Efficacy of Mepolizumab Stratified by Baseline Blood Eosinophil Count

Poster No. 076

Maselli DJ1, Gonzalez E2, Yancey S3, Price RG4, Casale T5

Aims

Mepolizumab is approved as an add-on maintenance treatment for patients with severe eosinophilic asthma.1,2 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.3-5 Evidence suggests that baseline blood eosinophil counts are predictive of response to mepolizumab treatment.2-6

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

Studies Phase IIb/III

- DREAM2
- MUSA
- DREAM MENSA
- MUSCA
- MUSCA4
- MENSA

Evidence of clinically significant exacerbations, and improves lung function and health-related quality of life compared with placebo.3-5

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.

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

<table>
<thead>
<tr>
<th>Blood eosinophil count threshold</th>
<th>Rate ratio (95% CI)</th>
<th>Odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥500 cells/µL</td>
<td>0.50 (0.43, 0.58)</td>
<td>0.50 (0.43, 0.58)</td>
</tr>
<tr>
<td>≥300 cells/µL</td>
<td>0.69 (0.49, 0.96)</td>
<td>0.69 (0.49, 0.96)</td>
</tr>
<tr>
<td>≥150 cells/µL</td>
<td>0.85 (0.70, 1.03)</td>
<td>0.85 (0.70, 1.03)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Blood eosinophil count threshold</th>
<th>Difference (mepo vs placebo) (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥500 cells/µL</td>
<td>-14.0 (-12.6, -14.5)</td>
</tr>
<tr>
<td>≥300 cells/µL</td>
<td>-8.6 (-12.6, -4.5)</td>
</tr>
<tr>
<td>≥150 cells/µL</td>
<td>-8.2 (-11.1, -5.3)</td>
</tr>
</tbody>
</table>

Conclusions

This analysis and the parent studies were funded by GlaxoSmithKline (GSK; meta-analysis 213079 [MEA112997/NCT01000506; MEA115588/NCT01691521; MEA120919/NCT01691521]).

● These data confirm the utility of the eosinophil thresholds for identifying patients with a consistent response to mepolizumab treatment.

Disclosure

- This analysis and the parent studies were funded by GlaxoSmithKline (GSK).
- The authors of this analysis have received personal fees from GSK.

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