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P3439

Clinical pattern of COPD in South India – A global public health problem <u>V.P. Gopinathan</u>, A. Supriya. *Dept of Pulmonary Medicine, JMMC, Trichur, Trichur, Kerala, India*

Chronic Obstructive Pulmonary Disease(COPD), among all noncommunicable diseases and chronic respiratory diseases, continues to be on the increase,mostly attributed to limited doctor/patient health education globally.Associated comorbidities are not often evaluated concurrently that a sizeable number of patients die of alternate disorders.Spirometry being the gold standard for diagnosis is forgotten that these patients are treated for few days as "Bronchitis".The purpose of this communication is to highlight the clinical pattern of this disease as guidelines for the medical profession.

A total of 235 patients in the agegroup35-77 were evaluated in the year 2011. The diagnosis was established by history, exposure to tobacco, atmospheric and/or industrial pollutants, clinical and laboratory examination and not the least, spirometry, EKG, imaging studies and echo were done as relevant.

The clinical observations include:

1.Majority were males and smokers.

2.8 patients(3.4%)were non tobacco smokers.

3.Non tobacco smokers and those with comorbidities were symptomatic early.

4.Patients with echo based pulmonary arterial hypertension/corpulmonale died early.

5. Majority of patients were elderly-60-70 years.

6.Common comorbidities were cardiovascular and musculoskeletal and related features.

7Few of the patients initially presented with cardiac symtoms, diverting the attention of the primary disease, often forgotten.

8.Associated tuberculosis and diabetes mellitus were not uncommon.

Comments:There is still need for improved patient/doctor health education.All patients with smoking history for 5 years or more should be evaluated early before developing complications.

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Course features of COPD in women and men

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Background: COPD is a leader among the present problems in Pulmonology. Epidemiological data indicate a greater prevalence of this nosology among men. Prevalence of COPD in the world among men is 9.3%, and among women - 7.3%. Given that COPD - a disease mainly of the second half of life, it should be noted that at this period women are characterized by a extinguishing of steroidogenesis function. This factor may be one of those that aggravating the course COPD in women.

Aim: To study the severity of breathlessness on a MMRC scale in women and men with newly diagnosed 2nd stage of COPD.

Materials and methods: The main inclusion criteria were: 1) age of patients \geq 40 years; 2) Experience smoking \geq 10 pack/years 3) FEV1 after salbutamol 50% \leq FEV1 \leq 70%, FEV1/FVC \leq 0,7; 4) No other clinically significant disease. There were surveyed 57 patients (including 22 women and 35 men) with newly diagnosed 2nd stage of COPD who were treated at pulmonology department of Ivano-Frankivsk regional center of phthisiology and pulmonology. The average age of women was (58,5±2,8 years) and men - (54,7±3,1 years).

Results: The level of FEV1 on average was $61,2\pm4,2\%$ in women, and $-58,4\pm3,9\%$ (p> 0.05) in men. Index of breathlessness on a MMRC scale in women was $3,6\pm0,4$, and $2,9\pm0,4$ - in men. Thus, exploring the clinical course of 2nd stage of COPD among women and men aged 50 to 60 years, we can say that, despite the almost identical clinical manifestations of disease, there is a greater severity of breathlessness on a MMRC scale in women as in men.

Conclusion: The clinical course of COPD in women compared with men characterized with more severe shortness of breath on a MMRC scale with less ventilation violations, according to spirometry.

P3441

Is high level of IgE an additional problem in smoking patients with severe and very severe chronic obstructive pulmonary disease (COPD)?

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Smoking is one of the greatest risk factors of COPD and it increases the risk of allergic sensibilisation.

The aim of the study was to estimate the level of IgE and its possible connection with the spirometric parameters and sensibilisation to allergens in smoking patients with severe and very severe COPD and great length of smoking.

Methods: The 30 patients with very severe COPD were enrolled. It was estimated smoking status, body mass index (BMI), spirometric parameters (forced vital capacity (FVC), forced expired volume in 1 second (FEV1)) and level of total IgE. The skin prick test with local significant allergens (home dust, pollen of ambrosia, birch, fur of cat) was performed to patients with increased level of IgE.

