Clinical and Lung Function Article Outcomes After Anti-IgE or Anti-IL5 Therapy in Severe Asthma

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Publication Year	2022
Grant Number	
DOI link	https://doi.org/10.2147/JAA.S348137

Abstract

Background

Although there have been indirect comparisons of the relative efficacy of mepolizumab (anti-IL-5) and benralizumab (anti-IL-5Rα) in severe asthma patients, long-term direct head-to-head comparisons are lacking. Here, we (i) examined the effect of mepolizumab, benralizumab, and omalizumab on symptom control and lung function parameters over time; and (ii) compared the efficacy of mepolizumab and benralizumab on symptom control and lung function outcomes.

Methods

This was a retrospective study of patients with severe asthma taking anti-IgE (omalizumab; n = 24), anti-IL5 (mepolizumab, n = 23), or anti-IL-Rα (benralizumab; n = 12) therapy. Data were extracted on (i) Asthma Control Questionnaire (ACQ-5) scores; (ii) forced expiratory volume over 1 second (FEV1); and (iii) peak expiratory flow rate (PEFR) at 4–6 months and 1 year and documented reductions in exacerbations. Clinical and lung function outcomes were compared between patients taking mepolizumab and benralizumab and over time.

Results

There were significant decreases in ACQ-5 scores (3.3 ± 0.93 to 1.7 ± 0.98 for mepolizumab, 3.5 ± 0.72 to 1.6 ±0.89 for benralizumab, and 3.5 ± 0.95 to 1.7 ± 1.1 for omalizumab; t-test, all $p < 0.0001$) but not increases in FEV1 and PEFR for all three agents after 4–6 months of therapy, which persisted but did not decrease further at one year. There were trends toward a greater percentage increase in FEV1 and PEFR from baseline and a decrease in the number of exacerbations in patients taking benralizumab than those taking mepolizumab.

Conclusion

Although limited by a small sample size, this real-world, head-to-head comparison of mepolizumab and benralizumab is consistent with comparative data on asthma biologicals and indirect comparisons showing no major difference in efficacy. The study also generates new testable hypotheses about the efficacy of asthma biologicals in different patient populations