

WEDNESDAY, SEPTEMBER 19TH 2007

427. Lung function and therapy in obstructive lung diseases

E4364

Incentive spirometry has no advantage in preventing respiratory function decline after thoracic surgery

E. Zilber¹, A. Bogdanez¹. ¹Chair of Intensive and Respiratory Care and Anesthesia, Petrozavodsk State University, Petrozavodsk, Karelia, Russian Federation

Background: There are controversial data about advantage of incentive spirometry (IS) over other approaches in postoperative treatment of thoracic patients. We tested hypothesis that this therapy may be benefit in regard of faster recovery of respiratory function after lung resection.

Aim of the work: To study effect of IS on respiratory function after lung resection in compare with control treatment including CPAP and aerosol mucolytic therapy.

Material and methods: Thirty-eight patients undergoing lung resection were randomly divided into two groups. One group of patients was administered to IS therapy while another was assigned to treatment with CPAP and nebulizing therapy (NT). Examination of lung function included measurements of vital capacity (VC) and total lung capacity (TLC) by whole-body plethysmography as well as assessment of diffuse lung capacity (TLCO). Unpaired t-test was used to establish significance of differences between group's data. All data express as percent of predicted value.

Results: Lung function testing (VC, TLC and TLCO) did not indicate any significant differences between the groups before surgery (IS group: 105.0±6.0, 119.8±4.0, 79.12±8.3 versus controls: 98.9±3.6, 114.5±4.2, 82.11±6.1) ($p > 0.05$). On 5th–8th day after lung resection we observed approximately the same decline of respiratory function (VC, TLC and TLCO) despite differences in postoperative treatment (IS group: 52.2±3.7, 86.3±6.1, 50.6±5.9 versus controls: 61.2±3.5, 83.7±3.5, 54.5±4.8) ($p > 0.05$).

Conclusions: During the first postoperative week IS has no advantage over CPAP with NT in boosting some respiratory functions in patients undergoing lung resection.

E4365

Comparison between clinic and home PEF monitoring

K. Tomita¹, Y. Hasegawa¹, M. Watanabe¹, A. Yamasaki¹, E. Shimizu¹, H. Sano², A. Touda². ¹Third Department of Internal Medicine, Tottori University, Yonago, Japan; ²Department of Respiratory and Allergy Medicine, Kinki University School of Medicine, Osaka, Japan

Guidelines for asthma management advocate home peak expiratory flow (PEF) monitoring. However, compliance with home PEF monitoring is generally poor in chronic stable asthmatic subjects. We investigate the accuracy of clinic PEF monitoring in comparison with day-to-day home PEF monitoring. Patients between 26 and 55 years of age who were already using regular inhaled steroids and (as needed) bronchodilators were recruited from outpatient of Tottori University hospital. Patients were included if their asthma was considered stable (i.e. no exacerbation in the previous three months). Data from 67 clinically stable asthmatic patients from a 1 yr follow-up study were analyzed. Clinically, they were classified following the 2002 revised strategy for asthma management (NIH), 29 as mild intermittent, 27 mild persistent and 11 moderate persistent asthmas. Peak expiratory flow rate (PEFR) and symptoms were recorded daily at home and at each visits of outpatient clinic using mini-Wright PEF meters. Fluctuation of PEFR was assessed by number of events of which declined from best PEFR. At home monitoring, 10–20% and 20% and over decline of best PEFR occurred at 7.6 and 1.4 events per year (mean), respectively. There was a strong correlation between the fluctuation of clinic PEFR and that of home PEFR. ($r=0.82$, $p < 0.001$). We conclude that clinic PEF is enough to monitor and home PEF is not needed in the majority of mild to moderate asthmatic patients.

E4366

Airway and respiratory muscle function after spinal anesthesia

A. Bogdanez¹, O. Shishkin². ¹Chair of Intensive and Respiratory Care and Anesthesia, Petrozavodsk State University, Petrozavodsk, Karelia, Russian Federation; ²Department of Anesthesia, Republican Hospital of Karelia, Petrozavodsk, Karelia, Russian Federation

Background: Expiratory muscles depression (EMD) induced by spinal anesthesia (SA) may impair airway clearance due to cough weakening. Effect of EMD on airway function after SA was not completely studied.

