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

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Respir Med

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doi: 10.1016/j.rmed.2025.108500. Online ahead of print.

Point of Care Ultrasound as a Bedside Diagnostic Tool in Acute Dyspnea Patients in Emergency Department for timely management

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Affiliations Expand

- PMID: 41237919

- DOI: 10.1016/j.rmed.2025.108500

Abstract

Background: Acute dyspnea is a common symptom in the Emergency Department. Chest-X-ray is the first investigation performed for dyspneic patients. Point of care ultrasound (POCUS) is the first quick method that can reliably distinguish between different causes of acute dyspnea. This study aimed to determine the accuracy of the ultrasound diagnosis among patients presenting with acute dyspnea compared to the radiological imaging for timely management.

Methods: We conducted a cross-sectional analytical study that included 79 patients presenting with acute dyspnea to the emergency Department and performed POCUS then radiography.

Results: POCUS demonstrated 100% sensitivity, specificity, and diagnostic accuracy in diagnosing interstitial lung disease and pleural effusion. For pneumonia, POCUS achieved 96.3% sensitivity, 90.4% specificity, and 92.4% diagnostic accuracy. In cases of chronic obstructive pulmonary disease (COPD) or asthma exacerbation, it showed 91.3% sensitivity, 96.4% specificity, and 94.9% diagnostic accuracy. POCUS had slightly lower sensitivity in pneumothorax and pulmonary edema but maintained high specificity (98.6% and 100%, respectively) and diagnostic accuracy (97% and 91%). Radiological findings were consistent with POCUS in 97.7% of patients. The mean time to diagnosis was significantly shorter with POCUS (16 ± 6.7 minutes; range = 5-30 minutes) compared to radiography (83.6 ± 39.4 minutes; range = 35-200 minutes).

Conclusions: POCUS has a high sensitivity, specificity and diagnostic accuracy in identification of underlying causes of dyspnea in emergency and reduction of the time needed till final diagnosis compared to radiographies, and for the first definitive management.

Keywords: Dyspnea; Lung Diseases; Point-of-Care Systems; Radiography; Ultrasonography.

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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Frequent productive cough in COPD relates to exacerbation risk and treatment benefit from budesonide/glycopyrrolate/formoterol fumarate: a post hoc analysis of KRONOS

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Affiliations Expand

- PMID: 41237914

- DOI: 10.1016/j.rmed.2025.108499

Abstract

Background: Frequent productive cough (FPC) is associated with increased exacerbation risk in chronic obstructive pulmonary disease (COPD). These post-hoc analyses examined COPD exacerbations in participants without a recent exacerbation history by baseline FPC status (defined as COPD Assessment Test [CAT] subscores ≥2 for both cough and sputum) and for budesonide/glycopyrrolate/formoterol fumarate (BGF) versus dual therapies.

Methods: KRONOS (NCT02497001) was a 24-week, double-blind, parallel-group, multi-center, Phase III, randomized study in symptomatic people with moderate-to-very severe COPD; COPD exacerbation in the preceding 12 months was not required. Participants were randomized 2:2:1:1 to receive BGF 320/18/9.6 µg, glycopyrrolate/formoterol fumarate (GFF) 18/9.6 µg, budesonide/formoterol fumarate (BFF) 320/9.6 µg via metered-dose inhaler, or open-label budesonide/formoterol fumarate 400/12 µg via dry-powder inhaler (BUD/FORM), as two inhalations twice-daily.

Results: Of 1,411 participants in the modified intent-to-treat population without a recent COPD exacerbation history, 965 (68.4%) had baseline FPC. Moderate/severe exacerbation rates were higher in those with versus without FPC (BGF, 0.47 vs 0.29; BFF, 0.45 vs 0.37; BUD/FORM, 0.67 vs 0.14), except for GFF (0.79 vs 0.83). BGF was associated with reduced moderate/severe exacerbation rates among those with FPC (41% reduction) and without FPC (65% reduction) at baseline versus GFF, with similar findings observed in moderate COPD (FPC: 37% reduction; without FPC, 72% reduction).

Conclusions: Among participants without an exacerbation history in the prior 12 months, FPC identified those at higher exacerbation risk. Further, BGF was associated with lower COPD exacerbation rates versus GFF, including numerically lower among those with moderate COPD and regardless of FPC status.

Clinical trial registration: NCT02497001.

Keywords: budesonide; chronic obstructive pulmonary disease; exacerbation; formoterol fumarate; frequent productive cough; glycopyrrolate; triple therapy.

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:Mehul Patel reports financial support was provided by AstraZeneca. Jonathan Marshall reports financial support was provided by AstraZeneca. Fernando J Martinez reports financial support was provided by AstraZeneca. Alec Mushunje reports financial support was provided by AstraZeneca. Karin Bowen reports financial support was provided by AstraZeneca. Martin Jenkins reports financial support was provided by AstraZeneca. Mehul Patel reports a relationship with AstraZeneca that includes: employment and equity or stocks. Jonathan Marshall reports a relationship with AstraZeneca that includes: employment and equity or stocks. Alec Mushunje reports a relationship with AstraZeneca that includes: employment and equity or stocks. Karin Bowen reports a relationship with AstraZeneca that includes: employment and equity or stocks. Martin Jenkins reports a relationship with AstraZeneca that includes: employment and equity or stocks. Fernando J Martinez reports a relationship with AstraZenaca that includes: funding grants and non-financial support. Fernando J. Martinez reports grants, personal fees, and non-financial support from AstraZeneca during the conduct of the study; grants, personal fees, and non-financial support from AstraZeneca, Chiesi, GlaxoSmithKline, Metronic, Novartis, Sanofi/Regeneron; grants and personal fees from AstraZeneca, Chiesi, GlaxoSmithKline, and Sanofi/Regeneron. 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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Int Immunopharmacol

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. 2025 Nov 13;168(Pt 1):115814.

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Anti-oxidative and anti-inflammatory effects of the phosphodiesterase 3/4 inhibitor ensifentrine

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Affiliations Expand

- **PMID: 41237701**

- **DOI: 10.1016/j.intimp.2025.115814**

Abstract

Ensifentr ine is a dual PDE3/4 inhibitor that improves lung function and symptoms in COPD patients. Ensifentrine has anti-inflammatory effects, but these have not been studied in cells from COPD patients. Oxidative stress is increased in the lungs of COPD patients, but the potential for ensifentrine to modulate oxidative stress induced apoptosis has not been investigated. We investigated the effects of ensifentrine on inflammation and oxidative stress in cell models relevant to COPD. Peripheral blood mononuclear cells (PBMCs) from COPD patients and healthy controls and human bronchial epithelial cells were treated with ensifentrine or a PDE4 inhibitor (roflumilast or GSK256066) or dexamethasone prior to exposure to lipopolysaccharide or T-cell receptor activation, with measurement of supernatant levels of TNFα and IFNγ, respectively. H_2O_2 induced oxidative stress was also investigated with measurements of caspase 3/7 activity, apoptosis associated gene expression, apoptosis and cell viability. Ensifentrine decreased production of TNFα and IFNγ in PBMCs from COPD patients and controls. IC_{50} values for ensifentrine were greater than other compounds, while maximal inhibition was comparable at high concentrations. Ensifentrine reversed H_2O_2 induced caspase activity, alteration of apoptosis genes, apoptosis and cell death in both cell types, while PDE4 inhibitors had limited effects. These anti-apoptosis effects were dependent on PDE3-PKG-cGMP signalling. We report a novel mechanism of action for ensifentrine, reducing effects of oxidative stress through a PDE3 dependent mechanism. The anti-inflammatory effects of ensifentrine were lower compared to the PDE4 inhibitors tested.

Keywords: Apoptosis; COPD; Phosphodiesterase inhibition.

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: Simon Lea reports financial support was provided by NIHR Manchester Biomedical Research Centre. Simon Lea reports financial support was provided by North West Lung Centre Charity. Dave Singh reports a relationship with Adovate, Aerogen, Almirall, Apogee, Arrowhead, AstraZeneca, Bial, Boehringer Ingelheim, Chiesi, Cipla, CONNECT Biopharm, Covis, CSL Behring, DevPro Biopharma LCC, Elpen, Empirico, EpiEndo, Genentech, Generate Biomedicines, GlaxoSmithKline, Glenmark that includes: consulting or advisory. Dave Singh reports a relationship with Kamada, Kinaset Therapeutics, Kymera, Menarini, MicroA, OM Pharma, Orion, Pieris Pharmaceuticals, Pulmatrix, Revolo, Roivant Sciences, Sanofi, Synairgen, Tetherex, Teva, Theravance Biopharma, Upstream and Verona Pharma that includes: consulting or advisory. 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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Am J Emerg Med

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. 2025 Nov 10:100:12-17.

doi: 10.1016/j.ajem.2025.11.009. Online ahead of print.

Comparison of procalcitonin, C-reactive protein and neutrophil/lymphocyte ratio in prediction of noninvasive mechanical ventilation failure in patients admitted to the emergency department with COPD exacerbation

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- PMID: 41237671

- DOI: 10.1016/j.ajem.2025.11.009

Abstract

Background: Non-invasive mechanical ventilation (NIMV) represents a cornerstone therapy for acute chronic obstructive pulmonary disease (COPD) exacerbation in emergency department (ED) settings.

Objectives: Clinical predictors of NIMV response remain poorly characterized. This study sought to evaluate and compare the predictive capacity of different biomarkers for identifying patients at risk of NIMV failure during acute exacerbations.

Methods: This prospective cohort study was conducted in the ED of a tertiary center from March 2023 to December 2024. Consecutive patients presenting with acute COPD exacerbations and meeting criteria for NIMV were enrolled. The primary outcome (NIMV failure) was evaluated during the initial 2-h monitoring period. The predictive performance of C-reactive protein (CRP) and procalcitonin levels, and neutrophil-to-lymphocyte ratio (NLR) were assessed using receiver operating characteristic (ROC) curve analysis. Areas under the curve (AUC) were compared using the de-Long method.

Results: Among 151 enrolled patients, 73 (48.3 %) experienced NIMV failure, with an associated mortality rate of 30.1 %. For NIMV failure, ROC analysis demonstrated superior predictive performance for NLR (AUC = 0.804, 95 % confidence interval [CI]:0.734-0.875) compared to CRP (AUC = 0.680, 95 % CI:0.594-0.765) and procalcitonin (AUC = 0.682, 95 % CI:0.596-0.767). ROC analysis identified an optimal NLR cutoff of 5.8 for predicting NIMV failure, demonstrating 79.5 % sensitivity and 70.5 % specificity. When integrated with the HACOR score, this NLR threshold showed enhanced specificity with reduced sensitivity.

Conclusion: The present study demonstrated that NLR was the strongest predictor of NIMV failure in the ED compared to CRP or procalcitonin. The combination of biomarkers with the HACOR score significantly enhanced prognostic accuracy.

Keywords: C-reactive protein; Chronic obstructive pulmonary disease; Emergency department (MeSH database); Exacerbation; Noninvasive ventilation; Procalcitonin.

Conflict of interest statement

Declaration of competing interest The authors have no commercial associations or sources of support that might pose a conflict of interest.

