and 0,165±0,016 g/l, p<0,047) and LDH activity (p>0,05). Negative correlation was revealed between FEV_1 and albumin (r = –0,55; p=0,01), FEV_1 and CRP (r = –0,7; p=0,002). High inverse dependence testifies for close connection of cell pathologic changes and bronchial obstruction. The more bronchial obstruction the bigger protein fractions are in EBC as a result of cell membrane permeability changes and destruction.

Conclusion: Data show that the increasing activity of inflammatory process is associated with rise acute phase protein in EBC in COPD patients. So, EBC can provide lung disease better understanding and can be used for bronchial obstruction estimation.

E319

Neutrophil elastase in severe COPD and asthma exacerbation

Anna E. Polivanova[1], Kirill A. Zykov[2], Alexander V. Averyanov[1], Victoria S. Beilina[2], Elena L. Kaznacheeva[2]. [1]*Department of Pulmomorphology, Pulmonology Research Institute, Moscow, Russia;* [2]*Laboratory of Pulmonology, Moscow State Medico-Stomatological University, Moscow, Russia*

Neutrophil elastase (NE) is well-known pathogenic protease in COPD but its role is controversial in asthma.

The aim of our study was to determine the serum levels of NE in 3-4 st. COPD and severe asthma patients in exacerbation.

Methods: 18 COPD and 20 asthmatic hospitalized patients in acute exacerbation (FEV_1 < 35%) and 15 healthy controls were measured serum NE levels by a commercially available ELISA kit.

Results: Serum NE level in COPD and asthma groups was significantly higher (p<0,01) than in controls. NE levels were not statistically different between COPD and severe asthmatic patients. It is worthy of note that the highest level of NE (more than 1000 ng/ml) was detected in two patients with aspirin-induced asthma.

Results

	COPD	Asthma	Controls
FEV1	26.2±10.3***	29.5±4.0***	96±12
Blood neutrophils (in liter)	$6.8±1.9x10^{9*}$	$7,1±2.7x10^{9*}$	$4.6±1.8x10^{9}$
Serum NE (ng/ml)	415±188**	568±249**	39±12.4

* p<0.05 ** p<0.01 *** p<0.001

Conclusions: Serum elastolytic activity can play important role in severe asthma airway remodeling as in COPD.

E320

Effects of noninvasive ventilation in stable non-hypercapnic COPD

Orlando Díaz[1], Paul Begin[3], Max Andresen[2], Carmen Lisboa[1]. [1]*Respiratory Department, Pontificia Universidad Catolica de Chile, Santiago, Chile;* [2]*Department of Medicine, Pontificia Universidad Catolica de Chile, Santiago, Chile;* [3]*Respiratory Division, University of Montreal, Chicoutimi, Canada*

Noninvasive ventilation (NIV) improves arterial blood gases (ABG), dyspnoea and exercise capacity in some stable hypercapnic COPD-patients. Since their role in non-hypercapnics is not known, the aim of the present study was to determine the effects of NIV in COPD patients with different degrees of baseline $PaCO_2$. Twenty-six patients, age (mean±SD) 68±9 yr, FEV_1 32±11%pred; FEV_1/FVC 35±11% were included and stratified into 3 groups: (1) non-hypercapnic ($PaCO_2$ ≤50 mmHg, n = 10); (2) moderately hypercapnic ($PaCO_2$ 51-55 mmHg, n = 8); and (3) severely hypercapnic ($PaCO_2$ > 55 mmHg, n = 8). NIV (BiPAP®) was applied 3 h·day^{-1}, 5 days a week, during 3 weeks. Spirometry, ABG, lung volumes, Plmax, Transition Dyspnoea Index (TDI) and the 6-min walking distance (6MWD) were measured at baseline and after 3-wk, 24-h after the last session of ventilation. Between groups comparisons were performed using one way ANOVA. Baseline values of FEV_1, FRC, dyspnoea, and the 6MWD were comparable among the 3 groups. However, improvement of lung hyperinflation, dyspnoea and exercise capacity were marginal in the non-hypercapnic group in comparison with those achieved by the moderate and severely hypercapnic patients (table 1).

Changes in respiratory function, dyspnoea and 6MWD after NIV

Variable	Non-hypercapnic	Moderately hypercapnic	Severely hypercapnic
Δ $PaCO_2$ mmHg	-2±5‡	-6±2	-12±8
Δ Plmax cmH_2O	0.9±3†‡	9±7	9±11
Δ FRC mL	-15±485†‡	-804±546	-665±394
Δ TDI points	0.8±0.4†‡	4.1±1.1	3.8±1.3
Δ 6MWD m	16±39†‡	64±32	93±69

Δ = Change from baseline. Between group comparisons: † < 0.05 vs Moderate; ‡ < 0.05 vs. Severe

Our data suggest that NIV application should be restricted to COPD patients with $PaCO_2$ greater than 50 mmHg.

