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397. Challenges in rehabilitation: some old dilemmas revisited with some solutions?

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Late-breaking abstract: Bi-level positive airway pressure (Bipap) effects on regional distribution of lung ventilation in COPD

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Aim: To assess changes on distribution of lung ventilation before and after Bipap, in patients (pts) with chronic respiratory failure (CRF) due to severe COPD.

Methods: 11 COPD pts (mean age 69.3±7.5), in stable conditions, underwent two successive ventilation scans (V) with a radiolabeled aerosol (99mTc nanocolloid albumin, Venticoll, GE). The first ventilation was done using FAI device (Fasteras, MPR), and the second one using an adapted nasal mask system (FA2), which allows evaluation of (V) distribution after Bipap. Clinical symptoms and arterial blood gas analysis were observed before and after treatment. The images of (V) before and after Bipap were quantified by a semi-automatic procedure which divides each lung in 3 regions of interest (ROI): upper, medium and lower lung field, to obtain the upper/lower (U/L) ratio. An automatic iso-level ROI procedure enabled radioactivity measurement (counts) of ventilated area (Va 5% and 30%), on the right posterior and on the right lateral lung. A ventilation distribution inhomogeneity index (INI) was defined as the ratio count/pixels, calculated on isoROI 5% and 30% (INI 5 and 30%).

Results: A significant reduction of U/L ratio ($F=12.12$; $p<0.02$) and of cardiac rate ($p<0.01$) were accompanied by a significant increment of pO₂ ($p<0.02$) and pH ($p<0.001$). Ventilated area (Va 5% and 30%) increased, and INI 5 and 30%, decreased, even if both not significantly.

Conclusions: A significant improvement of the physiologic gradient (U/L), an increment of ventilated areas (Va 5%,30%), and a reduction of regional ventilation inhomogeneity distribution (INI) are likely underlying the therapeutic effect of the Bipap in COPD.

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Late-breaking abstract: Efficacy of relaxation posture in patients with chronic obstructive pulmonary disease (COPD)

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Background: Relaxation postures are recommended to reduce the work of breath-

ing and dyspnea in patients with COPD. Semi-fowler position, forward-leaning posture and orthopnea position are used efficiently. However, it is not clear that the effects of these positions in reducing dyspnea and work of breathing in patients with COPD.

The purpose of this study is to clarify efficacy of relaxation posture.

Method: Thirty-eight stable outpatients with COPD participated in the study. We measured mouth occlusion pressure (P0.1), VCO₂, VO₂, tidal volume, heart rate variability and degree of relaxation used by visual analogue scale (VAS) in quiet breathing at sitting, forward-leaning sitting and semi-fowler position. We also measured pulmonary function and maximal inspiratory pressure (PImax). We analyzed these data depend on GOLD classification. Data analysis was performed by using software SPSS Statistics 17.0.

Results: The following respiratory function in 38 patients were FVC 2.86±1.08L, FEV₁ 1.0 1.40±0.76L, FEV₁0% 48.6±14.3%, %FEV₁0 52.2±23.3%, FRC 3.84±1.24L, RV 2.96±0.95, PImax 58±22.7cmH₂O. There were no significant differences in P0.1 and P0.1/PImax among each position. However, VAS in semi-fowler position was more reduced than sitting on multiple comparison ($p<0.05$). In the GOLD classification, P0.1 on forward-leaning sitting significantly increased in stage4 compared stage1 and stage2 ($p<0.01$) and also P0.1/PImax on every position significantly increased in stage4 compared stage1 and stage2 ($p<0.01$).

Conclusions: Semi-fowler position may be most effective to reduce respiratory output of and dyspnea in patients with COPD.

P3642

Maintenance programme after COPD pulmonary rehabilitation (PR): Differences in long-term BODE index between responders and non-responders

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Aim: To assess how BODE index change throughout the course of a maintenance period after PR, with regard to the response to the initial 8-wk outpatient programme.

Methods: Data were analyzed from a multi-centric, prospective and randomized study on COPD PR in which after completion of the outpatient phase, patients were randomly assigned to a supervised (intervention group) versus non-supervised (control group) maintenance protocol. Conditions to be considered as a responder to initial PR were Δ BODE index > -1 point, but also Δ BODE ≤ -1 point, only if Δ 6MWD (6min walking distance) was greater than 35m. Patients not fulfilling these conditions were considered as non-responders. In the present analysis, patients' BODE index was assessed, at months 12 & 24 during the follow-up.

