### Switch From Omalizumab to Mepolizumab in Severe Eosinophilic Asthma: Effect of Weight and BMI

**Poster No. P205**

#### Aims

Mepolizumab and omalizumab are biologic therapies approved as add-on treatments for patients with severe eosinophilic asthma and severe allergic asthma, respectively. However, owing to overlap in the clinical characteristics and possible underlying mechanisms (phenotypes) associated with these two severe asthma phenotypes, some patients are eligible for both mepolizumab and omalizumab in clinical practice. In the OSMO study, patients with severe eosinophilic asthma not optimally controlled despite receiving standard of care therapy plus omalizumab were switched to mepolizumab treatment. They experienced significant and clinically relevant improvements in asthma control, health-related quality of life, lung function, and asthma exacerbations with mepolizumab. Clearly, a worsened outcome of asthma symptoms and poor asthma control. This post hoc analysis of the OSMO study therefore aimed to assess the impact of weight and body mass index (BMI) on the treatment response to mepolizumab.

#### Methods

**OSMO Study design**

- **Randomized, Multicenter, Open-label Study**
- **Switch study**
- **2:1 randomization to treatment groups**
- **12 months follow-up**
- **Patients were switched from omalizumab to mepolizumab at Week 32**
- **Co-primary endpoints**
  - **Quality of life**
  - **Asthma symptoms**
  - **Asthma exacerbations**

**Endpoints**

- **Mean change from baseline in ACQ-5 score**
- **Mean change from baseline in SGRQ total score**
- **Exacerbations over the study period**

**Outcome variable**

- **Change in ACQ-5 score, irrespective of weight or BMI at screening**

**Patients receiving mepolizumab experienced a lower rate of clinically significant exacerbations over the study period compared with the previous 12 months, irrespective of weight or BMI at screening**

#### Results

**Baseline demographics and clinical characteristics of the OSMO ITT population (n=135)**

- **Demographics**: Age, gender, ethnicity, smoking status
- **Clinical characteristics**: Baseline FEV1, SGRQ total score, prior omalizumab treatment

**Mepolizumab was associated with improvements from baseline to Week 32 in ACQ-5 score, irrespective of weight or BMI at screening**

**Mepolizumab was associated with improvements from baseline to Week 32 in SGRQ total score, irrespective of weight or BMI at screening**

**Conclusions**

- In this hypothesis-generating, post hoc analysis, weight and BMI did not affect the improvements in asthma control, health status, and exacerbation rates seen with mepolizumab treatment in patients with severe eosinophilic asthma previously controlled by omalizumab.

- Improvements in FEV1 were observed with mepolizumab in all weight subgroups ≥370 kg and all BMI subgroups ≥22.5 kg/m².

- These data suggest that patients with severe eosinophilic asthma who are not optimally controlled with omalizumab may receive clinical benefit from mepolizumab treatment, irrespective of their weight or BMI.

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