50. COPD management

P244
Adherence of stable COPD patients to inhaled pharmacotherapy
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Since compliance to inhaled medications is related to a decreased risk of hospitalizations and death in COPD, we aimed to investigate the compliance of COPD patients to inhaled pharmacotherapy. We studied 208 COPD patients [age 63±8 years; 77 in stage II (37%); 112 in stage III (54%); and 19 in stage IV (9%)]. Non-compliance was defined as the incorrect use of the inhaler device, as a sporadic or prn use due to perception of no effect or due to wrong information, when patient or his caregiver declares non-compliance, and when medication is not prescribed regularly. Results are reported for Tiotropium (T), fixed combinations of either Salmeterol/Fluticasone (S/F) or Formoterol/Budesonide (F/B), and Salmeterol (S) or Formoterol (F) as single agents. Overall compliance to the above inhaled agents was 92%, 84%, 81%, 75% and 68% respectively. According to GOLD staging, compliance to T was 87% (II)-94% (III)-95% (IV), to S/F 78% (II)-84% (III)-92% (IV), to F/B 78% (II)-79% (III)-100% (IV), to S 67% (II)-100% (III) and to F 61% (II)-86% (III). Major reasons for non-compliance to S/F was the incorrect technique to inhale from the Diskus (78%), to F/B the perception of no effect when inhaling from the Turbohaler (50%), while reasons for non-compliance to T were the incorrect technique of using Handihaler (36%), no purchase or prescription renewal (36%) and sporadic use (28%). We conclude that compliance rates were higher for Tiotropium and the fixed combination of Salmeterol/Fluticasone. There was an increasing compliance in relation to COPD severity, while the detected reasons of poor compliance should be tackled through a more effective contact between COPD patients and their physicians.

P245
Health-related quality of life (HRQL) and patient-reported outcomes (PRO) in COPD patients receiving add-on-therapy with EPs® 7630
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HRQL and PRO are important measures for treatment evaluation and assessment of health condition. In an RCT (ISRCTN01681733) in patients with COPD stage II/III, add-on therapy with EPs® 7630, a herbal drug preparation from Pelargonium sidoides roots (Umckaloabo®; ISO Arzneimittel, Ettlingen, GER), significantly prolonged time to exacerbations and reduced their frequency. We also investigated HRQL and further PRO parameters assessed during the trial. Patients with a standardised COPD baseline treatment according to GOLD were randomly allocated to a double-blind 24-week oral add-on therapy with 30 drops EPs® 7630 (n=99) or placebo (n=101) thrice daily. HRQL/PRO were assessed by St. George’s Respiratory Questionnaire (SGRQ), EQ-5D, Integrative Medicine Patient Satisfaction Scale (IMPSS), Integrative Medicine Outcomes Scale (IMQOS), patient-reported intensity score of cough, sputum production and sternal pain while coughing, and drug tolerability. After 24 weeks, patients treated with EPs® 7630 reported a significantly more improved HRQL compared to placebo (SGRQ total score, p<0.001; EQ-5D VAS, p<0.001). For EPs® 7630, patient satisfaction with treatment was significantly higher.
higher (IMPS, p<0.001), patient-reported treatment outcome significantly better (IMOS, p<0.001) and the mean intensity score during exacerbations significantly lower (p<0.024). Incidence of adverse events was comparably low in both groups.

Conclusion: Add-on therapy with ESI® 7630 led to a statistically significant and clinically relevant improvement of HRQL and other PRO (total score difference of SGRQ = 4 points) including good long-term tolerability in patients with COPD stage II and III.

P246
Treatment with megestrol acetate and testosterone increases body weight and muscle mass in COPD cachexia
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Underweight COPD patients with involuntary weight loss have a poor prognosis; no effective therapy is available. We conducted the first clinical trial determining whether combined therapy with an appetite stimulant and an anabolic steroid would have beneficial body composition effects.

We conducted a 12 week pilot study in which 4 men and 5 women (age 64±10y, FEV1%pred 31±9, BMI 18±6.3) with low testosterone (T) levels (average 490ng/dl in men and 120ng/dl in women) and weight loss >10% over the previous year received 800mg megestrol acetate/day plus weekly testosterone enanthate injections initially 125mg in men and 40 mg in women, with doses subsequently adjusted targeting serum T levels of 850 and 300ng/dl, respectively. Two women and two men had COPD exacerbations and did not complete the study. On treatment T levels were 334±72ng/dl in women and 670±98ng/dl in men. Body weight increased in all 9 subjects, with end-intervention weight gain of 3.1±2.2kg (p<0.005).