Aim of the study: To establish whether EMD after lower extremity (LES) and lower abdominal surgery (LAS) under SA effect airway function.

Material and methods: 57 patients undergoing SA with bupivacain were enrolled in the study – 26 with LAS and 31 with LES. Airway occlusion technique was used for measurement of maximal expiratory muscle efforts (PmaxEx). We also examined airway resistance (R5) and expiratory airflow (FEV1/FVC) by forced oscillation technique and spirometry, respectively. Data expressed as

percent of predicted value and were analyzed using the paired Student's t-test with Bonferroni's correction.

Results: There was substantial reduction of PmaxEx in LAS group: 118.7±41.1% before surgery, 84.4±37.6% immediately after operation ($p < 0.01$), 66.3±30.1% on the first day after operation ($p < 0.01$), 81.0±28.9% on the fifth day ($p < 0.01$). While LES group was characterized by short-term EMD: 98.9±13.1% before surgery, 91.8±17.3% immediately after ($p < 0.05$). Non-significant increase of R5 occurred just after operation in LAS group, but it normalized further: 125.5±40.1% before surgery, 137.4±54.7% immediately after operation ($p = 0.055$). No signs of airway obstruction confirmed by reduction of FEV1/FVC were observed after LAS and LES conducted under SA.

Conclusions: SA for LES is associated with EMD persisting no longer than day of surgery. In patients undergoing LAS with SA expiratory muscles weakening was prolonged. Despite of these differences there are no signs of remarkable airway dysfunction in both groups.

E4367

Differences in FEV1 do not discriminate differences in quality of life as differences in dyspnea does

R.J. Hernandez-Zenteno¹, A. Ramirez-Venegas¹, A. Velazquez M¹, R.H. Sansores M². ¹COPD Clinic, National Institute of Respiratory Diseases, Mexico City, Mexico; ²Respiratory Centre of Mexico, Medica Sur, Mexico City, Mexico

Introduction: Chronic Obstructive Pulmonary Disease (COPD) severity, is traditionally staged by FEV1. However, dyspnea is the main cause for medical assistance and discriminate better disease severity than pulmonary function, in terms of Health Related Quality of Life (HRQoL). GOLD guidelines continue proposing stages based on lung function but its properties in discriminating HRQoL have been studied so little and have not been contrasted to dyspnea.

Objective: To determine how GOLD severity staging associate with HRQoL compared to how dyspnea scales do.

Method: 61 ambulatory stable COPD subjects in cross-sectional study, were classified into mild, moderate and severe disease severity, according to dyspnea levels (MRC ad BDI) and according pulmonary function by means of ATS, BTS, ERS and GOLD staging systems in order to associate with HRQoL Saint George Respiratory Questionnaire (SGRQ).

Results: Age 64±8 years, FEV1 43±18%, MRC 3.3±1.2, Total BDI 5.5±2.5 and Total SGRQ 48±19%. HRQoL in relation to GOLD severity groups (I to IV) were different with normal lung function ex smokers (before named GOLD 0) ($p < 0.026$). GOLD II and III were different to GOLD IV ($p < 0.009$) in this respect, and there was no differences between I, II and III GOLD groups. While MRC showed differences between Mild and Moderate with severe group ($p < 0.01$) but not between mild with moderate group; and BDI scale differentiated much better HRQoL deterioration, discriminating severity groups each other ($p < 0.0001$).

Conclusions: GOLD severity staging reflects HRQoL affection through II to IV groups as MRC does (mild-moderate with severe), but not as good as BDI does.

E4368

Lung function in children with inflammatory bowel diseases

J. Lange¹, K. Krenke¹, J. Peradzynska¹, A. Banaszkiwicz², P. Albrecht², M. Kulus¹, I. Lazowska², A. Radzikowski². ¹Department of Pediatric Pulmonology and Allergy, Warsaw Medical University, Warsaw, Poland; ²Department of Pediatric Gastroenterology and Nutrition, Warsaw Medical University, Warsaw, Poland

Pulmonary manifestations have been reported in inflammatory bowel diseases – ulcerative colitis (UC) and Crohn's disease (CD). Latent pulmonary involvement was observed in a paediatric population with active IBD.