Full text links

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J Hazard Mater

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Long-term exposure to ultrafine particles accelerates biological aging and increases respiratory vulnerability in COPD

Yingfeng Gao [1], Xin Meng [1], Yi Zhang [1], Qiaoyi Hua [1], Ruiwei Xu [2], Huixia Liu [1], Seokho Choi [1], Haoyang Yao [1], Qianli Dong [1], Qi Jia [3], Haixia Jiang [3], Lijuan Wei [4], Jing Wang [4], Meijie Jiang [5], Fangjie Tian [6], Kun Peng [7], Jicheng Gong [8]

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- **PMID: 41237629**

- DOI: 10.1016/j.jhazmat.2025.140430

Abstract

Long-term exposure to particulate matter is a known risk factor for chronic obstructive pulmonary disease (COPD), yet the impact of ultrafine particles (UFPs) remains poorly understood. As COPD is an age-related disease, the potential modifying role of biological age acceleration in UFP-induced respiratory effects warrants investigation. We conducted a longitudinal panel study of 47 COPD patients with three repeated clinic visits in Beijing, China. Annual exposure levels to UFPs were estimated using a land use regression model. Lung function and respiratory inflammation were assessed at each visit. Biological age was quantified using the Klemera-Doubal method (KDM-BA) and PhenoAge algorithms. Associations were estimated using linear mixed-effects models. Overall, each IQR increase in UFPs exposure was associated with a 3.0-year increase in both KDM-BA (95 % CI: 0.2-5.8) and PhenoAge acceleration (95 % CI: 0.1-5.8). Accelerated biological age was associated with reductions in large and small airway function and lung volume. Stratified analysis indicated that individuals with faster biological aging were more susceptible to UFP-related lung injury. Our study provides novel evidence linking long-term UFP exposure to accelerated biological aging and impaired respiratory function in COPD patients. Biological age may serve as a modifier in assessing air pollution-related health risks.

Keywords: Biological age; COPD; Lung function; Modifying factor; Ultrafine particles.

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.

. 2025 Nov 14.

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COPD and rheumatoid arthritis: shared inflammatory pathways and clinical implications

Mohamed Abdulkadir [1], Catherine Greene [2]

Affiliations Expand

- PMID: 41237088

- DOI: 10.1080/17476348.2025.2590785

Abstract

Introduction: Rheumatoid Arthritis (RA) and Chronic Obstructive Pulmonary Disease (COPD) are chronic, progressive inflammatory conditions that may coexist, contributing to greater morbidity and complexity in clinical management. The overlap between these two conditions remains under-recognized despite growing evidence of shared pathogenic mechanisms and risk factors.

Areas covered: This review explores the emerging evidence linking RA and COPD, focusing on shared inflammatory pathways, genetic susceptibility, and environmental influences such as smoking and air pollution. A comprehensive literature search was conducted using PubMed and Scopus databases with keywords including 'rheumatoid arthritis,' 'COPD,' 'pulmonary involvement,' and 'inflammatory overlap.' Key findings highlight diagnostic challenges stemming from symptom overlap, the underdiagnosis of COPD in RA patients, and the clinical impact of dual disease burden. The review also discusses the importance of multidisciplinary collaboration, optimal use of spirometry, imaging, and symptom-based questionnaires as screening tools, and strategies for balancing immunosuppressive therapy with respiratory health.

Expert opinion: Greater awareness of COPD as a pulmonary manifestation of RA is essential. Early recognition through systematic screening and integrated care models may significantly improve patient outcomes and reduce disease burden.

Keywords: COPD; Comorbidity; Inflammation; Pathophysiology; Pulmonology; Review; Rheumatology; chronic conditions; research priorities; rheumatoid arthritis.

Supplementary info

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Respirol Case Rep

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doi: 10.1002/rcr2.70407. eCollection 2025 Nov.

Sequential Use of Tezepelumab and Bronchoscopic Lung Volume Reduction With Endobronchial Valves in a Patient With Severe Asthma-COPD Overlap and Heterogeneous Emphysema: A Case Report

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Affiliations Expand

- PMID: 41234678
- PMCID: PMC12611315
- DOI: 10.1002/rcr2.70407

Abstract

Asthma-COPD overlap (ACO) carries greater symptom burden, frequent exacerbations and impaired quality of life compared with asthma or COPD alone. Evidence-based advanced therapies are lacking, and management is typically extrapolated from existing guidelines. Tezepelumab, an anti-thymic stromal lymphopoietin antibody, reduces exacerbations and improves lung function in severe asthma. Bronchoscopic lung volume reduction (BLVR) with endobronchial valves benefits selected patients with advanced emphysema and hyperinflation despite optimal therapy. A 71-year-old woman with severe ACO, frequent exacerbations and hyperinflation despite triple inhaled therapy was treated sequentially with tezepelumab and BLVR. Tezepelumab improved airway control and reduced exacerbations; BLVR subsequently addressed persistent hyperinflation. Over 2 years, the patient achieved sustained improvements in lung function, St. George's Respiratory Questionnaire score and annual exacerbation rate. This case highlights the potential benefit of a combined anti-inflammatory and interventional approach in difficult-to-treat ACO, a population for whom evidence-based advanced therapies remain limited.

Keywords: Tezepelumab; asthma-COPD overlap; bronchoscopic lung volume reduction; emphysema; endobronchial valves.

Conflict of interest statement

Daniel Franzen reports receiving speaker honoraria from AstraZeneca, Pulmonx, GlaxoSmithKline (GSK), OM Pharma and Sanofi Aventis. Jonas Herth has no conflicts of interest to declare.

- 6 references
- 1 figure

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Sci Rep

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. 2025 Nov 13;15(1):39782.

doi: 10.1038/s41598-025-23555-1.

Prolonged elevated heart rate and 28-day mortality in acute exacerbations of chronic obstructive pulmonary disease patients insights from the MIMIC-IV database

Xiangtian Liu [1], Rentong Zou [1], Yuxiang Zhai [2], Xinghan Tian [1], Qingxia Yu [3], Xiaoli Li [4]

Affiliations Expand

- PMID: 41233435
- PMCID: PMC12615704
- DOI: 10.1038/s41598-025-23555-1

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) represent a significant global health burden, and severe exacerbations are associated with worse prognoses. We defined prolonged elevated heart rate (PeHR) as a heart rate

exceeding 100 beats per minute for at least 11 h within any continuous 12-hour period. However, the relationship between PeHR and outcomes in patients with AECOPD remains unclear. We identified AECOPD patients in the Medical Information Mart for Intensive Care-IV (MIMIC-IV) database and divided them into two groups according to the presence or absence of PeHR. The primary outcome was 28-day mortality. We evaluated the association between PeHR and 28-day mortality using multivariable Cox proportional-hazards models and propensity-score matching. A total of 931 patients with AECOPD were included, 49.6% of whom were male. PeHR occurred in 30.0% of patients. The overall mean age was 72.1 years, and patients with PeHR were younger than those without (71.1 vs. 72.5 years; P < 0.001). Twenty-eight-day mortality was significantly higher in the PeHR group compared with the non-PeHR group (30.3% vs. 15.8%; P < 0.001). In multivariable Cox regression, PeHR was an independent risk factor for 28-day mortality (hazard ratio, 2.16; 95% CI, 1.62-2.87; P < 0.001). After propensity-score matching, the increased mortality in the PeHR group persisted. Prespecified subgroup analyses showed generally consistent effect sizes across all subgroups. PeHR is independently associated with increased 28-day mortality in patients with AECOPD.

Keywords: Acute exacerbations of chronic obstructive pulmonarydisease; Mortality; Prolonged elevated heart rate.

Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests.

- 18 references
- 6 figures

Supplementary info

MeSH terms, Grants and fundingExpand

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Observational Study

Sci Rep

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doi: 10.1038/s41598-025-13207-9.

Impact of umeclidinium/vilanterol dual bronchodilator therapy on pulmonary function and inflammatory responses in stable COPD patients

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Affiliations Expand

- PMID: 41233376

- PMCID: PMC12615772

- DOI: 10.1038/s41598-025-13207-9

Abstract

Chronic obstructive pulmonary disease (COPD) represents a significant global health burden necessitating optimized therapeutic interventions. Contemporary guidelines advocate for individualized bronchodilator therapy, yet comparative real-world effectiveness data remain limited, particularly in Chinese populations. To evaluate the comparative effectiveness and safety of umeclidinium/vilanterol (UMEC/VI) dual bronchodilator therapy versus tiotropium monotherapy and budesonide/formoterol combination in patients with stable COPD over a 12-month observation period. This prospective observational cohort study enrolled 171 patients with stable COPD from February 2020 to February 2022 at a tertiary respiratory center. Participants were allocated to treatment groups based on clinical discretion following GOLD guidelines: UMEC/VI (n = 57), tiotropium (n = 57), or budesonide/formoterol (n = 57). The primary outcome was change in forced expiratory volume in one second (FEV_1) from baseline to 12 months. Secondary outcomes included functional capacity, symptom burden, inflammatory biomarkers, exacerbation rates, and adverse events. Statistical analysis employed multivariable mixed-effects models with propensity score adjustment to control for confounding. All treatment groups demonstrated significant improvements from baseline, with UMEC/VI showing superior outcomes. The adjusted mean change in FEV_1 was 12.6% (95% CI: 9.2-15.9%) for UMEC/VI versus 8.1% (95% CI: 5.4-10.8%) for tiotropium and 5.3% (95% CI: 2.8-7.8%) for budesonide/formoterol ($p < 0.001$). UMEC/VI was associated with greater improvements in exercise tolerance (6-minute walking distance: +4 5.7 m, 95% CI: 32.5-58.9 m), symptom control (CAT score reduction: - 4.2 points, 95% CI: -5.1 to -3.3), and inflammatory markers. Exacerbation rates were lowest with UMEC/VI (0.42 vs. 0.61 vs. 0.89 events per patient-year, respectively). Adverse event incidence was significantly lower in the UMEC/VI group (8.8%, 95% CI: 3.7-19.6%) compared to budesonide/formoterol (29.8%, 95% CI: 19.2-42.9%). This observational study suggests that UMEC/VI dual bronchodilator therapy is associated with superior clinical outcomes and a favorable safety profile in patients with stable moderate COPD. However, these findings require validation through adequately powered randomized controlled trials before definitive therapeutic recommendations can be established.

Keywords: COPD; Dual bronchodilator; Effectiveness; Safety; Umeclidinium; Vilanterol.

Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests. Ethical approval: The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the Foshan Hospital of Traditional Chinese (Approval No. FHTCMIRB2025#1025). Informed consent was obtained from all patients.

- **38 references**
- **6 figures**

Supplementary info

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Thorax

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. 2025 Nov 13:thorax-2025-223559.

doi: 10.1136/thorax-2025-223559. Online ahead of print.

Sex differences in outcome after endoscopic lung volume reduction (ELVR) in patients with emphysema: a retrospective analysis of the German Lung Emphysema Registry (LER e.V.)

Elvin Atug [1], Franziska Christina Trudzinski [2 3], Angélique Holland [4], Christian Grah [5], Ralf-Harto Huebner [6], Franz Stanzel [7], Stephan Eggeling [8], Bernd Schmidt [9], Sylke Kurz [10], Stephan Eisenmann [11], Joanna Krist [12], Joachim Ficker [13], Björn Wiesemann [14], Wolfgang Gesierich [15], Ralf Eberhardt [16]; German Lung Emphysema Registry Study Group

Collaborators, Affiliations Expand

- **PMID: 41232944**

- DOI: 10.1136/thorax-2025-223559

Abstract

Background: Endoscopic lung volume reduction (ELVR) is increasingly used for treating patients with chronic obstructive pulmonary disease (COPD) and severe hyperinflation. Data on sex differences in ELVR outcomes are lacking, highlighting the need for detailed analysis.

Methods: This retrospective analysis examines sex-specific outcomes of ELVR with bronchoscopic valve placement using data from the German Lung Emphysema Registry (January 2017 to January 2025).

Results: The final analysis included 778 patients, 378 (47.2%) women, mean age 65.9±7.6 years. No significant differences in age or body mass index. At baseline, women had slightly better forced expiratory volume in 1 s (FEV_1)% (31.4±8.5 vs 28.1±8.1, p<0.001) and vital capacity% (63.6±16.9 vs 59.2±14.8, p<0.001), but similar residual volume (RV)%. Men had higher rates of cardiovascular diseases, including coronary artery disease (20.9% vs 11.7%) and atrial fibrillation (7.3% vs 3.5%), p<0.05. Despite this, women reported a higher symptom burden with higher COPD Assessment Test (CAT) scores (25.9±6.1 vs 24.9±6.1, p<0.001), but similar St. George's Respiratory Questionnaire (SGRQ) scores. Follow-up at 3 months for 574 patients showed no sex differences in ΔFEV_1%, ΔRV% or Δdiffusing capacity of the lung for carbon monoxide%. Differences in treatment response were noted for ΔCAT score (-4.3±6.8 vs -1.9±6.1, p<0.001), ΔSGRQ (-13.2±17.3 vs -5.5±12.48, p<0.001), but not for dyspnoea. Multivariable analyses showed female sex (OR 1.89) as an independent predictor for SGRQ response, along with emphysema heterogeneity (OR 1.01) and pulmonary function response (ΔRV, OR 0.73).

