

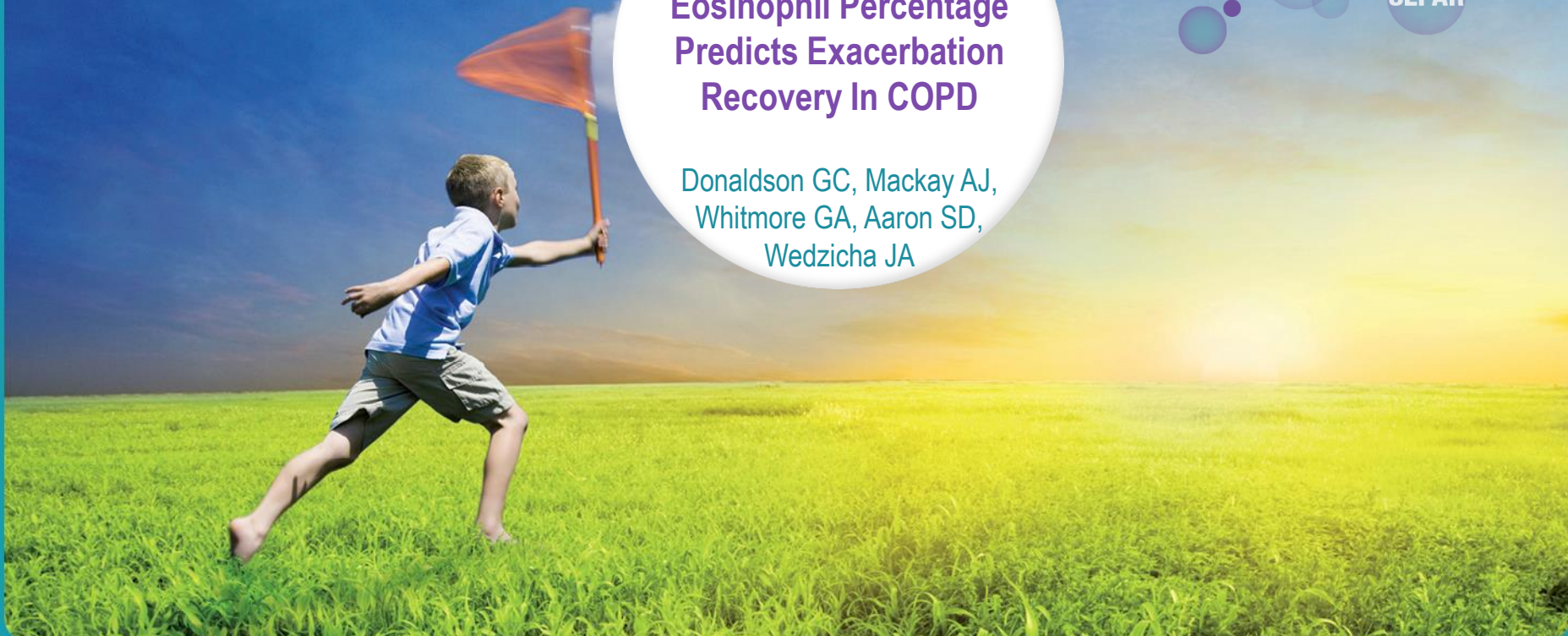
**[ATS] Stable Blood
Eosinophil Percentage
Predicts Exacerbation
Recovery In COPD**

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Rationale



A recent study has shown non-inferiority of blood eosinophilia at exacerbation to guide treatment of COPD exacerbations with oral corticosteroids (Bafadhel et al. AJRCCM 2012;186:48-55).

It was unclear whether eosinophil count measured at baseline (stable) or exacerbation would be the best indicator as 80 % of patients with ≥ 2 % eosinophil count at exacerbation had ≥ 2 % at baseline.

We examined in exacerbations treated with oral corticosteroids, whether the percentage of eosinophils in blood sampled at baseline was predictive of exacerbation duration.

Methods



This study consists of data collected from the London COPD cohort between 3/10/2005 and the 21/3/2014. COPD was defined as $FEV_1 < 80\%$, FEV_1 / FVC ratio $< 0,7$. Exacerbations were defined as the first of two or more days in which the patient recorded two or more new or worsening respiratory symptoms that had to include dyspnoea, sputum purulence or sputum volume. Exacerbation duration was defined as the number of days from onset until two consecutive days without worse than normal respiratory symptoms.

To allow for repeated measures this analysis was performed with shared frailty survival models. A stable blood sample was collected 4 weeks after and 2 weeks before the onset of any exacerbation.

