P3459
Effect of fluticasone propionate/salmeterol on exercise endurance in moderate-severe COPD
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Objective: To investigate the effect of Fluticasone Propionate/Salmeterol on exercise endurance and pulmonary function in patients with moderate-severe COPD.

Methods: 53 patients with moderate-severe COPD were randomly divided to two groups. Treatment group inhaled dry powder SFC(salmeterol 50ug, fluticasone Propionate 250ug) twice daily for 24 weeks. Control group got symptomatic treatment for 24 weeks. Predose and postdose pulmonary and cycle cardiopulmonary exercise test evaluations were compared.

Results: There were no difference in predose pulmonary and CPET between two groups. In treatment group, With SFC treatment for 24 weeks, FVC, FEV1, IC were significant increased; ITGV/RV and TLV were significant decreased(\(p<0.05\)); Peak WR increased, but had no statistically difference. Peak VO2, peak VO2/kg, peak VCO2, peak O2 pulse, peak VE were significant increased(\(p<0.05\)); VD/VT and lowest VE/VCO2 were decreased from (\(p<0.05\)); postdose improvement in IC was significantly correlated with the increase in Peak VO2, Peak VO2/kg, Peak VE, VDVT and Lowest VE/VCO2, but not with FEV1. Predose and postdose pulmonary and CPET were no changes in control group.

Conclusion: Exercise tolerance in patients with moderate-severe COPD were distinguished impaired. After long term SFC treatment, lung hyperinflation at rest and exercise were decreased, exercise endurance were increased when compared with symptomatic treatment. CPET is useful in COPD patients as it allows objective measurement of the exercise tolerance and evaluation of the response to therapeutic intervention.

P3460
Roflumilast significantly decreased inflammatory biomarkers in induced sputum in current smokers patients with severe chronic obstructive pulmonary disease
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The aim our study was identify the impact of ROFLUMILAST to inflammatory biomarkers in induced sputum in current smokers patients with severe COPD. All patients were divided in two groups:124 patients have received Budesonide/Formoterol 640/18 mcg/day and ROFLUMILAST 500 mcg/day;224 patients have received only BUD/FORM. 640/18 mcg/day. All patients were current smokers and observed during 6 months. In patients with severe COPD whom applied ROFLUMILAST together with BUD/FORM, the level of inflammatory biomarkers in induced sputum significantly decreased after 6 months therapy.
P3461
The pharmacogenetic effect of ADRB2 polymorphisms on therapeutic response in COPD
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Background: Most pharmacogenetics studies of COPD have focused on the role of variants in the β2-adrenergic receptor gene on bronchodilator response, but the findings have been inconclusive.

Objective: To investigate lung function responses following a 24-week treatment with a long-acting β2 agonist combined with a steroidal inhaler in patients with COPD with various ADRB2 genotypes.

Methods: In 73 patients with stable COPD, polymorphisms in the amino acid positions 16 (Arg16/Gly16) and 27 (Gln27/Glu27) of the ADRB2 gene were assessed by allele-specific polymerase chain reaction. Long-term response was evaluated using observed change in spirometric values before and after the treatment with formoterol (12 μg) combined with budesonide (400 μg) inhalation twice daily for 24 weeks.

Results: In terms of FEV1% predicted in Gly/Gly patients, 2.01±0.89% predicted in Glu/Glu patients, 2.01±0.97% predicted in Gln/Glu patients and 1.38±0.42% predicted in Gln/Gln patients (p<0.1). Conclusion: Arg16/Glu27 haplotype was associated with decreased lung function improvement after 24-week treatment with long-acting β2-agonists plus inhaled corticosteroids in a Russian population.

P3462
Ivabradine prevents salbutamol-induced disturbance of cardiac autonomic regulation in patients with chronic obstructive pulmonary disease and coronary heart disease
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1Internal Diseases (Proepedetics) Dept., Bashkortostan State Medical University, Ufa, Bashkortostan, Russian Federation; 2Cardiology Dept., Clinical Hospital N21, Ufa, Bashkortostan, Russian Federation

Aim: To evaluate protective effect of If blocker ivabradine on cardiac autonomic regulation and inhalation of salbutamol in patients with COPD and coronary heart disease(CHD).