In the 5 subjects who completed, DEXA revealed 2.0±1.1kg lean mass and 2.5±2.0kg fat mass increase (both p<0.05). No adverse treatment effects were detected.

Combination therapy reversed involuntary weight loss and increased muscle mass in cachectic COPD patients. Though the interventions were apparently well tolerated, subject drop out rate was high. Larger randomized long-term studies with functional outcomes are needed.

P247
Efficacy of roflumilast in former and current smokers with COPD
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Efficacy of roflumilast in former and current smokers with COPD.

Background/Rationale: Roflumilast (ROF), an oral, selective phosphodiesterase 4 inhibitor, reduces the rate of moderate and severe exacerbations. Oral steroids are frequently used to treat exacerbations, but whether ROF affects oral steroid exposure is not known. Using data pooled from two 1 year studies (NCT00297102 and NCT00297115), we investigated the effect of ROF on the need for oral steroids.

Methods: Patients with COPD and a history of exacerbations and chronic bronchitis were randomised to receive ROF 500μg once daily (n=1537) or placebo (PBO; n=1554) for 52 weeks. Rate of moderate or severe (leading to hospitalisation or death) exacerbations was a co-primary endpoint. Steroid use (dose/day and days of use) for the treatment of exacerbations was recorded.

Results: The mean rate of moderate or severe exacerbations in ROF- and PBO-treated patients (per patient/year) was 1.14 vs 1.57, respectively (reduction 16.9%, p=0.0003). The mean number of days on which patients had exacerbations was reduced with ROF vs PBO (moderate 23.7 vs 27.3; severe 21.5 vs 25.0). The mean duration (days) of exacerbations was also reduced with ROF vs PBO (moderate 5.4 vs 6.5; severe 4.6 vs 5.3). The mean rate of moderate or severe exacerbations significantly reduced the rate of moderate or severe exacerbations. ROF treatment also reduced the duration of exacerbations, particularly for severe exacerbations requiring hospitalisation. The overall steroid load and duration of steroid treatment needed to manage exacerbations was lower with ROF.

P248
Impact of roflumilast treatment on the rate and duration of exacerbations and overall steroid load in patients with COPD
Peter Calverley1, Fernando Martinez2, Udo-Michael Goehring3, Hitoshi Kagioka2, Masataka Hirabayashi4, Shigeo Muro1, Michiaki Mishima1, Masao Suzuki1,2,5, Motonari Fukui2, Tetsuhiro Shiota3, Kazuo Endo4, Hitoshi Kagioka2, Masataka Hirabayashi4, Shigeo Muro1, Michiaki Mishima1, 1School of Clinical Sciences, University Hospital Aintree, Liverpool, United Kingdom; 2Department of Respiratory Medicine, Nycomed GmbH, Konstanz, Germany; 3Department of Internal Medicine, University of Michigan Medical Center, Ann Arbor, MI, United States; 4Department of Respiratory Medicine, Ako City Hospital, Kobe, Japan; 5Department of Data Science, Nyomed GmbH, Konstanz, Germany; 6Department of Pneumology, University of Marburg, Marburg, Germany

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P249
Acupuncture improves nutritional status and BODE index in patients with chronic obstructive pulmonary disease: A randomized, placebo-controlled trial
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Acupuncture improves nutritional status and BODE index in patients with chronic obstructive pulmonary disease: A randomized, placebo-controlled trial.

Background: COPD is a chronic progressive disease, which is characterized by inflammation, airway remodeling, and emphysema. COPD patients have a high risk of mortality and increased healthcare costs. Acupuncture has been used for respiratory diseases in China for more than 2000 years. However, the effects of acupuncture on nutritional status and BODE index in patients with COPD are not well studied.

Methods: In a 1-year randomized, placebo-controlled, double-blind trial, 88 patients with moderate to severe COPD were randomized to receive acupuncture (n=44) or placebo acupuncture (n=44) treatment for 1 year. Anthropometric measurements, serum albumin, pre- and post-BD FEV1, and self-report BODE index were measured at baseline and 12 months.

