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Advancing the research on management of global airway disease: insights from a post hoc analysis

Chronic rhinosinusitis with nasal polyps (CRSwNP), asthma, and non-steroidal anti-inflammatory drug-exacerbated respiratory disease (N-ERD) frequently coexist, forming a complex multimorbid condition often referred to as "global airway disease." This concept reflects shared pathophysiological mechanisms of eosinophilic inflammation and underscores the need for integrated treatment strategies targeting both upper and lower airway manifestations [1]. The burden of severe CRSwNP, asthma, and N-ERD is substantial, particularly in terms of reduced quality of life, recurrent exacerbations, revision endoscopic sinus surgeries (ESS), and healthcare utilization [2]. Biologics represent a significant advancement in the treatment of global airway diseases.

In this issue of Rhinology, Mullol et al. present a post hoc analysis [3] of the Phase III SYNAPSE study [4], evaluating the potential dual effect of mepolizumab, an anti-IL-5 monoclonal antibody, on upper and lower airway symptoms in patients with global airway disease. The analysis focused on patients with severe CRSwNP and concomitant asthma and/or N-ERD, assessing the odds of achieving a minimal clinically important difference (MCID) in both the Sino-Nasal Outcome Test (SNOT-22) and the Asthma Control Questionnaire (ACQ-5) [3].

Of the 407 patients with severe CRSwNP enrolled in SYNAPSE, 71% had a clinical history of asthma at baseline, and 27% had N-ERD. The results of Mullol et al. demonstrated significant improvements in patients treated with mepolizumab compared to placebo, with benefits observed as early as four weeks after treatment initiation and sustained for 52 weeks. For instance, twice as many patients treated with mepolizumab met stringent thresholds for simultaneous improvement in SNOT-22 and ACQ-5 scores compared to placebo. These findings suggest that targeting eosinophilic inflammation can provide concurrent relief for sinonasal and asthma-related symptoms in patients with multimorbid airway disease.

Global airway disease often progresses despite conventional therapies, highlighting the critical need for novel treatments that not only alleviate symptoms but also halt or reverse disease progression. While the study by Mullol et al. demonstrates the promise of mepolizumab in managing patients with concomitant CRSwNP, asthma, and N-ERD, advanced therapeutics needs to be evaluated within a broader context in the future. Comparative studies are needed to assess the efficacy of different biologics and their potential to prevent disease progression. Additionally, future research should compare biologics to other treatments, such as acetylsalicylic acid therapy and ESS.

In conclusion, while this post hoc analysis of the SYNAPSE study underscores the potential of mepolizumab to improve outcomes for patients with severe multimorbid airway disease, it also emphasizes the need for continued research. Advancing personalized medicine will be critical to optimizing outcomes and addressing the significant burden of global airway disease.

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