Materials and methods: 23 patients with COPD stage II-IV and CHD NYHA class I-III were included in cross-over, randomized study.Spirometry test with 400 mg salbutamol inhalation was performed at two consecutive days. Patients in group I were prescribed 5 mg ivabradine per os 3 hours before salbutamol inhalation on the 1-st study day, patients of group II received 5 mg ivabradine on the 2-nd day. Cardiac autonomic regulation was assessed via heart rate variability (HRV).

Results: HR%max 80.2±3.1 vs 77.2±2.1, p<0.026; SDNN, ms 18.4±2.6* vs 22.7±2.4, p=0.015; LF, ms 56.3±5.0 vs 55.7±4.5, p=0.173; HF, ms 44.7±4.4 vs 44.4±4.5, p=0.026; LF/HF 2.0±0.43 vs 2.5±0.67, p=0.001.*p<0.05, baseline vs. follow-up.

Conclusion: Almotriptan decreased the standard deviation of interbeat intervals SDNN and low-frequency LF power. If salbutamol inhalation was made after ivabradine ingestion then heart rate (HR) and LF/HF ratio decreased, normalized respiratory modulation power HF increased. Salbutamol increased FEV1 by 6.0%, p<0.01. With ivabradine inhalation ivabradine increased FEV1 by 7.7%, p<0.01, p=0.5 vs. no ivabradine.

P3463
Long term oxygen therapy (LTOT) prescription in chronic obstructive pulmonary disease (COPD) patients in Wigan (northwest England)
Sharada Gudur, Ayum Zahar, Andrew Cross, Imran Aziz, Abdul Ashish. Department of Respiratory Medicine, Royal Albert Edward Infirmary, Wigan, United Kingdom

Background: LTOT has been shown to provide a survival benefit in severe COPD. In UK, since 2006, following a Royal college directive LTOT prescriptions were to be issued only by hospital specialists managing such patients after formal assessments (BTS working group report, January 2006). The directive aimed to standardise LTOT assessments, issue and follow up to hospital based practitioners and specialist services.

We audited the oxygen prescriptions for adult patients in Wigan between 2006-2011 to study concordance of Royal college directives with our oxygen prescriptions.

Methods: We analysed the oxygen prescription data provided by our suppliers (Air products) for the patient details and prescriber source.

Results: There were 313 patients in whom oxygen was prescribed for COPD as the indication. The breakdown of prescriber source is as below.

<table>
<thead>
<tr>
<th>Prescriber Source</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital COPD nurses</td>
<td>192 (62)</td>
</tr>
<tr>
<td>General Practitioners</td>
<td>71 (22.6)</td>
</tr>
<tr>
<td>Hospital doctors</td>
<td>31 (10)</td>
</tr>
<tr>
<td>Other hospitals</td>
<td>9 (2.9)</td>
</tr>
<tr>
<td>Community respiratory nurses</td>
<td>8 (2.5)</td>
</tr>
</tbody>
</table>

Conclusions: There are still a substantial proportion of oxygen prescriptions issued at a community level by the general practitioners and community based nurses for patients with COPD. We are unsure regarding the assessments undertaken for the adequacy of such prescriptions. This could potentially lead to harm and is likely to lead to increased cost for the healthcare services. At the current times of austerity duplication of services should be avoided to ensure the patients and NHS gets the maximal benefit from LTOT provision.

P3464
The occurrence of pneumonia in COPD patients treated with salmeterol/salmeterol furoate 50mcg/50mcg (SFC250) - Interim report of post-marketing surveillance in Japan
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Design: This was a non-interventional, observational, post-marketing surveillance conducted in Japan in a clinical practice setting.