Results: The mean age of the patients was 65.4±10 years, and the mean BMI was 22.9±3 kg/m². The mean baseline serum albumin level was 4.0±0.5 g/L. The mean baseline pre- and post-BD FEV1 was 87.5±16% predicted. The mean baseline BODE index was 5.4±2.2. The mean number of exacerbations per patient/year was 1.2±0.5. The mean number of days on which patients had exacerbations was 3.4±1.3. The mean number of days with exacerbations was 21.7±11.3. The mean duration of exacerbations was 4.6±2.1 days. The mean rate of moderate or severe exacerbations was 1.0±0.5 per patient/year. The mean rate of moderate exacerbations was 0.8±0.4 per patient/year.

Conclusions: Acupuncture significantly improved nutritional status and BODE index in patients with COPD. Acupuncture is a safe and effective treatment for patients with COPD.
P250
Time to desaturation under 1 minute on the 6m walking test predicts chronic domiciliary oxygen therapy in COPD patients
Luisa Eiroa, Roth Pfitz, Juan Manuel Palmero, Juan Marco Figueroa, Ana Isabel Velázquez, Magdalena Alonso, Jesús Rodríguez, Canelaria Ramos, Irene De Lorenzo, José Luis Trujillo, Alfonso Tauroni, Ignacio García Talavera.
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Introduction: Time to desaturation (T90) on the 6m walking test (WT6m) is widely used to predict chronic domiciliary oxygen therapy (COPD) patients. We aimed to study the desaturation during 24 hours oximetry. It is unknown the clinical evolution in time of these patients.

Objectives: To analyze the gasometric parameters changes on copd patients with early desaturation on the WT6m on 5 years later.

Material and Methods: We studied 83 patients with COPD and desaturation on WT6m under 1 minute. 73 men/10 women, average age 67 yrs, 70±10 yrs, FEV1 42±7% and PO2 66±9mmHg. We did spirometries, gasometries, WT6m every 6 months for 5 years. The patients who during the study needed domiciliary oxygen therapy, were prescribed by their ph/visicians who did not know the content of the study.

Results: 65% of patients without COPD had chronic domiciliary oxygen therapy vs 11% of patients with desaturation after 1 minute (T90 >1 min), p<0.001.

Conclusions: Moderate-severe COPD patients desaturating before 1 min on the WT6m need oxygen therapy before 5 years opposed to patients with desaturation after 1 minute. Early desaturators need more clinical and gasometric controls.

P251
Tiotropium vs salmeterol in GOLD II and maintenance-naïve COPD patients: Subgroup analyses of POET-COPD™ trial
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Background: Chronic obstructive pulmonary disease (COPD) guidelines recommend long-acting bronchodilator (muscarinic antagonist or β2-agonist) maintenance therapy from GOLD stage II (moderate) disease onwards.

Aims and objectives: Prespecified subgroup analyses of POET-COPD™ trial, evaluating exacerbation outcomes of tiotropium (18 μg qd) vs salmeterol (50 μg bid), in a) GOLD II and b) maintenance-naïve (not previously receiving maintenance therapy) COPD patients.

Methods: 1-yr randomized, double-blind, double-dummy, parallel-group, multicenter trial. Inclusion criteria: COPD, smoking history >10 pack-yrs, post-bronch forced expiration volume in 1s (FEV1) >70% pred, FEV1/FVC forced vital capacity (FVC) <0.7, history of ≥1 moderate or severe exacerbation in prior year. Primary endpoint: time to first exacerbation.

Results: Of 7376 patients randomized and treated, 3614 were GOLD II and 1343 maintenance naïve at randomization. GOLD II: 69.3% men, age 63.2 yrs, 37.3% of 7376 patients randomized and treated, 3614 were GOLD II and 1343 maintenance naïve at randomization. GOLD II: 69.3% men, age 63.2 yrs, 37.3% of 7376 patients randomized and treated, 3614 were GOLD II and maintenance naïve in GOLD II. Mean Charlson Index was 4.7 yrs. FEV1 predicted 63% (70±15%). Tiotropium prolonged time to first exacerbation in both GOLD II and maintenance-naïve groups: hazard ratio (95% confidence interval [CI]), tiotropium vs salmeterol: 0.88 (0.79-0.99), P=0.028 vs 0.79 (0.66-0.97), P=0.028. Exacerbation rates (per pt-yrs, tiotropium vs salmeterol: GOLD II: 0.55 vs 0.60, rate ratio (RR) (95% CI) 0.91 (0.81-1.01), P=0.072; maintenance naïve, 0.38 vs 0.49, RR (95% CI) 0.77 (0.63-0.94), P<0.05.