Conclusions: Sex may not influence physiological outcomes but may impact symptom severity and quality of life, raising the question of whether sex should be considered when determining minimal clinically important differences in COPD.

Keywords: Bronchoscopy; Emphysema; Symptom Assessment.

Conflict of interest statement

Competing interests: EA received honouraria for lectures and training courses from Olympus. FCT received funding from the Innovation Fund of the Federal Joint Committee (G-BA), honouraria for lectures from Boehringer-Ingelheim, Chiesi, GlaxoSmithKline, Grifols, Novartis, CSL Behring, Streamed up, RG Gesellschaft für Information und Organisation mbH, Knorr Stiftung, AstraZeneca and Apontis Pharma and was a member of the advisory boards of CSL Behring and GlaxoSmithKline. AH is a board member of the LER e.V. R-HH received honouraria for lectures from AstraZeneca, Berlin Chemie, Chiesi, GlaxoSmithKline, Olympus and Pulmonx and support for attending meetings from AstraZeneca, Boehringer Ingelheim and Medtronic. SEi received honouraria for lectures from AstraZeneca, Berlin Chemie, Boehringer Ingelheim, GlaxoSmithKline, Mediglobe, MSD, Nuvaira and Pulmonx, was member of the Advisory Board of Acceleron, MSD and Sanofi

and is one of the leaders of the DEGUM e.V. WG received consulting fees from AstraZeneca and honouraria for lectures from AstraZeneca and Boehringer Ingelheim. RE received honouraria for lectures and training courses from AstraZeneca, CSL Behring, Olympus, Pulmonx and Pentax and was a member of the Safety Data Monitoring Board of Intuitive. All other authors declare to have no conflict of interests that is related to the content of this manuscript.

Cite

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J Occup Environ Med

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. 2025 Nov 13.

doi: 10.1097/JOM.0000000000003615. Online ahead of print.

Climate change and asthma: work-related risks and planetary implications

J P M van der Valk, T C Chin-See-Chong [1], J C C M In 't Veen [1], J E Jurgens [2], J Bonnema [3], G J Braunstahl

Affiliations Expand

- PMID: 41231536

- DOI: 10.1097/JOM.0000000000003615

Abstract

Objective: Asthma is a chronic respiratory condition characterized by airway inflammation and hyperresponsiveness to internal and external factors. In addition to well-known irritants such as allergens and pollutants, weather conditions-amplified by climate change-are increasingly recognized as contributors to asthma symptoms.

Method: This study gives an overview of the literature on Asthma and Climate Change, the Occupational Risks, and Planetary Health Implications.

Results: Environmental changes in temperature extremes and allergen levels can disrupt immune regulation-specifically, the Th1/Th2 balance-thereby contributing to airway narrowing, and stronger inflammatory responses. Climate change worsens

respiratory health by prolonging pollen seasons, intensifying allergies, fostering mold and pests, and triggering asthma through extreme weather.

Conclusions: Given the growing impact of climate change, increasing public and professional awareness is key to safeguarding vulnerable populations and promoting long-term respiratory health.

Keywords: Asthma; Climate Change; Occupational Risks; Planetary Health.

Conflict of interest statement

Conflict of interest: Author J.C.C.M in 't Veen has unresticted research grants to faculty from Sanofii, Teva, Astra Zeneca and GSK

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Cite

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BMC Pulm Med

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Is the pulmonary artery to aorta ratio a prognostic indicator in acute exacerbation of COPD?

Güzide Tomas [1], Ayşe Çapar [2], Yahya Baraç [3], Buğra Tollu [4], Cemre Abacı [4], Şeyma Başlılar [4], Bengü Şaylan [5]

Affiliations Expand

- PMID: 41225439
- PMCID: PMC12613874
- DOI: 10.1186/s12890-025-03980-8

Abstract

Introduction and aim: To evaluate whether the pulmonary artery to ascending aorta diameter ratio (PA/A ratio), measured via thoracic computed tomography (CT), is associated with poor clinical outcomes and mortality in patients hospitalized for acute exacerbation of chronic obstructive pulmonary disease (COPD).

Methods: This retrospective study included 486 COPD patients admitted between 2017 and 2023 with available thoracic CT or CT angiography at admission. PA and aortic diameters were measured by radiologists, and PA/A ratios were calculated. Clinical parameters including blood gas values, need for non-invasive (NIMV) or invasive mechanical ventilation (IMV), and mortality data were collected. Statistical analyses included Mann-Whitney U, Chi-square, Spearman correlation, and ROC curve analysis.

Results: Among the 486 patients, 451 had a PA/A ratio ≤ 1, and 35 had a PA/A ratio > 1. The median PA/A ratio was 0.80 [IQR: 0.72-0.88]. Higher PA/A ratios were significantly associated with female gender, acidosis, hypercapnia, and increased need for both NIMV and IMV ($p < 0.05$). ROC analysis identified a PA/A cut-off of > 0.80 for predicting IMV need (sensitivity 71.43%, specificity 46.02%). No significant difference was found in early or late mortality between PA/A groups. RDW and PCO_2 levels were higher in patients with PA/A > 1, while MCV was lower.

Conclusion: One of the most striking findings of this study is that the PA/A ratio was not directly correlated with early or late mortality; however, it showed a significant positive correlation with the need for both non-invasive and invasive mechanical ventilation as well as presence of hypercapnia. This suggests that the PA/A ratio may be a valuable marker for predicting clinical deterioration and the need for ventilatory support rather than mortality itself.The PA/A ratio may serve as a valuable non-invasive marker in the prognostic assessment of COPD exacerbations, especially when the ratio exceeds 0.8.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Ethical approval was obtained from the Clinical Research Ethics Committee of Ümraniye Training and Research Hospital (Approval Date: December 12, 2023; Approval Number: B.10.1.TKH.4.34.H.GP.0.01/492). The study was conducted in accordance with the principles of the Declaration of Helsinki. As this was a retrospective study using anonymized data, informed consent was waived by the Clinical Research Ethics Committee of Ümraniye Training and Research Hospital. **Consent for publication:** Not applicable. **Competing interests:** The authors declare no competing interests.

- 11 references
- 2 figures

Supplementary info

MeSH termsExpand

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Cite

13

Review

Eur Respir Rev

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Mendelian causes of early-onset emphysema: a review of the current literature

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Affiliations Expand

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- PMCID: PMC12606066
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Abstract

Currently, the only known clinically relevant hereditary risk factor for emphysema is limited to mutations within the *SERPINA1* gene, encoding alpha-1 antitrypsin. Although several additional rare high-impact variants have been proposed, their role in emphysema pathophysiology is unclear. This review discusses recent cases investigating novel candidate genes that may be Mendelian causes for emphysema development. We also explore potential methods to confirm the causal relation to COPD. Identifying potential new rare high-impact genetic variants may lead to novel therapeutic targets, thus improving the personalised treatment of COPD. Several gene mutations have been implicated in emphysema development, including *SERPINA1*, *SERPINA3*, *PTPN6*, *TERT*, *TR*, *NAF1*, *BICD1*, *ELN*, *FBLN*, *FLNA* and *SFTPC* Mutations of the *SERPINA1* and *PTPN6* genes are considered definitive causes of emphysema. Studies have ascertained rare variants in cutis laxa genes (*ELN, FBLN* and *FLNA)*, which cause early-onset emphysema in infants and children *via* defective elastin synthesis. Telomerase pathway genes (*TERT*, *TR*, *NAF1* and *BICD1*) have also been implicated in increased COPD risk along with another member of the serpin family (*SERPINA3*) and *SFTPC* These

probable mutations for emphysema tend to present later in life. Due to being unconfirmed, they may involve a more complex gene interaction that requires further interrogation with next-generation sequencing and molecular methods, including CRISPR (clustered regularly interspaced short palindromic repeats) screening libraries, whole-exome sequencing or whole-genome sequencing. Although multiple novel mutations have been reported to cause emphysema, further validation is needed. Next-generation sequencing offers a promising method to understand early-onset emphysema and COPD pathogenesis.

Conflict of interest statement

Conflict of interest: M. van den Berge reports grants from GlaxoSmithKline, AstraZeneca, Roche, Genentech and Chiesi. T.P. Carroll reports grants from the US Alpha-1 Foundation and is an unpaid member of the US Alpha-1 Foundation Grant Advisory Committee. The other authors declared no conflicts of interest.

- 81 references
- 2 figures

Supplementary info

Publication types, MeSH termsExpand

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ERJ Open Res

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. 2025 Nov 10;11(6):00202-2025.

doi: 10.1183/23120541.00202-2025. eCollection 2025 Nov.

COPD exacerbation purulence status and its association with pulmonary embolism: a systematic review with meta-analysis

Vicky Mai [1], Laura Girardi [1 2], Kerstin de Wit [3], Lana A Castellucci [1], Shawn Aaron [4], Francis Couturaud [5], Dean A Fergusson [1 6], Grégoire Le Gal [1]

Affiliations Expand

- PMID: 41220828

- PMCID: PMC12598610

- DOI: 10.1183/23120541.00202-2025

Abstract

Background: Diagnosing pulmonary embolism (PE) in patients with acute exacerbation of COPD (AECOPD) is challenging. Finding predictors of PE could help improve diagnostic management of patients with AECOPD. The aim was to evaluate the association between AECOPD purulence status and the presence of PE.

Methods: A systematic review with meta-analysis was conducted. Medline, Embase and CENTRAL were searched from inception to April 2024 for randomised trials, cohort or cross-sectional studies reporting on the prevalence of PE according to AECOPD purulence status. Relative risks with 95% confidence intervals of PE according to AECOPD purulence status and pooled proportions of PE with their 95% confidence intervals were calculated according to AECOPD purulence status.

Results: From 7059 citations identified, 14 studies (5056 participants) were included. The prevalence of PE varied between 0.4% and 33.2% across studies. The relative risk of PE was not statistically significantly lower in patients with purulent AECOPD compared to patients with nonpurulent/unknown aetiology AECOPD (relative risk 0.64, 95% CI 0.26-1.55; I^2=88.0%). The pooled proportion of PE was 7.3% (95% CI 2.4-14.7%; I^2=94.7%) and 13.3% (95% CI 8.0-19.7%; I^2=96.0%) in studies including patients with purulent AECOPD and nonpurulent/unknown aetiology AECOPD, respectively.

Conclusion: The relative risk of PE was lower, but not statistically significant, in patients with purulent AECOPD compared to patients with nonpurulent/unknown aetiology AECOPD. Further studies are needed to confirm the association between PE and AECOPD purulence status and to assess its potential role in predicting PE.

Conflict of interest statement

Conflict of interest: V. Mai, L. Girardi, K. de Wit, S. Aaron, F. Couturaud and D.A. Fergusson do not have conflicts of interest. L.A. Castellucci's research institution has received honoraria from Bayer, BMS–Pfizer Alliance, The Academy for Continued Advancement in Healthcare Education, Amag Pharmaceutical, LEO Pharma, Sanofi, Valeo Pharma and Servier. G. Le Gal is a co-investigator for a clinical trial from Pfizer and one from Bristol-Myers Squibb, and G. Le Gal received honoraria from Pfizer, Sanofi and Aspen Pharma.

- 29 references

- 3 figures

Full text links

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ERJ Open Res

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. 2025 Nov 10;11(6):00048-2025.

doi: 10.1183/23120541.00048-2025. eCollection 2025 Nov.