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E321

Trends in healthcare utilization and costs prior to a chronic obstructive pulmonary disease (COPD) diagnosis

M. Akazawa[1], B. Chastek[2], R. Halpern[2], A. Riedel[2], R. Stanford[1]. [1]*Global Health Outcomes, GlaxoSmithKline, Research Triangle Park, NC, United States;* [2]*Health Economics And Outcomes, I3 Magnifi, Eden Prairie, MN, United States*

This retrospective analysis evaluated trends in healthcare utilization/costs over 36 months (in 6 months increments) prior to an initial diagnosis of COPD compared to a matched control group (matched on date of diagnosis claim). A multivariate fit population-averaged panel data model was used to determine the trends for patients with COPD vs. controls.

Mean all-cause/respiratory related acute care visits significantly increased among patients with COPD from 0.33/0.07 in months 31-36 prior to diagnosis to 0.58/0.14 in months 0-6. Trends among controls over the same time period were decreasing (0.10/0.01 in months 31-36 prior to index and 0.02/.00 in month 0-6). Mean all-cause/ respiratory related hospitalization/ER costs among COPD patients significantly increased prior to diagnosis, from $858.36/$314.67 (months 31-36) to $2,368.80/$1,300.11 (months 0-6). Again, trends among controls decreased over the same time period ($184.25/$29.77 in months 31-36 to $60.14/$12.90 in months 0-6). Total all-cause and respiratory related medical costs also significantly increased for COPD subjects over time, while decreasing among controls. All results were statistically significant in multivariate analysis.

A statistically significant increase in trends in healthcare utilization and costs were observed in this cohort of newly diagnosed COPD patients during the 36 months prior to their diagnosis, while trends in matched controls without COPD indicated decreasing utilization/costs over time. Costs and utilization for services analyzed were significantly greater for COPD subjects at all points in time compared to controls.

E322

Plasma leptin and TNF-a relation to nutritional parameters and elevated cost of ventilation in COPD patients

Athanasia Pataka, Paraskevi Argyropoulou. *Medical School, Respiratory Failure Unit, Arisotelian University of Thessaloniki, Thessaloniki, Greece*

An increased energy expenditure for respiration (O_2CV) in COPD patients(pts) with severe obstruction leads to relative increase in total resting energy expenditure (REE)and weight loss. Leptin (L) is a protein important in body weight regulation and is also considered responsible for cachexia in COPD pts, together with other proinflammatory cytokines, such as TNF-a.

The aim of this study is to investigate the relationships between L, TNF-a and nutritional parameters incinded and O_2CV

Patients - Methods: Seventeen COPD pts with weight loss > 4kg in the last 6 months (WL), 12 well nourished COPD pts (WN) and 10 age matched controls (N), all males, participated in the study. Body mass index (BMI), fat mass (FM), REE, O_2CV using an open circuit technique with dead space stimulation of ventilation, serum L and TNF-a were measured.

Results: BMI, FM were lower and REE, O_2CV were significantly increased in WL pts compared with WN COPD and N. L and TNF-a expressed per kg FM were higher in WL pts. Serum L related to TNF-a in COPD pts (r=0.521, p<0.01). In COPD pts serum L was correlated with BMI(r=0.420, p<0.02), FM(r=0.551, p<0.01) and V_{O2}/kg (r= -0.448,p<0.02). TNF-a was also correlated with BMI (r=0.349, p<0.05) and FM (r=0.420, p<0.02). We did not find any correlation between TNF-a and L, REE or O_2CV.

Conclusion: Circulating TNF-a levels were associated with increased L levels. L and TNF-a correlated with nutritional parameters in COPD pts, but were not responsible for the increase of REE or O_2CV in these pts.

E323

Association of airway bacterial load with serum CRP and fibrinogen in stable COPD

Sibel Atis[1], Munir Tumkaya[1], Cengiz Ozge[1], Eylem Ozgur[1], Gurbuz Polat[2]. [1]*Chest Disease, Mersin University School of Medicine, Mersin, Turkey;* [2]*Biochemia, Mersin University School of Medicine, Mersin, Turkey*

Airway bacterial colonization and systemic inflammation is present in COPD patients. The acute phase proteins, C Reactive Protein (CRP) and fibrinogen are markers of systemic inflammation and associated with increased mortality. We aimed to evaluate relationships between airway bacterial load and serum CRP and fibrinogen levels in stable COPD patients.

