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Patient experiences during COPD care using biologics: a scoping review

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Abstract

Background: Recognizing the complexity of COPD's inflammatory nature and the unmet needs for triple (or dual) therapy in some patients highlights the necessity of exploring targeted biologics (Bs) to optimize COPD care.

Aims: To examine the experiences of COPD patients using targeted Bs against specific cytokines and their receptors.

Methods: A scoping review was conducted by systematically searching MEDLINE and Cochrane Library for studies published from 2005 to January 2025. We screened titles and abstracts and assessed full texts for inclusion based on pre-defined criteria.

Results: After deduplication and evaluating relevance, we included 63 articles. Bs targeting neutrophilic (NEU) inflammation have not shown any benefits in patient-important outcomes (BPIO). Evidence of harm (cancer and pneumonia) was observed in patients treated with infliximab.

Eosinophil (EOS)-targeted therapies have shown more promising results and may benefit up to 40% of COPD patients. Elevated blood EOS levels (≥ 300 cells/μL) in the stable COPD phase contributed to the most significant benefit, including improved FEV_1, especially among patients not receiving oral corticosteroids. Only dupilumab improved quality of life (moderate certainty) and reduced exacerbations with high certainty. Safety outcomes found moderate certainty for dupilumab, mepolizumab and benralizumab.

Therapy targeting alarmins, signaling molecules that initiate an inflammatory response for both NEU and EOS types, is believed to be a promising direction. Preliminary results for itepekimab, tezepelumab and astegolimab showed low certainty of BPIO.

Conclusions: Careful patient selection and identification of COPD phenotypes and endotypes are crucial to benefit from Bs.

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