83. COPD comorbidities II

P540

The role of modification of CURB-65 score as prediction factor for one year survival in acute exacerbation of COPD

Wiwien Heru Wiyono[1], Widya Sri Hastuti[1], Ratnawati[1], Iwang Gumiwang[2], Joedo Prihartono[3]. *[1]Pulmonology and Respiratory Medicine, Fac. of Med Univ. of Indonesia/Persahabatan Hospital, Jakarta, Indonesia; [2]Division of Cardiology & Vascular Medicine, Persahabatan Hospital, Jakarta, Indonesia; [3]Department of Community Medicine, Faculty of Medicine University of Indonesia, Jakarta, Indonesia*

Introduction: Acute exacerbation of COPD (AECOPD) is associated with a high risk of mortality. A risk-prediction model using information easily obtained on admission could help to identify high-risk individuals. The CURB-65 score was developed to predict mortality risk in community acquired pneumonia. A retrospective study found that this score was also associated with mortality in AECOPD.

Methods: Consecutive patients with physician diagnosed AECOPD admitted to a public hospital during a 1-year period were studied prospectively. The modification of CURB-65 Score were calculated from information obtained at initial hospital presentation. The modification of CURB-65 Score are one point each for Confusion, Urea >7 mmol/L, Respiratory rate ≥30/min, Systolic Blood pressure <90 mmHg or diastolic blood pressure <60 mmHg, age ≥65 years and present of *cardiovascular* disease. Remeasure will be done every three month and looking for the corelation between both using McNemar test. After complete one year of evaluation, the relation between modification of CURB-65 score and risk of mortality will analyze using Chi Square test.

Result: Research is still proceeding and 92 patients have been collected. 30-day

mortality data were available for 92 of 92 patients. The 30-day mortality by score groups were: low risk (scores 0–1) 4.16% (2/48) and high risk (scores 2–6) 11,36% (5/44). There was significant correlation between modification of CURB-65 score and mortality ($p<0,005$) with relative risk 2,73. The investigation is ongoing, and not all questions have been answered.

P541

Densitometric diagnosis of osteoporosis in patients with chronic obstructive pulmonary disease

Ekaterina Kochetova. *Chair of Internal Medicine, Petrozavodsk, Karelia, Russian Federation*

The aim of the Study: To study the state of bone mineral density (BMD) in patients with chronic obstructive pulmonary disease (COPD).
Materials and methods: Studied 104 patients with COPD. The study group comprised men with long smoking history. Mean age 61,2±5,7 years. The study of respiratory function was performed on a multi-type installation "Master-Lab/Jaeger". The study of bone mineral density (BMD) of lumbar spine and proximal femur was performed by X-ray absorptiometry at the densitometer "Lunar DPX-NT". The frequency of osteoporosis was assessed in the whole group and separately for each stage of COPD.
Results: In the whole group was most impressed by osteoporosis, lumbar spine - in 37,2% of cases, osteoporosis of the femoral neck - in 19,77% of cases. The lowest BMD were observed in patients with stage 4 COPD ($p<0,05$). Osteoporosis of the femoral neck was detected in 5,4% of patients with COPD stage 2, with 23,68% of patients with COPD stage 3, the maximum percentage of osteoporotic changes in the femoral neck was observed in patients with COPD 4 stage - 54,5%. A significant correlation values of bone mineral density with BMI (r 0,44, $p<0,05$), with the DLCO (r 0,43, $p<0,01$).
Conclusion: Densitometry is an important method of diagnostics of osteoporosis and should be applied in full in COPD patients.

P542

Is COPD a risk factor for diabetes?

Laura Ciobanu[1,3], Vasile Maciuc[2], Anca Cretu[3], Gabriela Grigoras[3]. *[1]Internal Medicine, University of Medicine and Pharmacy "Gr T Popa", Iasi, Romania; [2]Scientifical Research and Experimental Technique, "Gr T Popa" University of Agricultural Sciences and Veterinary Medicine, Iasi, Romania; [3]Clinical Section of Pulmonary Rehabilitation, Clinical Hospital of Rehabilitation, Iasi, Romania*

Introduction: Diabetes mellitus is one of the multiple endocrinological disorders induced by COPD through systemic inflammation, oxidative stress, smoking and administration of glucocorticoids.
Aims and objectives: To investigate if COPD is a risk factor for diabetes mellitus DM and what stage is more risky; also, if there are some other contributing factors.
Methods: 2 groups of pts were assessed for age, gender, body mass index (BMI), smoking, alcohol intake, diabetes and dyslipidemia. First group was compound of non-COPD pts (N 272, 62 M/22.8%, 210 F/77.2%, mean age 60.67, SD 13.75) and the second one of COPD pts (N 178, 103 M/57.9%, 75 F/42.1%, mean age 64.79, SD 10.78). COPD pts were staged according to GOLD criteria in stage I 122/27.1% pts, stage II 28/6.2% pts, stage III 22/4.9% and stage IV 6/1.3%.
Results: The relative risk RR for DM to appear in COPD pts is 1.380 (95% CI 1.054-1.806). RR is 1.023 (95% CI 0.896-1.146) in COPD stage I, 1.252 (95% CI 0,904-1.735) in stage II and 2.062 (95% CI 0.863-4.930) in unified stages III and IV. There is a correlation coefficient R of 0.154 between COPD and DM, 0.256 for COPD, BMI and DM and respectively 0.293 for COPD, BMI, dyslipidemia and DM.
Conclusions: There is a small risk for DM to appear in the whole group of COPD pts, but RR increases while advancing the severity of disease. Being mild in stages I and II, RR become moderate in the unified group of pts staged III and IV, considered together due to the low number for each separate stage. Correlation between DM and COPD is weak, but it is moderate and relevant when adding BMI and dyslipidemia. The risk to develop DM in COPD increases with the severity of disease, and the presence of two other important factors, BMI and dyslipidemia.

