
Sputum eosinophilia is a useful biomarker for treatment failure of biologics for severe eosinophilic asthma

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Background

Biomarkers used for phenotyping severe eosinophilic asthma patients include blood eosinophil count and FeNO. However, these biomarkers may not always correlate to airway inflammation. In patients who experience treatment failure on anti-IL5 treatments, investigating airway inflammation by induced sputum, may be helpful in the decision to switch to another biological.

Aim

With this study we aim to evaluate the value of induced sputum eosinophilia (eos) in the decision of changing biological treatment for severe eosinophilic asthma.

Methods

In a retrospective study patients with clinical treatment failure and switch between biologics were identified. Sputum eos, spirometry, blood eosinophil count, FeNO and asthma control score (ACT) were registered.

Results

From 2016-2021 11 patients with a median age of 68 years (28;76) were identified. They had been treated with an anti-IL5 for a median of 479 days (253-1531), before a decision to switch to another anti-IL5 drug was taken. The mean exacerbation rate was 1.34 per year. 6 of the 11 patients took a median dose of 5 mg oral corticosteroid (5; 10) daily.

Median level of eosinophils in induced sputum was 5% (1; 28), blood eosinophils were low with a median of $0.07 \times 10^9/l$ (0,03; 0,1) while median FeNO was 30 ppb (10; 90). Median ACT was 20 (9; 23), and median FEV1% predicted was 80% (50; 113).

After switching treatment exacerbations decreased to 0,2 per year, while ACT increased to 21,5 (18; 24).

Conclusion

Sputum eos was a useful tool when deciding to switch between anti-IL5 treatments because of treatment failure – while blood eosinophil count and FeNO were in the normal range despite of airway inflammation present in sputum.