Results: 133 out of 143 patients completed the initial period [64 (9) years; BODE index 4.8 (1.6)]. Among them, 66.4% were responders. At 12-month, 98 patients continued in the study, and intriguingly, only non-responder patients in both intervention and control groups continued to improve, obtaining Δ BODE = -0.6 (1) and -0.1 (1.1) respectively, opposite responders, who obtained Δ BODE = 0.4 (1) intervention and 0.35 (1.5) control patients. At the 24-month point, 75 patients still remained in the study and again, only non-responders in the intervention group improved BODE: -0.5 (1.3). Analysis of variance (ANOVA) showed no statistical differences between groups

Conclusions: A majority of patients response to PR (BODE index), but in those initially non-responders, maximal improvements may take longer to be achieved, independently the maintenance program carried out.

P3643

Maintaining the benefits of pulmonary rehabilitation with a home exercise DVD – A feasibility pilot study

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Introduction: Pulmonary rehabilitation (PR) is an exercise-based therapy that produces significant improvements in dyspnoea, exercise capacity, and health status in COPD patients. However, improvements wane with time. Cost-effective interventions are required to maintain the benefits of PR. We hypothesised that providing PR completers with an exercise DVD would prolong the duration of benefits from pulmonary rehabilitation. We conducted a pilot study to assess the feasibility of conducting a randomised controlled trial.

Method: 72 patients at completion of an 8-week outpatient PR program were prescribed individualised exercise advice and goal-setting, and were offered for free a specially filmed home exercise DVD [1]. The self-report Chronic Respiratory Disease Questionnaire (CRDQ-SR) and incremental shuttle walk (ISW) were measured immediately following PR (T2) and 6 months following the end of PR (T3).

Results: Only 28 of the 72 patients accepted the offer of the home exercise DVD. A further 8 patients admitted to never using the DVD at T3. No significant difference in T3-T2 ISW change was seen between users and non-users (-10m vs. -15m; $p=0.60$) nor in T3-T2 CRDQ-SR change (-5.5 vs. -3.0; $p=0.85$).

Conclusion: There was poor patient uptake of the DVD. A home exercise DVD does not appear to help maintain the benefits of PR.

References:

[1] Kings College NHS Trust (2005), Breathing for Life Exercise Video. Realta Productions, London.

P3644

Maintenance of long term benefits from an outpatient pulmonary rehabilitation programme in COPD

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We evaluated the long term maintenance of benefits of a Pulmonary Rehabilitation Programme (PRP) in COPD patients and to establish which patients require frequent repetitions of PRP.

Fifty-one COPD patients ($FEV_1: 57 \pm 17\%$) underwent 10 weeks outpatient PRP comprehensive of supervised exercise training on cycloergometer and upper limb training. Pre-PRP (T0), post-PRP (T1), 6 months (T2) and 9 months (T3) after the end of PRP we measured: exercise tolerance by 6 minute walking test (6MWT), dyspnoea by MRC, quality of life by St George Respiratory Questionnaire (SGRQ).

All outcomes improved at T1. 6MWT and MRC progressively worsened at T2 and T3 respectively, whereas SGRQ remained stable up to 9 months from PRP.

	T0	T1	T2	T3
6MWT mt	442	480	455*	450*
MRC	1.74	1.45	1.59	1.73*
SGRQ tot %	41.4	35.9	36.3	38.4

* $p < 0.05$ vs T1.

The correlation between the baseline indices and the rate of deterioration at T3 demonstrated that a worst MRC at T0 is a good predictor of an early increase of dyspnoea perception after PRP cessation ($r=0.30$, $p=0.03$).

When patients were subdivided in responders ($N=17$) and in non Responders ($N=34$) to PRP according to an increase in 6MWT of 54 mt, responders showed a greater decline of benefits in exercise tolerance at T3 in comparison with non responders (T1-T3 6MWT: 49.4 ± 66.9 vs 12.3 ± 58.4 mt, $p < 0.05$). Responders had a baseline 6MWT significantly lower than non responders (430 ± 121 mt vs 452 ± 116 mt, $p < 0.05$).