39 patients with stable COPD and 18 healthy control subjects (10 smokers and 8 non-smokers) were studied. Neutrophil counts and quantitative bacteriologic cultures were measured in bronchoalveolar lavage (BAL), and CRP and fibrinogen levels in serum.

Mean FEV_1 was 69.6±12% in COPD patients. BAL revealed the presence of microorganisms with potential pathogenity above the established threshold (≥10^3 cfu/ml) in 61.5% of COPD and in 40% of smokers and in 12.5% of nonsmokers(p=0.03). COPD patients has a significantly higher total bacterial load as compared the controls (The means were 6±3.4 and 2.9±0.8 log cfu/ml, respectively, p=0.017). BAL neutrophil count was 5.6±1.8 $x10^9$/L in COPD, 4.7±1.2 $x10^9$/L in smokers and 4±1.2 $x10^9$/L in non-smoker controls (p=0.028). Mean CRP and fibrinogen levels were 5±3.8 and 304±140 mg/dL in COPD patients,

2.9±1.7 and 201±67 mg/dL in smokers, and 1.8±0.8 and 158±42 mg/dL in nonsmoker controls, respectively (one-way ANOVA, p=0.02 for CRP and p=0.007 for fibrinogen). Total bacterial load correlated with serum CRP (r=0.52, p=0.007), but not with fibrinogen in COPD patients.
In conclusion, higher airway bacterial load, serum CRP and fibrinogen levels were observed in stable COPD patients as compared to healthy non-smoker controls. The increased CRP level seems to be related to higher airway bacterial load in COPD patients.

E324
Relationship between severity of bronchial and systemic inflammation, and dyspnea, exercise performance and quality of life in patients with stable COPD
Sibel Atis[1], Eylem S. Ozgur[1], Munir Tumkaya[1], Cengiz Ozge[1], Gurbuz Polat[2], Nuran Delialioglu[3]. [1]*Chest Disease, Mersin University School of Medicine, Mersin, Turkey;* [2]*Biochemia, Mersin University School of Medicine, Mersin, Turkey;* [3]*Microbiology, Mersin University School of Medicine, Mersin, Turkey*

We aimed to investigate the relationship between severity of airway and systemic inflammation and dyspnea, exercise performance and quality of life in patients with stable COPD.
35 mild to moderate stable COPD patients and 18 age-matched healthy controls were studied. Neutrophil elastase, myeloperoxidase (MPO), TNF-α and IL-8 in bronchoalveolar lavage (BAL) and CRP, fibrinogen, IL-8 and TNF-α levels in serum were measured. Dyspnea scores with Baseline Dyspnea Index (BDI), Modified Borg Scale and Visual Analog Scale (VAS), quality of life with Saint George's Respiratory Questionnaire (SGRQ), Turkish version, and exercise capacity with a 6 minute walk test (6MWT) were evaluated.
BAL MPO, IL-8 and TNF-α, and serum CRP, TNF-α and IL-8 levels were significantly higher in COPD patients as compared to controls (p=0.03, p=0.0001, p=0.04, p=0.004, p=0.03, and p=0.02, respectively). Serum IL-8 and TNF-α levels were weakly correlated with BAL levels (r=0.3, p=0.05, and r=0.34, p=0.04). BAL IL-8 levels and MPO correlated with BDI (r=-0.37, p=0.04 and r=-0.4, p=0.02, respectively), and with all scores of SGRQ (r=0.48, p=0.005 and r=0.44, p=0.01, respectively, for total score). Serum CRP correlated weakly with BDI (r=0.32, p=0.03), but not with SGRQ scores. 6MWT distance did not correlate with any of inflammatory markers in serum or BAL.
In conclusion, the severity of dyspnea and quality of life were related with airway inflammation other than systemic inflammation in patients with clinical stable COPD. Intense of airway inflammation were closely associated with the poorer dyspnea and health status, but not with the exercise performance.

