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(copd OR "Pulmonary Disease, Chronic Obstructive"[Mesh])

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Review

Ther Adv Chronic Dis

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Metabolic dysfunction-associated steatotic liver disease: an emerging comorbidity in COPD

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Affiliations Expand

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- PMCID: PMC12476507
- DOI: 10.1177/20406223251378868

Abstract

Chronic obstructive pulmonary disease (COPD) and metabolic dysfunction-associated steatotic liver disease (MASLD) are highly prevalent conditions that frequently coexist. MASLD, now the leading cause of chronic liver disease globally, affects up to 25% of the population and is increasingly recognized in COPD patients. Shared cardiometabolic risk factors, chronic inflammation, and lipid-mediated injury underpin their pathophysiological link. This review outlines the epidemiology, shared mechanisms, and clinical impact of MASLD in COPD, as well as diagnostic strategies and current management approaches. Recognizing MASLD as a clinically significant comorbidity in COPD may offer new opportunities for risk stratification, integrated care, and targeted therapeutic interventions, underscoring the need for further research into their mechanistic interplay and bidirectional impact.

Keywords: chronic obstructive; inflammation; metabolic dysfunction-associated steatotic liver disease; metabolic syndrome; morbidity; non-alcoholic fatty liver disease; pulmonary disease.

Plain language summary

COPD is a chronic lung disease that often comes with other health problems. One common but often overlooked problem in people with COPD is a fatty liver condition now called MASLD (previously known as NAFLD). MASLD happens when too much fat builds up in the liver in people with metabolic issues like obesity or diabetes. Recent research shows many people with COPD also have MASLD. This summary explains how COPD and MASLD are connected and why it matters. Both diseases can be linked by risk factors such as being overweight and inactive, and they share harmful processes like ongoing low-level inflammation in the body. In fact, having MASLD can worsen a COPD patient's overall health, leading to higher risks of heart problems and possibly more severe lung issues. Doctors should be aware that COPD patients might have this liver condition. Simple blood tests or scans can check for MASLD, and treating it, for example, through weight loss, exercise, and proper medications, might improve patient outcomes. Overall, recognizing and addressing the fatty liver disease in COPD patients is important to provide better, whole-person care. Future research will tell us if treating MASLD also helps people's COPD and prevents other complications.

Conflict of interest statement

The authors declare that there is no conflict of interest.

Supplementary info

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2

Clin Respir J

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. 2025 Oct;19(10):e70128.

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The Correlation Between NLR, RDW, and Pulmonary Hypertension in Patients With Bronchiectasis and Chronic Obstructive Pulmonary Disease Overlap Syndrome

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- DOI: 10.1111/crj.70128

Abstract

Introduction: Based on the analysis of the relationship between neutrophil to lymphocyte ratio (NLR) and red blood cell distribution width (RDW) and pulmonary hypertension (PH) in patients with bronchiectasis and chronic obstructive pulmonary disease overlap syndrome (BCOS), this paper aims to explore the indexes that not only represent the severity of patients with BCOS overlapping PH but also are highly related to BCOS overlapping PH.

Methods: The clinical data of 159 patients with BCOS admitted to Qilu Hospital of Shandong University Dezhou Hospital from January 2019 to November 2024 were collected and analyzed. All the patients had complete color Doppler echocardiography at this hospital and were separated into experimental group (106 cases, BCOS with PH) and control group (53 cases, BCOS not combined with PH group), according to whether they were complicated with pulmonary hypertension or not. And then the experimental group was divided into mild, moderate and severe subgroups. The correlation of NLR, RDW with pulmonary artery systolic blood pressure (PASP) in BCOS patients was analyzed. And whether there were differences or not between NLR and RDW among experimental group, control group as well as subgroups was compared. Furthermore, receiver operating characteristic (ROC) curves were constructed to evaluate the efficacy of NLR and RDW in distinguishing between "PH-complicated" and "non-PH-complicated" statuses among BCOS patients at the cross-sectional level.

Results: First, the level of NLR and RDW in experimental group was higher than those in control group, in addition the difference was statistically significant ($p < 0.05$). Second, significant intergroup differences in NLR and RDW levels were

observed among the three subgroups of the experimental group (NLR: $p < 0.001$; RDW: $p = 0.011$). Specifically, both NLR and RDW levels in the severe PH subgroup were significantly higher than those in the mild PH subgroup (NLR: adjusted $p < 0.001$; RDW: adjusted $p = 0.009$). Additionally, NLR levels in the severe PH subgroup were higher than those in the moderate PH subgroup (adjusted $p = 0.011$), whereas no statistically significant difference in RDW levels was noted between the severe and moderate PH subgroups (adjusted $p = 0.148$). Furthermore, there were no significant differences in NLR or RDW levels between the mild and moderate PH subgroups (NLR: adjusted $p = 0.196$; RDW: adjusted $p = 0.607$). Third, the level of NLR and RDW was positively correlated with PASP ($r = 0.294, 0.259$; $p < 0.05$). Fourth, Multivariate logistic regression analysis revealed that decreased PO_2, NLR, and RDW are independent risk factors for PH development in BCOS patients (all $p < 0.05$). Fifth, ROC curve results showed the areas under the curve (AUC) of NLR, RDW and their combined detection in differentiating BCOS patients with and without PH were 0.628, 0.751, and 0.756 respectively. In particular, RDW performed better than NLR in differentiating with regard to discriminative ability. Furthermore, compared to RDW, the AUC of the combined detection was higher, meanwhile, its specificity was greatly enhanced than both single indicators. These results indicate that the combined detection exhibits better capability in identifying PH complicating BCOS at the cross-sectional level.

Conclusions: The level of NLR and RDW is related to the severity of pulmonary arterial pressure in patients with BCOS. The two indicators can serve as a significantly relevant factor for pulmonary hypertension complicating BCOS.

Keywords: bronchiectasis and chronic obstructive pulmonary disease overlap syndrome; neutrophil to lymphocyte ratio; pulmonary hypertension; red blood cell volume distribution width.

- 29 references

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Indian Pacing Electrophysiol J

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Chronic Obstructive Pulmonary Disease is Associated with Higher Recurrence Rates of Atrial Fibrillation Following Catheter Ablation

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- DOI: 10.1016/j.ipej.2025.09.006

Abstract

Background: Patients with atrial fibrillation (AF) and chronic obstructive pulmonary disease (COPD) are at increased risk of cardiovascular mortality compared to patients with AF alone. Consequently, employing rhythm control strategies such as AF catheter ablation could offer substantial benefits to patients with COPD. However, the impact of COPD on AF ablation outcomes is not well established.

Methods: In this single-center case control study, we retrospectively analyzed 200 patients with AF and COPD, 52 of whom underwent AF catheter ablation. Those who underwent ablation were matched with a control group of patients with AF but without COPD who underwent ablation. Ablation outcomes were compared between the groups. Univariate and multivariable analysis were conducted for prediction of AF recurrence.

Results: Compared to the controls, cases with COPD were more likely to have AF recurrence following catheter ablation (OR 13.42, P-value=0.0001). Multivariable analysis revealed predictors of AF recurrence following catheter ablation included decreased use of loop diuretics and amiodarone. Patients with severe or very severe COPD were more likely to have left atrial enlargement than patients with mild or moderate COPD (OR 2.28, P-value=0.026).

Conclusion: Patients with AF and COPD were more likely than patients with AF but without COPD to experience AF recurrence following catheter ablation. Predictors of AF recurrence included decreased use of loop diuretics and amiodarone. Our study demonstrates that while ablation in patients with COPD is safe, ablation in patients with COPD is associated with higher AF recurrence rates.

Keywords: atrial fibrillation; catheter ablation; chronic obstructive pulmonary disease; left atrium.

Conflict of interest statement

Declaration of Competing Interest ☒ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Elaine Y. Wan reports a relationship with Boston Scientific Corporation that includes: consulting or advisory. Elaine Y. Wan reports a relationship with Medtronic that includes: consulting or advisory. Elaine Y. Wan reports a relationship with Cardiologs that includes: consulting or advisory. Elaine Y. Wan reports a relationship with Sanofi that includes: consulting or advisory. Elaine Y. Wan reports a relationship with National Institutes of Health that includes: funding grants. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Eur Respir J

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European Respiratory Society Clinical Practice Guideline for the Management of Adult Bronchiectasis

James D Chalmers [1], Charles S Haworth [2], Patrick Flume [3], Merete B Long [4], Pierre Régis Burgel [5], Katerina Dimakou [6], Francesco Blasi [7 8], Beatriz Herrero-Cortina [9 10], Raja Dhar [11], Sanjay H Chotirmall [12 13], Felix C Ringshausen [14 15 16], Josje Altenburg [17 18], Lucy Morgan [19], Mattia Nigro [20 21], Megan L Crichton [4], Chayenne Van Meel [22], Oriol Sibila [23], Alan Timothy [24], Eliza Kompatsiari [24], Tanja Hedberg [24], Thomas Vandendriessche [22], Pamela J McShane [25], Thomy Tonia [26], Kevin Winthrop [27], Michael R Loebinger [28], Natalie Lorent [29 30], Pieter Goeminne [31], Michal Shteinberg [32], Eva Polverino [33], Stefano Aliberti [20 21]

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- **PMID: 41016738**

- **DOI: 10.1183/13993003.01126-2025**

Abstract

Background: Bronchiectasis is a common lung condition associated with wide range of infectious, immunological, autoimmune, allergic and genetic conditions. Exacerbations and daily symptoms have the largest impact on patients and healthcare systems, and they are the key focus of treatments. Current practice is heterogeneous globally, and bronchiectasis has historically been a neglected disease. Here, we present evidence-based international guidelines for the management of adults with bronchiectasis.

Methods: A European Respiratory Society (ERS) Task Force, comprising global experts, a methodologist, and patient representatives, developed clinical practice guidelines in accordance with ERS methodology and the GRADE (Grading of Recommendations, Assessment, Development and Evaluations) approach. Systematic literature searches, data extraction, and meta-analysis were performed to generate evidence tables, and recommendations were formulated using the evidence-to-decision framework. A total of 8 PICO (Patient, Intervention, Comparator, Outcomes) questions and 3 narrative questions were developed.

Recommendations: The Task Force recommendations include strong recommendations in favour of airway clearance techniques for most patients with bronchiectasis and pulmonary rehabilitation for those with impaired exercise capacity. We issue a strong recommendation for the use of long-term macrolide treatment for patients at high risk of exacerbations and a strong recommendation in favour of long-term inhaled antibiotics in patients with chronic *Pseudomonas aeruginosa* infection at high risk of exacerbation. Conditional recommendations support the use of eradication treatment or mucoactive drugs in specific circumstances. We suggest not to routinely use long term oral, non-macrolide antibiotic treatment or inhaled corticosteroids. Additional guidance is also provided on testing for underlying causes, managing exacerbations, and managing the deteriorating patient.

Conclusion: The ERS bronchiectasis guidelines provide an evidence-based framework for optimal management of adults with bronchiectasis and serve as a benchmark for evaluating the quality of care.

Scope and objectives: The European Respiratory Society (ERS) guidelines for the management of bronchiectasis in adults provide evidence-based recommendations for the care of people with clinically significant bronchiectasis, defined by the presence of permanent dilatation of the bronchi evident on chest CT scan, along with characteristic clinical symptoms. [1] These guidelines are intended for all healthcare professionals involved in the care of adults with bronchiectasis, as well as for policymakers, regulatory authorities, and pharmaceutical companies. Bronchiectasis is a complex and heterogeneous disease; therefore, no guideline can be entirely comprehensive or replace clinical judgement. All guideline recommendations must be interpreted within the specific clinical context in which they are applied. Separate ERS guidelines for the management of bronchiectasis in children exist [2]. Bronchiectasis due to cystic fibrosis (CF) has a distinct evidence base; therefore, guidance for the management of CF is provided elsewhere. [3] Some bronchiectasis-associated conditions also have distinct guidelines for investigation and management, such as primary ciliary dyskinesia (PCD) [4], allergic

bronchopulmonary aspergillosis (ABPA) [5] and non-tuberculous mycobacterial (NTM) pulmonary disease [6]. While the present guidelines apply for these conditions, they should be interpreted in conjunction with the relevant syndrome-specific recommendations.

Cite

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Respir Med

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EzPAP therapy versus non-invasive ventilation for hypercapnic chronic obstructive pulmonary disease exacerbation: a randomized clinical trial

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Abstract

Purpose: EzPAP positive airway pressure (EzPAP) is an innovative device that enhances positive end-expiratory pressure (PEEP) while improving oxygenation. Our study was conducted to assess the efficacy of EzPAP treatment in the management of mild to moderate hypercapnic exacerbations of chronic obstructive pulmonary disease (COPD) MATERIAL AND METHODS: In this prospective controlled study, participants admitted to the emergency department between December 2022 and July 2024 with a diagnosis of hypercapnic COPD exacerbation who were treated with EzPAP or noninvasive ventilation (NIV) were examined. All participants were followed up for 24 hours, and blood gas parameters were compared before and after treatment.

Results: 39 out of 95 patients were enrolled in the study. 19 participants received EzPAP, and 20 participants received NIV treatment. In both groups, SaO_2 and pH values increased significantly at 24 hours compared to baseline ($p<0.05$). The increase in pH value was significantly higher in the EzPAP group compared to the NIV group ($p=0.003$). Only in the EzPAP group did the pH value increase significantly at 1 and 4 hours compared to baseline ($p<0.05$). Only in the EzPAP group, PaO_2 value increased significantly compared to the baseline level at 24 hours ($p<0.05$).

Conclusions: In our study, we found that EzPAP significantly improved oxygen saturation and alleviated respiratory acidosis more rapidly than NIV in participants with mild to moderate hypercapnic COPD exacerbations. Given these results, EzPAP presents itself as a compelling alternative worth considering.

Keywords: EzPAP; chronic obstructive pulmonary disease; exacerbation; hypercapnia; non-invasive ventilation.

Conflict of interest statement

Declaration of Competing Interest ☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Full text links

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Respir Med

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Clinical and economic impact of concomitant heart failure in patients with exacerbated COPD

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Affiliations Expand

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Abstract

Background and objectives: Co-occurrence of chronic obstructive pulmonary disease (COPD) and heart failure (HF) is frequent, worsens prognosis and increases healthcare resources use and costs. This research aims to quantify the impacts of HF as a concomitant diagnosis with COPD.

Methods: Retrospective, observational study of consecutive patients aged 40 years or older who visited the emergency department (ED) during 2018 for COPD exacerbation. One-year clinical outcomes, resource utilization and costs were compared between those with and without HF, using the Clinical Outcomes, HEalthcare REsource utilizatioN, and relaTed costs (COHERENT) model.

Results: Among 2,384 COPD patients, mean age was 75.7 years, 40.1% women. Of these 35.1% had concomitant diagnosis of HF. Patients with COPD and HF exhibited higher 1-year rates of mortality (31.2 % vs 19.2%, p<0.001), hospitalization (95.6% vs 78.9%, p<0.001), readmission and return to ED. Adjusted for age, sex and comorbidity, HF was an independent predictor of mortality (HR, 1.25; 95%CI, 1.03-1.50; p=0.02). Also, HF coexistence was independently associated with a 42% excess in mean 1-year healthcare cost (ratio of means, 1.42; 95%CI, 1.24-1.63; p<0.001), adjusted for age and comorbidities.

Conclusions: The concomitant diagnosis of HF in patients with COPD exacerbation is associated with increased 1-year risk of all outcomes, increased use of healthcare resources and almost a doubling in total costs. Specific multidisciplinary strategies targeting these patients may be needed to improve their outcomes and reduce costs.

Keywords: Chronic obstructive pulmonary disease; Cost analysis; Healthcare resource utilization; Heart failure; Outcomes.

Conflict of interest statement

Declaration of Competing Interest Dr. Bueno receives research funding from the European Union (EU4H-2022-JA-03), Instituto de Salud Carlos III, Spain (FORTALECE program, PI21/01572), Sociedad Española de Cardiología, AstraZeneca, Boehringer Ingelheim, Janssen, and Novartis; and has received consulting/speaking fees from Astra-Zeneca, Novartis, Novo Nordisk and Organon. NR is funded by the Instituto de Salud Carlos III, Spain (CM22/00049) and reports funding for conferences from AstraZeneca Spain. JS-C, JM-G and LE are employees of AstraZeneca Spain. CJA-M, MH, JV and JLB reports grants from AstraZeneca Spain, during the conduct of the study. DA, GM, MO and CO have nothing to declare.

Full text links

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Respir Med

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Predicting Response to Inhaled Corticosteroid Maintenance Therapy in Patients with Chronic Obstructive Pulmonary Disease Using Machine Learning Models

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- PMID: 41015395

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Abstract

Background: Blood eosinophil count and exacerbation history are established predictors of inhaled corticosteroid (ICS) effectiveness in chronic obstructive pulmonary disease (COPD). However, treatment responsiveness is heterogeneous and influenced by additional clinical characteristics. This study aimed to develop a machine learning-based prediction model to identify predictors of response to ICS in COPD patients.

Methods: Using a nationwide administrative database linked with individual laboratory results, we identified COPD patients initiating ICS between 2015 and 2019. Patients were stratified into low- and high-exacerbation-risk groups based on prior exacerbation frequency. Prediction models for favorable ICS response were developed using logistic regression, lasso regression, and extreme gradient boosting (XGBoost). Model performance was assessed by receiver operating characteristic (ROC) curves and calibration plots. Key predictors were identified using Shapley Additive exPlanations.

Results: Among 23,587 ICS-naïve patients, favorable ICS response rates were 73.7% in the low-risk group and 59.1% in the high-risk group. XGBoost model outperformed other models in discriminative ability, achieving an area under the ROC curve of 0.72 (95% CI, 0.70-0.74) for the low-risk group and 0.67 (95% CI, 0.64-0.70) for the high-risk group in the validation dataset. Younger age, male sex,

comorbid asthma, and lower prior use of COPD-related medications were significant predictors of ICS response. The relationship between prior exacerbations on ICS response varied between risk groups. Elevated blood eosinophil levels demonstrated relatively limited predictive ability.

Conclusions: Machine learning identified potential predictors of ICS response in COPD patients, which may inform future efforts to enhance personalized treatment strategies based on risk profile.

Keywords: Administration; Chronic Obstructive; Corticosteroids; Inhalation; Machine Learning; Pulmonary Disease.

Conflict of interest statement

Declaration of Competing Interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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Pulm Ther

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. 2025 Sep 27.

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Dyspnea in Chronic Obstructive Pulmonary Disease: Expert Assessment of Management in Clinical Practice

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- DOI: 10.1007/s41030-025-00318-x

Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is a multifaceted lung condition characterized by persistent airflow limitation that leads to chronic symptoms, including dyspnea, cough, and exacerbations. To date, a major focus for the assessment and management of COPD has been on mitigating exacerbations. However, dyspnea is the most common symptom of COPD and is responsible for substantial negative effects on patients' quality of life. Dyspnea is also a substantial contributor to the symptoms associated with acute exacerbations in COPD. Though a portion of the current recommendations for the assessment and management of COPD are dedicated to dyspnea treatment intervention strategies, there remains a need for improvement in communication between healthcare practitioners and their patients regarding the understanding of dyspnea and the implementation of key nonpharmacologic and pharmacologic treatment options. This clinical commentary outlines practical considerations and recommendations for the real-world assessment and management of dyspnea in COPD, including underlying causes, patient and healthcare provider dialogue, measurement of severity, and management strategies.

Keywords: Chronic obstructive pulmonary disease; Dyspnea; Expert assessment; Management; Patient-reported outcomes; Real-world practice.

Plain language summary

Chronic obstructive pulmonary disease, or COPD, is a long-term disease of the lungs that can cause several symptoms, including cough, flare-ups (times when symptoms suddenly worsen, also known as exacerbations), and breathlessness (also referred to as dyspnea). Medications and other therapies for COPD mainly focus on reducing how often exacerbations happen or how bad they are. However, dyspnea is a major problem for patients with COPD, often making it difficult to live their everyday lives. Moreover, dyspnea is commonly seen in patients with COPD when they have an exacerbation. Although current recommendations for the management of COPD include strategies to help with dyspnea, patients may still need more information about their dyspnea and how to manage it. This could be due to several factors, including a disconnect in the dialogue patients have with their doctors regarding their experience of dyspnea. This article shares practical insights from respiratory doctors on how they help patients with COPD manage their dyspnea and provides an overview of the causes, measurement, and management of dyspnea.

Conflict of interest statement

Declarations. Conflict of Interest: Nirupama Putcha has served on advisory boards for Verona Pharma and AstraZeneca. Diego J. Maselli has served on consulting/advisory boards for GSK, AstraZeneca, Amgen, Sanofi/Regeneron, Insmed, and Verona Pharma; and has received speaker fees from GSK, AstraZeneca, Amgen, and Sanofi/Regeneron. Jessica Bon has received grant funding from the National Heart, Lung, and Blood Institute (NHLBI); has served on consulting/advisory boards for GSK, Sanofi/Regeneron, Verona Pharma, and Chiesi; and has received speaker fees from GSK and Sanofi/Regeneron. Michael G. Lester has served on consulting/advisory boards for Ryme Medical, Galvanize

Therapeutics, and Verona Pharma. M. Bradley Drummond has served on consulting/advisory boards for GlaxoSmithKline, Boehringer Ingelheim, AstraZeneca, Verona, Genentech, Stratos Inc, Takeda, and Amgen and has received grant funding from National Institute of Health-NHLBI, Boehringer Ingelheim, Midmark, Teva and the American Lung Association. Ethical Approval: Given that this article is based on previously conducted studies and does not report any new research involving human participants or animals performed by any of the authors, there is no ethical compliance to declare.

- 90 references

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Observational Study

Respir Res

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. 2025 Sep 26;26(1):273.

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Acute COPD exacerbation despite triple inhaled therapy: a molecular insight - TripleEx study

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- PMCID: PMC12465680

- DOI: 10.1186/s12931-025-03352-0

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a progressive respiratory disorder characterized by persistent airflow limitation and acute exacerbations (AECOPD), which accelerate disease progression. Although triple inhaled therapy is recommended for patients with severe COPD and frequent AECOPD, some patients continue to experience exacerbations. The mechanisms behind this remain unclear. Exhaled breath analysis has the potential to unravel molecular changes during AECOPD, thereby adding to the understanding of molecular drivers for AECOPD. This study aimed to investigate metabolic changes in exhaled breath during AECOPD compared to stable state.

Methods: In COPD patients treated with triple inhaled therapy we conducted real time breath analysis during AECOPD and subsequent stable state. Molecular breath patterns were compared between AECOPD and stable state by pathway enrichment analysis. Minimum description length model was used to build a feature based prediction model differentiating AECOPD from stable state.

Results: 28 patients (61% male) with a mean (SD) age of 65 (10.2) years with severe AECOPD were included. Metabolic alterations were predominantly detected in aminosugar, linoleate, and butanoate pathways. AECOPD could be discriminated from stable state with high power (AUC = 0.84), and balanced good sensitivity and specificity (86% each).

Conclusion: Metabolic analysis of AECOPD revealed disturbances in aminosugar metabolism as a potential driver mechanism and thus may be a therapeutic target for patients with exacerbations despite triple inhaled therapy. Moreover, real-time breath analysis could enable rapid detection of AECOPD, improving diagnostic accuracy and treatment efficiency.

Trial registration: ClinicalTrials.gov (NCT04638920), registered on 20.11.2020.

Keywords: Biomarkers; Breath research; COPD; Exacerbation; SESI-HRMS; Triple inhaled therapy.

Conflict of interest statement

Declarations. Ethical approval and consent to participate: The study was approved by the cantonal ethics committee of Zurich (BASEC-Nr. 2020 − 01954) and all participants provided written informed consent. **Consent for publication:** Not applicable. **Competing interests:** The authors declare no competing interests.

- 37 references
- 4 figures

Supplementary info

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BMJ Open Respir Res

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doi: 10.1136/bmjresp-2024-003128.

Association of socioeconomic status with respiratory mortality and hospitalisations in COPD: a nationwide cohort study

Hyewon Lee [1 2], Bo Young Lee [3], Jiyun Jung [4], Jinwoo Seok [3], Jung-Hyun Kim [3], So-My Koo [3], Hee-Young Yoon [5]

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- PMID: 41005954

- DOI: 10.1136/bmjresp-2024-003128

Free article

Abstract

Background: Socioeconomic status (SES) and air pollution are independently associated with adverse outcomes in patients with chronic obstructive pulmonary disease (COPD). This study investigated the association of SES with respiratory mortality and hospitalisation, while adjusting for air pollution.

Methods: This retrospective cohort study analysed the individual-level and area-level SES indicators, as well as long-term air pollution exposure, associated with COPD in the Korean National Health Insurance Service-National Sample Cohort. The associations of SES with respiratory mortality and hospitalisation were evaluated using Cox proportional hazards models after adjusting for clinical factors and air pollution.

Results: Among 12 820 patients (mean age: 63.5 years, 47.2% male), 115 (0.9%) and 1870 (14.6%) experienced respiratory mortality and respiratory-related hospitalisation, respectively. Self-employed members had higher mortality risks than self-employed heads (HR=2.397, 95% CI=1.044 to 5.501). Regions with older adults constituting 20-50% of the population exhibited reduced mortality risks (HR=0.516, 95% CI 0.269 to 0.991). The area-level covariates significant in the clinically adjusted models lost significance after adjusting for air pollution. Income level (HR=0.979, 95% CI 0.965 to 0.993) exhibited a negative association with respiratory hospitalisation risks. Suburban (HR=1.321, 95% CI 1.141 to 1.530) and rural (HR=1.398, 95% CI 1.202 to 1.626) residential status was associated with a

higher hospitalisation risk. A higher older-adult population was positively associated with hospitalisation risk (HR=1.023, 95% CI 1.014 to 1.033). Higher education level and gross regional domestic product quartiles exhibited reduced hospitalisation risk.

Conclusions: The associations between SES and mortality and hospitalisation risks remained attenuated and persistent, respectively, after adjusting for air pollution.

Keywords: COPD epidemiology; Pulmonary Disease, Chronic Obstructive; Respiratory Measurement.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

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Review

Eur Respir Rev

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Impact of positive airway pressure for chronic hypercapnic respiratory failure on sleep quality: a systematic review and meta-analysis

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Affiliations Expand

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- DOI: 10.1183/16000617.0090-2025

Abstract

Background: Positive airway pressure (PAP) including noninvasive ventilation or continuous PAP are standard of care in chronic hypercapnic respiratory failure (CHRF). PAP is applied during sleep so its impact on sleep quality and daytime sleepiness is relevant. This systematic review and meta-analysis investigated the effects of PAP for CHRF on sleep quality.

Methods: Relevant studies were identified by a PubMed/Embase search up to October 2024. Eligible studies included PAP initiation and evaluation of sleep quality/sleepiness. Evaluated outcomes were sleep efficiency, Pittsburgh Sleep Quality Index (PSQI), Severe Respiratory Insufficiency sleep subscale (SRI-AS) and Epworth Sleepiness Scale (ESS).

Results: 58 studies were included (n=2511; mean age 59.1 years, 57% male) and the indication for PAP was obesity hypoventilation syndrome (n=1073), neuromuscular disease (NMD) (n=649), COPD (n=428) or other/mixed aetiologies (n=361). Overall improvements were +5.87% (95% CI 2.64-9.09) for sleep efficiency, -2.51 (95% CI -3.22--1.80) for PSQI, +10.75 (95% CI 6.11-15.40) for SRI-AS score and -4.96 (95% CI -5.96--3.97) for ESS score. Adherence to PAP was the only factor significantly associated with sleep efficiency improvement. ESS and PSQI improved to a greater extent in people with a higher body mass index, younger age and hypercapnia correction during PAP. ESS improvement was associated with sleep efficiency improvement. PSQI improved to a greater extent in females and those with NMD.

Conclusion: PAP initiation was associated with clinically relevant objective and subjective sleep quality improvements. Given the health benefits of good sleep, the effect of sleep quality improvements during PAP on prognosis should be investigated.

Conflict of interest statement

Conflict of interest: P. Tankéré reports travel and congress grants from Asdia, Resmed, Linde and ALLP; and grant support through her institution from “Agir pour les maladies chroniques” foundation. M. Patout reports no support for the present manuscript; for other works he reports grants, contracts, consulting fees, honoraria for lectures, travel grants, participation on advisory board, stock and receipt of equipment from Resmed, Philips Respironics, Asten Santé, Kernel Biomedical, SOS Oxygen, Chiesi, Lowenstein, Bastide, Elivie, Antadir, Jazz Pharmaceutical, Fisher & Paykel, Orkyn Sanofi, GSK and Air Liquide Medical. E. Stauffer reports payment or honoraria for lectures, presentations, manuscript writing or educational events from Asdia Medical, and support for attending meetings from Linde homecare, Resmed SAS and Homedis santé, and participation on a data safety monitoring board or

advisory board with ALLP. S. Baillieul reports payment or honoraria for lectures, presentations, manuscript writing or educational events from Pfizer and Expression santé, and support for attending meetings from Jazz pharmaceuticals, Agir a dom assistance, Vitalaire, Resmed SAS and Bioprojet Pharma, and participation on a data safety monitoring board or advisory board with ALLP. J.L. Pépin has received lecture fees or conference travel grants from ResMed, Philips, AstraZeneca, Jazz Pharmaceuticals, Agiradom and Bioprojet, and has received unrestricted research funding from ResMed, Philips, GlaxoSmithKline, Bioprojet, Fondation de la Recherche Medicale (Foundation for Medical Research), Direction de la Recherche Clinique du CHU de Grenoble (Research Branch Clinic CHU de Grenoble), and fond de dotation “Agir pour les Maladies Chroniques” (endowment fund “Acting for Chronic Diseases”). L. Peter Derex reports receiving lecture fees from Bioprojet, Eisai, Zogenix and Roche; grant support through her institution from Asten Sante, Linde and Bioprojet; and travel grants from Bioprojet and VitalAire. R. Tamisier reports receiving lecture fees from ResMed, Inspire and Bioprojet; grant support through his institution from ResMed, Inspire, Agiradom and Bioprojet; and travel grants from Agiradom. All other authors declare no competing interests related to this work.

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Review

Eur Respir Rev

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doi: 10.1183/16000617.0284-2024. Print 2025 Jul.

The respiratory tract virome: unravelling the role of viral dark matter in respiratory health and disease

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Affiliations Expand

- PMID: 41005808

- PMCID: PMC12464719

- DOI: 10.1183/16000617.0284-2024

Abstract

The human respiratory tract virome is an underexplored component of the microbiome that includes eukaryotic viruses, bacteriophages and archaeal viruses. The respiratory virome represents a dynamic and heterogeneous ecosystem, shaped by host, environmental and microbial factors. Advances in metagenomic sequencing have expanded our understanding of virome composition, dynamics and potential roles in health and disease. Despite increasing interest, virome research remains fragmented and often secondary to bacteriome studies. Challenges in study design, genomic characterisation and interpretation limit consistent conclusions. This review summarises current knowledge of the respiratory virome in health and across acute and chronic respiratory diseases, including acute respiratory infection, asthma, COPD, cystic fibrosis and bronchiectasis. While each condition is distinct, they share features of airway inflammation and immune dysregulation where the virome may act as a modifier or marker. Across these syndromes, emerging evidence highlights the consistent detection of respiratory viruses including potential commensals, such as *Anelloviridae*, and the often-overlooked role of bacteriophages. We also discuss the concept of viral dark matter, where large proportions of sequence data remain unclassified, potentially representing novel viral taxa. Technical and conceptual challenges are evaluated, alongside recent methodological innovations such as meta-transcriptomics and viral enrichment protocols. We outline how standardised, multi-omic and longitudinal approaches are urgently needed to clarify the virome's functional role, interactions with immunity and microbial communities and its utility as a biomarker or therapeutic target.

Conflict of interest statement

Conflict of interest: M. Purcell, J. Ackland and A. Freeman have nothing to disclose. K.J. Staples reports research grants from AstraZeneca and Epiendo, and payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca. T.M.A. Wilkinson reports support for the present study from the National Institute for Health and Care Research, Medical Research Council, BerGenBio, AstraZeneca, UCB and Janssen, consultancy fees from AstraZeneca, Valneva, Olam Pharma, Janssen, My mHealth and Synairgen, payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim and Roche, participation on a data safety

monitoring board or advisory board with Valneva, and stock (or stock options) with My mHealth.

- 237 references
- 2 figures

Supplementary info

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Review

Respir Investig

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. 2025 Sep 24;63(6):1187-1193.

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Impact of physical activity on respiratory disease: Current status and therapeutic implications

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- PMID: 41004951

- DOI: 10.1016/j.resinv.2025.09.020

Abstract

Regular physical activity (PA) modulates key pathophysiological mechanisms underlying the onset, progression, and symptoms of major respiratory diseases. Notably, low daily PA and high sedentary time independently predict faster lung function decline, poorer quality of life, and premature mortality in asthma, chronic obstructive pulmonary disease (COPD), interstitial lung disease (ILDs), and post-coronavirus disease lung sequelae. Conversely, structured exercise training-and

the increasingly popular, lifestyle-integrated "move-more-sit-less" programs-improve dyspnea, exercise capacity, airway and systemic inflammation, and healthcare utilization. Large cohort analyses corroborate a clear dose-response relationship: attaining ≥7500 steps/day or ≥150 min/week of moderate-to-vigorous activity yields the greatest clinical benefit, even in individuals with impaired pulmonary function. Mechanistic studies also revealed that exercise dampens type-2 airway inflammation in asthma, enhances the skeletal muscle oxidative phenotype in COPD, and counteracts ILD-related deconditioning. Recent randomized trials have shown that pulmonary rehabilitation can improve 5-year survival in fibrotic ILD, while telerehabilitation and gamified smartphone coaching can close access gaps without compromising efficacy. Additionally, major international guidelines such as the Global Initiative for Asthma 2024 and Global Initiative for Chronic Obstructive Lung Disease 2025 now explicitly recognize PA as a "treatable trait." Nevertheless, PA uptake in routine care remains limited by behavioral, environmental, and policy barriers. Future work must refine personalized PA prescriptions, integrate wearable-derived metrics into decision-support algorithms, and test the synergistic effects with emerging biologics and anti-fibrotic agents. This review synthesizes contemporary evidence, highlights unanswered questions, and offers pragmatic recommendations for clinicians aiming to embed PA promotion in comprehensive respiratory care pathways.

Keywords: Asthma; COPD; Interstitial lung disease; Physical activity; Pulmonary rehabilitation.

Conflict of interest statement

Declaration of competing interest Kazuhisa Asai received a research grant from the Japan Society for the Promotion of Science (JSPS), and received lecture fees from AstraZeneca, GlaxoSmithKline, Sanofi, Nippon Boehringer Ingelheim.

Supplementary info

Publication typesExpand

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Pulm Ther

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doi: 10.1007/s41030-025-00322-1. Online ahead of print.

Dupilumab Versus Mepolizumab for COPD: Evaluating Efficacy Outcomes Using Placebo-Adjusted Indirect Treatment Comparison

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Affiliations Expand

- PMID: 41004068

- DOI: 10.1007/s41030-025-00322-1

Free article

Abstract

Introduction: Up to 40% of patients with chronic obstructive pulmonary disease (COPD) exhibit elevated blood eosinophils, reflective of type 2 inflammation. Dupilumab and mepolizumab versus standard of care have demonstrated moderate-to-severe exacerbation reductions of 30-34% and 15-18%, respectively, over 52 weeks. This study compared their relative efficacy using indirect treatment comparison (ITC).

Methods: A Bucher ITC was performed on 52-week phase 3 trials of dupilumab (BOREAS/NOTUS) and mepolizumab (MATINEE/METREX/METREO). The primary ITC endpoint was annualized moderate-to-severe exacerbation rates in patients from BOREAS + NOTUS versus MATINEE + METREX (modified intention-to-treat high stratum cohort, representing an eosinophilic phenotype); sensitivity analyses were performed using different combinations of mepolizumab data including MATINEE + METREX + METREO (100-mg arm). Other 52-week endpoints included mean difference in pre-bronchodilator forced expiratory volume in 1 s (FEV_1), proportion of St. George's Respiratory Questionnaire (SGRQ) improvement ≥ 4 points, proportion of Evaluating Respiratory Symptoms in COPD (E-RS:COPD) improvement ≥ 2 points, and annualized severe exacerbation rate. Rate ratios (RRs)/odds ratios (ORs) with 95% confidence intervals (CIs) are reported.

Results: The primary ITC resulted in an RR of 0.82 (95% CI 0.66, 1.01), showing a numerical advantage for dupilumab versus mepolizumab in reducing moderate-to-severe exacerbation. Sensitivity analyses confirmed findings from the primary ITC (BOREAS + NOTUS vs. MATINEE + METREX + METREO: RR 0.83 [95% CI 0.68, 1.01]). Dupilumab demonstrated significantly greater FEV_1 improvement (mean difference 83.4 mL [95% CI 36.1, 130.7]) and proportion of E-RS:COPD improvement ≥ 2 points (OR 1.71; [95% CI 1.18, 2.48]), with a numerical difference favoring dupilumab for the proportion of SGRQ improvement ≥ 4 points (OR 1.16; [95% CI 0.86, 1.56]) and for annualized severe exacerbation rate (RR 0.61 [95% CI 0.33, 1.13]) versus mepolizumab.

Conclusion: This ITC suggests potential clinical benefits of dupilumab over mepolizumab in reducing exacerbations and improving lung function, respiratory

symptoms, and quality of life in patients with COPD and type 2 inflammation. Direct head-to-head trials are necessary to confirm these results and better guide treatment choices.

Keywords: COPD; Dupilumab; Exacerbations; FEV1; Indirect treatment comparison; Mepolizumab; Quality of life.

Plain language summary

Chronic obstructive pulmonary disease (COPD) is a long-term lung condition that causes breathing difficulties and frequent flare-ups, also known as exacerbations. In some people with COPD, a type of inflammation known as type 2 inflammation is present. This inflammation is often linked to higher levels of white blood cells called eosinophils. These patients may be more likely to experience exacerbations and worsening symptoms. Two injectable treatments, dupilumab and mepolizumab, have recently been studied in people with COPD who have this type of inflammation (so-called eosinophilic phenotype). Both drugs have shown benefits when added to triple inhaler therapy regimen, but they have not been directly compared in the same clinical trial. This study used a method called an indirect treatment comparison, which uses results from dupilumab and mepolizumab trials to estimate how well these two treatments compare. The results indicate a trend suggesting that dupilumab may offer greater benefit than mepolizumab in reducing the number of moderate or severe COPD exacerbations. People treated with dupilumab also experienced better lung function and were more likely to report fewer breathing symptoms, as well as improved quality of life. Although safety comparisons were not part of the indirect treatment comparison, safety results from dupilumab and mepolizumab trials appeared to be similar. These findings suggest that dupilumab may offer greater overall benefits for people with COPD and type 2 inflammation. However, direct head-to-head trials are necessary to confirm these results and better guide treatment choices.

Conflict of interest statement

Declarations. Conflict of Interest: Surya P. Bhatt is supported by NIH grants R01HL151421 and UH3HL155806. The author serves on advisory boards and is a consultant for Apreo, AstraZeneca, Boehringer Ingelheim, Chiesi, Genentech, GSK, Merck, Polarean, Regeneron Pharmaceuticals Inc., Sanofi, and Verona Pharma; has received honoraria from Horizon CME, Integritas Communications, Illuminate Health, Integrity CE, and Medscape; and has received funds paid to their institute for research from COPD Foundation, Genentech, Nuvaira, and Sanofi. Nick Freemantle has received grants from Cure Parkinson's Trust, European Union, Medical Research Council, and National Institute for Health and Care Research; consultancy fees from Abbott, Aimmune Therapeutics, ALK, AstraZeneca, Galderma, Gedeon Richter, Ipsen, Novo Nordisk, Sanofi, Théa Pharma, and Vertex Pharmaceuticals; and honorarium from Abbott Singapore. Mena Soliman, Joe Yang, and Yingxin Xu are employees and shareholders of Regeneron Pharmaceuticals Inc. Jigna Heble and Ernesto Mayen Herrera are employees of Sanofi and may hold stock and/or stock options in the company. Yann Cabon is an Aixial contractor for Sanofi and may hold stock and/or stock options in the company. Ethical Approval: This article is based on data from previously conducted trials and does not contain any new studies with human participants or animals performed by any of the

authors. Please see the original publications for each trial for full details of ethical approvals.

- 48 references

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Sci Rep

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. 2025 Sep 25;15(1):32892.

doi: 10.1038/s41598-025-18058-y.