In conclusion, COPD patients with worst physical performance at baseline have better results from PRP, but they lose benefits more quickly than other ones. As previously reported, benefits in quality of life and dyspnoea persist longer than exercise tolerance.

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Long term pulmonary rehabilitation programs for chronic obstructive pulmonary disease (COPD). Two years follow-up

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Introduction: Pulmonary Rehabilitation (PR) has demonstrated, with a high level of evidence (A), that it improves health related quality of life (HRQL) and exercise capacity in COPD patients. However, these benefits can't be sustained for more than a year.

Objective: To evaluate the efficacy of a Maintained PR program (MPR) applied after an outpatient intensive PR program in patients with COPD.

Methods: Multicentre, prospective, randomized three years follow up study of a group of stable COPD patients (<75 years old, BODE 3-10). After 2-month outpatient and intensive PR program, the patients are randomly assigned to two groups. Intervention group (GR1), who performed a domiciliary program similar to the outpatient protocol, received a phone call every 15 days, and attended the hospital once every 15 days in order to control treatment. The Control group

Six minute walk distance

	GR1	GR2	p
12 months*	0 (60)	-23,5 (111)	0,014
24 months**	-13,5 (81)	-26 (76)	ns

*Change in meters in the 6mwt after intensive program (month 12-month 2) expressed as median and interquartile range; **month 24-month 2

(GR2) didn't follow any specific program. The variables analysed were: BODE, six minute walking test (6mwt) and HRQL (CRQ, SF36).

Results: We included 143 patients. After 2 years follow-up, we have lost 67 patients (46%). The mortality was 17%. The losses were similar in both groups. The change for all variables during this period was also similar in both groups except for the distance in the 6mwt.

Conclusion: 1. The losses in this study were high. 2. This MPR is effective in terms of exercise capacity. Supported by SOCAP 2005-06, Instituto Carlos III (FIS 06/0792) and SEPAR 2008.

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Rehabilitation of pulmonary dysfunction in patients with ankylosing spondylitis

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Objective: The study is aiming to demonstrate the benefit of inspiratory muscle training (IMT) on pulmonary dysfunction in ankylosing spondylitis (AS) patients.

Methods: Twenty four patients (mean age: 45.6 ± 5.6 years old, all males) who were previously diagnosed with AS stage III and IV were included in a eight weeks prospective study. The patients were evaluated at baseline and at the end of the study with respect to resting pulmonary function test (forced vital capacity - FVC, forced expiration volume in one second - FEV1) and cardiopulmonary exercise test (maximal minute ventilation - VEmax, maximal tidal volume - VTmax and maximal workload attained during the exercise test - Pmax). All patients performed IMT sessions, three times weekly for a period of eight weeks using a computer assisted TrainAir device. Each IMT session was individualized by evaluating the maximum inspiratory pressure (SMIP), the training being performed at 80% of SMIP.

Results: Using paired t test to compare data at baseline and at the end of the study we noticed significant improvements of FVC (3.4%, $p=0.0002$); FEV1 (3.2%, $p=0.0047$); VEmax (5.9 L/min, $p=0.0002$); VTmax (0.07 L, $p=0.0204$); Pmax (16 Watt, $p < 0.0001$).

Conclusions: Inspiratory muscle training improves resting and effort pulmonary function of patients in advance stages of AS. This is mainly due to the influence of IMT on increasing strength and mobility of the diaphragm and accessory inspiratory muscles, together with the biofeedback provided by the interaction of: patient - TrainAir system - physical therapist. Improving ventilometric performance leads to an increased exercise capacity and quality of life in patients with AS.

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Complex outcomes of physical training in COPD patients

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Background: Exercise and respiratory training is an important part of COPD patient rehabilitation. It improves physical tolerance and lung function, as well as HR QoL.

Aim: To assess the exercise and respiratory training impact on systemic effects in COPD patients.