Hospitalisations for bronchiectasis compared to COPD and asthma in the USA

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- PMID: 41220813
- PMCID: PMC12598614
- DOI: 10.1183/23120541.00048-2025

Abstract

Objective: Understanding how bronchiectasis hospitalisations differ from those of COPD and asthma could guide clinical practice and improve care. This study aims to compare outcomes of hospitalisations for bronchiectasis exacerbation with those for COPD and asthma exacerbations.

Methods: This study used a US all-payer database to evaluate hospitalisations for bronchiectasis, COPD and asthma exacerbations from January 2017 to December 2021. Demographic data, hospital characteristics, comorbidities, costs, length of stay and mortality were analysed. Associations between the SARS-CoV-2 pandemic and hospitalisation incidence and mortality were also assessed. A secondary analysis examined outcomes in bronchiectasis exacerbation with overlapping airway diseases.

Results: The bronchiectasis cohort (n=232 825) had a median age of 72 years (IQR: 57-81); 59% were female and 73% were white. Compared to COPD and asthma, hospitalisations for bronchiectasis had longer median stays (5 *versus* 4 *versus* 3 days) and higher median costs (USD 50 393 *versus* USD 38 040 *versus* USD 31 262).

After adjusting for age, year of hospitalisation and comorbidity burden, hospitalisations for bronchiectasis were 1.2 times more likely to result in death than for COPD, and 3.0 times more likely than for asthma (p<0.0001). During the pandemic years (2020-2021), hospitalisations for bronchiectasis declined by only 8%, compared to 26% for COPD and 28% for asthma, while mortality increased across all cohorts. Overlap of bronchiectasis exacerbation with COPD or asthma did not result in higher mortality than bronchiectasis alone.

Conclusions: Hospitalisations for bronchiectasis in the USA are associated with worse outcomes, including higher mortality, costs and length of stay, compared to those for COPD and asthma exacerbations.

Conflict of interest statement

Conflict of interest: The authors have nothing to disclose.

- 34 references
- 4 figures

Full text links

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Cite

16

Presse Med

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. 2025 Nov 9:104321.

doi: 10.1016/j.lpm.2025.104321. Online ahead of print.

Difficult-to-treat COPD: from concept to practice

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- PMID: 41218686

- DOI: 10.1016/j.lpm.2025.104321

Abstract

Most patients with Chronic Obstructive Pulmonary Disease (COPD) can be managed effectively through standard therapeutic strategies. However, a significant proportion remains symptomatic, experiences recurrent exacerbations, or shows accelerated lung function decline despite apparently appropriate care. These patients often fall into what could be referred to as "difficult-to-treat COPD", a term still lacking formal definition. Drawing on parallels with asthma, this article proposes to consider the concept of disease control in COPD as a key driver of COPD management, not representing a fixed target but a dynamic construct reflecting daily impact and long-term stability. We provide a structured framework for reassessing diagnosis accuracy, evaluating treatment adequacy, and identifying unresolved pathophysiological drivers in patients who remain uncontrolled. Core domains include persistent dyspnea, chronic bronchitis, frequent or severe exacerbations, and rapid lung function decline. Each is explored with a focus on clinical reasoning, diagnostic tools, and phenotype- or endotype-based treatable trait-specific strategies. Importantly, the article argues that in patients remaining uncontrolled despite guideline-concordant care, the clinical response paradigm should shift from escalation to recharacterization. Practical pathways beyond standard care such as biologic therapy, lung volume reduction and transplantation, access to research protocols, and early integration of palliative care are reviewed. In the conclusion, we advocate for broader implementation of multidisciplinary case discussions and for using loss of disease control as a clinical trigger to prompt timely reassessment. Rather than defining a new phenotype, the aim is to promote a dynamic, precision-based approach to COPD management that aligns therapeutic strategies with evolving disease trajectories.

Keywords: Biotherapy; COPD; Control; Dyspnea; Exacerbations; Inhaled maintenance therapy.

Conflict of interest statement

Declaration of competing interest LR reports personal fees from AstraZeneca, Chiesi, GSK, and Sanofi, and institutional support for meeting attendance from AstraZeneca, Chiesi, and Sanofi. NR reports personal fees from GSK, AstraZeneca, Sanofi, Chiesi, Pfizer, Austral, Biosency, Zambon, MSD, and Menarini for consulting or speaking engagements, and institutional support from Chiesi, GSK, and Pfizer. He also serves as Chair of the ERS Science Council.

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Pre-COPD: Impact on prevention, detection, and treatment

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Affiliations Expand

- PMID: 41218685

- DOI: 10.1016/j.lpm.2025.104316

Abstract

Background and objectives: The ability to identify individuals at risk for progression to chronic obstructive pulmonary disease (COPD) remains challenging. The concept of pre-COPD has been proposed as a framework to identify patients without current airflow obstruction at greatest risk for progression to COPD using a constellation of symptoms, physiologic changes, and structural changes on chest imaging. While multiple biomarkers are linked to the subsequent development of COPD in at-risk individuals, no single biomarker has emerged as the best predictor. The goal of this review is to define the concept of pre-COPD, summarize known biomarkers associated with later development of COPD, and address the impact of pre-COPD on patient care.

Methods: Narrative Review CONCLUSION: The concept of pre-COPD can help meet current gaps in screening and care for patients at risk of progression to COPD. A framework definition of pre-COPD allows for identification of individuals at risk for progression to COPD and indicates increased morbidity and mortality. While the ideal biomarker for pre-COPD has not been identified, multimodal risk prediction scores and practical clinical definitions are emerging for use in clinical practice. Additional research is needed to better understand optimal clinical screening and management of patients with pre-COPD.

Keywords: COPD; CT Imaging; chronic bronchitis; pre-COPD; tobacco.

Conflict of interest statement

Declaration of interests The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: MeiLan H. Han reports financial support was provided by National Heart Lung and Blood Institute. MeiLan K. Han reports a relationship with National Institutes of Health that includes: funding grants. MeiLan K. Han reports a relationship with COPD Foundation that includes: funding grants. MeiLan K. Han reports a relationship with American Lung Association that includes: funding grants. MeiLan K. Han reports a relationship with Sanofi that includes: consulting or advisory and funding grants. MeiLan K. Han reports a relationship with Nuvaira that

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Full text links

Cite

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Review

Immunol Invest

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. 2025 Nov 10:1-24.

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Type 2 Inflammatory Phenotypes in Chronic Obstructive Pulmonary Disease and Asthma: Similarities and Differences

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- PMID: 41215543

- DOI: 10.1080/08820139.2025.2583274

Abstract

Background: Asthma and chronic obstructive pulmonary disease (COPD) - two common airway diseases - have drawn greater attention lately because of their increasing occurrence and mortality rates. The main inflammatory types - type 2 and non-type 2, which include type 1 and type 3 inflammation - are distinguished by the presence of discrete immune cells, that coordinate the recruitment and activation of inflammatory cells, resulting in various pathological presentations, clinical symptoms, therapeutic responses, and prognoses. Despite significant differences, COPD and asthma share many inflammatory commonalities. In recent years, the type 2 inflammatory phenotype in COPD has steadily emerged as the focus of COPD research. Understanding the differences between COPD and asthma with type 2 inflammatory phenotypes is critical for designing individualized treatment strategies.

Methods and results: This review systematically searched for Chinese and English literature on COPD and asthma in the field of type 2 inflammation, and conducted a comprehensive review and analysis of the relevant content. It explored the similarities and differences between type 2 inflammatory phenotypes in COPD and asthma, with particular emphasis on their inflammatory mechanisms, clinical features, biomarkers, therapeutic targets, and treatment responses.

Conclusion: This review investigates the similarities and differences between type 2 inflammatory phenotypes in COPD and asthma, with the aim of better addressing their diversities, gain deeper insights into their underlying cellular and molecular mechanisms, develop novel therapies in unmet areas, explore more effective treatment directions, reduce the disease burden, and enhance patient outcomes.

Keywords: Chronic obstructive pulmonary disease; asthma; phenotype; type 2 inflammation.

Supplementary info

Publication typesExpand

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Chronic Obstr Pulm Dis

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. 2025 Nov 10.

doi: 10.15326/jcopdf.2025.0632. Online ahead of print.

Lipids, Lipid-Lowering Drug Target Genes, and COPD Risk: A Mendelian Randomization Study

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Affiliations Expand

- **PMID: 41212952**

- **DOI: 10.15326/jcopdf.2025.0632**

Free article

Abstract

Background: Some studies suggest that statins could reduce the risk of chronic obstructive pulmonary disease (COPD), but it is unclear if this effect is related to their lipid-lowering properties. The causal link between serum lipid levels and COPD risk remains uncertain. This study aims to clarify this potential causal relationship and evaluate the impact of lipid-lowering drug target genes on COPD.

Methods: Mendelian randomization (MR) was used to investigate causal associations between lipid levels, lipid-lowering drug target genes, and COPD risk. Data were obtained from publicly available genome-wide association study (GWAS) databases. The inverse variance weighted (IVW) method was the primary statistical approach for evaluating causal effects, complemented by various sensitivity analyses.

Results: MR analysis demonstrated a causal relationship between low-density lipoprotein cholesterol (LDL-C) and a reduced risk of COPD (OR=0.90, 95% CI=0.85-0.95, P=1.50×10^{-4}). Causal relationships were also identified for two lipid-lowering drug target genes, *HMGCR* (OR=0.63, 95%CI=0.54-0.75, P=4.92×10^{-8}) and *PCSK9* (OR=0.87, 95%CI=0.80-0.95, P=0.001), with a reduced COPD risk. Although MR analysis indicated a potential causal relationship between *LPL* (OR=0.86, 95%CI=0.79-0.94, P=6.37×10^{-4}) and reduced COPD risk, colocalization analysis did not support this finding. No associations were observed between other lipid traits, lipid-lowering drug target genes, and COPD.

Conclusion: This study genetically identified causal relationships between serum LDL-C levels, the two coding genes *HMGCR* and *PCSK9*, and a reduced risk of COPD. These findings suggest that the protective effect of statins on COPD may occur independently of their lipid-lowering function. Further clinical validation is needed to confirm this hypothesis.

Keywords: COPD; Mendelian randomization; causality; lipid-lowering drug target genes; lipids.

Full text links

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Cite

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Allergy

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. 2025 Nov 10.

doi: 10.1111/all.70127. Online ahead of print.

Cluster Analysis to Identify Distinct Asthma Phenotypes in the ATLANTIS Cohort

Pauline J M Kuks [1 2], Tatiana Karp [1 2], Jorine E Hartman [1 2], Monica Kraft [3], Salman Siddiqui [4], Leonardo M Fabbri [5], Bianca Beghé [6], Klaus F Rabe [7 8], Alberto Papi [9], Christopher E Brightling [10], Dave Singh [11], Xingnan Li [3], Janwillem W H

Kocks [1 2 12 13], Ulrica Scaffidi-Argentina [14], Huib A M Kerstjens [1 2], Irene H Heijink [1 2 15], Simon D Pouwels [1 2 15], Dirk-Jan Slebos [1 2], Maarten van den Berge [1 2]

Affiliations Expand

- PMID: 41212157

- DOI: 10.1111/all.70127

Abstract

Background: Previous cluster analyses have identified subgroups of asthma. However, only a few studies included parameters of small airways dysfunction (SAD), or gene expression profiles reflecting underlying disease mechanisms. We aimed to identify clinically distinct asthma phenotypes, beyond GINA asthma severity, using available data from the ATLANTIS study which focused on identifying the prevalence of SAD in asthma and its role in asthma control, exacerbations and quality of life.

Methods: The ATLANTIS study included 773 asthma patients (mean age 44 years, 58% female, 76% never-smoker, GINA 1-5). Subjects were extensively characterized, including symptoms, parameters of large and small airways dysfunction, blood and sputum differential cell counts, and genome-wide gene expression profiling from nasal brushes. Clusters were generated using the Self-Organizing Map-Ward's method.