Method: Patients with COPD who were new users of SFC250 were enrolled. This report focuses on whether there is an association of COPD treatment with ICS and pneumonia as suggested in the literature. The history of pneumonia in 1 year prior to and after starting SFC250 was collected retrospectively and prospectively along with additional safety information.

Results: 1,420 case cards were collected as of 31st October 2011, and 1,358 patients were eligible for safety evaluation. 78.4% were 65 years or older. 246 adverse drug reactions (ADRs) were reported in 181 patients. Most frequently reported ADRs were clinical bacterial pneumonia 4.9%, dysphonia 3.2%, bronchitis 1.2% and pneumonia (other) 0.8%. In 1,358 patients who were treated with SFC250 for any duration, diagnosis of pneumonia was reported as an adverse event in 8.4% of patients in the year prior, and 8.4% after starting SFC250. For the 922 patients who were treated with SFC250 for 1 year, the diagnosis of pneumonia was made in 8.7% and 7.3% of patients in the year prior to and after starting SFC250, respectively. Pneumonia was more frequent in patients who had a hospitalization, lower BMI, longer duration of COPD, ex-smoker, severe COPD and patients with complication. The trend was the same in the year prior to and post SFC250.

Conclusions: In clinical practice setting, the frequency of pneumonia was comparable before and after starting SFC250.

P3465
Influence of tiotropium bromide and formoterol on bronchial hyperresponsiveness in COPD
Irma Tofilimovna, Boris Chemyak. Pulmonology, Irkutsk State Academy of Doctor's Postgraduate Education, Irkutsk, Russian Federation

Up to 60% of COPD patients can present bronchial hyperresponsiveness (BHR) which may be a pathophysiological feature of COPD rather than a surrogate marker of airway obstruction.

Aim: To evaluate an effect of a single dose tiotropium bromide (TB) and formoterol on BHR in COPD patients.

Methods: 30 COPD II outpatients with BHR of mean age of 59 yrs were studied. The BHR level was analyzed initially and post-dose in 60 minutes after 18 mg TB (1-st group, n=11) and 12 mg formoterol (2-nd group, n=19). BHR was assessed in methacholine challenge.

Results: A high level of BHR (provocative dose - PD20<0,04 mg) was at 40% of
COPD patients, medium (PD\textsubscript{20} 0.04-0.22 mg) at 43% and low (PD\textsubscript{20} 0.23 -0.47 mg) at 17% of the surveyed initially. Pre-bronchodilators PD\textsubscript{20} 21% of the species' reception of TB 18 \textmu M&M: 27 smoking pts with severe COPD in stable condition were divided in 2 groups: Group I - HP = 14, HP = 13. All patients received TB 18 \textmu M in group 1 was more than in the 2nd: 54.5% of patients after TB, and 21.1% after bronchodilator (p<0.06).

Conclusion: Long-acting bronchodilators – TB and formoterol after single administrations reduce BHR level in COPD patients. TB promotes more bronchoprotective effect than formoterol in COPD.

P3466
Influence of tiotropium bromide (TB) and carbocysteine (C) on mucociliary clearance (MCC) in patients with COPD
Tetyana Pertseva, Olena Lykhodat, Oleksandra Vlkhodat, Internal Medicine, Dnipropetrovsk State Medical Academy, Dnipropetrovsk, Ukraine

Aim: To compare the influence of TB alone and in combination with C on MCC.
Methods: 27 smoking pts with severe COPD in stable condition were divided in 2 grs. gr 1=14, gr 2=13. All pts received TB 27.5 \textmu g for 1 month. Gr.2 also received C 45 mg/d. Spirometry; biochemical parameters of sputum (medium weight molecules (MWM), trypsin, α1-protease inhibitor (α1-PI)) were researched for MCC evaluation.

Results: Dynamic of indices for gr. 1 in table 1, for gr. 2 in table 2.

