Exacerbation Reduction in Patients Based Upon Baseline Eosinophil Counts and FEV1, Reversibility

**Aims**

Mepolizumab has been shown to reduce the rate of clinically significant exacerbations, as well as improve asthma control compared with placebo in patients with severe eosinophilic asthma. Previous studies showed that baseline blood eosinophil count is predictive of response to mepolizumab. 1-4

The aim of this post hoc analysis of the DREAM study was to evaluate the efficacy of mepolizumab in patients with severe eosinophilic asthma over a 52-week period according to baseline blood eosinophil count and forced expiratory volume in 1 second (FEV1) reversibility.

**Methods**

**DREAM**

Methods

**Post hoc analysis**

**Aims**

- To evaluate the efficacy of mepolizumab in patients with severe eosinophilic asthma over a 52-week period according to baseline blood eosinophil count and FEV1 reversibility.

**Post hoc subgroups**

- Patients were stratified by reversibility and baseline eosinophil count.

**Results**

<table>
<thead>
<tr>
<th>Baseline Eosinophil Count</th>
<th>FEV1 Reversibility</th>
<th>Mepolizumab 750 mg IV</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥150 μL/L</td>
<td>≥30%</td>
<td>0.59 (0.40, 0.87)</td>
<td>1.00 (0.77)</td>
</tr>
<tr>
<td>≥150 μL/L</td>
<td>&lt;30%</td>
<td>1.51 (0.34, 6.61)</td>
<td>1.00 (1.17)</td>
</tr>
<tr>
<td>&lt;150 μL/L</td>
<td>≥30%</td>
<td>3.20 (0.77, 13.0)</td>
<td>1.00 (1.62)</td>
</tr>
<tr>
<td>&lt;150 μL/L</td>
<td>&lt;30%</td>
<td>6.61 (0.87, 51.0)</td>
<td>1.00 (0.23)</td>
</tr>
</tbody>
</table>

**Conclusions**

- Previous analyses have shown an association between exacerbation reduction with mepolizumab and higher baseline eosinophil counts.
- This exploratory analysis reaffirms that baseline blood eosinophil counts remain the most useful predictor of improved response to mepolizumab treatment in terms of exacerbations.
- Based on this analysis the role of reversibility in predicting response to mepolizumab treatment is still unclear and may not have additional impact, although the first number of patients receiving treatment in this analysis (particularly among non-responsive patients) is limited.
- In cases where patients performed worse with mepolizumab compared with placebo, this was driven mainly by a relatively small number of patients with baseline blood eosinophil counts ≥12 years, so the results may not be generalizable to all patients.
- Furthermore, it is possible that some patients classified as non-reversible may also have had airflow variability or hyperresponsiveness.

**References**


**Presented at the American Academy of Allergy Asthma & Immunology Annual Meeting, Philadelphia, PA, USA, March 13–16, 2020**