Methods: 52 COPD patients, stage III and IV were randomized in 2 groups. Group 1 (63.9 ± 7.5 yr, 34.6 ± 11.5 pack/yr, FEV_1 $36.4 \pm 11.0\%$ pred., FEV_1/FVC $39.7 \pm 8.2\%$, CRP 10.7 ± 8.4 mg/l, CES-D 25.9 ± 9.2) received ICS, LABA, tiotropium bromide. Group 2 (64.9 ± 7.8 yr, 38.4 ± 5.6 pack/yr, FEV_1 $33.8 \pm 16.4\%$ pred., FEV_1/FVC $41.3 \pm 10.8\%$, CRP 14.1 ± 6.7 mg/l, CES-D 26.8 ± 8.5) - the same therapy + exercise and respiratory training: upper and low limb muscles training + Threshold IMT and PEP. CRP, IL-1 β , IL6, TNF- α , testosterone, 6MWT, lung function, QoL MOS SF-36, MRC, CES-D-depression questionnaire (1-17 points - not depression, 18 and more - depression) - before and after 4 weeks were evaluated.

Results: In group 2 there was the significant improvement in lung function (ΔFEV_1 : $11.1 \pm 8.7\%$, $p < 0.05$), physical tolerance ($\Delta 6MWT$: 85.3 ± 25.7 m, $p < 0.01$), inflammatory markers: ΔCRP : -8.13 ± 7.6 mg/l, $p < 0.04$, $\Delta IL6$: -8.3 ± 4.4 pg/ml, $p < 0.05$, $\Delta IL1$: -4.1 ± 4.2 pg/ml, $p < 0.16$, Δ testosterone: 0.79 ± 0.32 nmol/l, $p < 0.001$, QoL parameters (ΔPF : $18.9 \pm 8.9\%$, $p < 0.001$, ΔRP : $21.4 \pm 7.8\%$, $p < 0.05$, ΔMH : $14.0 \pm 6.2\%$, $p < 0.001$). CES-D was -9.4 ± 6.9 points. In the group 1 there was no significant improvement in all parameters. There was no significant changes in TNF- α in both group. Correlation: RV/TLC and CES-D $r = -0.70$, FEV_1/FVC and CES-D $r = -0.44$, MH and CES-D $r = -0.72$, SF and CES-D $r = 0.79$.

Conclusion: Exercise and respiratory training has an effect on COPD patient systemic effects.

P3648

Prevalence of airflow obstruction according GOLD, ATS and ERS criteria in symptomatic ever-smokers referring to a pulmonary rehabilitation department

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Aim: To evaluate prevalence of airflow obstruction (AO) in ever-smokers ≥ 45

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years old with both dyspnoea and chronic productive cough, using European Respiratory Society (ERS) statement (FEV1/SVC <88 and <89% predicted in men and women, respectively), American Thoracic Society (ATS) statement (FEV1/FVC <75%), and Global Initiative for Chronic Obstructive Lung Disease (GOLD) statement (FEV1/FVC <70%).

Methods: Lung function tests were performed in each patient referred to our Pulmonary Rehabilitation department because of respiratory diagnosis or symptoms. For analysis, in patients showing AO we used post-bronchodilator lung function values.

Results: In 184 ever-smoker patients with symptoms of chronic obstructive pulmonary disease (COPD), the prevalence rates of AO were as follows: ERS = 89.7%, ATS = 76.6%, and GOLD = 63.6%. Patients with AO according ERS criteria showing moderate to severe (M/S) obstruction (i.e., FEV1 <70% predicted) were 119. Patients with ERS M/S AO but without AO using either ATS or GOLD criteria were 8.4% and 19.3%, respectively.

Conclusions: Prevalence of AO is highly dependent on which guidelines it is based. ATS and particularly GOLD statement can cause a large underdiagnosis even of moderate to severe COPD. Diagnosis of COPD may be overlooked if SVC is not performed.

