direct and indirect evidence to estimate the difference between the three treatment groups on ESS. Meta-regression was used to assess the influence of CPAP usage and average baseline patient characteristics on the effect of CPAP compared to ICs.

Findings A total of 67 studies comprising 6873 patients were included in the meta-analysis. Of these, 51 (5898 patients) assessed CPAP against an IC. CPAP and MADs were estimated to reduce ESS by 2.5 (95% CI 2.1,2.9) and 1.7 (95% CI 1.1,2.3) points respectively compared to an IC. CPAP was estimated to reduce the ESS by a further 0.8 points compared to MADs (95% CI 0.1,1.4; p = 0.015). However, there was some suggestion of publication bias in favour of CPAP which may have inflated this effect. There was no evidence that studies reporting higher CPAP usage also reported larger treatment effects.

Interpretation Both CPAP and MADs are effective treatments for reducing daytime sleepiness in patients with OSA. CPAP appears to be the most effective treatment and should be recommended for more severe or sleepier OSA patients. However, MADs are a suitable second-line treatment should CPAP not be tolerated.

P118 FACTORS AFFECTING CONCORDANCE WITH CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) IN OBSTRUCTIVE SLEEP APNOEA SYNDROME (OSAS)

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Introduction and objectives The benefits of continuous positive airways pressure in the treatment of obstructive sleep apnoea syndrome have been well established. Despite this, CPAP adherence remains a significant issue resulting in many patients not receiving adequate treatment. A number of variables have been suggested as contributing to non-concordance, however study results have been inconsistent. Studies assessing long term concordance, suggest severity of OSAS and sleepiness to be good predictors of this. This scientific survey looked at the influence of co-morbidity and the severity of OSAS as represented by apnoea hypopnoea index (AHI) at diagnosis on the usage and concordance with CPAP.

Methods Data from 230 patients completing annual follow up after initiation of CPAP by 31st December 2014 was collected retrospectively. The presence and severity of co-morbidity was assessed by the Adult Co-morbidity Evaluation- 27 (ACE-27) score. CPAP usage per day was averaged over the preceding year. The association between usage and initial AHI (data available for 207 patients) was analysed by linear regression. The association between usage and ACE-27 score was analysed by ANOVA.

Results The regression coefficient for initial AHI against CPAP usage shows a statistically significant effect ([p = 0.00126] fitted equation: concordance = 4.161 + 0.024 × AHI). There was no significant difference in CPAP usage between different ACE-27 groups. Further analysis of individual co-morbidities revealed significance in four categories; cardiac arrhythmia (p = 0.031), coronary artery disease (p = 0.006), congestive heart failure (p = 0.045) and malignancy (p = 0.001).

Conclusion AHI at diagnosis remains a strong determinant of CPAP concordance at 1 year. Severity of co-morbidity cannot be conclusively demonstrated to influence usage however further studies into overall and specific co-morbidities are warranted.

Phenotypes and response to treatment in COPD

P119 CHARACTERISING NON-EOSINOPHILIC COPD

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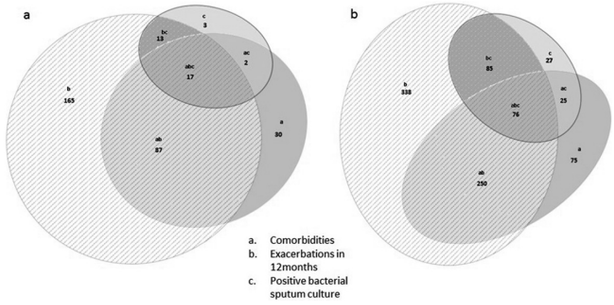
Background Phenotypes of COPD are increasingly recognised, with classification centred on inflammation and in particular microbes and inflammatory markers within the airways and peripheral blood. Studies focusing on eosinophilic inflammation in COPD have shown the validity of airway and peripheral eosinophilia as a marker to direct treatment with corticosteroids. However, the majority of COPD patients have low sputum and peripheral eosinophils, with a large proportion showing raised sputum neutrophils at exacerbation and stable state. The characteristics of this 'Non-eosinophilic' group are less well defined, making the identification of biomarkers and target pathways for drug development more challenging.

Methods Baseline data from patients with COPD, previously recruited to a study identifying biomarkers was analysed using SPSS (SPSS version 22, IBM Corp, released 2013, Armonk, NY). A cut off of 3% sputum eosinophils was used to distinguish 'Eosinophilic' and 'Non-eosinophilic' groups. Parametric and non-parametric analyses were performed where appropriate.

Results Of 149 patients, 96 had <3% sputum eosinophils, with a median age of 69.5 years (47–88 range). There were no differences in gender and proportion of smokers between the two groups. There was an increase in percentage sputum neutrophils in the non-eosinophilic group (mean difference 15%, 95% confidence interval 9–17%, p = 0.01). The non-eosinophilic patients had more exacerbations/person/year compared to the eosinophilic group (3.52 vs. 3.11); this was independent of inhaled corticosteroid use. There were more significant co-morbidities in the non-eosinophilic group compared to the non-eosinophilic group (78% vs. 61%, p < 0.01). Co-morbidity was defined as the presence of cardiovascular disease, endocrine disorders, depression, or musculoskeletal disease.

There were more positive sputum cultures in the non-eosinophilic group compared to the eosinophilic group (33% vs. 11%, p = 0.16). There was also an increase in colony forming units in the non-eosinophilic group compared to the eosinophilic group (mean fold difference 0.4, 95% CI 0–0.8, p = 0.05).



Abstract P119 Figure 1 Venn digram showing relationship of characteristics of eosinophilic (a) and non-eosinophilic (b) COPD, using absolute numbers