P543

The relationship of comorbidities with clinical and phsyiological parameters in COPD

Fatma Ciftci, Elif Sen, Gokcen Arkan, Duygu Acar, Pinar Onen, Banu Gulbay, Oznur Yildiz, Turan Acican, Sevgi Saryal, Gulseren Karabiyikoglu. *Department of Pulmonary Diseases, Ankara University School of Medicine, Ankara, Turkey*

Chronic obstructive pulmonary disease (COPD) is defined as a systemic inflammatory disease. Systemic inflammation can start certain comorbidities or increase their severity. This study aims to assess the relationship of comorbid diseases with clinical and physiological parameters.
The study enrolled 115 patients (15 female, 100 male) who are on regular follow-up in COPD outpatient clinic. In each patient the presence of cardiovascular disease (hypertension, coronary artery disease, arrhythmia, heart failure), hyperlipidemia, cachexia, malignancy, diabetes, osteoporosis, anxiety disorder, depression, obstructive sleep apnea, and anemia was questioned. The most frequent diseases were hypertension, coronary artery disease, and hyperlipidemia (43,9%, 39,6%, 27,4%, respectively). Cardiovascular diesases were more common in those with a FEV1 percent below 50 (r=0,10; $p<0,05$). Hypoxemia level was related to heart failure in COPD patients (r=0,014; $p<0,05$).
In patients with a high Charlson Comorbidity Index (CCI) coronary artery disease (r=0,032; $p<0,05$) hyperlipidemia (r=0,00; $p<0,001$), diabetes (r=0,00; $p<0,05$), anemia (r=0,019; $p<0,05$) were more common. In patients with a high COPD assessment test (CAT) hypertension (r=0,051; $p<0,05$) was more prevalent.
As a conclusion, disease stage and hypoxemia level are related to concomittant cardiovascular system diseases. A more than expected deterioration in general health status is observed in COPD patients with comorbidities.

P544

Bronchitic and non-bronchitic phenotypes of COPD differ in the prevalence of depressive symptoms

Vladimir Koblizek[1], Sarka Pracharova[1], Miloslav Hronek[2], Miroslav Kovarik[2]. *[1]Pulmonary Department, University Hospital and Faculty of Medicine, Hradec Kralove, Czech Republic; [2]Department of Research and Development, University Hospital and Faculty of Medicine, Hradec Kralove, Czech Republic*

Background: Psychological sequelae of COPD may influence functional status independent of disease severity. Presence of depression among several phenotypes of COPD is not clearly understood.
Aim: We wanted to find out the real occurrence of depression in both basic clinical phenotypes of COPD.
Methods and material: Multicomponent assessment of 38 consecutive patiens (6 female, 66,7±7,6 years) with stable COPD (GOLD categories A 1, B 21, C O, D 16) in the out-patient clinic of university hospital (within non-interventional cross-sectional Complexity of COPD Study).
Results: 27 patients had bronchitic and 11 subjects suffered from non-bronchitic phenotype of COPD (post- ipratropium and salbutamol FEV1 57,7%). Bronchitic variant was associated with lower level of depressive symptoms (Beck scale 5,1±3, Zung scale 50,2±10,9) than that found in non-bronchitic subpype of COPD (Beck scale 8,3±3,4, Zung scale 57.5±7,4). Although this difference reached statistical significance only in Beck questionnaire p=0,013 (Mann Whitney test). In all other parameters (BMI, FFMI, education level, inhalation risk, 6MWD, exercise desaturation, mMRC dyspnea, Celli's BODE, Puhan's BODE, ADO, CAT, all domains of SGRQ, arterial blood Gates, ECG heart rate) were no differences between these two basic phenotypes.
Conclusion: Non-bronchitic phenotype of COPD was associated with more depression complaints than bronchitic scenario. This difference was not apparent in terms of quality of life, prognostic indices and number of other variables describing course of COPD.