Results: Four distinct clusters were identified: A (N = 62; 8%) characterized by the most frequent exacerbations, lower post-bronchodilator FEV_1 % predicted, more small airways dysfunction, higher sputum and blood eosinophils, and high expression of asthma-related genes. B (N = 206; 27%) consisting of atopic patients with early-onset asthma, uncontrolled symptoms, and normal lung function and bronchial hyperresponsiveness, along with a high expression of asthma-related genes in the nasal epithelium. C (N = 277; 36%), predominantly male former smokers, with well-controlled asthma, mild obstructive lung disease, and relatively high neutrophil levels. D (N = 228; 29%), with normal lung function and low blood and sputum eosinophils.

Conclusions: Four distinct clusters were identified, where the presence of SAD was associated with high type-2 inflammation, lower lung function, and frequent exacerbations. SAD may be a marker of poorly controlled asthma and should be considered as an important clinical trait.

Keywords: airway inflammation; asthma phenotypes; cluster analysis; gene expression profiling; small airways dysfunction.

- 25 references

Full text links

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21

Curr Opin Pulm Med

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. 2025 Nov 10.

doi: 10.1097/MCP.0000000000001228. Online ahead of print.

Artificial intelligence in chronic obstructive pulmonary disease: recent advances in imaging and physiological monitoring

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Affiliations Expand

- PMID: 41208246

- DOI: 10.1097/MCP.0000000000001228

Abstract

Purpose of review: Chronic obstructive pulmonary disease (COPD) is a leading cause of worldwide morbidity and mortality, yet significant barriers in its diagnosis and management persist. Artificial intelligence is rapidly emerging as a powerful tool to address these challenges. This review summarizes recent trends in its application to advance the care of patients with COPD, focusing on imaging and physiologic parameters.

Recent findings: Recent literature demonstrates significant progress in artificial intelligence enhanced imaging, with deep learning models applied to chest radiographs and computed tomography showing high accuracy in detecting COPD, quantifying disease features, and predicting clinical outcomes including exacerbations and mortality. Machine learning algorithms are improving the interpretation of pulmonary function tests and leveraging novel data streams from cough sounds and wearable smart devices for noninvasive diagnosis, severity assessment, and the prediction of acute exacerbations.

Summary: While artificial intelligence holds immense potential to shift COPD care toward a more proactive and personalized model, most applications remain in early developmental stages, with critical challenges including the need for rigorous clinical validation, addressing algorithmic bias, and establishing standardized evaluation metrics.

Keywords: artificial intelligence; chronic obstructive pulmonary disease; computed tomography; machine learning; physiologic monitoring.

- 56 references

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Randomized Controlled Trial

Thorax

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. 2025 Nov 14;80(12):900-908.

doi: 10.1136/thorax-2025-223095.

Identifying azithromycin responders with an individual treatment effect model in COPD

Kenneth Verstraete [#1,2], Iwein Gyselinck [#1,3], Helene Huts [1,2], Remco Stuart Djamin [4], Michaël Staes [1,3], Sander Talman [4], Sarah Lindberg [5], Menno van der Eerden [6], Maarten De Vos [2,7], Wim Janssens [8,3]

Affiliations Expand

- PMID: 40610208

- DOI: 10.1136/thorax-2025-223095

Free article

Abstract

Objective: Long-term azithromycin treatment effectively prevents acute exacerbations of chronic obstructive pulmonary disease (COPD). However, patients would benefit from better identification of responders and non-responders to minimise unnecessary exposure. We aimed to assess treatment effect heterogeneity

and estimate individual treatment effects (ITEs) to distinguish patients most likely to benefit from prophylactic treatment.

Methods: We used data from 1025 patients of the MACRO trial to assess the ITE of azithromycin on annual exacerbation rate. A Causal Forest was used as a causal machine learning model. We independently validated our findings using data from 83 patients of the COLUMBUS trial.

Results: The tertile of patients with the best predicted ITE within MACRO and within the COLUMBUS independent validation cohort showed significant and substantially greater reductions in annual exacerbation rates (in MACRO -0.50, rate ratio 0.70, p=0.01, in COLUMBUS: -2.28, rate ratio 0.43, p<0.001) compared with the average treatment effect across the entire cohort (MACRO -0.35, rate ratio 0.83, p=0.01 and COLUMBUS -1.28, rate ratio 0.58, p=0.001). Conversely, no significant treatment effect was observed in the remaining two-thirds of patients. Primary determinants of ITE included respiratory symptoms, white blood cell count, haemoglobin, C-reactive protein and forced vital capacity. Smoking status did not emerge as a significant predictor.

Conclusion: Based on five easily obtainable parameters to predict ITE, we identified treatment effect heterogeneity in COPD subjects treated with azithromycin maintenance therapy and found a small subgroup of responders driving the average reduction in exacerbations reported in previous trials.

Keywords: COPD Exacerbations; COPD Pharmacology; Drug reactions; Pulmonary Disease, Chronic Obstructive.

Conflict of interest statement

Competing interests: This research received funding from the Flemish Government under the 'AI in Flanders' program, the AstraZeneca KU Leuven Chair in Respiratory Diseases and the FWO Research Project: ‘Artificial Intelligence (AI) for data-driven personalised medicine’ (MDV, WJ, G0C9623N). IG was funded by the Research Foundation Flanders (FWO, 11N3922N). HH was funded by the Research Foundation Flanders (FWO, 1S30225N). SL received grants from the US Department of Defense. WJ is supported as senior clinical researcher of the Flemish Research Foundation and received grants from AstraZeneca and Chiesi and obtained fees from AstraZeneca, Chiesi and GlaxoSmithKline. He is chairman of Board of Flemish Society for TBC prevention and board member of Artiq. MDV received funding from the AI in the Flanders project. The funders had no role in the design of the study, the collection, analysis, or interpretation of the data, in the writing of the manuscript or in the decision to publish the results. KV, RSD, MS and MvdE have nothing to disclose.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Observational Study

Thorax

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. 2025 Nov 14;80(12):909-917.

doi: 10.1136/thorax-2024-222347.

^{129}Xe-MRI ventilation and acinar abnormalities highlight the significance of spirometric dysanapsis: findings from the NOVELTY ADPro UK substudy

Laurie J Smith [1], Helen Marshall [2], Demi Jakymelen [2], Alberto Biancardi [2], Guilhem J Collier [2], Ho-Fung Chan [2], Paul J C Hughes [2], Martin L Brook [2], Josh R Astley [2], Ryan Munro [2], Smitha Rajaram [2], Andrew J Swift [2], David Capener [2], Jody Bray [2], Jimmy E Ball [2], Oliver Rodgers [2], Bilal A Tahir [2], Madhwesha Rao [2], Graham Norquay [2], Nicholas D Weatherley [2], Leanne Armstrong [2], Latife Hardaker [3], Alberto Papi [4], Rod Hughes [5], Jim M Wild [2]

Affiliations Expand

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Free article

Abstract

Rationale: Airways dysanapsis is defined by CT or spirometry as a mismatch between the size of the airways and lung volume and is associated with increased risk of developing chronic obstructive pulmonary disease (COPD). Lung disease in participants with dysanapsis and a label of asthma and/or COPD remains poorly understood.

Methods: In participants with asthma and/or COPD, we used ^{129}Xe-MRI to assess ventilation, acinar dimensions and gas exchange, and pulmonary function tests, and compared people with spirometric dysanapsis (forced expiratory volume in 1 s (FEV1)/forced vital capacity (FVC)<-1.64 z and FEV1>-1.64 z) to those with normal spirometry (FEV1, FVC and FEV1/FVC>-1.64 z).

Results: From 165 participants assessed in the NOVELTY (NOVEL observational longiTudinal studY) ADPro (advanced diagnostic profiling) study with a physician-assigned diagnosis of asthma and/or COPD, 43 had spirometric dysanapsis and were age-matched to 43 participants with normal spirometry. Participants with dysanapsis had significantly increased ventilation defects (median difference (md) (95% CI) = 4.0% (1.42% to 5.38%), p<0.001), ventilation heterogeneity (md (95% CI) = 2.56% (1.31% to 3.56%), p<0.001) and measures of acinar dimensions (md (95% CI) = 0.004 $cm^2.s^{-1}$ (0.0009 to 0.007), p=0.009) from ^{129}Xe-MRI, than those with normal spirometry. At the 1-year follow-up, only participants with dysanapsis had a significant increase in ventilation defects (md (95% CI)=0.45% (0.09% to 2.1%),p=0.016). Lower FEV1/FVC in the dysanapsis cohort was associated with increased ventilation defects (r=-0.64, R^2=0.41, p<0.001) and increased acinar dimensions (r=-0.52, R^2=0.38, p<0.001), with the highest values seen in those with an FVC above the upper limit of normal.

Conclusions: Participants with asthma and/or COPD, presenting to primary care with spirometric dysanapsis, exhibited increased lung abnormalities on ^{129}Xe-MRI, when compared with those with normal spirometry. Spirometric dysanapsis in asthma and/or COPD is therefore associated with significant lung disease, and the FEV1/FVC is related to the degree of airways abnormality on 129Xe-MRI.

Keywords: Imaging/CT MRI etc; Lung Physiology; Respiratory Measurement.

Conflict of interest statement

Competing interests: LS, HM, AB, GC, H-FC, PH, MB, JA, RM, SR, AJS, DC, JB, JEB, OR, DJ, BT, MR, GN, NDW, LA and JMW are employees of POLARIS, University of Sheffield, which received institutional grants from AstraZeneca to perform the ADPro study. Outside of the submitted work; JMW and HM has received institutional grants from GlaxoSmithKline; PH was Chair of the Faculty of Health Research Staff Association at the University of Sheffield; AJS has received research grants and payment or honoraria for lectures/presentations/speakers bureaus from Janssen Pharmaceuticals; BT has received personal fees from Yorkshire Cancer Research for his senior fellowship; NDW has received support from Boehringer Ingelheim for attending meetings and has received fees for advisory board membership; and HM, LS and JMW have received support from AstraZeneca for attending meetings. RH is an employee of AstraZeneca. Outside of the submitted work, RH has received personal fees from AstraZeneca, Boehringer Ingelheim, GSK and Novartis. AP has received personal fees for Consultation or Board Membership or lecturing for AstraZeneca, Boehringer Ingelheim, Chiesi Farmaceutici, Edmond Pharma, GSK, Mundipharma, Novartis, Sanofi/Regeneron, Teva and Zambon. His Institution has received industry-sponsored grants from AstraZeneca, Chiesi Farmaceutici, Boehringer Ingelheim and GSK.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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

1

Aging Male

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. 2025 Dec 11;28(1):2581661.

doi: 10.1080/13685538.2025.2581661. Epub 2025 Nov 12.

Higher charlson comorbidity index is associated with increased risk of erectile dysfunction: evidence from NHANES data

Xiaobao Chen [1], Junwei Lin [1], Binhong Liu [1], Lingjun Liu [1], Wei Jiang [1], Ruoyun Xie [1]

Affiliations Expand

- PMID: 41222099

- DOI: 10.1080/13685538.2025.2581661

Free article

Abstract

Background: The Charlson Comorbidity Index (CCI) quantifies multimorbidity, but its link to erectile dysfunction (ED) remains underexplored.

Methods: Using data from the National Health and Nutrition Examination Survey (NHANES), our study investigated the association between CCI and ED. Our analysis involved weighted multivariate regression, subgroup analyses, restricted cubic spline (RCS) analyses, and propensity score matching (PSM) analyses.

Results: Among the 2295 adults included in this study, 863 (37.6%) were diagnosed with ED. Weighted multivariate regression analyses revealed a significant positive association between the CCI and the risk of ED. Each additional point on the CCI was associated with a 32% higher risk of ED (OR 1.32, 95% CI 1.18-1.47). Furthermore, when participants were categorized into two groups based on CCI scores (CCI = 0 and CCI ≥ 1), the risk of ED was notably higher for those with CCI ≥ 1, showing a 122% increased risk compared to those with CCI = 0 (OR 2.22, 95% CI 1.62-3.05). Sensitivity analyses, including subgroup analyses and PSM, consistently supported the strong positive correlation between the CCI and ED.