The aim of this study was to investigate whether any pulmonary abnormalities could be detected in paediatric group with IBD by routine pulmonary function tests and whether there is any difference between the two IBD entities.

Material and Methods: The study involved 24 children with inflammatory bowel disease. Children were divided into two groups according to the diagnosis: 16 cases of UC and 8 cases with CD. In both group spirometry, metacholine challenge test, assessment of exhaled nitric oxide level, diffusion capacity for carbon monoxide plus whole body plethysmography were performed.

Results: Significantly lower mean values of small airways test in UC group compared to CD group were observed: SDS MEF₅₀ -0.51 (+/-0.84), SDS MEF₂₅ -0.70 (+/- 0.84) and SDS MEF₅₀ 0.77 (+/- 0.87) SDS MEF₂₅ 0.51 (+/- 1.07) respectively ($p < 0.002$). Any other significant differences between groups concerning spirometry, diffusion capacity, whole body plethysmography and exhaled NO level were observed. Positive metacholine challenge test was observed in 4 cases, all those cases were from UC group.

Conclusion: Although we observed significant differences between UC and CD groups in small airways test, the mean value of the parameters still remains in normal range. UC and CD patients groups seem to have similar pulmonary function tests.

E4369

FEV1/FEV3 ratio: a potential alternative to full spirometry for patients unable to sustain forced expiration?

N. Siddique, P. Yeung, M. Janczewski, S. Allen. Thoracic Medicine, The Royal Bournemouth Hospital, Bournemouth, United Kingdom; Medicine and Geriatrics,

WEDNESDAY, SEPTEMBER 19TH 2007

Princess Margaret Hospital, Hong Kong, China; Community Geriatrics, Poole Primary Care Trust, Poole, United Kingdom; Medicine and Geriatrics, The Royal Bournemouth Hospital, Bournemouth, United Kingdom

We conducted a study to determine whether patients who are unable to perform full spirometry can sometimes meet agreed criteria for the first 3 seconds.

We included 267 patients (age 49–101). These were functionally independent patients (120), frail inpatients (80) and frail patients in residential care (67). They were selected in order of presentation. All attempted spirometry with an experienced attendant. The traces were compared with the American Thoracic Society 1994 (ATS94) criteria for spirometry. Their Mini Mental State Examination (MMSE) was measured. Failure to meet the full criteria was mainly found in patients with cognitive impairment (MMSE <25) or cough.

137/267 (51%) of the sample met the ATS94 standard for full spirometry. All but 8 of these had an MMSE score >24, and none <20. A further 66 (25%) met the criteria over the first 3 seconds of the procedure (FEV₃); 17 of these had an MMSE <25. Of the 64 (24%) unable to meet the ATS94 criteria 48 (75%) had an MMSE < 25.

Of the 137 subjects meeting the full ATS94 criteria, 83 had a diagnosis of COPD with FEV₁/FVC ratios in the range 37–75% and FEV₁/FEV₃ ratios in the range 46–80%. Those with no airflow obstruction had ranges of 80–93% and 83–97% respectively. Of the 66 able only to perform the initial 3 seconds, 35 had COPD and 31 had no airflow obstruction; the FEV₁/FEV₃ ratio ranges in those groups were 41–79% and 82–98% respectively.

We showed that some patients not reaching the full ATS94 spirometry standard can perform FEV₃, and our data suggest that an FEV₁/FEV₃ ratio of < 80% could be indicative of a clinically significant degree of airflow obstruction in subjects unable to do full spirometry.

E4370

Exhaled and nasal NO levels in patients with primary ciliary dyskinesia (PCD)

J. Pawlik¹, W. Tomalak¹, W. Myszkal¹, J. Radlinski¹. ¹Dept. of Physiopathology of Respiratory System, Institute for TBC and Lung Dis., Rabka Branch, Rabka, Poland

It has been shown that measurement of exhaled NO can be useful in differential diagnosis of primary ciliary dyskinesia (PCD), as PCD subjects have low values of nasal NO comparing to other diseases. We have analysed the results of exhaled NO measurements done in 67 PCD patients (mean age 15.4±8.3; range 4–40 yrs). Measurements of NO were made according to ERS/ATS guidelines using SIEVERS NO280i analyzer equipped with flow restrictor.

