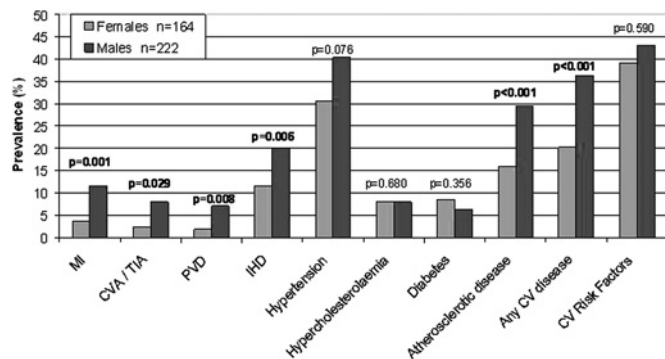


predicted; 53.5 ± 19.9 vs 46.4 ± 18.9 , $p < 0.001$. Following adjustment for FEV₁ % predicted, there were no gender differences in SGRO (51.2 ± 18.6 vs 49.8 ± 19.5 , $p = 0.127$) or MRC dyspnoea scores (3.0 ($2.0, 4.0$) vs 3.0 ($2.0, 4.0$), $p = 0.104$). Cardiovascular conditions were more common in male COPD patients (Abstract P46 figure 1), whereas of the clinically significant comorbidities, only osteoporosis was more common in females (10.4% vs 2.7% , $p = 0.001$).



Abstract P46 Figure 1 Gender differences in the prevalence of cardiovascular diseases in COPD. MI, myocardial infarction, CVA, cerebrovascular accident, TIA, transient ischaemic attack; PVD, peripheral vascular disease; IHD, ischaemic heart disease, CV, cardiovascular.

Conclusions The excess cardiovascular disease in COPD patients is predominantly found in men despite lower gender differences in cardiovascular risk factors such as smoking history, diabetes, hypercholesterolaemia and hypertension. This may partly represent under-diagnosis of cardiovascular disease in COPD patients. Clinical vigilance must be maintained to identify and optimally manage important comorbidities in all COPD patients, although clinicians should be aware of the increased prevalence of cardiovascular disease in men and osteoporosis in women.

P47 THE IMPACT OF COMORBID ISCHAEMIC HEART DISEASE ON EXERCISE CAPACITY IN COPD PATIENTS

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Introduction Comorbid ischaemic heart disease (IHD) is associated with an adverse impact on health status, symptoms (ARJCCM 2011;183:A2614) and exacerbation recovery in COPD patients (ERJ 2010;954s:E5209). Any impact on exercise capacity is poorly understood. We aimed to assess and quantify differences in exercise capacity in stable COPD patients with and without IHD.

Methods We assessed 6-min walking distance (6MWD) in accordance with ATS guidance (AJRCCM 2002;166:111–117) in patients from the London COPD cohort. All assessments were performed in the stable state with no symptom-defined exacerbations recorded on daily diary cards for 6 weeks prior and 2 weeks following the visit. Dyspnoea and fatigue were measured before and after the test using the Borg scale, as were saturations from a pulse oximeter. Data were analysed using unpaired t-tests, Mann–Whitney U, χ^2 tests and multiple regression techniques.

Results 115 patients had a 6MWD assessment, 19 (17%) had IHD (Abstract P47 table 1). COPD patients with IHD had a lower mean \pm SD 6MWD than those without (310 ± 138 vs 354 ± 107 m) although this was not statistically significant ($p = 0.119$). Following

adjustment for age, gender, FEV₁ % predicted, BMI and smoking pack year history, IHD was found to be independently related with a 66 m reduction in 6MWD (95% CI 5 to 127 m), $p = 0.035$. Median (IQR) dyspnoea on the Borg scale before the test was not higher in those with IHD ($1(1,2)$ vs $1(0,3)$, $p = 0.135$), this increased more in those with IHD compared to those without during the test ($2(1,3)$ vs $1(0,3)$, $p = 0.043$). Fatigue measured on the Borg scale was higher at the start of the test in those with IHD ($1.5(0,3)$ vs $0(0,2)$, $p = 0.038$), however, the increase after the test was not different between the groups ($0(0,2)$ vs $0(0,2)$, $p = 0.831$). The mean \pm SD pre-test oxygen saturations and post-test change were similar in those with and without IHD ($93.8 \pm 2.6\%$ vs $94.1 \pm 2.4\%$, $p = 0.684$; $-0.9 \pm 4.4\%$ vs $-1.4 \pm 3.2\%$, $p = 0.595$).