Table 1

<table>
<thead>
<tr>
<th>Indices</th>
<th>Before treatment</th>
<th>After treatment</th>
<th>% of changes</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEV\textsubscript{1} 1% of pred</td>
<td>38,6±1,5</td>
<td>46,5±2,3</td>
<td>20,3</td>
<td>0,002</td>
</tr>
<tr>
<td>MWM, mg/L</td>
<td>1531,3±52,4</td>
<td>1036,0±33,7</td>
<td>33,3</td>
<td>0,01</td>
</tr>
<tr>
<td>Trypsin, mmol/sec L/G</td>
<td>5,1±0,3</td>
<td>6,4±0,4</td>
<td>25,7</td>
<td>0,02</td>
</tr>
<tr>
<td>α1-PI, mcmol/sec L/G</td>
<td>2,31±0,05</td>
<td>2,24±0,08</td>
<td>0,9</td>
<td>0,12</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Indices</th>
<th>Before treatment</th>
<th>After treatment</th>
<th>% of changes</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEV\textsubscript{1} 1% of pred</td>
<td>37,2±1,4</td>
<td>46,4±1,6</td>
<td>24,7</td>
<td>0,003</td>
</tr>
<tr>
<td>MWM, mg/L</td>
<td>1482,8±70,2</td>
<td>1197,9±48,1</td>
<td>19,2</td>
<td>0,008</td>
</tr>
<tr>
<td>Trypsin, mmol/sec L/G</td>
<td>4,1±0,2</td>
<td>5,3±0,3</td>
<td>29,4</td>
<td>0,01</td>
</tr>
<tr>
<td>α1-PI, mcmol/sec L/G</td>
<td>2,36±0,05</td>
<td>2,36±0,02</td>
<td>0,0</td>
<td>0,12</td>
</tr>
</tbody>
</table>

Conclusions: 1. TB demonstrated positive influence on MCC: broncholytic effect reduces damage of influence bronchial contents’ accumulation on cilia; activation of local trypsinolytic activity of sputum reduces of sputum viscosity; selective influence on M3-cholinoreceptors leads to bronchial secretion’s limitation and to anti-inflammatory effect, as a result – to decrease of MWM level, which leads to decrease of sputum viscosity.

2. Benefit of C addition to TB appeared only in greater increase of trypsinolytic activity of sputum because of its ability to reduce hypertrophy of mucous glands.

P3467
Microbiological screening infectious exacerbation of chronic obstructive pulmonary disease

Aim: To evaluate the difference of infection of the lung exudate and trophic changes in patients with severe chronic obstructive pulmonary disease.

Methods: At baseline examination, the patients were divided in 2 groups: Group I (n=60) with SPD < 600 mg/dl; Group II (n=10) with SPD > 600 mg/dl. Both groups were similar regarding to age, sex, smoking status and pulmonary function. After 6 months of therapy the correlation of serum SPD with the BODE index suggests that circulating SPDs can reflect the overall severity of COPD.

P3468
Serum surfactant protein D (SP-D) as biomarker of chronic obstructive pulmonary disease
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Background: Surfactant protein D (SP-D) is a lung-specific protein proposed to predict clinical outcomes in patients with chronic obstructive pulmonary disease (COPD). However, the changes in serum SP-D during acute exacerbation (AE-COPD) episodes and the relationship of serum SP-D with the overall severity of COPD in stable COPD (SCOPD) remain unclear.

Methods: Serum SP-D levels were analyzed in three groups, including AECOPD (n=40), SCOPD (n=71), and controls (n=60). In AECOPD group, serum SP-D levels were determined at 1, 5, 14, and 30 days post-exacerbation. In SCOPD group, BODE index (body mass index, airflow obstruction, dyspnea, exercise capacity) was indexed for severity assessment.

Results: Serum SP-D levels were sequentially elevated from the controls to the SCOPD, and then to the AECOPD (p<0.001). During an AECOPD episode, the raised serum SP-D levels subsided at day 5 (p<0.05), fell markedly at day 14 (p<0.001), and continued to decline at day 30 (p<0.001). Among patients with SCOPD, serum SP-D levels correlated positively with the BODE index (p<0.01).