Mean values (range) in the group were: exhaled NO: 9.7±5.5 ppb (3.1–33.9) and nasal NO 79.0±56.2 ppb (7–222.8). As 17 (25.4%) of our patients had ultrastructure defects of cilia evaluated using electron microscopy (E-group), we have compared results in both groups. The groups did not differ with respect to age (p=0.07). The levels of exhaled NO were 8.5±2.1 ppb and 10.2±6.7 ppb in E-group and the remaining patients respectively, while nasal levels of NO were 73.7±53.7 and 80.8±52.4 ppb respectively. The differences were statistically not significant in both instances (by unpaired t-test; p=0.27 and p=0.66 respectively). We conclude that simple test of measuring exhaled NO is very useful in diagnosing PCD. It seems that despite the type of defect (dynein arm defect, changes in microtubular structure and/or organization of ciliary axonemes or random ciliary orientation) – nasal levels of NO are similarly lowered in PCD patients.

E4371

Evaluation of a method for respiratory muscle function testing

B. Gomez¹, M. Temprano¹, V. Bustamante^{1,2}, E. Lopez Santamaria¹, J. Galdiz^{1,2}. ¹Respiratory Service, Cruces Hospital, Baracaldo Vizcaya, Spain; ²Medicine Department, Basque Country University, Bilbao, Spain

Background: The evaluation of muscle function testing, endurance and strength, can be considered as routine in the study of patients with respiratory pathology but in clinical practice the endurance test presents methodological problems.

Aim: To evaluate a new device for respiratory muscle testing especially endurance test

Methods: Eleven healthy subjects were included. An incremental test were carried out in two different occasions with a minimal interval of 24 hours. We used a MicroRMA(MicroMedical ©). The system allows measure directly different parameters as: Time duration, Ti/Ttot, flow, energy (pressure*flow*time). We used a fixed respiratory frequency using an acoustic signal of 10 breaths per minute with a Ti/Ttot of 0.5. To compare the results we used coefficient of variation and paired T test related to the time and energy parameters obtained.

Results: Eleven subjects (4 m, 7w) with an age (mean 32 years, range 25–52). The mean time in the first test was 501.31±156 s and 504.05±159.9 in the second one (p<0.812).

The energy consumed was 423.27±211.26 joules in the first test and 396.64±228.34 (p>0.311). The coefficient variation observed was 4.91% for time and 13.23% for energy consumed.

Conclusions:

1. The MicroRMA can be considered a tool for endurance muscle test measurement
2. The system doesn't need individual adjustments and can be considered as universal use.

3. The system allows the inclusion of endurance test as a routine in the respiratory patients evaluation.

E4372

The role of bronchial inhalation challenge in confirming professional bronchial asthma

N. Aranicki¹, S. Obradovic Andjelic¹, B. Zvezdin¹, N. Lalic¹, I. Kopitovic¹, Z. Dobric¹. ¹Pulmonary Policlinic – Pulmonary Dispensary, Institute for Pulmonary Diseases, Novi Sad, Serbia

To establish the diagnosis of professional asthma, it is crucial to perform a bronchial inhalation challenge to specific allergens. The test is composed of incriminated substances found in the working environment. The investigation included 54 subjects. Most of them were employed in textile and leather industries (17), then in food processing (15) and chemical industry (10), while fewer worked in plastic, metal, civil engineering, or oil industry. Twenty subjects had a positive allergic test findings to standard inhalation allergens, and half of them had a positive nonspecific inhalation challenge. Positive findings of the specific bronchial inhalation challenge were obtained from 27 subjects, most of them working in textile and leather industry. Of 27 subjects with a positive specific bronchial inhalation challenge, 21 (78%) developed a positive reaction to nonspecific bronchial inhalation challenge. On the basis of the obtained study results, it is concluded the specific bronchial inhalation challenge is absolutely indicated in the subjects who, besides developing cough and dyspnea at work, also have a positive nonspecific bronchial inhalation challenge, as most of the examined subjects (78%) with a verified bronchial tree hyper-reactivity developed bronchospasm when inhaling specific allergens.