P545

Evaluation of association between COPD and metabolic syndrome, and insulin resistance

Orlando Ruben López Jové[1], Eva López González[2], Silvia Rey[1], Eduardo Giugno[1], Valeria Barrionuevo[1], Ana Galdames[1], Yu Feng Wu[1], Silvia Parissi[1], Gabriela Tabaj[1]. *[1]Pulmonology, Hospital "Dr. A. A.Cetrángolo", Buenos Aires, Argentina; [2]Hypertension Committee, Argentine Society of Diabetes, Buenos Aires, Argentina*

Background: COPD is an important medical problem and involve systemic effects such as metabolic syndrome (MS).
Aims: To evaluate the frequency of MS in patients with COPD and to correlate severity of COPD, MS, and insulin resistance.
Methods: Anthropometry, laboratory and pulmonary function tests in patients with COPD according to GOLD criteria, without acute exacerbations in the last month. We diagnosed MS following the International Diabetes Federation (IDF) criteria. Insulin resistance was evaluated by HOMA-IR index and the index triglycerides/HDL cholesterol (TG/HDL-C).
Results: 113 patients, age 63.1±8.3 years. Females 28.9%. Systemic Hypertension: 48.2% Dyslipidemia 25.9%, diabetes: 4.3%, obesity 21.2%, SM 37.2%. current smoking 18.6%, Insulin 10.1±14.4 mU/ml, HOMA-IR 2.6±5.2, TG/HDL 2.02±1,42. COPD Stages: I=2,6% II=47,8% III=37,2% IV=12,4%. We found positive association of MS with severity of COPD (p=0.04), mainly with moderate COPD (p=0.007), with longer smoking cessation (p=0.02), BMI ($p<0.0001$) with insulin ($p<0.0001$), HOMA ($p<0.0001$), and TG/HDL ($p<0.0001$). There was no association with current smoking (p=0.17), with previous use of systemic corticosteroids (p=0.08). Multivariate analysis found association between MS and COPD StageII: OR: 3.87 95% CI 1.4 to 10.4 ($p<0.007$) and higher BMI: OR: 1.37 95% CI 1.19 to 1.57 ($p<0.0001$).
Conclusions: MS was found in 37.2%, and correlated well with severity of COPD, insulin resistance, smoking cessation time, with greater significance with Stage II COPD. It is important to assess the presence of MS in these patients.

P546

The influence of metabolic syndrome in mortality rate of COPD patients: A five years follow up study

Karime Schelini, Suzana Tanni, Amanda Zamuner, Liana Coelho, Simone Vale, Renata Ferrari, Laura Caram, Ilda Godoy, Sergio Paiva, Irma Godoy.
Pulmonology Division of Internal Medicine, Botucatu Medical School - UNESP, Botucatu, SP, Brazil

Background: Patients with chronic obstructive pulmonary disease (COPD) or metabolic syndrome (MS) present systemic inflammation and the association between diseases can increase risk of cardiovascular events. However, the influence of MS in survival of COPD patients is still unclear.
Methods: We followed 115 COPD patients (age: 64.5±1.21years, FEV_1: 58.7±2.75%) during five years and causes of death were noted. At baseline, patients' clinical history and physical examination were assessed, and anthropometric (weight, height, body mass index and waist circumference), spirometry, 6-minute walking distance (6MWD), dyspnea perception by the modified medical research council (MMRC), serum lipid profile and triglycerides measurements were performed. The diagnosis of MS was established by harmonization MS criteria. The Cox proportional hazard analysis was used to evaluate the influence of MS in the survival time, adjusted for potential confounders (age, gender and BODE index).
Results: MS was present in 35.6% of patients and hypertension (47.8%) was the MS component more prevalent. More than 80% of the patients presented at least one diagnostic component of MS. During the period of study, 17.0% died. We did not observe statistical difference in mortality between groups with and without MS (HR: 1.30, 95%CI: 0.32-5.20).
Conclusion: Patients with COPD have intermediate prevalence of MS; however, no association between MS and mortality was found in these patients.

P547

COPD: Different psychology status (PS) in patients with different cardiac co-morbidities rate

Kateryna Gashynova. *Internal Medicine, DMA, Dnipropetrovsk, Ukraine*

Aim: To evaluate whether and in which extent cardiac co-morbidity have influence on the PS in patients with COPD.
Study population: 78 outpatient with COPD made the study sample. Exclusion criteria were 1) mental diseases.
Methods: For the evaluation of the PS the depression (by Y.Zung scale), the anxiety (by Ch.D. Spilberger questionnaire) and the vegetative lability (by VELA test) were studied in all patients. Cardiac co-morbidity rate was established by original questionnaire and analysis of patient's medical documentation.
Results: In accordance with cardiac co-morbidity rate all patients were divided on two groups (GR): GR I (n=17; 21.8%) without any and GR II (n=61; 78.2%) – with cardiac co-morbid conditions. Both groups were similar regarding to age, sex and smoking status. The data of psychological tests are performed in the table 1.

Groups	Depression (M±m)	Personal anxiety (M±m)	Situational anxiety (M±m)	Vegetative lability (M±m)
I, n=17	25.7±6.3	22.8±4.5	21.5±2.8	19.4±3.6
II, n=61	44.9±4.9&	27.6±4.2#	25.1±3.7#	28.9±3.1*

*p<0.05; &p< 0.02; #p>0.05.

