105. COPD epidemiology

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Clinical profile of adult patients with invasive pneumococcal disease (IPD) during a 3 year surveillance in Belgium
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Objectives: A 3 year prospective surveillance program on invasive pneumococcal disease (IPD) in Belgium provided data for 1332 patients. The data were analyzed to identify the clinical presentation and profile of patients hospitalized with IPD.

Methods: Prospective, active surveillance of IPD in hospitalized adults. Isolation of S. pneumoniae from culture of a normally sterile site by hospital microbiological laboratories. Fifty hospitals (44% of acute hospitals) participated in the surveillance network.

Results: In 2009, only patients older than 50 y with IPD were targeted. In 2010 and 2011 the study was extended to adults from 18 y. A total of 1875 patients were included and of these, 1332 patients were evaluable.

76.5% of patients had 1 or more underlying diseases. The presence of comorbidities increased by age range from 53.6% in 18-49 y, 74.1% in 50-64 y and 84.5% in 65+. The average number of comorbidities increased with age from 0.7 in 18-49 to 1.8 in 65+.

The most frequent underlying diseases were COPD (25.2%), cancer (22.3%), heart failure (18.7%) and renal insufficiency (13.4%).

The mortality rate increased with the presence of comorbidities from 9.3% to 17.6% (p < 0.0001). The presence of heart failure, renal insufficiency, hepatic disease and alcoholism significantly increased mortality, whereas COPD, cancer, HIV, immunosuppression did not increase mortality.

Conclusion: Underlying diseases are present in 8/10 patients with invasive pneumococcal disease and their presence increases the mortality rate.

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Prevalence of chronic obstructive pulmonary disease (COPD) in a general population in Norway
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Introduction: The prevalence of Chronic Obstructive Pulmonary Disease (COPD) is increasing worldwide. There is need for regularly updated estimates to better monitor the burden of disease.

Objectives: To present updated prevalence estimates and risk factors of Global Initiative for Obstructive Lung Disease (GOLD) defined COPD in a general adult population.

Methods: In the Hordaland County Cohort Study (HCCS), 1664 subjects aged 35-90 yrs answered questionnaires and performed spirometry in 2003-05. The prevalence of COPD was calculated using mean estimates, and risk factors for COPD were analysed using logistic regression.

Results: In a previous study phase, prevalence of GOLD-defined COPD was 7%. Nine years later, the prevalence was 14%. A vast majority (70%) of the subjects experienced one or more respiratory symptoms, but only 1 out of 4 had a physician’s diagnosis. As many as 1 out of 5 current smokers suffered from COPD, while approximately 1 out of 20 never-smokers had COPD. Significant risk factors for COPD were sex, age, smoking habits, pack-years and occupational exposure. Men had 1.7 (OR, 95% CI 1.2, 2.3) higher odds of COPD than women. Subjects older than 65yrs had 10.3 (OR, 95% CI 6.4, 16.5) times higher odds for COPD than subjects younger than 64yrs. Those who smoked more than 20 pack-years had 4.2 (OR, 95% CI 2.6, 6.7) times higher odds for COPD than subjects smoking less than 10 pack-years.

Conclusion: The prevalence of GOLD defined COPD had increased substantially, from 7% to 14%, during the last 9 years. There is still a large amount of under diagnosis in COPD, which indicates that the awareness of the disease including better diagnostic routines is needed.
Prevalence of respiratory symptoms and airflow obstruction in a nationally representative random sample in England

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Aims and objectives:
- The purpose of this study was to evaluate the influence of the region (mainland versus detached island) on the general population’s smoking habits and the prevalence of COPD or respiratory function. A general population of 5221 subjects was targeted.

Methods:
- All of the candidates’ health survey items (age, sex, body composition, smoking habit, Brinkman Index, respiratory function and COPD disease) were investigated. Candidates were classified into a mainland group and a detached island group according to the location of the institution that performed their medical checkup, and each health survey item and respiratory function parameter were compared.
- The prevalence of COPD, chronic obstructive pulmonary disease (COPD) patients with documented CAT, mMRC, FEV1 and FEV1/FVC ratio were inversely associated with income. FEV1/FVC was below 5th centile (indicating probable airflow limitation) in 8% of men and women: only a quarter of these had been told they had chronic bronchitis, emphysema, or COPD, compared with GP half of these scored 3-5. 4% of men and 5% of women had ever been told by a doctor that they had chronic bronchitis, emphysema, or COPD. Failure to diagnose COPD early matters because it adversely affects outcomes and quality of life. To tackle this, a National Outcomes Strategy for COPD and Asthma has been launched to promote lung health awareness, earlier diagnosis and proactive disease management.