E4373

Functional testing of the Omron MicroAir, a vibrating mesh nebulizer

K. Harris, G. Smaldone. Pulmonary/Critical Care, State University of New York at Stony Brook, Stony Brook, NY, United States

To characterize this system before clinical trials of drug delivery, we measured drug output and aerosol distribution for a test drug, salbutamol; including effect of nebulizer position (angle) on output and particle size. Ten devices were tested, 5 held vertical and 5 horizontal. Three of the vertical units were tested in the horizontal position and the results were averaged. The test solution consisted of 3 mL of salbutamol (2.5 mg) labeled with one drop of 99m Technetium (99mTc). The nebulizer was ventilated with a Harvard pump set to a tidal volume of 450 cc, frequency of 15 and a duty cycle of 0.35. Particle size was measured with a Marple seven stage cascade impactor. Inhaled mass (IM) was measured by capturing aerosol on filters. Data are shown in the table. Position had a major effect on run time (31 min vertical, 10 min horiz) but not on IM or particle size. Operated continuously, IM mass ranged from 17 to 20 % of nebulizer charge. MMAD tended to be larger in the horizontal position (1.9 vs 3.0 μm). The Omron Vibrating membrane nebulizer exhibits variation in output rate that is strongly dependent on position. IM and MMAD are comparable to those previously reported for jet nebulizers.

Parameter	Nebs #1–5	Nebs #6–10	Nebs #13.5
	Tilted	Horizontal	Horizontal
	Mean±SD	Mean±SD	Mean±SD
MMAD (um)	1.9±0.3	3.0±1.2	2.2±0.2
Inhaled mass %	17±0.9	20±2.0	18±0.9
Run time (min)	31±24	9.6±3.0	10±2.0

E4374

The evaluation of pulmonary function tests and arterial blood gases among patients with amyotrophic lateral sclerosis

I. Hanta¹, S. Kuleci¹, F. Koc². ¹Chest Diseases, Cukurova University, School of Medicine, Adana, Turkey; ²Neurology, Cukurova University, School of Medicine, Adana, Turkey

Aim and Objectives: Amyotrophic lateral sclerosis (ALS) is a progressive fatal neurodegenerative disorder of unknown origin. In this study we aimed to evaluate pulmonary function tests and arterial blood gases in patients with ALS.

Methods: In this study, we evaluated the pulmonary data of 35 adult ALS patients who were followed up at Cukurova University, School of Medicine, by both Chest Diseases and Neurology Departments between January 2004 and December 2006.

Results: Of 35 patients, 18 (51.4%) were men, 17 (48.6%) were women. Duration of time diagnosis was 3.5±2.8 years (min–max: 0.5–12 years). The mean ALS score was 29.9±10.5. As ten (28.5%) patients were not able to perform pulmonary function tests (PFT), pulmonary data of only 25 (71.5%) patients were evaluated. In table 1, the data of pulmonary function tests and arterial blood gas analysis were given due to ALS scores of patients.

WEDNESDAY, SEPTEMBER 19TH 2007

Conclusion: Although not significant, as ALS score deteriorates, the restrictive respiratory pattern becomes more prominent; and the trend towards respiratory alkalosis and hypoxemia is detected in "severe" ALS group.

Parameter	ALS Score		
	Severe (0–20)(n:5) (mean±SD)	Moderate (21–40)(n:15) (mean±SD)	Mild (>41)(n:5) (mean±SD)
FEV1 (L)	1.91±0.33	2.01±0.98	2.41±1.00
% FEV1	68.2±13.8	65.1±19.2	73.1±20.7
FVC (L)	2.10±0.42	2.41±1.17	2.93±1.23
%FVC	65.4±11.9	63.2±20.0	67.9±18.3
%FEV1/FVC	101.2±8.3	87.6±10.6	83.2±9.9
pH	7.41±0.05	7.39±0.02	7.35±0.05
pO2	76.3±5.1	88.7±9.2	106.0±30.3
pCO2	34.2±8.2	33.6±4.3	38.0±10.4
SaO2	92.4±5.4	96.2±1.8	96.6±2.08
HCO3	26.9±1.9	25.9±3.3	21.2±3.2

E4375**The lung function (LF) and quality of life (QL) at practically healthy persons (PHP) depending on the index of mass of body (IMB)**