Results



184 COPD patients had at least one oral corticosteroid treated exacerbation. Their mean FEV₁ was 1.22 l (SD 0.49); FEV₁ % predicted, 49.2 % (16.1); FEV₁ /FVC ratio, 0.46 (0.12); age 70.1 (8.6); 61.5 % male. There were an average 10.2 stable blood samples per patient: 61 patients had an average eosinophil count < 2 % eosinophils and 123 patients ≥ 2 %. No significant differences were seen between these two groups with the median annual exacerbation frequency in patients <2 % was 2.62 per year (IQR 1.96-3.8) and for patients ≥ 2 %, 2.54 per year (IQR 1.7-3.8; negative binomial regression p=0.89).

Results

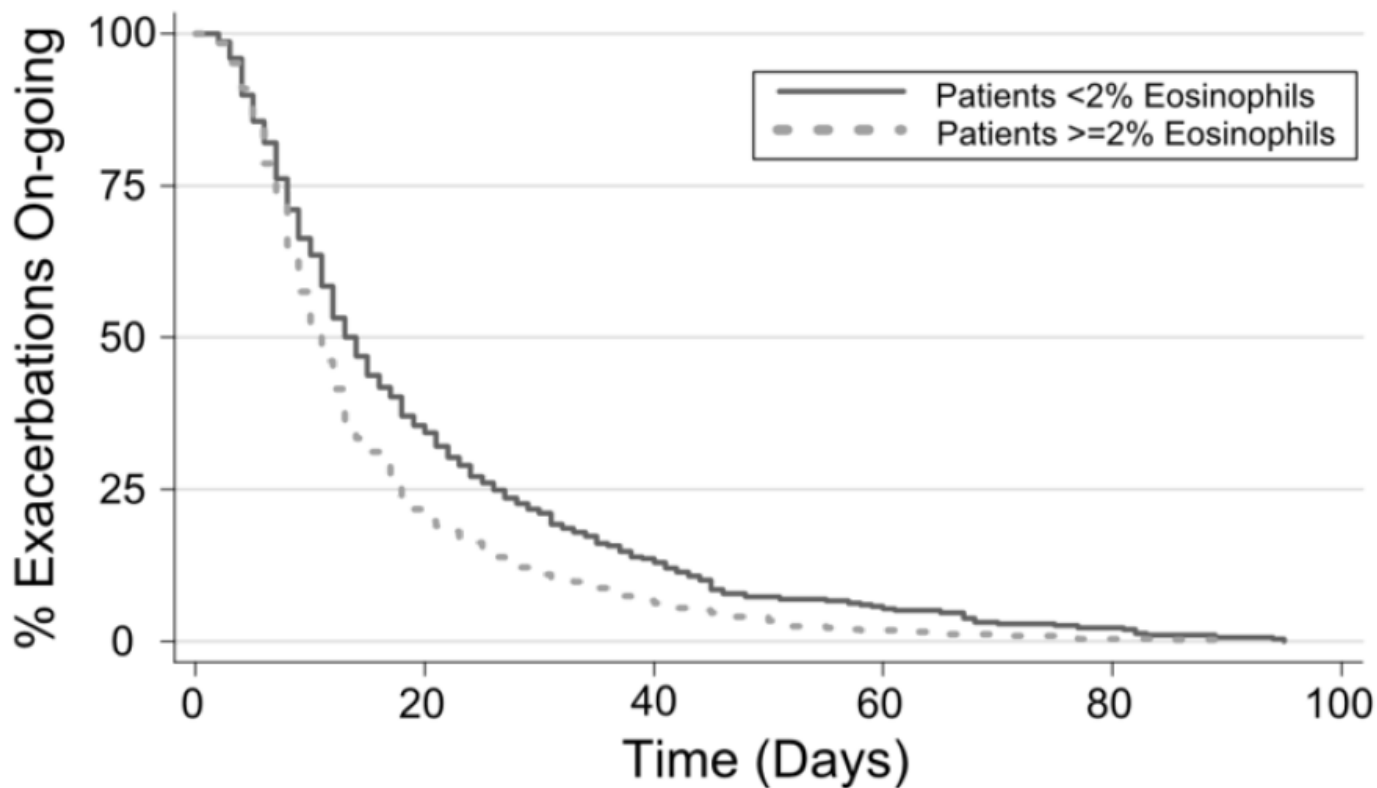


The 184 patients had 991 oral corticosteroid treated exacerbations (average 5.4 per patient) for which the duration of the exacerbation was known.

A raised stable eosinophil count was associated with a shorter exacerbation time; hazard ratio =1.34 (95 % CI 1.10-1.65; p=0.004; see figure 1).

The median exacerbations duration in patient $<2\%$ and $\geq 2\%$ was 13.5 days (IQR 8-26) and 11 days respectively (IQR 7-18; Wilcoxon; p=0.001).

Figure 1. Kaplan-Meier plot of exacerbation duration by stable percentage blood eosinophil count.





Conclusion

The results suggest that a stable eosinophil count may be able to classify patients prior to exacerbation presentation into whether they will have shorter exacerbations in response to oral corticosteroid therapy. This classification will be useful when rapid blood analysis is unavailable.