limited to high-risk patients receiving ventilation. Furthermore, mortality day 0–30 post discharge also fell.

Introduction and Objective In recent years accumulating evidence supports gender differences in COPD, suggesting a steady increase in COPD prevalence and mortality rates in women. In this analysis we evaluated gender differences in COPD exacerbations in a cohort of COPD patients from the Clinical Practice Research Datalink (CPRD), a general practice electronic primary medical care records database in the UK.

Methods This is a retrospective cohort study comparing women and men with an incident diagnosis of COPD between 01 January 2010 and 28 February 2015 were included in this study. Patients with an incident diagnosis of COPD between 01 January 2010 and 28 February 2015 were included in this study. Results A cohort of 22,429 COPD patients (48% women) with an incident diagnosis of COPD was identified. At diagnosis, women were younger, more often current or non-smokers and had lower BMI, better lung function (as expressed by FEV1% predicted). Women also had lower blood eosinophils. Women also had a higher prevalence of asthma, anxiety, depression and osteoporosis, whereas men had more often cardiovascular comorbidities (myocardial infarction, heart failure and atrial fibrillation). The risk of first moderate or severe exacerbation was 17% greater in women than in men (adjusted HR, 1.17; 95% CI, 1.12 to 1.23), with a median time to first exacerbation of 504 days for women and 637 days for men. These gender differences were more prominent in patients aged 40–64 years and in those with moderate-to-severe airflow obstruction (30% ≤ FEV1% predicted). Women also had a greater rate of moderate or severe exacerbations at year 1 (adjusted RR, 1.15; 95% CI, 1.07 to 1.23), year 2 (adjusted RR, 1.14; 95% CI, 1.08 to 1.21) and year 3 (adjusted RR, 1.14; 95% CI, 1.08 to 1.20) of follow-up.

Conclusions Despite evidence for milder disease at the time of COPD diagnosis, women were at greater risk of COPD exacerbations than men, especially at younger ages. These results highlight the unmet need for appropriate identification and management of women with COPD in clinical practice.

P192 FUNCTIONAL RESPIRATORY IMAGING (FRI) AND LUNG FUNCTION ASSESSMENT OF GLYCOPYRRONIUM/FORMOTEROL FUMARATE DIHYDRATE FIXED-DOSE COMBINATION DELIVERED USING INNOVATIVE CO-SUSPENSION DELIVERY TECHNOLOGY (GFF MDI) IN COPD

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Introduction and Objectives FRI has been used to provide a detailed view of overall and local changes in airway resistance and lung volume, in addition to spirometry and body plethysmography. The aim of this study was to assess changes in specific image-based airway volume (siVaw) and resistance (siRaw) in patients with moderate-to-severe COPD after administration of GFF vs placebo.

Methods In this double-blind, 2 week dosing, Phase III crossover study (NCT02643082), 20 patients (40–80 years) received twice daily GFF MDI 14.4/10 µg (equivalent to glycopyrrolate/formoterol fumarate 18/9.6 µg) and placebo MDI. Primary endpoints were siVaw and siRaw at Day 15. Additional outcomes included spirometry, plethysmography and safety.

Results On Day 15, GFF MDI led to an estimated 75% increase in siVaw and 71% decrease in siRaw relative to placebo MDI (both p<0.0001; Table), accompanied by post–dose differences of 443 mL in FEV1 and 454 mL in IC in change from baseline for GFF MDI vs placebo MDI (both p<0.001). The safety profile was consistent with the drug class with no unexpected safety findings.

Conclusions The dual bronchodilator GFF MDI demonstrated significant benefits on FRI–based airway volume and resistance in the lungs of COPD patients. Benefits were associated with important improvements in FEV1, IC and hyperinflation.
The degree of lung destruction with lobar perfusion uptake significantly differs from lobar lung destruction in patients with advanced emphysema referred for volume reduction therapies

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Background Lung perfusion scan is widely undertaken as part of the assessment to select most affected lobes by emphysema prior to lung volume reduction (LVR) therapies by endo-bronchial valves, endo-bronchial coils and LVR surgery. More recently quantitative CT scans (QCT) have been introduced. QCTs quantify the degree of lung destruction by emphysema. To date there are no studies to evaluate whether lobar uptake of isoetone by perfusion scan and areas of destruction on QCT’s are closely correlated.