Association between stress hyperglycemia ratio and all-cause mortality in patients with chronic obstructive pulmonary disease

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Affiliations Expand

- PMID: 40998990
- PMCID: PMC12464188
- DOI: 10.1038/s41598-025-18058-y

Abstract

The Stress Hyperglycemia Ratio (SHR) has emerged as a prognostic indicator associated with adverse outcomes in a variety of diseases. Nevertheless, the relationship between SHR and the prognosis of individuals with chronic obstructive pulmonary disease (COPD) has yet to be clarified. This research examines the association between SHR and outcomes in COPD patients. This study employed the Medical Information Mart for Intensive Care (MIMIC-IV) database to identify patients with COPD requiring admission to the intensive care unit, categorizing them into quartiles according to SHR levels. The outcomes assessed encompassed in-hospital mortality and ICU mortality. The analysis utilized Cox proportional hazards regression, enhanced by restricted cubic splines, to explore the association

between SHR and the clinical manifestations present in patients diagnosed with COPD. The study included 1157 COPD patients. The mortality rates were 10.11% for in-hospital, and 7.09% for ICU, respectively. The analysis of Kaplan-Meier (K-M) curves revealed a noteworthy correlation between elevated SHR levels and an augmented risk of mortality in both hospital and ICU environments. Patients with COPD who were in the highest SHR index quartile were at the highest risk of dying, according to a Cox proportional hazards regression analysis (hospital, HR: 1.88,95%CI:1.09-3.25, P = 0.002; ICU: HR: 3.64, 95%CI:1.79-7.42, P < 0.001). Restricted cubic spline (RCS) analysis revealed a U-shaped association between the SHR index and both in-hospital and ICU mortality rates. Elevated SHR levels in COPD patients are significantly linked to a higher mortality risk in both hospitalized and ICU settings. The SHR index serves as a valuable tool for assessing in-hospital outcomes in COPD patients and holds potential to aid in screening high mortality risk COPD patients.

Keywords: COPD; MIMIC-IV database; Mortality; Prognosis; SHR.

Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests. Ethics approval and consent to participate: The utilization of the MIMIC-IV database was sanctioned by the review boards of both the Massachusetts Institute of Technology and Beth Israel Deaconess Medical Centre. Given the public availability of the data within the MIMIC-IV database, the study was exempt from the need for an ethics approval statement and informed consent.

- 41 references
- 4 figures

Supplementary info

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. 2025 Sep 25;15(1):32767.

doi: 10.1038/s41598-025-14994-x.

Association between exacerbation history and airway bacterial community assessed by extended bacterial culture and sequencing approaches in stable COPD

Quentin Lecomte-Thenot [1], Jeanne-Marie Perotin [2], Geneviève Héry-Arnaud [3 4], Lourdes Vélo-Suarez [5 6], Audrey Brisebarre [7], Alice Clarenne [1], Stéphanie Gouriou [4], Sandra Dury [8], Gaëtan Deslée [2], Anaëlle Muggeo [1], Thomas Guillard [9]; RINNOPARI Study Group includes

Collaborators, Affiliations Expand

- PMID: 40998845

- PMCID: PMC12464265

- DOI: 10.1038/s41598-025-14994-x

Abstract

Chronic obstructive pulmonary disease (COPD) is a heterogeneous lung condition characterized by chronic respiratory symptoms due to abnormalities of the airways and/or alveoli that cause airflow obstruction. It is a leading cause of death worldwide. While alterations in airway bacterial community have been linked to exacerbation frequency, the underlying mechanisms remain unclear. We aimed to characterize associations between airway bacterial community structure and exacerbation history in stable COPD patients and to identify candidate microbial markers that could assist in risk assessment for the clinical management of COPD patients. Sixty-two stable COPD patients were enrolled and categorized into two groups based on their exacerbation history: low risk (LR) and high risk (HR) of exacerbation. Sputum samples were collected and analyzed using both bacterial extended culture and 16S rRNA gene sequencing. The combination of these approaches provided complementary insights, enabling a more comprehensive characterization of the bacterial community. To our knowledge, this is the first study to combine these two approaches in this context and to evaluate their relative performance in detecting microbiological markers associated with exacerbation risk. Microbial composition analysis revealed a loss of α-diversity in HR patients based on extended culture data, a finding not corroborated by sequencing. This discrepancy suggests that the observed impoverishment of diversity may primarily affect the viable fraction of the airway microbial community. The HR group also exhibited increased relative abundances of Pseudomonadota and Bacteroidota, alongside a marked decrease in relative abundances of Lactobacillus and Streptococcus. Notably, significant reductions in the proportion of positive samples were observed at the species level for Streptococcus salivarius and Streptococcus mutans. A comparison of the two methods underlined that 16S rRNA gene sequencing identified five additional phyla and 84 genera not detected by culture, notably strict anaerobes. However, extended culture demonstrated robust sensitivity in detecting Enterobacterales and the pathogenic Moraxella and Pseudomonas. This study revealed microbiological features linked to exacerbation history in stable COPD patients, highlighting the need for future functional and

longitudinal research to validate these airway bacterial community signatures and develop targeted preventive strategies.

Keywords: 16S rRNA gene sequencing; Bacterial community; COPD - chronic obstructive pulmonary disease; Exacerbation risk; Extended culture; Microbiota; Sputum; Stable state.

Conflict of interest statement

Declarations. Competing interests: J.M. Perotin reports lecture honoraria from AstraZeneca, and support for attending meetings from AstraZeneca and Chiesi, outside the submitted work. G. Deslée reports lecture honoraria from Chiesi, AstraZeneca and GlaxoSmithKline; outside the submitted work. S. Dury reports fees from Boehringer-Ingelheim and Sanofi-Adventis, outside the submitted work. Rest of the authors have no conflict of interest. Consent for publication: Not applicable. Ethics approval and informed consent: This research was conducted in accordance with the Declaration of Helsinki, followed the rules applicable to medical research in France, and received the authorization needed. The study was approved by the regional ethics committee (Comité de Protection des Personnes—Dijon EST I, no. 2016-A00242-49). Informed consent was obtained from all the patients.

- 66 references
- 7 figures

Supplementary info

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Editorial

Eur Respir J

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doi: 10.1183/13993003.01508-2025. Print 2025 Sep.

Pulmonary hypertension in COPD exacerbation: a transient storm with long-term consequences?

Omer Faruk Uysal [1], John R Hurst [2]

Affiliations Expand

- PMID: 40998558

- DOI: 10.1183/13993003.01508-2025

No abstract available

Conflict of interest statement

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Comment on

- Pulmonary pressure increases during acute exacerbation in COPD and clinical outcome.

Rastoder E, Sivapalan P, Hedsund C, Kamstrup P, Biering-Sørensen T, Dons M, Bistrup Petersen TC, Davidovski FS, Skaarup KG, Sengeløv M, Durukan E, Vesterlev D, Wodschow HZ, Pedersen L, Eklöf J, Vognsen AK, Moberg M, Janner J, Toennesen LL, Bahrami HSZ, Dixen U, Dahlgaard Hove J, Jensen MT, Ackermann DA, Jordan A, Rømer V, Sperling S, Bendstrup E, Falster C, Laursen CB, Carlsen J, Jensen JS.Eur Respir J. 2025 Sep 25;66(3):2500169. doi: 10.1183/13993003.00169-2025. Print 2025 Sep.PMID: 40774812 Free PMC article.

Supplementary info

Publication typesExpand

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. 2025 Sep 25:390:r2011.

doi: 10.1136/bmj.r2011.

COPD has an image problem-can this man fix it?

Rebecca Coombes [1]

Affiliations Expand

- PMID: 40998466

- DOI: 10.1136/bmj.r2011

No abstract available

Conflict of interest statement

I have read and understood BMJ policy on declaration of interests and declare the following interests: None.

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Observational Study

BMJ Open Respir Res

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. 2025 Sep 25;12(1):e002408.

doi: 10.1136/bmjresp-2024-002408.

Assessment of peak inspiratory flow in patients with chronic obstructive pulmonary disease: a multicentre, observational, prospective, real-life study

Valeria Perugini [1], Chin Kook Rhee [2], Ji-Yong Moon [3], Tiew Pei Yee [4], Seung Won Ra [5], Pietro Pirina [6], Kwang Ha Yoo [7], Bernardino Alcázar Navarrete [8], Caroline Gouder [9], Almadana Pacheco [10], Annie Navarro-Rolon [11], Matevz Harlander [12], Therese Lapperre [13], Sean Chee Hong Loh [14], David Fole [15], Elsa Naval [16], Pedro Jose Romero Palacios [17], Marc Miravitlles [18], Omar Usmani [19]

Affiliations Expand

- PMID: 40998461

- DOI: 10.1136/bmjresp-2024-002408

Free article

Abstract

Introduction: Patients with chronic obstructive pulmonary disease (COPD) use dry powder inhalers (DPIs) for disease management. DPI effectiveness relies on the patient's peak inspiratory flow (PIF), which may not always be optimal. We conducted an observational multicentre, prospective, real-life cohort study to determine the prevalence of suboptimal PIF in patients with COPD.

Methods: 415 participants (11%, n=47 women, mean age=70±8.7 years, mean forced expiratory volume in 1 s (predicted %)=48.1%) recruited from 17 international centres had baseline PIF recorded with an In-Check Dial device at three resistance levels: (1) low, (2) high and (3) the participant's maintenance device. We also recorded PIF from participants as they would do at home to verify their proper inhalation technique. Participants underwent spirometry and completed questionnaires (COPD Assessment Test (CAT), Test of Adherence to Inhalers (TAI)-12).

Results: Of the 415 participants, 18% of DPI users (n=75) exhibited suboptimal values of PIF (as typical PIF <than what was required for tested inhalers in the study) when evaluated across DPI resistance groups ranging from low (R1) to high (R5) resistance, compared with 14% of participants (n=60) using devices without resistance (R0). Additionally, 14% of study participants were incapable of producing an optimal PIF or unwilling to do so (27%), impacting medication effectiveness. Participants with suboptimal PIF values had higher mean total CAT score (17.7±7) compared with those with optimal PIF values (12.1±7.6). When assessed globally, 37% (n=56) of participants with suboptimal PIF values did not adhere to treatment, highlighting the need for improved patient education and support.

Conclusion: Suboptimal PIF is common in COPD, requiring regular assessment and tailored inhalers.

Trial registration number: NCT04606394. Encepp EUPAS34689.

Keywords: COPD epidemiology; Inhaler devices.

Conflict of interest statement

Competing interests: VP, TPY, SWR, PP, CG, AP, AN-R, TL, CHL, DF, EN, PRP: Declarations of interest: none. CKR: reports consulting/lecture fees from AstraZeneca, GSK, Novartis, Takeda, Mundipharma, Boehringer Ingelheim, Teva, Sanofi and Bayer, outside the submitted work. J-YM: reports consulting/lecture fees from AstraZeneca, GSK, Novartis, Boehringer Ingelheim, Sanofi, Organon, Daewon,

Hanmi and Kolon, outside the submitted work. BAN: reports grants and personal fees from GSK, personal fees and/or non-financial support from Boehringer Ingelheim, Chiesi, Laboratorios Menarini, AstraZeneca, Gilead, MSD, Laboratorios BIAL, Sanofi, Zambon, outside the submitted work. KHY: received grant from pharmaceutical companies about the conduct of clinical trials in Asthma, COPD, Pneumonia including Amgen, Areteia Therapeutics, AZ, Bayer, Belluth Health, Boehringer Ingelheim, Chiesi, Genetech, GSK, MSD, Mundipharma, Novartis, Organon, Pfizar, Roche, Sanofi, TEVA, Ankook, Hanmi, Hyundai, Kolon. MH: received speaker or consulting fees from AstraZeneca, Berlin-Chemie Menarini, Boehringer Ingelheim, Chiesi, Novartis, Takeda and Teva, unrelated to the submitted manuscript. MM: has received speaker fees from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Menarini, Kamada, Takeda, Zambon, CSL Behring, Specialty Therapeutics, Janssen, Grifols and Novartis, consulting fees from AstraZeneca, Atriva Therapeutics, Boehringer Ingelheim, BEAM Therapeutics, Chiesi, GlaxoSmithKline, CSL Behring, Ferrer, Inhibrx, Menarini, Mereo Biopharma, Spin Therapeutics, Specialty Therapeutics, ONO Pharma, Palobiofarma SL, Takeda, Novartis, Novo Nordisk, Sanofi, Zambon, Zentiva and Grifols and research grants from Grifols. OU: received research grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GlazoSmithKline, consulting fees from AstraZeneca, Cipla, Mereo Biopharma and speaker fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GalxoSmithKline, Mundipharma, Sandoz, Takeda, Cipla, Covis, Novartis, Orion, Menarini, UCB, Trudell Medical, Deva, Kamada.

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Am J Med

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Exploring the Cardiopulmonary Effects of Tirzepatide in Atrial Fibrillation and Comorbid Chronic Obstructive Pulmonary Disease

Min Choon Tan [1], Ming Fong Yee [2], Aravinthan Vignarajah [3], Girish Pathangey [2], Mahmoud Abdelnabi [2], Christopher V DeSimone [4], Abhishek J Deshmukh [4], Dan Sorajja [2], Hicham El-Masry [2], Justin Z Lee [5]

Affiliations Expand

- PMID: 40998187

- DOI: 10.1016/j.amjmed.2025.09.018

Abstract

Background: The coexistence of atrial fibrillation and chronic obstructive pulmonary disease often leads to worse clinical outcomes. Tirzepatide is a promising therapy for diabetes and weight management, with potential cardiovascular benefits via anti-inflammatory effects. However, its impact in patients with both atrial fibrillation and chronic obstructive pulmonary disease is unknown.

Methods: Using the TriNetX Analytics Research Network, patients aged ≥18 years with atrial fibrillation and chronic obstructive pulmonary disease between 6/1/2022 and 1/1/2024 were included. Patients were divided into tirzepatide and control groups. Propensity score matching included demographics, comorbidities, cardiovascular medications, and left ventricular ejection fraction. Outcomes were all-cause mortality, cardiac events, and chronic obstructive pulmonary disease exacerbation over one year.

Results: A total of 3,728 tirzepatide users and 499,199 controls were identified; 3,726 patients remained in each group after matching. Tirzepatide use was associated with lower odds of 1-year all-cause mortality (OR: 0.145; 95% CI: 0.115-0.184), hospitalization (OR: 0.284; 95% CI: 0.258-0.313), stroke (OR: 0.619; 95% CI: 0.519-0.738), cardiac arrest (OR: 0.491; 95% CI: 0.362-0.667), heart failure exacerbation (OR: 0.270; 95% CI: 0.236-0.308), and chronic obstructive pulmonary disease exacerbation (OR: 0.586; 95% CI: 0.513-0.671). Lower odds of anti-arrhythmic drug initiation, cardioversion, and atrial fibrillation ablation were also observed.

Conclusion: Tirzepatide use was associated with improved mortality and cardiovascular outcomes in patients with atrial fibrillation and chronic obstructive pulmonary disease and reduced need for rhythm control interventions. Prospective studies are needed to validate these findings.

Conflict of interest statement

Declaration of competing interest All authors have no relationships relevant to the contents of this paper to disclose. This research received no specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

21

Adv Ther

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. 2025 Sep 25.

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Real-World Comparative Effectiveness Study in Patients with Asthma Initiating Fluticasone Furoate/Vilanterol or Beclometasone Dipropionate/Formoterol Fumarate in General Practice in England

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Affiliations Expand

- PMID: 40996636

- DOI: 10.1007/s12325-025-03349-7

Abstract

Introduction: We compared the real-world effectiveness of initiating beclometasone dipropionate/formoterol fumarate (BDP/FOR) versus fluticasone furoate/vilanterol (FF/VI) in a general practice (GP) asthma cohort in England.

Methods: Patients newly initiating BDP/FOR or FF/VI between 1 December 2015 and 28 February 2019 (index), were selected from anonymised Clinical Practice Research Datalink data. Baseline was < 12 months pre-index with ≤ 12 months follow-up post-index. Eligible patients were aged ≥ 18 years at index, had diagnosed asthma, ≥ 1 FF/VI or BDP/FOR prescription, medical records eligible for linkage to secondary care data and continuous GP-registration ≥ 12 months pre-index. Patients with chronic obstructive pulmonary disease, ≥ 1 fixed-dose inhaled corticosteroid/long-acting β_2-agonist, single-inhaler triple or biologic therapy at index were excluded. The primary study outcome was asthma exacerbation rate. Secondary outcomes included medication persistence and oral corticosteroid (OCS) use. Propensity scores were generated for each treatment comparison; inverse probability of treatment weighting adjusted for confounding in baseline characteristics between groups, applied to each outcome separately. Analyses considered intercurrent events (ICEs; treatment switching, discontinuation, loss to follow-up, death, rescue medication use).

Results: Weighted group standard mean differences showed adequate balance for most covariates. Patients initiating BDP/FOR (n = 46,809) and FF/VI (n = 3773) had numerically similar exacerbation rates per person per year (PPPY) while-on index

treatment [measuring outcome until ICE; BDP/FOR, 0.1479 (n = 31,715); FF/VI, 0.1338 (n = 2547); rate ratio 0.9048, p = 0.2841]. Patients continuing uninterrupted index treatment for 12 months had a lower exacerbation rate PPPY for FF/VI [0.0681 (n = 384)] than BDP/FOR [0.1104 (n = 3342); rate ratio, 0.6162 (p = 0.0293)]. For patients initiating FF/VI versus BDP/FOR, treatment persistence was greater [hazard ratio, 0.76 (p < 0.0001)].

Conclusion: Overall, patients initiating FF/VI and BDP/FOR had numerically similar exacerbation rates; of the patients continuing 12 months' uninterrupted treatment, the FF/VI group had a lower exacerbation rate versus BDP/FOR. Patients initiating FF/VI were less likely to discontinue treatment than those initiating BDP/FOR.

Keywords: Asthma; Beclometasone dipropionate/formoterol fumarate; Comparative effectiveness; Fluticasone furoate/vilanterol; General practice; Real-world data; United Kingdom.

Plain language summary

We compared how well two common, daily, asthma treatments work, by comparing people with asthma in England who started treatment with beclometasone dipropionate/formoterol fumarate (abbreviated to BDP/FOR) with fluticasone furoate/vilanterol (abbreviated to FF/VI). Patients with asthma who started these medications between 1 December 2015 and 28 February 2019, were selected. The database included anonymised information, which meant the researchers could not tell who each patient was. It included information from general practice and hospital appointments. Patients with chronic obstructive pulmonary disease were excluded. The primary study question was whether rates of asthma attacks (or exacerbations) differed between patients starting BDP/FOR compared with FF/VI. We also looked at the proportion of patients who continued with their new treatment and how often, and at what dose, oral corticosteroids were needed. The characteristics of the patients in each treatment group were analysed and balanced to ensure a fair comparison. For every 100 patients in the study, overall there were 14 exacerbations per year with FF/VI (total of 3773 patients) and 15 exacerbations per year with BDP/FOR (total of 46,809 patients). Of the patients who continued uninterrupted treatment for 12 months, there were significantly fewer exacerbations with FF/VI (7 per 100 patients) than BDP/FOR (11 per 100 patients), although group sizes were smaller (384 and 3342 patients, respectively). Patients in the FF/VI group were 24% less likely to discontinue treatment than patients in the BDP/FOR group.

Conflict of interest statement

Declarations. Conflict of Interest: Ashley Woodcock has given lectures for Orion, and consulted for GSK and Orion. John Blakey reports grants or contracts from AstraZeneca, GSK and Novartis; consulting fees from Boehringer Ingelheim, Chiesi and GSK; payment or honoraria from AstraZeneca, Chiesi and GSK; support for attending meetings and/or travel from AstraZeneca, Boehringer Ingelheim and GSK; receipt of medical writing support from GSK and Teva; payment to their institution for advisory work from Asthma Australia; and unpaid advisory work from Asthma WA. Arnaud Bourdin has received grants, personal fees, non-financial support and other support from Actelion, AstraZeneca, Boehringer Ingelheim and GSK; personal fees, non-financial support and other support from Chiesi, Novartis and Regeneron;

personal fees and non-financial support from Teva; personal fees from Gilead; non-financial support and other support from Roche; and other support from Nuvaira. Giorgio Walter Canonica reports having received research grants as well as being a lecturer or having received advisory board fees from: A.Menarini, AstraZeneca, Celltrion, Chiesi, Faes, Firma, Genentech, GSK, Hal Allergy, Innovacaremd, Novartis, OmPharma, RedMaple, Sanofi–Aventis, Sanofi–Regeneron, Stallergenes–Greer and Uriach Pharma. Christian Domingo declares having received financial aid for travel support and speakers' bureaus from ALK-Abello, Allergy Therapeutics, AstraZeneca, Chiesi, GSK, Hall Allergy, Inmunotek, A.Menarini Diagnostics, MSD, Novartis, Roxall, Sanofi and Stallergenes. Alexander Ford, Rosie Hulme and Theo Tritton are employees of Adelphi Real World, which received funding for this study from GSK. Ines Palomares, Arunangshu Biswas, Sanchayita Sadhu and Manish Verma are GSK employees; Ines Palomares, Arunangshu Biswas and Manish Verma hold financial equities in GSK. Ethical Approval: This study was conducted according to GSK SOP52213 (Conducting Quality Control Review of Study Results generated using Existing Data in VEO and USVEO) and complied with all applicable laws regarding patient privacy. CPRD has NHS Health Research Authority (HRA) Research Ethics Committee (REC) approval to allow the collection and release of anonymised primary care data for observational research [NHS HRA REC reference number: 05/MRE04/87]. Each year, CPRD obtains Section 251 regulatory support through the HRA Confidentiality Advisory Group (CAG), to enable patient identifiers, without accompanying clinical data, to flow from CPRD contributing GP practices in England to NHS Digital, for the purposes of data linkage [CAG reference number: 21/CAG/0008]. The protocol for this research was approved by CPRD's Research Data Governance (RDG) Process (protocol number: 221602) and the approved protocol is available upon request. Linked pseudonymised data were provided for this study by CPRD. Data are linked by NHS Digital, the statutory trusted third party for linking data, using identifiable data held only by NHS Digital. Select general practices consent to this process at a practice level with individual patients having the right to opt-out. This study is based in part on data from the CPRD obtained under license from the UK Medicines and Healthcare products Regulatory Agency. The data are provided by patients and collected by the NHS as part of their care and support. The Office for National Statistics (ONS) was the provider of the ONS Data contained within the CPRD Data and maintains a Copyright© [2025], The Hospital Episode Statistics (HES) was the provider of HES-Admitted Patient Care and HES-Outpatient databases contained within the CPRD Data and maintain a Copyright© [2025] and Copyright© [2025] respectively. Linked data were re-used with the permission of The Health & Social Care Information Centre, all rights reserved. As this study used aggregate CPRD-HES data omitting patient identification, no patient contact or primary collection of data from human participants was required. The interpretation and conclusions contained in this study are those of the authors alone.

- **22 references**

Supplementary info

Grants and fundingExpand

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Thorax

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. 2025 Sep 24:thorax-2024-222823.

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Mobile health pulmonary rehabilitation (m-PR): a randomised controlled equivalence trial

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Affiliations Expand

- PMID: 40992935

- DOI: 10.1136/thorax-2024-222823

Abstract

Background: Mobile health (mHealth) is a novel model of care that may overcome barriers to pulmonary rehabilitation (PR) access. This study determined if mHealth PR was equivalent to centre-based PR (CB-PR) in improving exercise capacity and health status in people with chronic obstructive pulmonary disease (COPD).

Method: Single-blinded, multicentre, randomised controlled equivalence trial using an intention-to-treat analysis. Participants completed 8 weeks of either mHealth PR, using the mobile PR (m-PR) application and supported by telephone calls, or CB-PR. Co-primary outcomes, measured at baseline and end-intervention, were change in 6 minute walk distance (6MWD) and COPD assessment test (CAT) score, with an equivalence margin of 30 m and 2 points, respectively.

Results: 90 participants were randomised (mean (SD), m-PR n = 44: age 75 (7) years; forced expiratory volume in one second (FEV_1) 58 (15) % predicted; CB-PR n = 46: age 75 (6) years; FEV_1 55 (14) % predicted) with 38 m-PR participants and 42 CB-PR participants completing at least one primary outcome. At end-intervention, there was no between-group difference in 6MWD (mean difference (MD) 13 m, 95% CI -6 to 31), indicating equivalence of m-PR to CB-PR. There was a significant between-group difference in CAT score (MD -4.9 points, 95% CI -7.2 to -2.6), with both limits of the CI exceeding the equivalence margin, indicating superiority of m-PR.

Conclusion: An mHealth PR programme resulted in equivalent improvements in exercise capacity and superior improvements in health status when compared with CB-PR in people with COPD. mHealth PR could be effective as a management option for people with COPD with adequate digital literacy.

Trial registration number: ACTRN12619001253190.

Keywords: COPD Exacerbations; Emphysema; Exercise; Pulmonary Rehabilitation.

Conflict of interest statement

Competing interests: ZJM is the managing director of the Better Breathing Foundation, which has contributed PhD scholarship funding to SEB. All other authors declare that they have no competing interests.

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Clinical Trial

Physiother Res Int

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. 2025 Oct;30(4):e70111.

doi: 10.1002/pri.70111.

Reliability and Validity of Upper Limb Muscle Strength Measurements by Handheld Dynamometer in Patients With Chronic Obstructive Pulmonary Disease

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Affiliations Expand

- **PMID: 40991671**

- **DOI: 10.1002/pri.70111**

Abstract

Background and purpose: International respiratory societies recommend upper limb muscle strengthening in patients with chronic obstructive pulmonary disease (COPD). To design an adapted and effective muscle strengthening program, it is necessary to assess the muscle strength of muscle groups involved. The objective of this study was to assess the reliability and validity of measuring the maximum voluntary isometric strength of shoulder abductors, elbow flexors, and extensors using a handheld dynamometer.

Methods: Maximum voluntary isometric strength was measured using a handheld dynamometer, and the one repetition maximum test was performed using dumbbells. Three separate 24-h measurement sessions were conducted: the first 2 sessions (Day 0 and Day 1) by a physiotherapist and the third session (Day 2) by another physiotherapist.

Results: Fifty-seven COPD patients (age: 65.7 ± 8.5; FEV1: 45.3 ± 18.9%) were included and 54 were analyzed across three measurement sessions. We found an excellent correlation for intra-rater measurements ($p < 0.001$; shoulder abductors: $r = 0.84$, elbow flexors: $r = 0.94$, elbow extensors: $r = 0.89$) and good to excellent correlation for inter-rater measurements (Day 0/Day 2: $p < 0.01$; shoulder abductors: $r = 0.76$, elbow flexors: $r = 0.89$, elbow extensors: $r = 0.87$; Day 1/Day 2: shoulder abductors: $p < 0.01$; $r = 0.90$, elbow flexors: $r = 0.91$ elbow extensors: $r = 0.93$). Poor to good concordances were observed between the maximum voluntary isometric strength and the one repetition maximum test for intra-rater measurements.

Discussion: Handheld dynamometer is a reliable and valid tool for assessing upper limb muscle strength in clinical practice for COPD patients.

Trial registration: ClinicalTrials.gov Identifier: NCT04341753.

- 28 references

Supplementary info

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JMIR Res Protoc

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. 2025 Sep 23:14:e76186.

doi: 10.2196/76186.

Aiding Chronic Obstructive Pulmonary Disease and Congestive Heart Failure Ultrasound-Guided Management Through Enhanced Point-of-Care Ultrasound (ACCUMEN-POCUS): Protocol for a Randomized Controlled Trial

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Affiliations Expand

- PMID: 40987446

- DOI: 10.2196/76186

Free article

Abstract

Background: Hospital at home (HAH) programs offer acute care at home as a substitute for inpatient hospitalization, reducing health care costs while maintaining safety and care quality. Despite point-of-care ultrasound (POCUS) having been validated in inpatient and emergency settings, its role in HAH care remains underexplored. Common conditions treated in medical HAH programs, such as acute exacerbation of chronic obstructive pulmonary disease (AE-COPD), acute decompensated heart failure (ADHF), and pneumonia, are highly amenable to POCUS integration into clinical decision-making and have been proven to improve health care use outcomes. The portability of POCUS makes it ideal for use in HAH; however, its feasibility remains to be proven given the need for health care provider training and use in online settings.

Objective: This study evaluates the feasibility and clinical utility of remotely interpreted lung and inferior vena cava (IVC) POCUS acquired by community paramedics to support real-time clinical decision-making for HAH patients with AE-COPD, ADHF, and pneumonia in Calgary, Alberta.

Methods: This randomized controlled trial compares usual HAH care (control) to lung and IVC POCUS-enhanced HAH care (intervention). Handheld POCUS devices captured images that were securely shared using a cloud-based application. This enabled real-time image sharing among the clinical team, facilitating immediate decision-making by remote physicians. A mixed methods approach will evaluate clinical outcomes, patient experiences, health care use, and health care provider perceptions of POCUS integration. The primary outcome is defined as the length of stay for the index HAH admission. Quantitative analysis will assess clinical efficacy and health care resource use, while qualitative methods, such as interviews and surveys, will capture patient and health care provider experiences.

Results: Study funding began in April 2022, and data collection commenced in December 2023. Patient recruitment was finalized on December 31, 2024. This study

included a 3-month follow-up for significant outcomes and will include a 1-year follow-up for long-term health care use, including admissions to long-term care. In total, 20 patients were enrolled (intervention group: n=10, 50%; control group: n=10, 50%). Initial results highlighted the feasibility and potential benefits of remotely acquired POCUS imaging in HAH. Full data analysis is in progress.

Conclusions: This study is the first randomized controlled trial to investigate remotely acquired POCUS by nonphysician practitioners for real-time lung and IVC remote decision-making in HAH care. Findings will provide insights into whether serial lung and IVC POCUS assessments improve ADHF, AE-COPD, and pneumonia outcomes in the HAH setting, enhancing understanding of the value of POCUS integration from a health care provider's perspective. By assessing its clinical impact and feasibility, this research may inform future guidelines for incorporating POCUS into home-based care, ultimately improving patient care and optimizing health care resource use.

Trial registration: ClinicalTrials.gov NCT05423652; https://clinicaltrials.gov/study/NCT05423652.

International registered report identifier (irrid): DERR1-10.2196/76186.

Keywords: ADHF; AE-COPD; acute decompensated heart failure; acute exacerbation of chronic obstructive pulmonary disease; hospital at home; pneumonia; point-of-care ultrasound.

25

Observational Study

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doi: 10.2196/68741.

Respiratory-Responsive Vocal Biomarker for Asthma Exacerbation Monitoring: Prospective Cohort Study

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Affiliations Expand

- PMID: 40986855

- DOI: 10.2196/68741

Free article

Abstract

Background: Asthma exacerbations remain a major challenge in asthma management, often due to delayed recognition and limitations of conventional monitoring tools such as peak flow meters and symptom questionnaires. These tools are typically effort dependent or retrospective, making them less suited for continuous, real-time monitoring. A novel, smartphone-based respiratory-responsive vocal biomarker (RRVB) may offer an accessible and noninvasive approach for dynamic assessment of respiratory health. This RRVB has previously demonstrated generalizable performance in cross-sectional cohorts across multiple respiratory conditions, including asthma, chronic obstructive pulmonary disease, and COVID-19, in populations spanning India and the United States. This study extended this work by evaluating the real-world, longitudinal performance of the same RRVB tool for daily asthma exacerbation monitoring via smartphones in home settings.

Objective: This study aimed to evaluate the efficacy of the RRVB as a convenient real-time tool for monitoring asthma exacerbations and respiratory states in a real-world, longitudinal setting.

Methods: In this prospective cohort study, 84 adult patients with asthma were enrolled from an academic medical center and followed for 90 days. Participants submitted daily 6-second voice samples and conducted peak expiratory flow measurements and surveys, including symptom reports and asthma control assessments. RRVB scores were generated in real time on the app. Asthma states (normal function, mild event, and exacerbation) were defined based on both peak expiratory flow and self-reported well-being. Risk ratios were calculated to assess the predictive validity of RRVB scores for identifying exacerbation events. Engagement was measured via frequency of completed sessions, and participant experience was evaluated through exit surveys.

Results: RRVB scores significantly stratified asthma states. The risk of experiencing an exacerbation was 2.15 times higher (95% CI 1.62-2.85; P<.001) with

elevated RRVB scores and 3.57 times higher (95% CI 2.70-4.73; P<.001) using normalized scores adjusted for individual characteristics. RRVB scores did not significantly correlate with the Asthma Control Test (risk ratio=1.17, 95% CI 0.96-1.44; P=.12), highlighting its role as a momentary signal rather than a proxy for longitudinal control. Engagement was moderate or higher (≥26 total app sessions) in 58% (49/84) of participants. Among survey respondents, 93% (43/46) found the app easy to use, 89% (41/46) reported a positive overall experience, and 87% (40/46) indicated that they would use a similar tool in the future. Fewer participants (32/46, 70%) reported understanding the RRVB scores, suggesting a need for improved score interpretability and user guidance in future implementations.

Conclusions: The RRVB tool demonstrated effective real-time detection of asthma exacerbations and dynamic respiratory states, supporting its potential as a noninvasive, user-friendly, and physiologically grounded digital biomarker for asthma monitoring. These findings provide foundational evidence for broader deployment and integration of voice-based tools to support proactive, real-world asthma management.

Trial registration: ClinicalTrials.gov NCT05850390; https://clinicaltrials.gov/study/NCT05850390.

Keywords: asthma management; digital health; mHealth; mobile health; patient engagement; remote monitoring; respiratory exacerbation; vocal biomarkers.

26

Ann Am Thorac Soc

. 2025 Sep 23.

doi: 10.1513/AnnalsATS.202505-499OC. Online ahead of print.

Obesity Paradox and Lung Cancer Mortality: The Contributing Roles of Airflow Limitation and Pre-COPD

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Affiliations Expand

- PMID: 40986803

- DOI: 10.1513/AnnalsATS.202505-499OC

Abstract

Background: Increased body mass index (BMI, Kgm-2) has been consistently associated with reduced mortality from lung cancer, relative to low BMI, and termed the "Obesity Paradox". Whilst the basis of the obesity paradox remains unknown, mediating effects from sex, smoking status, diabetes mellitus (DM) and methodological issues (including bias), have been suggested causes. Our aim was to examine whether respiratory co-morbidity may contribute to this paradox.

Methods: In this secondary analysis of 18,463 high-risk subjects participating in the National Lung Screening Trial (NLST), we examined factors contributing to lung cancer mortality (primary end-point) using stratification analyses and regression models according to baseline demographics, comorbidity, specifically respiratory-related comorbidity based on lung function and/or clinical history.

Findings: With increasing BMI, both respiratory and lung cancer (LC) mortality decreased (P<0.001), consistent with the obesity paradox. However, increasing BMI was associated with a linear decrease in the prevalence of airflow limitation (halving) and linear increases in both Pre-COPD (2-fold) and DM (8-fold) across BMI septiles (all P<0.0001). In a sequentially-constructed competing risk model for LC death, and after adjustment for smoking, age, sex, BMI and other comorbidities, we found airflow limitation, Pre-COPD and DM remained significant predictors of increased LC death(p<0.01), albeit from opposite ends of the BMI continuum. When subjects with airflow limitation, Pre-COPD and DM were sequentially removed, the obesity paradox for LC mortality was substantially attenuated and almost abolished.

Interpretation: We propose that the obesity paradox in high-risk ever smokers who develop lung cancer results, in large part, from the stronger deleterious effect of airflow limitation on LC mortality, with a lesser effect associated with DM-Pre-COPD, where each predominate at opposite ends of the BMI continuum.

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Am J Respir Crit Care Med

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. 2025 Sep 23.

doi: 10.1164/rccm.202507-1700RL. Online ahead of print.

Long-Term Outcomes Associated with the Super-Exacerbator Phenotype after a Hospitalization for COPD

Carolyn G Garcia [1], Aruna Priya [2], Eduardo R Núñez [3], Yael Tarshish [3], Viswanathan Shankar [4], Penelope S Pekow [2], David H Au [5], Peter K Lindenauer [2]

Affiliations Expand

- PMID: 40986712

- DOI: 10.1164/rccm.202507-1700RL

No abstract available

Keywords: COPD; Exacerbations; Outcomes.

28

Review

Expert Rev Respir Med

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doi: 10.1080/17476348.2025.2562638. Online ahead of print.

Effects of strength training in patients with COPD: a systematic review

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Affiliations Expand

- PMID: 40961005

- DOI: 10.1080/17476348.2025.2562638

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) is a heterogeneous lung condition characterized by chronic respiratory symptoms causing persistent, often progressive airflow obstruction. Strength training is a therapeutic option to prevent and/or reverse muscle dysfunction in COPD patients. Objective: to analyze the literature on the effects of strength training in COPD patients.

Methods: A systematic review from the last ten years was conducted in August 2024 across PubMed, Scopus, WOS, Medline and CINAHL databases. The search included studies examining resistance training for upper and lower limbs. Methodological quality was analyzed using the PEDro scale and the RoB2 was used for risk of bias.

Results: Six randomized controlled trials were eligible for inclusion, obtaining an excellent or good methodological quality. Most repeated variables were exercise capacity, quality of life and muscle strength, finding statistically significant positive results in all of them.

Conclusions: Strength training appears to be safe and effective for COPD treatment, with improvements in exercise capacity, activities of daily living, muscle strength, lung function, quality of life and inflammatory levels. However, scientific evidence on this topic is scarce, and future high-quality, long-term studies are necessary to establish standardized protocols and assess the sustained benefits of strength training in COPD patients.Protocol registration: Identifier is CRD42024572717.

Keywords: ‘COPD’; ‘chronic obstructive pulmonary disease’; ‘pulmonary function’; ‘quality of life’; ‘rehabilitation’; ‘strength training’.

. 2025 Oct 1;33(5):e413.

doi: 10.1097/jnr.0000000000000698.

Pulmonary Rehabilitation Exercise Package for Enhancing Health in Elderly COPD Patients With Frailty: An Experimental Study

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Affiliations Expand

- PMID: 40900147
- PMCID: PMC12466175
- DOI: 10.1097/jnr.0000000000000698

Abstract

Background: Frailty may result in decreased physical functioning and worsen the prognosis of chronic diseases. Chronic obstructive pulmonary disease (COPD) is associated with an increased risk of concurrent frailty. Although pulmonary rehabilitation has demonstrated improvements in COPD outcomes, its impact on patients with frailty and COPD remains unclear.

Purpose: This study was designed to examine the effects of the pulmonary rehabilitation exercise package (PREP) on frailty, dyspnea, lower extremity muscular endurance (LEME), and walking ability (WA) in older adult COPD patients with frailty.

Methods: A single-blind experimental design was used to study 100 elderly COPD patients with frailty, randomly assigned to either the experimental or control group. The experimental group (EG) received the PREP intervention, while the control group (CG) received routine care. The Clinical Frail Scale (CFS) was used to measure frailty, the Modified Medical Research Council scale was used to measure dyspnea, LEME was measured using the 30-second chair stand test, and functional exercise capacity (i.e., walking ability or WA) was measured using the 6-minute walk distance. All measurements were taken at three time points: baseline (preintervention), 1 week postintervention, and 1 month postintervention. Between-group and within-group differences and variations in repeated measurements over time were compared using independent t tests, paired t tests, and generalized estimating equations (GEE).

Results: A total of 91 participants completed the study, with 9 participants lost to follow-up. No significant between-group differences were found at baseline in terms of characteristics, frailty, dyspnea, LEME, and WA. Applying difference-in-

differences, the EG outperformed the CG in terms of dyspnea and WA at both 1-week and 1-month follow-ups, while the EG significantly outperformed the CG on all measures at the 1-month follow-up. Within-group comparisons also revealed significant improvements in the EG compared with the CG. Using GEE to examine the interaction, the EG demonstrated significantly better improvements in dyspnea, LEME, and WA than the CG at the 1-month mark.

Conclusions/implications for future practice: The results show that PREP has the potential to significantly improve health in older adults with frailty and COPD by addressing frailty, dyspnea, LEME, and WA. PREP may be implemented as a subacute health care model to manage COPD-related debilitation in hospital settings.

Keywords: COPD; frail; pulmonary rehabilitation exercise.

Conflict of interest statement

The authors declare no conflicts of interest.

- 36 references
- 1 figure

Supplementary info

Publication types, MeSH termsExpand

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Comparative Study

Pharmacol Res Perspect

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. 2025 Oct;13(5):e70154.

doi: 10.1002/prp2.70154.