T. Konstantynovych¹, O. Nagorniyak¹, M. Matsievych¹. ¹Therapeutical, Vinnitsa National Medical University Named after N. Pirogov, Vinnitsa, Ukraine

With purpose to estimate prevalence of somatic complaints (SC), LF and indexes of QL at practically healthy persons (PHP) depending on the index of mass of body (IMB) we observed 158 PHP (112 women, 46 men), middle ages 38 years. Expected IMB according to the World Health Organization, prevalence of SC was estimated in the marks of analog scale (from 0 to 3). Studied LF on a computer spirometer «Vitalograph» (Germany). Findings FEV₁ were compared with due, expected on the Crapo's formula. The QL indexes on the method FAM were studied (feel, activity, mood). It is set that at 102 (63.7%) PHP with ideal weight made prevalence of SC 22.7%, here the middle index FEV₁ made 97.7% from the due, for certain meaningful decline FEV₁ (more than 15%) was not observed. PHP with surplus weight in 33% had the complaints of pulmonary type, at them the middle index FEV₁ made 96.4% from a due, 23 (50%) persons are exposed with the clinically meaningful deficit FEV₁. PHP the deficit of weight of body, SC were produced in 34% of cases, the middle index FEV₁ at them made 86.4% from a due, at 100%. Middle indexes of QL on scales «feels» and «moods» at persons with a deficit and surplus weight are higher (4.9 and 5.3 marks of 5.1 and 5.5 marks against 4.9 and 4.8 marks accordingly), but indexes on the scale «activity» are below (4.2 and 4.2 against 4.6 marks accordingly), than at persons with ideal weight. LF and QL parameters depends on character of human feed. The disbalance of weight results in the LF violation and decline of indexes of «activity». Correction of mass of body can become one of factors of prophylaxis of obstructive diseases of organs of breathing.

E4376**Gastrointestinal reflux and pulmonary function – a pilot study**

M. Terceelj, B. Salobir, K. Vukelic. *Department of Pulmonary Diseases and Allergy, University Clinical Centre, Ljubljana, Slovenia; Department of Pulmonary Diseases and Allergy, University Clinical Centre, Ljubljana, Slovenia; Pulmonary Disease and Allergy, Primary Health Care, Grosuplje, Slovenia*

Background: It is well known that patients with asthma and COPD often have gastro-esophageal reflux and it has been observed that the clinical picture and pulmonary function of the lung disease in these patients is more severe.

Aim: Since gastro-esophageal (GE) reflux might be associated not only with hiatus hernia but also with a widened GE junction, we investigated whether both of these conditions are related with a worse clinical picture.

Methods: We examined 163 consecutive patients with clinical symptom of GE disease and asthma, COPD or with chronic cough in whom other pulmonary pathology had been ruled out. In all patients clinical examination, pulmonary function test and upper gastrointestinal radiography with barium were performed. We evaluated associations between pulmonary function with either widened GE junction or GE hernia.

Results: We found widened GE junction in 103 and GE hernia in 45 patients. Patients with GE hernia had a significantly lower pulmonary function than those with widened GE junction. In patients with pulmonary diseases there were no significant difference in occurrence of hiatus hernia and widened GE junction. In a patients with COPD, a lower pulmonary function was found in patients with hiatus hernia compared to patients with widening of GE junction (VC%75±13.5 vs. 90.2±20; FEV1% 59.5±14.2 vs. 90.7±17.8, p=0.003) not in asthma.

Conclusions: The incidence of GE hernia and widening of GE junction in our patients with asthma, COPD and chronic cough is higher than in a normal, healthy, adult population. We identified an association between hiatus hernia and worse

pulmonary lung function in patients with COPD but not in other patients. This association might be clinically relevant.

E4377**Bronchial hyperreactivity estimated by bronchodilator test and FEF25–75/FVC ratio**

S. Rancic¹, M. Rancic¹, J. Dukic¹. ¹Department for Lung Function, Clinic for Lung Diseases, Nis, Serbia

FEF25–75/FVC regarded as best parameter indicating relationship between airway and lung parenchyma showed that FEF25–75/FVC ratio was related to bronchial hyperreactivity. In our study, the relationship between FEF25–75/FVC ratio, pulmonary functions and reversibility of bronchoobstruction was analyzed prospectively among 114 patients (pts).

