Efficacy of Mepolizumab Stratified by Baseline Blood Eosinophil Count

Poster No. 076

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Aims

Mepolizumab is approved as an add-on maintenance treatment for patients with severe eosinophilic asthma.¹ Among these patients, it reduces blood eosinophil counts and the rate of clinically significant exacerbations, and improves lung function and health-related quality of life compared with placebo.²⁻⁴ Evidence suggests that baseline blood eosinophil counts are predictive of response to mepolizumab treatment.¹⁻⁴

Using data from the previous mepolizumab clinical trials, we performed a meta-analysis to assess the relationship between baseline eosinophil counts and mepolizumab efficacy in patients with severe eosinophilic asthma.

Methods

A post hoc meta-analysis was performed of the DREAM (NCT01000506), RESPONSE (NCT01619404), and MUSCA (NCT01691521) studies, which compared mepolizumab with placebo, with a trend towards greater improvements with increasing baseline blood eosinophil count.

Results

Patients receiving mepolizumab experienced fewer clinically significant exacerbations than those receiving placebo, with a trend towards greater improvements with increasing baseline blood eosinophil count.

Mepolizumab was associated with an improvement from baseline at study end in SGRQ total score compared with placebo, with a trend towards greater improvements with increasing baseline blood eosinophil count.

Conclusions

These findings suggest that while patients with baseline blood eosinophil count ≥500 cells/µL may experience greater improvements with mepolizumab versus placebo, patients with a lower baseline blood eosinophil count may also benefit from treatment with mepolizumab. Further studies are recommended to clarify the role of baseline blood eosinophil count in determining an appropriate treatment strategy for patients with severe eosinophilic asthma.

Baseline demographics and clinical characteristics

<table>
<thead>
<tr>
<th>Age, yrs</th>
<th>Female, n (%)</th>
<th>BMI, kg/m²</th>
<th>Duration of asthma_years</th>
<th>Exacerbations in previous year, n (%)</th>
<th>% patients with a previous exacerbation</th>
<th>FEV₁ postbronchodilator, % predicted</th>
<th>FEV₁/FVC ratio</th>
<th>FEV₁/FVC ratio (95%CI)</th>
<th>SGRQ total score</th>
<th>ACO 6 score</th>
<th>Blood eosinophil count, cells/µL</th>
<th>Blood eosinophil count, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 (76)</td>
<td>301 (81)</td>
<td>22.8 (4.1)</td>
<td>16.3 (7.9)</td>
<td>359 (58)</td>
<td>56.2 (9.9)</td>
<td>75.4 (5.6)</td>
<td>11.7, (2.2)</td>
<td>66.2 (22.8, 109.6)</td>
<td>16.6 (2.3)</td>
<td>2.3 (1.1)</td>
<td>25 (59)</td>
<td>11.7 (5, 21)</td>
</tr>
</tbody>
</table>

Values are presented as mean (SD) unless otherwise stated. *Data are presented as geometric mean (SD on log transformed eosinophil count).

References

³ Favors mepolizumab (mepo vs placebo).
⁴ Differences from baseline.

Disclosures

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