A Comparison of the Molecular Pharmacological Properties of Current Short, Long, and Ultra-Long-Acting β_2-Agonists Used for Asthma and COPD

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Affiliations Expand

- PMID: 40887869
- PMCID: PMC12399788
- DOI: 10.1002/prp2.70154

Abstract

β-agonists have been used in asthma for 120 years. There are two recent changes: ultra-long-acting agonists for COPD and new asthma guidelines recommending formoterol/ICS inhalers phasing out short-acting salbutamol inhalers. Few studies directly compare the molecular pharmacological properties of short (salbutamol, terbutaline, fenoterol), long (formoterol, salmeterol), and ultra-long-acting (indacaterol, olodaterol, vilanterol) β_2-agonists. Here, the in vitro molecular pharmacological properties of affinity, selectivity, intrinsic efficacy, and duration of β_2-agonists at human β_2 and β_1-adrenoceptors and the 4 β_2-polymorphisms stably expressed in CHO cells were directly compared using radioligand binding and functional studies. Whilst short-acting drugs were similar, there was huge variation and complete overlap in the molecular pharmacological properties of drugs labeled as long and ultra-long-acting β_2-agonists. Salmeterol and vilanterol were highly β_2-selective (> 1000-fold) whereas indacaterol was similar to salbutamol (40-fold). Formoterol and indacaterol were the most efficacious, whereas salmeterol had the longest duration of binding. Salmeterol and vilanterol utilize a β_2-specific exosite (β_2-H296-K305) for high affinity and selectivity (that does not affect intrinsic efficacy or duration) whilst the β_2-selectivity of formoterol and olodaterol resides elsewhere. Duration of binding closely correlated with lipophilicity. β_2-polymorphisms had no substantial effect on β_2-agonist properties. Comparison with other β-ligands suggests that affinity and duration could both be improved further. However, given the very wide range of molecular pharmacological properties of β-agonists that are clinically effective and widely used, non-pharmacological properties (physiochemical, patient factors, devices and combination inhaler availability) may be as important in final clinical patient outcomes as the molecular pharmacological properties of the individual β_2-agonists themselves.

Conflict of interest statement

The authors declare no conflicts of interest.

- 60 references

- 5 figures

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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J Psychosom Res

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Psychiatric multimorbidity in heart failure

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Affiliations Expand

- PMID: 40865247

- DOI: 10.1016/j.jpsychores.2025.112368

Abstract

Objective: There have been numerous studies of specific psychiatric comorbidities such as major depression in patients with heart disease, but there have been relatively few studies of psychiatric multimorbidity in these patients. The purpose of this cross-sectional study was to investigate the prevalence and correlates of psychiatric multimorbidity in patients with heart failure (HF).

Methods: Patients who had been hospitalized with HF were enrolled in this cross-sectional study within 30 days of hospital discharge and interviewed within two weeks after enrollment. Participants completed the NetSCID-5 diagnostic interview, a social determinants of health (SDOH) interview, and perceived stress and health-related quality of life questionnaires.

Results: A total of 362 patients completed the interview. The maximum possible lifetime comorbidity count was 11 but the observed maximum was 8; the mean (SD)

count was 1.48 (1.63). A total of 135 (37 %) patients had no history of any psychiatric disorder, 97 (27 %) had a lifetime history of a single disorder, and 130 (36 %) had ≥2 lifetime disorders. Higher numbers of psychiatric disorders were associated with younger age, more exposure to SDOH, higher perceived stress, and chronic obstructive pulmonary disease.

Conclusion: Psychiatric multimorbidity is prevalent in patients with HF and is associated with worse medical and social health status. New studies of the consequences or treatment of specific psychiatric comorbidities in patients with heart disease should take psychiatric multimorbidity into account, and further research on psychiatric multimorbidity per se is needed.

Keywords: Comorbidity; Heart failure; Mental disorders; Multimorbidity; Psychological; Quality of life; Social determinants of health; Stress.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Kenneth E. Freedland reports financial support was provided by National Heart Lung and Blood Institute and by The Foundation for Barnes-Jewish Hospital. I have reviewed manuscripts for Journal of Psychosomatic Research but I do not serve on the editorial board. The other authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

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Respir Med

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. 2025 Oct:247:108317.

doi: 10.1016/j.rmed.2025.108317. Epub 2025 Aug 21.

Association between 6-min walk test and initiation of home oxygen therapy within 3 years in chronic obstructive pulmonary disease managed by primary care physicians

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Affiliations Expand

- PMID: 40849075

- DOI: 10.1016/j.rmed.2025.108317

Free article

Abstract

Background: In the western area of Yokohama, patients with mild chronic obstructive respiratory disease (COPD) are managed via a coordinated system consisting of St. Marianna University Yokohama Seibu hospital and primary care clinics. In this study, we investigated whether background factors predicted the need for home oxygen therapy (HOT) within three years as a marker of risk for exacerbation and hospitalization.

Methods: Of the 114 COPD patients who were managed via the coordinated system between January 2013 and March 2020, 101 who underwent the 6-min walk test (6MWT) in room air were recruited.

Results: The mean age of patients was 76.2 years, and 95 were male. The mean distance covered during the 6MWT (6MWD) was 374 m, and the median lowest SpO_2 during the 6MWT was 93 %. Twenty-two patients dropped out of the study. Eleven patients (10.8 %) required HOT within 3 years. Compared with the 68 patients who did not require HOT, the group requiring HOT was significantly older, covered a had a short 6MWD, had a lower SpO_2, a lower percentage diffusing capacity of the lung for carbon monoxide (%DLCO), and a higher right ventricular systolic pressure (RVSP). Receiver operating characteristic curve analysis revealed a cut off value of 91 % in the lowest SpO_2 for the introduction of HOT within 3 years (Area under the curve: 0.819, sensitivity: 1.0, specificity: 0.633).

Conclusion: The 6MWT can be used to assess cardiopulmonary function in COPD and associated with prognosis. 6MWT can be useful predictor of a future need for HOT.

Keywords: 6-Min walk test; Chronic obstructive pulmonary disease; Home oxygen therapy; Primary care.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Masamichi Mineshita reports a relationship with Nippon Boehringer Ingelheim that includes: speaking and lecture fees. Masamichi Mineshita reports a relationship with Fortrea Japan that includes: funding grants. Masamichi Mineshita reports a relationship with COSMOSWEB that includes: funding grants. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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33

J Psychosom Res

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Factors associated with new onset of depression and anxiety symptoms differ by sex in the COPDGene study

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Free article

Abstract

Objective: Examine clinical and demographic variables associated with new onset depression and anxiety symptoms and assess moderation by sex in COPDGene, a

cohort study of current and former smokers at risk for or with chronic obstructive pulmonary disease (COPD).

Methods: In the COPDGene study, 2653 adults had the hospital anxiety (HADS-A) and depression (HADS-D) scales available at phase 2 and 3, as well as clinical and demographic variables available at 2 and non-elevated HADS at phase 2. We defined new onset depression symptoms as HADS-D elevated at phase 3 (HADS-D ≥ 8) versus no new onset as HADS-D not elevated at either phase (HADS-D < 8). New onset anxiety symptoms were defined identically using HADS-A. We used logistic regression models among all participants and stratified by sex and assessed sex interactions for variables associated with the outcome for only one sex.

Results: Among males, COPD Assessment test (CAT) score was positively associated with new onset depression ($\beta = 0.08$, $p = 1.9 \times 10^{-5}$) and anxiety ($\beta = 0.06$, $p = 1.4 \times 10^{-3}$) symptoms. Among females, the modified Medical Research Council (mMRC) dyspnea was positively associated with new onset anxiety symptoms ($\beta = 0.33$, $p = 1.4 \times 10^{-3}$). We found sex by CAT score ($\beta = -0.06$, $p = 0.02$) and sex by mMRC dyspnea ($\beta = 0.42$, $p = 5.1 \times 10^{-3}$) interactions on new onset anxiety symptoms, and sex by CAT score interaction ($\beta = -0.05$, $p = 0.04$) on new onset depression symptoms.

Conclusions: These findings highlight the importance of understanding factors that increase risk for depression and anxiety among smokers at risk for or with COPD and are moderated by sex.

Keywords: Anxiety; Depression; Hospital anxiety and depression scale (HADS); Sex.

Conflict of interest statement

Declaration of competing interest Regarding conflicts of interest, in the past three years, Edwin K. Silverman received grant support from Bayer and Northpond Laboratories and Dawn L. DeMeo received support from Bayer and the Alpha-1 Foundation. The funding sources played no role in the design of the study or the decision to submit the manuscript for publication. No other authors reported conflicts of interest.

Respir Med

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Ocular manifestations in COPD patients. An underrecognized comorbidity

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Affiliations Expand

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Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is characterized by the presence of comorbidities, such as cardiovascular diseases, that significantly impact symptoms, quality of life and prognosis. Indeed, it is shown that patients with COPD may present with diseases of aging, earlier in life, including eye disorders, such as macular degeneration and cataract. Although underrecognized, cumulative evidence over the last years suggests that COPD is associated with ocular abnormalities, mainly in the posterior segment of the eye, affecting both the microvascular network of the retina and the optic nerve, while structural abnormalities of the choroid and cornea have also been described. Thus, the aim of this review is to provide a comprehensive description of the evidence for ocular findings in patients with COPD that is an underrecognized entity and co-morbidity. A secondary aim of this review is to introduce pulmonologists to current ophthalmological techniques that may foster both clinical practice and research, especially through the assessment of the ocular microvascular network that is closely related to cardiovascular comorbidities.

Keywords: COPD; Microvascular; Optic neuropathy; Retinopathy.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

Publication types, MeSH termsExpand

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Cite

35

Multicenter Study

Eur Respir J

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. 2025 Sep 25;66(3):2500169.

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Pulmonary pressure increases during acute exacerbation in COPD and clinical outcome

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Affiliations Expand

- **PMID: 40774812**

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- DOI: 10.1183/13993003.00169-2025

Abstract

Background: Elevated pulmonary pressures can lead to right ventricular dysfunction, worsen respiratory status and increase overall morbidity in COPD patients. Yet, little is known about the impact of right-sided pressure changes during acute exacerbation in COPD (AECOPD) on patient outcomes. Our aim was to determine whether pulmonary pressures are elevated during AECOPD compared with the stable phase and to investigate the association between tricuspid regurgitation (TR) gradient during AECOPD and days alive and out of hospital (DAOH).

Methods: This was a multicentre, prospective study of pulmonary pressures changes in patients with AECOPD and stable-phase COPD. Inclusion criteria were diagnosis of COPD and admission with AECOPD. Transthoracic echocardiography (TTE), including TR gradient, tricuspid annular plane systolic excursion (TAPSE), right ventricular diameter and right atrial parameters, was performed during AECOPD and the stable phase.

Results: Of 250 patients, 232 underwent TTE during AECOPD and 107 completed stable-phase follow-up. Reasons for incomplete follow-up included death (n=46), withdrawal (n=23), poor TTE quality (n=21) and unmeasurable TR gradients (n=35). TR gradient increased significantly during AECOPD, with a mean difference of 6.0 (95% CI 2.5-9.6) mmHg, while TAPSE, right ventricular diameter and right atrial size showed no significant changes. Higher TR gradients during AECOPD correlated with lower DAOH.

Conclusion: TR gradients were significantly elevated during AECOPD, suggesting that transient right-sided pressure spikes are associated with COPD exacerbations. However, the direction of this association remains unclear and further research is needed to determine whether right-sided pressure changes contribute to exacerbations or whether exacerbations themselves drive these pressure spikes.

Conflict of interest statement

Conflict of interest: T. Biering-Sørensen reports grants from Sanofi Pasteur and GE Healthcare, payment or honoraria for lectures, presentations, manuscript writing or educational events from Novartis and Sanofi Pasteur, participation on a data safety monitoring board or advisory board with Sanofi Pasteur and Amgen, and a leadership role on the steering committee of the Amgen-financed GALACTIC-HF trial. E. Bendstrup reports fees and grants from Boehringer Ingelheim, Hoffman-La Roche, Galapagos and Bristol Myers Squibb. C.B. Laursen reports payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Chiesi and GSK, and royalties or licences from Munksgaard. J. Carlsen is a member of an advisory board for Merck and has received institutional research grants and institutional speaker fees. The remaining authors have no potential conflicts of interest to disclose.

Comment in

- Pulmonary hypertension in COPD exacerbation: a transient storm with long-term consequences?

Uysal OF, Hurst JR.Eur Respir J. 2025 Sep 25;66(3):2501508. doi: 10.1183/13993003.01508-2025. Print 2025 Sep.PMID: 40998558 No abstract available.

- 23 references
- 4 figures

Supplementary info

Publication types, MeSH termsExpand

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36

Randomized Controlled Trial

Physiother Res Int

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. 2025 Oct;30(4):e70097.

doi: 10.1002/pri.70097.

Effect of Home-Based Pulmonary Rehabilitation Management on Bone Mineral Density and Function for Stable Chronic Obstructive Pulmonary Disease Patients With Osteoporosis: A Randomized Controlled Trial

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Affiliations Expand

- PMID: 40765137

- DOI: 10.1002/pri.70097

Abstract

Purpose: This study aimed to examine the effect of home-based pulmonary rehabilitation (PR) on bone mineral density (BMD), lung function, dyspnea, and

walking ability for stable Chronic Obstructive Pulmonary Disease (COPD) patients with OP (osteoporosis).

Methods: The required sample size was 27 per group, adjusted to 32 per group to account for a 15% dropout rate, ensuring 90% power. This is a 6-month randomized, single-blind, controlled trial. COPD patients with OP were randomly divided into the home-based PR and control groups. Patients in the control group received the program of health education and drug treatment. Patients in the home-based PR group received additional home-based PR programs. The primary outcome was the bone mineral density (BMD) at the lumbar spine. The secondary outcomes included BMD at the femoral neck, lung function (FEV_1% and FEV_1/FVC), the modified Medical Research Council (mMRC), COPD assessment test (CAT), Borg dyspnea scale (Borg), and Six-minute walk distance test (6MWT). All outcomes were assessed at 3 and 6 months.

Results: After 6 months, 29 patients in the home-based PR group and 28 in the control group completed the trial. The BMD of the lumbar spine and femoral neck in the home-based PR group was significantly higher than that in the control group (0.758 ± 0.048 vs. 0.728 ± 0.057, p = 0.031, 0.670 ± 0.024 vs. 0.658 ± 0.019, p = 0.039, respectively). There was no significant difference in FEV_1% and FEV_1/FVC between the groups. The mMRC, CAT, and Borg of the home-based PR group were significantly lower than those of the control group at 3 and 6 months ($p < 0.05$). The 6MWT of the home-based PR group was significantly higher than that of the control group at 3 and 6 months ($p < 0.05$).

Conclusions: Home-based PR improved BMD, dyspnea, symptoms, function, and daily living ability but not lung function in COPD patients with OP.

Keywords: bone mineral density; chronic obstructive pulmonary disease; home-based pulmonary rehabilitation; osteoporosis.

- 50 references

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

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Cite

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Comparative Study

Respir Med

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doi: 10.1016/j.rmed.2025.108292. Epub 2025 Aug 7.

Comparing major COPD triple therapy trials using a structured multi-criteria decision analysis: A deep dive into patient populations and outcomes

Mario Cazzola [1], Mauro Maniscalco [2], Vincenzo Patella [3], Luigino Calzetta [4], Maria Gabriella Matera [5], Paola Rogliani [6]

Affiliations Expand

- PMID: 40759267

- DOI: 10.1016/j.rmed.2025.108292

Free article

Abstract

Background: Triple inhaled therapy (ICS/LABA/LAMA) is widely recommended for managing COPD in patients with persistent symptoms or frequent exacerbations. However, variability in trial designs, populations, and pharmacologic formulations complicates direct comparison between regimens.

Objective: To evaluate the comparative performance of three triple therapies, FF/VI/UMEC, BUD/FOR/GLY, and BDP/FOR/GLY, using a multidimensional comparative decision analysis (MCDA) across key clinical domains.

Methods: Data from pivotal trials (IMPACT, FULFIL, TRINITY, TRIBUTE, TRILOGY, ETHOS, and KRONOS) were synthesized using an MCDA framework encompassing lung function, symptom control, and exacerbations. Mortality, safety, and device usability were also assessed. Analyses considered variations in enrolled populations, prior ICS use, and inhaler characteristics.

Results: FF/VI/UMEC showed consistent efficacy across multiple domains and populations, particularly in patients at high risk of exacerbations. BUD/FOR/GLY was associated with reductions in exacerbations and mortality, particularly in patients previously treated with LABA/LAMA. BDP/FOR/GLY may be suitable for ICS-maintained patients. Trials like FULFIL and KRONOS showed symptom and lung function gains even in non-exacerbators, although ICS use in this group always warrants caution due to pneumonia risk.

Limitations: Findings are based on indirect comparisons across heterogeneous trials. Relative changes from dual therapy comparators were evaluated, and pharmacological and device-related differences between each triple therapy and the comparators may have influenced outcomes.

Conclusions: Among the therapies evaluated, FF/VI/UMEC achieved the highest composite MCDA score. However, optimal COPD management requires personalized treatment to be prescribed based on factors such as exacerbation history, previous ICS use, inhaler preference and adherence. This may involve evaluating the use of an alternative triple therapy and emphasizes the importance of aligning the choice of triple therapy with the individual's clinical profile and treatment goals.

Conflict of interest statement

Declaration of competing interest We have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties. Furthermore, we declare that this manuscript was not funded/sponsored, and no writing assistance was utilized in its production.

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Review

Respir Med

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Exercise-based pulmonary rehabilitation for individuals with chronic obstructive pulmonary disease: What is the potential role of biomarkers? A narrative review

Claudio Candia [1], Salvatore Fuschillo [2], Pasquale Ambrosino [3], Andrea Motta [4], Nicolino Ambrosino [5], Mauro Maniscalco [6]

Affiliations Expand

- PMID: 40752631

- DOI: 10.1016/j.rmed.2025.108282

Abstract

Chronic obstructive pulmonary disease (COPD) is a prevalent, complex, and heterogeneous respiratory condition characterized by cough, dyspnea, exercise intolerance, and persistent airflow limitation. Despite its common features, COPD encompasses a variety of phenotypes-including airflow obstruction, emphysema, chronic bronchitis, asthma-COPD overlap (ACO), and frequent exacerbations-each driven by distinct pathophysiological mechanisms. Over the past three decades, pulmonary rehabilitation (PR) including exercise training has emerged as a cornerstone non-pharmacological intervention for COPD management. However, individual responses to exercise training are highly variable. This variability may stem from both patient-related factors-such as disease severity, comorbid conditions, and motivational levels-and program-related aspects, including session frequency, exercise intensity, and program duration. Consequently, there is a pressing need for reliable predictive and monitoring biomarkers that can identify people most likely to benefit from PR, and guide personalization of treatment protocols regarding intensity and duration. Such biomarkers are essential not only for improving clinical outcomes but also for optimizing the use of limited healthcare resources. Despite their potential, the association between biomarkers and PR outcomes remains underexplored. In this narrative review, we aim to synthesize current evidence on the role of specific biomarkers in predicting and evaluating the effectiveness of PR in individuals with COPD.

Keywords: Biomarkers; COPD; Disability; Exercise; Outcome; Rehabilitation.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Respir Med

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Parametric estimation of age-, sex-, and spirometry grade-specific mortality in a cohort of COPD patients from Germany: Results from COSYCONET

Tobias Niedermaier [1], Peter Alter [2], Rudolf Jörres [3], Claus Vogelmeier [4], Rolf Holle [5]

Affiliations Expand

- PMID: 40744284

- DOI: 10.1016/j.rmed.2025.108280

Free article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) substantially contributes to morbidity and mortality worldwide. We aimed at estimating Global Initiative for Chronic Obstructive Lung Disease (GOLD) spirometric grade-specific mortality in COPD for Germany, using data from a large-scale cohort of patients with COPD.

Methods: Using COSYCONET data, a cohort of 2741 patients diagnosed with COPD was followed over up to 9 years. We estimated mortality rates for GOLD grades 1 to 4 and stratified into age and sex groups. An exponential survival model was used to estimate mortality after checking model assumptions. Additionally, a Cox proportional hazards model was estimated as plausibility check for the exponential model.

Results: A total of 345 deaths were observed during the follow-up period. The data fitted well to an exponential survival model when the first year of follow-up was excluded, suggesting a "healthy participant effect". GOLD grade was a strong predictor of mortality, with hazard ratios of 1.6, 3.2, and 8.8 for GOLD 2-4 compared to GOLD 1. Hazard ratios of the Cox model were similar (1.7, 3.4, and 10.0 for grades 2-4 compared to grade 1). At a given grade, mortality strongly increased with age. 1-year mortality ranged from 0.5 % (GOLD 1, <55 years, females) to 54.9 % (GOLD 4, 80+ years, males). Mortality was lower among females by approximately 25 %.

Conclusion: Based on our findings, mortality in COPD depends on GOLD grade, age, sex and smoking status. Parametric estimation allowed to estimate 1-year

mortality for each combination of COPD grade and age group, including uncertainty estimates.

Keywords: COPD; Markov model parameters; PRISm; Parametric survival.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Claus Vogelmeier reports financial support was provided by German Federal Ministry of Education and Research (BMBF). Claus Vogelmeier reports a relationship with German Ministry of Education and Science (BMBF), AstraZeneca, Boehringer Ingelheim, Grifols, GlaxoSmithKline, and Novartis that includes: funding grants. Claus Vogelmeier reports a relationship with Aerogen, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Novartis, and Nuvaira that includes: consulting or advisory. Claus Vogelmeier reports a relationship with Aerogen, AstraZeneca, Boehringer Ingelheim. that includes: speaking and lecture fees. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

MeSH termsExpand

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Open Respir Arch

. 2025 Jun 24;7(4):100458.

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Delphi Consensus on the Management of COPD Exacerbation Syndrome in Inpatient and Outpatient Settings

Javier de Miguel Díez [1], Juan Marco Figueira Gonçalves [2], Carlota Rodríguez García [3], Carlos Antonio Amado Diago [4], Miriam Barrecheguren [5], Bernardino Alcázar Navarrete [6]

Affiliations Expand

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- PMCID: PMC12301748

- DOI: 10.1016/j.opresp.2025.100458

Abstract

in English, Spanish

Introduction: COPD is a respiratory condition characterized by chronic airflow limitation. Exacerbations are an acute worsening of the symptoms. The objective of this study was to achieve a consensus on the management of COPD exacerbation syndrome in inpatient and outpatient settings.

Material and methods: A committee of experts developed a 60-item questionnaire to be agreed by a panel of experts, categorized into seven sections.

Results: After two rounds, consensus was reached on 81.7% of the items. Strong consensus (more than 85%) was reached on the importance of implementing protocols to help patients with exacerbations in both outpatient (92.7%) and inpatient (94.3%) settings. Regarding the criteria for hospitalization due to an exacerbation, respondents agreed that they are clearly defined (75.5%). Regarding bronchodilator use for CES, the only statement that did not achieve agreement was whether there are clinical differences between the use of nebulized rescue bronchodilators and pressurized metered-dose inhalers (pMDIs) with a spacer. Regarding CES treatment in the outpatient setting, consensus was reached for almost all statements, in contrast to what was found for inpatient treatment. Respondents disagreed with the statement that the use of SABA should be accompanied by the discontinuation of LAMAs or LABAs, with or without corticosteroids (74.8%). In the context of a COPD exacerbation requiring hospitalization, inhaled triple therapy should be prescribed (regardless of prior treatment) in the absence of contraindications. Regarding post-discharge protocols and rehabilitation, respondents reached consensus on all statements.

Conclusions: This Delphi consensus study provides valuable insights into the current management of CES, highlighting several areas where consensus remains elusive.

Keywords: COPD; Chronic obstructive pulmonary disease; Delphi consensus; Exacerbation; Treatment.

- 38 references
- 1 figure

Full text links

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Review

Circ J

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doi: 10.1253/circj.CJ-24-1025. Epub 2025 Jun 27.

Cardiopulmonary Risk in Chronic Obstructive Pulmonary Disease - A Perspective for Reducing Mortality

Michihiro Yoshimura [1], Shigeo Muro [2], Koichiro Kuwahara [3], Hisatoshi Sugiura [4], Koichi Fukunaga [5], Ryoko Sorimachi [6], Munehiro Seki [6], Toyoaki Murohara [7]

Affiliations Expand

- PMID: 40571562

- DOI: 10.1253/circj.CJ-24-1025

Free article

Abstract

Chronic obstructive pulmonary disease (COPD) and cardiovascular disease (CVD) show a relationship through the sharing of several risk factors, and the prevalence of each disease increases in an age-related manner. Therefore, clinicians are very likely to encounter patients with both diseases. Importantly, the risk of death in patients with CVD is even greater in those with coexisting COPD. Cardiopulmonary risk, defined as "the risk of serious respiratory and/or cardiovascular events in patients with COPD," is a concept whereby COPD exacerbations (characterized by worsening of COPD symptoms over a short period of time) and/or CVD events may increase the risk of death due to these events in patients with COPD. Lowering cardiopulmonary risk requires appropriate treatment to prevent COPD exacerbations. Inhalation therapies can prevent COPD exacerbations and may reduce mortality rates. Research to investigate whether inhaled therapies can lower cardiopulmonary risk is ongoing. There is a need for early COPD diagnosis and

timely, effective treatment that prevents COPD exacerbations while also considering cardiopulmonary risk. We propose an urgent call to action for cardiology and respirology societies to address cardiopulmonary risk and reduce COPD and CVD deaths.

Keywords: Cardiopulmonary risk; Cardiovascular disease; Chronic obstructive pulmonary disease; Exacerbations; Mortality.

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

42

Observational Study

Nitric Oxide

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. 2025 Oct:158:62-66.

doi: 10.1016/j.niox.2025.06.003. Epub 2025 Jun 11.

Appearances can be deceiving: differences in FeNO values among COPD and severe asthmatic patients stratified according to peripheral eosinophilic count

Claudio Candia [1], Silvestro Ennio D'Anna [2], Maria D'Amato [3], Francesco Cappello [4], Andrea Motta [5], Mauro Maniscalco [6]

Affiliations Expand

- PMID: 40513768

- DOI: 10.1016/j.niox.2025.06.003

Abstract

Eosinophilic COPD (eCOPD) and eosinophilic severe asthma (eSA) appear to share relevant clinical features, including responsiveness to steroids and higher exacerbation rates. However, data on the expression of T2-high inflammation

biomarkers and, in particular comparison of fractional exhaled nitric oxide (FeNO) levels between the two diseases is lacking. The aim of the current retrospective observational study was to investigate whether FeNO values might differ between eCOPD and eSA patients. Sixty patients with SA and 40 with COPD were enrolled. They were divided in four groups: eosinophilic COPD (eCOPD) and eosinophilic severe asthma (eSA), if the blood eosinophil count (BEC) was ≥300 cells/μL; non-eosinophilic COPD (neCOPD) and non-eosinophilic severe asthma (neSA) if the BEC was <100 cells/μL. FeNO values, lung function and demographic data were compared between the groups. Overall, COPD patients were older, with a higher prevalence of males and had more impaired lung function than asthmatic patients. When comparing FeNO levels among the four groups, a significant difference was found between eCOPD and eSA patients (p = 0.001), as well as eCOPD and neCOPD patients (p = 0.021). Finally, neCOPD patients showed significantly lower FeNO values in comparison with neSA patients (p = 0.005). Such results were confirmed after adjusting for age, sex, and smoking history. Our preliminary results hint at the possibility that, despite an apparently similar eosinophilic phenotype, eCOPD patients might present with different FeNO values in comparison with eSA patients, possibly reflecting different underlying disease mechanisms.

Keywords: Biomarker; COPD; Disability; Eosinophil; Exhaled nitric oxide; FeNO; Occupational medicine; Outcome; Precision medicine; Severe asthma.

Conflict of interest statement

Declaration of competing interest M.M. reports grants for his institution from AstraZeneca and GlaxoSmithKline, and payments or honoraria for presentations or educational events from GlaxoSmithKline, Chiesi, and Damor Farmaceutici. All these are outside the scope of this manuscript. All the other Authors declair no conflicts of interest.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

. 2025 Oct;53(5):2191-2202.

doi: 10.1007/s15010-025-02566-0. Epub 2025 Jun 2.

Global, regional, and national burden of lower respiratory infections and chronic obstructive pulmonary disease, 1990-2021: a systematic analysis from the global burden of disease study 2021

Yi-Yuan Wang [1 2 3], Jing Wang [1 2 3], Zhang-Wei Lu [1 2 3], Qian-Qian Zhou [1 2 3], Yang-Guang Cao [1 2 3], Yu-Jie Du [1 2 3], Xue Jin [1 2 3], Bao-Zhu Li [4 5 6 7]

Affiliations Expand

- PMID: 40455385

- DOI: 10.1007/s15010-025-02566-0

Abstract

Purpose: This study evaluates the global burden of lower respiratory infections (LRIs) and chronic obstructive pulmonary disease (COPD), focusing on their combined impact across age groups and regions.

Methods: Data from 204 countries were analyzed using spatiotemporal Gaussian process regression to estimate LRI and COPD incidence, prevalence, and disability-adjusted life years (DALYs). Age-standardized ratios (ASR) and the Socio-Demographic Index (SDI) were used to compare disease burdens, with trends assessed via linear regression and restricted cubic spline models.

Results: In 2021, COPD and LRI caused 360 million cases and 5.9 million deaths, with the highest burden in low-SDI regions. COPD remained the fourth leading cause of death, while LRI dropped to seventh.

Conclusion: The bidirectional link between LRI and COPD exacerbates disease progression, disproportionately affecting low-income regions and aging populations. Addressing disparities in healthcare access, improving vaccines, and strengthening public health infrastructure are critical to reducing the global burden of these diseases.

Keywords: COPD; Chronic obstructive pulmonary disease; LRI; Lower respiratory infections.

Conflict of interest statement

Declarations. Ethical approval: All data was downloaded on September 24, 2024 from the GBD 2021 database. As this study is based on the GBD 2021 database, which is open to the public. Therefore the Institutional Ethics Committee granted an exemption for this study as it did not require approval. The study adhered to the guidelines for accurate and transparent reporting of health assessments and information that could identify individual participants was not available. Competing interests: The authors declare no competing interests.

- Cited by 1 article

- 39 references

Supplementary info

MeSH terms, Grants and fundingExpand

Full text links

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Cite

44

J Asthma

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. 2025 Oct;62(10):1690-1697.

doi: 10.1080/02770903.2025.2513053. Epub 2025 Jun 4.

Single-inhaler triple therapy improves small airway dysfunction in moderate to severe asthma and asthma-COPD overlap: a retrospective cohort study

Yumi Fujita [1], Toshihiro Shirai [1], Taisuke Akamatsu [1], Shogo Sakurai [1]

Affiliations Expand

- PMID: 40433997

- DOI: 10.1080/02770903.2025.2513053

Abstract

Background: Medium- or high-dose fluticasone furoate (FF)/vilanterol (VI)/umeclidinium (UMEC) is associated with an improvement in forced expiratory volume in one second (FEV1), a marker of large airway dysfunction. However, the effect of FF/VI/UMEC on small airway dysfunction (SAD) remains unknown.

Objective: To clarify the effect of FF/VI/UMEC on SAD in moderate to severe asthma and asthma-chronic obstructive pulmonary disease overlap (ACO) in a retrospective cohort study.

Methods: Subjects included 18 moderate to severe asthma and ACO patients who switched from inhaled corticosteroid/long-acting-β2 agonist (ICS/LABA) to FF/VI/UMEC. Asthma Control Test (ACT), Asthma Control Questionnaire (ACQ), blood eosinophil counts, total IgE, fractional exhaled nitric oxide, spirometry, and oscillometry were measured and compared before and after FF/VI/UMEC treatment.

Results: Markers of SAD, including forced vital capacity (FVC), forced expiratory flow at 25-75% of FVC, respiratory system reactance at 5 Hz (X5), resonant frequency, and low-frequency reactance area (AX), improved significantly after the induction of SITT, in addition to ACT, ACQ, FEV1, and FEV1/FVC. Improvements in FEV1, X5, and AX correlated with improvements in ACT, and improvements in FEV1 and FEV1/FVC correlated with improvements in ACQ.

Conclusion: FF/VI/UMEC improved SAD, and its improvement was correlated with improved asthma control in moderate to severe asthma and ACO patients.

Keywords: Asthma; asthma-COPD overlap; oscillometry; single-inhaler triple therapy; small airway dysfunction.

Supplementary info

MeSH terms, SubstancesExpand

"Multimorbidity"[Mesh Terms] OR Multimorbidity[Text Word]

1

Ann Geriatr Med Res

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. 2025 Sep 30.

doi: 10.4235/agmr.25.0095. Online ahead of print.

Social frailty in older adults: proposal and application of an original measurement index

Hernán-David García-Botina [1 2], Gloria-María Sierra-Hincapié [3]

Affiliations Expand

- **PMID: 41024597**

- **DOI: 10.4235/agmr.25.0095**

Abstract

Objective: To develop and apply a multidimensional Social Frailty Index (SFI) to estimate the prevalence of social frailty among older adults in four departments of Colombia.

Methods: A cross-sectional, analytical study was conducted using secondary data from the SABE Colombia 2016 survey. The study included 3,506 individuals aged 60 years and older residing in Antioquia, Caldas, Risaralda, and Quindío. Variables from demographic, health, and social domains were analyzed using Principal Component Analysis (PCA) to construct the SFI. Individuals scoring above the 75th percentile were classified as socially frail.

Results: The prevalence of social frailty was 25.3% (95% CI: 23.8-26.7), with higher rates observed among men (29.2%) and individuals aged 75 years and older (32.4%), as well as among residents of Antioquia. Four latent components were identified: (1) functional dependence; (2) social engagement and participation; (3) social and emotional isolation; and (4) perceived health and healthcare quality. The index showed consistency with theoretical frameworks and international tools.

Conclusions: This multidimensional index allows for early identification of vulnerable older adults, supporting targeted interventions and public health planning. Further research is needed to standardize measurement criteria and to evaluate the predictive value of social frailty in relation to outcomes such as disability, multimorbidity, mortality, and quality of life.

Keywords: aged; frail elderly; frailty; social frailty; social vulnerability.

2

BMC Prim Care

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. 2025 Sep 26;26(1):289.

doi: 10.1186/s12875-025-02996-7.

The Edmonton frail scale: a feasibility study on assessing frailty among older adults with multimorbidity in Norwegian primary health care

Turid Rimereit Aarønes [1 2], Kristin Taraldsen [3], Are Hugo Pripp [4], Linda Aimée Hartford Kvæl [5 6]

Affiliations Expand

- **PMID: 41013232**

- PMCID: PMC12465194

- DOI: 10.1186/s12875-025-02996-7

Abstract

Background: The growing prevalence of multimorbidity and frailty, driven by an ageing population and changing health trends, is placing significant pressure on healthcare systems. Frailty assessments provide valuable insights into patient vulnerability, allowing for early interventions to prevent functional decline and reduce hospitalisations. Despite their importance, standardised frailty assessment instruments are not widely used in primary care. This study investigated the feasibility of using one such instrument, the multidimensional Edmonton Frail Scale (EFS), in Norwegian primary healthcare.

Methods: This feasibility study involved 14 healthcare professionals (10 physiotherapists and four nurses) from primary healthcare in three Norwegian municipalities. Participants were trained to use the EFS to assess and generate frailty scores. Four focus group interviews explored these professionals' experiences of using the EFS with home-dwelling older adults with multimorbidity. The EFS scores were analysed with descriptive statistics, and the interview data underwent reflexive thematic analysis.

Results: Through interview analysis, we identified three main themes: (i) enabling collaborative planning, (ii) facilitating comprehensive assessments, and (iii) integrating and understanding EFS competently. The assessment of frailty using the EFS among home-dwelling older adults with multimorbidity (n = 86) revealed scores ranging from 2 to 14, with 2% of these adults categorised as fit, 18% as pre-frail and 80% as frail. Most participants failed the clock test, and many had been hospitalised in the past year. Despite these challenges, 83% reported very good or fair self-perceived health, though the EFS scores indicated significant dependency in daily activities. Polypharmacy was common, with three-quarters of patients taking five or more medications. Additionally, recent weight loss, mobility issues and sadness or depression were frequently reported.

Conclusions: The EFS supported collaborative care planning by identifying frailty domains, facilitating tailored interventions to address challenges such as polypharmacy, mobility issues, emotional well-being, and dependency in daily activities. The themes of collaborative care, comprehensive assessments, and competent integration highlight the EFS's potential as a multidimensional instrument for routine use in primary care. With proper healthcare professional training, the EFS can promote person-centred care, improve overall care quality and support the early detection and prevention of complications, addressing the complex needs of older adults with multimorbidity.

Keywords: Edmonton frail scale; Feasibility study; Frailty assessment; Healthcare professionals; Multimorbidity management; Norway healthcare integration; Older adults; Person-centred care; Primary healthcare; Structured assessments.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study adhered to the Declaration of Helsinki and was reviewed by the Regional Committees for Medical and Healthcare Research Ethics (no. 764760) and the Norwegian Agency for Shared Services in Education and Research (no. 890850) to ensure compliance with privacy regulations. Data were securely stored on the Services for Sensitive Data platform, following Norwegian standards. To maintain confidentiality, names of municipalities were anonymised. Participants received information about the study and data handling, provided written consent, and were informed of their right to withdraw at any time without any repercussions. Interviews included explanations of purpose, logistics, audio-recording and de-identification, with breaks available as needed. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

3

Review

EClinicalMedicine

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. 2025 Sep 2:88:103474.

doi: 10.1016/j.eclinm.2025.103474. eCollection 2025 Oct.

Hierarchical composite endpoints in clinical trials for multimorbid older adults

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Affiliations Expand

- **PMID: 40969682**

- PMCID: PMC12441725

- DOI: 10.1016/j.eclinm.2025.103474

Abstract

Hierarchical composite endpoints (HCEs) has the potential to make clinical trials for multimorbid older adults more relevant. Unlike conventional time-to-first-event analyses-which can give more weight to outcomes of lesser relevance-HCEs rank outcomes by importance to patients and clinicians. This allows priorities such as avoiding hospital stays, maintaining quality of life, and preserving independence to shape trial results, while still accounting for conventional outcomes like mortality. Because they use information from more patients, HCEs can also increase statistical power, which is particularly useful in trials where recruiting older adults is difficult and evidence to guide treatment is limited. However, deciding the order of outcomes requires balancing patient and clinical priorities, and ensuring consistency and regulatory acceptance.

Keywords: Clinical trial design; Hierarchical composite endpoints; Multimorbidity; Older adults; Patient-centered outcomes.

Conflict of interest statement

None declared.

- 10 references
- 1 figure

Supplementary info

Publication typesExpand

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4

BJGP Open

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. 2025 Sep 24:BJGPO.2025.0094.

doi: 10.3399/BJGPO.2025.0094. Online ahead of print.

Artificial intelligence-driven exercise programmes in personalising the management of multimorbidity

Jacob Keast [1], Glenn Simpson [2], Lucy Smith [2], Hajira Dambha-Miller [2]

Affiliations Expand

- PMID: 40930845

- DOI: 10.3399/BJGPO.2025.0094

Free article

No abstract available

Keywords: artificial intelligence; exercise programme; general practitioners; multimorbidity; primary healthcare.

5

Review

Drugs Aging

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. 2025 Oct;42(10):933-943.

doi: 10.1007/s40266-025-01243-z. Epub 2025 Sep 4.

Polypill Strategies for Cardiovascular Prevention in Older Adults: Evidence, Opportunities, and Implementation Challenges

Ryan Cheikhali [1], Victoria Maksymiuk [1], Sara Elattar [1], Amro Aglan [2], Wilbert Aronow [3]

Affiliations Expand

- PMID: 40906327

- DOI: 10.1007/s40266-025-01243-z

Abstract

Cardiovascular disease remains the leading cause of morbidity and mortality among older adults, who often face unique challenges in preventive care due to multimorbidity, frailty, and polypharmacy. The polypill, a fixed-dose combination of multiple cardiovascular medications, has emerged as a promising strategy to improve adherence, simplify treatment, and reduce the burden of major cardiovascular events. This review aims to synthesize current evidence supporting polypill use in both primary and secondary prevention, with a particular focus on older populations. Landmark clinical trials such as TIPS, HOPE-3, PolyIran, and SECURE have demonstrated favorable outcomes related to blood pressure and lipid reduction, medication adherence, and cardiovascular event prevention. In addition, real-world data suggest improved cost-effectiveness and feasibility across diverse healthcare settings. Despite these benefits, implementation remains limited by barriers including inflexible dosing, provider hesitancy, variable guideline endorsements, and regulatory challenges. Special considerations in geriatric populations such as heightened sensitivity to adverse drug reactions and the need for individualized care further underscores the importance of thoughtful integration into practice. As the global population ages, strategic adoption of polypill-based prevention can help address health disparities, streamline cardiovascular care, and improve outcomes in older adults worldwide.

Conflict of interest statement

Declarations. Funding: No external funding was used in the preparation of this manuscript. Conflict of interest: Ryan Cheikhali MD, Victoria Maksymiuk MD, Sara Elattar MBBCh, Amro Aglan MD, and Wilbert Aronow MD declare that they have no potential conflicts of interest that might be relevant to the contents of this manuscript. Wilbert Aronow MD is an Editorial Board member of Drugs & Aging. Wilbert Aronow MD was not involved in the selection of peer reviewers for the manuscript nor any of the subsequent editorial decisions. Authors' contributions: Ryan Cheikhali MD—conceptualization, supervision, writing, reviewing and editing. Victoria Maksymiuk MD—writing. Sara Elattar MBBCh—writing. Amro Aglan MD—conceptualization, supervision, reviewing and editing. Wilbert Aronow MD—supervision. Data availability statement: Data sharing is not applicable to this article as no datasets were generated for this manuscript. Ethics approval: Not applicable. Code availability: Not applicable. Consent to participate: Not applicable. Consent for publication: Not applicable.