P3649

Post-bronchodilator FVC determines pulmonary rehabilitation outcomes in patients with chronic obstructive pulmonary disease

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Chronic obstructive pulmonary disease (COPD) is a heterogeneous disease with various clinical and functional phenotypes, hence individualization of treatment strategies, such as pulmonary rehabilitation (PR), is important. Our aim was to explore the importance of post-bronchodilator forced vital capacity (pbFVC) in determining the effects of a PR programme on several patient-oriented outcomes. In the absence of any comorbid restrictive disorder (such as pleural thickening, healed TBC, combined fibrosis, kyphoscoliosis, morbid obesity etc.), FVC reflects the mechanical constraint imposed by the elastic and resistive derangement of the lungs. We have studied 41 COPD patients (FEV₁ 39±10% pred.) who completed a 3-month 25-session PR programme and who were evaluated before and after PR in chronic dyspnoea (modified MRC scale), exercise capacity [6-min walking distance (6MWD) and peak workrate on a maximal cardiopulmonary exercise testing (WRmax)] and health-related quality of life (SGRQ questionnaire). Patients were classified into 2 groups according to their pbFVC: Group A (FVC ≥ 70% pred., 20 patients, age 64±8 years) and Group B (FVC < 70% pred., 21 patients, age 62±8 years). In patients of Group B we excluded on clinical & imaging grounds the presence of any comorbid disease with a potential to affect FVC. Patients of Group A (FVC ≥ 70%) presented significant post-PR improvements in dyspnoea (p=0.008), 6MWD (p=0.005), WRmax (p=0.04) and SGRQ (p<0.001), while patients of Group B (FVC < 70%) experienced a significant improvement only in SGRQ (p=0.008). In conclusion, PR seems beneficial mostly in COPD patients who preserve their FVC.

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Respiratory muscle strength and exercise tolerance before and after pulmonary rehabilitation in COPD patients

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Background: Respiratory muscle impairment could contribute to severe breathlessness and exercise intolerance in COPD patients.

Aim: To evaluate the respiratory muscle function and exercise tolerance in COPD patients before and after pulmonary rehabilitation.

Subjects and methods: Respiratory muscle strength (maximal inspiratory pressure MIP, maximal expiratory pressure MEP), exercise tolerance (6 minutes walking test 6MWT) and dyspnoea score (BORG scale) were analyzed in patients with stable COPD before and after pulmonary rehabilitation (outpatient program, 2 months, 3 sessions/week, including daily respiratory muscle training).

Results: Twenty-two patients with COPD stage II-IV GOLD were included. Mean MIP value was 68.6% of the predicted value (less than 70% in 16 cases) and mean MEP value 104.4%. The mean 6MWT distance (6MWD) was 410 meters. 6MWD was better associated with MIP (r 0.62) than with MEP (r 0.38). Severity of dyspnoea was negatively associated with MIP values (r -0.49) and with 6MWD (r -0.49). Mean 6MWD increased with 70 meters at the end of the rehabilitation program, mean dyspnoea score diminished at rest (from 3.3 to 2.1) and after exercise (from 5.3 to 2.6), and mean MIP values increased to 81.6%.

Conclusions: An improvement in exercise tolerance was seen after pulmonary rehabilitation. Increased walking distance accompanied by lower dyspnoea scores could be related to the increased respiratory muscle performance measured by MIP.

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Thoracic mechanics in COPD patients before and after pulmonary rehabilitation

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Background: Patients with COPD have severe breathlessness induced by the increased mechanical work of respiratory muscles in relation to dynamic hyperinflation. Pulmonary rehabilitation programs have been shown to relieve dyspnoea, but the mechanism by which they succeed remains controversial.

Aim: To evaluate the effect of pulmonary rehabilitation on thoracic mechanics.

Method: The association between thoracic hyperinflation measured by plethysmography (functional residual capacity FRC, residual volume RV), respiratory muscle strength (maximal inspiratory pressure MIP, maximal expiratory pressure MEP) and dyspnoea scores (MRC scale) were analyzed in patients with stable COPD before and after pulmonary rehabilitation (outpatient program, 2 months, 3 sessions/week, including daily respiratory muscle training).

Results: Twenty patients with COPD stage II-IV GOLD were included. Thoracic hyperinflation was present in all cases: mean FRC 164.9% of the predicted value and RV 209.2% before the rehabilitation program. Mean MIP was 69.6% and mean MEP 105.3%. The severity of dyspnoea before the pulmonary rehabilitation was negatively associated with inspiratory muscle strength (r -0.68) and hyperinflation (r -0.45). Hyperinflation decreased at the end of the rehabilitation program (mean RV decreased with 15.1% and mean FRC with 9.2%), mean MIP increased with 14.3% and the mean dyspnoea score decreased from 3.5 to 2.2.

