207. COPD: risk factors, biomarkers and diagnosis

1676 Respiratory health at the extremes of the ageing population: Initial results of the UK Newcastle 85+ study
Theresa Small1, Joanna Collerton2, Karen Davies2, Mohammed Yaqubfar2, Thomas Kirkwood3, Paul Corris3, Andrew Fisher3, Si William Lench Centre, Freeman Hospital, Newcastle upon Tyne, United Kingdom; 2Institute for Ageing and Health, Newcastle University, Newcastle upon Tyne, United Kingdom; 3Institute of Cellular Medicine, Newcastle University, Newcastle upon Tyne, United Kingdom

People aged 85+ years are demographically the fastest growing age group worldwide increasing the burden on healthcare resources. In the Newcastle 85+ study subjects born in 1921, recruited from the Newcastle area, underwent domiciliary health assessment, including respiratory history, symptoms, spirometry and review of general practitioners’ (GP) records. Exposure to ETS at home in combination with ETS at both current and previous workplace, 7 had COPD.

Methods: The current study used pooled data from the population based SAPALDIA and SALIA cohorts. Weight status was defined based on BMI at baseline and change in BMI. Pre-bronchodilator ratio of forced expiratory volume in one second over forced vital capacity (FEV1/FVC) was measured in both studies at baseline and follow-up. COPD was diagnosed according to the GOLD criteria or having FEV1/FVC<lower limit of normal and percent predicted FEV1<80%.

Results: Mixed regression models with random intercept for study area were used to assess the association between BMI change and COPD prevalence and incidence in non smoking women after adjustment for selected confounders.

Conclusions: The results of our analysis suggest that a change in BMI influences the development of COPD in non-smoking women.

1679 COPD – Prevalence and risk study from rural north India
Mukhmohit Singh1, Anup K. Mukherjee2, Surendra K. Ahluwalia1, Anu Bhardwaj1, Shiveta Saini3, Community Medicine, MMMSR, Mullana, Haryana, India

Background: The increasing impact of Chronic Obstructive Pulmonary Disease (COPD) on health care resources is now being recognized as a major public health problem and is projected to be the third leading cause of death worldwide by 2020.

Aims and objectives: To estimate the prevalence and assess the risk factors for COPD in adults using spirometry (GOLD criteria).

Methods: A community-based, cross sectional, multiphasic survey was conducted on 2,112 adults aged ≥35 years. COPD was diagnosed using fixed ratio post bronchodilator FEV1/FVC<70% on spirometric evaluation conducted on participants who screened positive using clinical (by validated respiratory questionnaire) or PEF criteria.

Results: The overall prevalence of COPD was 8% (10.8% in males and 5.1% in females). The prevalence of COPD was 15.3% in the ever smokers and were at 3.54 times higher risk (95% CI 2.6-4.9) compared to non smokers. The exposure to high BMI between baseline and follow-up ranged between 15.48-53.89 kg/m².

The incidence of COPD according to the GOLD criteria stage 1 was 3.2% and the incidence in the combined stage 2 and higher was 2.52%. The odds of developing COPD stage 2 increased by a factor of 1.1 per unit increment in BMI. Menopausal status did not influence this association.

Conclusion: The results of our analysis suggest that a change in BMI influences the development of COPD in non-smoking women.

1680 Association between serum levels of clara cell secretory protein and lung function in adults from ECRHS
Marta Ray1,2, Lluís Tares3, Iris Lavi3, Esther Barreiro3, Jan-Paul Zock1, Anna Ferrer1, Nerea Muniozuren2, Rachel Nadif3, Francine Kauffmann4, Josep M. Amo1, Stefano Guerra5, 1Centre de Recerca en Epidemiologia Ambiental - CREAL, Parc de Recerca Biomètica de Barcelona - PRBB, Barcelona, Spain; 2Respiratory and Environmental Epidemiology Team CESP, Centre for Research in Epidemiology and Population Health UMR 1019, INSERM, University Paris Sud, Villejuif, France; 3Unit of Epidemiology and Health Information, IMIM-Hospital del Mar, Parc de Salut Mar, UPE, CIBERES, Barcelona, Spain; 4Hospital General de Almansa, Complejo Hospitalario Universitario de Albacete, Spain; 5Osasun Saila, Bizkaiko Lurralde Zuzendaritza, Public Health Service of Bizkaia, Department of Health, Basque Government, Bilbao, Basque Country, Spain

The 16-kD Clara cell secretory protein (CC16) has anti-inflammatory properties and protective effects from oxidative stress on the respiratory tract and has been
proposed as a biological marker of pulmonary health. Whether CC16 is associated with lung function and airflow limitation in the general population remains unknown.

We measured CC16 in serum samples of 851 participants (mean age 41 yrs; 51% women) of 3 Spanish ECRHS centres using an immunoassay. Lung function parameters (FEV1% and FVC% predicted and FEV1/FVC) airflow limitation (AL) defined by Gold criteria (FEV1/FVC<0.70) were considered. All the analyses were adjusted for center, sex, age, smoking, pack-years, body mass index (BMI), and height. Mean CC16 level was 5.8 (sd=2.9), ranging from 0.4 to 19 μg/L. FEV1% predicted and FEV1/FVC increased with increasing CC16 levels.

<table>
<thead>
<tr>
<th>Lung function (dependent var, n=851)</th>
<th>Adjusted* β (95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEV1, % pred</td>
<td>1.85 (0.87, 2.83)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>FVC, % pred</td>
<td>0.83 (-0.03, 1.70)</td>
<td>0.06</td>
</tr>
<tr>
<td>FEV1/FVC</td>
<td>0.77 (0.30, 1.23)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*Estimates from linear regression models, adjusted for center, age, BMI, smoke, pack-years (sex and height for FEV1/FVC).