Results: The length of smoking was $28,5\pm6.8$ pack-years. BMI was $26,9\pm2.5$ kg/m². FEV1=41,5±8,9%, FVC=44,9±7,7%. The 24 patients had increased level of IgE (329,5±45,2 IU/l vs normal range is 0-87 IU/l). The 16 patients had sensibilisation to home dust and the 3 patients had sensibilisation to fur of cat. These patients also had periodically rash, itch, but they believed that symptoms are connected with COPD and did not ask for medical help to allergist. There is a strict correlative connection between the level of the IgE and FEV1 (r=0,8). There is a faint connection between the level of the IgE and FEV1 (r=0,2). **Conclusions:** The smoking patients with very severe COPD has allergic constitution with increased IgE level and sensibilisation to different allergens. There is no significant connection between level of IgE and spirometric parameters. Allergic symptoms in this category of patients med for attention.

P3442

Quality of COPD diagnosis in Ukraine: A phone survey

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Background: Quality of COPD diagnosis remains poor in post-Soviet countries. There is limited information about beliefs and patterns of care of COPD in Ukrainian general practitioners (GP).

Aim: To explore the knowledge, beliefs and working stereotypes about diagnosis of COPD in Ukrainian GPs.

Methods: We performed a telephone survey of 85 GPs in Donetsk region, Ukraine. As indicators of quality of COPD diagnosis we used answers on these questions: 1) "How many of COPD patients in your practice are both > 40 years old and smokers > 10 pack-years?" (correct was considered 80% and more); 2) "How many of COPD patients in your practice needed spirometry (SM) to confirm the diagnosis?" (correct was considered 100%); 3) "And how many of them actually had SM performed?"

Results: Just 43 of 85 (50,6%) GPs demonstrated reliable knowledge of dominant COPD risk factors (age and smoking history). Two GPs could not answer the first question. Seventy two of 85 (71,8%) GPs considered SM essential to confirm

diagnosis of COPD. Fourteen of 85 (16,4%) GPs deem that just less than half of COPD patients need SM to be performed. One physician (1,2%) did not know what SM is, and one considered it was suitable just in persons less than 60 years old. In real life setting confirmation by SM of COPD diagnosis in all patients perform 37.6% (32 of 85) GPs. Almost half of doctors (44,7%) really perform SM less than in 50% COPD patients. All indicators of sufficient quality of COPD diagnosis (knowledge of risk factors, knowledge of importance of SM and real use of SM) were present just in 20% (17 of 85) GPs.

Conclusions: Quality of COPD diagnosis in is very poor. Just 20% of GPs demonstrate adequate knowledge and practice in correct COPD diagnosis.

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COPD severity and health impact across the current CanCOLD population

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Introduction: Based on the observation that COPD prevalence from COLD is 4-fold higher than previous estimates, CanCOLD (Canadian Cohort Obstructive Lung disease) has been built to better characterize COPD subject phenotypes. **Objective:** To determine in a random population sampling of non institutionalized adults aged ≥ 40 years the severity of COPD detected with spirometry and the impact on health.

Methods: CanCOLD is a prospective longitudinal cohort study (9 sites), tracking 1800 subjects with assessment at baseline, 18 and 36 months. CanCOLD sampling is based on the selection and contact of COPD subjects from the prevalence study COLD. Then matched non-COPD peers are selected/contacted. Measurements are in 5 categories: questionnaires (SF-36, SGRQ and CAT); pulmoary function and exercise tests; Chest CT scan; blood tests; and administrative databases.

Results: More than 25% (>400 subjects) recruitment is accomplished. There was no difference of the SF-36 scores for GOLD2+, GOLD1, at risk and healthy subjects. GOLD1 reported similar health status than at risk (SGRQ, CAT) and healthy subjects (CAT). GOLD2+ reported worsening health status compared to GOLD1, at risk (SGRQ, CAT) and healthy subjects (CAT). In subjects started by their physicians on any respiratory medication, the CAT scores [mean (SD)] were 12.9 (8.2), 9.9 (5.5), 7.5 (5.4) and 7.1 (5.3) for GOLD2+, GOLD1, at risk and healthy, and for those not on respiratory medication 7.9 (5.5), 5.3 (5.0), 5.7 (5.4) and 5.8 (3.9). Similar results were found with SGRQ.

Conclusions: Clusters based on CAT and SGRQ can be of interest to phenotype COPD subjects in the population.

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Prevalence and impact of unrecognized COPD on elective surgery

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Surgery patients with COPD have more episodes of post op bronchitis, pneumonia and longer length of stays (Manganas H 2007). NHANES data shows that less than 50% of patients with COPD are recognized. It is assumed that unrecognized COPD is less severe and therefore does not significantly affect perioperative morbidity. We aimed to determine the prevalence and effect of undiagnosed COPD on perioperative morbidity measured by hospital length of stay (LOS), in a population selected for COPD risk.