Reversibility estimated by bronchodilator test (BDT) with MasterLab, Jaeger spirometry device 20 minute after inhalation of salbutamol (200 mcg) through a spacer after 24 h bronchodilator drug-free period. Increase FEV₁ after inhalation of salbutamol for 15% estimated as positive BDT.

Median age among 66 BDT positive pts was 37.04±16.38 years and FEV₁ value 2413.18±932.36 ml and median age among 48 BDT negative pts was 42.13±17.01 years and FEV₁ value 2153.36±1369.78 ml.

FEF25–75/FVC ratio in group of BDT positive pts and in group of BDT negative pts showed correlation with FEV₁ (BDT poz: r=0.4737; p=0.0259) (BDT neg: r=0.5000; p=0.0486) and with FEF25–75 (BDT poz: r=0.6785; p=0.0005), (BDT neg: r=0.6966, p=0.0027).

In BDT positive group FEF25–75/FVC ratio showed negative correlation with delta FEF25–75 (r=–0.7727; p=0.0004) and delta FEV₁ (r=–0.6479; p=0.0067), but in BDT negative group no correlation could be found.

In conclusion, with decreasing FEF25–75/FVC ratio obstruction parameters deteriorate and reversibility is higher.

E4378**“Nonobstructive” emphysema of the lung**

A.G. Corsico¹, M.C. Zoia¹, R. Niniano¹, E. Gatto¹, G. Cervio¹, E. Ansaldo¹, A. Corsico², P. Cremaschi¹, E. Pozzi¹, I. Cerveri¹. ¹Division of Respiratory Diseases, Fondazione IRCCS Policlinico San Matteo, University of Pavia, Pavia, Italy; ²Division of Radiodiagnostic, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy

This is the case of a man with smoking-related diffuse centrilobular emphysema detected on HRCT and severe respiratory failure, whose pulmonary function and mechanics were normal except for a marked reduction in diffusing capacity (D_Lco). Some cases of “nonobstructive” emphysema have been already reported but no explanation for the unusual complete dissociation between airflow obstruction and destructive changes had been provided. In the year 2003, a 64-year-old man was referred for severe dyspnoea. He smoked 80 pack years and reported chronic cough and sputum for >10 years. He showed normal lung function (FEV₁ 2.59 L [88% pred.]; FVC 3.74 L [98%]; FRC 3.30 L [93%]), normal dynamic compliance (0.207 L/cm H₂O) but severely reduced D_Lco (18% pred.), mild hypoxemia (32.8 mmHg) and marked hypoxemia (43 mmHg). Other coexisting diseases or complications explaining the severe hypoxemia (pulmonary embolism, pulmonary hypertension, cardiac diseases, shunts and immunopathologically based vasculitis) were excluded. We hypothesized that the smoke related destructive changes could have predominantly reduce the pulmonary capillary bed. New data are showing a direct effect of tobacco smoke on the intrapulmonary vessels ultimately leading to aberrant vascular remodelling and aberrant vascular physiology. We confirmed our hypothesis during 4 year follow-up in which we observed a rapid development of severe pulmonary hypertension (mPAP 40 mmHg), that is uncommon in patients with COPD. In the presence of emphysema with dissociation between airflow obstruction and gas exchange abnormalities, a direct effect of smoke on the pulmonary capillary bed should be early identified, and treated identically to idiopathic pulmonary hypertension.

E4379**Study of PFT's in patients with type 2 diabet mellitus and diabetic neuropathy and microangiopathy**

C. Belias¹, A. Penteroudaki¹, G. Meletis¹, M. Chistodoulou¹, M. Ferdoutsis¹, G. Patsourakis¹, E. Thanou¹, C. Pigakis¹, E. Kirlaki², N. Kefalogiannis², N. Bachlitzanakis¹. ¹Pulmonary Medicine, Venizelion General Hospital, Heraklion, Crete, Greece; ²Diabetologic Department, Venizelion General Hospital, Heraklion, Crete, Greece