Conclusion: Pulmonary rehabilitation optimized thoracic mechanics in our patients by reducing thoracic hyperinflation and increasing the effectiveness of inspiratory muscles work.

P3652

Asthma control (AC) 1 year after pulmonary rehabilitation (PR)

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Background: Only sparse data exist on the effectiveness of PR in asthma concerning AC. Therefore we conducted a prospective observational study to determine the effect of a 3 week inpatient-PR on AC.

Methods: From May to September 2009 all asthma patients of a pulmonary rehabilitation clinic were asked to participate in the study. 201 out of 242 participated (83%). 42.3% were female, mean age 48.4 y, 59.6% suffered from asthma GINA grade 3-4. Obligate components of PR were patient education, physical training, breathing retraining and psychosocial support. Primary outcome was AC (asthma control test, ACT), which was assessed at beginning of PR (T0), at discharge (T1), and 3 (T2), 6 (T3) and 12 months (T4) post PR. The three latter were delivered by mail. 83.5% (T2), 88.0% (T3) and 72.6% (T4) of the patients answered. Secondary short-time outcomes were 6MWD and FeNO, which were measured at the beginning of PR (T0) and at discharge (T1).

Results (mean±sd): *act score:* T0 16.0±5.2; T1 20.5±4.0*; T2 18.9±4.7*; T3 18.1±4.8*; T4 18.4±4.9*. *6MWD:* T0 495.9±94.6m; T1 554.0±97.0m*. *FeNO:* T0 36.0±38.8ppb; T1 23.3±18.8ppb* (*p values <0,001 versus T0).

Discussion: The mean ACT score at baseline was 16.0 (of 25), indicating an uncontrolled asthma, while the mean score post PR was 20.5, e.g. indicating sufficient AC. Even after 1 year the mean ACT score of 18.4 indicates a significant improvement of AC. The proportion of patients with sufficient AC (ACT 20 - 25) increased from 33.2% to 67.4% after PR and was still 51% after 1 year.

Conclusion: PR lengthens the 6-MWD, reduces FeNO (significant improvement in both) and improves asthma control least for one year.

P3653

Quantification of smokers and smoking status among COPD patients, hospitalized for an exacerbation

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Background: In 2009, Dept of Pulmonary Medicine and Depts of Physiotherapy and Ergotherapy, Gentofte Hospital, University of Copenhagen have carried out the pilot study "KOL-hjem-igen" (COPD-home-again)

There are no official Danish data concerning smoking status or smoking history of COPD-patients, whom have been hospitalized due to an exacerbation

Methods: In a prospective uncontrolled pilot-study we included patients discharged after an exacerbation of COPD 1.1.2009 to 31.12.2009 in COPD-home-again. This consists of open telephone line, home visits by a COPD nurse 5-7 days and 6 months after discharge, individual self-care plan, rehabilitation by physiotherapist and ergotherapist during admission including self-training plan and visitation to rehabilitation.

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All patients admitted with exacerbation of COPD were registered as for smoking status and -history. If still smoking at discharge, the patients were offered smoking cessation assistance as a golden standard.

Results: 154 patients were included. Smoking data were registered on 126, 28 had died or were excluded. At inclusion 26 (20.6%) were smokers, 91 (72.3%) were ex smokers and 9 (7.1%) had never smoked. The average history of smoking was 38 package-years.

At 6 month follow up of 94 patients 22 (25%) were still smoking. Mortality in still, former and never smokers were 22.7, 23.5 and 11% respectively.

Conclusions: Every fourth patient, that has been hospitalized due to an exacerbation still smokes six months after discharge. Interestingly, smoking status after exacerbation seems not to influence on mortality.

This is opposed to known data. Though, the study population is too small to make such conclusions.

P3654

The effect of pulmonary rehabilitation toward expiratory airflow limitation in patients with chronic obstructive pulmonary disease

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Background and objective: Patients with chronic obstructive pulmonary disease (COPD) are commonly referred for pulmonary rehabilitation (PR), but there is limited evidence on the effect of home-based PR. The aim of this study was to determine the effect of a new home-based PR toward expiratory airflow limitation method among COPD patients.