Conclusions: 1. 78.2% of outpatients with COPD had cardiac co-morbidity.
2. Cardiac co-morbid conditions significantly impair psychology status in patients with COPD, and the most significant changes concerns depression and vegetative lability level.

P548

Pulmonary hypertension in COPD: Prevalence and characteristics

Daniela Gologanu, Ioana Ion, Marius Balea, Poliana Leru, Simona Caraiola, Cristina Stanescu. *Internal Medicine, Colentina Clinical Hospital, Bucharest, Romania*

Background: Pulmonary hypertension (PH) is a common complication in COPD; its prevalence is unknown due to low accessibility of right heart catheterization.
Aim: To evaluate the prevalence of PH in COPD patients (pts) and define the characteristics of this group.
Methods: Retrospective study including 66 consecutive COPD pts hospitalised in our department. Spirometry, peripheral oxygen saturation, hematocrit, echocardiography, history of exacerbations and comorbidities were obtained from patients records. PH was defined as systolic pulmonary arterial pressure (sPAP) greater than 35 mmHg.
Results: Among 66 COPD pts studied, mean age was 67 years and GOLD stages were: II - 26 pts, III - 15 pts, IV - 22 pts. Only 33 pts had undergone echocardiography. Among them, mean age was 68, GOLD stages were II - 11 pts, III - 7 pts, IV - 15 pts. PH was found in 12 pts (36,4%). Mean FEV1 was 46,4% in COPD pts without PH and 36,9% in pts with PH (p=0.07). PH resulted in right ventricular (RV) enlargement in 9 out of 12 pts; these particular COPD pts had lower mean FEV1 (37%) than pts with PH without RV enlargement (56%) (p = 0.02). More severe PH was found in 7 pts; the mean FEV1 was 37,2% versus 36,7% in pts with moderate versus mild PH. No significant association between PH and GOLD stage, FEV1, polyglobulia, COPD exacerbation or basal SpO2 were found.
Conclusions: The prevalence of PH in our COPD pts was 36,4%, probably overestimated, as echocardiography was performed mostly in pts with higher GOLD stage. No significant associations between PH and GOLD stage, FEV1, polyglobulia, COPD exacerbation or basal SpO2 were found. RV involvement due to PH seems to occur mostly in pts with more severe obstructive disease.

P549

Cognitive function of patients with COPD after virtual admission – A randomized clinical trial

Lone Schou[1], Birte Østergaard[2], Lars Rasmussen[3], Susan Rydahl-Hansen[4], Anna Svarre Jakobsen[1], Christina Emme[1], Klaus Phanareth[1]. [1]*Telemedicine Research Unit, Frederiksberg University Hospital, Copenhagen, Denmark;* [2]*Research Unit of Nursing, Institute of Clinical Research, Unicersity of Southen Denmark, Odense, Denmark;* [3]*Department of Anaesthesia, Center of Head and Orthopaedict, Rigshospitalet, University Hospital of Copenhagen, Copenhagen, Denmark;* [4]*Research Unit of Clinical Nursing, Bispebjerg and Frederiksberg University Hospital, Copenhagen, Denmark*

Background: Substantial healthcare resources are spent on Chronic Obstructive Pulmonary Disease (COPD). As a result, the involvement of patients in monitoring of their condition has been suggested. However, the level of cognitive functioning must be taken into consideration before self-care strategies can be adopted.
Aim: We hypothesized that cognitive performance would be better in COPD patients allocated to virtual admission - using a telemedicine solution - compared to patients admitted to conventional hospitalization after exacerbation.
Methods: This study was a Randomized Clinical Trial. The primary outcome was cognitive function evaluated at discharge and after six weeks using a neuropsychological test battery comprising 4 tests and 7 variables. Secondary outcomes included self-reported cognitive function (SCF), activities of daily living (IADL), and anxiety and depression (HADS).
Results: We included 44 patients consecutively. Baseline data were; Mean age 70 years (SD 10); forced expiratory volume in one second (FEV1) 1.0 L (SD 0.55); Oxygen saturation 94.5 (SD 2.0); and a Mini Mental State Examination score of 27.5 points (SD 1.6). The performance in all seven neuropsychological test variables tended to be better in the group allocated to virtual admission, but the difference was only statistically significant in the time for the Stroop Color Word test, (p=0.05). The pattern was the same at follow-up after six weeks but the differences were less pronounced. There were no significant differences in SCF, IADL, and HADS at discharge or after 6 weeks.
Conclusion: Cognitive function may be better preserved in COPD patients treated for exacerbation during virtual admission at home.

P550

Longitudinal changes in detrended fluctuation analysis "alpha" of PEF in COPD

The full abstract can be found on page 890s.