Methods Patients referred for LVR therapies at our hospital underwent perfusion scans using single-photon emission computerised tomography (SPECT) scans. The degree of uptake of isoetone in each lobe is visually scored from 0–10, 0 representing low lobar uptake and 10 high uptake. The degree of lobar low attenuation area (emphysema) has been assessed by a QCT scan. This scan provides data on the proportion of each lobe with attenuation of -910 Hounsfield Units (HU) and -950 HU. Uptake on SPECT has been correlated with emphysema score on QCTs.

Results A total 47 patients are included (20 female). Their mean age 66.2 years, and mean FEV1 30% of predicted emphysema on QCTs correlates with the subjective and objective parameters used in patient selection for LVR.
values. Analysis by QCT and SPECT is available on 235 lung lobes. For all lung lobes, mean low attenuation at $-910$ HU was 53.7% and at $-950$ HU of 36.9%. Median Score on SPECT was 5.3 points. A weak correlation between uptake score on SPECT and QCT scores; Spearman $r=-0.33$, $p<0.0001$ for emphysema area at $-910$ HU and $r=-0.33$, $p<0.001$ for emphysema area at $-950$ HU. Significant discordance is present between the two methods (graph.1) which could lead to either treating lobes with low perfusion but preserved lung tissue or not treating lobes with high perfusion but with significant emphysema.

Conclusion Despite the wide usage of perfusion scan to guide identification of lung lobes targeted for LVR, this study shows that this method needs to be interpreted with caution. QCT’s should be relied upon to choose lobes needing treatment. Longitudinal analysis is needed to evaluate the outcome of treatment when the treated lobe was selected according to low perfusion.

External influences on asthma

"SYNDROME Z" IN THE ASThma POPULATION

**P195**

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10.1136/thoraxjnl-2017-210983.337

Introduction Current literature demonstrates associations between asthma, obstructive sleep apnoea (OSA) and obesity. Syndrome Z is the occurrence of OSA with the metabolic syndrome, and the relevance of this condition in asthma populations remains unclear.

Methods 192 patients were recruited from a regional severe asthma service and associated respiratory clinics during January 2016-June 2017. 37 had a pre-existing diagnosis of OSA, 116 patients were screened regardless of symptoms, 39 patients with symptoms of OSA were included. Patients underwent an overnight limited channel sleep study and bioelectrical impedance measurements. The groups were split into OSA and no-OSA to compare metabolic profile, associated co-morbidities and body fat composition. Data were analysed using MedCalc version 15.

Results 192 patients with asthma (137 females, 55 males), 173 (90%) had severe asthma, 19 (10%) had non-severe asthma. 37 (19.3%) had pre-existing OSA, 26 of which required Continuous Positive Airway Pressure(CPAP). A total of 97 (51%) had OSA, 58 (30%) had OSA excluded. The OSA group had significantly higher mean Body Mass Index (BMI) (34.8 ±8.2 versus no-OSA group 28.1±6.0, $p<0.001$), body fat% (38.2%±11% versus no-OSA group 32.2%±12%, $p=0.002$), visceral fat rating (12.8±5.1 versus no-OSA group 7.4±4.1, $p<0.001$) and mean metabolic age (59.5±12.8 years versus no-OSA 44.4±16.7 years, $p<0.001$). The OSA group also had significantly higher rates of diabetes (OSA 0.25±0.47, no-OSA 0.06±0.23, $p=0.005$), hypercholesterolaemia (OSA 51/132 (38.6%), no-OSA 9/53 (28.6%), $p=0.0046$) and hypertension (OSA 50/132 (37.9%), no-OSA 6/53 (10.7%), $p=0.0004$).