Spirometry was performed in an at risk population (≥ 40 y.o. with a smoking history ≥ 20 pack-years) scheduled for elective surgery, during preoperative assessment (Ohar J 2011). Obstruction was defined by an FEV1/FVC < 70%. Of the 199 subjects tested, 79 (40%) met spirometric criteria for obstruction. Only 9 of the 79 (11%) were previously recognized. Subjects with previously recognized COPD were older (75±8 v. 66±10 y.o.; p<0.05), smoked more (90±51 v. 49±20 pack-years; p<0.0001) and had more severe obstruction (50±26 v. 69±17% predicted; p<0.01) than did those with previously unrecognized COPD, respectively.

Despite the significant differences in previously recognized and unrecognized COPD, there was no difference between the two in LOS (1.8 ± 2.3 v. 1.9 ± 3.1 days; p=0.09). LOS adjusted for procedure (actual/expected LOS) was also not significantly different (0.69 ± 0.43 and 0.99 ± 1.14 for recognized and unrecognized COPD, respectively; p=0.45).

Conclusion: The prevalence of unrecognized COPD among surgical patients is quite high and it appears to affect perioperative morbidity similarly to previously recognized COPD. The data suggests that spirometric testing of an at risk population for COPD may have value in preoperative assessment.

P3445

Clinical and functional characteristics of Italian and Spanish patients with alpha 1-antitrypsin deficiency

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Alpha-1 antitrypsin deficiency (AATD) is a rare genetic condition associated with pulmonary disease, for which national and international registries play a crucial role.

Methods: With the aim of providing a clinically better characterisation of AADT patients, we conducted an observational cross sectional study on adult patients affected by severe AATD enrolled in the Spanish and Italian national registries. Results: We assessed 745 subjects, 416 enrolled in the Spanish and 329 in the Italian Registries with a mean age of 49.9 years (SD=13.8). The 57.2% of subjects were male and the 64.9% smokers or former smokers. The majority were index cases (81.2%), mostly with PI*ZZ genotype (73.4%), the mean diagnostic delay was 9 years (SD=12.1). Compared with PI*ZZ (n=547), PI*SZ (n=124) subjects had an older age at diagnosis and better preserved lung function despite a higher mean smoking consumption. Characteristics of PI*ZZ patients with chronic obstructive pulmonary disease (COPD) (n=412) were compared according to GOLD severity stages. Mean age was similar in GOLD I, III and IV, but subjects in GOLD II were older. In GOLD I women and non-index cases were prevailing. The rate of never smokers significantly decreased when severity of COPD increased. Augmentation therapy was administered to 19% of GOLD I, 48% of GOLD II, 59% of GOLD III and 51% of GOLD IV patients.

Conclusions: Early diagnosis of AATD is still an unmet need. PI*ZZ patients in both registries had more severe respiratory disease than PI*SZ, despite less smoking consumption. Augmentation therapy is provided to similar proportions of patients with all degrees of severity of airflow obstruction from GOLD II to IV.

P3446

Bacterial airway colonization is not associated with increased procalcitonin in stable COPD

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Background: Bacterial colonization of the airways hampers the utility of sputum microbiology at exacerbation of COPD. We hypothesize that, in contrast to exacerbation, circulating procalcitonin remains low in bacterial colonization in patients with stable COPD.

Methods: We prospectively evaluated 638 patients with stable COPD for ≥ 6 weeks, > 10 PY and GOLD II-IV seeking care in pulmonary tertiary hospitals in 8 European countries and included in the PROMISE cohort. Median observation time was 24 months.

Results: There were 393 patients (61.6%) reporting sputum production and 88 (22.4%) sputum purulence. At baseline, 251 (39.2%) provided sputum for analysis. Bacterial cultures of good quality sputum (n=183) grew potentially pathogenic bacteria in 55 cases (30.1%). The most common isolated pathogens were Pseudomonas aeruginosa (n=18), followed by Haemophilus influenzae (n=14), Streptococcus pneumoniae (n=11), Moraxella catarrhalis and Enterobacter species (n=10 each). As compared with those presenting negative sputum results, patients with positive sputum bacteriology were significantly older (p<0.001) but had a similar FEV1% pred (p=0.077), health-related QoL (p=0.174), MMRC scores (p=0.407) and 6MWD (p=0.672). Likewise, the exacerbation rate (p=0.918), severe exacerbation-rate (p=0.272) and survival (p=0.824) were comparable. Circulating

procalcitonin values in patients with positive, negative and not available sputum cultures were similar (median 95% CI 0.080[0.069-0.094] vs. 0.076[0.064-0.091] vs. 0.080[0.066-0.100], p= 0.312).