E325
Could concentration of matrix metalloproteinase-9 in serum of COPD patients change into the basic disease progress and a degree of airway obstruction?
Beata Brajer[1], Halina Batura-Gabryel[1], Barbara Kuznar-Kaminska[1], Agata Nowicka[1], Adam Szczepanik[2]. [1]*Dept. of Pulmonary Diseases, University of Medical Sciences, Poznan, Poland;* [2]*ICU of Dept of Cardiology, University of Medical Sciences, Poznan, Poland*

Background: COPD is a chronic inflammatory process leading to irreversible airway obstruction. The previous studies showed that the increased level of matrix metalloproteinases (MMPs), especially MMP-9 in serum may play a crucial role in a local and systemic inflammatory process in COPD.
Study aim: 1. The estimation and comparison of sera MMP-9 concentration in COPD patients and a healthy control group.
2. The evaluation of correlation between MMP-9 concentration and a degree of airway obstruction in COPD patients.
Materials and methods: 48 COPD patients, diagnosed basing on GOLD 2005 criteria (average age 64,2 yr±10,7) and 45 healthy controls (average age 54,2 yr±9,6) were enrolled into the study. In both groups spirometry tests were performed using Jaeger system. The MMP-9 concentration in the serum taken from both group was studied using the enzyme-linked immunosorbent assay (ELISA) technique.
Results: Patients with COPD had increased levels of serum MMP-9 compared with the control group (p= 0,009). In COPD group MMP-9 concentrations were negatively correlated with FEV1 (p=0,003, r=-0,411) and with FEV1/FVC ratio (p=0,001, r=-0,349). Not significant correlation between MMP-9 concentration and FVC was observed.
Conclusions: The results of this study show that MMP-9 may play an important role in the systemic inflammatory process in COPD. The higher serum concentration of MMP-9 is connected with the degree of airway obstruction and progression of the disease.

E327
Is there a relationship between severity of COPD and C-reactive protein (CRP) levels?
Daniel Magula, Miroslava Culagová, Ingrid Libáková, Ján Plutinský, Štefan Petrícek. *Clinical Biochemistry, Specialized Hospital of St. Zoerardus Zobor, Nitra, Slovakia; Ist Pneumology, Specialized Hospital of St. Zoerardus Zobor, Nitra, Slovakia; Ist Pneumology, Specialized Hospital of St. Zoerardus Zobor, Nitra, Slovakia; IInd Pneumology, Specialized Hospital of St. Zoerardus Zobor, Nitra, Slovakia; IInd Pneumology, Specialized Hospital of St. Zoerardus Zobor, Nitra, Slovakia*

Background: Arising number of papers deals with novel relationship between CRP levels and severity of stable COPD, but similar comparison in hospitalized (not stable) patients (pts) is still lacking.
Methods: CRP levels at the time of admission were measured in 77 consecutive hospitalized COPD pts (40 male, 37 female) and searched for their relative FEV1%, FVC%, severity of COPD according to GOLD classification, and whether the patient was hospitalized for COPD for the first time or repeatedly. The data were processed by methods of description statistics, correlation analysis and analysis of variance (Kruskal-Wallis test).
Results: Negative correlations were found between CRP levels and FEV1% (r= -0.236), FVC% (r=-0.238), both at p <0.05. Mean (and median) of CRP levels in mg/l were calculated in GOLD stadium as follows: st. 0:1.4(1.4), I: 7.7(5.4), II: 9.4(5.8), III.: 26.2(8.1), IV: 18.5(9,1), with significance p<0.05 only between GOLD 0 to all other GOLD stadia. Mean (and median) of CRP were 5.2(4.8 mg/l) in first hospitalized against 23.8(8.2 mg/l) in repeatedly hospitalized pts (p= 0.058).
Conclusion: In our study we found out significant relationships between CRP levels in hospitalized, not stable COPD pts and COPD severity expressed as spirometric parameters FEV1% or FVC%, and weak significance level as for the rehospitalization for COPD, and for GOLD stadium. These results are similar to those referred in another papers concerning the stable COPD pts.

E328
VIP (vasoactive intestinal polypeptide) and vitamin C in the serum of COPD patients before and after therapy
Ljiljana S. Corkovic[1], Nada D. Kostic[1], Dragana D. Begovic[2], Ljudmila Nagorni-Obradovic[3], Snezana Ignjatovic[4], Vladana R. Miloskovic[5], Ratko Garovic[6], Momira D. Obradovic[7]. [1]*Department of Internal Medicine, Hospital Center Dr Dragisa Misovic, Belgrade, Serbia & Montenegro;* [2]*Center for Laboratory Diagnostic, Hospital Center Dr Dragisa Misovic, Belgrade, Serbia & Montenegro;* [3]*Institute for Pulmonary Diseases and Tuberculosis, University Clinical Center, Belgrade, Serbia & Montenegro;* [4]*Internal Medicine, Institute for Occupation Medicine, Kragujevac, Serbia & Montenegro;* [5]*Institute for Occupation Medicine, Health Center, Kragujevac, Serbia & Montenegro;* [6]*Internal Medicine, Primary Care Vozdovac, Belgrade, Serbia & Montenegro;* [7]*Internal Medicine, Hospital of Internal Medicine, Mladenovac, Serbia & Montenegro*