P551

Anxiety and dyspnea relation in early stage COPD patients

Leyla Yilmaz Aydin[1], Tarkan Ozdemir[2], Sinem Berik[3]. [1]*Chest Disease, Duzce University Medical Faculty, Duzce, Turkey;* [2]*Chest Disease, Corum Chest Disease Hospital, Corum, Turkey*

Introduction: Anxiety is a co-morbid diseases in COPD. Anxiety prevalance in COPD patients is higher than general population. Although the relationship between anxiety and COPD can not be revealed yet, increased anxiety prevalance was associated with increased dyspnea level.
Aim: To determine the rate of anxiety and relationship of anxiety and dyspnea in early stage COPD patients who do not have advanced functional restriction.
Method: COPD patients that volunteered to participate the study who admitted to hospital with a reason other than COPD exacerbation was included to this cross-sectional/descriptive study consecutively. Beck anxiety inventory, medical research council (MRC) dyspnea scale applied.
Results: 134 patients with GOLD1-2 COPD included. Mean age was 58,11±10,53. 92,5% of them were male. Active smokers and former smokers were 61,9%; and 38,1%; respectively. 64,9% did not have co-morbid diseases. According to MRC dyspnea scale 33,6% of the patients were in grade 1 and 55,2% were in grade 2. 34,1% of the patients that answered the question "Do you have shortness of breath?" answered as "No" were having MRC grade 2 and 3 dyspnea. 11,2% of 134 participants had mild and 9% had moderate anxiety. In patients with anxiety 89% were having MRC grade≥2.Although there was no statistically significant relationship between shortness of breath and level of anxiety, there was a significant relationship between MRC grade and level of anxiety (p=0,529 and p=0,004, respectively).
Conclusion: MRC scale can be more effective in detection of dyspnea in early stage COPD. All COPD patients with MRC score ≥2 should investigate for anxiety.

P552

Acute pulmonary embolism in COPD patients

Diego A. Rodriguez[1], Mauricio Orozco-Levi[1,2], Anna Herranz[1,3], Faustino Miranda[3], Alba Ramirez-Sarmiento[1,2], Anna Rodo-Pin[1], Nuria Bas Costas[1], Juana Martinez-llorens[1], Jordi Bruguera[3], Joaquim Gea[1], Lluis Molina[3]. *[1]Servei de Pneumologia, Hospital del Mar, UPF, Barcelona, Spain; [2]Respiratory Department, Fundación Cardiovascular de Colombia, Santander, Colombia; [3]Servei de Cardiologia, Hospital del Mar, UPF, Barcelona, Spain*

Chronic Obstructive Pulmonary Disease (COPD) is an established cause of worse evolution during acute Pulmonary Embolism (PE). The aim of our study was to evaluate the profile of COPD patients admitted for PE.
We conducted a retrospective cohort study in consecutive patients (n=225) diagnosed with PE between January 2009 and December 2010.
Of 225 subjects included (mean ± SD; 72±15 years), 27 (12%) had COPD (71±10 years). The total number of deaths during hospitalization was 38 (17%) in patients without COPD, and 7 (25%) in COPD (p=0.02). COPD Patients (78% males) showed severe disease (FEV1 46±12% predicted). Previous venous thromboembolic disease (VTD) (37%) or surgery (3%), current cancer (26%) or immobilization (18%) were detected. Obesity was the most frequent co morbidity (50%). Non-survivors COPD showed statistically significant increase of NTpro-BNP (2500±530 pg/ml) and CRP (8.6±0.7mg/l) than COPD survivors patients (850±140pg/ml and 2.8±0.7mg/l, respectively). Severity disease was similar in both groups (FEV1, 45% vs 47%, respectively). Previous VTD [relative risk (RR), 1.1; 95% CI, 1.0–4.0], obesity (RR, 2.1; 95% CI, 1.0–5.0), cancer (RR, 2.6; 95% CI, 1.3–5.1) and elevated CRP (RR, 3.3; 95% CI, 1.4–6.6) were significantly associated with PE-related death, right heart failure or prolonged hospital stay.
The number of COPD patients diagnosed for acute PE was slightly higher than previously reported. In addition, COPD patients might be an under recognized group with increased mortality.

P553

COPD subphenotypes in a population-based survey by factor and cluster analysis

Niki Fens[1], Annelot G.J. van Rossum[1], Pieter Zanen[2], Bram van Ginneken[3], Rob J. van Klaveren[4], Aeilko H. Zwinderman[5], Peter J. Sterk[1]. *[1]Respiratory Medicine, Academic Medical Centre, University of Amsterdam, Netherlands; [2]Respiratory Medicine, University Medical Center, Utrecht, Netherlands; [3]Radiology, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands; [4]Respiratory Medicine, Erasmus Medical Center, University of Rotterdam, Netherlands; [5]Clinical Epidemiology and Biostatistics, Academic Medical Centre, University of Amsterdam, Netherlands*