Conclusion: In contrast to acute exacerbation of COPD, procalcitonin values remain low in chronic bacterial airway colonization in stable COPD.

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Air travel and COPD: A new algorithm for pre-flight evaluation

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The reduced pressure in the aircraft cabin may cause significant hypoxaemia and respiratory distress in patients with COPD. Simple and reliable methods for predicting need for supplemental oxygen during air travel have been requested. **Objective:** To construct a pre-flight evaluation algorithm for COPD patients.

Methods: In this prospective, cross-sectional study of 100 COPD patients, sea level pulse oximetry at rest (SpO_{2 SL}) and exercise desaturation (SpO_{2 6MWT}) were used to evaluate whether the patient a) is fit to fly without further assessment, b) needs further evaluation with hypoxia-altitude simulation test (HAST) or c) should receive in-flight supplemental oxygen without further evaluation. HAST was used as reference method.

Results: An algorithm was constructed using a combination of SpO_{2 SL} and SpO_{2 6MWT}. Categories for SpO_{2 SL}: >95%, 92-95%, and <92%, the cut-off value for SpO_{2 6MWT} was calculated to 84%. Arterial oxygen pressure <6.6 kPa was the criterion for recommending supplemental oxygen. When validated on a separate group of 50 COPD patients, this algorithm had a sensitivity of 100% and a specificity of 80%.



Patients with SpO_{2 SL} >95% combined with SpO_{2 6MWT} \geq 84% may travel by air without further assessment. Supplemental oxygen is recommended if SpO_{2 SL} 92-95% combined with SpO_{2 6MWT} <84%, or if SpO_{2 SL} <92%. Otherwise, HAST should be performed.

Conclusions: The algorithm is a simple tool for pre-flight evaluation of COPD patients.

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Indications of small airways disease in healthy smokers

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It has been well established that small airways disease is a risk factor for COPD development. Cigarette smoking is the main risk factor for COPD development. We investigated whether smokers, without COPD and an FEV₁ >80%pred, have indications of small airways involvement.

Healthy smokers and non-smokers (asymptomatic, $FEV_1 > 80\%$ pred, $FEV_1/FVC > 70\%$) were included. We performed spirometry, body plethysmography, and impulse oscillometry (IOS) in all subjects. Smokers were compared to non-smokers using Student's t- or Mann Whitney U test.

56 non-smokers (28 \leq 40 years and 28 >40 years old) and 54 smokers (26 \leq 40 years and 28 >40 years old) were included. Large airways parameters were comparable between smokers and non-smokers. In contrast, small airways parameters differed between smokers and non-smokers. Smokers had a lower FEF_{25.75} %pred than non-smokers. Furthermore, smokers had a higher R5-20 (difference between the resistance at 5Hz and 20Hz), a higher reactance area (AX) and a higher resonance frequency (Rf) than non-smokers. In addition, smokers \leq 40 years had a higher R5-20, AX and Rf than non-smokers. No differences in RV or RV/TLC were found between smokers and non-smokers.

