

Blood eosinophilia as a marker of early and late treatment failure in severe acute exacerbations of COPD

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Abstract

Background: Blood eosinophilia is frequently encountered in patients with AECOPD. However the impact of blood eosinophilia at admission in patients with AECOPD on outcome on the short and long term has not been extensively studied which was the objective of the present study.

Methods: We used data of 207 exacerbations from a randomized clinical trial on antibiotic prescription based upon CRP-levels versus GOLD guided strategy and analyzed the impact of blood eosinophils ($\geq 2\%$ of total white cell count and eosinophil count ≥ 300 cell/microliter) on clinical outcome.

Results: 207 patients were included of whom 39 (18.8%) had eosinophilia $\geq 2\%$, 23 patients (11.1%) had blood eosinophil ≥ 300 cell/microliter. Eosinophilia was associated with shorter median length of stay in the eosinophilic groups ($\geq 2\%$ and ≥ 300 cell/microliter) compared to the non-eosinophilic groups. Early treatment failure was reduced in the both the eosinophilic groups ($\geq 2\%$ and ≥ 300 cell/microliter). Late treatment failure (day 11-30) did not differ between the groups. Relapse, was more frequent the eosinophilic groups ($\geq 2\%$ and ≥ 300 cell/microliter), however in the latter group this did not reach statistical significance. Eosinophilia $\geq 2\%$ was a risk factor for having relapse (eosinophilia $\geq 2\%$: HR= 2.351; 95%CI 1.335-4.139), whereas eosinophilia $< 2\%$ was associated with a lower risk factor for having early treatment failure (HR=0.339 95%CI 0.122-0.943).

Conclusion: We showed that blood eosinophilia at admission in patients with an AECOPD is associated with higher short-term treatment success rate. However, blood eosinophilia $\geq 2\%$ predicts a less favorable outcome due to an increased risk of relapse.