body composition the subjects benefit by a dietary recomandations and individualized training program 4 times/week with heart rate between 65–80%.

Results: We noticed important changes in Weight (from 44.84±16.06 to 46.23±16.38, p =0.0023), proteins (from 7.52±2.422 to 8.425±2.494, p =0.0002) and Skeletal muscle mass (20.23±7.226 to 22.03±7.277, p =0.0002), and also small changes regarding body water (Intra cellular water increased from 17.08±5.554 to 17.82±6.594, and Extracellular water from 10.60±3.274 to 11.47±3.478).

Conclusions: At the end of the study we observed a positive evolution of the body composition for the majority of patients included in the study. Impaired breathing and bacterial infections trigger the body to burn more calories than usual and it is necessary the increasing of lung function through physiotheraphy and dietary supplement.

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