Table 1: Differences between smokers and non-smokers

	Non-smokers		Smokers		p-value
		n=56		n=54	
Age	41.6	(21.4 – 57.6)	41.0	(23.2 – 51.3)	
Males (n,%)	31	(55)	31	(57)	
packyears	0		14.2	(2.9 – 27.8)	
FEV ₁ (L)	3.8	(3.1 - 4.5)	3.6	(3.2 – 4.5)	0.60
FEV ₁ %predicted	107.5	(100.3 - 114.0)	103.0	(96.3 - 112.0)	0.13
FEV ₁ /FVC (L)	78.6	(75.1 - 83.7)	77.9	(73.8 – 82.9)	0.26
FEF ₂₅₋₇₅ (L/S)	3.7	(2.7 – 4.3)	3.3	(2.5 – 4.3)	0.36
FEF ₂₅₋₇₅ %predicted	88.0	(74.8 – 99.0)	78.0	(68.5 - 94.0)	0.03
R ₅ (kPa/L/s)	0.28	(0.24 - 0.34)	0.32	(0.26 - 0.38)	0.02
R ₂₀ (kPa/L/s)	0.27	(0.22 - 0.31)	0.30	(0.22 - 0.34)	0.20
R ₅₋₂₀ (kPa/L/s)	0.02	(0.00 - 0.04)	0.03	(0.01 - 0.08)	0.02
X ₅ (kPa/L/s)	-0.07	(-0.090.05)	-0.08	(-0.110.06)	0.10
AX (kPa/L)	0.14	(0.07 - 0.19)	0.19	(0.10 - 0.38)	<0.01
Resonance frequency (Hz)	9.5	(7.8 - 10.7)	10.4	(8.8 - 14.0)	0.01
RV %predicted *	97.3	(20.7)	93.7	(15.3)	0.31
RV/TLC (%) *	27.4	(6.3)	26.2	(5.7)	0.29
Alveolar NO (ppb)	4.2	(3.1-5.4)	4.7	(3.2 - 5.6)	0.66
Bronchial NO flux (nl/s)	0.55	(0.39 - 0.72)	0.36	(0.18 - 0.53)	< 0.01

Data are median (interquartile range) and differences tested with Mann-Whitney U test, unless stated otherwise. * median (SD), differences tested with Student's t-test

We demonstrate changes in small airways parameters in smokers with normal lung function. These changes are already present in smokers \leq 40 years old. Whether this small airways disease in young smokers is a first step in COPD development, remains to be elucidated in further studies.

P3449

Usefulness of COPD assessment test (CAT $^{\rm TM}$) for the management of COPD according to GOLD 2011

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Background: The GOLD report (2011) proposes a new strategy for the management of stable COPD-the use of the CAT score. Is a CAT score ≥ 10 a useful borderline value for disease severity in a Japanese cohort?

Purpose: To determine the association between the CAT score of patients, and prior exacerbation frequency and usage of medical resources.

Method: A total of 180 patients recruited from a secondary COPD clinic. The CAT score was examined under stable conditions at least four weeks after any exacerbations. We investigated the association between the CAT score and various clinical parameters, including pulmonary function tests, 6-minute walking distance (6MWD), the St George's Respiratory Questionnaire (SGRQ), the Hospital Anxiety and Depression score (HAD), a multidimensional assessment system (BODE index), exacerbation rate of the previous year, and the use of resources such as unscheduled visits and long-term oxygen therapy (LTOT).

Results: The mean age was 71.9, and %FEV₁ was 59.3%. The CAT score was significantly associated with following parameters: %FEV₁ (ρ -0.42, p < 0.001), 6MWD (ρ -0.26, p < 0.001), total SGRQ score (ρ 0.74, p < 0.001), HAD-depression (ρ 0.40, p < 0.001), HAD-anxiety (ρ 0.32, p < 0.001), and BODE index (ρ 0.46, p < 0.001). The patients with CAT score≥10 was significantly associated with prescribed LTOT (p<0.001), frequent unscheduled visit (p=0.019), and frequent exacerbation of previous 1-year (p=0.006), but the subjects with CAT score≥20 was not associated with exacerbation frequency.

Conclusions: We concluded that a CAT score ≥ 10 can be considered a reasonable borderline value for exacerbation frequency and usage of medical resources in a Japanese cohort.

P3450

COPD assessment test (CAT) in the evaluation of COPD

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Objective: To evaluate the correlation of CAT with other specific questionnaires and with clinical/functional parameters.

Methods: A prospective study analyzing DOSE, BODE and BODEX index, GOLD stage, quality of life questionnaires (SGRQ, CRQ and CAT) and number of exacerbations-year (no. ex-years), dividing patients into non-exacerbator (<2 exacerbations in the last year) and exacerbator (\geq 2) were done.

Results: No differences in general variables were found. Analyzing the correlation between CAT and CRC/SGRG we found a significant correlation (CAT/SGRQ r=0.70; CAT/CRC r=-0.66, p<0.001). The relationship of the questionnaires

vs clinical/functional outcome is reflected in the table, where rates are moderate correlation with CAT, although improved with respect to SGRQ and CRQ, except in GOLD stages.

Table 1. Correlation between the different quality of life questionnaires and clinical and functional parameters

n=34	VEF1	GOLD	BODE	BODEx	DOSE	No. ex-year
CAT	-0,21	0,44*	0,30	0,35	0,25	0,21
SGRQ	-0,77	0,30	0,42*	0,40*	0,34	0,37*
CRQ	0,29	-0,29	-0,52*	-0,57*	-0,50*	-0,34
*p<0.05.						