Conclusion: Our study indicates that a higher CCI is positively correlated with an increased risk of ED, suggesting that lower CCI scores are associated with lower risk of ED.

Keywords: Charlson comorbidity index; National Health and Nutrition Examination Survey; cross-sectional study; erectile dysfunction.

Supplementary info

MeSH termsExpand

Full text links

Cite

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Environ Pollut

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. 2025 Nov 15:385:127027.

doi: 10.1016/j.envpol.2025.127027. Epub 2025 Aug 26.

Ambient ozone exposure and course of non-communicable diseases among elderly individuals with hypertension, diabetes or dyslipidemia: Prospective cohort study in GOLD-Health

Zitong Zhuang [1], Jiamin Chen [2], Weiquan Lin [2], Ge Chen [1], Menghe Wang [1], Zhengmin Min Qian [3], Peng Hu [1], Zhonghua Ai [1], Cai Zhang [4], Maya Kavuri [5], Stephen Edward McMillin [6], Yingying Fang [2], Zhoubin Zhang [2], Hui Liu [7], Hualiang Lin [8]

Affiliations Expand

- **PMID: 40876731**

- **DOI: 10.1016/j.envpol.2025.127027**

Abstract

The association between ozone (O_3) exposure and the dynamic and accelerated progression of non-communicable diseases (NCDs) remains unclear in elderly individuals with hypertension (HTN), diabetes mellitus (DM), or dyslipidemia. This study included 250,246 participants with HTN, DM, or dyslipidemia from the Guangzhou Older Longitudinal Dynamic Health. Long-term O_3 exposure was estimated using bilinear interpolation based on geocoded residential addresses. We employed multi-state models to assess the associations between O_3 exposure and transitions from baseline to NCDs (stroke, coronary heart disease, fatty liver disease, chronic obstructive pulmonary disease, chronic kidney disease),

multimorbidity and death. Accelerated failure time (AFT) models were further used to examine progression acceleration and predict transition times. Over 727,003.2 person-years of follow-up, 99,246 participants (39.66 %) developed NCDs, of whom 10,349 (10.43 %) progressed to multimorbidity and 5759 (5.80 %) died. We observed that O_3 exposure was associated with the dynamic progression of NCDs. Specifically, the hazard ratios (HRs) for each 10 μg/m^3 increase in O_3 were 1.39 [95 % confidence interval (CI): 1.38, 1.40] and 1.34 (95 % CI: 1.29, 1.39) for transitions from baseline to NCDs and from NCDs to multimorbidity. AFT analyses demonstrated that O_3 exposure could accelerate the progression of NCDs, for example, shortening the transition time from baseline to NCDs from 3.61 years at 80 μg/m^3 to 1.31 years at 130 μg/m^3. These findings suggest that O_3 exposure might be an important risk factor for both the dynamic and accelerated progressions of NCDs among elderly populations with HTN, DM, or dyslipidemia.

Keywords: Accelerated failure time models; Multi-state models; Non-communicable diseases; O(3).

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 terms, SubstancesExpand

Full text links

Proceed to details

Cite

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J Affect Disord

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. 2025 Nov 15:389:119714.

doi: 10.1016/j.jad.2025.119714. Epub 2025 Jun 17.

Relationship between multimorbidity burden and depressive symptoms in older Chinese adults: A prospective 10-year cohort study

Hong-Guang Zhang [1], Jia-Feng Wang [1], Anfeirea Jialin [1], Xin-Ying Zhao [1], Chu Wang [1], Wei Deng [2]

Affiliations Expand

- **PMID: 40553738**

- **DOI: 10.1016/j.jad.2025.119714**

Abstract

Background: Recent research indicates that multimorbidity clusters due to common mechanisms and risk factors, leading to different effects on the development of depressive symptoms (DS) in older populations. This study innovatively examined the association of both the number and specific patterns of multimorbidity with DS.

Methods: A total of 1988 participants aged 60 years and older were selected from the China Health and Retirement Longitudinal Study (CHARLS) and monitored for DS between June 2011 and September 2020. Twelve chronic conditions were assessed through self-reports. DS was evaluated using the 10-item Center for Epidemiological Studies Depression Scale (CESD-10). Latent class analysis (LCA) was used to identify multimorbidity patterns, and Cox proportional hazards regression models examined the associations of specific diseases, multimorbidity count and multimorbidity patterns with DS.

Results: During the 9.17-year follow-up period, 986 cases of DS were identified. Hypertension (adjusted hazard ratio [HR] = 1.21, 95 % confidence interval [CI] = 1.05-1.39), stroke (HR = 1.77, 95%CI = 1.20-2.63), stomach or other digestive disease (HR = 1.28, 95%CI = 1.11-1.48), arthritis or rheumatism (HR = 1.41, 95%CI = 1.24-1.60), chronic lung diseases (HR = 1.25, 95%CI = 1.03-1.52) and kidney disease (HR = 1.38, 95%CI = 1.07-1.78) were significantly associated with increased DS risk. Each additional chronic condition increased the DS hazard by 13 % (adjusted HR = 1.13, 95 % CI = 1.08-1.18). Four multimorbidity patterns were identified by LCA, with the digestion/arthritis pattern (HR = 1.47, 95 % CI = 1.22-1.77) and respiratory pattern (HR = 1.47, 95 % CI = 1.07-2.04) showing higher DS risk compared to the relatively healthy group.

Conclusion: The number and patterns of multimorbidity are significantly associated with heightened DS risk in older populations. Older adults in complex health conditions, particularly those with digestion/arthritis and respiratory multimorbidity patterns, should receive closer mental health monitoring.

Keywords: CHARLS; Depressive symptoms; Multimorbidity; Multimorbidity patterns; Older adults.

Conflict of interest statement

Declaration of competing interest The 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.

- **Cited by 2 articles**

Supplementary info

MeSH termsExpand

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

1

Editorial

Ann Allergy Asthma Immunol

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. 2025 Nov 15:S1081-1206(25)01202-5.

doi: 10.1016/j.anai.2025.09.016. Online ahead of print.

2025 American College of Allergy, Asthma and Immunology Annals fellow-in-training award winners: The future of allergy and immunology

Mitchell H Grayson [1]

Affiliations Expand

- PMID: 41240021

- DOI: 10.1016/j.anai.2025.09.016

No abstract available

Conflict of interest statement

Disclosures Dr Grayson is the Editor-in-Chief of the Annals of Allergy, Asthma & Immunology, served on an adjudication panel for Bayer, has stock options in Invirsa, Inc, is a Director of the Asthma and Allergy Foundation of America, is the Chair of the Asthma and Allergy Foundation of America Medical Scientific Council, and is a member of the American Lung Association Scientific Advisory Committee.

Supplementary info

Publication typesExpand

Full text links

Cite

2

Respir Med

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. 2025 Nov 12:108500.

doi: 10.1016/j.rmed.2025.108500. Online ahead of print.

Point of Care Ultrasound as a Bedside Diagnostic Tool in Acute Dyspnea Patients in Emergency Department for timely management

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Affiliations Expand

- PMID: 41237919

- DOI: 10.1016/j.rmed.2025.108500

Abstract

Background: Acute dyspnea is a common symptom in the Emergency Department. Chest-X-ray is the first investigation performed for dyspneic patients. Point of care ultrasound (POCUS) is the first quick method that can reliably distinguish between different causes of acute dyspnea. This study aimed to determine the accuracy of the ultrasound diagnosis among patients presenting with acute dyspnea compared to the radiological imaging for timely management.

Methods: We conducted a cross-sectional analytical study that included 79 patients presenting with acute dyspnea to the emergency Department and performed POCUS then radiography.

Results: POCUS demonstrated 100% sensitivity, specificity, and diagnostic accuracy in diagnosing interstitial lung disease and pleural effusion. For pneumonia, POCUS achieved 96.3% sensitivity, 90.4% specificity, and 92.4% diagnostic accuracy. In cases of chronic obstructive pulmonary disease (COPD) or asthma exacerbation, it showed 91.3% sensitivity, 96.4% specificity, and 94.9% diagnostic accuracy. POCUS had slightly lower sensitivity in pneumothorax and pulmonary edema but maintained high specificity (98.6% and 100%, respectively) and diagnostic accuracy (97% and 91%). Radiological findings were consistent with POCUS in 97.7% of patients. The mean time to diagnosis was significantly shorter with POCUS (16 ± 6.7 minutes; range = 5-30 minutes) compared to radiography (83.6 ± 39.4 minutes; range = 35-200 minutes).

Conclusions: POCUS has a high sensitivity, specificity and diagnostic accuracy in identification of underlying causes of dyspnea in emergency and reduction of the time needed till final diagnosis compared to radiographies, and for the first definitive management.

Keywords: Dyspnea; Lung Diseases; Point-of-Care Systems; Radiography; Ultrasonography.

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.

Cite

3

Semin Respir Crit Care Med

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. 2025 Nov 14.

doi: 10.1055/a-2746-4469. Online ahead of print.

Glucocorticoid Treatment in Severe Asthma

María Florencia Pilia [1 2 3], David Espejo-Castellanos [1 3 2], Christian Romero-Mesones [1 2], Xavier Muñoz-Gall [1 3 2], Inigo Ojanguren-Arranz [1 3 2]

Affiliations Expand

- **PMID: 41237810**

- **DOI: 10.1055/a-2746-4469**

Abstract

Severe asthma affects approximately 3-10% of the asthmatic population and is characterized by persistent symptoms and frequent exacerbations despite high-intensity therapy. Historically, glucocorticoids (GCs) have been the mainstay of treatment due to their broad anti-inflammatory effects. However, long-term systemic

GC use is associated with substantial toxicity and heterogeneous clinical response, largely influenced by underlying inflammatory endotypes. Type 2 (T2) asthma, marked by eosinophilia and cytokines such as IL-4, IL-5, and IL-13, generally responds well to GCs. In contrast, non-T2 phenotypes, often associated with neutrophilic inflammation, obesity, or smoking, exhibit GC resistance. Molecular mechanisms underlying GC resistance include GRβ overexpression, impaired GRα nuclear translocation via MAPK activation, and HDAC2 inactivation by oxidative stress. Therapeutic strategies for severe asthma involve maximizing inhaled corticosteroids (ICS) and adding long-acting bronchodilators or biologics before considering maintenance oral corticosteroids (OCS). Despite these guidelines, OCS overuse remains common, with many patients exposed to cumulative doses associated with severe adverse effects. These include osteoporosis, diabetes, infections, neuropsychiatric symptoms, and adrenal suppression. Therefore, reducing systemic GC exposure is a key objective in modern asthma management. Biologic therapies targeting IgE (omalizumab), IL-5 (mepolizumab, reslizumab), IL-5Rα (benralizumab), IL-4Rα (dupilumab), and TSLP (tezepelumab) have shown substantial OCS-sparing effects in clinical trials, enabling dose reduction or discontinuation in many patients with steroid-dependent asthma. These agents, aligned with precision medicine principles, allow for phenotype-specific treatment and improved safety profiles. Future efforts should focus on improving biomarker-driven treatment selection, expanding non-T2 therapeutic options, and implementing steroid stewardship protocols. In conclusion, while glucocorticoids remain essential for acute exacerbations and as bridging therapy, their chronic use should be minimized. Biologic therapies offer a transformative opportunity to reduce glucocorticoid burden, improving long-term outcomes and quality of life in patients with severe asthma.

