mean (95% CI), 0.15 (0.14–0.16) than in comparators, 0.05 (0.03–0.05), independent of age, p

Conclusion Patients with COPD were frail compared with the comparator group of current or ex-smokers, independent of age. Frailty status in the patients was associated with a greater severity of the extra-pulmonary involvement including cardiovascular risk based on greater aortic PWV. Increased aortic PWV in frail patients was independent of blood pressure. These findings are consistent with premature cardiovascular ageing in COPD.

REFERENCE

M140 EFFECT OF BETA-BLOCKADE ON LUNG FUNCTION IN A POPULATION WITH ARTERIAL VASCULAR DISEASE WITH AND WITHOUT COPD

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Introduction Patients are frequently prescribed β-blockers for heart failure, ischaemic heart disease and peri-operatively, especially for vascular surgery. However, β-blockers remain under prescribed in patients with COPD despite epidemiological evidence indicating little negative impact. This reluctance to use β-blockers is due to concerns about increased airway hyper-responsiveness and bronchoconstriction. As part of a study of peri-operative β-blockade in patients with abdominal aortic aneurysm (AAA) we examined the effect of β-blockers on lung function.

Methods We prospectively recruited 55 AAA patients with no selection bias for COPD or β-blocker use. Thirty eight patients successfully completed detailed lung function testing (PFT) measured by body plethysmography both on and off β-blockers. Subjects already taking β-blockers continued usual treatment while others were prescribed weight adjusted bisoprolol for 48 h.

Results Mean age was 70 (5) years and 33 (77%) subjects were male. 16/38 (42%) were already taking beta-blockers and 5 people (13%) were diagnosed with COPD although 15 (39%) had COPD based on spirometry. Ten (26%) were current smokers and 19 (50%) ex-smokers. The lung function results are shown in the table. Beta-blockade had no significant impact on most lung function measures in both COPD and non-COPD subjects. Specific airways resistance (sRaw) was significantly higher when β-blockers were continued usual treatment while they were prescribed weight adjusted bisoprolol for 48 h.

Discussion β-blockers had little effect on static lung function including FEV1 and specific conductance. The small change in resistance was seen in subjects with and without COPD. In this population there appears to be no reason for not using a cardio-selective β-blocker both in this peri-operative setting and for cardiac indications.

M141 IMPACT OF BETA-BLOCKADE ON EXERCISE CAPACITY AND DYNAMIC HYPERINFLATION IN PEOPLE WITH AND WITHOUT COPD UNDERGOING VASCULAR SURGERY

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Beta-blockers have a key role in the management of heart failure but have been under-utilised in people with COPD due to fear of bronchoconstriction and its impact on symptoms and function. Beta-blockers are also used peri-operatively in people undergoing vascular surgery due to improved cardiac function though this practice is contentious due to a risk of post-operative complications, particularly stroke. As part of a study looking at
COPD patients have been shown to have a higher incidence of MI and stroke, than the general. There is also evidence that the risk of MI and stroke, in COPD patients, increases following an exacerbation. However, the association appears stronger between COPD exacerbations and MI, than it does between COPD exacerbations and stroke. We hypothesise that COPD patients, who are frequent exacerbators, have a higher stroke risk, than those who are infrequent exacerbators, even when stable.

**Methods** COPD patients, with a first stroke between 2004 and 2013, were identified in the UK CPRD database, as cases. Controls, were COPD patients, registered in the CPRD database, matched 3:1, to cases on age, sex and GP practice. We defined “frequent exacerbators” as COPD patients, with ≥ 2 exacerbations, resulting in treatment, per year and “infrequent exacerbators” as ≤ 1 exacerbation, per year. We also grouped exposure into four levels; 0, 1, 2 or ≥3 exacerbations, per year, to allow an analysis for trend between exacerbation number and stroke. A subgroup analysis of the association between exacerbation frequency and stroke type (ischaemic/haemorrhagic or TIA) was also carried out. Conditional logistic regression was used for the analyses.

**Results** There were 6,441 cases and 19,323 controls. No difference was found in odds of stroke, comparing frequent and infrequent exacerbators (adjusted OR 0.95, 95% CI 0.89–1.01, p = 0.09), or in the odds for stroke of any type. However, there was a reduction in odds of stroke associated with increased number of exacerbations, per year, with evidence for a linear trend (p = 0.002) (see Table 1).

**Conclusion** These findings do not support the hypothesis that exacerbations in COPD are associated with increased stroke risk and warrant further investigation.

### REFERENCES

**M143** PROGRESSION OF CENTRAL ARTERIAL STIFFNESS IN COPD AFTER 2 YEARS OF OBSERVATION

1. Gale, NS; AlBahri, AM; Munnery, MM; Munnery, IC; Tal-Singer, JR; Cockcroft, RJ; Shale, DI 2. Wales Heart Research Institute, Cardiff University, Cardiff, UK; 3. GlaxoSmithKline R and D, King of Prussia, Pennsylvania, USA

**Background** COPD is a systemic disease with associated comorbidities including cardiovascular disease which have significant impact on morbidity and mortality. The heterogeneity of COPD has led to the concept of phenotypes; one of which may describe patients at greater cardiovascular risk. Aortic pulse wave velocity (aPWV) is a validated measure of arterial stiffness and an independent predictor of cardiovascular outcomes, and has been shown to be elevated in patients with COPD. We hypothesised that a subgroup of patients (progressors) would demonstrate increased aPWV over 2 years.

**Methods** The ARCADE study is a longitudinal study of cardiovascular risk and other comorbidities. Assessments include splanchnicometry, BMI, aPWV and blood pressure, (BP), mean arterial