Conclusions: The longitudinal changes in serum SP-D levels during an AECOPD episode suggest that SP-D may be a potential systemic biomarker for COPD exacerbation. The correlation of serum SP-D levels with the BODE index suggests that circulating SP-Ds can reflect the overall severity of COPD.

P3469
Serum surfactant protein D (SP-D) and response to the combined therapy in patients (pts) with stable COPD
Tetyana Pertseva, Kateryna Gasynyna. Eucary Therapy, DMA, Dnipropetrovsk, Ukraine

Aim: To evaluate response to inhaled corticosteroid (ICS) and long-acting beta2-agonist (LABA) combination in stable COPD pts with different serum SP-D.

Study population: 18 steroid-naïve pts with stable COPD.

Methods: At baseline examination, the patients were divided in 2 groups: Group I (n=98) with SPD < 600 mg/dl; Group II (n=10) with SPD > 600 mg/dl. Both groups were similar regarding to age, sex, smoking status and pulmonary function. After 6 months of therapy the reduction of serum FEV\textsubscript{1} was observed, however, the difference with baseline was not statistically significant (p<0.05) in both groups.

At the same time, unlike Group I, pts of Group II demonstrated significant decline of serum SPD from 1183.354 (683.00-1551.23) ng/ml at baseline to 755.200 (579.54-1296.0) ng/ml at 6 months after starting of therapy.

Results: In accordance with baseline serum SPD all pts were divided on two groups: Group I (n=87) with SPD < 600 mg/dl; Group II (n=10) with SPD > 600 mg/dl. Both groups were similar regarding to age, sex, smoking status and pulmonary function.

2. Further investigation considering high serum SPD level as an additional criterion for ICS+LABA prescription would be interesting.

626s
**P3470** Serum surfactant protein D (SP-D) as a specific marker for COPD
Tetyana Pertseva1, Kateryna Chudynova1, Olena Braten2, Natalya Potekh2.
1Facultative therapies, Dnipropetrovsk, Ukraine; 2Laboratory, DMA, Dnipropetrovsk, Ukraine

**Aim:** To evaluate SP-D level in patients (pts) with COPD in comparison with healthy control and pts with Ischemic Heart Disease (IHD).

**Study population:** 44 pts with stable COPD, 26 healthy people and 10 pts with IHD made up the study sample.

**Methods:** Medical history, SP-D in serum by ELISA (Hycult Biotech, Netherlands). Spirometry by Massotescuro (Viassia, Germany) were performed in all study population.

**Results:** SP-D levels in groups are shown in the table.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean, ng/ml</th>
<th>Median, ng/ml</th>
<th>Minimum, ng/ml</th>
<th>Maximum, ng/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPD</td>
<td>753.027</td>
<td>613.215</td>
<td>65.6250</td>
<td>1551.160</td>
</tr>
<tr>
<td>Healthy</td>
<td>408.372</td>
<td>26</td>
<td>69.8200</td>
<td>853.460</td>
</tr>
<tr>
<td>IHD</td>
<td>208.336</td>
<td>66</td>
<td>66.4950</td>
<td>750.111</td>
</tr>
</tbody>
</table>

*P(COPD-healthy)=0.001; P(IHD-healthy)=0.03.

**Conclusions:** COPD patients have significantly higher serum SP-D level, than healthy control and pts with IHD.

2. High SP-D could be considered as a COPD specific biomarker.

**P3471** Effects of endurance training on pulmonary and systemic levels of interleukin-8 (IL-8) in patients with stable COPD
Ernest Sala, Catalina Balaguer, Felin Renom, Àngel Rius, Raquel Extremera, Alícia Bimmell, Bernal Togores, Amanda Iglesias, Josep Lluís Valera, Àlvar Aguist. Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain; Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain; Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain; Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain; Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain; Servei de Pneumologia, Hospital Joan March, Bunyola, Spain; Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain; Servei de Pneumologia, Hospital Son Espases, Palma Mallorca, Spain.