No significant differences between stages of severity or prognosis and scores on CAT, except for GOLD stages, were found.



Figure 1. Relationship between CAT and clinical-prosnostic parameters.

Conclusions: 1. Correlation of CAT with other quality of life questionnaires is moderate. 2. SGRQ and CRQ appreciate better clinical and prognostic variables. While CAT is more easily applied in daily practice, does not discriminate between different situations or serious prognosis, except in extreme stages of GOLD.

P3451

Relationship between COPD assessment test (CAT) and declines of lung function in COPD patients

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Background: COPD assessment test (CAT) is a recently developed questionnaires used for assessing and monitoring chronic obstructive pulmonary disease (COPD). However, the relationship with CAT score and the other clinical parameters of COPD are not well determined yet. In this study, we aimed to investigate if CAT score is associated with the measures of clinical courses such as annual decline of lung function and acute exacerbation of COPD.

Methods: We enrolled the patients with COPD, who were followed for more than two years. CAT and St. George Respiratory Questionnaire (SGRQ) were performed and information of clinical parameters of COPD was collected in a retrospective manner.

Results: A total of 77 patients with COPD were recruited. CAT score showed a fair correlation with SGRQ score (r=0.429, P<0.001) and FEV₁ (r=-0.231, P=0.02). Higher CAT score was significantly associated with more rapid decline of FEV1 over 2 years (P=0.02) and acute exacerbation of COPD (P=0.002)

Conclusion: CAT score showed good relationship with various clinical parameters of COPD, including FEV1, acute exacerbation and deterioration of lung function. These findings suggest that CAT reflects various features of COPD and could be used more widely in assessing and monitoring of COPD.

P3452

Evaluation of the quality of life with COPD assessment test

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Background: COPD Assessment Test (CAT) is a short, simple questionnaire for assessing and monitoring chronic obstructive pulmonary disease (COPD) patients. It was demonstrated that it has good measurement properties, is sensitive to differences in state and should provide a valid, reliable and standardised measure of COPD health status.

The aim of this study was to investigate the factors that can predict HRQL in patients with COPD.

Methods: 60 consecutive COPD patients were enrolled into the study. We analyzed age, gender, anthropometric, pack years, spirometric data (FEV1, FVC, FEV1/FVC), BODE index (BMI, FEV1, MRC, 6 MWD). Health-related quality of life was assessed by the CAT and the St. George Respiratory Questionnaire (SGRQ).

Results: 60 COPD patients were studied, mean age was 60.2 ± 7.5 years, mean FEV1, % was 34.6 ± 11.3 %. Patients across all stages GOLD/ATS/ERS classification had similar age and pack/years (p>0.01). Pearson correlation coefficient analysis demonstrates in COPD patients a significant positive correlation between the CAT and the total score of the SGRQ (r=0.59, p<0.01). Also correlations between CAT and MRC score are significant (r=0.48, p<0.01). CAT score correlated negatively with 6 MWD (r = -0.52, p<0.01). The forward stepwise regression analysis shows that the age, dyspnoea and oxygen saturation are important predictors of HRQL in COPD patients which explains 58% of the CAT score.

Conclusion: COPD Assessment Test is a useful instrument to assess disease impact in COPD. Age, dyspnoea and oxygen saturation in patients with COPD are independent risk factors for worsening of HRQL.

P3453

COPD care and management at nurse-led COPD-clinics in Swedish primary health care: A literature review

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Aim: The aim was to describe evidence-based knowledge regarding care and management of patients at nurse-led COPD-clinics in Swedish primary health care.

Method: A literature review included ten studies, three qualitative, six quantitative and one both qualitative and quantitative. The search was carried out in Pub Med/MEDLINE and CINAHL between year 1999 and 2012 with the search-words: COPD, nurse-led clinics, patient education, primary healthcare, quality of life, self management, smoking cessation and Sweden.Two reviewers rated independently and extracted data from the articles.

Results: At nurse-led COPD-clinics in Swedish primary health care, nurses ran structured investigations including measurements according to medical guidelines, and gave information about self-management and smoking cessation. The COPD-clinics allotted sufficient time according to the guidelines: when the nurse had been trained in COPD care, more patients were diagnosed with COPD and fewer exacerbations were noted among COPD-patients. If structured programs for smoking cessation and/or self-management were used, an increased number of patients stopped smoking and patients' quality of life was improved. COPD nurses showed shortcomings in self-management and smoking cessation concerning individualized care, the involvement of patients in shared understanding and responsibility and motivational dialogue.