Conclusion:
- The prevalence of COPD is high worldwide. It has been reported that the prevalence rate of subjects aged 40 years and over is about 8.6% in Japan. However, no reports have examined the prevalence of COPD by region, such as whether there are differences in subjects living in urban areas, or on a detached island.

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Epidemiologic cross-sectional study on 539 workers Constantin Ha"{a}{}b, dumpsters (50/120) vs 27.7% (50/180), P < 0.001). Never smokers made up to 40% (120/300) of all COPD cases: 78% (70/90) of all GOLD stage II cases, 45.5% (50/110) of all GOLD stage III cases. Among never smokers, 58.3% (70/120) fulfilled the criteria for GOLD stage II and 41.7% (50/120) fulfilled the criteria for GOLD stage III and no patients fulfilled the criteria of either GOLD stage III or IV. Never smokers were shown to have more occupational exposure to organic and inorganic dust and irritant gases at work place [41.7% (50/120) vs 27.7% (50/180), P < 0.05], more biomass exposure [41.7% (50/120) vs 3.9% (7/180), P < 0.01], less education [41.7% (50/120) vs 72.2% (130/180), P < 0.001], more exposure to passive smoking [75% (90/120) vs 22.2% (40/180), P < 0.001].

Conclusions: Never smokers still constitute a significant proportion of the Egyptian COPD patients.

P983 Profiling dyspnoea in primary care patients with COPD
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Objectives: Identify descriptors of clinically significant dyspnoea in patients with Chronic Obstructive Pulmonary Disease (COPD).

Methods: A COPD cohort was identified in the UK General Practice Research Database (GPRD) using a record of COPD diagnosis between 2000 and 2008 and nearest recorded spirometry (FEV1/FVC <70%). Dyspnoea was identified using Medical Research Council (MRC) dyspnoea scale, recorded as a part of the Quality Outcomes Framework, during observation period, from the latter of April 2009 or cohort entry until censoring (earliest of death, transfer out of practice or follow-up end on March 31, 2011). The first MRC score recorded, within observation period, defined patients as (A) with (MRC ≥3) or (B) without (MRC <2) clinically significant dyspnoea; other MRC scores were collected on or before MRC score date. Stepwise multivariate logistic regression estimated independent associations with dyspnoea.

Results: 38,256 COPD patients with MRC dyspnoea score were identified: female (40.9%); 51% (65/127) were smoking; 50.8% (64/127) were exposed; 78.2% had normal spirometry; 17.4% obstructive dysfunction (OD), with low averages of FEV1, FEF50 (p < 0,01); 90.2% of dyspnoea patients were more likely to be women (41.7% vs 27.7% (50/180), P < 0.001), less education [41.7% (50/120) vs 72.2% (130/180), P < 0.001], more exposure to passive smoking [75% (90/120) vs 22.2% (40/180), P < 0.001].

Conclusions: Clinically significant dyspnoea (MRC ≥3) is prevalent in primary COPD patients and associated with markers of higher disease severity and increased risk of poorer outcomes.

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Aim: To determine the prevalence of cardiovascular diseases (CVDs) and cardiovascular mortality in patients with chronic obstructive pulmonary disease (COPD).

Material: COPD patients (n=3571) were checked if they had CVDs (CAD – coronary artery disease, HF - heart failure, AH - arterial hypertension, CCP – chronic cor pulmonale, CVD - cerebrovascular disease) and mortality. Of these, 2642 (74%) were male and 929 (26%) women, aged 65.4 (SD ± 9.7), and FEV1 < 50% (gr ± 20%)

Results: Among COPD patients 84.5% had CVDs: 59% (GOLD B), 74% (GOLD C), 86% (GOLD III) and 99% (GOLD IV) (p=0.35, p=0.001), OR=1,96. Correlation was found between age and prevalence of CVDs: 48.7% (40-49yrs), 71.6% (50-59yrs), 85% (60-69yrs) and 96.9% (>70yrs) (OR=9.38, p=0.0001).