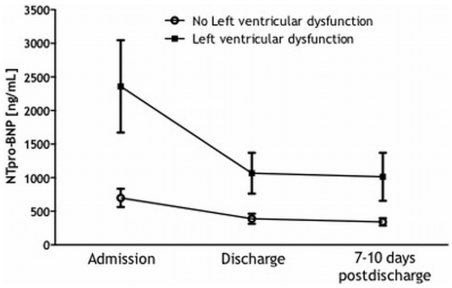
Background: Classification of COPD is currently based on symptoms, airways obstruction and exacerbations. However, this may not fully reflect the phenotypic heterogeneity of COPD in the (ex-) smoking community. We hypothesized that factor analysis followed by cluster analysis of functional, clinical, radiological and exhaled breath metabolomic features identifies subphenotypes of COPD in a community-based population of heavy (ex-) smokers.
Methods: Adults (50-75 yrs) with ≥15 packyears derived from a random population-based survey underwent pulmonary function testing, chest CT scanning, questionnaires and exhaled breath molecular profiling using an electronic nose. Factor analysis followed by K-means cluster analysis was performed on subjects fulfilling the GOLD criteria for COPD with post-BD $FEV_1/FVC<0.70$.
Results: 157 of 300 subjects fulfilled the criteria for COPD. Factor analysis revealed 12 factors representing different domains of COPD including lung function, radiologic features, exhaled breath metabolomics, symptoms and quality of life. Four clusters were identified: cluster 1 (n=35; 22%): mild airways obstruction and no emphysema; cluster 2 (n=48; 31%): severe airways obstruction with emphysema and low diffusion capacity, chronic bronchitis, low quality of life and a distinct breath profile; cluster 3 (n=60; 38%): mild COPD with a close to normal lung function, but with radiologic signs of emphysema and a distinct breath profile; cluster 4 (n=14; 9%): highly symptomatic males with dyspnea and low quality of life with moderately impaired lung function.
Conclusions: This unbiased taxonomy for COPD confirms and extends clusters found in previous studies and allows better phenotyping of COPD.

P554

NT-proBNP, troponin T and left ventricular function in patients with acute exacerbation of chronic obstructive pulmonary disease

Mitja Lainscak[1], Robert Marcun[2], Alan Sustic[3], Pika Mesko Brguljan[2], Mitja Kosnik[2], Sasa Kadivec[2], Jerneja Farkas[4]. *[1]Division of Cardiology, University Clinic, Golnik, Slovenia; [2]Department of Pneumology, University Clinic, Golnik, Slovenia; [3]Department of Anesthesiology and Intensive Care, University Hospital, Rijeka, Croatia; [4]Chair for Public Health, Medical Faculty, University of Ljubljana, Ljubljana, Slovenia*

Purpose: Many patients with chronic obstructive pulmonary disease (COPD) have unrecognized left ventricular dysfunction. We aimed to investigate relation between NT-proBNP, troponin T (TnT), and left ventricular function in patients with acute exacerbation of COPD.
Methods: We prospectively included patients hospitalized with acute exacerbation of COPD. Complete pulmonary assessment and echocariodgraphy were performed



and we measured NT-proBNP and troponin T at admission, discharge, and 7-10 days after discharge.
Results: We included 127 patients (70±10 years, 70% men, GOLD III/IV 87%). Left ventricular dysfunction (LVD) was recorded in 70 (55%) patients. NT-proBNP was higher in patients with LVD but decreased significantly from admission to discharge in patients with and without LVD ($p<0.01$ for all). A 30% decrease was observed in 52% of patients. TnT was not different between patients with and without LVD but decreased significantly in patients with LVD (p=0.043).
Conclusions: LVD is common in patients with acute exacerbation of COPD. NT-proBNP and TnT dynamics suggest clinically relevant implications of cardiac (dys)function with potential to identify cardiac triggers of clinical deterioration.

P555

Inflammatory markers in COPD patients with and without cachexia

Sonia Torres[1], María Eugenia Laucho[2], Maria Montes de Oca[2], Hanyu Liang[3], Nicolas Musi[3]. *[1]Institute for Experimental Medicine, Universidad Central de Venezuela, Caracas, DC, Venezuela; [2]Pulmonary Division, University Hospital, Universidad Central de Venezuela, Caracas, DC, Venezuela; [3]Texas Diabetes Institute, University of Texas, San Antonio, TX, United States*

Skeletal muscle atrophy is an important manifestation of chronic obstructive pulmonary disease (COPD). However, the molecular mechanisms underlying COPD-related muscle atrophy are not clear. Inflammation has been implicated in the pathogenesis of muscle atrophy found in COPD patients. The purpose of the study was to investigate whether the pro-inflammatory NFκB signalling pathway is implicated in the pathogenesis of COPD-induced muscle atrophy. Among the 29 COPD patients studied (63.8±8.9 years, FEV1 44.9±17.1%) 19 were non-cachectic and 10 were cachectic (fat free mass index in kg/m^2, <16 in males and <15 in females); control subjects were 13 (58.7±8.5 years). Needle biopsies of the vastus lateralis muscles were performed and the protein content of NFκB and the NFκB-inhibitory protein IκB were measured by Western analysis. Six min walk distance (6MWD) was performed and plasma tumour necrosis factor alfa (TNFα) and interleukin 6 (IL-6) were measured. COPD patients compared to control subjects showed higher muscle levels of NFκB p65 (1.61±0.68 AU vs. 1.0±0.47 AU; $p<0.05$), and plasma TNFα and IL6 (6.76±9.36 pg/mL vs.2.12±1.14 pg/mL; $p<0.05$; 3.09±1.22 pg/mL vs. 2.00±0.91 pg/mL; $p<0.05$, respectively). Cachectic COPD patients showed lower NFκB p65 (1.25±0.59 AU vs. 1.79±0.66 AU; $p<0.05$) and higher NFκB p50 (0.94±0.76 AU vs. 0.42±0.26 AU; $p<0.05$) compared to non-cachectic COPD patients. Results suggest that cachexia in COPD patients may be related to disuse and not to muscle inflammation, by activation of the non classic way through NFκB p50.