Conclusion: Structured self-management and smoking cessation programs were effective and improved patients' quality of life. For COPD-nurses and COPD-clinics to reach their full potential, more teamwork and training for the nurses in self-management education and smoking cessation are needed.

P3454

Significance of physician judged chronic bronchitis versus emphysema

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Background: Prior data suggest chronic bronchitic symptoms in COPD are associated with poorer outcomes, but symptoms of cough and sputum are difficult to quantify. The goal of this analysis is to determine the significance of physician judged chronic bronchitis versus emphysema.

Methods: Data from the placebo arms of two, one-year phase III studies of roflumilast (M2-111 & M2-112) in COPD were used to compare baseline characteristics between subjects with physician-judged emphysema vs either chronic bronchitis & combined chronic bronchitis and emphysema (CB). Cough and sputum were graded as 0 none, 1 mild, 2 moderate and 3 severe.

Results: Of 1,260 subjects, 413 (32.8%) had emphysema and 847 (67.2%) had CB. CB subjects had higher FEV1% predicted, 38.0 vs 34.6 (p<0.001)and more prevalent current smoking, 42.4% vs. 31.2% (p=0.0001). Baseline SGRQ total

and symptom scores were similar between CB and emphysema patients, 49.5 vs. 48.7 (p=0.46) and 56.1 vs. 53.7 (p=0.06) respectively, but SGRQ activity and impacts scores were higher in CB subjects, 64.2 vs. 67.2 (p=0.01) and 39.0 vs. 36.2 (p=0.02) respectively. In adjusted analyses, CB was not associated with more frequent exacerbations, 1.12, p=0.26. Cough and sputum scores are outlined in Table 1.

Table 1. Cough and Sputum Scores

	Chronic Bronchitis	Emphysema	P-value
Mean cough score	1.20	0.98	< 0.0001
Cough score ≥ 2	193 (22.8%)	58 (14.0%)	0.0003
Mean sputum score	1.05	1.12	0.11
Sputum score ≥ 2	160 (18.9%)	87 (21.1%)	0.36

Conclusions: Physicians distinguished between subjects with CB who despite better FEV1, had worse SGRQ activity and impacts scores than emphysema subjects. However, subjects with physician identified CB actually differed on baseline cough but not sputum scores.

P3455

Predictors of mortality in a well-characterised group of patients with COPD Saher B. Shaker, Asger Dirksen. Dept. of Respiratory Medicine, Gentofte University Hospital, Copenhagen, Denmark

Background: COPD is a leading cause of mortality worldwide with an increasing incidence.

Objective: To identify clinical, physiological and radiological predictors of mortality in a well-characterised group of patients with COPD.

Material & methods: Patients who participated in 3 clinical trials were included in this study. In these trials, patients were evaluated with clinical data, lung function tests and quantitative computed tomography (relative area of emphysema < -910 HU [RA-910]). The date and cause of mortality were reported during 10 years, and the data of those who were still living by February 1st 2012 were censored at this time point. Data were analysed using Cox proportional hazard regression model first in a univariate model then in a stepwise multiple regression model.

Results: Data from 208 patients with moderate to severe COPD were available. A total of 104 patients died. The median survival time was 10.4 yrs (95% C.I. 9.4- ∞). Age, packyears, FEV₁, DL_{CO} and RA-910 were significant predictors of mortality in a univariate model. In a multivariate model with a stepwise selection, age (p=0.005), packyears (p=0.02) and RA-910 (p=0.017) emerged as the significant predictors of mortality, whereas FEV₁ (p=0.05) and DL_{CO} (p=0.14) did not reach statistical significance.

Conclusion: In this population of smokers with moderate to severe COPD, age, packyears and the degree of emphysema on CT as RA-910 were the most important predictors of mortality.

P3456

Epidemiology of the "chronic bronchitis" phenotype of COPD-patients in Belgium and Luxembourg

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Background: Epidemiologic studies indicate that the chronic bronchitis phenotype (CB) in COPD is associated with increased mortality, frequent exacerbations and disease progression.

Aims and objectives: To investigate the prevalence of CB in a large cohort of COPD patients and identify features associated with CB.