**Background:** Patients with Chronic Obstructive Pulmonary Disease (COPD) may show increased levels of interleukin (IL)-8 (CXCL8). Respiratory physiotherapy may reduce IL-8 in induced sputum, but no information is available about the potential effects of endurance training on systemic or pulmonary levels of IL-8.

**Objective:** To investigate the effects of endurance training on pulmonary and systemic levels of IL-8 in patients with stable COPD.

**Methods:** Levels of IL-8 were quantified in plasma and induced sputum (ELISA) in a group of patients with moderate to severe stable COPD study group [S]: n=45, 61±4 (mean±SD) years, FEV1: 4.9±1.2±14%. pred. post-bd.) before and after an 8 weeks controlled endurance training program, and in a control group [C]: n=45, 61±5 years, FEV1: 4.5±1.6% pred. post-bd., who did not perform such a program.

**Results:** After 8 weeks levels of IL-8 in plasma (S: from 2.4±3 to 3.9±4.0 pg/mL) and sputum (S: from 2217.1±14.2 to 6132.2±5 years, FEV1: 49.5±9.6% pred. post-bd.) before and after an 8 weeks controlled endurance training program, and in a control group [C]: n=45, 61±5 years, FEV1: 4.5±1.6% pred. post-bd., who did not perform such a program.

**Conclusions:** Patients with stable COPD, a controlled endurance training program does not modify the pulmonary and/or systemic levels of IL-8. Hence, the beneficial effects of physical training cannot be attributed to the reduction of systemic pro-inflammatory cytokines.

**P3472** Antibacterial antibodies in chronic obstructive pulmonary disease
Olga Nazar 1,2,*, M. Roua Juliá1, Janae Sauldel 1,2, Antonio Clemente 1,2, Judith García Aymerich 4,5,6,7, Jose Maria Anto 4,5,6,7, Alvar Agustí 2,8,9, Alicia Binimelis, Bernat Togores, Amanda Iglesias, Josep Lluis Valera, Alicia Binimelis, Bernat Togores, Amanda Iglesias, Josep Lluis Valera, Judith García Aymerich 4,5,6,7, Josep Maria Anto 4,5,6,7, Alvar Agustí 2,8,9, Alic\n
**Aim:** To optimize an anti-inflammatory therapy in COPD patients (pts).

**Materials and methods:** 24 pts in stable phase (age = 63±5±9 yrs), divided into three subgroups according to the stage of COPD. Measurements included clinical status, spirometry, serum levels of MMP-2 and MMP-9 by immune-fluorescent method.

**Results:** Level of MMP-2 in all COPD pts was lower than in control (Table 1), but the correlation between levels of MMP-2 and MMP-9 by immune-fluorescent method is associated with lower antioxidant blood capacity and MDA level.

**Conclusion:** Increasing of COPD severity (symptoms, PFT, BODE index) is associated with lower antioxidant blood capacity and MDA level.

**P3473** Are there serum levels of MMP-2 and MMP-9 may be markers of COPD phenotypes?
Bozidara Basina, Tetyana Pertseva, Lyudmyla Konopkina, Vitalii Berezovskiy, Julita Gerdienko. Department of Faculty Therapy and Endocrinology, State Medical Academy, Dnipropetrovs'k, Ukraine

**Aim:** To identify any associations between the levels of MMP-2 and MMP-9 in serum and the stage or severity of COPD.

**Methods:** Levels of MMP-2 and MMP-9 were measured in serum of 70 COPD patients and 40 healthy controls. The levels were determined using enzyme-linked immunosorbent (ELISA) method.

**Results:** There was a statistically significant difference in the serum levels of MMP-2 and MMP-9 between COPD patients and healthy controls. The levels of MMP-2 and MMP-9 were highest in patients with severe COPD and lowest in healthy controls.

**Conclusion:** The serum levels of MMP-2 and MMP-9 may serve as markers of COPD phenotypes and can be used for assessing the severity of the disease.
in some COPD pts reflects degradation of collagen, remodulation of tissues and intensification of inflammation; 3) MMP-9 may be used as a marker of COPD phenotypes and thus – to optimize an anti-inflammatory therapy.