This association was stronger in asthmatics (2.6% increase (95% CI 0.6-4.5) in FEV1/FVC) as compared to non-asthmatics (0.6%; CI 0.1-1.0) (p for interaction 0.01). CC16 levels were lower in subjects with moderate/severe AL (4 μg/L) p from multivariate multinomial regression=0.04), but not in those with mild AL (5.7 μg/L, p=0.93) compared to subjects with no AL (5.9 μg/L). This study shows that reduced CC16 levels are associated with lower lung function and moderate/severe airflow limitation in the general population.

Funded by Spanish FIS ISCHI PS09/01135 and ERSS fellowship 123-2011.

1681 Screening of citizens with suspicion of COPD in eight municipalities in Denmark

Jens Dahlberg1, Torben Jakobsen2, Henriette Fischer3, Ulla Hemmingsen4, Susanne Ollendorff5, Jeanette Madsen1, Maj-Britt Gulstad3, Henrik Børggren1, Birgitte Kvis8, Peter Bo Poulsen1, 1Medical & Access, Pfizer Denmark, Ballerup, Denmark; 2Department of Health Prevention and Promotion, Municipality of Esbjerg, Esbjerg, Denmark; 3Health Care Center, Municipality of Struer, Struer, Denmark; 4Health Secretariat, Municipality of Vordingborg, Vordingborg, Denmark; 5Department of Health Prevention and Promotion, Municipality of Kolding, Kolding, Denmark; 6Department of Health, Municipality of Gråbøk, Helsingør, Denmark; 7Department of Health, Municipality of Jægersborg, Brovst, Denmark; 8Social Centre, Municipality of Solrød, Solrød, Denmark; 9Department of Health Prevention and Promotion, Municipality of Frederikshavn, Frederikshavn, Denmark.

Background: Around 430,000 Danes suffer from chronic obstructive pulmonary disease (COPD) with one-third diagnosed today. Danish National Board of Health (NBH) recommends early detection of COPD, focusing on smokers/ex-smokers (or high-risk occupation) above 35 years with >1 respiratory symptom. Municipalities have been suggested to be responsible for early detection. A pilot study found early detection in municipalities to be feasible and reliable in terms of citizens ending up with the final diagnosis of COPD at their GP.

Aim and objective: To investigate the success of screening for COPD in eight Danish municipalities.

Methods: Eight municipalities (430,000 inhabitants) offered spirometry to citizens (self-referral) with no previous COPD diagnosis fulfilling the NBH criteria. Citizens with airway obstruction (fixed ratio: FEV1/FVC<0.70) were requested to visit their GP for diagnosis. Data, including spirometry and smoking habits, were recorded in a secure database.

Results: 950 citizens in the risk group of COPD were included (55% females, 58 years, 45% smokers, 30 pack-years, 1-2 lung symptoms, MRC 1.6). Of the sample 34% (323) (22-44% in different municipalities) had indication of airway obstruction. Screening spirometry suggested 86% had mild to moderate COPD. With evidence from the pilot study: 85% detected by municipality screening ended up diagnosed with COPD at their GP. This suggests that 29% (275) of the patients in the present sample were COPD patients. After screening 65% of smokers were interested in quitting smoking.

Conclusions: Early detection of COPD at the municipality level seems to be worthwhile and successful. Together with the GP-level this might identify undiagnosed COPD patients.

1682 Is spirometry properly used to diagnose COPD? Results from the population-based BOLD study in Salzburg, Austria

Benedikt Lambrecht1, Andreas Mahringer1, Bernhard Kaiser1, Joan Soriano2, Michael Strunk1, 1Department of Pulmonary Medicine, Paracelsus Medical University, Salzburg, Austria; 2Program of Epidemiology & Clinical Research, Fundacio Caubet-CIMERA, Bunyola, Spain.

Background & objective: Current guidelines recommend post-bronchodilator spirometry to confirm a diagnosis of COPD. We investigated whether a self-reported diagnosis of COPD was associated with prior spirometry and whether a correct diagnosis of COPD was more likely when spirometry was reported.

Methods: We used data from the population-based Austrian BOLD study. Participants were aged >40 years, and completed the BOLD questionnaire and post-bronchodilator spirometry. Reported COPD diagnosis and reported prior lung function test were based on questionnaire. Non-reversible airways obstruction (AO) was defined as post-bronchodilator FEV1/FVC <0.7. A correct diagnosis of COPD was defined, when subjects reported a prior COPD diagnosis and demonstrated non-reversible airways obstruction on post-bronchodilator spirometry.

Results: 68 (5.4%) of 1258 participants reported a prior physician’s diagnosis of COPD. Among those only 25.0% (17/68) reported a lung function test within the past 12 months, and 67.6% (46/68) at any time in the past. The likelihood for a correct COPD GOLD stage I+ diagnosis was similar among subjects reporting (likelihood ratio 2.07 [95% CI, 0.89 – 5.50 CI]) and subjects not reporting (likelihood ratio 2.78 [95% CI, 1.58 – 4.87]) a lung function during the last 12 months. Similar likelihood ratios were seen when GOLD stage II+ was investigated and, when lung function was reported at any time in the past.

Conclusion: One third of subjects with a reported diagnosis of COPD never had a lung function test. When spirometry was reported, this did not increase the likelihood for a correct COPD diagnosis.