Methods: Cross-sectional analysis of a multicenter cohort of COPD patients from Belgium and Luxembourg. The cohort comprised 974 patients (67.8±9.6 years; 72% males, FEV1 52.5±15.8% predicted).

Results: The prevalence of CB was 64% (622/974). Between groups (CB vs no CB), no significant difference was observed for age, sex, smoking habit and prevalence of most comorbidities. However prevalence of cachexia and skeletal muscle wasting were higher in CB. The number of pack years was higher, and both FEV1% predicted and body mass index were lower in CB. The proportion of patients with CB increased with GOLD stage and was higher in emphysema phenotype and patients exposed to occupational risk factors. Patients with CB had increased numbers of mild (0.7±1.9 vs 0.3±0.9; p = 0.002), moderate (1.1±1.4 vs 0.5±0.9; p < 0.0001) and severe (0.3±0.8 vs 0.2±0.6; p=0.0185) exacerbations per patient per year. Frequent (moderate to severe) exacerbations (two or more per patient per year) occurred more frequently in patients with CB (62.7% vs 14.2% of patients; p < 0.0001).

Conclusions: Prevalence of CB is high in COPD and increases with disease severity. CB is associated with occupational risk factors, occurrence of mild, moderate and severe exacerbations, frequent moderate or severe COPD exacerbations, and systemic co-morbidities such as cachexia and skeletal muscle wasting.

P3457 An old disease from a new perspective – GOLD 2011 recommendations for COPD

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The GOLD 2011 recommendations for chronic obstructive pulmonary disease (COPD) introduce a new classification system to optimize treatment in individual patients. Except for FEV_1 , this classification incorporates dyspnea severity or the CAT score and the number of exacerbations.

The aim of our study was to compare the GOLD 2010 and 2011 COPD classification.

The study group consisted of 128 patients. Based on the post-bronchodilator FEV_1 only, as recommended in the GOLD 2010 report, there were 21 patients in stage I, 53 patients in II, 35 in III and 19 in IV, respectively. In all patients, the number of exacerbations per year was noted and dyspnea was assessed with the modified MRC scale. The patients were subsequently graded to group A,B,C, D as proposed in the combined COPD assessment in GOLD 2011.

Patients characteristic

	n	mMRC 0-1/≥2	Number of exacerbation 0−1/≥2
GOLD I	21	12/9	19/2
GOLD II	53	21/31	40/13
GOLD III	35	8/27	14/21
GOLD IV	19	0/19	9/10

We had problems with grading of 37 (28.9%) patients according to the GOLD 2011 criteria; there were 14 patients in GOLD stage I/II with \geq 2 exacerbations per year and 23 patients in GOLD stage III/IV with < 2 exacerbations per year.

Patients classification with the GOLD 2011 staging system

GOLD 2011	n	GOLD 2010 (%): I / II / III / IV	
A	28	39.2 / 60.8 / 0 / 0	
В	29	31/69/0/0	
С	14	7.2 / 35.7 / 57.1 / 0	
D	57	1.8 / 17.5 / 47.4 / 33.3	

We conclude that despite the fact that the new GOLD 2011 combined assessment is aimed at optimizing therapy, in clinical practice, there may be problems with patient classification. This especially concerns patients with mild/moderate airflow limitation and frequent exacerbations and those with severe airway obstruction without frequent exacerbations.

P3458

42.7017

44.9255

Quantification of elastin fibre remodelling in COPD using probe-based confocal laser endomicroscopy (pCLE) $% \left(p_{1}^{2}\right) =\left(p_{1}^{2}\right) \left(p_{1}^{2}\right)$

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COPD causes disruption of alveolar elastin and probable disruption of the elastin in the airway wall. pCLE can be used during bronchoscopy to image the elastin structure. A method for the automatic assessment of the directional distribution of the elastin fibres is presented. The structural disorder caused by the remodelling process can then be objectively quantified. Figure 1 shows examples of the analysis





Figure 2

output, with detected elastin fibres in green, showing greater disorder in the case of mild COPD.

Figure 2 shows example histograms of the direction of the elastin fibres, showing a clear broadening of the histogram between health and COPD.

Initial results from 8 subjects, 4 healthy and 4 mild COPD (Table 1) demonstrate the difference is significant (independent t-test, p=0.0363).

These initial results suggest that this technique has potential as an objective, in vivo measure of elastin remodelling in the airways.

55.0636

50.3647