

Dupilumab found to lessen disease in COPD patients with type 2 inflammation

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Chronic obstructive pulmonary disease patients with type 2 inflammation saw rapid and sustained improvements in their disease after treatment with the monoclonal antibody dupilumab, according to a

yearlong, Phase 3 clinical trial reported in the *New England Journal of Medicine*.

These improvements—as measured by a significantly lower annualized rate of acute exacerbations, significantly better lung function and [quality of life](#), and significantly less [severe symptoms](#) than placebo-treated adults with COPD—were observed within two to four weeks after the initiation of dupilumab and were sustained throughout the 52-week trial period. This monoclonal antibody is the first biologic shown to improve clinical outcomes in COPD.

"Dupilumab has the potential to impact the vicious cycle of exacerbations and lung function decline in patients with COPD with type 2 inflammation and high [exacerbation](#) risk, who are already on optimal inhaled triple therapy," said Surya Bhatt, M.D. "Dupilumab significantly improves respiratory symptoms and also helped improve health-related quality of life measures."

Bhatt, an associate professor and endowed professor of airways disease in the University of Alabama at Birmingham Department of Medicine Division of Pulmonary, Allergy and Critical Care Medicine, and Klaus Rabe, M.D., Ph.D., a professor of pulmonary medicine at the Lungen Clinic, University of Kiel, Germany, co-led the international multicenter [clinical study](#) that enrolled 468 patients in the dupilumab group and 471 patients in the placebo group.

COPD patients often have markedly reduced lung function and an increased risk of exacerbations, indicated by worsening cough and labored breathing or an increased volume of purulent sputum. Disease exacerbations can lead to an increased risk of subsequent exacerbations, accelerated [lung-function decline](#) and an increased risk of death. Thus, say Bhatt and Rabe, improving lung function and reducing exacerbations are unmet needs in patients with COPD.

"The World Health Organization estimates that, by 2060, more than 5.4 million deaths per year will be attributable to COPD and related coexisting conditions," Bhatt said. "Exacerbations of COPD, regardless of severity, lead to poorer quality of life, increased hospitalizations and an increased risk of death."

COPD is generally thought of as an inflammatory disease predominantly driven by neutrophilic inflammation, but it is being increasingly recognized that approximately 20 percent to 40 percent of patients with COPD have a predominant type 2 inflammation. This is commonly detected by elevated blood eosinophil counts and is associated with high risk of exacerbations.

Dupilumab blocks the shared receptor component for interleukin-4 and interleukin-13, two cytokines that are key drivers of type 2 inflammation. While interleukin-5, another cytokine involved in type 2 inflammation, drives eosinophil maturation and survival, it has not been a useful drug target in COPD. "To date, studies of anti-interleukin-5 biologic agents in the treatment of COPD have produced mixed results with respect to reduction in the number of exacerbations and have provided no evidence of improvement in lung function, abatement of symptoms or increase in quality of life, despite the depletion of eosinophils in peripheral blood that is known to occur with these agents," Bhatt said.

Besides effectiveness, the double-blind, randomized trial also showed safety, with a similar incidence of adverse events observed in both the trial groups. Publication of the study in the *New England Journal of Medicine* coincided presentation of these results at the American Thoracic Society's 2023 International Conference in Washington, D.C.

More information: Surya P. Bhatt et al, Dupilumab for COPD with Type 2 Inflammation Indicated by Eosinophil Counts, *New England*

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