REFERENCE

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P123 USE OF BLOOD EOSINOPHILS TO PREDICT OUTCOMES UNDER INHALED MAINTENANCE TREATMENT IN STEROID-NAÏVE COPD PATIENTS IN PRIMARY CARE: NEW USER COHORT STUDY USING THE CLINICAL PRACTICE RESEARCH DATALINK

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Introduction and objectives Blood eosinophils are a potentially useful biomarker to guide inhaled corticosteroid (ICS) treatment in COPD. We aimed to investigate whether blood eosinophil count predicts the effect of maintenance treatment with ICS versus non-ICS in routine primary care.

Methods We used routinely collected data from UK primary care in the Clinical Practice Research Datalink, linked with Hospital Episode Statistics. Eligible patients were ≥40 years with COPD, history of smoking and diagnostic spirometry, not already treated with ICS, starting a new inhaled maintenance medication (intervention group: ICS; comparison group: long-acting bronchodilator, non-ICS) between 2005 and 2015. Primary analysis used the most recent blood eosinophil count in the two years before the new treatment, divided into high ($\geq150/\mu L$) and low ($<150/\mu L$) groups. Primary outcome was time-to-first-exacerbation event after maintenance treatment initiation, compared between ICS and non-ICS groups, stratified by blood eosinophil group. Cox regression using co-variates likely to contribute to confounding by indication, including severity and baseline exacerbation frequency, investigated the interaction of blood eosinophils.

Results Of 8452 eligible patients, 50.2% initiated an ICS (68.0% high eosinophil) and 49.8% a non-ICS treatment (67.3% high eosinophil), with no difference in eosinophils between treatment groups (p=0.486). Risk of exacerbation was higher in patients prescribed ICS than non-ICS, but with a lower risk seen in those with high eosinophils (hazard ratio 1.12, 95% CI 1.06–1.19) than low eosinophils (1.30, 95% CI 1.20–1.43) (p-value for interaction, 0.005) (see figure 1). The association was attenuated but remained significant (p=0.02) in a model adjusted for co-variates including severity and baseline exacerbation frequency.

Conclusions This is the first study demonstrating significant predictive effect of blood eosinophils on ICS treatment outcomes in primary care, in a very large COPD population studied. In contrast to results from trials, the ICS group had worse outcomes, possibly due to residual confounding by indication. Blood eosinophils may be a low cost and acceptable way to identify patients most likely to benefit from ICS. Further work is needed to determine thresholds in primary care.
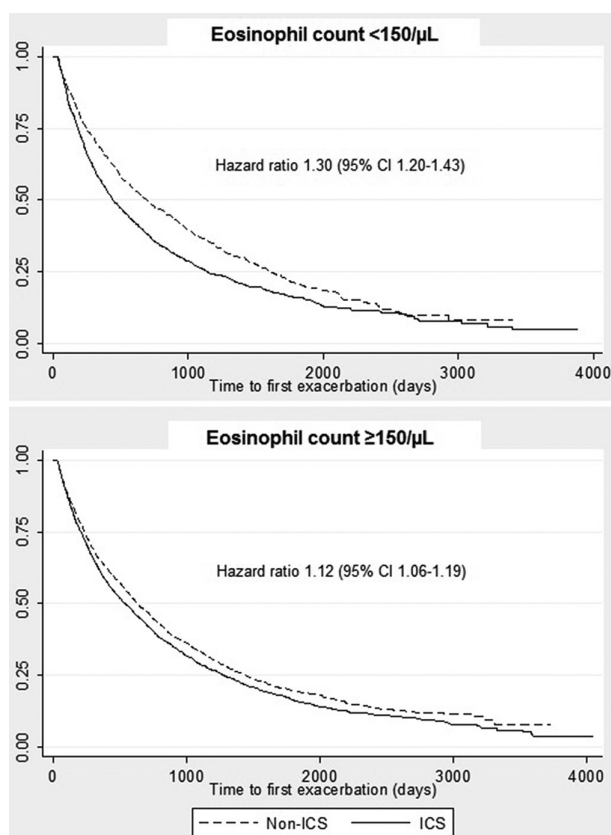
Abstract P123 Figure 1 Kaplan-Meier survival curves comparing time to first exacerbation after initiation of ICS treatment. Hazard ratio for interaction between the two eosinophil groups 0.86 (95% CI 0.77 to 0.95), p=0.0005

P124 DEMENTIA IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD): A UK BASED POPULATION-BASED STUDY

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Background Although there appears considerable burden from cognitive impairment in people with COPD, much less information is available about diagnosed dementia in patients with COPD.

Objective To determine the prevalence and incidence of dementia in patients with and without COPD in the UK using the electronic health record: The Health Improvement Network (THIN) database.

Materials and methods A matched case control and cohort study design using THIN were conducted. Patients with an incident COPD diagnosis, aged over 40 years old were matched by age, gender, and GP practice to up to 4 subjects without a COPD diagnosis. READ codes defined a dementia diagnosis. Multivariable conditional logistic regression was performed to calculate the odds ratio (OR) for the prevalence of dementia. Cox proportional hazard model was used to assess the effect of COPD on the risk of dementia. Results were adjusted for confounders.

Results A total of 65 068 patients with COPD and 2 49 166 matched non-COPD subjects were included. Overall, 4914 subjects (1.56%) had a coded dementia diagnosis. Prevalence of dementia was less in patients with COPD compared to non-COPD subjects, adjusted Odd Ratio (aOR), 0.75; 95%

confidence interval [CI] 0.65–87; p<0.001. The incidence of coded dementia following COPD diagnosis (n=64,280) was less than in non-COPD subjects following the index date (n=242,605), adjusted Hazard Ratio (aHR), 0.87, 95% CI 0.78–0.97, p=0.019.