Abstract P47 Table 1 Clinical characteristics of COPD patients with and without comorbid ischaemic heart disease (IHD)

	All COPD patients (n = 115)	COPD without IHD† (n = 96)	COPD with IHD‡ (n = 19)	p Value † vs ‡
Age (years)	69.7 \pm 8.7	68.9 \pm 8.9	74.0 \pm 5.9	0.019
Male gender	67%	65%	79%	0.224
FEV ₁ (% predicted)	51.9 \pm 18.6	52.3 \pm 19.2	49.5 \pm 15.5	0.550
FEV ₁ (L)	1.36 \pm 0.61	1.37 \pm 0.64	1.29 \pm 0.46	0.583
BMI (kg/m ²)	26.8 \pm 5.8	27.1 \pm 6.0	25.8 \pm 4.8	0.390
Current smoker	28%	28%	26%	0.872
Smoking (pack years)	46 (30,72)	44 (30,72)	57 (40,79)	0.110

Data are presented as percentage, mean \pm SD or median (IQR) as appropriate.

Conclusions Comorbid IHD is independently associated with a clinically significant lower exercise capacity in COPD patients. Such patients may have a higher level of fatigue before exercise and develop more dyspnoea during exercise. Such patients may be an appropriate target for further intervention such as tailored pulmonary rehabilitation.

P48 SHOULD CHRONIC OBSTRUCTIVE PULMONARY DISEASE BE A CONTRA-INDICATION TO β BLOCKER PRESCRIPTION IN PATIENTS WITH CONCOMITANT HEART FAILURE?

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Introduction Beta blockers (BB) are now well established in the treatment of heart failure (HF) and other cardiovascular disorders. There is much debate in the literature as to their safety in patients with concomitant chronic obstructive pulmonary disease (COPD) due to the risk of increased symptoms and decline of FEV₁. As BB use improves morbidity and mortality in CVD we were justified in denying this benefit to patients with co-existing COPD?

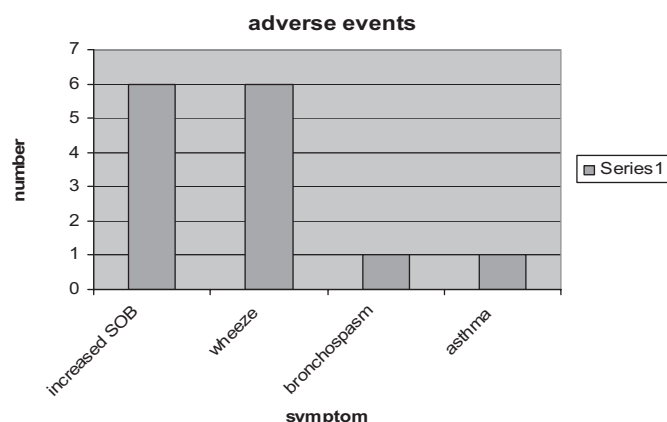
Objective To ask cardiologists within our Deanery about their prescribing preferences for BB in patients with both HF and COPD and any adverse events they had experienced as a result of those prescriptions.

Method Four questions were sent out to 50 consultant cardiologists and 20 registrars asking BB of choice with adverse events experienced or reasons to avoid them.

Results 30/50 Consultants responded with 7/20 registrar responses. 100% prescribed BB to patient with COPD and HF with only 6 (16%) responders describing adverse outcomes. These included increasing shortness of breath (6/37), wheeze (6/37) and bronchospasm (1/37). The most commonly prescribed BB was bisoprolol

(89%), followed by nebivolol (40%), carvedilol (37%) and metoprolol (21%).

Conclusion Our results show that a diagnosis of COPD is not considered a contraindication to BB prescription by cardiologists with few reporting an increase in symptoms. We would suggest that all patients with COPD and HF should at least be considered for BB therapy while being mindful of potential adverse effects.