Conflict of interest statement

MFP received travel support from Sanofi and Boehringer Ingelheim. DEC received speaker fees from AstraZeneca, Bial, and Chiesi, and financial aid from Sanofi, Bial, Gebro, Menarini, and Chiesi for congress attendance. CRM received support for educational events from GSK, Menarini, and AstraZeneca. XM received grants, consulting fees, and honoraria from AstraZeneca, Sanofi, GSK, Boehringer, and Chiesi, and travel support from AstraZeneca, Novartis, and Menarini. IO received consulting fees and honoraria from AstraZeneca, Sanofi, GSK, and Chiesi, travel support from Sanofi, and served on a Data Safety Monitoring Board/Advisory Board for Puretech.

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

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JMIR Pediatr Parent

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. 2025 Nov 14:8:e78526.

doi: 10.2196/78526.

Guided Inhalation via Electronic Monitoring in Children With Uncontrolled Asthma (the IMAGINE Study): Randomized Controlled Trial

Esther Sportel [1], Kris Movig [1], Bernard Thio [2 3], Mattienne Van der Kamp [2 3], Job Van der Palen [4 5], Marjolein Brusse-Keizer [4 6]

Affiliations Expand

- PMID: 41237397

- DOI: 10.2196/78526

Abstract

Background: Pediatric asthma is the most common chronic illness among children in the Netherlands. Scheduled hospital visits provide limited insight into therapy adherence and inhalation technique, which are critical for disease control. Smart inhalers that provide immediate feedback may offer a solution for monitoring and improving these parameters at home, leading to better asthma control.

Objective: This study aimed to improve asthma control through immediate feedback on therapy adherence and inhalation technique, with the use of a smart inhaler.

Methods: The IMAGINE (Improving Adherence by Guiding Inhalation via Electronic Monitoring) study was a randomized controlled trial consisting of 3 phases: an observational run-in phase in which adherence and technique were recorded, a randomized phase with feedback for the intervention group and recording for the control group, followed by an observational phase with only recording for both groups. Asthma control was measured with clinical outcomes including predicted forced expiratory volume in 1 second, lung function reversibility, lung function variability, the Asthma Control Test, and the Childhood Asthma Control Test.

Results: Between October 2019 and October 2023, a total of 34 children were enrolled and randomized. Overall, improvements were observed at the end of phase 2 in clinical parameters (reversibility, lung function variability, Asthma Control Test, and Childhood Asthma Control Test), except for predicted forced expiratory volume in 1 second. However, no significant differences between the intervention and control groups over time were observed. At the end of phase 2, 87% (13/15) of control participants and 78% (10/13) of intervention participants met one or more

predefined clinical criteria. Inhalation technique and therapy adherence did not differ over time between the groups (P=.70 and P=.14, respectively).

Conclusions: While smart inhaler feedback did not lead to better outcomes compared with no feedback, clinical improvements were observed in both groups. Future studies should explore how adaptive smart inhaler interventions can be optimized to support personalized care and enhance patient ownership in asthma management.

Trial registration: International Clinical Trials Registry Platform NL-OMON50093; https://tinyurl.com/yws24rxy.

International registered report identifier (irrid): RR2-10.1186/s13063-020-04694-4.

Keywords: adherence; asthma; clinical outcomes; eHealth; inhalation technique; pediatrics; smart inhaler.

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Chin Med J (Engl)

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. 2025 Nov 14.

doi: 10.1097/CM9.0000000000003843. Online ahead of print.

Dyslipidemia in asthma: Treatable trait, or just a common comorbidity?

Ke Deng [1 2 3], Ji Wang [1 2 3], Brian G Oliver [4 5], Lisa G Wood [6], Gang Wang [1 2 3]

Affiliations Expand

- PMID: 41235459

- DOI: 10.1097/CM9.0000000000003843

Abstract

Asthma is a diverse disease that can be categorized into various phenotypes and endotypes, including obesity-re-lated asthma and allergic asthma. "Treatable traits (TTs)" represent a new approach to managing asthma. Asthma accompanied by dyslipidemia would be a distinct asthma phenotype that is becoming increasingly common. Therefore, dyslipidemia can potentially serve as a target for the management of asthma. Nevertheless, it remains highly under-researched compared to other observable traits. Gaining knowledge about the clinical and inflammatory characteristics, underlying mechanisms, and potential therapeutic medications for asthma with dyslipidemia is crucial for its effective management. This review aimed to provide a comprehensive overview of asthma with dyslipidemia, consolidating existing knowledge and ongoing research.

Keywords: Asthma; Dyslipidemia; Immunity; Mechanism; Treatable trait.

- **197 references**

Full text links

UNIMORE

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Cite

6

Respirol Case Rep

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. 2025 Nov 12;13(11):e70407.

doi: 10.1002/rcr2.70407. eCollection 2025 Nov.

Sequential Use of Tezepelumab and Bronchoscopic Lung Volume Reduction With Endobronchial Valves in a Patient With Severe Asthma-COPD Overlap and Heterogeneous Emphysema: A Case Report

Jonas Herth [1 2], Daniel Franzen [1 3 4]

Affiliations Expand

- **PMID: 41234678**

- **PMCID: PMC12611315**

- DOI: 10.1002/rcr2.70407

Abstract

Asthma-COPD overlap (ACO) carries greater symptom burden, frequent exacerbations and impaired quality of life compared with asthma or COPD alone. Evidence-based advanced therapies are lacking, and management is typically extrapolated from existing guidelines. Tezepelumab, an anti-thymic stromal lymphopoietin antibody, reduces exacerbations and improves lung function in severe asthma. Bronchoscopic lung volume reduction (BLVR) with endobronchial valves benefits selected patients with advanced emphysema and hyperinflation despite optimal therapy. A 71-year-old woman with severe ACO, frequent exacerbations and hyperinflation despite triple inhaled therapy was treated sequentially with tezepelumab and BLVR. Tezepelumab improved airway control and reduced exacerbations; BLVR subsequently addressed persistent hyperinflation. Over 2 years, the patient achieved sustained improvements in lung function, St. George's Respiratory Questionnaire score and annual exacerbation rate. This case highlights the potential benefit of a combined anti-inflammatory and interventional approach in difficult-to-treat ACO, a population for whom evidence-based advanced therapies remain limited.

Keywords: Tezepelumab; asthma-COPD overlap; bronchoscopic lung volume reduction; emphysema; endobronchial valves.

Conflict of interest statement

Daniel Franzen reports receiving speaker honoraria from AstraZeneca, Pulmonx, GlaxoSmithKline (GSK), OM Pharma and Sanofi Aventis. Jonas Herth has no conflicts of interest to declare.

- 6 references
- 1 figure

doi: 10.1097/JOM.0000000000003615. Online ahead of print.

Climate change and asthma: work-related risks and planetary implications

J P M van der Valk, T C Chin-See-Chong [1], J C C M In 't Veen [1], J E Jurgens [2], J Bonnema [3], G J Braunstahl

Affiliations Expand

- PMID: 41231536

- DOI: 10.1097/JOM.0000000000003615

Abstract

Objective: Asthma is a chronic respiratory condition characterized by airway inflammation and hyperresponsiveness to internal and external factors. In addition to well-known irritants such as allergens and pollutants, weather conditions-amplified by climate change-are increasingly recognized as contributors to asthma symptoms.

Method: This study gives an overview of the literature on Asthma and Climate Change, the Occupational Risks, and Planetary Health Implications.

Results: Environmental changes in temperature extremes and allergen levels can disrupt immune regulation-specifically, the Th1/Th2 balance-thereby contributing to airway narrowing, and stronger inflammatory responses. Climate change worsens respiratory health by prolonging pollen seasons, intensifying allergies, fostering mold and pests, and triggering asthma through extreme weather.

Conclusions: Given the growing impact of climate change, increasing public and professional awareness is key to safeguarding vulnerable populations and promoting long-term respiratory health.

Keywords: Asthma; Climate Change; Occupational Risks; Planetary Health.

Conflict of interest statement

Conflict of interest: Author J.C.C.M in 't Veen has unresticted research grants to faculty from Sanofii, Teva, Astra Zeneca and GSK

. 2025 Nov 13:1-11.

doi: 10.1080/02770903.2025.2589794. Online ahead of print.

Improved lung function with beclomethasone/formoterol versus beclomethasone alone in asthma: The FORCE2 study

Steven Weinstein [1], Lorenzo Legramandi [2], Kusum Mathews [2], Heather Passineau [2], Lucio Seregni [2], Giuliana Gandini [2], Lorenza Cretarola [2], Martina Foti [2], Gwen Skloot [2], Gemzel Hernandez [2]

Affiliations Expand

- PMID: 41231513

- DOI: 10.1080/02770903.2025.2589794

Abstract

ObjectiveThis study aimed to confirm the efficacy and safety of the inhaled fixed-dose combination of beclomethasone dipropionate (BDP) plus formoterol fumarate (FF) vs. BDP in patients with asthma.MethodsAfter a two-week run-in period with asthma maintenance therapy switched to BDP via pressurized metered-dose inhaler (pMDI), eligible patients were randomized to BDP/FF or BDP, both via pMDI, for 12 weeks. The primary objective was to demonstrate superiority of BDP/FF over BDP for change from baseline at Week 12 in area under the curve between 0 and 12 h post-dose ($AUC_{0\text{-}12h}$) of forced expiratory volume in 1 sec (FEV_1). The key secondary objective was to demonstrate superiority of BDP/FF over BDP for change from baseline at Week 12 in peak FEV_1 within the first 3 h post-dose. Safety and tolerability were assessed as secondary endpoints.ResultsOf 576 patients randomized to treatment, 543 completed the study (BDP/FF: 276/287 [96.2%]; BDP: 267/289 [92.4%]). The primary and the key secondary objectives were met, with BDP/FF vs. BDP adjusted mean differences of 104 (95% confidence interval 61, 148) mL and 124 (76, 173) mL for FEV_1 $AUC_{0\text{-}12h}$ and peak FEV_1 at Week 12, respectively ($p < 0.001$ for both). A similar proportion of patients experienced adverse events in the two treatment groups (26.9% vs. 26.4%), with most events mild or moderate in severity and not considered related to study drug.ConclusionsThe study met its aims, demonstrating the contribution of FF to BDP in lung function improvement, with both treatments being well tolerated.ClinicalTrials.gov NCT05292586.

Keywords: Drug therapy; combination; inhaled corticosteroid; long-acting beta2-agonist; respiratory function tests.

Supplementary info

Associated dataExpand

Full text links

Cite

9

Meta-Analysis

BMC Pediatr

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. 2025 Nov 12;25(1):927.

doi: 10.1186/s12887-025-06115-4.

Efficacy of non-pharmacological interventions for childhood asthma: a systematic review and network meta-analysis

Jia Zhang [#1], Zhen Ye [#2], Fangyang Guo [#1], Yumeng Ye [1], Xinyu Yu [1], Zhijian Song [1], Fenfen Zhang [1], Nan Gu [1], Meiying Ao [3 4], Qian Liu [5 6 7]

Affiliations Expand

- PMID: 41225527
- PMCID: PMC12613400
- DOI: 10.1186/s12887-025-06115-4

Abstract

Background: Childhood asthma is a prevalent chronic respiratory disease. While inhaled corticosteroids and β-agonists remain cornerstone treatments, growing evidence highlights the complementary role of non-pharmacological interventions in improving asthma outcomes. This study aimed to systematically evaluate the efficacy of diverse non-pharmacological approaches through a network meta-analysis (NMA).

Methods: Seven English and Chinese databases were searched from their inception to April 1, 2025, for randomized controlled trials (RCTs) related to non-pharmacological intervention in childhood asthma. The risk of bias was assessed using the Cochrane risk of bias tool (ROB). Network meta-analysis was conducted using R 4.2.0 and Stata 14.0 software.

Results: A total of 41 studies with 3164 participants were included. Involved structured exercise programs, controlled breathing techniques, traditional moxibustion therapy, psychological interventions, and traditional therapeutic massage adjuvant treatment measures. Five asthma outcome indicators were focused on: FEV1, FVC, PEF, PAQLQ, and FeNO. The ROB was low in the included studies. The NMA of two-by-two comparisons showed that all non-pharmacological adjunctive interventions were able to improve asthma symptoms better, with exercise training improving FEV1 (MD = 3.67, 95%CI [1.39, 5.95]), PEF (MD = 6.07, 95%CI [1.07, 11.07]), and PAQLQ (MD = 0.93, 95%CI [0.33, 1.52]) with statistical significance (p < 0.05).