P3475
Adenovirus IgG avidity – A marker of outcome in COPD-exacerbations
Lucas Beeck1, Mesut Gencay1, Michael Tamm1, Mirjam Christ-Crain2, Beat Mueller2, Michael Roth3, Daiana Stolz1, 1Clinic of Pulmonary Medicine and Respiratory Cell Research, University Hospital, Basel, Switzerland; 2Endocrinology, University Hospital, Basel, Switzerland; 3Internal Medicine, Kanton Hospital, Aarau, Switzerland

Background: Adenovirus causes respiratory infections in healthy and chronically ill adult individuals. Virus replication, cell lysis and inflammation provoke pulmonary damage. Little is known about adenovirus infection, reinfection and reactivation in acute exacerbations of COPD (AECOPD).

Objectives: To evaluate effects of adenovirus infection during and after AECOPD.

Methods: 208 patients with severe AECOPD were tested for anti-adenovirus antibodies at exacerbation and after two weeks. Outcome parameters were measured for two years.

Results: Studied patients were predominantly male (54.8%), had an age of 70.39±8.9 years, a FEV1 of 41.2±17.2% predicted and smoked 45.2±27.9 pack years. At the time of exacerbation 39 patients (18.6%) had anti-adenovirus IgM and low-avidity IgG, indicating a present adenovirus infection. At exacerbation, patients with acute adenovirus infection were younger (p=0.031) and presented a lower hospitalization rate in the previous year (p=0.037). In contrast, they reported a poorer health-related quality of life at admission (p=0.003) and persistently impaired functional status 14 days after exacerbation (p=0.044). Patients with initial low-avidity adenovirus IgG who failed to convert into high-avidity adenovirus IgG within two weeks (n=13, 7%) had more recurrent AECOPD within six months (1.23 vs. 0.63; p=0.032) and a shorter time to re-hospitalisation for AECOPD or death within two years (p=0.018).

Conclusion: Adenovirus related severe AECOPD potentials have a more severe clinical course. In addition, patients who remain at low-avidity adenovirus IgG are at higher risk for subsequent AECOPDs and hospitalisation or death.

P3476
Impact of morning symptoms experienced by COPD patients on exacerbation risk, rescue inhaler usage and normal daily activities
Mark Small, Sarah Broomfield, Ryan Pollard, Steve Fermer. Respiratory, Adelphi Real World, Macclesfield, United Kingdom

Background: Patients consider the impact of COPD on morning activities to be important for managing COPD patients. Hence such patients should be evaluated for nocturnal hypoxemia.

Objectives: To quantify the impact of morning symptoms experienced by patients receiving inhaled corticosteroid plus long-acting β2-agonist (ICS/LABA) by association with exacerbation frequency, rescue usage and impact on daily activities.

Methods: Data were drawn from a real world study of consulting COPD patients in the USA and Europe in 2011. Results were tested for significance (p<0.05) using Mann-Whitney and negative binomial regressions. Confounders included age, gender, BMI, comorbidities, severity, smoking status and adherence.

Results: Of the 3790 patients in the study, 593 were receiving ICS/LABA-only (+/- rescue). Of the 177 patients reported to experience morning symptoms, cough (65.5%) and excess sputum (53.1%) were the most common. Compared with patients without morning symptoms, these patients were associated with higher daytime dysfunction (0.91±0.15 vs 0.86±0.17; p=0.018) and 6 minute walk distance (6MWD) (317.7±66.0 vs 300.4±63.5; p<0.05).

Conclusion: Morning symptoms are associated with significantly more impaired breathing control for patients treated with ICS/LABA-only therapy. The association implies morning symptoms are an important indicator when assessing the impact of COPD and their presence suggests that further therapeutic intervention may be necessary.