- 44 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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J Psychosom Res

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. 2025 Oct:197:112368.

doi: 10.1016/j.jpsychores.2025.112368. Epub 2025 Aug 23.

Psychiatric multimorbidity in heart failure

Kenneth E Freedland [1], Judith A Skala [2], Brian C Steinmeyer [2], Robert M Carney [2], Michael W Rich [3]

Affiliations Expand

- PMID: 40865247

- DOI: 10.1016/j.jpsychores.2025.112368

Abstract

Objective: There have been numerous studies of specific psychiatric comorbidities such as major depression in patients with heart disease, but there have been relatively few studies of psychiatric multimorbidity in these patients. The purpose of this cross-sectional study was to investigate the prevalence and correlates of psychiatric multimorbidity in patients with heart failure (HF).

Methods: Patients who had been hospitalized with HF were enrolled in this cross-sectional study within 30 days of hospital discharge and interviewed within two weeks after enrollment. Participants completed the NetSCID-5 diagnostic interview, a social determinants of health (SDOH) interview, and perceived stress and health-related quality of life questionnaires.

Results: A total of 362 patients completed the interview. The maximum possible lifetime comorbidity count was 11 but the observed maximum was 8; the mean (SD) count was 1.48 (1.63). A total of 135 (37 %) patients had no history of any psychiatric disorder, 97 (27 %) had a lifetime history of a single disorder, and 130 (36 %) had ≥2 lifetime disorders. Higher numbers of psychiatric disorders were associated with younger age, more exposure to SDOH, higher perceived stress, and chronic obstructive pulmonary disease.

Conclusion: Psychiatric multimorbidity is prevalent in patients with HF and is associated with worse medical and social health status. New studies of the consequences or treatment of specific psychiatric comorbidities in patients with heart disease should take psychiatric multimorbidity into account, and further research on psychiatric multimorbidity per se is needed.

Keywords: Comorbidity; Heart failure; Mental disorders; Multimorbidity; Psychological; Quality of life; Social determinants of health; Stress.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Kenneth E. Freedland reports financial support was provided by National Heart Lung and Blood Institute and by The Foundation for Barnes-Jewish Hospital. I have reviewed manuscripts for Journal of Psychosomatic Research but I do not serve on the editorial board. The other authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

MeSH termsExpand

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Multicenter Study

Public Health

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. 2025 Oct:247:105850.

doi: 10.1016/j.puhe.2025.105850. Epub 2025 Jul 9.

Developing a list of chronic conditions using a Delphi method to study multimorbidity in primary care

Alexandre Malmartel [1], Juliette Pinot [2], Marie Ecollan [3], Nicolas De Chanaud [3], Jean-Claude Schwartz [3], Stéphanie Sidorkiewicz [4], Céline Buffel Du Vaure [4]

Affiliations Expand

- **PMID: 40639109**

- DOI: 10.1016/j.puhe.2025.105850

Free article

Abstract

Objective: To develop a French-language list of chronic conditions to enable more detailed analyses of multimorbid patients in primary care in subsequent studies.

Study design: Delphi study followed by a multicentre cross-sectional study in French general practices.

Methods: The list development required a three-step procedure: 1) The development of a preliminary version of the list based on the International Classification of Primary Care-2 (ICPC-2): an expert panel of general practitioners participated in two Delphi rounds to assess the relevance of the items as "chronic conditions". 2) Testing the list with outpatients consecutively included in general practices. 3) A final Delphi round accounting for the results of the outpatient list experimentation.

Results: From the 726 items of the ICPC-2, 383 items were submitted to 12 experts. In the first Delphi round, 126 items were accepted and 81 excluded. During the second, 2 additional items were retained and 86 excluded. Then, the experts selected 22 supplementary items from the 88 remaining, and a preliminary list of 124 items has been established after grouping similar items. During the test phase, 16 physicians and 306 patients rated 98 items as "already listed", 58 as "unlisted" and 19 as "unsuitable". During the final Delphi round, the experts selected 11 more items among the unlisted and finalized the list at 135 items.

Conclusion: This list of 135 chronic conditions has been developed with a valid methodology. It is useable by physicians and will allow a more accurate study of multimorbidity in primary care.

Keywords: Chronic disease; Family practice; Multimorbidity; Surveys and questionnaires.

Supplementary info

Publication types, MeSH termsExpand

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Cite

8

Int J Med Inform

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. 2025 Oct:202:105988.

doi: 10.1016/j.ijmedinf.2025.105988. Epub 2025 May 20.

Digital applications to support self-management of multimorbidity: A scoping review

Lucy Smith [1], Glenn Simpson [1], Sian Holt [1], Hajira Dambha-Miller [2]

Affiliations Expand

- PMID: 40424867

- DOI: 10.1016/j.ijmedinf.2025.105988

Free article

Abstract

Introduction: Multimorbidity, defined as the co-occurrence of two or more long-term conditions, is increasing rapidly and poses challenges for healthcare systems. Advances in digital technologies offer solutions by facilitating personalised, scalable care interventions that empower individuals to manage their conditions more effectively. These applications have potential to improve access to care, enhance patient engagement, and support tailored approaches to self-management.

Objectives: This scoping review aims to synthesise current evidence on the use of digital applications for self-management in adults with multimorbidity.

Methods: A scoping review was conducted, systematically searching PubMed, Web of Science, OVID, CINAHL, EMBASE, and additional manual searches. Boolean operators and targeted key terms were employed to retrieve relevant studies from database inception to 16th January 2024.

Results: The search yielded 1,974 articles, of which 31 met the inclusion criteria. Digital applications for self-management in multimorbidity demonstrated high acceptability and varying efficacy. Key benefits included improved communication, symptom tracking, and autonomy. Barriers included privacy concerns, additional patient burden, and engagement challenges. Socio-demographics, self-efficacy, and digital literacy influenced both barriers and facilitators to tool usage. Theoretical models underpinning digital applications were limited. Older adults and the working-age population were rarely included.

Conclusion: The current evidence base does not fully address the needs of older adults with low digital literacy or working-age populations with multimorbidity. Our model highlights the importance of broader contextual mechanisms in digital tool adoption. Future research should prioritise theory-driven tool development tailored to disease clusters and aligned with sociodemographic profiles, health risks, and social care needs. Addressing these gaps could improve self-management and health outcomes for high-risk populations.

Keywords: Digital applications; Multimorbidity; Scoping review; Self-management.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Dr Glenn W Simpson reports equipment, drugs, or supplies was provided by University of Southampton. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

- Cited by 1 article

Supplementary info

Publication types, MeSH termsExpand

"asthma"[MeSH Terms] OR asthma[Text Word]

1

Trials

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. 2025 Sep 29;26(1):373.

doi: 10.1186/s13063-025-09104-1.

Spirometry to manage asthma in children: study protocol for a randomised controlled trial (SPIROMAC)

Victoria Bell [#1], Nicole Sergenson [#2], Seonaidh Cotton [1], Chukwuemeka David Emele [3], Ruth Thomas [1], Lorna Aucott [3], Mark Forrest [1], Erol A Gaillard [4], Erika J Kennington [5], Graeme MacLennan [1], Ian Sinha [6], Thenmalar Vadiveloo [3], Neil W Scott [7], Steve Turner [8]

Affiliations Expand

- PMID: 41023717

- DOI: 10.1186/s13063-025-09104-1

Abstract

Background: Asthma affects over 1 million children across the UK, and preventative treatment is guided subjectively by patient symptoms. Spirometry is an objective

test of lung function and can be used in children to guide treatment. However, current guidelines do not indicate how asthma treatment should change in the context of changing spirometry results. This study will evaluate how spirometry can be used to guide asthma treatment and reduce the risk for asthma attacks in children.

Methods: This is a multi-centre, randomised controlled trial. Children aged 6-15 years, who have a diagnosis of asthma and have had an exacerbation requiring oral or intravenous corticosteroids in the previous 12 months, will be eligible. Exclusion criteria include being unable to provide spirometry measurement at baseline assessment, having another chronic respiratory condition and being currently treated with maintenance oral steroids or biologicals. Participants will be recruited in both primary and secondary care settings and will be randomised to either receive asthma treatment guided by spirometry plus symptoms (intervention group) or asthma treatment guided by symptoms only (standard care group). Within the spirometry group, treatment recommendations will be dependent on changes in spirometry measurements. Participants will attend assessments 3, 6, 9 and 12 months post-randomisation, where treatment recommendations will be made. The primary outcome is the number of asthma attacks per participant requiring treatment with 1-7 days of oral or intravenous corticosteroid over 12 months, as recorded by the participant or parent. Secondary outcomes include time to first attack, any asthma attack, adverse events, dose of inhaled corticosteroids, asthma control and quality of life. Adherence to inhaled corticosteroid treatment is measured by an electronic logging device.

Discussion: This study will evaluate whether asthma treatment guided by spirometry will reduce future asthma attacks in children. Our findings may be relevant to national and international asthma guidelines.

Trial registration: ISRCTN, ISRCTN31849868. Registered on 01.07.2022. Prospectively registered.

Keywords: Asthma; Child; Randomised controlled trial; Spirometry.

Conflict of interest statement

Declarations. Ethics approval and consent to participate {24}: The trial has ethical approval from West Midlands—Black Country Research Ethics Committee (22/WM/0097), and central and local NHS R&D approvals have been obtained. The study is co-sponsored by the University of Aberdeen and NHS Grampian. Consent is obtained from parents/carers, and (where appropriate) from the child. If the child does not provide written consent, they are asked to give verbal assent. Consent for publication {32}: Not applicable since there are no identifying images or other personal or clinical details of participants presented. Informed consent materials are available from the corresponding author. Competing interests {28}: All authors report grant funding paid to their institution from NIHR/MRC (Efficacy and Mechanism Evaluation, NIHR129819) for the SPIROMAC trial. EAG also reports investigator-led research grants from Gilead Sciences, Chiesi Limited and Propeller Health; research collaboration with Astra Zeneca, Helicon Health and Adherium (NZ) Limited; and speaker fees from Circassia Group and Sanofi.

- 32 references

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

Full text links

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Cite

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J Allergy Clin Immunol Pract

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. 2025 Sep 27:S2213-2198(25)00919-5.

doi: 10.1016/j.jaip.2025.09.025. Online ahead of print.

Risk of self-harm and the use of leukotriene receptor antagonists and inhaled corticosteroids: a population-based study

Boging Chen [1], Andrew S C Yuen [1], Kenneth K C Man [2], Joseph F Hayes [3], David P J Osborn [3], Ian C K Wong [4], Adrienne Y L Chan [5], Lok Yin Cheng [6], Yogini H Jani [1], Wallis C Y Lau [7]

Affiliations Expand

- PMID: 41022320

- DOI: 10.1016/j.jaip.2025.09.025

Abstract

Background: Whether leukotriene receptor antagonists (LTRAs) or inhaled corticosteroids (ICS) use can increase the risk of self-harm remains unclear.

Objective: To evaluate the association between self-harm and use of LTRA and ICS among patients with asthma.

Methods: This self-controlled case series (SCCS) study used data from the UK Clinical Practice Research Datalink linked to hospital and mortality records. We included patients with asthma aged ≥10 years who had at least one prescription of LTRA, one prescription of ICS, and an incident self-harm during 2005-2020. Incidence rate ratios (IRRs) of self-harm during periods of (presented in order of precedence if they overlapped): pre-LTRA, pre-ICS, LTRA-alone, ICS-alone, and

combination use of LTRA and ICS, versus non-use, were calculated using conditional Poisson regression model. Additional analyses using SCCS extension, case-case-time-control, and cohort study designs were used to examine robustness of results.

Results: Among 313,943 individuals prescribed LTRA and ICS, 2,900 had incident self-harm. IRRs were 0.77 (95%CI=0.58-1.01) during pre-LTRA, 0.68 (95%CI=0.57-0.82) during LTRA-alone, and 0.70 (95%CI=0.56-0.86) during combination use. Further analysis suggested the self-harm incidence was lower during the first 90 days of LTRA use (IRR=0.74; 95%CI=0.58-0.95), before returning to non-use level (IRR=0.93; 95%CI=0.74-1.17). Comparable incidence to non-use was observed during pre-ICS (IRR=0.99; 95%CI=0.71-1.39) and ICS-alone (IRR=0.88; 95%CI=0.75-1.04). The results were robust across sensitivity analyses and study designs, which did not suggest increased risk of self-harm with LTRA/ICS use.

Conclusion: Using the SCCS design, which was based on comparisons within a population with both the outcome and exposure of interest, our study does not support an association between self-harm and LTRA or ICS in patients with asthma.

Keywords: asthma; inhaled corticosteroids; leukotriene receptor antagonists; self-harm.

3

Case Reports

Open Respir Arch

. 2025 Sep 4;7(4):100483.

doi: 10.1016/j.opresp.2025.100483. eCollection 2025 Oct-Dec.

Fixed Airflow Limitation in Severe Asthma: Rethinking the Role of Small Airway Disease

Miguel Jiménez-Gómez [1], Ismael García-Moguel [2], Rocío Magdalena Díaz-Campos [1]

Affiliations Expand

- PMID: 41019661
- PMCID: PMC12476097
- DOI: 10.1016/j.opresp.2025.100483

Abstract

in English, Spanish

Small airway disease (SAD) remains a challenging and underrecognized driver of fixed airflow obstruction in severe asthma. Impulse oscillometry (IOS) provides valuable insight into peripheral airway dysfunction and allows characterization of different bronchodilator response patterns. We describe two cases of late-onset severe asthma with confirmed SAD by spirometry and IOS, unresponsive to systemic corticosteroids and to biologics, despite optimized high-dose extrafine triple inhaled therapy and adherence. Both patients exhibited persistent airflow obstruction and abnormal IOS parameters, suggesting a resistant SAD phenotype. Importantly, the role of corticosteroid challenge in this subgroup remains unclear, as it failed to predict subsequent biologic response. These observations highlight the clinical utility of IOS in diagnosing and monitoring SAD and reinforce the need for personalized therapeutic approaches to address this treatment-resistant endotype of severe asthma.

Keywords: Impulse oscillometry; Severe asthma; Small airway dysfunction.

- 10 references
- 1 figure

Supplementary info

Publication typesExpand

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. 2025 Sep 27;41(1):101168.

doi: 10.1016/j.jhqr.2025.101168. Online ahead of print.

[Analysis of potentially avoidable hospitalizations in chronic diseases]

[Article in Spanish]

F M Escandell Rico [1], L Pérez Fernández [2]

Affiliations Expand

- PMID: 41016388

- DOI: 10.1016/j.jhqr.2025.101168

Abstract

Objective: To analyze indicators of potentially avoidable hospitalizations obtained through the minimum basic data set for chronic disease management and improving the quality of care.

Method: A descriptive retrospective study evaluating gender differences included hospital discharge records from 342 hospitals in the National Health System. The indicators and axes of analysis were from 2021, and the information included the following general data: total discharges, mean stay, mean age, and mortality rate. Four groups of indicators of potentially avoidable hospitalizations were analyzed: diabetes and its complications, cardiovascular disease and hypertension, respiratory and pulmonary diseases, and other acute and chronic conditions.

Results: Women have a higher risk of mortality in congestive heart failure (RR=1.35) and diabetes with acute complications. Men have higher mortality rates in respiratory diseases such as COPD and asthma. In acute conditions, there are no significant differences in mortality, but in chronic conditions, women have a higher risk. In diabetes, women have higher mortality from acute complications (RR=1.42), while men face a higher risk of chronic complications.

Conclusions: The study reveals variations in mortality and hospitalization associated with cardiovascular and respiratory diseases, and diabetes, with significant differences by gender. Women have higher mortality from acute complications of diabetes, while men have higher mortality from chronic diseases. These findings support the need for a personalized approach to treatment and prevention, considering the specificities of each gender.

Keywords: Chronic diseases; Enfermedades crónicas; Factores de riesgo; Health care quality indicators; Health policy, planning and management; Hospitalizaciones evitables; Indicadores de calidad de la atención de salud; Políticas, planificación y administración en Salud; Preventable hospitalizations; Risk factors.

Supplementary info

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5

Eur J Intern Med

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. 2025 Sep 26:106528.

doi: 10.1016/j.ejim.2025.106528. Online ahead of print.

Effectiveness of tezepelumab in severe asthma: A multicenter real-world study

Remo Poto [1], Gianluca Manganello [2], Antonio di Salvatore [3], Ludovica Capitelli [2], Gianluca Lagnese [3], Carla Messuri [4], Tommaso Muto [5], Fausto De Michele [2], Gilda Varricchi [6]

Affiliations Expand

- PMID: 41015715

- DOI: 10.1016/j.ejim.2025.106528

Free article

Abstract

Severe asthma is a complex, heterogeneous disease that remains a major therapeutic challenge. Despite several biologics targeting type 2 (T2) inflammation, some patients remain uncontrolled, highlighting the need for upstream interventions. Tezepelumab, a monoclonal antibody against thymic stromal lymphopoietin (TSLP), has shown broad efficacy in randomized trials regardless of eosinophilic status or biomarker levels. We conducted a prospective, multicenter, observational study to assess real-world effectiveness and safety of tezepelumab in severe asthma. Thirty patients were enrolled at two tertiary centers in Italy between September 2023 and December 2024. Inclusion criteria were a severe asthma diagnosis per ERS and GINA 2024 guidelines and inadequate control despite maximal inhaled therapy. Tezepelumab was given at 210 mg every 4 weeks. Clinical, functional, and biomarker data were collected at baseline, 1 month, and 6 months. After six months, patients showed significant improvement in Asthma Control Test (ACT) score, with marked reductions in oral glucocorticoid use and exacerbation

rate. Sinonasal symptoms improved over time. Blood eosinophils and FeNO decreased significantly, while total IgE remained unchanged. Lung function improved in both FEV_1/FVC ratio and FEF_{25-75}, suggesting benefit on airflow limitation and small airway function. No serious adverse events occurred. Improvements were consistent in both T2-high and T2-low subgroups. This real-world study confirms tezepelumab's clinical effectiveness and safety in severe asthma. Benefits across inflammatory phenotypes support TSLP blockade as a broad-spectrum therapeutic approach. Larger, longer-term studies are warranted to confirm results and identify response predictors.

Keywords: Biomarkers; Real-world study; Severe asthma; TSLP; Tezepelumab; Type 2 inflammation.

Conflict of interest statement

Declaration of competing interest The authors declare no conflict of interest.

Full text links

Cite

6

Occup Environ Med

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. 2025 Sep 27:oemed-2025-110208.

doi: 10.1136/oemed-2025-110208. Online ahead of print.

Work-related asthma symptoms and lung function among workers in the Norwegian salmon processing industry: a cross-sectional study

Carl Fredrik Fagernæs [1 2], Hans Thore Smedbold [3 2], Pål Richard Romundstad [2], Marte Renate Thomassen [4], Anje Christina Höper [4 5], Gro Tjalvin [6 7], Anna Beathe Overn Nordhammer [3], Hilde Brun Lauritzen [3 2], Erlend Hassel [3 2], Kaja Irgens-Hansen [7 8], Berit Elisabeth Bang [4 9], Sindre Rabben Svedahl [3 2]

Affiliations Expand

- PMID: 41015527

- DOI: 10.1136/oemed-2025-110208

Abstract

Objectives: Exposure to bioaerosols from salmon processing is associated with occupational asthma. The prevalence of work-related asthma symptoms in fish processing workers has earlier been reported to be 12%-24%, but small sample sizes and heterogeneity in exposure across studies make generalisability to todays' salmon processing industry questionable. Studies comparing filleting workers and slaughtering workers have shown conflicting results.

Methods: Questionnaire and spirometry data from workers in nine different salmon processing plants were gathered during 2021-2023. Exposure to salmon bioaerosols was defined by work tasks and total time working with salmon. Asthma symptoms and lung function were compared between exposure groups using logistic regression and adjusting for relevant confounding variables.

Results: Of the 867 workers regularly or variably exposed to salmon bioaerosols, 170 (20%) had work-related asthma symptoms. Exposure was associated with symptoms, but not with lung function. Of the 440 exposed workers with spirometry data, 9.8% had expiratory airflow limitation, and all mean lung function measures were below the reference values. The prevalence of work-related asthma symptoms was slightly higher among gutting workers than filleting workers (OR 1.7, 95% CI 1.1 to 2.8).

Conclusions: The prevalence of work-related asthma symptoms is high in salmon processing, probably due to bioaerosol exposure. Salmon processing workers had more expiratory airflow limitation and lower lung function compared with the reference values. Although gutting workers had slightly higher risk for work-related asthma symptoms than filleting workers, all exposed workers seem to be at risk and preventive measures should be taken in all areas where bioaerosols are present.

Keywords: Aerosols; Asthma; Occupational Health; Workers.

Conflict of interest statement

Competing interests: None declared.

Full text links

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Cite

7

Review

Chest

. 2025 Sep 25:S0012-3692(25)05382-6.

doi: 10.1016/j.chest.2025.08.043. Online ahead of print.

Asthma and Pregnancy: A Narrative Review

Siara Teelucksingh [1], Andrea Davis [2], Catherine Nelson-Piercy [3]

Affiliations Expand

- PMID: 41015198

- DOI: 10.1016/j.chest.2025.08.043

Abstract

Topic importance: Asthma, the most prevalent respiratory condition in pregnancy, affects up to 12% of pregnant women globally and is associated with adverse perinatal outcomes when poorly controlled. Modern asthma management emphasizes achieving clinical remission through personalized, trait-based approaches targeting modifiable risk factors. Insights into the mechanisms of airway inflammation have led to biomarker-directed therapy and the emergence of biologic agents for severe asthma. An evidence review was conducted to evaluate the applicability of these contemporary principles within the context of pregnancy.

Review findings: Severe or poorly controlled asthma increases the risk of pre-eclampsia, gestational diabetes, fetal growth restriction, preterm birth, and neonatal morbidity such as transient tachypnea of the newborn, intensive care admission, seizures, and hypoglycemia. Maternal adverse outcomes extend to unplanned hospital admissions, reduced quality of life, and psychological comorbidity. Physiological changes in pregnancy are not expected to worsen asthma severity, and any decline in FEV1/FVC should prompt further investigation. Factors that may predict deterioration in pregnancy include increased severity of asthma, suboptimal control, and non-adherence to maintenance therapy. The principles of asthma management include treatment adherence, managing comorbidities, and monitoring for adverse outcomes. Most standard treatments, including biologics if needed, are safe during pregnancy and lactation. Reassuring patients about medication safety is essential to promote adherence and improve maternal and fetal health.

Summary: This review updates healthcare providers on evidence-based strategies for optimizing asthma care in pregnant women, supporting proactive management, personalized treatment, and ongoing inclusion in research.

Keywords: Asthma; Biologics; Pregnancy; Smoking; list.

Supplementary info

Publication typesExpand

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8

Allergy

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. 2025 Sep 27.

doi: 10.1111/all.70083. Online ahead of print.

Tezepelumab Targeting Thymic Stromal Lymphopoietin Enhances Steroid Sensitivity in Patients With Severe Asthma

Keita Hirai [1 2 3], Sekiko Uehara [3], Toshihiro Shirai [4], Taisuke Akamatsu [4], Kunihiko Itoh [3 5]

Affiliations Expand

- PMID: 41014145

- DOI: 10.1111/all.70083

No abstract available

Keywords: asthma; biologics; steroid sensitivity; thymic stromal lymphopoietin.

Supplementary info

Grants and fundingExpand

Full text links

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Cite

9

BMJ

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. 2025 Sep 26:390:r2032.

doi: 10.1136/bmj.r2032.

When I use a word . . . Paracetamol/acetaminophen-autism and asthma

Jeffrey K Aronson [1]

Affiliations Expand

- PMID: 41005970

- DOI: 10.1136/bmj.r2032

No abstract available

Conflict of interest statement

Competing interests: JKA chairs The British Pharmacopoeia Commission's Expert Advisory Group on Pharmacy and Nomenclature and is a member of the WHO's Expert Advisory Panel on International Pharmacopoeia and Pharmaceutical Preparations. He has written and edited texts on adverse reactions to drugs, including paracetamol, and given expert witness in cases involving adverse drug reactions, most often in coroners' courts, although not in relation to paracetamol. He is a member of Oxford University's Centre for Evidence Based Medicine, through which he has contributed to the Catalogue of Bias.

10

Practice Guideline

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. 2025 Sep 24:S0012-3692(25)05380-2.

doi: 10.1016/j.chest.2025.08.042. Online ahead of print.

Biologic Management in Severe Asthma for Adults: An American College of Chest Physician Clinical Practice Guideline

Amber J Oberle [1], Farrukh Abbas [2], Muhammad Adrish [3], Ioana Agache [4], Megan Conroy [5], Angel Coz [6], Frederic F Little [7], Manoj J Mammen [8], Mahesh Padukudru Anand [9], Raju Reddy [10], Neha Solanki [11], Fernando Holguin [12]

Affiliations Expand

- PMID: 41005695

- DOI: 10.1016/j.chest.2025.08.042

Abstract

Background: Severe asthma affects 5-10% of asthma patients but constitutes close to half of the medical costs related to asthma due to higher morbidity and healthcare utilization. Biologic agents have become a standard of care in those unresponsive to standard treatments yet the choice of biologic agent is complex due to the varying mechanisms of action, efficacies, and lack of head-to-head comparisons. Therefore, clinicians need further clinical guidance to optimize their use.

Methods: Panelists developed key clinical questions utilizing the PICO (population, intervention, comparator, and outcome) format to address choice of a biologic agent in severe asthma for adult patients ≥ 18 years old. A comprehensive systematic search was performed using MEDLINE (via OVID), EMBASE, Web of Science and CINAHL to identify relevant articles, which were then screened for inclusion using document evaluation tools. Each included article underwent quality assessment, data extraction, and pooled analysis to support grade level recommendation for each of the PICO questions.

Results: Our systematic review and critical analysis of the literature on the 7 PICO questions related to choice of biologic agent in severe asthma patients resulted in seven evidence-based recommendations.

Conclusions: Characteristics such as quality of life impairment, baseline lung function, frequency of exacerbation, baseline oral corticosteroid use, asthma endotype, biomarkers and comorbid conditions can impact the biologic choice. Evidence for selecting biologic agents in severe asthma is limited by the absence of comparative effectiveness trials. Additional high-quality evidence is needed to inform choice of biologic agents in these patients.

Keywords: Severe persistent asthma; benralizumab; biologic; dupilumab; eosinophilic asthma; fractional exhaled nitric oxide; mepolizumab; monoclonal antibody; omalizumab; reslizumab; severe asthma; tezepelumab.

Supplementary info

Publication typesExpand

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Cite

11

Published Erratum

Adv Ther

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. 2025 Sep 26.

doi: 10.1007/s12325-025-03371-9. Online ahead of print.

Correction to: The Association Between Short-Acting β$_2$-Agonist Over-Prescription, and Patient-Reported Acquisition and Use on Asthma Control and Exacerbations: Data from Australia

David Price [1 2 3 4], Christine Jenkins [5], Kerry Hancock [6 7], Rebecca Vella [8], Florian Heraud [9], Porsche Le Cheng [8], Ruth Murray [10], Maarten Beekman [11], Sinthia Bosnic-Anticevich [12 13], Fabio Botini [8], Victoria Carter [10], Angelina Catanzariti [14], Joe Doan [15], Kirsty Fletton [10], Ata Kichkin [16], Thao Le [17], Chantal Le Lievre [8], Chi Ming Lau [18], Dominique Novic [19], John Pakos [20], Kanchanamala Ranasinghe [21 22], Alexander Roussos [8], Josephine Samuel-King [23], Anita Sharma [24], Deb Stewart [25], Bruce Willet [26], Eric Bateman [27]; OPCA Improving Asthma Outcomes in Australia Research Group

Collaborators, Affiliations Expand

- **PMID: 41004076**

- **DOI: 10.1007/s12325-025-03371-9**

No abstract available

Erratum for

- The Association Between Short-Acting β$_2$-Agonist Over-Prescription, and Patient-Reported Acquisition and Use on Asthma Control and Exacerbations: Data from Australia.

Price D, Jenkins C, Hancock K, Vella R, Heraud F, Le Cheng P, Murray R, Beekman M, Bosnic-Anticevich S, Botini F, Carter V, Catanzariti A, Doan J, Fletton K, Kichkin A, Le T, Le Lievre C, Lau CM, Novic D, Pakos J, Ranasinghe K, Roussos A, Samuel-King J, Sharma A, Stewart D, Willet B, Bateman E; OPCA Improving Asthma Outcomes in Australia Research Group.Adv Ther. 2024 Mar;41(3):1262-1283. doi: 10.1007/s12325-023-02746-0. Epub 2024 Feb 4.PMID: 38310584 Free PMC article.

Supplementary info

Publication typesExpand

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12

J Occup Environ Med

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. 2025 Sep 26.

doi: 10.1097/JOM.0000000000003557. Online ahead of print.

Letter to the Editor: " Work-Related Asthma Mortality, Michigan 2003-2023"

Jennifer Flattery [1], Eleana Martysh [2], Carolina Espineli [2], Kristin J Cummings [1], Robert J Harrison [1]

Affiliations Expand

- PMID: 40999571

- DOI: 10.1097/JOM.0000000000003557

No abstract available

Conflict of interest statement

Conflicts of interest: None declared

Full text links

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Cite

13

Sci Rep

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. 2025 Sep 25;15(1):32883.

doi: 10.1038/s41598-025-17270-0.

The independent and combined effects of smoking and chronic obstructive pulmonary disease on body mass index trajectories

Spencer J Keene [1 2 3], Johanna H M Driessen [2 4], Rachel E Jordan [1], Alice Sitch [1 5], Peymane Adab [1], Frits M E Franssen [6 7]

Affiliations Expand

- PMID: 40998988

- PMCID: PMC12464297

- DOI: 10.1038/s41598-025-17270-0

Abstract

Low body mass index (BMI) is a common feature of severe chronic obstructive pulmonary disease (COPD) but in the general population, cigarette smoking is also associated with low body weight. Many people with COPD remain smokers after diagnosis, and it is unclear whether low BMI is because of the disease itself or its most common risk factor. We aim to assess the independent and combined effects of smoking and COPD on BMI trajectories. 27,651 patients without COPD and 25,990 with COPD from The Health Improvement Network (2005-2019) were grouped into: never-smokers, former smokers, sustained quitters, intermittent smokers, and continuous smokers (ten total COPD-smoking status groups). BMI trajectories over 10-year time horizon were modeled by these status groups using multivariable mixed-effect models adjusted for age (in continuous years), sex, Townsend score (a measure of material deprivation), alcohol consumption (yes/no), exacerbation history (yes/no, only for COPD patients) and any history of asthma, cancer, chronic kidney disease, diabetes, or cardiovascular disease (yes/no). Individuals with COPD who smoked at baseline (intermittent, sustained quitter, or continuous smokers) had a lower initial BMI (27.1 kg/m² [26.9-27.3]; 26.6 [26.4-26.9]; 26.2 [26.0-26.4], respectively) than non-COPD controls in the same smoking categories (28.0 [26.6-28.2]; 27.6 [27.2-27.9]; 26.7 [26.4-26.9]). Current smokers had lower initial BMIs than never and former smokers, regardless of COPD status. In individuals with COPD, compared to former smokers, continuous smokers lost weight faster (-0.071

kg/m²/year [-0.097 to -0.045]; p < 0.001), while quitters gained weight (0.266 [0.233 to 0.298]; p < 0.001). Non-COPD controls showed similar but less pronounced patterns when continuous smokers and quitters (-0.059 [-0.090 to -0.028] and 0.213 [0.173 to 0.254], respectively; both p < 0.001) were compared to former smokers. Those with a baseline BMI of < 30 also showed a decrease in longitudinal BMI, especially among COPD patients. COPD patients had lower baseline BMI than controls, but BMI trajectories were similar between groups, with continuous smokers losing weight faster and quitters gaining weight. These findings suggest that smoking behaviour significantly influences weight loss in COPD, emphasizing its importance in clinical evaluations and nutritional support consultations.

Keywords: Body mass index (BMI); Chronic obstructive pulmonary disease (COPD); Epidemiology; Nutritional support; Smoking cessation.

Conflict of interest statement

Declarations. Competing interests: AS reports grants from NIHR Birmingham BRC during the conduct of the study and grants from Astra Zeneca outside the submitted work; REJ reports grants from NIHR, outside the submitted work and membership of Boehringer Ingelheim primary care advisory board; PA reports grants from NIHR Programme Grant, during the conduct of the study; and is Chair of the NIHR PHR Funding committee; FMEF has received grants and personal fees from AstraZeneca, Chiesi, Boehringer Ingelheim, Glaxosmithkline, Novartis and MSD outside the submitted work. All other authors declare no conflicts of interest in relation to the present study. Patient and public involvement: Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research. Ethics and consent to participate: The Health Improvement Network (THIN) is a longitudinal, clinical primary care database that contains anonymised and validated data on diagnoses, symptoms, hospital referrals, discharge summaries, lifestyle, mortality, prescribing, and clinical and laboratory tests captured by general practitioners using Vision medical software (Vision, London, UK). The NHS South East Multi-centre Research Ethics Committee (MREC) approved the use of THIN data for research purposes in 2003, subject to independent scientific review, which we obtained (approval 16THIN039) on May 23, 2016. The need for individual informed consent was waived by the NHS MREC because the study used de-identified data collected during routine primary care. This waiver is consistent with national regulations governing the secondary use of anonymized health data in the UK. The study adhered to the principles of the Declaration of Helsinki. Consent to publish: Not applicable.

- 37 references
- 5 figures

Supplementary info

MeSH terms, Grants and fundingExpand

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nature portfolio UNIMORE

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14

Editorial

Eur Respir J

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. 2025 Sep 25;66(3):2501321.

doi: 10.1183/13993003.01321-2025. Print 2025 Sep.

Lymphoma in patients with asthma treated with dupilumab: much ado about nothing?

Timothy J Davies [1], Ian D Pavord [2 3]

Affiliations Expand

- PMID: 40998562

- DOI: 10.1183/13993003.01321-2025

No abstract available

Conflict of interest statement

Conflict of interest: T.J. Davies declares no conflicts of interest. I.D. Pavord is a member of the European Respiratory Journal's International Advisory Board and reports honoraria for lectures, presentations or educational events from AstraZeneca, Aerocrine, Almirall, Sanofi/Regeneron, Menarini and GSK, payments for organising educational events from AstraZeneca, GSK and Sanofi/Regeneron, honoraria for attending advisory panels with Sanofi/Regeneron, AstraZeneca, GSK, Merck, Circassia, Chiesi, Upstream Bio and Areteia, and support for attending meetings from GSK, AstraZeneca and Sanofi/Regeneron.

Comment on

- Dupilumab and lymphoma risk among patients with asthma: a population-based cohort study.

Ma KS, Brumbaugh B, Saff RR, Phipatanakul W, Tsai SY, Westmeijer M, Holt A, Ebriani J, Camargo CA Jr, Chen ST.Eur Respir J. 2025 Sep 25;66(3):2500139. doi: 10.1183/13993003.00139-2025. Print 2025 Sep.PMID: 40537179

Supplementary info

Publication typesExpand

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15

J Allergy Clin Immunol Pract

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. 2025 Sep 23:S2213-2198(25)00913-4.

doi: 10.1016/j.jaip.2025.09.019. Online ahead of print.

Relationships of type 2 biomarkers with spirometry in response to tezepelumab in uncontrolled severe asthma

Robert Greig [1], Philipp Suter [1], Rory Chan [1], Brian Lipworth [2]

Affiliations Expand

- **PMID: 40998259**
- **DOI: 10.1016/j.jaip.2025.09.019**

Free article

No abstract available

Keywords: Asthma; FEF(25-75); Fractional exhaled nitric oxide; Type 2 biomarkers; eosinophil; small airway dysfunction.

Full text links

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Cite

16

Respir Med

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. 2025 Sep 23:108357.

doi: 10.1016/j.rmed.2025.108357. Online ahead of print.

SGLT2 Inhibitors and Asthma Outcomes in Type 2 Diabetes: Insights from a Large Multicenter Study

A B M Nasibul Alam [1], Natasha Gill [2], Maram AlAshoor [1], Iman Cherif [3], Mark Stolar [1]

Affiliations Expand

- PMID: 40998132

- DOI: 10.1016/j.rmed.2025.108357

Abstract

Background: Recent research suggests that SGLT2 inhibitors are associated with a decreased risk of asthma and may have therapeutic potential in reducing asthma severity. However, there is a paucity of data on how SGLT2 inhibitors might improve outcomes during asthma exacerbations in patients with type 2 diabetes.

Research question: Does the use of SGLT2 inhibitors improve 30-day outcomes after asthma exacerbation hospitalization in patients with type 2 diabetes?

Methods: We conducted a retrospective cohort study using TriNetX, analyzing adults hospitalized for asthma exacerbation between 2015 and 2025. Patients with type 2 diabetes on SGLT2 inhibitors for at least three months were compared to those not on SGLT2 inhibitors. Outcomes included 30-day mortality, ICU admission, mechanical ventilation, and acute kidney injury (AKI).

Result: After propensity score matching, SGLT2 inhibitor use was associated with significantly lower 30-day mortality. No statistically significant differences were observed for ICU admission, mechanical ventilation, or AKI between the groups.

Clinical implication: SGLT2 inhibitors could provide protective benefits and improve outcomes in asthma exacerbations for patients with type 2 diabetes, warranting further investigation in larger trials.

Conflict of interest statement

Declaration of Competing Interest ☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Full text links

Proceed to details

Cite

17

Am J Respir Crit Care Med

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. 2025 Sep 25.

doi: 10.1164/rccm.202507-1733LE. Online ahead of print.

Biologic Therapy in Severe Asthma: Methodological Gaps and Opportunities for Greater Precision

Jingxuan Zhou [1], Yu Ji [2], Bin Wei [3]

Affiliations Expand

- PMID: 40997253

- DOI: 10.1164/rccm.202507-1733LE

No abstract available

Full text links

Proceed to details

Cite

18

Am J Respir Crit Care Med

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. 2025 Sep 25.

doi: 10.1164/rccm.202507-1712LE. Online ahead of print.

Biologics for Severe Asthma: Considering Heterogeneity and Follow-Up Duration in Assessing OCS-related Risk Reduction

Can Liu [1], Hongjin Shi [2], Jinsong Zhang [2], Bing Hai [3]

Affiliations Expand

- PMID: 40997244

- DOI: 10.1164/rccm.202507-1712LE

No abstract available

Full text links

Proceed to details

Cite

19

Am J Respir Crit Care Med

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. 2025 Sep 25.

doi: 10.1164/rccm.202507-1741LE. Online ahead of print.

Refining Evidence for Biologics in Preventing Oral Corticosteroid-related Adverse Outcomes in Severe Asthma

Weikai Dong [1], Zhaoqi Du [2], Wei Li [2]

Affiliations Expand

- PMID: 40997243

- DOI: 10.1164/rccm.202507-1741LE

No abstract available

Keywords: Biologic; Oral Corticosteroid; Severe Asthma.

Full text links

Proceed to details

Cite

20

Adv Ther

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. 2025 Sep 25.

doi: 10.1007/s12325-025-03349-7. Online ahead of print.

Real-World Comparative Effectiveness Study in Patients with Asthma Initiating Fluticasone Furoate/Vilanterol or Beclometasone Dipropionate/Formoterol Fumarate in General Practice in England

Ashley Woodcock [1], John Blakey [2 3], Arnaud Bourdin [4], Giorgio Walter Canonica [5 6], Christian Domingo [7], Alexander Ford [8], Rosie Hulme [8], Theo Tritton [8], Ines Palomares [9], Sanchayita Sadhu [10], Arunangshu Biswas [10], Manish Verma [11]

Affiliations Expand

- PMID: 40996636

- DOI: 10.1007/s12325-025-03349-7

Abstract

Introduction: We compared the real-world effectiveness of initiating beclometasone dipropionate/formoterol fumarate (BDP/FOR) versus fluticasone furoate/vilanterol (FF/VI) in a general practice (GP) asthma cohort in England.

Methods: Patients newly initiating BDP/FOR or FF/VI between 1 December 2015 and 28 February 2019 (index), were selected from anonymised Clinical Practice Research Datalink data. Baseline was < 12 months pre-index with ≤ 12 months follow-up post-index. Eligible patients were aged ≥ 18 years at index, had diagnosed asthma, ≥ 1 FF/VI or BDP/FOR prescription, medical records eligible for linkage to secondary care data and continuous GP-registration ≥ 12 months pre-index. Patients with chronic obstructive pulmonary disease, ≥ 1 fixed-dose inhaled corticosteroid/long-acting β_2-agonist, single-inhaler triple or biologic therapy at index were excluded. The primary study outcome was asthma exacerbation rate. Secondary outcomes included medication persistence and oral corticosteroid (OCS) use. Propensity scores were generated for each treatment comparison; inverse probability of treatment weighting adjusted for confounding in baseline characteristics between groups, applied to each outcome separately. Analyses considered intercurrent events (ICEs; treatment switching, discontinuation, loss to follow-up, death, rescue medication use).