Methods: 40 stable COPD patients (FEV1, 37.7±13.0% predicted) were randomized to PR group (n=20) undergoing a 8 weeks home-based PR programme more suitable to respiratory physiology and control group (n=20). Baseline and post-PR variables were recorded, and changes in pulmonary function, respiratory muscle strength and quality of life (St. George's Respiratory Questionnaire, SGRQ), as well as the body mass index, airway obstruction, dyspnea, and exercise capacity (BODE) index, were evaluated.

Results: After the PR programme, there were a significant increase in respiratory muscle strength (P<0.01) and 6-min walk distance (422.9±106.6 VS 473.3±112.2 m, P<0.01), and a significant reduction in SGRQ total score (49.4±13.6 VS 36.9±12.6, P<0.01), MRC dyspnea scale (2.9±0.9 VS 2.0±0.7, P<0.01) and BODE index (5.2±2.1 VS 4.1±1.7, P<0.01) in PR group but not in control group. However, no statistical significance was found in pulmonary function between the two groups (P>0.05).

Conclusion: We conclude that PR toward expiratory airflow limitation substantially improved respiratory muscle strength, exercise capacity, dyspnea, quality of life and the BODE index. Therefore, it could be considered as a new effective home-based PR method in stable COPD patients.

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Handgrip strength according to gender and COPD severity

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Decreased peripheral muscle strength has been shown in COPD patients; however a simple measure to evaluate this systemic manifestation is missing. The aim of this study was to compare the handgrip strength (HGS) between both genders and between patients with mild/moderate and severe/very severe COPD. Predictors of HGS were also evaluated. 25 mild/moderate COPD patients (68% male, age= 65±8 years, FEV1= 73±15%) and 25 severe/very severe COPD patients (56% male, age= 69±9 years, FEV1= 40±18%) were evaluated. Handgrip strength, pulse oximetry (SpO2), body mass index (BMI), six-minute walk distance (6MWD), Medical Research Council (MRC), Charlson comorbidity index and blood counts were obtained. Handgrip strength was significantly higher in mild/moderate COPD when compared to severe/very severe COPD (37±11kgf versus 31±10kgf; p=0.04), and was significantly higher in males when compared to women with COPD (39±10kgf versus 25±4kgf; p<0.001). BMI, MRC and comorbidities were similar between patients with different disease severity and gender. SpO2 (94±2% versus 91±4%; p=0.003) and 6MWD (452±107m versus 344±95m; p<0.001) was significantly higher in mild/moderate COPD when compared to severe/very severe. Age, male gender, C-reactive protein, BODE index and enlarged left atrium were included in a multiple linear regression analysis with the HGS as the dependent variable. Male gender showed positive association (R2=0.54; p<0.001) and the BODE index showed negative association with HGS (R2=0.54; p=0.04). In conclusion, HGS is associated with COPD severity and the influence of gender must be considered. The measure could be tested as a screening tool to evaluate peripheral muscle dysfunction in COPD patients.

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Impact of obesity on pulmonary rehabilitation in COPD patients

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Aim: We aimed to examine the influence of pulmonary rehabilitation (PR) on pulmonary function test, body composition, exercise capacity, the perception of dyspnea, quality of life, muscle strength, anxiety and depression scores in obese and non-obese COPD patients.

Methods: We conducted a retrospective study of 82 patients with COPD who completed out-patient PR at our center. Body habitus categories were determined based on BMI. Underweight patients (BMI<=21 kg/m²) were excluded from the analysis. Normal weight and overweight patients (21< BMI < 30 kg/m²) were classified as non-obese. Patients with BMI >=30 kg/m² were classified as obese. Baseline and post-rehabilitation, pulmonary function test, BMI, fat-free mass (FFM), fat-free mass index (FFMI), waist-hip ratio, incremental shuttle walk test (ISWT), endurance time, MRC, exercise BORG, St. George's Respiratory Questionnaire (SGRQ), deltoid and quadriceps muscles' strength, Hospital Anxiety and Depression Scale (HADS) scores were compared between two classes.

Results: There were greater decrement of BMI (p=0.019), FFM, FFMI and FVC (p<0.05) in obese group than in non-obese group.