The aim of this study was the estimation of pulmonary function in patients with type 2 diabet mellitus (T2DM) and the correlation with diabetic microangiopathy (DMA) and diabetic autonomic neuropathy (DAN). 21 patients were studied of mean age 64±7 years. In group A 12 patients with T2DM, DMA (reticulopathy, peripheral neuropathy, nephropathy) and DAN estimated according to cardiovascular autonomic functions tests were studied. In group B were included 9 patients with T2DM without diabetic complications. Exclusion criteria from the study were smoking and chronic respiratory diseases. PFT's (dynamic spirometry, static volumes) and DLCO by steady state method were performed in all patients. Results showed that patients from group A comparatively with patients from group B presented reduced FVC (80±7% VS 91±12.5% of pred, P<0.003) and FEV₁ (91±5.7 vs 97±9.2% of pred, p<0.002). Also 7 from 12 patients of group A

WEDNESDAY, SEPTEMBER 19TH 2007

presented with statistically significant reduced DLCO. We conclude that patients with T2DM present reduced values of FVC and FEV₁ probably correlated with DAN and the alteration of mechanisms that regulate bronchial muscular tone and the size of bronchial lumen. Reduced DLCO probably is correlated with DMA.

E4380**Nebulisers or spacers to administer bronchodilators in emergency departments – a survey of current practice**

N. Mason¹, N. Roberts¹, N. Yard², M.R. Partridge¹. ¹NHLLI at Charing Cross Hospital Campus, Imperial College, London, United Kingdom; ²Emergency Department, Charing Cross Hospital, London, United Kingdom

Background: Traditionally treatment of those attending hospital emergency departments with severe asthma consists of high-dose bronchodilators and depending upon severity a course of steroid tablets. Studies have shown no advantages in using nebulisers to administer bronchodilators in comparison to the use of a pMDI and spacer. For some years the British asthma guidelines have recommended that in children pMDI and spacers should replace nebulisers, and the 2006 guidelines make a similar recommendation for adults.

Methods: 35 hospitals with emergency departments within the Greater London area were contacted. They were asked whether their current policy was to administer bronchodilators to adults and children with the aid of a nebuliser or by use of a pMDI and spacer. For departments using nebulisers, staff were asked whether they were aware of the change in guidelines.

Results: 33/35 emergency departments(94.3%) confirmed that nebulisers were used for the treatment of non-life threatening asthma in adults, only 2 (5.7%) were using spacers. 30 departments treated children, with 11 (36.7%) using spacers, 10 (33.3%) using nebulisers and 9 (30%) using both. 18 (51.4%) of the hospitals were unaware of the guideline changes. Many added that they knew that spacers were recommended for children but did not know this had been extended to adults. Of those that were aware of the changes in guidelines recommendations, 15 (88.2%) continued to use nebulisers.

Conclusions: Guideline recommendations which highlight the lack of advantage of nebulisers as a method of administering high dose bronchodilators to those with severe asthma attending emergency departments are poorly implemented.

E4381**Identification of individuals with alpha-1-antitrypsin deficiency by a targeted screening program**

A.-R. Koczulla¹, R. Bals¹, V. Kottke¹, K.H. Blackert², C. Vogelmeier¹.
¹Department of Internal Medicine, Division for Pulmonary Diseases, Philipps-Universität Marburg, Marburg, Germany; ²Agency KONSENS, Agency KONSENS, Werne, Germany

Background: Alpha-1-antitrypsin deficiency (AATD) is significantly underdiagnosed. The early detection of AATD would enable affected persons to make lifestyle changes such as quitting smoking. It was the aim of the study to determine whether the combination of an awareness program with the offer of a cost-free diagnostic test results in the identification of a significant number of individuals with severe AATD.

Methodology: We combined a series of measures to promote awareness with the offer of a diagnostic test at no charge. Test blood was applied to a filter paper and sent to our laboratory. The level of AAT was measured by nephelometry, the presence of the S- or Z-allele was determined by PCR, and phenotyping was performed by isoelectric focusing.

Results: During 37 months 17688 testing kits were distributed and 2722 were sent back to our laboratory. We identified 335 patients with severe AATD including 16 individuals with rare genotypes. The direct mean cost per processed sample was EURO 89.

Summary: These data show that the combination of an awareness program with the offer of free diagnostic testing results in the identification of a large number individuals with severe AATD.