Patients with COPD had a higher prevalence of CVDs and cardiovascular risk: CAD (66% OR=1.8), HF (74% OR=1.9), AH (45% OR=1.2), CCP (46% OR=3.8) and CVD (33.9% OR=1.6). In 33% of COPD deaths cardiovascular causes of death were found: 36.7% myocardial infarction, 33.3% pulmonary embolism, 12% HF and 18% of CVD.

Conclusions: The study found an increased risk of morbidity and mortality from cardiovascular diseases, especially in adult patients with severe COPD.
Prevalence of comorbidities in subjects with airflow obstruction in Japan
Hirotsugu Kohrogi, Wataru Miyazaki, Takahiko Kato, Tatsuya Ogata, Tohru Tsuda, Hirotsugu Kobriya

Background: COPD is one of the leading causes of mortality in Japan. Little is known about the prevalence of comorbid conditions in subjects with COPD in Japan.

Objective: The aim of this study was to examine the prevalence of comorbidities between subjects with and without airflow obstruction (AO).

Methods: This study included 19,340 subjects (11,549 men, 7,791 women), aged 16-96 years, who underwent spirometric lung function tests at a medical check-up held between April 2009 and March 2010 at the Japanese Red Cross Kumamoto Health Care Center, Kumamoto, Japan. Data on medical history and life style information was collected at the time of initial medical check-up using a means of interview questionnaires. All subjects were evaluated by a physician. AO was defined according to Global Institute for Chronic Obstructive Lung Disease (GOLD) criteria (FEV1/FVC<0.7).

Results: In logistic regression models adjusted for age, smoking and BMI, prevalence of subjects with diabetes (OR, 1.28; 95% CI, 0.95-1.73), hypertension (OR, 1.43; 95% CI, 1.15-1.79), diabetes (OR, 1.40; 95% CI, 1.05-1.86), asthma (OR, 3.22; 95% CI, 2.22-4.67) and lung cancer (OR, 4.52; 95% CI, 1.62-12.62) were significantly higher in subjects with AO compared to subjects without AO in male. In female, prevalence of subjects with hypertension (OR, 1.43; 95% CI, 1.15-1.79), diabetes (OR, 1.40; 95% CI, 1.05-1.86), asthma (OR, 3.22; 95% CI, 2.22-4.67) and lung cancer (OR, 4.52; 95% CI, 1.62-12.62) were significantly higher in subjects with AO compared to subjects without AO.

Conclusions: This study documented that numerous comorbidities are frequently associated with AO. Therefore, efforts toward earlier detection of AO and the identification of comorbidities may become an integral part of the core prevention of COPD.

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Conclusions: This study documented that numerous comorbidities are frequently associated with AO. Therefore, efforts toward earlier detection of AO and the identification of comorbidities may become an integral part of the core prevention of COPD.

Metallic and cardiovascular comorbidity in COPD patients classified using the GOLD 2011 assessment framework
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The GOLD guidelines 2011 proposed a new COPD assessment framework which considers current symptoms and future exacerbation risk of adverse events: A: less symptoms, low risk; B: more symptoms, low risk; C: less symptoms, high risk; D: more symptoms, high risk. This analysis examined comorbidity rates in patients classified using this method.

Data from 1041 EU COPD patients (93% from primary care) in the 2011 Adelphi Disease Specific Programme were used in which medical diagnosis of comorbidity was recorded. The GOLD groups were defined using the CAT ≥10 cut-point between patients with less and more symptoms.

One third (32.9%) of patients (mean age 64.9 years) had ≥2 exacerbations in the previous year. 79.5% had FEV1 <50%. The table shows the percentage of patients with metallic and cardiovascular comorbidities in each GOLD Group. Across the groups there was a significant difference in incidence of comorbidity, except for diagnosed coronary artery disease. With the exception of Group C, where there were too few patients for interpretation, there was a clear trend for higher comorbidity in patients with more symptoms and a higher risk of adverse events. The new GOLD classification identifies groups of patients with differing incidence of metabolic and cardiovascular comorbidity. This comorbidity rises with worsening GOLD Group, which has implications for clinical practice and an understanding of the pathobiology of the disease.

Conclusions: This study indicates that COPD stages are significantly associated with different kinds of comorbidities which need to be taken into account in disease management.
from drug claims register. Comorbidities were retrieved from index admission and admissions during 24 months before.