Results: Weighted group standard mean differences showed adequate balance for most covariates. Patients initiating BDP/FOR (n = 46,809) and FF/VI (n = 3773) had numerically similar exacerbation rates per person per year (PPPY) while-on index

treatment [measuring outcome until ICE; BDP/FOR, 0.1479 (n = 31,715); FF/VI, 0.1338 (n = 2547); rate ratio 0.9048, p = 0.2841]. Patients continuing uninterrupted index treatment for 12 months had a lower exacerbation rate PPPY for FF/VI [0.0681 (n = 384)] than BDP/FOR [0.1104 (n = 3342); rate ratio, 0.6162 (p = 0.0293)]. For patients initiating FF/VI versus BDP/FOR, treatment persistence was greater [hazard ratio, 0.76 (p < 0.0001)].

Conclusion: Overall, patients initiating FF/VI and BDP/FOR had numerically similar exacerbation rates; of the patients continuing 12 months' uninterrupted treatment, the FF/VI group had a lower exacerbation rate versus BDP/FOR. Patients initiating FF/VI were less likely to discontinue treatment than those initiating BDP/FOR.

Keywords: Asthma; Beclometasone dipropionate/formoterol fumarate; Comparative effectiveness; Fluticasone furoate/vilanterol; General practice; Real-world data; United Kingdom.

Plain language summary

We compared how well two common, daily, asthma treatments work, by comparing people with asthma in England who started treatment with beclometasone dipropionate/formoterol fumarate (abbreviated to BDP/FOR) with fluticasone furoate/vilanterol (abbreviated to FF/VI). Patients with asthma who started these medications between 1 December 2015 and 28 February 2019, were selected. The database included anonymised information, which meant the researchers could not tell who each patient was. It included information from general practice and hospital appointments. Patients with chronic obstructive pulmonary disease were excluded. The primary study question was whether rates of asthma attacks (or exacerbations) differed between patients starting BDP/FOR compared with FF/VI. We also looked at the proportion of patients who continued with their new treatment and how often, and at what dose, oral corticosteroids were needed. The characteristics of the patients in each treatment group were analysed and balanced to ensure a fair comparison. For every 100 patients in the study, overall there were 14 exacerbations per year with FF/VI (total of 3773 patients) and 15 exacerbations per year with BDP/FOR (total of 46,809 patients). Of the patients who continued uninterrupted treatment for 12 months, there were significantly fewer exacerbations with FF/VI (7 per 100 patients) than BDP/FOR (11 per 100 patients), although group sizes were smaller (384 and 3342 patients, respectively). Patients in the FF/VI group were 24% less likely to discontinue treatment than patients in the BDP/FOR group.

Conflict of interest statement

Declarations. Conflict of Interest: Ashley Woodcock has given lectures for Orion, and consulted for GSK and Orion. John Blakey reports grants or contracts from AstraZeneca, GSK and Novartis; consulting fees from Boehringer Ingelheim, Chiesi and GSK; payment or honoraria from AstraZeneca, Chiesi and GSK; support for attending meetings and/or travel from AstraZeneca, Boehringer Ingelheim and GSK; receipt of medical writing support from GSK and Teva; payment to their institution for advisory work from Asthma Australia; and unpaid advisory work from Asthma WA. Arnaud Bourdin has received grants, personal fees, non-financial support and other support from Actelion, AstraZeneca, Boehringer Ingelheim and GSK; personal fees, non-financial support and other support from Chiesi, Novartis and Regeneron;

personal fees and non-financial support from Teva; personal fees from Gilead; non-financial support and other support from Roche; and other support from Nuvaira. Giorgio Walter Canonica reports having received research grants as well as being a lecturer or having received advisory board fees from: A.Menarini, AstraZeneca, Celltrion, Chiesi, Faes, Firma, Genentech, GSK, Hal Allergy, Innovacaremd, Novartis, OmPharma, RedMaple, Sanofi–Aventis, Sanofi–Regeneron, Stallergenes–Greer and Uriach Pharma. Christian Domingo declares having received financial aid for travel support and speakers' bureaus from ALK-Abello, Allergy Therapeutics, AstraZeneca, Chiesi, GSK, Hall Allergy, Inmunotek, A.Menarini Diagnostics, MSD, Novartis, Roxall, Sanofi and Stallergenes. Alexander Ford, Rosie Hulme and Theo Tritton are employees of Adelphi Real World, which received funding for this study from GSK. Ines Palomares, Arunangshu Biswas, Sanchayita Sadhu and Manish Verma are GSK employees; Ines Palomares, Arunangshu Biswas and Manish Verma hold financial equities in GSK. Ethical Approval: This study was conducted according to GSK SOP52213 (Conducting Quality Control Review of Study Results generated using Existing Data in VEO and USVEO) and complied with all applicable laws regarding patient privacy. CPRD has NHS Health Research Authority (HRA) Research Ethics Committee (REC) approval to allow the collection and release of anonymised primary care data for observational research [NHS HRA REC reference number: 05/MRE04/87]. Each year, CPRD obtains Section 251 regulatory support through the HRA Confidentiality Advisory Group (CAG), to enable patient identifiers, without accompanying clinical data, to flow from CPRD contributing GP practices in England to NHS Digital, for the purposes of data linkage [CAG reference number: 21/CAG/0008]. The protocol for this research was approved by CPRD's Research Data Governance (RDG) Process (protocol number: 221602) and the approved protocol is available upon request. Linked pseudonymised data were provided for this study by CPRD. Data are linked by NHS Digital, the statutory trusted third party for linking data, using identifiable data held only by NHS Digital. Select general practices consent to this process at a practice level with individual patients having the right to opt-out. This study is based in part on data from the CPRD obtained under license from the UK Medicines and Healthcare products Regulatory Agency. The data are provided by patients and collected by the NHS as part of their care and support. The Office for National Statistics (ONS) was the provider of the ONS Data contained within the CPRD Data and maintains a Copyright© [2025], The Hospital Episode Statistics (HES) was the provider of HES-Admitted Patient Care and HES-Outpatient databases contained within the CPRD Data and maintain a Copyright© [2025] and Copyright© [2025] respectively. Linked data were re-used with the permission of The Health & Social Care Information Centre, all rights reserved. As this study used aggregate CPRD-HES data omitting patient identification, no patient contact or primary collection of data from human participants was required. The interpretation and conclusions contained in this study are those of the authors alone.

- **22 references**

Supplementary info

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Am J Nurs

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. 2025 Oct 1;125(10):50.

doi: 10.1097/AJN.0000000000000170a. Epub 2025 Sep 25.

As-needed albuterol and budesonide combined therapy is safe and effective for mild asthma

Karen Rosenberg

- PMID: 40993871

- DOI: 10.1097/AJN.0000000000000170a

Abstract

ACCORDING TO THIS STUDY.

- 1 reference

Supplementary info

MeSH terms, SubstancesExpand

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Cite

22

J Asthma

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. 2025 Sep 29:1-11.

doi: 10.1080/02770903.2025.2558755. Online ahead of print.

Mepolizumab reduced healthcare resource utilization and improved work productivity in patients with severe asthma during the REALITI-A 2-year study

Giorgio Walter Canonica [1 2], Arnaud Bourdin [3], Erika Penz [4], Lingjiao Zhang [5], Peter Howarth [6], Rafael Alfonso-Cristancho [5]

Affiliations Expand

- PMID: 40991264

- DOI: 10.1080/02770903.2025.2558755

Abstract

Objective: To assess the real-world impact of mepolizumab on healthcare resource utilization (HCRU) and work productivity and activity impairment (WPAI) in patients with severe asthma.

Methods: Asthma-related HCRU and WPAI were assessed over 2 years in the REALITI-A study-an international, prospective, observational cohort study in adults with severe asthma newly initiating mepolizumab (100 mg subcutaneous). Secondary endpoints of the study compared the proportion of patients with HCRU use, HCRU events, and WPAI component scores 12 months before mepolizumab initiation with 24 months follow-up. The relative rates of HCRU outcomes were calculated, with a treatment policy estimand for discontinuation.

Results: Patients (N = 822) had a mean age of 54 years and 63% were female. Hospitalization rates were reduced by 53% in the 0-12-month follow-up period (p < 0.001) and sustained for 24 months. The rates of asthma-related hospitalizations, emergency department visits, and outpatient visits reduced by 59-64% (p < 0.001) across the 24-month follow-up. The mean number of overnight hospital stays reduced from 2.4 in the pre-treatment period to 1.0 and 0.5 in the 0-12-month and 12-24-month follow-up periods, respectively. The WPAI Asthma activity impairment score was reduced from baseline by 47% and 55% at 12 and 24 months of follow-up. Overall work impairment was reduced by 62% and 74%.

Conclusions: Mepolizumab treatment reduced HCRU while improving activity and productivity in patients with severe asthma over 2 years. These data provide further evidence of real-world benefits of mepolizumab and may help inform healthcare system resource allocation.

Keywords: HCRU; Mepolizumab; activity; asthma; burden; costs; impairment; productivity; real world; severe asthma.

Cite

23

Open Respir Arch

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. 2025 Jul 29;7(4):100474.

doi: 10.1016/j.opresp.2025.100474. eCollection 2025 Oct-Dec.

Severe Asthma Units in Spain: Enhancing Patient Care and Research in Severe Asthma

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Affiliations Expand

- **PMID: 40989926**
- **PMCID: PMC12452590**
- **DOI: 10.1016/j.opresp.2025.100474**

Abstract

in English, Spanish

Asthma units in Spain are multidisciplinary hospital-based clinics led by pulmonologists and/or allergists. They are designed to optimize diagnosis, identify and manage comorbidities, and improve asthma control and patients' quality of life, particularly for those with severe asthma. These units have proven to be clinically effective and economically efficient, representing an innovative model for asthma management. Accreditation by the Spanish societies of pulmonology and allergology (SEPAR and SEAIC) ensures excellence by establishing quality standards and promoting continuous staff training. However, disparities in resources and availability appear to exist between autonomous communities. While this model has been successful, it has not yet been widely implemented globally, and its adoption could enhance the management of severe asthma in other countries.

Keywords: Accreditation; Asthma units; Severe asthma; Training.

- **13 references**

Cite

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Dermatol Ther (Heidelb)

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. 2025 Sep 23.

doi: 10.1007/s13555-025-01516-w. Online ahead of print.

Do Allergic Comorbidities Alter the Efficacy and Safety of Abrocitinib or Dupilumab in Patients with Moderate-to-Severe Atopic Dermatitis?

Eric L Simpson [1], Jonathan I Silverberg [2], Bob Geng [3], José-Manuel Carrascosa [4], Thomas Bieber [5 6], Patrick M Brunner [7], Delphine Staumont-Sallé [8], Chao Ji [9], Pinaki Biswas [10], Claire Feeney [11], Irene Hernández-Martín [12], Francisco José Rebollo Laserna [12], Herwig Koppensteiner [13]

Affiliations Expand

- PMID: 40987931

- DOI: 10.1007/s13555-025-01516-w

Abstract

Introduction: Allergic comorbidities are common in patients with atopic dermatitis (AD). Individual trials with abrocitinib or dupilumab demonstrated efficacy and safety in patients with moderate-to-severe AD and allergic comorbidities. This post hoc analysis of the phase 3 JADE COMPARE and DARE trials compared efficacy, safety, and quality of life following abrocitinib and dupilumab treatment in adults with moderate-to-severe AD, with or without comorbid asthma, allergic rhinitis, or food allergy.

Methods: Data were pooled from patients who received abrocitinib (200 mg/day) or dupilumab (300 mg/every 2 weeks) for 16 weeks with concomitant topical therapy. Assessments by self-reported asthma, allergic rhinitis, or food allergy included the proportion of patients achieving Investigator's Global Assessment of clear or almost clear (IGA 0/1), ≥ 75% improvement in Eczema Area and Severity Index (EASI-75), ≥ 4-point improvement in Peak Pruritus Numerical Rating Scale (PP-NRS4), least squares mean change from baseline in Dermatology Life Quality Index (DLQI) and SCORing Atopic Dermatitis (SCORAD), and safety.

Results: Of 1195 patients (abrocitinib, n = 588; dupilumab, n = 607), 377 (32%), 225 (19%), and 211 (18%) patients self-reported comorbid asthma, food allergy, or allergic rhinitis, respectively. Week 16 IGA 0/1 responses were comparable between patients with/without comorbidity with abrocitinib (52%/54% [with/without asthma], 50%/54% [with/without allergic rhinitis], and 53%/53% [with/without food allergy]) or dupilumab (42%/42%, 37%/43%, and 47%/41%). EASI-75 and PP-NRS4 responses and DLQI and SCORAD improvements were also comparable between patients with/without comorbidity in each treatment arm. Treatment-emergent adverse events were more common in patients with comorbidities in the abrocitinib (76%/67% [with/without asthma], 80%/67% [with/without allergic rhinitis], and 78%/67% [with/without food allergy]) and dupilumab (71%/53%, 71%/57%, and 62%/59%) arms.

Conclusion: Abrocitinib and dupilumab improved AD signs and symptoms with a manageable safety profile in patients with moderate-to-severe AD, regardless of asthma, allergic rhinitis, or food allergy. Graphical Abstract available for this article.

Trial registration: ClinicalTrials.gov identifier, NCT03720470 (JADE COMPARE) and NCT04345367 (DARE).

Keywords: Abrocitinib; Allergic rhinitis; Asthma; Comorbidity; Dupilumab; Food allergy; Moderate-to-severe atopic dermatitis; Pruritus; Quality of life.

Conflict of interest statement

Declarations. Conflict of Interest: Eric L. Simpson received grants from Pfizer, Eli Lilly, Kyowa Kirin, LEO Pharma, Merck, and Regeneron and personal fees from Pfizer, Bausch Health (Valeant), Dermira, Eli Lilly, Galderma, LEO Pharma, Menlo Therapeutics, Novartis, Regeneron, and Sanofi Genzyme. Jonathan I. Silverberg served as an investigator for Celgene, Eli Lilly, F. Hoffmann-La Roche, Menlo Therapeutics, Realm Therapeutics, Regeneron, and Sanofi Genzyme; as a consultant for Pfizer, AbbVie, Anacor, AnaptysBio, Arena Pharmaceuticals, Dermavant, Dermira, Eli Lilly, Galderma, GlaxoSmithKline, Glenmark, Incyte, Kiniksa Pharmaceuticals, LEO Pharma, Menlo Therapeutics, Novartis, Realm Therapeutics, Regeneron, and Sanofi Genzyme; and as a speaker for Regeneron and Sanofi Genzyme. Bob Geng has worked as a consultant for Pfizer and Genentech; as a speaker/consultant for Regeneron, Sanofi Genzyme, CSL Behring, and Horizon Therapeutics; and is on advisory boards for Novartis and Shire. José-Manuel Carrascosa has participated as an invited speaker, primary or secondary investigator in clinical trials, and advisor for Sanofi, LEO Pharma, Novartis, Almirall, Eli Lilly, Janssen, AbbVie, Celgene, Amgen, Mylan, Biogen, Pfizer, and Sandoz, Boehringer Ingelheim, and Bristol Myers Squibb. Thomas Bieber is/was a lecturer and/or consultant for Pfizer, AbbVie, Affibody, Almirall, Amagma Therapeutics, AnaptysBio, AOBiome, Anergis, Apogee, Arena, Aristea, Artax, Asana Biosciences, ASLAN Pharma, Astria, Attovia, BambusTx, Bayer Health, BioVersys, Boehringer Ingelheim, Bristol Myers Squibb, Byome Labs, Connect Pharma, Daiichi Sankyo, Dermavant, DICE Therapeutics, Domain Therapeutics, EQRx, Galderma, Galapagos, Gilead, Glenmark, GSK, Incyte, Innovaderm, Janssen, Kirin, Kymab, LEO, LG Chem, Eli Lilly, MSD, Medac, Micreos, Nektar Therapeutics, Novartis, Numab, OM-Pharma, Overtone, Pierre Fabre, Q32bio, RAPT, Samsung Bioepis, Sanofi/Regeneron, TIRmed, UCB, Union Therapeutics, Upstream Bio, and Yuhan. Patrick M. Brunner

has received personal fees from Pfizer, AbbVie, Almirall, Amgen, Arena Pharma, Biotest, Boehringer Ingelheim, Celgene, Eli Lilly, GSK, Janssen, LEO Pharma, Novartis, Regeneron, Sanofi Genzyme, and UCB and is an investigator for Pfizer (grant paid to his institution). Delphine Staumont-Sallé has served as a consultant, scientific adviser, and/or clinical study investigator for Pfizer, AbbVie, AstraZeneca, Boehringer Ingelheim, Eli Lilly, Galderma, Janssen, LEO Pharma, Novartis, Sanofi Genzyme, and UCB. Chao Ji has no conflicts to disclose. Pinaki Biswas, Irene Hernández-Martín, and Herwig Koppensteiner are employees and shareholders of Pfizer Inc. Claire Feeney and Francisco José Rebollo Laserna were employees of Pfizer Inc. at the time this study was conducted. Ethical Approval: The JADE DARE and JADE COMPARE trials were conducted in accordance with the principles of the Declaration of Helsinki and the International Council for Harmonisation Good Clinical Practice guidelines. All local regulatory requirements were followed. The JADE DARE and DARE COMPARE trials were approved by the institutional review board or ethics committee at each of the investigational centers participating in the studies. All patients provided written informed consent.

- 32 references

Supplementary info

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Observational Study

J Med Internet Res

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. 2025 Sep 23:27:e68741.

doi: 10.2196/68741.

Respiratory-Responsive Vocal Biomarker for Asthma Exacerbation Monitoring: Prospective Cohort Study

Erik Larsen [1], Xinyu Song [1], Dale Joachim [1], Peter Y Ch'en [2], Samuel M Green [3], Emily Hunt [2], Savneet Kaur [2 3], Robin Nag [2], Olivia Pisani [2 3], Sherron Thomas [2], Victoria Adewunmi [2 3], Carlo Lutz [2 3], Babak Baghizadeh-Toosi [2 3], Jonathan M Feldman [2 3 4], Sunit Jariwala [2 3]

Affiliations Expand

- **PMID: 40986855**

- **DOI: 10.2196/68741**

Free article

Abstract

Background: Asthma exacerbations remain a major challenge in asthma management, often due to delayed recognition and limitations of conventional monitoring tools such as peak flow meters and symptom questionnaires. These tools are typically effort dependent or retrospective, making them less suited for continuous, real-time monitoring. A novel, smartphone-based respiratory-responsive vocal biomarker (RRVB) may offer an accessible and noninvasive approach for dynamic assessment of respiratory health. This RRVB has previously demonstrated generalizable performance in cross-sectional cohorts across multiple respiratory conditions, including asthma, chronic obstructive pulmonary disease, and COVID-19, in populations spanning India and the United States. This study extended this work by evaluating the real-world, longitudinal performance of the same RRVB tool for daily asthma exacerbation monitoring via smartphones in home settings.

Objective: This study aimed to evaluate the efficacy of the RRVB as a convenient real-time tool for monitoring asthma exacerbations and respiratory states in a real-world, longitudinal setting.

Methods: In this prospective cohort study, 84 adult patients with asthma were enrolled from an academic medical center and followed for 90 days. Participants submitted daily 6-second voice samples and conducted peak expiratory flow measurements and surveys, including symptom reports and asthma control assessments. RRVB scores were generated in real time on the app. Asthma states (normal function, mild event, and exacerbation) were defined based on both peak expiratory flow and self-reported well-being. Risk ratios were calculated to assess the predictive validity of RRVB scores for identifying exacerbation events. Engagement was measured via frequency of completed sessions, and participant experience was evaluated through exit surveys.

Results: RRVB scores significantly stratified asthma states. The risk of experiencing an exacerbation was 2.15 times higher (95% CI 1.62-2.85; P<.001) with elevated RRVB scores and 3.57 times higher (95% CI 2.70-4.73; P<.001) using normalized scores adjusted for individual characteristics. RRVB scores did not significantly correlate with the Asthma Control Test (risk ratio=1.17, 95% CI 0.96-1.44; P=.12), highlighting its role as a momentary signal rather than a proxy for longitudinal control. Engagement was moderate or higher (≥26 total app sessions) in 58% (49/84) of participants. Among survey respondents, 93% (43/46) found the app easy to use, 89% (41/46) reported a positive overall experience, and 87% (40/46) indicated that they would use a similar tool in the future. Fewer participants (32/46, 70%) reported understanding the RRVB scores, suggesting a need for improved score interpretability and user guidance in future implementations.

Conclusions: The RRVB tool demonstrated effective real-time detection of asthma exacerbations and dynamic respiratory states, supporting its potential as a noninvasive, user-friendly, and physiologically grounded digital biomarker for asthma monitoring. These findings provide foundational evidence for broader deployment and integration of voice-based tools to support proactive, real-world asthma management.

Trial registration: ClinicalTrials.gov NCT05850390; https://clinicaltrials.gov/study/NCT05850390.

Keywords: asthma management; digital health; mHealth; mobile health; patient engagement; remote monitoring; respiratory exacerbation; vocal biomarkers.

Supplementary info

Publication types, MeSH terms, Substances, Associated dataExpand

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Am J Respir Crit Care Med

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. 2025 Sep 23.

doi: 10.1164/rccm.202409-1849OC. Online ahead of print.

Airway Epithelial Heterogeneity and Mucus Plugging in Asthmatic Bronchioles

Stephen A Schworer [1], Hiroaki Murano [2], Hong Dang [3], Matthew R Markovetz [4], Minako Saito [5], Takafumi Kato [6], Takanori Asakura [6], Gang Chen [5], Rodney C Gilmore [6], Lisa C Morton [6], Catharina van Heusden [2], Michael Chua [6], Ella Strickler [1], Zoey Y Wisniewski [1], Gillian Crisp [1], Elodie Mitchell [1], Kayleigh A Doherty [1], Shania Mastan [1], Humberto E Trejo Bittar [7], Brittany A Cody [7], John B Trudeau [8], Gabriela De la Cruz [9], Lauren M Ralph [10], Frederic B Askin [11], Reynold A Panettieri Jr [12], Cynthia J Koziol-White [12], Kevin M Byrd [13 14], Alessandra Livraghi-Butrico [15], Wanda K O'Neal [6], Scott H Randell [16], Sally E Wenzel [17 18], Kenichi Okuda [19], Richard C Boucher Jr [20]

Affiliations Expand

- **PMID: 40986379**

- **DOI: 10.1164/rccm.202409-1849OC**

Abstract

Rationale: Bronchiolar dysfunction is associated with asthma exacerbations and poor symptom control. However, the molecular pathophysiology of asthmatic bronchiolar disease is poorly defined.

Objectives: Test the hypothesis that asthmatic bronchioles exhibit disturbances in epithelial biology that produce MUC5AC-dominated mucus plugs.

Methods: Peripheral lung tissues from severe asthmatics, fatal asthmatics (FA), and controls were evaluated with histology, RNA *in situ* hybridization, and immunohistochemistry. Isolated bronchiolar and bronchial basal cell responses to IL13 were compared in culture. Spatial transcriptomics and multiplex immunophenotyping were performed on excised tissue sections.

Measurements and main results: In excised tissues, severe and FA bronchiolar epithelia, depleted of distal airway secretory cells (DASCs) and enriched in MUC5AC goblet cells, circumscribed MUC5AC-dominated mucus plugs. In cultured bronchiolar basal cells, IL13 suppressed FOXA2 and DASC gene signatures and upregulated MUC5AC expression. Additional studies in severe and FA excised tissues demonstrated that bronchiolar epithelia were populated by MUC5AC-expressing goblet cell niches heterogeneously distributed within single segments and, indeed, individual bronchioles. Spatial transcriptomics and immuno-proteomics of these MUC5AC-expressing bronchiolar niches identified increased goblet, suprabasal (SERPINB3), and basal cell, juxtaposed to a loss of DASC, gene signatures. MUC5AC-high niche bronchiolar basal cells expressed reduced FOXA2 and elevated type-2 inflammatory (T2) gene signatures. Immune cell distributions surrounding asthmatic bronchioles differed from controls but did not correlate with MUC5AC-high niches.

Conclusions: Asthmatic bronchioles exhibit a T2-driven proximalization associated with mucus plugging. MUC5AC-high niches were identified heterogeneously in bronchiolar epithelia independent of immune cell localizations, suggesting asthmatic bronchioles contain cellular niches which perpetuate T2-initiated epithelial remodeling.

Keywords: MUC5AC; asthma; bronchioles; mucus; spatial biology.

Review

Curr Allergy Asthma Rep

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. 2025 Sep 23;25(1):40.

doi: 10.1007/s11882-025-01217-6.

4-Week Maintenance ICS-Formoterol versus ICS in Adults Newly Diagnosed Mild Asthma: Effects on Symptoms, Lung Function, and Inflammation

Yan Zhou [#1], Xue Zhang [#1], Zichong Xu [#1], Jinwen Wang [1], Yilin Pan [1], Yingying Zhang [1], Xue Tian [1], Yuning Huang [1], Chengjian Lv [1], Qi Zheng [1], Wuping Bao [2], Min Zhang [3]

Affiliations Expand

- **PMID: 40986121**

- **DOI: 10.1007/s11882-025-01217-6**

Abstract

Purpose of review: This study aimed to determine whether patients with newly diagnosed mild asthma benefit more from initiating treatment with maintenance inhaled corticosteroids (ICS) plus formoterol versus ICS alone. We compared the effects of these two 4-week maintenance strategies on asthma control, lung function, and airway inflammation.

Recent findings: Recent evidence supports the effectiveness of as-needed ICS-formoterol in mild asthma management. However, data on initial short-term maintenance strategies remain limited. Most studies focus on long-term outcomes or symptom-driven therapy, with little insight into the early phase and its impact on inflammation and lung function. Notably, GINA 2024 emphasizes that "mild asthma" is a retrospective label and may not reliably guide the selection of the appropriate initial treatment step. Even in so-called mild asthma, severe outcomes may occur, highlighting the need for early, objective assessment to guide treatment decisions. In this retrospective analysis of two prospective studies including 128 patients with newly diagnosed mild asthma, both the ICS-formoterol and ICS groups showed improvements in asthma control, lung function, and airway inflammation. However, the ICS-formoterol group achieved significantly greater improvements in Asthma Control Test scores, Asthma Control Questionnaire scores, large airway function (FEV_1, FEV_1/FVC), small airway function, and eosinophil reduction, particularly in patients with baseline small airway dysfunction. FEV_1 reversibility in baseline bronchodilation test was positively correlated with improvements in FEV_1, FEV_1/FVC, and eosinophil count reduction in the ICS-formoterol group. These

findings support 4-week ICS-formoterol maintenance therapy as an effective initial strategy in mild asthma, with reassessment guiding longer-term management.

Keywords: Airway inflammation; Budesonide; Formoterol; Inhaled corticosteroid (ICS); Mild bronchial asthma; Salbutamol.

Conflict of interest statement

Declarations. Human and Animal Rights and Informed Consent: This study involved a retrospective analysis of data from two previously conducted prospective studies. The research protocol was reviewed and approved by the Institutional Ethics Committee of Shanghai General Hospital (Approval No. [2024KS200]). Given the retrospective nature of the analysis and the use of anonymized data, the requirement for informed consent was waived. All reported studies were conducted in accordance with the ethical standards of the institutional research committee and the principles outlined in the 1964 Helsinki Declaration and its later amendments. Declaration of Generative AI and AI-assisted Technologies in the Writing Process: No generative AI or AI-assisted technologies were used in the writing or editing of this manuscript, except for standard tools for grammar and punctuation checking, which do not fall under the scope of this declaration. All figures and tables in this manuscript are original and have not been published previously. No permissions are required. Competing interests: The authors declare no competing interests.

- 44 references

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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28

Allergy

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. 2025 Sep 23.

doi: 10.1111/all.70071. Online ahead of print.

Effect of the Arg16Gly β_2-Adrenergic Receptor Polymorphism on Long-Term Mepolizumab Response and Clinical Remission in Severe Eosinophilic Asthma: A Genotype-Stratified, Multicenter Study

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Collaborators, Affiliations Expand

- PMID: 40985517

- DOI: 10.1111/all.70071

Abstract

Background: β_2-adrenergic signaling promotes airway smooth muscle relaxation and limits the release of pro-inflammatory mediators by immune cells. The rs1042713 polymorphism encodes a glycine-to-arginine substitution (Arg16Gly) that enhances β_2-receptor downregulation. We investigated the association of this polymorphism with the risk of severe eosinophilic asthma and its impact on the long-term effectiveness of mepolizumab and clinical remission.

Methods: Genotypes from 102 patients with severe eosinophilic asthma receiving mepolizumab were compared with those from 31 individuals with mild asthma and 20 healthy controls. The severe-asthma cohort was followed for up to 24 months, and clinical data were collected at baseline and after 3, 6, 12, and 24 months of treatment. Analyses were stratified by Arg/Arg, Arg/Gly, and Gly/Gly genotypes.

Results: Each additional Arg16 allele increased the odds of severe eosinophilic asthma by 2.61-fold (95% CI 1.48-4.59; p = 0.0001) relative to mild asthma and by 3.61-fold (95% CI 1.78-7.35; p < 0.0001) relative to healthy controls. Over 24 months of mepolizumab treatment, Arg/Arg patients had an increased risk of exacerbations (HR 2.3 [95% CI 1.03-5.20]; p = 0.0414) and poorer asthma control compared with Gly/Gly patients (ACT ≥ 20: 72.4% vs. 100%, p = 0.0308). Gly/Gly patients also experienced less decline in lung function. By month 24, each additional Gly16 allele increased the odds of achieving clinical remission by 2.86-fold (95% CI 1.20-6.81; p = 0.0170), defined as no annual exacerbations, no OCS, and ACT ≥ 20, and by 3.06-fold (95% CI 1.34-6.96; p = 0.0080) when including an FEV_1 decline ≤ 5% from baseline.

Conclusions: The Arg16 allele of the rs1042713 polymorphism increases the risk of severe eosinophilic asthma and may reduce the long-term efficacy of mepolizumab, whereas the Gly16 allele appears to confer better outcomes and higher remission rates.

Keywords: Arg16Gly; mepolizumab; remission; severe asthma; β2-adrenergic receptor.

- 68 references

Full text links

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Comparative Study

Pharmacol Res Perspect

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. 2025 Oct;13(5):e70154.

doi: 10.1002/prp2.70154.

A Comparison of the Molecular Pharmacological Properties of Current Short, Long, and Ultra-Long-Acting β_2-Agonists Used for Asthma and COPD

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Affiliations Expand

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- PMCID: PMC12399788

- DOI: 10.1002/prp2.70154

Abstract

β-agonists have been used in asthma for 120 years. There are two recent changes: ultra-long-acting agonists for COPD and new asthma guidelines recommending formoterol/ICS inhalers phasing out short-acting salbutamol inhalers. Few studies directly compare the molecular pharmacological properties of short (salbutamol, terbutaline, fenoterol), long (formoterol, salmeterol), and ultra-long-acting (indacaterol, olodaterol, vilanterol) β_2-agonists. Here, the in vitro molecular pharmacological properties of affinity, selectivity, intrinsic efficacy, and duration of

β_2-agonists at human β_2 and β_1-adrenoceptors and the 4 β_2-polymorphisms stably expressed in CHO cells were directly compared using radioligand binding and functional studies. Whilst short-acting drugs were similar, there was huge variation and complete overlap in the molecular pharmacological properties of drugs labeled as long and ultra-long-acting β_2-agonists. Salmeterol and vilanterol were highly β_2-selective (> 1000-fold) whereas indacaterol was similar to salbutamol (40-fold). Formoterol and indacaterol were the most efficacious, whereas salmeterol had the longest duration of binding. Salmeterol and vilanterol utilize a β_2-specific exosite (β_2-H296-K305) for high affinity and selectivity (that does not affect intrinsic efficacy or duration) whilst the β_2-selectivity of formoterol and olodaterol resides elsewhere. Duration of binding closely correlated with lipophilicity. β_2-polymorphisms had no substantial effect on β_2-agonist properties. Comparison with other β-ligands suggests that affinity and duration could both be improved further. However, given the very wide range of molecular pharmacological properties of β-agonists that are clinically effective and widely used, non-pharmacological properties (physiochemical, patient factors, devices and combination inhaler availability) may be as important in final clinical patient outcomes as the molecular pharmacological properties of the individual β_2-agonists themselves.

Conflict of interest statement

The authors declare no conflicts of interest.

- **60 references**
- **5 figures**

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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Review

Sleep Med Rev

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Asthma and obstructive sleep apnea: A complex but treatable relationship

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- PMID: 40848540

- DOI: 10.1016/j.smrv.2025.102146

Abstract

Asthma and obstructive sleep apnea are complex diseases that significantly impact the health-related quality of life and overall health status of patients. Recent evidence points towards an increased prevalence of obstructive sleep apnea in asthmatic patients, especially in those with severe and uncontrolled asthma, potentially leading to worse asthma control with increased symptoms, diminished health status and more frequent exacerbations. The mechanisms underlying this association are not fully elucidated. However, because obstructive sleep apnea is treatable, screening for sleep disorders should be considered in patients with severe asthma and uncontrolled disease. The efficacy and implications of treatment with continuous positive airway pressure to improve asthma control remain unclear, although there are some promising results showing improved asthma outcomes. Further research is needed to enlighten the relationship between asthma and obstructive sleep apnea, and to better define the role of continuous positive airway pressure therapy in improving asthma control and outcomes in comorbid patients with asthma and obstructive sleep apnea. Here we review the state-of-the-art in this field.

Keywords: Asthma; Asthma exacerbations; Continuous positive airway pressure (CPAP); Lung function; Obstructive sleep apnea (OSA).

Conflict of interest statement

Declaration of interest The authors declare not to have any conflicts of interest that may be considered to influence directly or indirectly the content of the manuscript.

Supplementary info

Publication types, MeSH termsExpand

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31

Respir Med

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. 2025 Oct:247:108315.

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Impact of dupilumab on oscillometry and spirometry derived ratios in severe refractory asthma

Robert Greig [1], Philipp Suter [1], Rory Chan [1], Brian Lipworth [2]

Affiliations Expand

- PMID: 40846048

- DOI: 10.1016/j.rmed.2025.108315

Free article

Abstract

Impulse oscillometry (IOS) - a physiological effort independent technique - is used to evaluate small airways dysfunction in asthma. The absolute values produced from IOS can be challenging to understand thus, we previously proposed using oscillometry derived ratios to aid interpretation. Patients with abnormal baseline R5-R20/R5 ratio were identified and analysed if there was a significant response in their ratios pre and post treatment on dupilumab. There were significant improvements in both R5-R20/R5 and X5/AX as well as the spirometry derived ratios FEV_1/FVC and FEF_{25-75}/FVC. The type 2 biomarkers (eosinophils and FeNO) and asthma control score also showed significant improvements, although they were not significantly correlated with the oscillometry ratios. Standardised response means showed good sensitivity for both oscillometry derived ratios and spirometry derived ratios in detecting response to treatment. Based on these observations, oscillometry derived ratios may be a viable and easier to interpret alternative to using absolute values for the evaluation of small airways response to biologic therapy in a real-life clinic setting.

Keywords: Asthma; Dupilumab; Oscillometry derived ratios; Spirometry.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing

interestsRobert Greig reports a relationship with AstraZeneca that includes: speaking and lecture fees. Philipp Suter reports a relationship with AstraZeneca that includes: speaking and lecture fees. Philipp Suter reports a relationship with GSK that includes: speaking and lecture fees. Philipp Suter reports a relationship with Lung league Fribourg that includes: funding grants and speaking and lecture fees. Philipp Suter reports a relationship with Swiss Lung Foundation that includes: funding grants. Rory Chan reports a relationship with AstraZeneca that includes: speaking and lecture fees. Rory Chan reports a relationship with Vitalograph Ltd that includes: consulting or advisory. Rory Chan reports a relationship with Thorasys that includes: speaking and lecture fees. Brian J Lipworth reports a relationship with AstraZeneca that includes: consulting or advisory, funding grants, speaking and lecture fees, and travel reimbursement. Brian J Lipworth reports a relationship with Sanofi that includes: consulting or advisory and speaking and lecture fees. Brian J Lipworth reports a relationship with NIOX Group Plc that includes: consulting or advisory and speaking and lecture fees. Brian J Lipworth reports a relationship with Chiesi that includes: consulting or advisory, funding grants, speaking and lecture fees, and travel reimbursement. Brian J Lipworth reports a relationship with Lupin Pharmaceuticals, Inc. That includes: consulting or advisory. Brian J Lipworth reports a relationship with Glenmark Pharmaceuticals Limited that includes: consulting or advisory and speaking and lecture fees. Brian J Lipworth reports a relationship with Sandoz Inc that includes: consulting or advisory. The son of Dr Brian J Lipworth is presently an employee of AstraZeneca. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

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Editorial

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. 2025 Sep 25;66(3):2500470.

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CompEx Asthma: is it time for a change in clinical trials?

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Affiliations Expand

- PMID: 40841143
- PMCID: PMC12461904
- DOI: 10.1183/13993003.00470-2025

Abstract

CompEx Asthma is a novel objective, patient-centric composite endpoint that combines patient-reported measures to define acute worsening events with severe exacerbations, expediting timelines and reducing the number of patients needed in clinical trials https://bit.ly/4fr1grr

Conflict of interest statement

Conflicts of interest: T.M.A. Wilkinson reports research funding for the University of Southampton from AstraZeneca, BerGenBio, EpiEndo, GSK, Janssen, my mhealth, Sanofi and Synairgen, consultancy and speaker fees from AstraZeneca, BerGenBio, EpiEndo, Enanta, GSK, Janssen, my mhealth, Sanofi, Synairgen and TidalSense, and leadership roles with my mhealth Limited (Director) and the National Respiratory Audit Programme, NHS, UK (Senior Clinical Lead). P. Akuthota reports grants from the American Partnership for Eosinophilic Disorders, AstraZeneca, GSK, the NIH, Regeneron and Sanofi, royalties or licences from UpToDate, consulting fees from Amgen, AstraZeneca, Connect Biopharma, GSK, Sanofi and Vida Ventures, payments or honoraria from AKH, MJH Life Sciences, Prime CME, Rockpointe and Vindico CME, and participation on a data safety monitoring board with the NIH.

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. 2025 Oct;42(10):5164-5186.

doi: 10.1007/s12325-025-03332-2. Epub 2025 Aug 19.

Identifying Treatable Traits of Patients with Asthma Prescribed an ICS/LABA: A Descriptive Analytic Database Study in England

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Affiliations Expand

- PMID: 40828350

- PMCID: PMC12474639

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Abstract

Introduction: We aimed to understand predictors of moderate-to-severe asthma exacerbations and high short-acting β_2-agonist (SABA) use in adults with asthma newly initiating single-inhaler twice-daily inhaled corticosteroids/long-acting β_2-agonists (ICS/LABAs) in England.

Methods: This non-interventional, longitudinal, retrospective study used medical record data (Clinical Practice Research Datalink Aurum; Hospital Episode Statistics) in England. Eligible patients with diagnosed asthma were ≥ 18 years old 12 months before the first observed single-inhaler twice-daily ICS/LABA prescription date (December 1, 2017-March 31, 2019). Patients were stratified by occurrence of moderate-to-severe exacerbation and SABA use during 12 months' follow-up. Study outcomes included exacerbation occurrence and SABA use. Latent class cluster (LCC) analysis distinguished clusters of predictors with high importance (≥ 0.70) identified from random forest analysis and confirmed on clinical relevance. Treatment characteristics were described within each cluster.

Results: Most of 23,567 patients meeting study criteria (80.4%) were white and female (60.3%); mean index age was 50.0 years. Overall, 21 variables were distinguished as key predictors of moderate-to-severe exacerbation (top predictors: comorbid cardiac disease, diabetes, depression, smoking, body mass index [BMI]) and 22 as key predictors of high SABA use (top predictors: comorbid upper respiratory tract infection, cardiac disease, prior SABA use, age, sex). Five clusters each were observed among patients who experienced an exacerbation and those

who did not. Among patients with high or lower SABA use, five and six clusters were observed, respectively. Treatment characteristics were similar across clusters.

Discussion: This study distinguished treatable and non-treatable predictors of exacerbation and high SABA use. Distinct asthma phenotypes were detected via LCC analysis. Distinguished treatable traits including comorbidities, smoking status and BMI, may be targeted by healthcare professionals.

Conclusion: Our findings reinforce the importance of personalized asthma treatments with the goal of improving clinical outcomes.

Keywords: Exacerbation; Inhaled corticosteroid; Latent class cluster analysis; Long-acting β2-agonist; Random forest analysis; Short-acting β2-agonist.