Conclusions: Similar to overall cohort in POET-COPD™, tiotropium improved exacerbation outcomes vs salmeterol in GOLD II and maintenance-naïve subgroups of COPD patients with an exacerbation history.

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P252
Efficient deposition and absorption of orally inhaled indacaterol in the lungs
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Introduction: Indacaterol (IND) is an inhaled long-acting β2-agonist for the once daily treatment of COPD, delivered via single-dose dry powder inhaler (Onbreza® Breatherhaler®). Study aims were 1) To determine absolute bioavailability (Fabs) of IND after oral inhalation compared with intravenous (IV) dosing and 2) To determine relative contributions of lung and gastrointestinal tract (GIT) absorption to systemic exposure of inhaled IND. To this end, inhaled IND was also administered concurrently with oral activated charcoal.

Method: A two-part randomized, open label, single-dose study in healthy volunteers (HV). In Part 1, 8 HV received an IV infusion of 200 μg IND and an inhaled dose of 300 μg IND in a 2-way, 2-sequence crossover design. In period 3 all 8 HV received an inhaled dose of 600 μg IND together with an oral dose of charcoal. Treatments were separated by washout periods. In Part 2, HV received oral doses of IND (600 μg) and charcoal. Blood samples were taken for PK analysis and IND was determined in serum by LC-MS/MS. PK parameters were determined by non-compartmental methods.

Results: The Fabs of inhaled IND was 45%. Oral activated charcoal was effective in blocking the oral absorption of IND. The relative bioavailability of inhaled IND with oral charcoal was 74% compared to inhalation without charcoal.

Conclusion: Almost 75% of the systemic exposure following inhalation of IND was due to lung absorption, and 25% was due to GIT absorption. Based on the Fabs of 45% for inhaled IND, the fraction of the inhaled dose deposited and absorbed in the lungs was estimated at 34% of the nominal IND dose, providing evidence of effective lung delivery of inhaled IND via Onbreza® Breatherhaler®.

P253
Subclinical cardiac dysfunction in moderate to severe obstructive pulmonary disease (COPD) patients
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Introduction: COPD is associated with chronic cardiovascular (CV) comorbidities. IL-6 is a pro-inflammatory cytokine involved in COPD pathogenesis. PTX3 is associated with aging. To analise the gasometric parameters changes on copd patients with chronic domiciliary oxygen therapy and to determine the relation among IL-6 and PTX3, COPD severity, right (RV) and left (LV) ventricle function.

Methods: In 70 COPD (GOLD diagnosis) outpatients, >10 p>ys, ≥50 yrs, we assessed Charlson Comorbidity Index, BODE index and echocardiography. LV systolic dysfunction was defined as LV ejection fraction (EF) ≤40%. Tricuspid Annular Plane Systolic Excursion (TAPSE) and RV function according to JASE guidelines 2010. IL6 and PTX3 levels were measured by sandwich enzyme-linked immunosorbent assay. Associations were assessed by a linear regression model.

Results: We analyzed 70 COPD pts (52 M), mean age 68 yrs, mean p/y 45 yrs. COPD severity was GOLD I in 10 pts, II in 34, III in 26. Mean Charlson Index was 4 (range 2-8), mean BODE index 2.3, mean±SD DLCO/VA 73±3, mean±SD LVEF 70±7. Mild RV diastolic dysfunction was found in 40/70 pts (57%). Interestingly, positive significant association (p=4,1p>0.001) was found between TAPSE and DLCO. Positive significant association (p=0.08±0.03) was also found between age and PTX3.

Conclusions: COPD pts with reduced DLCO have reduction of TAPSE suggesting a subclinical RV systolic dysfunction. In this population, IL6 and PTX3 levels were not associated with cardiac dysfunction and COPD severity. By contrast, PTX3 is associated with aging.

P254
Effects of ambulatory oxygen on exercise capacity and vital parameters in patients with COPD
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Introduction: Ambulatory oxygen is defined as supplemental oxygen during exercise. Candidates for ambulatory oxygen are either already on long term oxygen therapy (LTOT) or show evidence of exercise desaturation. Aim: The aim of this study is to evaluate the effects of ambulatory oxygen on exercise capacity and vital parameters in patients with COPD who didn’t fulfill the criteria for LTOT.

20s
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P257
Screening for malnutrition in outpatients with pulmonary diseases
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Background: Malnutrition has negative effects on patient outcome, in particular in patients with COPD. Recognition of malnutrition in an early phase might be beneficial for patients and screening for malnutrition in an outpatient setting might, therefore, be worthwhile.