More than half of patients were men (53.9%), mean age was 74.6 years for men and 76.8 years for women. RF and O2 were the two factors detected more often (46.9% and 21.9%, respectively), with higher values in men (RF: 48.5%, O2: 24.5%). Most important comorbidities were hypertension (24.8%), diabetes (20.4%), ischemic heart disease (13.0%), heart failure (12.6%), arrhythmias (12.3%), pulmonary infections (10.3%), and cerebrovascular disease (9.5%), with higher prevalence in men for all but diabetes and hypertention.

Patients admitted for acute exacerbations are typically old and more often men. Almost half of patients are affected by respiratory failure, more than a fifth is treated with oxygen. Many patients suffer from cardiovascular disease or diabetes. Partially funded by National Medicines Agency; Prot. FARMISZBT93.

P992 Characteristics of COPD exacerbations in Greece
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Background: COPD is known to increase mortality in respiratory diseases, but is less known for its extra-pulmonary and lung cancer effect, particularly among nonsmokers.

Objectives: To assess the risks of COPD subjects among smokers and nonsmokers to quantify its mortality effect beyond the lungs.

Methods: The cohort consisted of 390,269 adults, between 1994 and 2008, underwent annual spirometry test and co-morbidity were recorded.

Results: Six thousand and fourteen patients were included in the study, 4360 (72.5%) males, age median (interquartile): 68 (60-75) yrs. Up to 47.8% of patients were current smokers. Median BMI was 27.5kg/m² (24-9.30). Two or more comorbidities were found in 55.8%. The vast majority of the patients (86.4%) were survivors receiving regular treatment for COPD before the exacerbation. The majority of patients (61%) were classified as moderate to severe COPD. About 1/3 (23.4%) of patients had hypoxemic respiratory failure and 10% of them developed hypercapnia during stable state. A remarkable percentage of patients (28.3%) experienced more than 3 exacerbations. Patients aged >76 yrs had increased number of exacerbations vs patients aged <60 yrs (p=0.03). Disease duration >5 yrs, COPD stages of 3 or 4, comorbidity and non compliance with treatment were associated with increased annual frequency of AECOPD. Increased disease duration (>11 yrs), COPD stage 4 and non compliant patients demonstrated increased OR for ICU admission (OR [95%CI]: 1.8 (1.2-2.81), p=0.018, 2.8 (1.4-5.5), p=0.002, 1.4 (1.0-2.0), p=0.043, respectively).

Conclusions: Our study showed that patients presenting AECOPD have a wide range of severity, while the exacerbation rate is associated with age, disease severity stage, comorbidity and compliance with regular treatment.

P993 Mortality risks of COPD for nonsmokers and smokers from a prospective cohort study of 390,269 subjects in Taiwan – Assessing involvement beyond the lungs
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Background: COPD is known to increase mortality in respiratory diseases, but is less known for its extra-pulmonary and lung cancer effect, particularly among nonsmokers.

Objectives: To assess the risks of COPD subjects among smokers and nonsmokers to quantify its mortality effect beyond the lungs.

Methods: The cohort consisted of 390,269 adults, between 1994 and 2008, went through a fee-for-service, standard panel of health screening program. COPD was defined by Gold criteria. Mortality and cancer incidence were identified in an average of 8.5 years of follow-up. Cox proportionate model was used to calculate the hazard ratios (HR).

Results: More men (4.8%) than women (3.8%) and more smokers (5.3%) than nonsmokers (3.7%) had COPD, with a mean age of 50. The excess all-cause mortality for smokers (HR: 2.51) was three times larger than nonsmokers (HR: 1.53), when compared to those without COPD. Not only smokers (4.5-fold) but also nonsmokers (1.4-fold) had lung cancer mortality significantly increased, implying the independent effect from COPD. Other than lung cancer and respiratory diseases, COPD had increased risks for CVD (HR: 1.76), including ischemic heart disease (HR: 1.63) and stroke (HR: 1.80), and kidney diseases (HR: 2.32). The extra-pulmonary causes constituted 77% for non-smokers and 58% for smokers.

Conclusion: Three quarters of the excess deaths among nonsmoking COPD subjects died from causes beyond the lungs. They had increases in stroke, heart, renal and infectious diseases, in addition to lung cancer. These extra-pulmonary risks, under-appreciated by clinicians and unaware of by the patients, are major challenges to overcome.