Conflict of interest statement

Compliance with ethics guidelines. Ethical Approval: This study was conducted according to GSK SOP52213 (Conducting Quality Control Review of Study Results generated using Existing Data in VEO and USVEO) and complied with all applicable laws regarding patient privacy. CPRD has NHS Health Research Authority (HRA) Research Ethics Committee (REC) approval to allow the collection and release of anonymized primary care data for observational research [NHS HRA REC reference no. 05/MRE04/87]. Each year CPRD obtains Sect. 251 regulatory support through the HRA Confidentiality Advisory Group (CAG), to enable patient identifiers, without accompanying clinical data, to flow from CPRD contributing GP practices in England to NHS Digital, for the purposes of data linkage [CAG reference no. 21/CAG/0008]. The protocol for this research was approved by CPRD's Research Data Governance (RDG) Process (protocol no. 23_003261) and the approved protocol is available upon request. Linked pseudonymized data were provided for this study by CPRD. Data are linked by NHS Digital, the statutory trusted third party for linking data, using identifiable data held only by NHS Digital. Select general practices consent to this process at a practice level with individual patients having the right to opt-out. This study is based in part on data from the Clinical Practice Research Datalink obtained under license from the UK Medicines and Healthcare products Regulatory Agency. The data are provided by patients and collected by the NHS as part of their care and support. The Office for National Statistics (ONS) was the provider of the ONS Data contained within the CPRD Data and maintains a Copyright © [2024], The HES was the provider of HES-Admitted Patient Care and HES-Outpatient databases contained within the CPRD Data and maintain a Copyright © [2024] and Copyright © [2024] respectively. Linked data were re-used with the permission of The Health and Social Care Information Centre, all rights reserved. The interpretation and conclusions contained in this study are those of the author/s alone. This study complied with all applicable laws in the relevant countries regarding participant privacy. All patient data were de-identified so informed consent was not required. Conflict of Interest: Jennifer K. Quint has received grants paid to their institution from AstraZeneca, Asthma & Lung UK, Boehringer Ingelheim, Health Data Research, Industrial Strategy Challenge Fund, and the Medical Research Council. JKQ has also received consulting fees from AstraZeneca, Chiesi, Evidera, GSK, and Insmed. Adrian Rendon has received payment or honoraria for lectures, presentations, speaker bureaus, manuscript writing, or educational events from AstraZeneca, Chiesi, GSK, Boehringer

Ingelheim, and Sanofi. Richard Stanford has received personal payment and honoraria from GSK as a steering committee member for this study. Bilun Gemicioglu's institute has received payment or honoraria for lectures, presentations, speaker bureaus, manuscript writing, or educational events from Abdi İbrahim, AstraZeneca, Deva, GSK, Novartis, and Sanofi, and for participation in a data safety monitoring board or advisory board from Abdi İbrahim and GSK. BG has also taken unpaid roles as the Chair of Turkish Board of Pulmonology in Turkey and GARD (Global Alliance against chronic respiratory diseases) Turkey Coordinator. Leandro Fritscher has received payment from GSK as a steering committee member for this study. Watchara Boonsawat has received payment or honoraria for lectures, presentations, speaker bureaus, manuscript writing, or educational events from GSK Thailand and Novartis Thailand. Elke Rottier is an employee of Adelphi Real World, which received funding from GSK to conduct this study. Anurita Majumdar and Mohamed Hamouda are employed by GSK and hold financial equities in GSK.

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Lancet Reg Health Eur

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Cardiovascular safety of biologic therapies in patients with severe asthma: a nationwide cohort study in Belgium

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Affiliations Expand

- PMID: 40823190

- PMCID: PMC12355080

- DOI: 10.1016/j.lanepe.2025.101420

Abstract

Background: In last decades, biologic therapies have been approved for severe allergic and/or eosinophilic asthma. Limited studies have investigated the effect of biologics on (acute) cardiovascular events, which have reported conflicting results. We aimed to investigate the potential cardiovascular risk of anti-immunoglobulin(Ig)-E (omalizumab) and anti-interleukin(IL)-5/IL5 receptor (IL5R) therapies (mepolizumab and benralizumab) in patients with severe asthma compared with non-biologic users.

Methods: Adult asthma patients eligible for biologics were identified in Belgian nationwide data between 2017 and 2022. Inverse probability of treatment weighted Cox regression was used to investigate cardiovascular outcomes and all-cause mortality, while controlling for age, sex, obesity, smoking, comorbidities, comedication, exacerbations, and frailty.

Findings: This cohort study consisted of 171,865 patients (mean age 64 years; 55% females) including 1826 (1.1%) anti-IgE users and 2398 (1.4%) anti-IL5/IL5R users. Anti-IgE exposure was associated with a significantly lower risk of mortality (aHR 0.48, 95% CI 0.40-0.58), congestive heart failure (aHR 0.79, 95% CI 0.65-0.95), peripheral artery disease (aHR 0.66, 95% CI 0.51-0.86), and stroke (aHR 0.54, 95% CI 0.36-0.81). Anti-IL5/IL5R use was associated with a significantly lower risk of mortality (aHR 0.35, 95% CI 0.29-0.42), congestive heart failure (aHR 0.63, 95% CI 0.52-0.76), arrythmia (aHR 0.78, 95% CI 0.68-0.90), and peripheral artery disease (aHR 0.69, 95% CI 0.54-0.87) compared with non-biologic users. No significant differences in the risk of myocardial infarction and pulmonary embolism were observed.

Interpretation: In this nationwide observational study, biologic therapies for patients with severe asthma were associated with a significantly lower risk of all-cause mortality and specific cardiovascular diseases compared with non-biologic users.

Funding: None.

Keywords: Anti-IL5 therapy; Anti-IgE therapy; Asthma; Biological; Cardiovascular events; Monoclonal antibody; Mortality.

Conflict of interest statement

Outside this manuscript, LL has been consulted as expert for AstraZeneca, GlaxoSmithKline and Sanofi, and has given lectures sponsored by Chiesi, Johnson and Johnson, IPSA vzw and Domus Medica vzw (non-profit organizations facilitating lifelong learning for health care providers), all paid to her institution. She received support for travel from Menarini. None of which are related to the content of this work. Outside this manuscript, LV received research grants from The Family

Kamprad Foundation, Svensk Lungmedicinsk Förening, the Swedish government and country council ALF grant, The Swedish Heart and Lung Foundation and AstraZeneca, all paid to his institution. LV received payments or honoraria for lectures or presentations by GSK, Astrazeneca, Boehringer, Novartis, Chiesi, Resmed, Pulmonx, Grifols, and Sanofi. GB received fees for advisory boards and lectures from AstraZeneca, Chiesi, GlaxoSmithKline, and Sanofi Regeneron. All other authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

- 34 references
- 2 figures

35

Review

Adv Ther

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doi: 10.1007/s12325-025-03293-6. Epub 2025 Aug 6.

The Feasibility and Impact of Implementing Interventions to Reduce Short-Acting β_2-Agonist Over-Reliance in Asthma: An Expert Opinion

Luis Nannini [1,2], Zaurbek Aisanov [3], Kurtuluş Aksu [4], Ashraf Alzaabi [5], Miguel Antúnez [6], Leonora Cañizares-Fernandez [7], Mark Cohen-Todd [8], Michael G Crooks [9], Hisham Farouk [10], Suyapa Sosa Ferrari [11], Pin-Kuei Fu [12], Natalia Garcia [13], Ashraf Hatem [14], Truong Le Van Ngoc [15], Kittipong Maneechotesuwan [16], Walter Javier Mattarucco [17], John Mpe [18], Francesc Xavier Moranta Ribas [19], Jesús Javier Vázquez-Cortés [20], Faisal Yunus [21]

Affiliations Expand

- PMID: 40768188

- PMCID: PMC12474610

- DOI: 10.1007/s12325-025-03293-6

Abstract

Asthma poses a significant global health problem. Despite the availability of effective treatments, management practices often fall short of current recommendations. The SABA use IN Asthma (SABINA) programme demonstrated that short-acting β_2-agonist (SABA) over-reliance significantly contributes to disease burden. A panel of 20 international healthcare practitioners (HCPs) invited to a summit meeting discussed five innovative interventions to reduce SABA over-reliance and assessed the feasibility of implementing them across countries. The interventions included the SABA rEductioN Through ImplemeNting Hull asthma guidELines (SENTINEL) quality improvement programme in the UK, the pay-for-performance (P4P) programme in Taiwan, the Asthma Right Care (ARC) programme in Spain, a SABA-free asthma clinic in Argentina, and a modified emergency department discharge protocol and SABA alert system in the United Arab Emirates. Following a review of the available clinical evidence from these five interventions, the HCPs proposed six themes to tackle SABA over-reliance: (1) consistent delivery of services across healthcare systems in individual countries to facilitate standardisation of optimal treatment approaches and resource allocation; (2) educational initiatives targeted at HCPs and patients to mitigate drivers of SABA over-reliance; (3) adopting a SABA-free treatment paradigm that provides concomitant anti-inflammatory therapy with a fast-acting bronchodilator for symptom relief; (4) regulating over-the-counter SABA purchase without a prescription; (5) engaging policymakers to integrate current evidence-based treatment recommendations into routine clinical practice; and (6) expanding use of digital technology as a key component of a patient-centric approach and monitoring prescribing practices. Since SABAs were the preferred reliever for > 30 years, reducing SABA over-reliance will necessitate a considerable shift in asthma management practices. This transition requires coordinated efforts among clinicians, pharmacists, and policymakers to develop and tailor strategies for raising awareness of the clinical and economic burden of SABA overuse and address local/national barriers to integration of evidence-based recommendations in routine clinical practice.

Keywords: Asthma; Low-and-middle-income countries; Over-reliance; Pay-for-performance programmes; SENTINEL; Short-acting β2-agonists.

Conflict of interest statement

Conflicts of Interest: Luis Nannini was an honorary speaker for AstraZeneca. Michael G. Crooks received grants from the National Institute for Health and Care Research, AstraZeneca, Boehringer Ingelheim, Chiesi, Pfizer and Philips and consultancy fees, honoraria and/or non-financial support from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis, Orion, Pfizer and Sanofi. Pin-Kuei Fu received grants from the National Science and Technology Council and Taichung Veterans General Hospital in Taiwan and honoraria and/or non-financial

support from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis and Pfizer. Ashraf Alzaabi has no conflicts to declare. Francesc Xavier Moranta Ribas has no conflicts to declare. Kittipong Maneechotesuwan has no conflicts to declare. Ashraf Hatem has no conflicts to declare. Faisal Yunus has no conflicts to declare. Jesús Javier Vázquez-Cortés has no conflicts to declare. Walter Javier Mattarucco has served as a study investigator for AstraZeneca, GlaxoSmithKline and Novartis. He has also served on speaker bureaus for AstraZeneca. Suyapa Sosa Ferrari reports payment/honoraria for lectures, presentations, speaker bureaus, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim and Pfizer; support for attending meetings and/or travel from AstraZeneca, Pfizer and Novartis; participation in a Data Safety Monitoring Board or Advisory Board; and a leadership or fiduciary role in other board, society, committee or advocacy group (paid or unpaid) from ALAT, Honduras Respiratory Society and the Central American and Caribbean Pulmonary Federation. Mark Cohen-Todd reports honorarium payments for lectures from AstraZeneca, GlaxoSmithKline, Luminova/Novartis and Boehringer Ingelheim; support for attending meetings (ALAT Congress 2024) from Luminova/Novartis; and a leadership or fiduciary role in other board, society, committee or advocacy group (paid or unpaid) from ATS for BOD 2024–2025. Natalia Garcia reports honoraria or payments for lectures, presentations, speaker bureaus, manuscript writing or educational events from AstraZeneca, GlaxoSmithKline and Novartis; payment for expert testimony from SI on the use of biologicals in the Dominican Republic; participation in a Data Safety Monitoring Board or Advisory Board from AstraZeneca, GlaxoSmithKline and Luminova/Novartis; and a leadership or fiduciary role in other board, society, committee or advocacy group (ALAT Severe Asthma Guide editor). Miguel Antúnez reports consulting fees from GlaxoSmithKline for an advisory board; payments/honoraria for lectures from GlaxoSmithKline and AstraZeneca; and support for attending meetings from GlaxoSmithKline, AstraZeneca and Sanofi. Leonora Cañizares-Fernandez has no conflicts to declare. Truong Le Van Ngoc has no conflicts to declare. John Mpe has no conflicts to declare. Kurtuluş Aksu reports payment/honoraria for lectures, presentations, speaker bureaus, manuscript writing or educational events from AstraZeneca, GlaxoSmithKline, Novartis, Sandoz, Chiesi, İbrahim Etem, Abdi İbrahim, Deva, Acino, Bilim, Celtis, Nobel and Roxall. Zaurbek Aisanov received payment or honoraria for lectures, presentations, speaker bureaus, manuscript writing or educational events, and support for attending meetings and/or travel from AstraZeneca, GlaxoSmithKline, Novartis, Sandoz, Chiesi and Sanofi. Hisham Farouk is an employee of AstraZeneca. Ethical Approval: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

- **134 references**
- **8 figures**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Clinical Trial

J Asthma

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. 2025 Oct;62(10):1678-1689.

doi: 10.1080/02770903.2025.2494233. Epub 2025 Aug 6.

Impact of asthma age of onset or duration on efficacy of dupilumab in moderate-to-severe type 2 asthma

William W Busse [1], Monica Kraft [2], Christian Domingo [3], Inés de Mir-Messa [4], Diego J Maselli [5], Xavier Soler [6], Changming Xia [6], Nami Pandit-Abid [7], Juby A Jacob-Nara [7], Harry J Sacks [6], Paul J Rowe [7], Yamo Deniz [6]

Affiliations Expand

- PMID: 40767333

- DOI: 10.1080/02770903.2025.2494233

Free article

Abstract

Objective: Age of asthma onset is critical for determining heterogeneous asthma phenotypes. How onset and duration affect therapeutic response is not well understood. Phase 3 QUEST (NCT02414854) and open-label extension TRAVERSE (NCT02134028) studies demonstrated dupilumab's efficacy up to three years in patients ≥12 years with uncontrolled, moderate-to-severe asthma. We assessed how age of asthma onset and asthma duration affect clinical efficacy of dupilumab in patients with moderate-to-severe type 2 inflammatory asthma.

Methods: This *post hoc* analysis included patients with type 2 asthma from QUEST who enrolled in TRAVERSE. Annualized severe exacerbation rates (AER), change from parent study baseline (PSBL) in pre-bronchodilator forced expiratory volume in 1 s (FEV_1), and five-item Asthma Control Questionnaire (ACQ-5) score were assessed according to asthma age of onset (<18 years, 18-40 years, >40 years) and duration (<20 years, ≥20 years).

Results: In all subgroups, treatment with dupilumab through QUEST and TRAVERSE progressively reduced AER (TRAVERSE Week 48-96 range, 0.160-0.333), increased pre-bronchodilator FEV_1 (TRAVERSE Week 96 change from PSBL range,

0.20-0.44 L), and reduced ACQ-5 scores (TRAVERSE Week 48 change from PSBL range, -1.63 to -1.84). In patients who received placebo during QUEST, treatment with dupilumab in TRAVERSE improved AER, FEV_1, and ACQ-5 in all subgroups.

Conclusions: In patients with uncontrolled, moderate-to-severe type 2 asthma, treatment with dupilumab provides sustained, long-term exacerbation rate reductions and improvements in lung function and asthma control, across all subgroups, with higher reductions in AER and improvements in pre-bronchodilator FEV_1 seen in patients with later onset or longer duration.

Keywords: ACQ-5; annualized severe exacerbation rates; asthma biologics; pre-bronchodilator forced expiratory volume in 1 s; treatment outcomes; uncontrolled asthma.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Paediatr Anaesth

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Intraoperative Bronchospasm and Future Asthma in Children: A Retrospective Matched Cohort Study

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Affiliations Expand

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- **PMCID: PMC12416348**
- **DOI: 10.1111/pan.70029**

Abstract

Background and objectives: Asthma is the most common chronic disease in children. Difficulty in diagnosis can lead to decreased quality of life and increased morbidity and mortality. Children with asthma have increased intraoperative bronchospasm; however, it is unclear whether intraoperative bronchospasm predicts future asthma. We explored intraoperative bronchospasm and subsequent asthma diagnosis.

Methods: We retrospectively analyzed 44,284 children aged 2-18 years who underwent non-cardiac surgery under general anesthesia between 2014 and 2020. We collected demographic and peri-operative data, including the occurrence of bronchospasm. We then conducted a subgroup analysis of 35 770 patients that received positive pressure ventilation, using logistic regression to assess the relationship between bronchospasm and airway pressures. The association of bronchospasm and subsequent asthma diagnosis was estimated using generalized estimating equations.

Results: Intraoperative bronchospasm occurred in 128 patients (0.3%) and was associated with increased risk of asthma (OR 2.29, 95% CI 1.10-4.74, p = 0.03). Asthma was diagnosed in 1238 patients (2.8%); 8 had intraoperative bronchospasm (8 of 1238, 0.7%). After adjustment for confounders, male sex (OR 1.57, 95% CI 1.39-1.76, p < 0.001) and younger age (OR 0.96, 95% CI 0.94-0.97, p < 0.001) were also associated with future asthma diagnosis. In the subgroup analysis, Mean PIP (OR 1.50, 95% CI 1.30-1.74, p < 0.001) was associated with asthma.

Conclusions: This study shows intraoperative bronchospasm is associated with an increased risk of future asthma in children. Enhanced collaboration between pediatric anesthesiologists and pediatricians, and further research, is essential to improve asthma detection, risk stratification, and overall care for pediatric patients.

Keywords: asthma; bronchospasm; general anesthesia; pediatrics.

Conflict of interest statement

The authors declare no conflicts of interest.

- **25 references**
- **1 figure**

Supplementary info

MeSH termsExpand

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Clinical Trial

Respir Med

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. 2025 Oct:247:108293.

doi: 10.1016/j.rmed.2025.108293. Epub 2025 Aug 5.

Efficacy and safety of novel fixed dose combination of vilanterol, glycopyrronium, and fluticasone furoate dry powder inhaler: A phase 3, randomized, non-inferiority trial compared with fixed dose combination of indacaterol, glycopyrronium, and mometasone furoate dry powder inhaler in Indian asthma patients

Chintan Patel [1], Vaishal Sheth [2], Ravi Koppula [3], Avadhesh Kumar [4], Amit S Bhate [5], Diptikant Sahoo [6], Manish Kumar Jain [7], Asish Mondal [8], Deven Parmar [9], Kevinkumar Kansagra [9], Rahul Shrivastava [9], Hardik Pathak [10]

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- PMID: 40759266

- DOI: 10.1016/j.rmed.2025.108293

Abstract

Background: For managing persistent asthma, M/s. Zydus Healthcare Limited has developed a novel fixed dose combination (FDC) of vilanterol 25 µg, glycopyrronium 50 µg, and fluticasone furoate 200 µg (VIL-GLY-FF) in dry powder inhaler (DPI) formulation.

Methods: This phase 3, multicenter, parallel group, open-label study randomized (1:1) patients not controlled with medium or high-dose inhaled corticosteroid in either the test (VIL-GLY-FF DPI) or reference (approved FDC DPI of indacaterol 150 µg, GLY 50 µg, and mometasone furoate 160 µg [IND-GLY-MF]) group. FDCs were administered by inhaling one capsule via Respihaler device once-daily for 12 weeks. The primary endpoint was the change in trough forced expiratory volume in 1 s (FEV1) at week 12 from baseline. Secondary outcomes included the comparison of trough forced vital capacity (FVC), post-bronchodilator FEV1 and FVC, and asthma control test score between the two groups.

Findings: All 256 enrolled patients completed the study. The least square mean (standard error) change in trough FEV1 at week 12 from baseline was 392.77 (31.33) ml and 364.34 (31.33) ml for the test and reference groups (p = 0.522), respectively. The lower limit of 95 % confidence interval for the difference between two groups

for the mean change in trough FEV1 at week 12 from baseline was -58.83 ml, well-above the predefined non-inferiority margin (-150 ml). Other secondary endpoints and safety were comparable between the two groups.

Interpretation: VIL-GLY-FF DPI was found non-inferior to IND-GLY-MF DPI in improving trough FEV1 response. The test FDC was well-tolerated in Indian patients with persistent asthma.

Clinical trial registration number: CTRI/2024/02/063046 (Clinical Trial Registry - India).

Keywords: Asthma; Fluticasone furoate; Glycopyrronium; Non-inferiority; Phase 3; Randomized; Vilanterol; dry powder inhaler.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Kevinkumar Kansagra, Deven Parmar, Rahul Shrivastava, and Hardik Pathak are employees of Zydus Lifesciences Ltd., Ahmedabad, India. All other authors have no conflict of interests to declare. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

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Respir Med

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Association between asthma and advanced cardiovascular-kidney-metabolic syndrome in U.S. adults, a cross-sectional study from NHANES 2011-2023

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Affiliations Expand

- PMID: 40752629

- DOI: 10.1016/j.rmed.2025.108288

Abstract

Background: In 2023, the American Heart Association presented a new condition, cardiovascular-kidney-metabolic (CKM) syndrome, recognized for its multistage and multisystem nature. Given that inflammatory condition can enhance the risk for CKM syndrome and asthma is a disease characterized by chronic airway inflammation, asthma could potentially increase the progression through CKM syndrome stages. The aim of the present study was to investigate the association between asthma and advanced CKM syndrome.

Methods: This cross-sectional study used data on U.S. adults from the National Health and Nutrition Examination Survey 2011-2023. Participants were categorized into five CKM stages (0-4) according to the clinical severity of CKM syndrome. CKM syndrome was defined as stage 1 or above, with advanced stages being stage 3 or 4. Self-administered questionnaires were used to collect information on asthma. Multivariable weighted logistic regression models were used to analyze the relationship between asthma and the prevalence of advanced CKM syndrome.

Results: A total of 22,394 CKM syndrome patients were included in the final analysis, of which 3610 were categorized into advanced CKM syndrome, while the remaining 18,784 were not. After adjusting confounding covariates, asthma was associated with advanced CKM syndrome (odds ratio, 1.86; 95 % confidence interval, 1.59-2.18; p < 0.0001). Further subgroup and sensitivity analyses showed consistent results.

Conclusions: In this cross-sectional study, asthma was positively associated with advanced CKM syndrome in the U.S. adult population. These findings highlight the significance of considering asthma as a risk-enhancing factor for advanced CKM syndrome stages prevention.

Keywords: Asthma; Cardiovascular-kidney-metabolic syndrome; National health and nutrition examination survey.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

MeSH termsExpand

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Observational Study

Respir Med

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Forced oscillatory technique R5-19 values correlate with spirometry FEV1/FVC in severe eosinophilic asthma. An observational, prospective, cohort study

Claudio Tirelli [1], Elena Maria Parazzini [2], Lucia Sacchi [3], Giulia Carone [2], Francesca Pescol [3], Sara Maggioni [2], Luca Alessandro Belmonte [2], Cristina Albrici [2], Simone Contino [2], Beatrice Re [2], Benedetta Mosole [2], Michele Mondoni [4], Stefano Centanni [2]

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Free article

Abstract

Introduction: Severe asthma affects 3-10 % of asthmatic patients. Biologic therapies can act as disease modifying agents in severe asthma. The prevalence of small airways dysfunction (SAD) increases with asthma severity. Forced Oscillatory Technique (FOT) is a reliable method for studying small airways. The aim of the study was to analyze FOT parameters in a cohort of eosinophilic severe asthma patients naïve of biologic therapy, and to describe the presence of correlation with spirometry data. Variations of FOT parameters after 6 and 12 months from the start of biologic therapy were also prospectively recorded and analyzed.

Methods: 47 severe eosinophilic asthma patients were consecutively enrolled. FOT, spirometry data, levels of asthma biomarkers, number of exacerbations, Asthma

Control Test (ACT) were determined at baseline (T0: patients naïve of biologic treatment) and after 6 and 12 months.

Results: at T0, a significant linear correlation was found between R5-19 and FEV1/FVC (Forced expiratory volume in 1 s/Forced Vital Capacity) values (p = 0.0008). At T0, FOT R5-19 values were more elevated in obstructed patients. The cut-off value of R5-19 that best discriminates the presence of obstruction (FEV1/FVC <0.70) was determined at 0.81 $cmH_2O/(L/s)$ (sensitivity 0.58, specificity 0.76, ROC-AUC 0.67). A significant relationship was found between FEV1/FVC and FOT R5-19 also after 6 (p = 0.007) and 12 months (p = 0.027) of biologic therapy. No significant correlations were found between any other FOT parameter and blood eosinophils count, FeNO, number of exacerbations or ACT.

Conclusions: FOT R5-19 values correlate with FEV1/FVC and are significantly higher in obstruction. This correlation could be explained by the higher resistances of small airways in obstructed patients.

Keywords: Eosinophils; FOT; Oscillometry; R5-19; Severe asthma; Small airways disease.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

- Cited by 1 article

Supplementary info

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Respir Med

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Radiologic emphysema predicts accelerated lung function decline in patients with asthma

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Affiliations Expand

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- DOI: 10.1016/j.rmed.2025.108261

Abstract

Background: Radiologic emphysema is increasingly observed in patients with asthma, yet its prognostic significance remains unclear. This study aimed to evaluate whether emphysema identified on chest computed tomography (CT) predicts accelerated lung function decline among asthma patients.

Methods: We conducted a retrospective cohort study of adult asthma patients who received inhaled corticosteroid therapy and underwent serial pulmonary function tests over a minimum follow-up of one year at two tertiary hospitals. Radiologic emphysema was identified via visual CT assessment, and patients were stratified into emphysema and non-emphysema groups. Annual changes in forced expiratory volume in 1 s (FEV_1) and FEV_1/forced vital capacity ratio (FVC) were analysed using multivariable linear mixed-effects models. Sensitivity analyses assessed rapid lung function decline using multivariable logistic regression.

Findings: Of 351 patients included, 117 (33.3 %) had radiologic emphysema. The emphysema group showed significantly greater annual declines in FEV_1 (-38.7 vs. -7.8 mL/year) and FEV_1/FVC (-0.62 %/year vs. 0 %/year). Emphysema was independently associated with accelerated decline in both parameters after full adjustment (FEV_1: β = -12.5 mL/year, 95 % CI: -18.9 to -6.2; FEV_1/FVC: β = -0.31 %/year, 95 % CI: -0.47 to -0.15; both $P < 0.001$). Sensitivity analyses confirmed increased odds of rapid decline (adjusted OR for FEV_1: 2.232; FEV_1/FVC: 2.231).

Interpretation: Radiologic emphysema defines a distinct asthma phenotype associated with progressive airflow limitation. Integrating structural imaging into routine asthma assessment may enhance risk stratification and guide individualized management.

Keywords: Asthma; Computed tomography; Emphysema; Lung function.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Respir Med

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The effect of inhalation delay on the aerodynamic particle size distribution of fluticasone propionate and ciclesonide using pMDI and valved holding chambers

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Affiliations Expand

- PMID: 40675397

- DOI: 10.1016/j.rmed.2025.108258

Free article

Abstract

Delayed inhalation when using pressurised metered-dose inhalers (pMDIs) for inhaled corticosteroids (ICS) is a common technique error. Valved holding chambers (VHCs) can mitigate its impact, but the effect of delays on drug delivery from suspension versus solution formulations remains poorly understood. We compared the doses of fluticasone propionate (FP) and ciclesonide (CIC) delivered to an anatomical adult throat model and a Next Generation Impactor as particles 1-5 µm and under 1 µm in diameter, using AeroChamber (AC), EasyChamber (EC), and OptiChamber Diamond (OD) VHCs with inhalation delays of 0, 1, 3, and 5 s. A breathing simulator was used to produce a single, adult-type inhalation. Throat deposition gradually decreased with longer inhalation for both FP and CIC, from an average of 3.3 %-2.2 % and 1.0 %-0.5 % of the label claim, respectively. Similarly, deposition of 1-5 µm particles declined from 30 % to 28 % for FP and from 33 % to 25 % for CIC. In contrast, deposition of particles smaller than 1 µm were relatively unaffected by inhalation delays. In conclusion, increasing the inhalation delay up to 5 s slightly reduced the respirable deposition of FP and CIC particles when using a VHC, but these reductions are unlikely to be clinically meaningful due to small differences in absolute dose. The smallest particles likely remained unaffected by

the delay due to their low tendency to settle. Differences in performance between AC, EC, and OD during the delay were likely too minor to influence treatment outcomes.

Keywords: Asthma; Drug delivery; Fine particle dose; Inhaled corticosteroid; Spacer; Valved holding chamber.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Leon Csonka reports financial support was provided by Tampere Tuberculosis Foundation. Leon Csonka reports financial support was provided by Finnish Medical Foundation. Peter Csonka reports financial support was provided by Research Foundation of the Pulmonary Diseases. Peter Csonka reports financial support was provided by Jalmari and Rauha Ahokkaan Foundation. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Observational Study

Respir Med

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. 2025 Oct:247:108224.

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Real-world use of beclometasone dipropionate and formoterol fumarate NEXThaler® and asthma control among adult asthmatic patients in Europe: The results of the Newton study

Fulvio Braido [1], Kai-Michael Beeh [2], Carolina Cisneros Serrano [3], Anh Tuan Dinh-Xuan [4], Lilla Tamási [5], Antigona Trofor [6], Eleonora Ingrassia [7], Alessio Piraino [8], Cristiano Caruso [9]; NEWTON study group

Collaborators, Affiliations Expand

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- DOI: 10.1016/j.rmed.2025.108224

Free article

Abstract

Purpose: The NEWTON study aims to describe clinical characteristics and evolution of asthma control of adult asthmatic patients treated with extrafine beclometasone dipropionate and formoterol fumarate (BDP/FF) NEXThaler® 100/6 µg.

Subjects and methods: NEWTON (NCT05168995) is a European multinational, multicentre, observational, prospective cohort study that included adults with uncontrolled or poorly controlled asthma, starting BDP/FF NEXThaler® 100/6 µg treatment within 14 days of enrolment and with no use of extrafine formulations in the previous 6 months. Improvement of asthma control, lung function, quality of life (QoL), treatment adherence, and satisfaction with the device were assessed after 3 and 6 months from the enrolment visit. In addition, safety events were monitored.

Results: 620 subjects were enrolled in the study. 423 completed the ACQ-5 questionnaire at enrolment and at least once during the following 6 months. 69.3 % of patients were initiated on maintenance and reliever treatment. At baseline, the median ACQ-5 score was 2.0. After 6 months the median ACQ-5 score had decreased significantly to 0.6 ($p < 0.0001$). Similarly, after 6 months 66.1 % of patients showed improved asthma control. The proportion of subjects with poorly controlled asthma fell from 65.1 % to 17.5 %. These improvements were consistent with the 3-month follow-up results and improved lung function, QoL, treatment adherence and device satisfaction. No new safety concerns were reported.

Conclusion: Results of the NEWTON study confirm the effectiveness and safety of the extrafine fixed combination of BDP/FF NEXThaler® 100/6 µg in adults with uncontrolled asthma in a real-world setting.

Keywords: Asthma; BDP/FF; Extrafine; NEXThaler®; Real-world.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Alessio Piraino reports article publishing charges and writing assistance were provided by Chiesi Italia S.p.A. Fulvio Braido reports financial support was provided by Chiesi Farmaceutici SpA. Carolina Cisneros Serrano reports financial support was provided by Chiesi España SA. Fulvio Braido reports a relationship with GSK that includes: board membership and speaking and lecture fees. Fulvio

Braido reports a relationship with Chiesi that includes: board membership and speaking and lecture fees. Fulvio Braido reports a relationship with Menarini group that includes: board membership and speaking and lecture fees. Fulvio Braido reports a relationship with Astra Zeneca that includes: board membership and speaking and lecture fees. Fulvio Braido reports a relationship with Sanofi that includes: board membership and speaking and lecture fees. Fulvio Braido reports a relationship with Regeneron that includes: board membership and speaking and lecture fees. Kai-Michael Beeh reports a relationship with Astra Zeneca that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Kai-Michael Beeh reports a relationship with Chiesi Farmaceutici SpA that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Kai-Michael Beeh reports a relationship with Bosch Healthcare Solutions GmbH that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Kai-Michael Beeh reports a relationship with Berlin-Chemie AG that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Kai-Michael Beeh reports a relationship with Sanofi-Aventis Deutschland GmbH that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Kai-Michael Beeh reports a relationship with GlaxoSmithKline Inc that includes: consulting or advisory, speaking and lecture fees, and travel reimbursement. Carolina Cisneros Serrano reports a relationship with Sanofi SA that includes: consulting or advisory, funding grants, non-financial support, speaking and lecture fees, and travel reimbursement. Carolina Cisneros Serrano reports a relationship with GlaxoSmithKline SpA that includes: consulting or advisory and speaking and lecture fees. Carolina Cisneros Serrano reports a relationship with AstraZeneca that includes: consulting or advisory, funding grants, speaking and lecture fees, and travel reimbursement. Anh Tuan Dinh-Xuan reports a relationship with Boehringer Ingelheim that includes: speaking and lecture fees. Anh Tuan Dinh-Xuan reports a relationship with GSK that includes: speaking and lecture fees. Anh Tuan Dinh-Xuan reports a relationship with Menarini that includes: speaking and lecture fees. Anh Tuan Dinh-Xuan reports a relationship with Sanofi that includes: speaking and lecture fees. Eleonora Ingrassia reports a relationship with Chiesi Italia that includes: employment. Alessio Piraino reports a relationship with Chiesi Farmaceutici SpA that includes: employment. Kai-Michael Beeh declares that, in the past five years, the institution has received compensation for the conduct of clinical trials by the following corporations: AstraZeneca, Bosch Healthcare Solutions GmbH, Chiesi, GSK, Novartis, Sterna. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Int Immunopharmacol

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Short-term therapeutic effectiveness of tezepelumab in patients with severe asthma: A real-world study

Corrado Pelaia [1], Marta Greco [2], Enrico Iaccino [3], Claudia Crimi [4], Marcello Biafora [2], Francesco Dragone [2], Alessandro Vatrella [5], Girolamo Pelaia [2]

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- PMID: 40628042

- DOI: 10.1016/j.intimp.2025.115185

Free article

Abstract

Background: Tezepelumab is a fully human monoclonal antibody which specifically binds to thymic stromal lymphopoietin (TSLP), thus effectively inhibiting its pleiotropic pathogenic actions. Tezepelumab has been licensed for add-on biologic therapy of severe asthma, regardless of biomarker levels or phenotype expression.

Objective: The aim of this real-life, retrospective, single-centre investigation has been to evaluate the therapeutic efficacy of tezepelumab in different phenotypes of severe asthma.

Methods: At baseline and after 4 weeks of add-on therapy with tezepelumab, several clinical, functional and biologic parameters were assessed in 30 patients with either T2-high or T2-low severe asthma, who had been or not previously treated with other biologics.

Results: After 4 weeks of treatment, tezepelumab induced significant improvements in symptom control (ACT score), asthma-related quality of life (AQLQ score), oral corticosteroid intake, and lung function (FEV_1, FEF_{25-75}, R_{tot}). Tezepelumab also significantly decreased the levels of fractional exhaled nitric oxide (FeNO) and blood basophil count. Moreover, tezepelumab significantly lowered the serum concentrations of interleukin-2 (IL-2) and vascular endothelial growth factor (VEGF). The above clinical, functional, and biologic effects of tezepelumab were observed in both T2-high and T2-low severe asthmatic patients, as well as in subjects with or without previous therapeutic experiences based on the use of other biologics.

Conclusions: The results of this real-world study suggest that tezepelumab can be used, in both T2-high and T2-low severe asthmatic patients, as a valuable add-on biologic drug characterized by a very fast onset of action.

Keywords: Real-world; T2-high severe asthma; T2-low severe asthma; TSLP; Tezepelumab.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: C. Pelaia has received lecture fees and advisory board fees from AstraZeneca, GlaxoSmithKline, and Sanofi-Regeneron. C. Crimi has received honoraria for lectures from AstraZeneca, GlaxoSmithKline, Novartis, Resmed, Sanofi-Regeneron. A. Vatrella has received honoraria for speaking, advisory committees, or research grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Guidotti, Lusofarmaco, Menarini, Novartis, Sanofi-Regeneron. G. Pelaia has received lecture fees and advisory board fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Guidotti, Insmed, Lusofarmaco, Menarini, Neopharmed Gentili, Novartis, Sanofi-Regeneron, Zambon. The authors have no other relevant affiliations or financial involvements with any organization or entity with a financial interest in, or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

Supplementary info

MeSH terms, SubstancesExpand

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Eur Respir J

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. 2025 Sep 25;66(3):2500139.

doi: 10.1183/13993003.00139-2025. Print 2025 Sep.

Dupilumab and lymphoma risk among patients with asthma: a population-based cohort study

Kevin Sheng-Kai Ma [1 2 3], Bethany Brumbaugh [4 5 3], Rebecca R Saff [5 6 3], Wanda Phipatanakul [7 8 3], Serena Yun-Chen Tsai [4 3], Mike Westmeijer [4], Allison Holt [4], Joseph Ebriani [4], Carlos A Camargo Jr [5 9 10 11], Steven T Chen [4 5 11]

Affiliations Expand

- PMID: 40537179

- DOI: 10.1183/13993003.00139-2025

Abstract

Background: Dupilumab is approved for the treatment of atopic dermatitis, asthma, and other allergic diseases. Recent studies suggest that patients with atopic dermatitis receiving dupilumab are at a higher risk of developing cutaneous lymphoma. This study aimed to investigate the risk of lymphoma among patients with asthma receiving dupilumab.

Methods: This population-based cohort study included patients in the United States with asthma who initiated dupilumab or the active comparator (combination therapy with inhaled corticosteroids (ICS) plus long-acting β-agonists (LABA), or ICS/LABA), between 2018 and 2024. Propensity score matching was used to balance baseline characteristics between groups. The primary outcome was new-onset lymphoma, and secondary outcomes included other malignancies and all-cause mortality.

Results: A total of 14 936 dupilumab-treated and 734 126 ICS/LABA-treated patients with asthma were included. After propensity score matching, dupilumab-treated patients were found to have a higher risk of lymphoma (54 *versus* 43 cases, hazard ratio (HR) 1.79, 95% CI 1.19-2.71), especially T-cell and natural killer (NK)-cell lymphomas (19 *versus* ≤10 cases, HR 4.58, 95% CI 1.82-11.53). There was no significant difference in incidence of other malignant neoplasms. Dupilumab was also associated with significantly lower all-cause mortality (328 *versus* 793 deaths, HR 0.65, 95% CI 0.57-0.74).

Conclusions: Dupilumab treatment was associated with lower all-cause mortality among patients with asthma, despite increased risk of lymphoma, particularly T-cell and NK-cell lymphomas. These findings highlight the need for long-term surveillance and further research into the immunological mechanisms underlying dupilumab-associated lymphoma in asthma.

Conflict of interest statement

Conflict of interest: All authors have confirmed that they have no conflicts of interest to declare.

Comment in

- Lymphoma in patients with asthma treated with dupilumab: much ado about nothing?

Davies TJ, Pavord ID.Eur Respir J. 2025 Sep 25;66(3):2501321. doi: 10.1183/13993003.01321-2025. Print 2025 Sep.PMID: 40998562 No abstract available.

Supplementary info

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Observational Study

Nitric Oxide

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. 2025 Oct:158:62-66.

doi: 10.1016/j.niox.2025.06.003. Epub 2025 Jun 11.

Appearances can be deceiving: differences in FeNO values among COPD and severe asthmatic patients stratified according to peripheral eosinophilic count

Claudio Candia [1], Silvestro Ennio D'Anna [2], Maria D'Amato [3], Francesco Cappello [4], Andrea Motta [5], Mauro Maniscalco [6]

Affiliations Expand

- PMID: 40513768

- DOI: 10.1016/j.niox.2025.06.003

Abstract

Eosinophilic COPD (eCOPD) and eosinophilic severe asthma (eSA) appear to share relevant clinical features, including responsiveness to steroids and higher exacerbation rates. However, data on the expression of T2-high inflammation biomarkers and, in particular comparison of fractional exhaled nitric oxide (FeNO) levels between the two diseases is lacking. The aim of the current retrospective observational study was to investigate whether FeNO values might differ between eCOPD and eSA patients. Sixty patients with SA and 40 with COPD were enrolled. They were divided in four groups: eosinophilic COPD (eCOPD) and eosinophilic

severe asthma (eSA), if the blood eosinophil count (BEC) was ≥300 cells/μL; non-eosinophilic COPD (neCOPD) and non-eosinophilic severe asthma (neSA) if the BEC was <100 cells/μL. FeNO values, lung function and demographic data were compared between the groups. Overall, COPD patients were older, with a higher prevalence of males and had more impaired lung function than asthmatic patients. When comparing FeNO levels among the four groups, a significant difference was found between eCOPD and eSA patients (p = 0.001), as well as eCOPD and neCOPD patients (p = 0.021). Finally, neCOPD patients showed significantly lower FeNO values in comparison with neSA patients (p = 0.005). Such results were confirmed after adjusting for age, sex, and smoking history. Our preliminary results hint at the possibility that, despite an apparently similar eosinophilic phenotype, eCOPD patients might present with different FeNO values in comparison with eSA patients, possibly reflecting different underlying disease mechanisms.

