Aims

Severe asthma is a heterogeneous disease associated with a broad range of phenotypes and clinical characteristics. Mepolizumab is an anti-IL-5 monoclonal antibody approved as an add-on therapy for patients with a severe eosinophilic asthma phenotype. Compared with placebo, mepolizumab in addition to optimized standard of care has been shown to reduce exacerbation rate and OCS use while improving lung function, health-related quality of life, and asthma control in patients with severe eosinophilic asthma. This study aimed to investigate whether baseline clinical asthma characteristics could influence the efficacy of mepolizumab in patients with severe eosinophilic asthma.

Methods

A multicenter, randomized, double-blind, placebo-controlled phase III trial (MENSA) was conducted in 351 centers across 32 countries. Patients (at least 12 years of age) with severe asthma were randomized to receive mepolizumab or placebo every 4 weeks for 1 year. Primary endpoints were change from baseline in trough FEV1 and annualized rate of exacerbations during the year. Secondary endpoints included changes from baseline in 16 predefined clinical asthma phenotypes. These included, among others, age at asthma onset, baseline lung function, emergency treatment use, exacerbations, and treatment with glucocorticoids.

Results

Clinically significant exacerbations were reduced by 41-65% with mepolizumab vs placebo, across age at asthma onset, lung function, and emergency treatment use.

Health-related quality of life and asthma control improved with mepolizumab vs placebo, across most baseline characteristics subgroups.

Conclusions

Mepolizumab was associated with clinical benefits in patients with varying age at asthma onset, lung function, emergency reversibility, and asthma control at baseline. These results indicate that mepolizumab is likely to be beneficial for patients with severe eosinophilic asthma who have a broad range of baseline clinical characteristics.

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