301 Is it possible to obtain high adherence to positive expiratory pressure (PEP) in infants with cystic fibrosis (CF) between 0 and 2 years?

U. Jakobsen[1], A. Schmidt[1]. [1]*Department of Physiotherapy, Aarhus University Hospital, Skejby, Denmark*

Background: In 1984 Falk et al. demonstrated the effectiveness of PEP and it revolutionized the physiotherapy for patients with CF in Denmark. Physiotherapists have discussed using PEP in infants. Some of our foreign colleagues have claimed that young children protest so much that PEP treatment is difficult or even impossible to carry out.
Aim: To describe our experiences with obtaining high adherence to PEP in infants between 0 and 2 years with CF.
Method: When newly diagnosed infants and their parents are admitted for assessments and parent education, we introduce PEP, trunk exercises and stimulation of motor development. The standard PEP treatment is four times 50 breaths twice a day. In our department we use the following approach:
– Start with approximately 20 breaths and as the infant accepts PEP, the amount of breaths are increased.
– Keep the PEP mask on even if the infant starts to protest. The infant thereby experiences that it is possible to breathe through the mask and that PEP is something that the infant has to do. If the infant protests a lot we take a break.
– Combine PEP with vestibular stimulation as it relaxes and deflects the infant.
– Deflect the infant by e.g. talking calmly, singing, listening to music, watching television or showing a mobile while carrying out the treatment.
– Encourage the parents to have a positive attitude towards the treatment.
Results: Since 1990, we have treated approximately 100 infants with PEP at Aarhus University Hospital, Skejby. In our department we experience that during a period from one to six weeks all infants between 0 and 2 years with CF obtain high adherence to PEP.
Conclusion: It is possible to obtain high adherence to PEP in infants with CF between 0 and 2 years.

302 Efficiency and compliance of physiotherapy combined techniques in children with age between 3 and 6 years

B. Almăjan-Gută[1,2], Z. Popa[2], I. Popa[3], L. Pop[3], I.M. Ciuca[3]. [1]*Physical Education and Sport Department, Technical University, Timisoara, Romania;* [2]*National Cystic Fibrosis Centre, Clinical County Hospital, Timisoara, Romania;* [3]*Pediatric II Department, University of Medicine and Pharmacy V. Babes, Timisoara, Romania*

The choice of physiotherapy program suitable for age contributes to improvement of compliance to treatment. Aim of study: review of superiority of combined physiotherapy program (clearance techniques and physic exercise) in CF toddlers from point of view of compliance and efficacy.
Methods: Study population: 24 children aged between 3 and 6 years (14 girls, 10 boys), followed up in National Cystic Fibrosis Centre. Physiotherapy program developed by next schema: first 4 months only physical exercises, the next 4 months just classical clearance techniques and for the last 4 months classical techniques of clearance were combined with physical exercises. In all situations we have associated aerosols therapy in conformity with clinical status and evolution. Followed parameters were: clinical general status, nutritional condition, cough and sputum character, physical lung signs, bacteriological examinations, lung X-ray, pulsoxymetry.
Results: Compliance in physical exercises was present in 86%, with maximum efficacy in just 43% cases. In classic airway clearance techniques, compliance was 28% and maximum efficiency 21%. To the combined program the compliance was 72% and maximum efficiency 72%.
Conclusion: Combined program is certainly superior regarding efficacy and compliance from patient and family point of view.

303 When is a lung function test to be performed evaluating the effects of an airway clearance therapy session in CF?

C. Rodriguez[1], L. Hjelte[1]. [1]*Karolinska Univ Hosp, Stockholm, Sweden*

Evaluating the effects of the different airway clearance techniques offered within CF care is essential in respiratory physiotherapy. Spirometry is often the tool used for this purpose. In order to obtain a reliable result it is important to clarify at what time point after the treatment session the spirometry should be performed; that was the aim of this study. To our knowledge this has not been studied previously.
Method: We included 16 out-clinic patients, 8 adults (31.7±10.8 yrs) and 8 children (14.±1.7 yrs), who were able to stay in the clinic for at least 4 hours after their airway clearance therapy session. Mean lung function at inclusion was: FVC 70±32 and FEV1 59±31% of predicted.
Each patient performed a spirometry before; and immediately, 30 min, 1, 2 and 3 hrs after their airway clearance session. The results of the spirometries were collected and analyzed.
Results: Mean FVC before the session in adults (children) were: 3.01±1.2 (2.89±1.3) L, immediately after: 3.03±1.4 (2.97±1.3) L, 30 min after: 3.15±1.3 (2.84±1.2) L, 1 h after: 3.05±1.3 (2.84±1) L, 2 hrs after: 3.15±1.4 (2.81±1.2) L and 3 hrs after: 3.07±1.4 (2.65±1) L. The corresponding results for FEV1 were: before: 1.97±1.2 (2.39±1.1) L, immediately after: 1.99±1.3 (2.45 ±1.1) L, 30 min after: 2.09±1.3 (2.26±1.1) L, 1 h after: 2.02±1.3 (2.22±1) L, 2 hrs after: 1.98±1.2 (2.37±1.2) L and 3 hrs after: 1.92±1.2 (2.31±1) L. There was a tendency showing that performing the spirometry immediately after might be optimal in children and after 30 minutes in adults. Two patients peaked after 1 h, one after 2 and two after 3 hrs.
Conclusion: The optimal time to perform an accurate spirometry after an airway clearance session varies between individual patients. The intraindividual variation is currently being investigated.

304 Physiotherapy input to an intensive management programme to improve outcome of care for CF patients treated at home with intravenous antibiotics (IV Abx) during pulmonary exacerbations (PExs)

J.M. Bond-Kendall[1], A. Henry[1], I. Sequeiros[1], D. Downey[1], N.A. Jarad[1]. [1]*Adult CF Centre, Bristol Royal Infirmary, Bristol, United Kingdom*

Background: Treatment for CF patients with IV Abx during PExs is often carried out at home. However, evidence points to a better outcome if patients are treated in hospital. The specialist commissioning group in the southwest region of England has provided funding for additional staff to improve the management of patients on home IV Abx. Nurses and physiotherapists provide increased input to the patients at home during PExs.
Method: This is an ongoing single centre prospective study comparing the outcome of treatment of PExs in hospital and at home. The physiotherapist assesses the patients at the start of an IV Abx course and then follows up at home on day 3/4 and 11/12 with day 1 and day 7/8 covered by the nurses. Patients will be contacted by phone the day after the home visit and reviewed by the team at the end of an IV course. Full assessment and treatment as necessary is given during home visits. Outcome measures used are spirometry, symptom scores, inflammatory markers, weight, CF related quality of life measures and number of days until next PExs. A site specific evaluation of service questionnaire is answered by patients. During a hospital admission for an IV Abx course, the patient will be seen by all members of the team and be treated by a physiotherapist twice daily.
Discussion: The popularity of home management means ideally home care outcome is equal to that of hospital care. The physiotherapist's role at home provides less treatment episodes than in hospital but places more emphasis on overall assessment on behalf of the CF team and promotion of optimum self management. Will this approach achieve the outcomes?