Keywords: Biomarker; COPD; Disability; Eosinophil; Exhaled nitric oxide; FeNO; Occupational medicine; Outcome; Precision medicine; Severe asthma.

Conflict of interest statement

Declaration of competing interest M.M. reports grants for his institution from AstraZeneca and GlaxoSmithKline, and payments or honoraria for presentations or educational events from GlaxoSmithKline, Chiesi, and Damor Farmaceutici. All these are outside the scope of this manuscript. All the other Authors declair no conflicts of interest.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

47

Meta-Analysis

J Asthma

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. 2025 Oct;62(10):1662-1677.

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The risk factors for asthma in adolescents: a systematic review and meta-analysis

Hoileong Lee [1], Linyan Tang [2], Xin Wen [3]

Affiliations Expand

- PMID: 40499043

- DOI: 10.1080/02770903.2025.2519106

Abstract

Objective: To identify risk factors for asthma in adolescents and provide a reference for disease management.

Methods: PubMed, Embase, Web of science and Cochrane library were searched from inception to November 1st, 2024. The quality was evaluated by using the Agency for Healthcare Research and Quality and the New Ottawa Scal. The range of scores for inclusion in the study was 7-9. Heterogeneous results were pooled using a random-effects model and reported as odds ratio (OR).

Results: Fifteen studies comprising 73,314 participants were included. The results of forest map showed that a total of 12 risk factors were associated with asthma in adolescents. Previous hypersensitivity reaction (OR 2.87 [95% CI 2.50-3.31]; $p < 0.001$), history of family hypersensitivity reaction (OR 2.35 [95% CI 1.93-2.86]; $p < 0.001$), history of family asthma (OR 2.48 [95% CI 1.97-3.12]; $p < 0.001$), active smoking (OR 1.47 [95% CI 1.28, 1.69]; $p < 0.001$), exposure to secondhand smoke (OR 1.27 [95% CI 1.20-1.34]; $p < 0.001$), domestic animals (OR 1.21 [95% CI 1.13-1.29]; $p < 0.001$), outdoor pollution (OR 1.27 [95% CI 1.15, 1.41]; $p < 0.001$), and biofuel (OR 1.10 [95% CI 1.02-1.19]; $p < 0.001$), and obese/overweight (OR 1.26 [95% CI 1.13-1.40]; $p < 0.001$), private school (OR 1.82 [95% CI 1.52-2.18]; $p < 0.001$), and female (OR 1.21 [95% CI 1.11-1.32]; $p < 0.001$) were found to be correlated.

Conclusions: This study may provide a reference to inform the development of preventive strategies and management of adolescent asthma.

Keywords: Asthma; adolescents; management; risk.

48

Pediatr Infect Dis J

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Infant Antibiotic Exposure Is Associated With Increased Risk of Later Childhood Infections, Antibiotic Use and Asthma

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- PMID: 40472245

- DOI: 10.1097/INF.0000000000004867

Abstract

Background: Antimicrobials have saved millions of lives. Antibiotics are essential in treating infant infections, but may disrupt the gut microbiome and have adverse effects on later health.

Methods: This population-based birth cohort study included full-term children born in Iceland from 2010 to 2019 with follow-up for 2-12 years. The cohort was divided into 4 groups according to antibiotic exposure; I: elective cesarean section, II: vaginal birth and maternal intrapartum antibiotics, III: vaginal birth and infants received antibiotics during the first week of life for >48 hours and IV: vaginal birth without antibiotic exposure. Rates of infections, antibiotic use and the risk of asthma later in childhood were calculated.

Results: Of 43,600 children born in Iceland from 2010 to 2019, 22,393 were included. Group I had 1496 children, group II 3413, group III 356 and group IV 17,128 children. For all antibiotic exposure groups, the risk of infections and antibiotic use was significantly higher (20%-100%), with the largest effect observed for infants treated with antibiotics. This group also had a 2-fold risk of asthma diagnosis when compared with controls (odds ratio: 1.91, $P < 0.05$).

Conclusions: In this cohort study, children with early antibiotic exposure had higher rates of infections and antibiotic use later in childhood compared with controls. Diagnoses of asthma were significantly more common in children with early antibiotic exposure and this effect was most evident after the age of 8 years. The observed late side-effects of antibiotic use, possibly mediated through a disrupted microbiome, should promote a conservative approach to antibiotic treatment in young infants.

Keywords: antibiotic exposure; asthma; children; infections.

1

Multicenter Study

J Asthma

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Management of asthma exacerbations in pediatric emergency departments across the United States

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- PMID: 40445144

- PMCID: PMC12236050 (available on 2026-06-04)

- DOI: 10.1080/02770903.2025.2513056

Abstract

Objectives: There are 750,000 emergency department (ED) visits by children for asthma exacerbations in the United States annually. Despite changing evidence and epidemiology, there have not been recent assessments of acute asthma prevalence, management, and outcomes from pediatric EDs. This 40-center retrospective evaluation utilizes the Pediatric Hospital Information System to characterize pediatric ED asthma presentations from 2015-2020.

Study design: Children 2-18 years with asthma ICD-9/10 code and receipt of albuterol were included. Demographics, Child Opportunity Index (COI), ED management, return visits, and adjusted costs were evaluated. Data were summarized using standard descriptive statistics and trends assessed using Mann-Kendall trend test.

Results: There were 414,264 encounters made by 256,209 unique patients; 21% had >1 visit in 12 months. Median age was 6 years, 61.6% male, 44.5% Black, and 68.5% publicly insured; 58.3% of visits were by patients with very low/low COI. Systemic corticosteroids were administered in 86.3% of visits; 52.7% used dexamethasone.

Chest radiographs were obtained in 23% of encounters. Most (74.9%) encounters resulted in ED discharge with a downward trend of visits for exacerbations per 1,000 ED visits of -9.77, 95% CI [-9.99,-9.54], increase in disposition to intensive care unit of 2.01 [1.87,2.41] and decrease in home/other of -3.77 [-4.34,-3.20]. There was no significant trend in return visits. Total adjusted costs were ~$900 million.

Conclusions: ED visits for asthma remain frequent and disproportionately affect children with lower social determinants of health. Dexamethasone has not been widely adopted as corticosteroid of choice and use of ancillary testing continues, highlighting opportunities for improvement in asthma care.

Keywords: Children; database; demographics; disposition; multicenter; testing; treatment.

Conflict of interest statement

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Declaration of interest: The authors report there are no competing interests to declare

- **13 references**

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

Full text links

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J Asthma

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. 2025 Oct;62(10):1712-1716.

doi: 10.1080/02770903.2025.2513060. Epub 2025 Jun 5.

Impact of ERS/ATS 2022 bronchodilator response guidelines in asthma control

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Abstract

Objective: To determine whether the bronchodilator response (BDR) according to the new cutoff values is associated with worse asthma control compared with the 2005 definition.

Methods: Prospective study on moderate to severe asthma patients under clinical follow-up. Patients were classified based on the BDR using both ERS/ATS 2022 and 2005 thresholds. We collected clinical and functional data, along with exacerbations over a one-year follow-up period.

Results: Among the 198 patients included, mean age was 60.2 years-old (SD 16.3), with 74.7% being women and 69.7% having severe asthma. According to the 2005 threshold, 46 (23.2%) showed bronchodilator responsiveness, whereas with the 2022 recommendations decreased to 38 (19.2%). The agreement between the 2005 and 2022 ERS/ATS criteria for BDR positivity was 92.17%, with a Cohen's kappa coefficient of 0.76 ($p < 0.001$). Using the 2022 cutoff values, patients with BDR had a significantly lower mean asthma control test score (19.9 vs 22.5; $p = 0.001$), while no difference was observed with the 2005 criteria. The relative risk of exacerbations after one year follow-up was 1.23 (CI 95% 1-1.25) with the 2022 recommendations, compared to 1.09 (CI 95% 0.88-1.38) with the 2005 criteria.

Conclusions: The use of the new BDR criteria could provide a valuable marker of asthma control, allowing for better risk stratification and more informed therapeutic decisions.

Keywords: Asthma; asthma control; bronchodilator response; exacerbations; lung function.

Supplementary info

MeSH terms, SubstancesExpand

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Cite

3

J Asthma

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Single-inhaler triple therapy improves small airway dysfunction in moderate to severe asthma and asthma-COPD overlap: a retrospective cohort study

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Abstract

Background: Medium- or high-dose fluticasone furoate (FF)/vilanterol (VI)/umeclidinium (UMEC) is associated with an improvement in forced expiratory volume in one second (FEV1), a marker of large airway dysfunction. However, the effect of FF/VI/UMEC on small airway dysfunction (SAD) remains unknown.

Objective: To clarify the effect of FF/VI/UMEC on SAD in moderate to severe asthma and asthma-chronic obstructive pulmonary disease overlap (ACO) in a retrospective cohort study.

Methods: Subjects included 18 moderate to severe asthma and ACO patients who switched from inhaled corticosteroid/long-acting-β2 agonist (ICS/LABA) to FF/VI/UMEC. Asthma Control Test (ACT), Asthma Control Questionnaire (ACQ), blood eosinophil counts, total IgE, fractional exhaled nitric oxide, spirometry, and oscillometry were measured and compared before and after FF/VI/UMEC treatment.

Results: Markers of SAD, including forced vital capacity (FVC), forced expiratory flow at 25-75% of FVC, respiratory system reactance at 5 Hz (X5), resonant frequency, and low-frequency reactance area (AX), improved significantly after the induction of SITT, in addition to ACT, ACQ, FEV1, and FEV1/FVC. Improvements in FEV1, X5, and AX correlated with improvements in ACT, and improvements in FEV1 and FEV1/FVC correlated with improvements in ACQ.

Conclusion: FF/VI/UMEC improved SAD, and its improvement was correlated with improved asthma control in moderate to severe asthma and ACO patients.

Keywords: Asthma; asthma-COPD overlap; oscillometry; single-inhaler triple therapy; small airway dysfunction.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Cite

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J Microbiol Immunol Infect

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The influence of respiratory syncytial virus immunoprophylaxis on allergic sensitisation in children with respiratory allergy

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Affiliations Expand

- PMID: 40360322

- DOI: 10.1016/j.jmii.2025.04.007

Free article

Abstract

Background: Respiratory syncytial virus (RSV) infection may induce asthma and allergic sensitisation. RSV immunoprophylaxis can reduce the severity of RSV infections. However, the effects of RSV immunoprophylaxis on allergic sensitisation remains unclear. We aimed to explore effects of palivizumab, an anti-RSV monoclonal antibody on subsequent IgE sensitisation in preterm children aged ≤18 years with asthma or allergic rhinitis.

Methods: This retrospective study included 854 preterm children who were followed up and diagnosed with asthma or allergic rhinitis before 18 years old from January 1999 to December 2020. Binary logistic regression was used to investigate effects of palivizumab on the development of IgE sensitisation to aeroallergens or food allergens; the model was adjusted for birth weight, gestational age, foetal growth, sex, and delivery method.

Results: Palivizumab could decrease risks of aeroallergen sensitisation until 18 years of age, (adjusted odds ratio (aOR) 0.34, 95 % CI 0.17-0.67, p = 0.002) and as well as in those 7 and 12 years of age. Children receiving palivizumab prophylaxis had lower total sIgE levels (p < 0.001) and eosinophil counts (p = 0.038) than those without prophylaxis. Among asthmatic children, those receiving palivizumab had a shorter duration of active asthma (p < 0.001). In allergic rhinitis population, palivizumab prophylaxis required fewer intranasal corticosteroid (p < 0.001).

Conclusion: In preterm children with asthma or allergic rhinitis, early palivizumab prophylaxis may protect against future aeroallergen sensitisation before adulthood. Palivizumab prophylaxis could also decrease the duration of active asthma in asthmatic children and intranasal corticosteroid prescriptions in allergic rhinitis population.

Keywords: Allergic rhinitis; Asthma; Immunoglobulin E; Respiratory syncytial virus; Sensitisation.

Conflict of interest statement

Declaration of competing interest The authors have no conflict of interest to declare.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

5

Editorial

J Pediatr

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. 2025 Oct:285:114473.

doi: 10.1016/j.jpeds.2025.114473. Epub 2025 Jan 20.

Rural School-Based Health Centers: Meeting Children Where They Are to Improve Asthma Outcomes

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- **DOI: 10.1016/j.jpeds.2025.114473**

No abstract available

Conflict of interest statement

Declaration of Competing Interest J.B. receives support from the National Institutes of Health (K12TR004384). This was no other funding for this work and no conflicts of interest.

Supplementary info

Publication typesExpand

Full text links

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Cite

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Psychol Health

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. 2025 Oct;40(10):1612-1632.

doi: 10.1080/08870446.2024.2347657. Epub 2024 Apr 29.

Managing children's asthma: what role do caregivers' mental representations of trigger and symptom management behaviors play?

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Affiliations Expand

- **PMID: 38682920**
- **PMCID: PMC11518878**
- **DOI: 10.1080/08870446.2024.2347657**

Abstract

Objective: Pediatric asthma management is challenging for parents and guardians (hereafter *caregivers*). We examined (1) how caregivers mentally represent trigger and symptom management strategies, and (2) how those mental representations are associated with actual management behavior.

Methods: In an online survey, *N* = 431 caregivers of children with asthma rated 20 trigger management behaviors and 20 symptom management behaviors across 15 characteristics, and indicated how often they engaged in each behavior.

Results: Principal components analysis indicated 4 dimensions for trigger management behaviors and 3 for symptom management behaviors. Bayesian mixed-effects models indicated that engagement in trigger management behavior was more likely for behaviors rated as *affirming caregiver activities*. However, trigger management behavior did not depend on how highly the behavior was rated as *challenging for caregiver*, *burdensome on child*, or *routine caregiving*. Engagement in symptom management behavior was more likely for behaviors rated as *affirming and common* and *harmless to the child*, but was unrelated to how highly a behavior was rated as *challenging for caregivers*.

Conclusion: These results suggest that interventions might be particularly useful if they focus on the affirming nature of asthma management behaviors. However, such interventions should acknowledge structural factors (e.g. poverty) that constrain caregivers' ability to act.

Keywords: Asthma; adolescent; behavior; child; parent.

Conflict of interest statement

Declaration of Conflicts of Interest: The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Declaration of Conflicts of Interest

The Authors declare that there are no conflicts of interest.

- **55 references**
- **2 figures**

Supplementary info

MeSH terms, Grants and fundingExpand

"rhinitis"[MeSH Terms] OR rhinitis[Text Word]

1

Clinical Trial

Nat Commun

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An anti-TSLP monoclonal antibody for uncontrolled CRSwNP: the DUBHE randomized clinical trial

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Affiliations Expand

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- DOI: 10.1038/s41467-025-63682-x

Abstract

To explore the therapeutic potential of blocking thymic stromal lymphopoietin (TSLP) in patients with chronic rhinosinusitis with nasal polyps (CRSwNP), we conducted a phase 1b/2a, randomized, double-blind, placebo-controlled trial to assess the safety and efficacy of CM326, a monoclonal antibody against TSLP. We enrolled 84 eligible patients with uncontrolled CRSwNP and stratified them based on baseline tissue eosinophil count. Patients are assigned to receive CM326 220 mg (n = 40) or placebo (n = 20) every 2 weeks (Q2W) and CM326 220 mg (n = 20) or placebo (n = 4) every 4 weeks (Q4W) for 16 weeks. Subsequently, all patients continue on CM326 220 mg Q2W or Q4W for an additional 36 weeks, followed by a 12-week follow up. Primary endpoints are safety of CM326 and change from baseline in NPS at week 16 in patients with eosinophilic CRSwNP (ECRSwNP). Main secondary endpoints include the change from baseline in NPS at week 16 in non-eosinophilic CRSwNP (nonECRwNP) and pharmacodynamic markers. Throughout the 64-week study, all treatment-emergent adverse events (TEAEs) are mild or moderate. CM326 Q2W improves NPS in patients with ECRSwNP compared with placebo at week 16 (mean difference [95% CI], -1.2 [-2.3 to -0.1], P = 0.04), with sustained benefits during the open-label and follow-up periods. Notably, peripheral blood and tissue eosinophil counts and concentrations of plasma IL-13 and IL-5 are reduced by week 16 with the treatment of CM326 Q2W versus placebo. A post-hoc analysis demonstrates that all participants with baseline TSLP > 330 fg/mL achieve a substantial reduction in NPS by week 16 with the treatment of CM326 Q2W (mean difference vs. placebo: -1.75 [95%CI, -3.06 to -0.44], P = 0.01). Overall, CM326 is well tolerated and effective in patients with uncontrolled ECRSwNP. A baseline plasma TSLP level of 330 fg/mL may serve as a predictive marker for treatment efficacy of CM326. ClinicalTrials.gov Identifier: NCT05324137.

Conflict of interest statement

Competing interests: B.C. is a shareholder of Keymed Biosciences (Chengdu) Co., Ltd. and also an inventor on patents (CN 112876564 B, CN 114887053 A, WO2021104053A1, EP4067377A1, US20230029835A1, JP2023503700A, KR1020220119394A, AU2020390926A1). G.Z. is an employee and shareholder of Keymed Biosciences (Chengdu) Co., Ltd. H.Y. is an employee of Keymed Biosciences (Chengdu) Co., Ltd. All other authors declare no competing interests.

- **29 references**

Supplementary info

Publication types, MeSH terms, Substances, Associated dataExpand

Full text links

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Int Arch Allergy Immunol

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. 2025 Sep 29:1-20.

doi: 10.1159/000548237. Online ahead of print.

Eosinophil-derived neurotoxin is an asthma biomarker linked to wheezing severity in preschool children

Taiga Kobori, Niclas Rydell, Mizuho Nagao, Robert Movérare, Masahiro Watanabe, Reiko Tokuda, Helena Ekoff, Anders Sjölander, Magnus P Borres, Takao Fujisawa

- **PMID: 41021422**

- **DOI: 10.1159/000548237**

Abstract

Background Novel biomarkers are needed for understanding the clinical characteristics of children with acute wheeze (AW) and for optimizing management strategies. This study investigated serum eosinophil-derived neurotoxin (EDN) and blood eosinophil count (B-Eos) in Japanese pre-school children with current asthma (CA) and/or AW. Methods Two cohorts of Japanese children under 6 years

of age were screened for allergy and asthma symptoms using the ISAAC questionnaire and tested for EDN, B-Eos and specific IgE. Cohort 1 included 16 children with CA, 45 with other allergies (OA), e.g. eczema or rhinitis, and 34 healthy controls (HC). Optimal cut-offs (receiver operating characteristic analysis) for EDN and B-Eos were determined for CA vs HC. Cohort 2 included 87 children with AW grouped according to symptom severity, high (EDN-H, B-Eos-H) or low (EDN-L, B-Eos-L) EDN and B-Eos (using the optimal cut-offs) and were followed up during recovery. Results Children with CA or OA had higher EDN vs HC ($p<0.01$). The B-Eos was higher in CA vs HC ($p<0.05$). The optimal cut-offs for EDN and B-Eos were 26.5 µg/L and 235 cells/µL, respectively. EDN was higher in wheezing children with severe vs mild or moderate symptoms ($p<0.05$). Conversely, B-Eos were higher in children with mild vs moderate symptoms ($p<0.01$). EDN decreased in the EDN-H group between AW and recovery ($p<0.001$). Higher EDN, and to a lesser extent, B-Eos were associated with IgE sensitization. Conclusion Serum EDN is a promising exploratory biomarker for CA and AW in pre-school children associated with wheezing severity and recovery after treatment.

3

Am J Rhinol Allergy

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Posterior Nasal Nerve Neurectomy With Mucosal Flap Coverage of the Sphenopalatine Foramen for Treatment of Allergic Rhinitis: 12-Month Outcomes After Treatment in a Prospective Cohort Study

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Affiliations Expand

- PMID: 41021400
- DOI: 10.1177/19458924251382757

Abstract

ObjectivesPosterior nasal nerve (PNN) neurectomy is an effective surgical option for refractory allergic rhinitis (AR), but delayed massive hemorrhage remains a concern. This study aimed to evaluate whether preserving a mucosal flap to cover the sphenopalatine foramen (SPF) affects postoperative efficacy and complications.MethodsThis prospective cohort study included 61 patients with moderate-to-severe AR who underwent PNN neurectomy. Patients were divided into two groups based on whether a mucosal flap was preserved to cover the SPF. Outcomes included mucosal epithelialization time, incidence of delayed bleeding, Visual Analog Scale (VAS), reflective Total Nasal Symptom Score (rTNSS), Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ), nasal airway resistance (NAR), and inflammatory markers. Follow-up was conducted at 1, 3, 6, and 12 months postoperatively.ResultsNo significant differences were found between groups in baseline characteristics. Both groups showed significant improvements in VAS, rTNSS, RQLQ, and NAR, with sustained benefits up to 12 months. The With Mucosal Flap Preservation group had a significantly shorter epithelialization time (*P* < .001) and lower incidence of delayed bleeding (*P* = .046). Mediation analysis indicated that epithelialization time mediated the relationship between the surgical method and delayed bleeding (*P* = .046), while the direct effect was not significant (*P* = .748).ConclusionThis study shows that PNN neurectomy with mucosal flap preservation reduces the risk of delayed postoperative bleeding through the key mediating mechanism of accelerated mucosal epithelialization, while achieving comparable improvements in nasal symptom relief and quality of life compared to the procedure without mucosal flap preservation.

Keywords: epithelialization; mucosal flap; neurectomy; posterior nasal nerve; postoperative hemorrhage.

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Allergy

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. 2025 Sep 26.

doi: 10.1111/all.70055. Online ahead of print.

Comparison of Allergic Rhinitis Treatments on Patient Satisfaction: A MASK-air and EAACI Methodological Committee Report

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Amaral [1 2 9 10], Anna Bedbrook [11 12], Patrizia Bonadonna [13], Luisa Brussino [14 15], G Walter Canonica [7 8], João Coutinho-Almeida [1 2], Álvaro A Cruz [16], Wienczyslawa Czarlewski [11 12 17], Mark Dykewicz [18], Mattia Giovannini [19 20], Bilun Gemicioglu [21 22], Juan Carlos Ivancevich [23], Ludger Klimek [24 25], Violeta Kvedariene [26 27], Desiree E Larenas-Linnemann [28], Manuel Marques-Cruz [1 2], André Moreira [29 30 31], Marek Niedoszytko [32], Ana Margarida Pereira [1 2 33], Nikolaos G Papadopoulos [34], Nhan Pham-Thi [35 36 37], Frederico S Regateiro [38 39 40 41], Sanna K Toppila-Salmi [42 43], Boleslaw Samolinski [44], Joaquin Sastre [45], Luís Taborda-Barata [46 47], Tuuli Thomander [1 48 49], Ilgım Vardaloğlu Koyuncu [21], Arunas Valiulis [50 51], Leticia de Las Vecillas [52], Maria Teresa Ventura [53 54], Jolanta Walusiak-Skorupa [55], Yi-Kui Xiang [56 57 58], Oliver Pfaar [59], João A Fonseca [1 2], Torsten Zuberbier [56 57], Holger J Schünemann [3 7 57 60], Danilo di Bona [61], Jean Bousquet [56 57]

Affiliations Expand

- PMID: 41001805

- DOI: 10.1111/all.70055

Abstract

Introduction: Satisfaction with treatments may affect medication adherence and use patterns, including the use of co-medication. We aimed to compare different medications for allergic rhinitis (AR) on (i) patients' satisfaction and (ii) co-medication use frequency.

Methods: We assessed data from the mHealth app MASK-air. We evaluated days on which users with self-reported AR had used-alone or in co-medication-intranasal corticosteroids (INCS), intranasal antihistamines (INAH), fixed combinations of INAH+INCS, or oral antihistamines (OAH). We built multivariable regression models to compare these different AR medication classes (as well as individual medications) on their (i) treatment satisfaction levels (measured using a specific daily visual analogue scale ['VAS satisfaction']) and (ii) odds of being used in co-medication.

Results: We assessed 28,177 days reported by 1691 MASK-air users. For all medication classes, co-medication usage was associated with lower treatment satisfaction. When used in monotherapy, OAH were associated with lower VAS satisfaction than INCS (-1.7 points; 95% CI = -2.7; -0.7) or INAH+INCS (-2.1 points; 95% CI = -3.5; -0.7). INCS displayed higher odds of being used in co-medication than OAH (OR = 1.3; 95% CI = 1.0; 1.6) or INAH+INCS (OR = 1.3; 95% CI = 0.8; 1.8). When comparing individual intranasal medications, fluticasone furoate and fluticasone propionate tended to be more frequently used in co-medication. Among individual OAH, desloratadine and rupatadine were associated with higher satisfaction, while fexofenadine was more frequently used in co-medication.

Conclusion: Using patient-reported data, we evaluated different medication classes and treatments in terms of satisfaction and co-medication frequency. These results provide key insights into the acceptability of AR treatments and will contribute to future treatment guidelines.

- 26 references

Supplementary info

Grants and fundingExpand

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Cite

5

Meta-Analysis

Biomol Biomed

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. 2025 Sep 24.

doi: 10.17305/bb.2025.12982. Online ahead of print.

Childhood obesity and allergic rhinitis: A meta-analysis

Xinxin Xing [1], Sihao Zhu [1], Guang Zhou [1], Yubo Ma [1], Hai Wang [1]

Affiliations Expand

- PMID: 40991750

- DOI: 10.17305/bb.2025.12982

Free article

Abstract

Allergic rhinitis (AR) is a prevalent chronic condition in childhood, and its increasing incidence has prompted research into potential associations with modifiable factors such as obesity. This meta-analysis aimed to assess the multivariate-adjusted relationship between childhood obesity and AR. A systematic search was conducted across PubMed, Embase, and Web of Science for observational studies that reported on the association between obesity and AR in children. Only studies that included multivariate adjustments for at least age and

sex were considered. Random-effects models were employed to pool odds ratios (ORs) with 95% confidence intervals (CIs), accounting for heterogeneity. Fifteen cross-sectional studies comprising 23 datasets involving a total of 569,856 children were included in the analysis. The overall results indicated that obesity was not significantly associated with AR (adjusted OR: 1.04, 95% CI: 1.00-1.09; p = 0.08; I^2 = 24%). However, subgroup analyses revealed a significant association in Western countries (OR: 1.12, 95% CI: 1.00-1.24; p = 0.04; I^2 = 0%), while no significant association was found in Asian countries (OR: 1.04, 95% CI: 0.97-1.12; p = 0.27; I^2 = 52%). Notable associations were identified in studies utilizing national or international BMI cutoffs (OR: 1.06, 95% CI: 1.01-1.10; p = 0.02) and those with physician-diagnosed AR (OR: 1.07, 95% CI: 1.02-1.13; p = 0.006), but not in studies employing the 95th percentile BMI definition or ISAAC-based AR diagnosis. No significant differences were observed based on age or sex. Meta-regression analysis indicated that age, sex, and study quality score did not significantly influence the results (p all > 0.05). Egger's test revealed no evidence of publication bias (p = 0.43). In conclusion, while no significant overall association between childhood obesity and AR was found, subgroup analyses suggest potential links within specific populations and under particular methodological definitions. These findings should be interpreted with caution, and further longitudinal studies are necessary to determine whether preventive strategies aimed at reducing childhood obesity may also impact allergic outcomes.

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Dermatol Ther (Heidelb)

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. 2025 Sep 23.

doi: 10.1007/s13555-025-01516-w. Online ahead of print.

Do Allergic Comorbidities Alter the Efficacy and Safety of Abrocitinib or Dupilumab in Patients with Moderate-to-Severe Atopic Dermatitis?

Eric L Simpson [1], Jonathan I Silverberg [2], Bob Geng [3], José-Manuel Carrascosa [4], Thomas Bieber [5 6], Patrick M Brunner [7], Delphine Staumont-Sallé [8], Chao Ji [9], Pinaki Biswas [10], Claire Feeney [11], Irene Hernández-Martín [12], Francisco José Rebollo Laserna [12], Herwig Koppensteiner [13]

Affiliations Expand

- **PMID: 40987931**

- **DOI: 10.1007/s13555-025-01516-w**

Abstract

Introduction: Allergic comorbidities are common in patients with atopic dermatitis (AD). Individual trials with abrocitinib or dupilumab demonstrated efficacy and safety in patients with moderate-to-severe AD and allergic comorbidities. This post hoc analysis of the phase 3 JADE COMPARE and DARE trials compared efficacy, safety, and quality of life following abrocitinib and dupilumab treatment in adults with moderate-to-severe AD, with or without comorbid asthma, allergic rhinitis, or food allergy.

Methods: Data were pooled from patients who received abrocitinib (200 mg/day) or dupilumab (300 mg/every 2 weeks) for 16 weeks with concomitant topical therapy. Assessments by self-reported asthma, allergic rhinitis, or food allergy included the proportion of patients achieving Investigator's Global Assessment of clear or almost clear (IGA 0/1), ≥ 75% improvement in Eczema Area and Severity Index (EASI-75), ≥ 4-point improvement in Peak Pruritus Numerical Rating Scale (PP-NRS4), least squares mean change from baseline in Dermatology Life Quality Index (DLQI) and SCORing Atopic Dermatitis (SCORAD), and safety.

Results: Of 1195 patients (abrocitinib, n = 588; dupilumab, n = 607), 377 (32%), 225 (19%), and 211 (18%) patients self-reported comorbid asthma, food allergy, or allergic rhinitis, respectively. Week 16 IGA 0/1 responses were comparable between patients with/without comorbidity with abrocitinib (52%/54% [with/without asthma], 50%/54% [with/without allergic rhinitis], and 53%/53% [with/without food allergy]) or dupilumab (42%/42%, 37%/43%, and 47%/41%). EASI-75 and PP-NRS4 responses and DLQI and SCORAD improvements were also comparable between patients with/without comorbidity in each treatment arm. Treatment-emergent adverse events were more common in patients with comorbidities in the abrocitinib (76%/67% [with/without asthma], 80%/67% [with/without allergic rhinitis], and 78%/67% [with/without food allergy]) and dupilumab (71%/53%, 71%/57%, and 62%/59%) arms.

Conclusion: Abrocitinib and dupilumab improved AD signs and symptoms with a manageable safety profile in patients with moderate-to-severe AD, regardless of asthma, allergic rhinitis, or food allergy. Graphical Abstract available for this article.

Trial registration: ClinicalTrials.gov identifier, NCT03720470 (JADE COMPARE) and NCT04345367 (DARE).

Keywords: Abrocitinib; Allergic rhinitis; Asthma; Comorbidity; Dupilumab; Food allergy; Moderate-to-severe atopic dermatitis; Pruritus; Quality of life.

Conflict of interest statement

Declarations. Conflict of Interest: Eric L. Simpson received grants from Pfizer, Eli Lilly, Kyowa Kirin, LEO Pharma, Merck, and Regeneron and personal fees from Pfizer, Bausch Health (Valeant), Dermira, Eli Lilly, Galderma, LEO Pharma, Menlo Therapeutics, Novartis, Regeneron, and Sanofi Genzyme. Jonathan I. Silverberg served as an investigator for Celgene, Eli Lilly, F. Hoffmann-La Roche, Menlo Therapeutics, Realm Therapeutics, Regeneron, and Sanofi Genzyme; as a consultant for Pfizer, AbbVie, Anacor, AnaptysBio, Arena Pharmaceuticals, Dermavant, Dermira, Eli Lilly, Galderma, GlaxoSmithKline, Glenmark, Incyte, Kiniksa Pharmaceuticals, LEO Pharma, Menlo Therapeutics, Novartis, Realm Therapeutics, Regeneron, and Sanofi Genzyme; and as a speaker for Regeneron and Sanofi Genzyme. Bob Geng has worked as a consultant for Pfizer and Genentech; as a speaker/consultant for Regeneron, Sanofi Genzyme, CSL Behring, and Horizon Therapeutics; and is on advisory boards for Novartis and Shire. José-Manuel Carrascosa has participated as an invited speaker, primary or secondary investigator in clinical trials, and advisor for Sanofi, LEO Pharma, Novartis, Almirall, Eli Lilly, Janssen, AbbVie, Celgene, Amgen, Mylan, Biogen, Pfizer, and Sandoz, Boehringer Ingelheim, and Bristol Myers Squibb. Thomas Bieber is/was a lecturer and/or consultant for Pfizer, AbbVie, Affibody, Almirall, Amagma Therapeutics, AnaptysBio, AOBiome, Anergis, Apogee, Arena, Aristea, Artax, Asana Biosciences, ASLAN Pharma, Astria, Attovia, BambusTx, Bayer Health, BioVersys, Boehringer Ingelheim, Bristol Myers Squibb, Byome Labs, Connect Pharma, Daiichi Sankyo, Dermavant, DICE Therapeutics, Domain Therapeutics, EQRx, Galderma, Galapagos, Gilead, Glenmark, GSK, Incyte, Innovaderm, Janssen, Kirin, Kymab, LEO, LG Chem, Eli Lilly, MSD, Medac, Micreos, Nektar Therapeutics, Novartis, Numab, OM-Pharma, Overtone, Pierre Fabre, Q32bio, RAPT, Samsung Bioepis, Sanofi/Regeneron, TIRmed, UCB, Union Therapeutics, Upstream Bio, and Yuhan. Patrick M. Brunner has received personal fees from Pfizer, AbbVie, Almirall, Amgen, Arena Pharma, Biotest, Boehringer Ingelheim, Celgene, Eli Lilly, GSK, Janssen, LEO Pharma, Novartis, Regeneron, Sanofi Genzyme, and UCB and is an investigator for Pfizer (grant paid to his institution). Delphine Staumont-Sallé has served as a consultant, scientific adviser, and/or clinical study investigator for Pfizer, AbbVie, AstraZeneca, Boehringer Ingelheim, Eli Lilly, Galderma, Janssen, LEO Pharma, Novartis, Sanofi Genzyme, and UCB. Chao Ji has no conflicts to disclose. Pinaki Biswas, Irene Hernández-Martín, and Herwig Koppensteiner are employees and shareholders of Pfizer Inc. Claire Feeney and Francisco José Rebollo Laserna were employees of Pfizer Inc. at the time this study was conducted. Ethical Approval: The JADE DARE and JADE COMPARE trials were conducted in accordance with the principles of the Declaration of Helsinki and the International Council for Harmonisation Good Clinical Practice guidelines. All local regulatory requirements were followed. The JADE DARE and DARE COMPARE trials were approved by the institutional review board or ethics committee at each of the investigational centers participating in the studies. All patients provided written informed consent.

- **32 references**

Supplementary info

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Review

Sleep Med

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. 2025 Oct:134:106705.

doi: 10.1016/j.sleep.2025.106705. Epub 2025 Jul 30.

Frequency of obstructive sleep apnea in patients with asthma or allergic rhinitis: a systematic review and meta-analysis

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Affiliations Expand

- PMID: 40774162

- DOI: 10.1016/j.sleep.2025.106705

Free article

Abstract

Background: Asthma and allergic rhinitis (AR) are prevalent respiratory diseases that often coexist with obstructive sleep apnea (OSA). The objective of this study was to evaluate whether asthma or AR are associated with a higher frequency of OSA.

Methods: We performed a systematic review including cross-sectional and cohort studies that evaluated adult participants with and without asthma or AR and reported OSA diagnosed via polysomnography. We searched PubMed, Web of Science, and Scopus. Risk of bias was assessed using the ROBINS-E tool. Certainty of evidence was evaluated using the GRADE Framework. A random-effects meta-analysis of odds ratios (OR) to quantify the association between asthma or AR and OSA was performed.

Results: We included 12 studies (N = 19,203 participants). The meta-analysis indicated a higher frequency of OSA in AR patients (OR = 2.4; 95 %CI = 1.1; 5.3) compared to patients without the disease. In overall patients with asthma, the

association with OSA (OR = 1.4; 95 %CI = 0.9; 2.2) was weaker than that observed in patients with moderate to severe asthma (OR = 10.1; 95 % CI = 1.3; 81.7). Patients with asthma exhibited slightly higher apnea-hypopnea index and oxygen desaturation index, along with lower mean oxygen saturation, compared to patients without asthma.

Conclusions: This meta-analysis identified an association between AR or asthma (particularly moderate to severe asthma) and OSA. Future research should address risk assessment of OSA for asthma and AR patients through prospective cohort studies, controlling for referral bias and asthma severity.

Keywords: Allergic rhinitis; Asthma; Meta-analysis; Obstructive sleep apnea; Systematic review.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

Publication types, MeSH termsExpand

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Review

Curr Opin Allergy Clin Immunol

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. 2025 Oct 1;25(5):355-363.

doi: 10.1097/ACI.0000000000001096. Epub 2025 Aug 1.

Where eye meets body part 1: uniting allergy pathways in ocular and nasal disease - IgE on the offense

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Affiliations Expand

- PMID: 40747986

- DOI: 10.1097/ACI.0000000000001096

Abstract

Purpose of review: This review explores the shared immunologic mechanisms and clinical distinctions between seasonal and perennial allergic rhinitis (SAR, PAR) and their ocular counterparts, seasonal and perennial allergic conjunctivitis (SAC, PAC). These IgE-mediated diseases often coexist, reflecting overlapping triggers, mast cell activation, and mucosal immune responses. By comparing their epidemiology, pathophysiology, genetics, and treatments, this review highlights how nasal and ocular allergic pathways intersect and diverge.

Recent findings: SAC and SAR frequently co-occur, with up to 71% of SAR patients reporting conjunctival symptoms and 75% of SAC patients experiencing rhinitis; in children, 42% with allergic rhinitis also have PAC. Recent studies suggest possible shared genetic and metabolic contributors across these conditions. Therapeutically, oral and intranasal antihistamines remain a mainstay for SAR, while combination intranasal corticosteroid-antihistamine regimens offer enhanced control in PAR. Topical dual-action antihistamine-mast cell stabilizers are commonly used in SAC and serve as first-line therapy for PAC. Novel ocular delivery systems, such as dexamethasone intracanalicular inserts, show promise for PAC.

Summary: These findings emphasize the overlap in episodic and chronic nasal and ocular allergies, with shared mechanisms, genetics, and treatment approaches, yet with site-specific nuances. Ongoing research into genetic and therapeutic differentiation remains crucial to advancing personalized allergy care.

Keywords: allergic conjunctivitis; allergic rhinitis; ocular allergy; perennial; seasonal.

- 63 references

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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Arch Biochem Biophys

. 2025 Oct:772:110564.

doi: 10.1016/j.abb.2025.110564. Epub 2025 Jul 23.

PACAP/PAC1R activation promotes group 2 innate lymphoid cells-dependent allergic rhinitis via ERK pathway

Huigang Wang [1], Yifei Ma [1], Jianyao Li [1], Qingming Bao [2], Guodong Yu [3]

Affiliations Expand

- PMID: 40713003

- DOI: 10.1016/j.abb.2025.110564

Free article

Abstract

Allergic rhinitis (AR) is a T helper type 2 (Th2)-mediated inflammatory disease. It has been reported that Group 2 innate lymphoid cells (ILC2s) may contribute to the pathogenesis of AR. While Pituitary Adenylate Cyclase-Activating Polypeptide (PACAP) has demonstrated anti-inflammatory properties in allergic contact dermatitis, its regulatory effects on ILC2s remain unclear. This study aimed to investigate the regulatory role of PACAP in ICL2 proliferation under allergic inflammation. In an ovalbumin (OVA)-induced AR mouse model, we observed significant elevations in both PACAP levels and ILC2 populations. Both in vivo and in vitro experiments confirmed that PACAP effectively promoted the expansion of IL-5$^+$ and IL-13$^+$ ILC2s subsets and enhances ILC2 proliferation. PACAP receptor PAC1R knockdown or PAC1R receptor antagonist PA-8 markedly suppressed ILC2s proliferation and cytokine production. Furthermore, in vivo experiments demonstrated that PACAP inhibition reduced ILC2 proliferation, thereby alleviating nasal mucosal inflammatory responses, confirming that PACAP exacerbates allergic inflammation through PAC1R-dependent activation of ILC2s. Mechanistic studies revealed that PACAP/PAC1R signaling activated the ERK pathway, as evidenced by upregulated p-ERK expression and increased IL-5/IL-13 secretion in ILC2s. These effects were effectively reversed by ERK inhibitor PD98059. Importantly, both PAC1R knockdown and ERK inhibition significantly decreased p-ERK expression and ILC2s proliferation, while ameliorating AR pathological features. Our findings revealed that PACAP/PAC1R activation promoted ILC2s proliferation and allergic inflammation through ERK pathway, which provides novel insights into the regulation of ILC2s and potential therapeutic targets in allergic rhinitis.

Keywords: Allergic rhinitis; ERK; ILC2s; PAC1R; PACAP.

Conflict of interest statement

Competing interest The authors declare no competing interests.

Supplementary info

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J Microbiol Immunol Infect

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. 2025 Oct;58(5):554-563.

doi: 10.1016/j.jmii.2025.04.007. Epub 2025 May 8.