Conclusion Prevalence at COPD diagnosis and incidence of coded dementia in patients with COPD was less than a matched population without COPD. Despite the reported greater proportion of patients with cognitive impairment, the fact dementia diagnosis is reported less frequently than a matched non-COPD population requires consideration.

P125 BALANCE IMPAIRMENT AND CLINICAL ASSOCIATIONS IN INDIVIDUALS WITH COPD: A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction People with Chronic Obstructive Pulmonary Disease (COPD) are four times more likely to fall than healthy peers, leading to increased morbidity, mortality and healthcare costs. Balance impairment in COPD has been linked to falls but the degree of balance dysfunction and mechanisms underlying such impairment in COPD are unknown. We conducted a systematic review to establish 1. the extent to which balance is impaired in COPD compared to healthy controls and 2. to determine the clinical factors that may contribute to balance impairment in COPD.

Methods We undertook a search of five electronic databases, of studies comparing individuals with COPD and healthy controls that measured static or dynamic balance. Meta-analysis was possible on three clinical balance measures which were assessed in five or more studies. A meta-regression using difference in% predicted FEV^1 as an indicator of disease severity was conducted. Finally, we performed a meta-analysis on correlation data of balance impairment and reduced quadriceps strength; the only associated factor assessed in five studies. A narrative summary was conducted when meta-analysis was not possible.

Results 3904 records were identified after de-duplication. 75 full texts were screened, with 23 studies included in the quantitative synthesis. People with COPD performed worse than healthy controls on Timed Up and Go (p≤0.005, 95% CI 0.964 to 2.257 s), Single Leg Stance (p=0.001, 95% CI −2.983 to −0.775 s) and Berg Balance Scale (p≤0.005, 95% CI −2.238 to −1.021), with large effect sizes (standardised difference in means=1.746, 1.879 and 1.630 respectively). There was no effect of disease severity. There was a weak to moderate association between clinical balance outcomes and reduced quadriceps strength (r=0.370, p≤0.005). Individual study results suggest balance impairment is associated with reduced physical activity and exercise capacity.

Conclusions People with COPD have large deficits in their balance compared to healthy controls and this appears related to reduced quadriceps strength, physical activity and exercise capacity. These factors are modifiable with exercise interventions and the findings of this review can be used to inform tailored interventions for balance impairment and supports that assessment and management of balance should be part of COPD care guidelines.

P126 FRAILTY IN HOSPITALISED COPD PATIENTS

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Background Chronic obstructive pulmonary disease (COPD) patients have multiple comorbidities and a high prevalence of frailty. Frailty is associated with increased hospital readmissions. Frailty increases length of stay (LOS) in patients admitted to acute medical units but has not been studied in COPD. There are conflicting results with regards to the effects of comorbidities on LOS in COPD. We examined relationships between frailty, comorbidities and LOS in COPD patients admitted to a London hospital trust with an acute exacerbation (AECOPD).

Methods The Rockwood Clinical Frailty score was recorded for 222 patients admitted with AECOPD between February 2017 and December 2017. This data was collated and referenced via the National COPD auditing tools. The medical records of a subset of 70 patients were examined to investigate whether the Frailty/Care of the Elderly medical teams were involved in their care.

Results 222 COPD patients (48% male) with an age range from 43–94 years were admitted during this time period. LOS ranged from 0–50 days (mean LOS 6.1 days, median LOS 5 days). The median Rockwood score was 5 (1 subject had a score of 1 and 4 subjects had a score of 9). LOS increased with increasing Rockwood score (figure 1), mean LOS was 3.27 days in patients with a score of 2 compared with 10.86 in patients with a score of 8 (p=0.038). There were weak but significant correlations between Rockwood score and LOS (r=0.26, p<0.0001) and number of comorbidities (r=0.19, p=0.025). Out of 70 patients, only 22 (31.4%) were reviewed by Frailty/Care of the Elderly team. The median Rockwood score of those not reviewed was 4, and 5 in those reviewed (p=0.06).
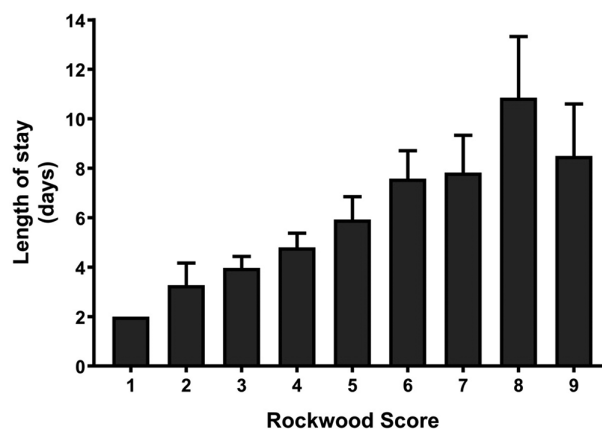
Abstract P126 Figure 1

Discussion There is a correlation between Rockwood frailty score and LOS in hospitalised COPD patients. Patients admitted with COPD exacerbation are not routinely seen by physicians with expertise in frailty and it is not clear how decisions are made as to which patients are seen. The Rockwood Frailty Score can identify those patients that may require greater integrated health and social care interventions and service adaption to facilitate Frailty Team review may improve outcomes for these patients.