Compared to the baseline, decrement in post-rehabilitation SGRQ scores (symptom, activity, impact), MRC, HADS-scores and increment in FVC, FEV1, distance of ISWT and muscle strength were statistically significant in non-obese group (p<0.05).

Compared to baseline, decrement in post-rehabilitation SGRQ scores (symptom, activity, impact), MRC, HADS-scores, FFMI and increment in distance of ISWT, quadriceps muscle strength were statistically significant in obese group (p<0.05).

Discussion: We concluded that both in obese and non-obese groups outcomes of PR in COPD patients are similar.

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Participants perspectives of pulmonary rehabilitation: The role of peer support

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Methodology: This is a qualitative research study of participants experiences of a pulmonary rehabilitation (PR) programme based in Wakefield, United Kingdom. 4 group interviews were carried out in spring 2010 involving 24 participants. 22 had a primary diagnosis of COPD (mean FEV1 1.1 litres, 42% predicted), 1 had a primary diagnosis of lung cancer and 1 was a carer for a participant with COPD. A structured interview proforma was discussed in each group with specific questions regarding the role of peer support when PR is carried out in a group setting.

Results: Many participants had not met other people with COPD prior to attending PR. Other participants provided a reference for progression of COPD and personal insights into living with chronic disease. Participants valued the opportunity to take part in social interaction which may not be available to them at other times. Bonding within groups improved motivation to continue attending sessions. The psychological support provided by other group members lead to an improvement in confidence and more positive approach to everyday life. The course gave structure to participants lives and gave them something to look forward to. The presence of experienced members of staff provided a safe environment in which to exercise and allowed participants to challenge the perceived limits of their exercise tolerance.

Summary: The group format of PR is a positive factor in encouraging and motivating ongoing participation. The opportunity for social interaction has a positive impact on their performance during the sessions and on willingness to continue to perform exercises when at home. This has implications when considering the value of home-based PR.

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Daily activity habits, energy conservation methods and activity training for patients with COPD. A qualitative study

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Background: COPD patients commonly have symptoms like dyspnea and fatigue that affect their occupational performance and activities of daily living (ADL), but there are few studies on how their activity performance can be supported in Pulmonary Rehabilitation.

Aim: The purpose of this study was to explore COPD patients' experience of habits when performing activities of daily life, and how training on daily life activities (ADL training/activity training) during pulmonary rehabilitation had been useful for energy conservation and coping.

Method: A qualitative research design was chosen. Four women and two men (age 55 to 75) were interviewed 4 to 6 months after a 4 weeks inpatient pulmonary rehabilitation program. The interviews were analyzed by means of phenomenological method and Systematic Text Condensation (STC) as described by Malterud (2003).

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Result: Findings are summarized in four categories. 1) How the participants experience the managing of their daily life activities. 2) Changing of habits when performing activities. 3) The experience with ADL-training carried out under guidance of an occupational therapist. 4) Contextual factors that influenced the participant's ability to cope.

Conclusion: People with COPD experience the change of habits, in performing daily life activities, as a process. ADL-training, in which the body is used as the primary source of knowledge, can be useful if the patient is in a stage of his/her health promoting process where he or she is motivated for changing and learning new habits in daily life.

P3659**Relationship between psychological well-being and lung health status in patients with bronchiectasis**

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Introduction: Patients with bronchiectasis often experience depression and anxiety, but little information is available regarding patients with these conditions.

Aim of the study: This study was carried out to examine levels of anxiety and depression in patients with bronchiectasis.

Methods: Forty three patients with bronchiectasis, determined by high resolution computed tomography scan, completed anxiety and depression questionnaires.

Results: 27% of patients had minor depression with an anxiety depression score more than 13 and 9% of patients had severe depression with an anxiety depression score more than 19. The anxiety depression status was not correlated to the extent of bronchiectasis on CT scan ($p=0,362$). Post-bronchodilator FEV1 and higher airflow limitation were associated to a severe anxiety depression status.

Conclusion: Anxiety and depression are quite common in bronchiectasis. Treatment in bronchiectasis aimed essentially at reducing symptoms but it will not reduce levels of anxiety and depression with need alternative therapy.