The influence of respiratory syncytial virus immunoprophylaxis on allergic sensitisation in children with respiratory allergy

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Affiliations Expand

- **PMID: 40360322**
- **DOI: 10.1016/j.jmii.2025.04.007**

Free article

Abstract

Background: Respiratory syncytial virus (RSV) infection may induce asthma and allergic sensitisation. RSV immunoprophylaxis can reduce the severity of RSV infections. However, the effects of RSV immunoprophylaxis on allergic sensitisation remains unclear. We aimed to explore effects of palivizumab, an anti-RSV monoclonal antibody on subsequent IgE sensitisation in preterm children aged ≤18 years with asthma or allergic rhinitis.

Methods: This retrospective study included 854 preterm children who were followed up and diagnosed with asthma or allergic rhinitis before 18 years old from January 1999 to December 2020. Binary logistic regression was used to investigate effects of

palivizumab on the development of IgE sensitisation to aeroallergens or food allergens; the model was adjusted for birth weight, gestational age, foetal growth, sex, and delivery method.

Results: Palivizumab could decrease risks of aeroallergen sensitisation until 18 years of age, (adjusted odds ratio (aOR) 0.34, 95 % CI 0.17-0.67, p = 0.002) and as well as in those 7 and 12 years of age. Children receiving palivizumab prophylaxis had lower total sIgE levels (p < 0.001) and eosinophil counts (p = 0.038) than those without prophylaxis. Among asthmatic children, those receiving palivizumab had a shorter duration of active asthma (p < 0.001). In allergic rhinitis population, palivizumab prophylaxis required fewer intranasal corticosteroid (p < 0.001).

Conclusion: In preterm children with asthma or allergic rhinitis, early palivizumab prophylaxis may protect against future aeroallergen sensitisation before adulthood. Palivizumab prophylaxis could also decrease the duration of active asthma in asthmatic children and intranasal corticosteroid prescriptions in allergic rhinitis population.

Keywords: Allergic rhinitis; Asthma; Immunoglobulin E; Respiratory syncytial virus; Sensitisation.

Conflict of interest statement

Declaration of competing interest The authors have no conflict of interest to declare.

Supplementary info

MeSH terms, SubstancesExpand

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Randomized Controlled Trial

Ear Nose Throat J

. 2025 Oct;104(10):NP675-NP684.

doi: 10.1177/01455613241299640. Epub 2024 Nov 11.

Topical Therapies for Management of Olfactory Dysfunction in Chronic Rhinosinusitis with Nasal Polyps: Steroid-Eluting Stents

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Affiliations Expand

- PMID: 39529438

- DOI: 10.1177/01455613241299640

Free article

Abstract

Objectives: Steroid-eluting stent implantation after endoscopic sinus surgery (ESS) effectively alleviates postoperative symptoms and polyp recurrence in patients with chronic rhinosinusitis with nasal polyps (CRSwNP). However, the efficacy of steroid-eluting stents for the treatment of olfactory dysfunction in CRSwNP and the influencing factors therein have not been studied.

Methods: Fifty-nine patients with CRSwNP with olfactory dysfunction from Peking University Third Hospital who were hospitalized for ESS were recruited and randomly divided into a stent group (n = 30) and a control group (n = 29), and were assessed for symptom scores, olfactory function, endoscopic findings, and type 2 inflammatory mediators (IL-4, IL-5, IL-13, IL-33, eotaxin-3, periostin) expression.

Results: Postoperative olfactory Visual Analogue Scale (VAS) scores, T&T olfactometer scores, SNOT-22 scores, and Lund-Kennedy (LK) scores were reduced in patients with CRSwNP ($P < .01$). Postoperative olfactory VAS scores, T&T olfactometer scores, SNOT-22 scores, and LK scores, IL-5, IL-13, and periostin were significantly lower in the stent group than in the control group ($P < .05$). Correlation analysis was performed and found that the postoperative olfactory VAS scores were strongly correlated with IL-5 and IL-13 ($r = .496$, $P < .001$ and $r = .289$, $P = .026$), and the postoperative T&T olfactometer scores were strongly correlated with IL-5 and IL-13 ($r = .553$, $P < .001$ and $r = .398$, $P = .002$).

Conclusions: Steroid-eluting stent implantation after ESS is an effective treatment for olfactory deficits in patients with CRSwNP and may be related to the stent's more effective reduction of local type 2 inflammatory mediators in the nasal cavity.

Keywords: chronic rhinosinusitis; olfactory dysfunction; steroid-eluting stents; type 2 inflammatory mediators.

Conflict of interest statement

Declaration of Conflicting InterestsThe author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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chronic cough

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Eur Clin Respir J

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. 2025 Sep 25;12(1):2563395.

doi: 10.1080/20018525.2025.2563395. eCollection 2025.

The prevalence and risk factors of respiratory symptoms in Finland: a comparative analysis

Heikki V T Pautola [1 2], Heikki O Koskela [1 2], Minna K Purokivi [1], Johanna T Kaulamo [2], Anne M Lätti [1 2]

Affiliations Expand

- PMID: 41020184

- PMCID: PMC12466186

- DOI: 10.1080/20018525.2025.2563395

Abstract

Background: Knowledge about the local prevalence and risk factors of respiratory symptoms helps to address healthcare resources. Furthermore, no studies have compared the prevalence and risk factors of several respiratory symptoms within the same population.

Objective: We conducted two cross-sectional email surveys in 2017 and 2021 for public service employees in two Finnish towns and Finnish Pensioners' Federation members. The questionnaires were sent to 40,185 subjects; 9,865 (24.6%) responded, 72.5% were female,

and the mean age was 63 (range 18-94 years). Validated symptom questionnaires were included for each respiratory symptom. The questionnaire on sleep apnea symptoms was only included in the survey of retirees.

Results: Prevalence of current asthma was 8.9%, wheezing with dyspnea 12.5%, chronic rhinosinusitis 11.9%, chronic cough 12.8%, TBQ phenotype cough 9.6%, chronic bronchitis 17.6% and gastroesophageal reflux symptoms 15.6%. In the retired group, the prevalence of sleep apnea symptoms was 32,8%. More than one respiratory symptom was present in 27.1% of subjects. A higher body mass index (BMI), smoking, and allergy increased the risk of most symptoms, while high household income protected against some symptoms. Increased age was associated with an increased risk of chronic cough, chronic bronchitis, and gastroesophageal reflux symptoms. In contrast, decreased age was associated with an increased risk of wheezing with dyspnea and chronic rhinosinusitis. The male gender increased the risk of chronic bronchitis and sleep apnea symptoms. All respiratory symptoms were associated with multiple non-respiratory symptoms.

Conclusions: We gathered updated information on the prevalence of respiratory symptoms in Finland. Age, higher BMI, smoking, low household income, and allergy were significant risk factors for most respiratory symptoms.**ClinicalTrials.Gov identifier:** NCT03639727.

Keywords: Asthma; bronchitis, chronic; chronic cough; epidemiology; gastroesophageal reflux; prevalence; rhinosinusitis; risk factors; sleep apnea syndromes.

Conflict of interest statement

HVTP reports grants from the Foundation of the Finnish Anti-Tuberculosis Association, the Vaino and Laina Kivi Foundation, the Research Foundation of the Pulmonary Diseases, and The Respiratory Foundation of the Kuopio Region. During the conduct of the study, congress travel costs from AstraZeneca Oy and Sanofi Oy Finland, and a personal fee from the University of Eastern Finland as payment for giving a scientific lecture. HOK reports support from Orion Ltd to visit an international scientific meeting, and from owning shares of Orion Pharma, outside the submitted work. MKP reports grants from the Foundation of the Finnish Anti-Tuberculosis Association, Jalmari and Rauha Ahokas Foundation, and The Respiratory Foundation of the Kuopio Region, and a payment from Boehringer-Ingelheim Finland Ltd for participating in the advisory board. JTK reports grants from the Foundation of the Finnish Anti-Tuberculosis Association, the Vaino and Laina Kivi Foundation, the Research Foundation of the Pulmonary Diseases, The Respiratory Foundation of the Kuopio Region and the Finnish Cultural Foundation. AML reports personal fees from Chiesi, GSK, and AstraZeneca Finland as payments for lectures or educational events and support from Chiesi and GSK for attending scientific meetings.

- 90 references
- 2 figures

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Pulm Ther

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. 2025 Sep 27.

doi: 10.1007/s41030-025-00318-x. Online ahead of print.

Dyspnea in Chronic Obstructive Pulmonary Disease: Expert Assessment of Management in Clinical Practice

Nirupama Putcha [1], Diego J Maselli [2], Jessica Bon [3], Michael G Lester [4], M Bradley Drummond [5]

Affiliations Expand

- PMID: 41014472

- DOI: 10.1007/s41030-025-00318-x

Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is a multifaceted lung condition characterized by persistent airflow limitation that leads to chronic symptoms, including dyspnea, cough, and exacerbations. To date, a major focus for the assessment and management of COPD has been on mitigating exacerbations. However, dyspnea is the most common symptom of COPD and is responsible for substantial negative effects on patients' quality of life. Dyspnea is also a substantial contributor to the symptoms associated with acute exacerbations in COPD. Though a portion of the current recommendations for the assessment and management of COPD are dedicated to dyspnea

treatment intervention strategies, there remains a need for improvement in communication between healthcare practitioners and their patients regarding the understanding of dyspnea and the implementation of key nonpharmacologic and pharmacologic treatment options. This clinical commentary outlines practical considerations and recommendations for the real-world assessment and management of dyspnea in COPD, including underlying causes, patient and healthcare provider dialogue, measurement of severity, and management strategies.

Keywords: Chronic obstructive pulmonary disease; Dyspnea; Expert assessment; Management; Patient-reported outcomes; Real-world practice.

Plain language summary

Chronic obstructive pulmonary disease, or COPD, is a long-term disease of the lungs that can cause several symptoms, including cough, flare-ups (times when symptoms suddenly worsen, also known as exacerbations), and breathlessness (also referred to as dyspnea). Medications and other therapies for COPD mainly focus on reducing how often exacerbations happen or how bad they are. However, dyspnea is a major problem for patients with COPD, often making it difficult to live their everyday lives. Moreover, dyspnea is commonly seen in patients with COPD when they have an exacerbation. Although current recommendations for the management of COPD include strategies to help with dyspnea, patients may still need more information about their dyspnea and how to manage it. This could be due to several factors, including a disconnect in the dialogue patients have with their doctors regarding their experience of dyspnea. This article shares practical insights from respiratory doctors on how they help patients with COPD manage their dyspnea and provides an overview of the causes, measurement, and management of dyspnea.

Conflict of interest statement

Declarations. Conflict of Interest: Nirupama Putcha has served on advisory boards for Verona Pharma and AstraZeneca. Diego J. Maselli has served on consulting/advisory boards for GSK, AstraZeneca, Amgen, Sanofi/Regeneron, Insmed, and Verona Pharma; and has received speaker fees from GSK, AstraZeneca, Amgen, and Sanofi/Regeneron. Jessica Bon has received grant funding from the National Heart, Lung, and Blood Institute (NHLBI); has served on consulting/advisory boards for GSK, Sanofi/Regeneron, Verona Pharma, and Chiesi; and has received speaker fees from GSK and Sanofi/Regeneron. Michael G. Lester has served on consulting/advisory boards for Ryme Medical, Galvanize Therapeutics, and Verona Pharma. M. Bradley Drummond has served on consulting/advisory boards for GlaxoSmithKline, Boehringer Ingelheim, AstraZeneca, Verona, Genentech, Stratos Inc, Takeda, and Amgen and has received grant funding from National Institute of Health-NHLBI, Boehringer Ingelheim, Midmark, Teva and the American Lung Association. Ethical Approval: Given that this article is based on previously conducted studies and does not

report any new research involving human participants or animals performed by any of the authors, there is no ethical compliance to declare.

- 90 references

Full text links

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Cite

3

Eur Respir J

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. 2025 Sep 26:2500745.

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European Respiratory Society and American Thoracic Society guidelines for the diagnosis of Primary Ciliary Dyskinesia

Amelia Shoemark [1 2], Myrofora Goutaki [3 4], BreAnna Kinghorn [5 6 7], Cristina Ardura-Garcia [8], Noelia Baz-Redón [9 10], Mark Chilvers [11], Stephanie D Davis [12], Jana De Brandt [13 14], Sharon Dell [15], Raja Dhar [16], Lucy Dixon [17], Thomas Ferkol [12], Claire Hogg [18], Marie Legendre [19 20], Margaret Leigh [21], Jane S Lucas [22 23], Michele Manion [21], Nisreen Rumman [24 25], Ingrid Toews [26], Valerie Labonte [26 27], Wallace B Wee [28], Panayiotis Kouis [29 7], Amjad Horani [25 30 2]

Affiliations Expand

- PMID: 41005984

- DOI: 10.1183/13993003.00745-2025

Abstract

Primary ciliary dyskinesia (PCD) is caused by pathogenetic variants in >55 genes. PCD is associated with early-onset chronic wet cough and rhinosinusitis, laterality defects, middle ear disease, and reduced fertility. The clinical presentation is heterogeneous, and diagnosis often relies on multiple tests. The American Thoracic Society (ATS) and European

Respiratory Society (ERS) have previously developed separate guidelines for diagnosis. Here, ERS and ATS members systematically reviewed the literature on diagnostic tools used in practice and developed unified evidence-based guidelines for PCD diagnosis using GRADE (Grading of Recommendations, Assessment, Development and Evaluations) methodology, and a transparent process of decision-making using Evidence-to-Decision (EtD) frameworks. The Task Force panel formulated three PICO (Patients, Intervention, Comparison, Outcomes) questions and three narrative questions. The accuracies of high-speed video microscopy (HSVM), immunofluorescence (IF), and nasal nitric oxide (nNO) were compared to a reference test of transmission electron microscopy (TEM) and/or genetics. The panel gives strong recommendation for use of HSVM, IF, and nNO as adjunct tests to TEM and/or genetics for PCD diagnosis. However, no adjunct test is suitable as a standalone test to diagnose PCD and no single adjunct or reference test is suitable to exclude PCD. Pursuing a genetic diagnosis is encouraged due to the implication on management. The panel emphasizes that tests should meet a minimum standard and proposes evaluation of patients at a referral centre experienced in diagnosis. The pretest probability based on symptoms should be considered when interpreting results.

4

Editorial

Eur Respir J

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. 2025 Sep 25;66(3):2501267.

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Dissecting the genetics of chronic cough

Alyn Hugh Morice [1]

Affiliations Expand

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- PMCID: PMC12461902

- DOI: 10.1183/13993003.01267-2025

Abstract

Gene signatures are shared between chronic cough and ACE inhibitor cough https://bit.ly/45juEw2

Conflict of interest statement

Conflict of interest: A.H. Morice reports consultancy fees from Bellus, GSK, NeRRi and Trevi, payment or honoraria for lectures, presentations, manuscript writing or educational events from GSK, Merck and Hilton, grant support from Axalbion, Bellus, GSK, Merck, Nocion, Philips, NeRRi and Trevi, and participation on a data safety monitoring board or advisory board with Boehringer Ingelheim.

Comment on

- Genomics of chronic dry cough unravels neurological pathways.

Coley K, John C, Ghouse J, Shepherd DJ, Shrine N, Izquierdo AG, Kanoni S, Magavern EF, Packer R, McGarvey L, Smith JA, Bundgaard H, Ostrowski SR, Erikstrup C, Pedersen OBV, van Heel DA; Genes and Health Research Team; Hennah W, Marttila M, Free RC, Hollox EJ, Wain LV, Tobin MD, Batini C.Eur Respir J. 2025 Sep 25;66(3):2402341. doi: 10.1183/13993003.02341-2024. Print 2025 Sep.PMID: 40675770 **Free PMC article.**

- 5 references

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Rev Med Suisse

. 2025 Sep 24;21(932):1695-1698.

doi: 10.53738/REVMED.2025.21.932.47743.

[Chronic cough: recommendations for primary care physicians]

[Article in French]

Corentin Van Ruymbeke [# 1], Stéphane Talbit [# 1], Caroline Rayroux [2], Isabelle Gérard [3], Chloé Chevallier [1]

Affiliations Expand

- PMID: 40994066

- DOI: 10.53738/REVMED.2025.21.932.47743

Abstract

in English, French

Chronic cough, defined as a cough lasting longer than 8 weeks, is a common complaint in primary care settings. It is now recognized as a distinct clinical entity, often associated with cough reflex hypersensitivity. Chronic cough has an impact on quality of life and assessing it remains a key component in tailoring management. The initial workup includes a chest X-ray, spirometry, and complete blood count. Current guidelines emphasize the importance of a thorough clinical assessment to identify and address modifiable causes and limit empirical treatments, as previously recommended. The etiological spectrum has expanded to include conditions such as obesity and sleep apnea, underlining the need for a multidisciplinary approach. In the absence of a clear etiology or treatment response, referral to a specialist is recommended.

Conflict of interest statement

les auteurs n'ont déclaré aucun conflit d'intérêts en relation avec cet article.

Cite

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Eur Respir J

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doi: 10.1183/13993003.02341-2024. Print 2025 Sep.

Genomics of chronic dry cough unravels neurological pathways

Kayesha Coley [1], Catherine John [2 3], Jonas Ghouse [4 5], David J Shepherd [2], Nick Shrine [2], Abril G Izquierdo [2], Stavroula Kanoni [6], Emma F Magavern [6], Richard Packer [2 3], Lorcan McGarvey [7], Jaclyn A Smith [8], Henning Bundgaard [9 10], Sisse R Ostrowski [10 11], Christian Erikstrup [12 13], Ole B V Pedersen [10 14], David A van Heel [15]; Genes and Health Research Team; William Hennah [16 17], Mikko Marttila [18], Robert C Free [3 19], Edward J Hollox [20], Louise V Wain [2 3], Martin D Tobin [2 3], Chiara Batini [2 3]

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- PMID: 40675770

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- DOI: 10.1183/13993003.02341-2024

Abstract

Background: Chronic dry cough is a symptom of common lung conditions, can occur as a side-effect of angiotensin-converting enzyme inhibitors (ACEis), or may be unexplained. Despite the substantial health burden presented by chronic dry cough, its biological mechanisms remain unclear. We hypothesised shared genetic architecture between chronic dry cough and ACEi-induced cough and aimed to identify causal genes underlying both phenotypes.

Methods: We performed multi-ancestry genome-wide association studies (GWAS) of chronic dry cough and ACEi-induced cough, and a multi-trait GWAS of both phenotypes, utilising data from five cohort studies. Chronic dry cough was defined by questionnaire

responses, and ACEi-induced cough by treatment switches or clinical diagnosis in electronic health records. We mapped putative causal genes and performed phenome-wide association studies (PheWAS) of associated variants, and polygenic scores for ACEi-induced cough, to identify pleiotropic effects.

Results: We found seven novel genetic association signals reaching $p<5\times10^{-8}$ in the multi-trait or single-trait analyses of chronic dry cough and ACEi-induced cough. The novel variants mapped to 10 novel genes, and we mapped an additional three novel genes to known risk variants, many of which implicate neurological functions (*CTNNA1*, *KCNA10*, *MAPKAP1*, *OR4C12*, *OR4C13*, *SIL1*). The polygenic-score-based PheWAS highlighted associations with an elevated risk of several clinical conditions including asthma, diabetes and multi-site chronic pain.

Conclusion: Our findings provide support for neuronal dysfunction underlying cough hypersensitivity in chronic dry cough and ACEi-induced cough, and identify diseases and traits associated with genetic predisposition to cough that could inform drug target discovery.

Conflict of interest statement

Conflict of interest: C. John reports support for the present manuscript from Orion Pharma. R. Packer reports support for the present manuscript from Orion Pharma. C. Erikstrup reports grants from Novo Nordisk and Abbott Diagnostics. W. Hennah is an employee of Orion Pharma. M. Marttila is an employee of Orion Pharma. L.V. Wain reports support for the current manuscript from Orion Pharma, grants from GlaxoSmithKline, and consultation fees from Galapagos. M.D. Tobin reports support for the current manuscript from Orion Pharma, and research collaborations with GlaxoSmithKline. The remaining authors have no potential conflicts of interest to disclose.

Comment in

- Dissecting the genetics of chronic cough.

Morice AH.Eur Respir J. 2025 Sep 25;66(3):2501267. doi: 10.1183/13993003.01267-2025. Print 2025 Sep.PMID: 40998561 **Free PMC article.**

- Cited by 2 articles
- 62 references
- 5 figures

"bronchiectasis"[MeSH Terms] OR bronchiectasis[Text Word]

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Clin Respir J

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. 2025 Oct;19(10):e70128.

doi: 10.1111/crj.70128.

The Correlation Between NLR, RDW, and Pulmonary Hypertension in Patients With Bronchiectasis and Chronic Obstructive Pulmonary Disease Overlap Syndrome

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Affiliations Expand

- PMID: 41022427

- DOI: 10.1111/crj.70128

Abstract

Introduction: Based on the analysis of the relationship between neutrophil to lymphocyte ratio (NLR) and red blood cell distribution width (RDW) and pulmonary hypertension (PH) in patients with bronchiectasis and chronic obstructive pulmonary disease overlap syndrome (BCOS), this paper aims to explore the indexes that not only represent the severity of patients with BCOS overlapping PH but also are highly related to BCOS overlapping PH.

Methods: The clinical data of 159 patients with BCOS admitted to Qilu Hospital of Shandong University Dezhou Hospital from January 2019 to November 2024 were collected and analyzed. All the patients had complete color Doppler echocardiography at this hospital and were separated into experimental group (106 cases, BCOS with PH) and control group (53 cases, BCOS not combined with PH group), according to whether they were complicated with pulmonary hypertension or not. And then the experimental group was divided into mild, moderate and severe subgroups. The correlation of NLR, RDW with pulmonary artery systolic blood pressure (PASP) in BCOS patients was analyzed. And whether there were differences or not between NLR and RDW among experimental group, control group as well as subgroups was compared. Furthermore, receiver operating characteristic (ROC) curves were constructed to evaluate the efficacy of NLR and RDW in distinguishing between "PH-complicated" and "non-PH-complicated" statuses among BCOS patients at the cross-sectional level.

Results: First, the level of NLR and RDW in experimental group was higher than those in control group, in addition the difference was statistically significant ($p < 0.05$). Second, significant intergroup differences in NLR and RDW levels were observed among the three subgroups of the experimental group (NLR: $p < 0.001$; RDW: $p = 0.011$). Specifically, both NLR and RDW levels in the severe PH subgroup

were significantly higher than those in the mild PH subgroup (NLR: adjusted p < 0.001; RDW: adjusted p = 0.009). Additionally, NLR levels in the severe PH subgroup were higher than those in the moderate PH subgroup (adjusted p = 0.011), whereas no statistically significant difference in RDW levels was noted between the severe and moderate PH subgroups (adjusted p = 0.148). Furthermore, there were no significant differences in NLR or RDW levels between the mild and moderate PH subgroups (NLR: adjusted p = 0.196; RDW: adjusted p = 0.607). Third, the level of NLR and RDW was positively correlated with PASP (r = 0.294, 0.259; p < 0.05). Fourth, Multivariate logistic regression analysis revealed that decreased PO_2, NLR, and RDW are independent risk factors for PH development in BCOS patients (all p < 0.05). Fifth, ROC curve results showed the areas under the curve (AUC) of NLR, RDW and their combined detection in differentiating BCOS patients with and without PH were 0.628, 0.751, and 0.756 respectively. In particular, RDW performed better than NLR in differentiating with regard to discriminative ability. Furthermore, compared to RDW, the AUC of the combined detection was higher, meanwhile, its specificity was greatly enhanced than both single indicators. These results indicate that the combined detection exhibits better capability in identifying PH complicating BCOS at the cross-sectional level.

Conclusions: The level of NLR and RDW is related to the severity of pulmonary arterial pressure in patients with BCOS. The two indicators can serve as a significantly relevant factor for pulmonary hypertension complicating BCOS.

Keywords: bronchiectasis and chronic obstructive pulmonary disease overlap syndrome; neutrophil to lymphocyte ratio; pulmonary hypertension; red blood cell volume distribution width.

- 29 references

Supplementary info

MeSH termsExpand

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N Engl J Med

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. 2025 Sep 28.

doi: 10.1056/NEJMoa2510095. Online ahead of print.

Hypertonic Saline or Carbocisteine in Bronchiectasis

Judy M Bradley [1], Brenda O'Neill [2], Daniel F McAuley [1], James D Chalmers [3], Anthony De Soyza [4], Adam T Hill [5 6], Mary Carroll [7], Michael R Loebinger [8 9], Jamie Duckers [10], Mike Clarke [11 12], Rebecca H McLeese [13], Kathryn Ferguson [14 15], Andrew Jackson [12], Christina Campbell [12], Clíona McDowell [12], Ashley Agus [12], John Norrie [11], Fiona Copeland [16], Damian G Downey [1 15], Rory Convery [17], Martin Kelly [14], William Flight [18], Nick P Talbot [18], John R Hurst [19], John Steer [20], Muhammad Anwar [21], Mitra Shahidi [22], Timothy Gatheral [23], Mohamed Etumi [24], Anita L Sullivan [25], Andreea Alina Ionescu [26], Veeresh Patil [27], Milan Bhattacharya [28], Steven Caskey [15], Denise Cosgrove [17], Conor Hagan [17], Amelia Shoemark [3], Terence McManus [13], Gareth Davies [4], J Stuart Elborn [1]; CLEAR Investigator Team

Affiliations Expand

- PMID: 41020514

- DOI: 10.1056/NEJMoa2510095

Abstract

Background: Bronchiectasis guidelines are inconsistent with regard to the effectiveness of mucoactive agents, and their use varies geographically. Large trials are needed to assess safety and effectiveness.

Methods: For this open-label, randomized, two-by-two factorial trial at 20 sites in the United Kingdom, we enrolled participants with non-cystic fibrosis bronchiectasis who had frequent pulmonary exacerbations and daily sputum production. Current smokers and persons who had recently received mucoactive treatments were excluded. All participants received standard care and were also assigned either to one of three mucoactive-drug groups - hypertonic saline (the hypertonic-saline group), hypertonic saline and carbocisteine (the combination group), or carbocisteine (the carbocisteine group) - or to standard care alone. The comparisons were between hypertonic saline and no hypertonic saline and between carbocisteine and no carbocisteine, with each category consisting of two groups. The primary outcome was the number of pulmonary exacerbations over a 52-week period. Key secondary outcomes were scores on disease-specific health-related quality-of-life assessments, time to next pulmonary exacerbation, and safety.

Results: A total of 288 participants underwent randomization. No treatment interactions were found. The mean number of adjudicated fully qualifying pulmonary exacerbations over the 52-week period was 0.76 (95% confidence interval [CI], 0.58 to 0.95) with hypertonic saline as compared with 0.98 (95% CI, 0.78 to 1.19) with no hypertonic saline (adjusted between-group difference in the means, -0.25 [95% CI, -0.57 to 0.07; P = 0.12]) and 0.86 (95% CI, 0.66 to 1.06) with carbocisteine as compared with 0.90 (95% CI, 0.70 to 1.09) with no carbocisteine (adjusted between-group difference in the means, -0.04 [95% CI, -0.36 to 0.28; P = 0.81]). Secondary outcomes and the incidence of adverse events, including serious adverse events, were similar across the groups.

Conclusions: In participants with bronchiectasis, neither hypertonic saline nor carbocisteine significantly reduced the mean incidence of pulmonary exacerbations over a period of 52 weeks. (Funded by the National Institute for Health and Care Research Health Technology Assessment Programme and others; ISRCTN Registry number, ISRCTN89040295.).

Supplementary info

Associated data, Grants and fundingExpand

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J Med Econ

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. 2025 Sep 29:1-14.

doi: 10.1080/13696998.2025.2567761. Online ahead of print.

Frequency, duration, and cost of pulmonary exacerbations among patients with bronchiectasis

Maitreyee Mohanty [1], Claudia Leiras [2], Haiyan Sun [2], Reina Rau [2], John Fastenau [1], Joseph Feliciano [1], Sunjay R Devarajan [3]

Affiliations Expand

- **PMID: 41017477**

- **DOI: 10.1080/13696998.2025.2567761**

Abstract

BackgroundIn administrative claims database studies of bronchiectasis, pulmonary exacerbations are usually defined using a fixed period for their start and end, which prevents assessment of exacerbation duration and thereby limits assessment of exacerbation characteristics. Here, we applied a novel cost-based algorithm to characterize exacerbations.MethodsThis cohort study used the Merative™ MarketScan® Commercial Claims and Encounters database, 1-Jan-2016 to 31-Dec-2022. Patients ≥18 years with bronchiectasis (≥2 outpatient or ≥1 inpatient

claim with bronchiectasis; no cystic fibrosis) had 12 months of continuous enrollment before (baseline) and ≥12 months after (follow-up) index (first bronchiectasis claim). Cost-based exacerbations were identified by compound score of week with highest percentage all-cause cost increase during follow-up compared with baseline weekly maintenance all-cause cost, and week with highest absolute weekly cost during follow-up. Exacerbation duration was the period with significantly higher weekly cost difference during follow-up than mean baseline weekly cost. Cost-based exacerbations were compared with exacerbations identified using a traditional claims-based definition.ResultsOf 9,005 patients with bronchiectasis, 6,033 had 49,750 cost-based exacerbations during 2.5 years median follow-up. Mean (SD) cost-based exacerbation duration was 3.4 (8.6) weeks (median [Q1, Q3] 1 [1, 3] weeks). During follow-up, 82.8% patients had ≥3 cost-based exacerbations, and 67.5% patients needed hospitalization/intravenous antibiotic treatment for an exacerbation. Mean respiratory costs were higher for the first cost-based exacerbation ($7,738) than the second ($5,429). Annual respiratory costs were $14,116 for patients with (vs $3,390 without) cost-based exacerbations. Overall, 95.7% patients with cost-based exacerbations had ≥1 claims-based exacerbation; 51.0% cost-based exacerbations met the claims-based definition.LimitationsCost-based exacerbations may not represent true exacerbations, because cost increases could also result from worsening comorbidities or other clinical events.ConclusionsExacerbations identified using a cost-based algorithm frequently lasted >3 weeks. Patients with cost-based exacerbations had higher healthcare costs, particularly respiratory costs, than those without.

Keywords: Bronchiectasis; I10; I11; claims; cost; duration; exacerbation; frequency; real-world.

Plain language summary

Bronchiectasis is a chronic lung disease where patients have symptoms including cough, congestion, shortness of breath, and fatigue. Symptoms may be more severe for some people than others, but many people with bronchiectasis have episodes where their symptoms get worse called exacerbations, or flares. People with flares often need antibiotic treatment and may need to be hospitalized. Flares are therefore a burden for patients and healthcare systems. This burden can be assessed using insurance claims data. Previous studies have identified flares based on patients receiving antibiotics in the week or two after a claim with a diagnosis code for bronchiectasis. However, flares can be different lengths and severities. This study quantified flares, and measured their duration and burden, using a new method that did not begin with any assumption of how long flares would last. Instead, flares were identified by flagging weeks with unusually high costs compared with the patient's usual healthcare costs. Using this method, identified flares often lasted more than 3 weeks. Healthcare costs were higher for people with flares than without, and a person's first flare was often the most expensive. Over 97% of people with high-cost flares had at least 1 flare that could be confirmed using the previous diagnosis-code based definition. This study provides a new research approach to identifying flares in people with bronchiectasis. The results show that flares may be longer than previously thought and place a high burden on healthcare. Future research will be needed to confirm this method using clinical data.

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Eur Respir J

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doi: 10.1183/13993003.01126-2025. Online ahead of print.

European Respiratory Society Clinical Practice Guideline for the Management of Adult Bronchiectasis

James D Chalmers [1], Charles S Haworth [2], Patrick Flume [3], Merete B Long [4], Pierre Régis Burgel [5], Katerina Dimakou [6], Francesco Blasi [7 8], Beatriz Herrero-Cortina [9 10], Raja Dhar [11], Sanjay H Chotirmall [12 13], Felix C Ringshausen [14 15 16], Josje Altenburg [17 18], Lucy Morgan [19], Mattia Nigro [20 21], Megan L Crichton [4], Chayenne Van Meel [22], Oriol Sibila [23], Alan Timothy [24], Eliza Kompatsiari [24], Tanja Hedberg [24], Thomas Vandendriessche [22], Pamela J McShane [25], Thomy Tonia [26], Kevin Winthrop [27], Michael R Loebinger [28], Natalie Lorent [29 30], Pieter Goeminne [31], Michal Shteinberg [32], Eva Polverino [33], Stefano Aliberti [20 21]

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- PMID: 41016738

- DOI: 10.1183/13993003.01126-2025

Abstract

Background: Bronchiectasis is a common lung condition associated with wide range of infectious, immunological, autoimmune, allergic and genetic conditions. Exacerbations and daily symptoms have the largest impact on patients and healthcare systems, and they are the key focus of treatments. Current practice is heterogeneous globally, and bronchiectasis has historically been a neglected disease. Here, we present evidence-based international guidelines for the management of adults with bronchiectasis.

Methods: A European Respiratory Society (ERS) Task Force, comprising global experts, a methodologist, and patient representatives, developed clinical practice guidelines in accordance with ERS methodology and the GRADE (Grading of Recommendations, Assessment, Development and Evaluations) approach.

Systematic literature searches, data extraction, and meta-analysis were performed to generate evidence tables, and recommendations were formulated using the evidence-to-decision framework. A total of 8 PICO (Patient, Intervention, Comparator, Outcomes) questions and 3 narrative questions were developed.

Recommendations: The Task Force recommendations include strong recommendations in favour of airway clearance techniques for most patients with bronchiectasis and pulmonary rehabilitation for those with impaired exercise capacity. We issue a strong recommendation for the use of long-term macrolide treatment for patients at high risk of exacerbations and a strong recommendation in favour of long-term inhaled antibiotics in patients with chronic *Pseudomonas aeruginosa* infection at high risk of exacerbation. Conditional recommendations support the use of eradication treatment or mucoactive drugs in specific circumstances. We suggest not to routinely use long term oral, non-macrolide antibiotic treatment or inhaled corticosteroids. Additional guidance is also provided on testing for underlying causes, managing exacerbations, and managing the deteriorating patient.

Conclusion: The ERS bronchiectasis guidelines provide an evidence-based framework for optimal management of adults with bronchiectasis and serve as a benchmark for evaluating the quality of care.

Scope and objectives: The European Respiratory Society (ERS) guidelines for the management of bronchiectasis in adults provide evidence-based recommendations for the care of people with clinically significant bronchiectasis, defined by the presence of permanent dilatation of the bronchi evident on chest CT scan, along with characteristic clinical symptoms. [1] These guidelines are intended for all healthcare professionals involved in the care of adults with bronchiectasis, as well as for policymakers, regulatory authorities, and pharmaceutical companies. Bronchiectasis is a complex and heterogeneous disease; therefore, no guideline can be entirely comprehensive or replace clinical judgement. All guideline recommendations must be interpreted within the specific clinical context in which they are applied. Separate ERS guidelines for the management of bronchiectasis in children exist [2]. Bronchiectasis due to cystic fibrosis (CF) has a distinct evidence base; therefore, guidance for the management of CF is provided elsewhere. [3] Some bronchiectasis-associated conditions also have distinct guidelines for investigation and management, such as primary ciliary dyskinesia (PCD) [4], allergic bronchopulmonary aspergillosis (ABPA) [5] and non-tuberculous mycobacterial (NTM) pulmonary disease [6]. While the present guidelines apply for these conditions, they should be interpreted in conjunction with the relevant syndrome-specific recommendations.

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Editorial

Respir Investig

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. 2025 Sep 26;63(6):1201-1203.

doi: 10.1016/j.resinv.2025.09.021. Online ahead of print.

The true history of COPD-bronchiectasis overlap syndrome

Grace Oscullo [1], Miguel Angel Martinez-Garcia [2]

Affiliations Expand

- PMID: 41014695

- DOI: 10.1016/j.resinv.2025.09.021

No abstract available

Keywords: Bronchiectasis; COPD; Codiagnosis; Etiology; Misdiagnosis.

Conflict of interest statement

Declaration of competing interest MAMG has no conflict of interest; GO has no conflict of interest.

Supplementary info

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Review

Eur Respir Rev

. 2025 Sep 26;34(177):240284.

doi: 10.1183/16000617.0284-2024. Print 2025 Jul.

The respiratory tract virome: unravelling the role of viral dark matter in respiratory health and disease

Martha Purcell [1 2], Jodie Ackland [3], Karl J Staples [3 2], Anna Freeman [3 2], Tom M A Wilkinson [3 2]

Affiliations Expand

- PMID: 41005808
- PMCID: PMC12464719
- DOI: 10.1183/16000617.0284-2024

Abstract

The human respiratory tract virome is an underexplored component of the microbiome that includes eukaryotic viruses, bacteriophages and archaeal viruses. The respiratory virome represents a dynamic and heterogeneous ecosystem, shaped by host, environmental and microbial factors. Advances in metagenomic sequencing have expanded our understanding of virome composition, dynamics and potential roles in health and disease. Despite increasing interest, virome research remains fragmented and often secondary to bacteriome studies. Challenges in study design, genomic characterisation and interpretation limit consistent conclusions. This review summarises current knowledge of the respiratory virome in health and across acute and chronic respiratory diseases, including acute respiratory infection, asthma, COPD, cystic fibrosis and bronchiectasis. While each condition is distinct, they share features of airway inflammation and immune dysregulation where the virome may act as a modifier or marker. Across these syndromes, emerging evidence highlights the consistent detection of respiratory viruses including potential commensals, such as *Anelloviridae*, and the often-overlooked role of bacteriophages. We also discuss the concept of viral dark matter, where large proportions of sequence data remain unclassified, potentially representing novel viral taxa. Technical and conceptual challenges are evaluated, alongside recent methodological innovations such as meta-transcriptomics and viral enrichment protocols. We outline how standardised, multi-omic and longitudinal approaches are urgently needed to clarify the virome's functional role, interactions with immunity and microbial communities and its utility as a biomarker or therapeutic target.

Conflict of interest statement

Conflict of interest: M. Purcell, J. Ackland and A. Freeman have nothing to disclose. K.J. Staples reports research grants from AstraZeneca and Epiendo, and payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca. T.M.A. Wilkinson reports support for the present study from the National Institute for Health and Care Research, Medical Research Council, BerGenBio, AstraZeneca, UCB and Janssen, consultancy fees from AstraZeneca, Valneva, Olam Pharma, Janssen, My mHealth and Synairgen, payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim and Roche, participation on a data safety monitoring board or advisory board with Valneva, and stock (or stock options) with My mHealth.

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Am J Med Sci

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. 2025 Oct;370(4):347-352.

doi: 10.1016/j.amjms.2025.06.008. Epub 2025 Jun 13.

Impact of inhaler treatments on respiratory functions and exacerbation frequency in non-cystic fibrosis bronchiectasis

Uğur Fidan [1], Deniz Kızılırmak [2], Ayşın Şakar Coşkun [2]

Affiliations Expand

- PMID: 40518077

- DOI: 10.1016/j.amjms.2025.06.008

Abstract

Background: Bronchiectasis is a chronic airway disease caused by abnormal and permanent dilation of the airways. This study aimed to evaluate the effects of inhaler therapy use on respiratory functions and clinical outcomes in patients with non-cystic fibrosis bronchiectasis.

Methods: One hundred forty-six patients with non-cystic fibrosis bronchiectasis aged over 18 years, diagnosed using high-resolution computed tomography, were included in the study. Age, sex, body mass index, smoking status, additional diseases, known etiologic factors, and vaccination status of the patients included in the retrospectively designed study were recorded as sociodemographic data. Respiratory functions, disease severity, and clinical outcomes of patients with bronchiectasis who did and did not receive inhaled anticholinergic and steroid treatments were compared.

Results: Ninety (61.6 %) of the 146 patients included in the study were women. The mean age was 56.14 ± 16.22 years. The etiology of bronchiectasis was unknown in 78 (53.4 %) patients. The most prevalent comorbidity was asthma. According to modified Reiff scoring, 91 (62.3 %) patients were classified as having mild bronchiectasis. Twenty-six (17.8 %) patients had airway obstruction. There were 93 (63.7 %) patients using inhaled corticosteroids and 32 (21.9 %) using inhaled anticholinergics.

Conclusions: It was determined that patients using inhaler anticholinergics or inhaled steroids were in the more severe group. However, inhaler anticholinergic and inhaler steroid treatments had no effect on hospital admissions and exacerbation frequency in patients with bronchiectasis. Hospitalizations were more frequent among patients with bronchiectasis using inhaled steroids.

Keywords: Bronchiectasis; Functional status; Inhaler treatment.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no potential conflict of interest including any financial, personal or other relationships with the other people or organizations that could inappropriately influence, or be perceived to influence the presented work. The authors have no relevant financial or non-financial interests to disclose.

Supplementary info

MeSH terms, SubstancesExpand