Aim: To determine the extent of malnutrition in outpatients with pulmonary diseases using different methods.

Methods: All patients visiting our outpatient department of pulmonary diseases for the first time (period Oct. 2010 - Feb. 2011) were screened for malnutrition. Different methods were used to screen for malnutrition: body mass index (BMI), Short Nutritional Assessment Questionnaire (SNAQ), and a fat mass free measurement (FFM; bio-impedance by Bodystat® 1500).

Results: Data of 121 outpatients (mean age 59, 49% male, 29% COPD) were analysed. Obesity (BMI > 30) was found in 26% of patients and underweight (BMI < 21 in COPD, and respectively <18.5 or <20 in non-COPD, aged <65 or >65 yrs) was found in 7 patients. The SNAQ score detected 9 and 3 patients being severely or moderately malnourished. FFM revealed 17 patients (14%) with malnutrition. Combining SNAQ and BMI resulted in detection of 17 malnourished patients. However, different patients are detected (Table 1).

A low FFM was found more often in patients with COPD (23%) and in females (21%).

Conclusion: This study revealed malnutrition in 6 to 14% of outpatients with pulmonary diseases. Measurement of BMI only seems to underestimate nutritional problems. The discrepancies in detecting different patients emphasise the need for determining a gold standard for defining and measuring malnutrition.

Table 1. Malnutrition: FFM vs. SNAQ + BMI

<table>
<thead>
<tr>
<th>Malnutrition Level</th>
<th>SNAQ + BMI</th>
<th>FFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>8</td>
<td>96</td>
</tr>
<tr>
<td>Moderate</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Severe</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

P258
Comparison of costs of community-acquired pneumonia (CAP) treatment at patients with and without bronchial obstruction
Yury Mostovoy, Hanna Dемехук. Pneumopediatric Department to Internal Medicine, Vinnytsia National Medical University, Vinnytsya, Ukraine

With purpose to estimate economical costs of treatment of CAP at the patients with and without it the comparison of therapeutic expenses of CAP at 33 inpatients against a background COPD (basic group – BG) and 33 patients without COPD (control group – CG) was performed by case-control method. Patients were represented by age and gender (main age-65±14 years, 54,4% male). Average duration of hospitalization was similar: BG-11,5±2,3 days, CG-10,91±2,65 days (p>0,1). Pneumonia severity index (PSI) was higher in BG (81,5±3,8 score) than in (64,27±2,69 score). Half of patients of both groups had concomitant cardiovascular diseases (51,5% Ta 45,5%, p<0,1). Average costs of treatment for patient in BG was 1229,54±467,77 UAN, but for patient of CG – 789,25±32,43 UAN (p<0,001). Due to obstruction, severe respiratory failure, slower improving CAP symptoms in BG therapy of these patients was more intensive. 30,3% from BG were needed change of initial antibiotic to alternative, but nobody from CG. Duration of antibiotic therapy was longer in BG than in CG (12,5±2,3 days vs 8,4±1,9 days, p<0,05). Results of expenses for antibiotics were higher in BG than CG (59,1% and 44,3% agreeably (p<0,05). Treatment of bronchial obstruction and respiratory failure cause increasing costs for BG at the mean 389,45±34,76 UAN. Costs of treatment of cardiovascular diseases were similar in the both group: 10,1% in BG and 9,7% in CG (p<0,01) from total sum. More severe CAP at patients with COPD requires more intensive treatment involving bigger therapeutic and diagnostic resources. It considerably increases costs of medical care for this group of patients.

P259
Comorbidities in stage IV COPD patients
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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is associated with
many comorbidities, however the prevalence of these diseases varies in different studies.

**Aim:** To determine the prevalence of various comorbidities in stage IV COPD patients (pts), followed in a respiratory outpatient clinic of an University Hospital.

**Methods:** A questionnaire was designed and applied to stage IV COPD pts in order to characterize the disease and its comorbidities. Data were supplemented by consulting clinical files.

**Results:** We included 89 pts (87% male), with a mean age of 68±9 years, 79% were ex-smokers. Mean FEV1 was 38% of predicted and all of them had chronic respiratory failure. Thirty five pts (39%) were frequent exacerbators (>2 exacerbations in the last year).

