225 Education for physiotherapeutic caregivers of patients with cystic fibrosis

T. Andrade[1,2], B. Guitton[1], E. Monteiro[2], V. Deolindo[2]. [1]*Universidade Federal Fluminense (UFF), Niterói, Brazil;* [2]*Asociação Carioca de Assistencia à Mucoviscidose (ACAMRJ), Rio de Janeiro, Brazil*

Introduction: Education of relatives of patients with cystic fibrosis is quite relevant for the complexity of its treatment that is often not well understood by parents during the consultation hospital.
Objective: To evaluate the clinical aspect of children with cystic fibrosis before and after the educational intervention on respiratory care.
Methods: We conducted a randomized controlled trial using spirometry test as a parameter for randomization. The study included 35 caregivers of patients aged 6–13 years enrolled in ACAMRJ and results of mild or moderate obstruction in spirometry test. After assessment, the caregivers in the experimental group received four home visits. At the end of the intervention, all participants were reassessed.
Analysis: Quantitative data with a normal distribution were analyzed by analysis of variance. The test of Pearson product moment correlation was used for variables with normal distribution, and the Spearman correlation coefficient for variables without normal distribution.
Results: In this study we found that 57% of children did not perform respiratory therapy, 63% did not exercise, 37% were colonized with *Pseudomonas aeruginosas* and 17% were homozygous DF508. Insofar assessment of expiratory flow, the experimental group had a mean change of around 29% for the control group and the experimental group in the evaluation had less variation than the control group emphasizing the effectiveness of the experiment.
Conclusion: Although some studies on education are identified, none of them performed this type of intervention.

226 Comparison between standard and empiric Spirotiger® setup in patients with cystic fibrosis (CF)

C. Ceruti[1,2], A. Brivio[1,2], S. Gambazza[1,2], C. Colombo[1,3]. [1]*IRCCS Fondazione Cà Granda, Ospedale Maggiore Policlinico Milano, Milano, Italy;* [2]*ARIR: Associazione Italiana Riabilitatori dell'Insufficienza Respiratoria, Milan, Italy;* [3]*Università degli Studi di Milano, Milan, Italy*

Objectives: Spirotiger® device trains respiratory muscles throughout isocapnic hyperpnea. Device setup has been prompted on parameters derived by healthy subjects.
Aim: To evaluate differences in the setup between derived formula and CF patients measured parameters.
Methods: 47 CF patients in clinically stable conditions were enrolled. RR, MVV, RMV (Respiratory Minute Volume) and the required bag volume have been compared with standard and empiric formulas. Sample was described and processed using Wilcoxon matched-pairs signed-ranks test with significance set at 5%.
Results: Patient age ranged 18–45 yrs (25±37.47) with mean BMI 21.20±2.65 kg/m^2. Mean predicted %FEV1 was 73.53±24.9. Through standard formulas as provided by the manufacturer, a mean MVV of 138.49±410.99 l/min, a mean RMV of 83.09±6.59 l/min, a mean bag volume of 2.36±0.26 l and a mean RR of 27.80±9.75 were found. Through the empirical setup, mean MVV was 106.04±43.88 l/min, mean RMV was 63.62±26.33 l/min, mean bag volume1.77±0.55 and mean RR 28.04±9.63. Difference of means between standard and empiric formulas for RR ($p = 0.83$) was not statistically significant, while for MVV ($p < 0.0001$), RMV ($p < 0.0001$) and the bag volume ($p < 0.0001$) means were statistically different. Mean differences were not closed to zero for RMV and MVV, respectively −19.46 l/min and −32.44 l/min thus arguing an overall distortion that might have clinical impact.
Conclusion: Given such differences, standard and empirical formulas need to be tested not only on patients with CF but also with other pulmonary disease. In order to assess whether Spirotiger® could have some effects on respiratory muscle training, further studies are required taking into account such variability.

227 The use of nasal high flow humidification with cystic fibrosis patients − A pilot

E.A. Lloyd[1], J. Park[1], K. Churchyard[1], J. Greenwood[1], M. Walshaw[1]. [1]*Liverpool Heart and Chest Hospital NHS Foundation Trust, Adult Regional CF Unit, Liverpool, United Kingdom*

Background: Delivery of adequate humidification for patients requiring Oxygen (O_2) therapy is challenging. Many patients find face masks uncomfortable and restrictive preferring nasal cannula (NC). However prolonged use of NC particularly at higher flow (>3 l/min) can contribute to drying of the mucosal membrane and epistaxis. Patients with Cystic Fibrosis (CF) may struggle to expectorate viscous secretions even when using mucolytics. This can be exacerbated by other factors such as dehydration or diabetes. Airvo™ Nasal High Flow Therapy (NHF) offers heated humidification via a nasal interface at high flow.
Method: Our CF Unit has piloted NHF for the past year with a view to purchasing further units. We wished to look at potential effects on Airway Clearance and patient's comfort. Admissions were for exacerbation of respiratory symptoms, IV Antibiotics and O_2 therapy. Patients were surveyed and common themes identified.
Results: 17 patients over 30 episodes of care (7 to >28 days) with a range of O_2 requirements (FiO_2 0.28–0.55), flow ranges from 15–40 l/min. 16/17 (94%) tolerated NHF. Patients reported it to be comfortable, easy to use, not interfering with communication or eating. Subjectively reporting increased expectoration, decreased sputum viscosity – supported objectively by physiotherapists.
Conclusions: NHF has proved a useful and popular additional treatment adjunct, with patients requesting to use it on subsequent admissions. It can also provide NHF on room air giving patients the benefit of heated humidification with no O_2 requirement. We plan to do a longer term study using this system.

228 The ultimate Olympic challenge: Getting CF patients involved in and motivated by exercise

H.P. McGowan[1]. [1]*Bristol Royal Hospital for Children, Respiratoy Medicine and Cystic Fibrosis, Bristol, United Kingdom*

Objectives: To get children and staff at Bristol Paediatric CF centre to undertake an exercise challenge to increase their daily step count and undertake more periods of active exercise per week; with emphasis on personalised targets and being part of a group activity.
Methods: All school aged children and staff in the CF MDT were invited to take part in a 4 week challenge in the run up to the 2012 Olympic games. It had 2 parts. **The daily step challenge** – using a pedometer to record steps/day. Week 1 was used a baseline with all participants aiming for 10,000 steps/day. For subsequent weeks a personal step target was set using the previous weeks data. **The weekly sports star challenge** – recording the number of times that vigorous activity or sport was undertaken/week. Participants were awarded a sports star each week according to the number of vigorous activities undertaken. All participants were contacted at the end of each week to record their data and set a revised step target. Our website was utilised allowing all participants to monitor their progress. A weekly newsletter and blog page were posted to encourage interaction with others. All participants data was anonymised.
Conclusion: Those actively involved steadily increased their step target over the challenge with 70% having increased targets in week 4 and the number undertaking 2 or more sports/week increased to 100% by week 4. Those doing 4 or more sports increased to 80%. Interaction via the website was well received. Those under 8 yrs struggled to wear pedometers. The challenge sucessfully encouraged increased daily activity and participation in vigorous exercise.