P3477
Effect of melatonin on sleep quality of chronic obstructive pulmonary disease (COPD) patients
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Introduction: One of the clinical complaints of COPD is disordered sleep quality. Studies have shown that melatonin increases the sleep quality in certain COPD patients, but its effectiveness is not yet clear.

Methods: This randomized, double-blind, placebo-controlled trial included 52 moderate to severe COPD patients with poor sleep quality. The subjects received oral 3 mg melatonin (N = 27) or placebo (N = 27) in one dose 1 hours before sleep for a period of 30 days. The sleep quality was measured by Pittsburgh Sleep Quality Index (PSQI) and daytime sleepiness was measured by Epworth Sleepiness Scale. Lung function and oxygenation was measured by spirometry and pulse oximeter.

Results: Finally 48 patients completed the protocol and entered the final phase. Melatonin significantly resulted in improved global PSQI scores, especially sleep quality (P<0.001), sleep latency (P<0.001), sleep duration (P<0.024) and sleep efficacy (P<0.003). There was no significant difference in daytime sleepiness, lung function and oxygenation.

Table 1. sleep quality, daytime sleepiness before and after treatment with melatonin or placebo

<table>
<thead>
<tr>
<th>Melaniein (N =23)</th>
<th>Placebo (N =25)</th>
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<tr>
<td>Before</td>
<td>After</td>
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<tr>
<td>PSQI 11.6±3.96</td>
<td>8.7±3.15</td>
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<tr>
<td>Sleep quality 2.6±0.95</td>
<td>1.5±0.64</td>
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<td>Sleep latency 2.2±0.95</td>
<td>1.7±0.17</td>
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<td>Sleep efficacy 2.3±0.10</td>
<td>1.6±0.12</td>
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<td>Daytime dysfunction 0.01±0.85</td>
<td>0.7±0.67</td>
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<td>ESS 7.0±4.44</td>
<td>6.3±4.23</td>
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Conclusion: Melatonin results in improved sleep quality of moderate to severe COPD patients with sleep quality disorders.

P3478
Can 6 minute walk test with continuous pulse oximetry predict nocturnal hypoxemia in chronic obstructive pulmonary disease?
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Rationale: Predictors of exercise desaturation are empysema scores and severity on pathology and CT imaging with FEV1 and resting SpO2 showing variable results. However, nocturnal hypoxemia predictors are less studied; hence we evaluated 6MWT with continuous pulse oximetry and spirometry indices for it.

Methods: 28 patients of COPD with nocturnal hypoxemia were prospectively evaluated at Metro Centre for Respiratory Diseases, between May to July 2011. Parameters measured: 1 Spirometry: Pre and Post-bronchodilator 2 Six Minute Walk test (6MWT) using continuous oximetry: baseline SpO2 (SpO2 bas), minimum SpO2 (SpO2 min), maximum heart rate (HR max), minimum HR (HR min) and 6 minute walk distance (6MWD) and 3) Nocturnal Oximetry: baseline, minimum & mean SpO2 % time SpO2 < 90%. All parameters were statistically analyzed using SPSS.

Results: Of 28 patients with COPD (mean age 61.42±12.04 Yrs) 20 were males. Mean SpO2 baseline at start of 6MWT was 94.3±3.23. SpO2 basal during nocturnal oximetry was significantly correlated with SpO2 bas during 6MWT (r = 0.870; p value <0.001), SpO2 min (r = 0.552; p value =0.002) and post-bronchodilator FEV1 (r = 0.461; p = 0.013). Time of sleep with SpO2<90% in nocturnal oximetry was also significantly correlated with SpO2 bas on 6MWT (r = -0.427; p value 0.024) and SpO2 min (r= -0.543; p value=0.003) but not with SpO2 max (r= -0.269; p value=0.166) and 6MWD (r= -0.073; p value=0.713).

Conclusion: Baseline SpO2 and maximum desaturation during exercise on 6MWT and post-bronchodilator FEV1 are good predictors of degree and duration of nocturnal hypoxemia in COPD. Hence such patients should be evaluated for nocturnal hypoxia.