P556

The prevalence of undiagnosed COPD and approaches to promote early COPD diagnosis in lung cancer population

Jing Zhang[1], Jie-bai Zhou[1], Xin-feng Lin[1], Qun Wang[2], Chunxue Bai[1], Qun-ying Hong[1]. *[1]Department of Pulmonary Medicine, Zhongshan Hospital, Fudan University, Shanghai, China; [2]Department of Thoracic Surgery, Zhongshan Hospital, Fudan University, Shanghai, China*

Background: Chronic obstructive disease (COPD) is a risk factor and important co-existing disease for lung cancer, however, the current status of diagnosis and treatment of COPD in lung cancer population are not fully described.
This study was designed to address this issue in a general teaching hospital in China.
Methods: Medical records of the hospitalized patients with lung cancer in Zhongshan Hospital, Fudan University from Jan 2006 to Dec 2010 were reviewed. The co-morbid of COPD were confirmed by the spirometric results according to GOLD definition. The diagnostic rate and the rate of appropriate treatment was analyzed.
Results: During the study period, the prevalence of COPD in hospitalized lung cancer patients was 21.6% (705/3263). The diagnostic rate of COPD in lung cancer patients was 7.1%, and the rate of appropriate treatment for stable and acute exacerbation of COPD was 27.1% and 46.8% respectively. Respiratory physicians had a higher diagnostic rate than non-respiratory doctors (34.8% vs 2.9%, $p<0.001$), and a better compliance with GOLD guidelines of the treatment for acute exacerbation of COPD (63.6% vs 37.5%, p=0.048). Acurate diagnosis significantly increased the guideline-compliant treatment. The diagnostic rate was higher among patients with history of tobacco exposure, respiratory diseases, or respiratory symptoms.

Conclusions: COPD is substantially underdiagnosed and undertreated in hospitalized lung cancer population. History of smoking, respiratory diseases, or respiratory symptoms will promote the diagnosis of the disease. Education among patients and doctors and improvement of disease management are urgently required in this special population.

P557

The association between pulmonary arterial hypertension secondary to chronic lung disease and serum asymmetric dimethylarginine levels

Baris Açikmese, Güngör Çamsari, Aygün Gür, Nur Dilek Bakan, Gülcihan Özkan, Pinar Güven. *Chest Disease, Yedikule Teaching Hospital for Chest Disease and Thoracic Surgery, Istanbul, Zeytinburnu, Turkey*

Asymmetric dimethylarginin (ADMA) is an endogenous molecule that prevents nitric oxide synthesis enzyme inhibition. It has been shown that serum ADMA levels increase in COPD patients as well as idiopathic pulmonary hypertension patients. In this study, association between serum ADMA levels and pulmonary hypertensionsecondary to COPD and interstitial lung disease (ILD) was evaluated. Fifty-six COPD and 20 ILD patients who have no documented additional disease were included into the study. Echocardiography was used to evaluate pulmonary arterial pressure (PAP). Serum ADMA levels were measured by ELISA.
Association between OPAP and serum ADMA levels were evaluated by Pearson correlation test. Mean ADMA levels of patients have normal and high OPAP were compared by student-t test. Mean serum ADMA levels of patients have increased OPAP was found significantly higher than that of patients have normal OPAP ($p<0,05$). A positive correlation (Pearson $r=0,6$ $p<0,01$) was found between serum ADMA levels and OPAP. Evaluation of COPD and ILD patients separately showed that significantly higher ADMA levels were found in pulmonary hypertension patients ($p<0,05$) in both groups. COPD and ILD groups showed correlation between serum ADMA levels and OPAP (COPD and ILD Pearson r= 0,47 and 0,72 consequentially) also exist. ROC analysis was used to evaluate the value of serum ADMA levels measuring in diagnosis of pulmonary hypertension. Area under curve was found 0,7.
Serum ADMA levels measurement may be an indicator for PH secondary to COPD and ILD but it is not enough sensitive test according to the ROC analysis.