Abstract P48 Figure 1 Adverse events experienced as a result of beta blocker prescription.

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P49 INTRA-SUBJECT VARIATION IN BREATH PROFILE OF EXHALED VOLATILE ORGANIC COMPOUNDS (EVOCS) IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

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Introduction Specific patterns of exhaled volatile compounds (eVOCs) have been described in a variety of diseases including lung cancer, tuberculosis and COPD, but there are no standardised and universally acceptable methods of sample collection, processing and data analysis. Moreover, there is little if any knowledge of repeatability of eVOCs profile. As part of a larger cohort study on eVOCs in COPD (ISRCTN82911859) we aimed to test the repeatability of eVOCs profiles.

Methods 118 COPD patients and 63 healthy controls provided three consecutive breath samples (one sample every 2 min). Subjects were all fasted for 4 h fasting and rested for 20 min rest in a closed room in our hospital before testing. Breath samples were collected by slow exhalation to vital capacity through Bio-Voc breath sampler® (Markes International, UK) which collected into two-bed carbon thermal desorption tubes. They were later analysed by gas chromatography-mass spectrometry (GC-MS). We selected Isoprene and Total eVOCs minus Isoprene as markers of variability. Isoprene is a ubiquitous eVOC linked to cholesterol metabolism, with levels linked to exertion patterns. Variation in the three repeat measurements was determined by a coefficient of variation over the

samples (SD as % of mean) and dividing the area under the curve (AUC) in second and third measurement by the first sample. A single researcher took all samples and a single scientist ran the GC-MS.

Results There is substantial intra-individual variation in level of total VOCs and Isoprene and total VOC over three breaths in controls and COPD. Isoprene tended to fall in repeat sampling, most strongly in the controls, while total eVOCs increased in the second breath but fell in the third.

Discussion Intra-subject variation in eVOCs profile poses important challenges and normal ranges and acceptable limits of variation need to be set as repeatability is an important characteristic for any diagnostic test. These particular changes may reflect changes in eVOCs production due to increased oxidative stress or muscle metabolism or haemodynamic changes and metabolism induced by exhalation. Further research to explore eVOCs variability and its impact on their diagnostic potential is needed.

Abstract P49 Table 1

Coefficient of variation	COPD	Control	Overall	Range
Isoprene	23	26	24	2–64
TVOC-isoprene	40	40	40	12–104

% Change from reading 1	COPD 2/1	COPD 3/1	Control 2/1	Control 3/1
Isoprene				
Median	–7	–25	–24	–32
Mean (geometric)	–10	–26	–22	–37
TVOC-isoprene				
Median	+14	–6	+20	–30
Mean (geometric)	+9	–6	+3	–

TB: from diagnosis to management

P50 A SUMMARY OF STRAIN TYPING AND CLUSTERING OF TB IN LONDON IN 2010 AND AN ANALYSIS OF THE ASSOCIATED RISK FACTORS

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Since January 2010 prospective strain typing on all positive TB samples able to be cultured has occurred. Recent infection is presumed if the strain of TB isolated from the case is indistinguishable from one or more others in the population studied. Recently infected cases are likely to be part of clusters. All data are currently preliminary. In London from January to September 2010, 2679 cases were reported to the London TB Register, 36% of which were culture confirmed. Of those that were culture confirmed 37% were in a cluster. Adults were more likely to be culture confirmed than children (37% vs 23%). While children may be less likely to be culture confirmed, those who were culture confirmed were more likely to be clustered (and so recently infected). Comparing children (0–15 year olds) to young adults (16–24 year olds), 70% compared to 40% were clustered (OR 3.49, p=0.003). Overall more clustering was noted among males (39% vs 33%, OR 1.28, p=0.08), white (40%) and black-Caribbean (47%) ethnic groups, UK born cases (42% vs 36%), and those with pulmonary (45% vs 30%) and sputum smear positive disease (56% vs 38%). More clustering was seen with those who had social risk factors: history of drug use (46%), homelessness (49%), imprisonment (47%), and alcohol abuse (46%).