Better satisfaction of cystic fibrosis paediatric patients with autogenic drainage associated to exercise compared to conventional chest physiotherapy

P.Reix1, F. Aubert2, B. Kassa3, V. Bige3, G. Bellon4. 1Centre de ressources et de compétence pour la mucoviscidose, Hospices civils de lyon, Lyon, France; 2Centre d’investigation clinique 201, EPICIME, Hospices civils de Lyon, Lyon, France

Objective: To compare the effect of physical exercise (a fitness session) associated to autogenic drainage (AD) to conventional chest physiotherapy (CCP) in clinically stable cystic fibrosis (CF) paediatric patients.

Methods: Patients were randomized to perform, in a crossover fashion, a 20 minutes fitness session including cycling, trampoline, stepping, stretching associated to AD (i.e. “fitness” program) followed, at least three months later by CCP of same duration (“conventional” program). Sputum was weighted and was the primary outcome. Secondary outcomes were forced expiratory volume in one second (FEV1), and children satisfaction measured with a visual analogic scale graduated from 0 to 100.

Results: Thirty-four patients (18 males), with an average age of 12.1±2.8 years, were randomized. Eighteen began with the “fitness” program first and 16 with the “conventional” program. 2 patients were excluded (one in each arm). There was no difference in the sputum weight (p = 0.11) or in FEV1 (1.4±9.0 L, p = 0.47) between the “fitness” and the “conventional” program after adjustment on sequence and period effect. However, patient’s satisfaction was higher in the “fitness” (88.7±15.8) than in the “conventional” program (71.7±27.4). After adjustment on age, sequence and period effect, this difference remained significant (p < 0.001).

Conclusion: Fitness session combined to autodrainage did not improve airway clearance in CF, but is better appreciated than a conventional drainage in paediatric CF patients.

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Efficiency of High frequency chest wall oscillation with “The Vest® Airway Clearance System” as daily physiotherapy in outpatients with CF

A.Y. Scherbakova1, N.J. Kashirskaya1, E.L. Amelina1. 1Palomono Research Institute, Moscow, Russia

Aim: To study the effectiveness of High frequency chest wall oscillation (HFCWO) with “The Vest® Airway Clearance System” as daily physiotherapy for outpatients with CF.

Methods: 15 CF pts (12-adults, 3-children) without symptoms of lung exacerbation were investigated. All patients were on the standard CF respiratory treatment including inhalation of dorsane alfa and bromidolatadores. All patients had 1 treatment session (TS) per day with “The Vest®” during 6 weeks. Then they were under the control of physiotherapist for another 2 weeks. TS included Vest-therapy in combination with autogenic drainage. This combination is most effective as was shown in our research in 2007. Adjustment of regime was individual. Lung function tests were done on the 1st day of TS, 6 weeks and 2 weeks after. Patients were asked to fulfill a questionnaire for daily sensations.

Results: the most effective sputum expectoration was seen on the 3rd day of TS and continued during 2 weeks. After there was a phase of patients “stabilization”. Mean improvement of lung function was 8%. Duration of HFCWO was about 30 minutes per day. Ten patients noted easy expectoration of sputum within two weeks after the HFCWO was finished. No one of patients had lung exacerbation during the study.

Conclusion: The study has shown that HFCWO with “The Vest®” is effective method of daily physiotherapy for CF pts. It can be used for every day physiotherapy or as 2 weeks courses with a break of two weeks if the device is used by several patients. However, more studies of the general clinical effect and influence of long term HFCWO with the use of “The Vest®” on frequency of lung exacerbations are necessary. For this purpose long research and supervision over patients is required.

Physiotherapy: understanding the cough and spit

N.S. Cox1,2, R.D. McAleer2, 1Physiotherapy, Monash Medical Centre, Melbourne, VIC, Australia; 2Respiratory Medicine, Monash Medical Centre, Melbourne, VIC, Australia

The lifelong management of CF requires continual education for both patients and their carers to enable individuals to be self-sufficient in the day-to-day management of their disease. This is particularly true of physiotherapy management. Primarily, education regarding physiotherapy treatment is directed toward parents in the time following initial diagnosis. Thereafter, education regarding physiotherapy techniques and respiratory physiology tends to be informal and ad-hoc. Recent research conducted within our clinic identified education on physiotherapy matters to be both “overwhelming” and “stressful” to parents. In order to combat this problem we set out to devise a series of age-appropriate learning packages with respect to physiotherapy intervention. In doing so, we aimed to improve patient knowledge through progressively complex themes and subsequently reduce parental burden of care.

Three learning packages were developed in conjunction with a clinical physiotherapist and an educator, targeting 5–8, 9–14 and 15–18 year olds. General themes covering lung physiology, mechanisms of cough and sputum clearance, airway clearance techniques and exercise were repeated throughout the series with increasing complexity. Additionally, the themes were incorporated into age-appropriate activities including picture matching, word find games and comprehension. Current feedback across the age-groups suggests the packages are easy to understand and provide renewed insight into the mechanisms of physiotherapy treatment. Interestingly, parents are also reporting an improved understanding of the basis for and importance of physiotherapy. We are currently attempting to provide learning packages to all paediatric in-patients, and specifically assess the learning outcomes achieved.