P558

Pneumothorax secondary to chronic obstructive pulmonary disease

Nadia Fettal, Abdessamed Taleb. *Pulmonary, University Hospital, Sidi bel Abbes, Algeria*

Spontaneous pneumothorax is defined by the presence of air in the pleural cavity without history of trauma. This is a significant clinical problem. COPD is a common cause of pneumothorax. The risk of recurrence of spontaneous pneumothorax secondary to COPD is high and various studies quote rates 20-60%.
Methods: Retrospective cohort study of all patients COPD admitted with pneumothorax to the pulmonary department between January 2004 and September 2011.
The aim: to assess the frequency of pneumothorax in the COPD and describe its clinical profile and scalable.
Results: In a study period of 6 years, 248 cases with a diagnosis of pneumothorax were reviewed, the rate of pneumothorax secondary to COPD was 67% (80 patients COPD developed 167 pneumothorax).Our series is composed mainly of men, mean age 59±8 years. The notion of smoking was found in 100%; ex-smokers 67% and active smokers 33%.The most frequent initial symptom was dyspnea 100% with pleuritic chest pain 42%.The episode of pneumothorax revelated the disease COPD in 32% and was responsible of exacerbation of COPD in 68%.According to GOLD classification, Fifty five (68%) had moderate COPD and twenty five (31%) had severe COPD. All patients received tube chest drainage and hospital stay mean was 12 days range (6-23 days).Twenty eight (35%) had recurrence of pneumothorax. Forty two patients (52%) had emphysema. Four patients developed empyema, six had emphysema subcutaneous and two had pneumonia after chest tube.The evolution was favorable in 74 cases and 6 patients died in an array of acute respiratory failure
Conclusion: Pneumothorax represents a factor of mortality for patients suffering of COPD and the surgical treatment is needed to prevent recurrence.

P559

Endocrinopathies and related with COPD exacerbation

Tugba Körlü[1], Meltem Nuzumlali[2], Sakine Nazik[1], Nurdan Köktürk[1]. *[1]Pulmonary Medicine, Gazi University School of Medicine, Ankara, Besevler, Turkey; [2]Family Medicine, Ankara Numune Research and Training Hospital, Ankara, Turkey*

Osteoporosis, metabolic syndrome, tyroid dysfunction are common in COPD. Results related with Vit D Deficiency associated with COPD exacerbation are controversial.
This study is planned to investigate the levels of Vit D, tyroid hormones and bone densityin COPD in related with exacerbation numbers, hospitalization duration related with exacerbation, and the number of antibiotics for exacerbations.
70 subjects with the mean age of 69.11±10.02 years and the mean FEV1%38.75±16.91 were included in the study. Diabetes Mellitus (DM) has found in 13 and hyperlipidemia has found in 9 patients. Vit D Levels was reduced in 90% and tyroid hormones abnormalities were seen in 50% (1 hypertyroidi, 34 subclinic hypertyroidi) of the patients. Bone mineral density was normal in 21 (30%) and osteopenic in 24 (34.3%) and osteoporotic in 25 (35.7%) of the patients. These abnormalities did not relate with FEV1, exacerbation numbers in the last year, ICU admission rate and the duration of hospitalisation.
Endocrinopathies in COPD have been encountered frequenlty however the impact of these abnormalities of disease outcomes have not elicudated throughly. This study has not showed any relation of endocrin abnormalities with parameters of exacerbations.

83. COPD comorbidities II

P550

Longitudinal changes in detrended fluctuation analysis “alpha" of PEF in COPD

Gavin Donaldson[1], Terence Seemungal[2], John Hurst[1], Urs Frey[3], Jadwiga Wisia[1]. *[1]Academic Unit of Respiratory Medicine, UCL Medical School, Royal Free Hospital, London, United Kingdom; [2]Department of Clinical Medical Sciences, University of the West Indies, St. Augustine, Trinidad and Tobago; [3]Paediatrics, University Children’s Hospital, Basel, Switzerland*

Introduction: Detrended fluctuation analysis can assess the “memory” of previous events with the exponent alpha. Alpha is higher in COPD than asthma, responses to pharmacotherapy, and is related to exacerbation frequency, but is not known whether alpha changes with increasing disease severity.

Methods: We examined 230 patients from the London COPD cohort who recorded for at least two year on diary cards daily morning, post-medication PEF measurements made with Mini-Wright PEF meter. Patient characteristics were collected at recruitment to the cohort. The data was divided into yearly intervals, and the alpha and mean PEF in each yearly interval calculated. Random-effects, GLS regression models were used to assess changes over time.

Results: The 230 COPD patients (144M; mean age (SD) 68.3 (8.1) years; FEV_1 1.12 (0.47) l, FEV_1 % predicted 44.6 (16.5), FEV_1/FVC ratio 0.45 (11.7). There were 1000 yearly intervals with on average 4.3 per patient (range 2-15). Figure 1 shows a predicted alpha in the first year of 0.93 (95% CI 0.91–0.95) with alpha falling by -0.0008 per year (-0.007 to 0.005; p=0.791). Over the same period PEF fell from the 227 l/min (217 to 236) by -4.3 l/min per year (-5.1 to -3.7; p<0.001).

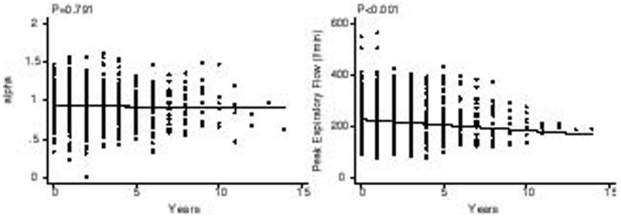


Figure 1

Conclusion: In COPD patients, PEF declines over time but alpha remains unchanged. These results suggest that alpha is assessing a feature of the airways that is independent of lung function and changes little over time.