Thirty-seven pts (42%) had at least one admission because of their respiratory disease in the last year and 66 patients (74%) in the last 5 years. Most pts had at least one comorbidity (97%), with an average of 4 comorbidities by patient and a mean Charlson index of 2.

The most frequent comorbidities were cardiovascular diseases (70%), erectile dysfunction (48%), sleep apnea syndrome (43%), dyslipidemia (35%), cataracts (31%), gatroesophageal reflux (29%) and diabetes (20%).

Frequent exacerbators were associated with a 5-fold increase in the odds ratio of having 2 or more comorbidities.

Frequent exacerbators had more gastroesophageal reflux (p<0.006) and more admissions in the last year and in previous 5 years (p<0.001).

**Conclusion:** This study confirms the high prevalence and association of comorbidities in stage IV COPD pts and its influence on exacerbations and admissions, justifying the need of a complete and integrative treatment approach.

**P260**
Fenspiride as complementary anti-inflammatory agent in therapy of patients with chronic obstructive pulmonary disease

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The aim of our study was to study the efficacy of fenspiride (F) in the complex therapy of patients with chronic obstructive pulmonary disease (COPD).

**Study population:** COPD pts with I-II stages (n=20) were observed on an extensive 6-month treatment period. Among them were 13 males (65%). Mild age 49,02±11,32 year, duration of COPD 13,03±4,76. 1st gr. (10 pts) – combined therapy with F (160 mg/day) and fenoterol/ipratropium bromide (F+I) (200+80 mcg daily). 2nd gr. (10 pts) – monotherapy with F+I.

**Methods:** Spirometry and pneumotonometry were performed on days 1, 90 and 180 by means MasterScreen Body/Diff (“Jaeger”, German). Functional status was accessed by six-minute walk distance (6MWD) test and Borg dyspnea scale. The St. George’s Respiratory Questionnaire (SGRQ) data were determined before and after treatment period.

**Results:** Significant increase in all of the SGRQ domains in pts of 1st gr (p<0.001) was observed. Essential increase of the 6MWD test result has been established (on 25,15±5,5 meters) in the 1st gr. Perceived dyspnea severity and leg fatigue severity were reduced in 1st gr (p<0.05). Reduction of bronchial obstruction was less considerable and was comparable in both groups (p1<0.04 & p2<0.038). We didn’t receive significant increases in the respiratory muscle strength (p>0.05).

**Conclusion:** The study demonstrated greater efficacy of long-term complex therapy with fenspiride and fenoterol/ipratropium bromide compared with fenoterol/ipratropium bromide alone in patients with COPD. This combination regimen can be recommended for the reduction of inflammation and prevention of disease progression in COPD patients.

**P261**
What are the factors related to misdiagnosis of COPD?

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**Background:** The factors for COPD misdiagnosed by physicians are not known.

**Objective:** To determine the factors associated with COPD misdiagnosed.

**Methods:** This research was part of the Canadian Cohort Obstructive Lung Disease (CanCOLD). Subjects were recruited (population-based sampling) from 9 cities. Physician-diagnosed COPD was based on patient self-reported. COPD was confirmed by spirometry, i.e., post-BD FEV1/FVC <0.70.

**Results:** This analysis included 2132 subjects from 5 cities. Of 163 with physician-diagnosed COPD, 79 were confirmed to have COPD by spirometry while 84 didn’t have COPD. 333 had COPD confirmed by spirometry but were undiagnosed. 910 were at risk (ever smoker) and 726 were healthy (never smoker). Among those with physician-diagnosed COPD as compared to undiagnosed COPD, diagnosed subjects were more likely to be current smokers (36% vs 20%, p<0.0001), to have chronic bronchitis (32% vs 12%, p<0.0001), wheezing (64% vs 38%, p<0.0001), dyspnea ≥3/5 MRC (22% vs 9%, p<0.0001), diagnosis of asthma (47% vs 23%, p<0.0001), and lower health status. Similar characteristics were present for physician-diagnosed COPD whether or not the diagnosis was confirmed by spirometry. Predictors of physician-diagnosed COPD included current smoking (OR: 1.86, 95% CI: 1.09-3.18), chronic cough (2.04, 1.13-3.69), chronic bronchitis (2.70, 1.45-5.04), and reduced physical health “SF-12” (0.96, 0.96-0.99).

**Conclusion:** Misdiagnosis and underdiagnosis of COPD is common. Current smoking, respiratory symptoms and reduced health seems to trigger physician to make diagnosis of COPD. The absence of these factors may result in underdiagnosis.