VIP was determined by RIA kits from the laboratory of the Hammersmith Hospital in London, and serum ascorbate concentration was determined using spectrophotometric method. The serum level of VIP and C vitamin were measured in 40 non-smokers patients. Patients were divided into two groups. Group I included 20 patients with COPD in stable state and Group II: 20 patients with exacerbation of the disease. Diagnosis was established by clinical, roentgenographic, laboratory and lung function examinations. laboratory analyses included blood leukocyte count, ESR and serum fibrinogen. The aim of the study was to investigate a possible neurotransmitter role of VIP on airway smooth muscle relaxation in COPD patients. Also we compared the values of serum acsorbate concentration and serum level of VIP with lung function and laboratory tests of inflammation. Spirometry in Group I patients showed: VC=2.38±0.70 l (74.45%), FEV_1=1.39±0.41l(5627%) and 100·FEV_1/VC=61.39±11.92 and Group II: VC=2.17±0.81 l (64.78%), FEV_1=1.28±0.43 l (52.12%) and 100·FEV_1/VC=57.43±14.91. Our results showed significantly decreased serum vitamin C concentration and significantly higher serum levels of VIP in COPD patients during exacerbation before therapy compared to patients after therapy. The patients with COPD in stable state show normal serum levels of VIP and vitamin C before and after therapy.

E329
Prevalence of COPD in Zonguldak province of Turkey
Tacettin Ornek[1], Meltem M. Tor[1], Sibel Kiran[2], Levent Kart[1]. [1]*Pulmonary Medicine, Zonguldak Karaelmas University Faculty of Medicine, Zonguldak, Turkey;* [2]*Public Health, Zonguldak Karaelmas University Faculty of Medicine, Zonguldak, Turkey*

Chronic Obstructive Pulmonary Disease (COPD) is increasingly recognized as a leading cause of global morbidity and mortality. In this study, we aimed to investigate COPD prevalence in Zonguldak province of Turkey, located in western Blacksea region. Adult population over 18 living in central Zonguldak were enrolled to the study. They were selected according to cluster sampling methods based on regional inhabitant listings. 611 adult persons were finally enrolled to the study. They were interviewed face to face, and were given a questionnaire.

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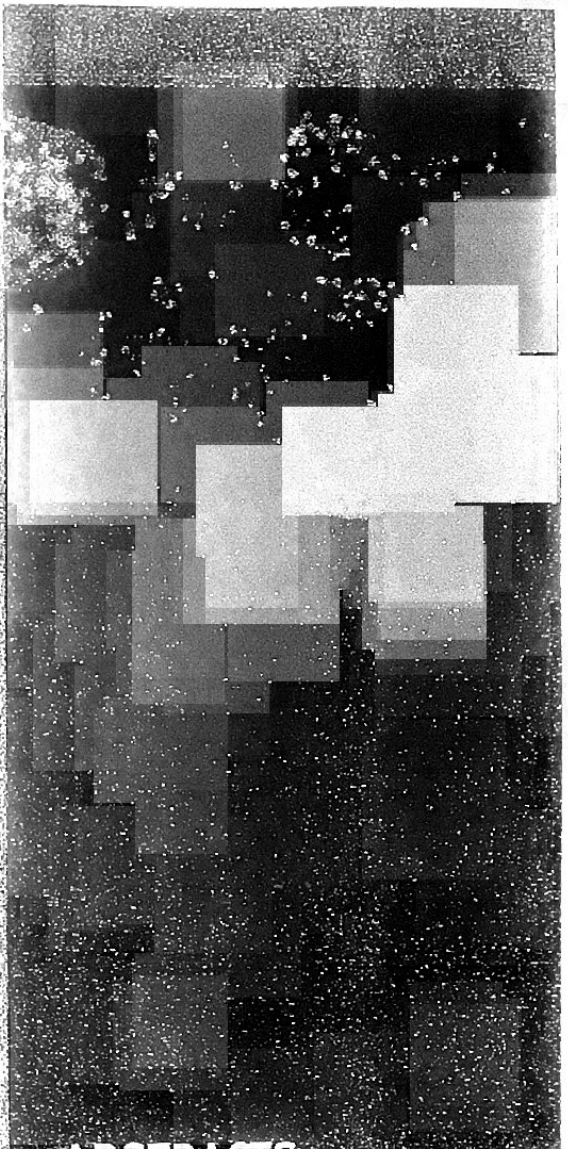

ABSTRACTS
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