Conclusion: Five non-pharmacological interventions for childhood asthma demonstrated consistent efficacy across all modalities in alleviating asthma symptoms. Psychological interventions emerged as the optimal adjunctive therapy for improving FEV1, while exercise training exhibited the most potent therapeutic effect on FVC. Furthermore, massage therapy demonstrated superior efficacy in enhancing PEF, PAQLQ scores, and FeNO levels.

Keywords: Childhood asthma; Network meta-analysis; Non-pharmacological interventions; Pulmonary ventilation function; Systematic review.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Not applicable. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- **80 references**
- **8 figures**

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

Full text links

Cite

10

Arch Dis Child

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. 2025 Nov 12:archdischild-2024-327898.

doi: 10.1136/archdischild-2024-327898. Online ahead of print.

Use of inhaled/nebulised ipratropium bromide in addition to standard first-line treatment with inhaled/nebulised short-acting beta 2-agonist and systemic steroid in the management of acute asthma exacerbations: a systematic review and meta-analysis of randomised controlled trials

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Affiliations Expand

- PMID: 41224524

- DOI: 10.1136/archdischild-2024-327898

Abstract

Background: The role of inhaled/nebulised ipratropium bromide (IB) in asthma is unclear.

Aims: To assess the efficacy and safety of inhaled/nebulised IB for asthma management in children.

Methods: We searched MEDLINE, EMBASE, CINAHL, the Cochrane Central Register of Controlled Trials and the Web of Science until July 2024. We included randomised controlled trials (RCTs) and followed international guidelines for reporting systematic reviews. Outcomes included morbidity, escalation of care, length of hospital stay, mortality, adverse events and lung function.

Results: We included 24 studies (total participants n=3238). The hospitalisation rate (risk ratio (RR) 0.84, 95% CI 0.70 to 1.00, I^2 30%), hospital stay in hours (MD 1.75, 95% CI -0.87 to 4.36, I^2 15%) and paediatric intensive care (PICU) admission (RR 0.91, 95% CI 0.35 to 2.32, I^2 0%) were similar. The hospitalisation rate was lower in patients who received IB nebuliser (RR 0.76, 95% CI 0.64 to 0.90, I^2 0%).The asthma severity score was significantly better in the IB group (MD -0.38, 95% CI -0.63 to -0.12, I^2 59%). No serious adverse events were reported.

Conclusion: This review found high-certainty evidence that the IB nebuliser leads to a lower hospitalisation rate. However, when inhaled/nebulised IBs were analysed together, the hospitalisation rate was similar, with moderate certainty evidence. IB improved asthma clinical scores, with low certainty evidence. No difference was reported in other prespecified outcomes.Considering the current evidence and safety profile, inhaled/nebulised IB needs to be considered as an additional treatment for acute asthma exacerbation.

Prospero registration number: CRD42023405023.

Keywords: Child Health; Emergency Care; Intensive Care Units, Paediatric; Paediatric Emergency Medicine; Paediatrics.

Conflict of interest statement

Competing interests: None declared.

Full text links

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Allergy

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. 2025 Nov 12.

doi: 10.1111/all.70151. Online ahead of print.

"Super-Responders" to Dupilumab Treatment in Patients With Primary Diffuse Chronic Rhinosinusitis With Nasal Polyps

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Collaborators, Affiliations Expand

- **PMID: 41221560**

- **DOI: 10.1111/all.70151**

Abstract

Background: Dupilumab is effective in treating patients with type-2 dominant chronic rhinosinusitis with nasal polyps (T2-CRSwNP). Dosing starts at an interval of 1×/2 weeks (Q2W) with possible tapering upon disease control. Prolonging the interdose interval reduces patient burden and side effects and improves cost-effectiveness.

Objectives: (1) Analyze how many patients successfully reach and maintain extended tapering of at least 1×/12 weeks (Q12W), (2) evaluate differences in baseline characteristics and clinical measurements between patients who maintain disease control on ≥ Q12W ("super-responders") and patients who do not; (3) compare characteristics of "super-responders" to patients reaching Q12W but losing disease control on that dose ("excellent responders").

Method: Prospective cohort study including dupilumab-treated T2-CRSwNP patients with a minimum follow-up of 2.5 years.

Results: From a total of 198 patients, 28 (14%) were "super-responders", and 26 (13%) "excellent responders." "super-responders" had less comorbid asthma (60.7% vs. 85.9%, p < 0.001), lower baseline immunoglobulin E levels (median [Q1: Q3]: 145 [58.7; 485] vs. 313 [135.5; 746]; p = 0.007) and a shorter time since last sinus surgery (2.5 years [1; 4.8] vs. 4 years [2; 7]; p = 0.026) compared to others. No differences were observed between "excellent" and "super-responders" at baseline, nor at the start of the Q12W interval. "excellent responders" showed worsening of clinical outcomes as well as increases in T2 markers in blood between start and stop of the Q12W interval.

Conclusion: Tapering of dupilumab to once every 12 weeks (Q12W) can be applied to super-responding patients. No clear predisposing factors were identified predicting the feasibility of extended tapering.

Keywords: chronic rhinosinusitis; dupilumab; nasal polyps; tapering; treatment outcome.

- **37 references**

Full text links

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. 2025 Nov 10;11(6):00364-2025.

doi: 10.1183/23120541.00364-2025. eCollection 2025 Nov.

Chronic cough and chronic pruritus in older adults: a population-based cross-sectional study

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Affiliations Expand

- **PMID: 41220829**

- PMCID: PMC12598587

- DOI: 10.1183/23120541.00364-2025

Abstract

Background: Chronic pruritus (CP) and chronic cough (CC) are prevalent conditions with shared underlying mechanisms, including neuronal sensitisation and inflammation. While previous studies identified associations between pruritus and CC, limited data exist on their interplay when accounting for confounders such as smoking and asthma.

Methods: This cross-sectional study analysed middle-aged and older participants from a population-based cohort, the Rotterdam Study. Logistic regression models assessed associations between demographic and lifestyle factors (*e.g.* smoking), CC (categorised as new-onset or persistent based on longitudinal data), asthma, and CP, reported as odds ratios with 95% confidence intervals. Sensitivity analyses sequentially excluded participants with atopic dermatitis, asthma and a combination of atopic conditions.

Results: In total, 4364 participants (age range 48-99 years, median age 71; 58.8% women) were included. Persistent CC was strongly associated with CP, doubling the odds in multivariable analyses (OR 2.07, 95% CI 1.43-3.00). Smoking was independently associated with CP, with the highest odds in current smokers (OR 1.46, 95% CI 1.10-1.92). The association between persistent CC and CP remained robust across all sensitivity analyses.

Conclusions: Persistent CC is strongly associated with CP, emphasising shared pathogenic mechanisms. Smoking emerged as a modifiable risk factor for CP. Longitudinal studies are needed to establish causality and optimise therapeutic and management strategies.

Conflict of interest statement

Conflicts of interest: S. Riemann reports nonfinancial support from AstraZeneca and GlaxoSmithKline outside the submitted work. H.B. Thio received honoraria for consultancy and invited presentations from AbbVie, Almirall, AstraZeneca, Boehringer-Ingelheim, Eli Lilly, Janssen, LeoPharma, Sanofi and UCB. G. Brusselle has received fees for attending advisory boards and giving lectures from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis and Sanofi Regeneron. The other authors declare no conflict of interest within the scope of the submitted work.

- 39 references

- 2 figures

Full text links

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. 2025 Nov 10;11(6):01303-2024.

doi: 10.1183/23120541.01303-2024. eCollection 2025 Nov.

Identification of two distinct molecular endotypes in cough-variant asthma based on sputum transcriptomics and clinical pathophysiological features

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- PMID: 41220824

- PMCID: PMC12598611

- DOI: 10.1183/23120541.01303-2024

Abstract

Rationale: Asthmatic cough may not respond well to corticosteroids. The underlying mechanisms and heterogeneity of cough variant asthma (CVA) remain poorly understood. The objectives of the present study were to explore airway immunological mechanisms and identify molecular endotypes in CVA by analysing sputum transcriptomics, clinical and pathophysiological characteristics.

Methods: RNA sequencing and cytokine measurement were performed on sputum samples from newly diagnosed patients with CVA (n=72), classic asthma (CA) (n=28) and healthy controls (HC) (n=28). Patients with CVA were treated and followed-up for 6 months.

Results: The majority of differentially expressed genes in CVA *versus* HC overlapped with those identified in CA *versus* HC. However, the type 2 immunity co-expression network in CVA was lower than that in CA. Based on sputum

transcriptomics profiles, two endotypes of CVA were identified: mixed-inflammatory CVA (n=40) and pauci-inflammatory CVA (n=32). Mixed-inflammatory CVA showed higher inflammation-related gene set signatures compared to both pauci-inflammatory CVA and HC. Mixed-inflammatory CVA also showed elevated levels of eosinophils, neutrophils, type 2, type 1 and type 3 cytokines in sputum compared to HC. Conversely, pauci-inflammatory CVA had slightly elevated sputum eosinophils, but no significant gene signatures and cytokine differences compared to HC. During 6 months' follow-up, pauci-inflammatory CVA showed a trend of less complete resolution in cough (56.2% *versus* 80.0%, p=0.0553) compared to mixed-inflammatory CVA. Kaplan-Meier analysis found significantly higher cough persistence in pauci-inflammatory *versus* mixed-inflammatory CVA.

Conclusions: CVA exhibits overlapping but distinct airway transcriptomics profiles compared to CA. Two distinct molecular endotypes are identified in CVA, presenting different clinical and pathophysiological features.

Conflict of interest statement

Conflict of interest: K. Lai acknowledges financial support from the National Natural Science Foundation of China, the Key-Area Research and Development Program of Guangdong Province, Guangzhou Medical University, Major Project of Guangzhou National Laboratory and AstraZeneca. Ruchong Chen declares his appointment as an Associate Editor of ERJ Open Research. The other authors state that they have no known competing financial interests or personal relationships that could have potentially influenced the work reported in this study.

- **40 references**
- **7 figures**

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. 2025 Nov 10;11(6):01390-2024.

doi: 10.1183/23120541.01390-2024. eCollection 2025 Nov.

Mepolizumab in patients with severe asthma and blood eosinophil counts between 150 and 300 cells per µL: benefits at two years

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Affiliations Expand

- PMID: 41220814
- PMCID: PMC12598589
- DOI: 10.1183/23120541.01390-2024

Abstract

Background: Although clinical trial evidence exists, there is limited awareness of the real-world effectiveness of mepolizumab in patients with severe asthma and blood eosinophil counts (BEC) ≥150-<300 cells·μL^{-1}.

Methods: REALITI-A, an international, prospective, single-arm, observational cohort study enrolled patients with severe asthma initiating mepolizumab. Outcomes assessed over 2 years pre- *versus* post-mepolizumab exposure included clinically significant exacerbations (CSEs), maintenance oral corticosteroid (mOCS) use, Asthma Control Questionnaire (ACQ)-5 scores and forced expiratory volume in 1 s (FEV_1).

Results: After 2 years of mepolizumab treatment, compared with pre-exposure, the proportion of patients with BEC ≥150-<300 cells·μL^{-1} (n=84) experiencing CSEs decreased from 95% to 63%, and the proportion experiencing exacerbations requiring hospitalisation or emergency department visits decreased from 43% to 19%. The rate of CSEs reduced from 4.53 to 1.47 per year (rate ratio 0.32, 95% CI 0.25, 0.41). After 2 years of mepolizumab exposure, the mean (95% CI) clinic pre-bronchodilator % predicted FEV_1 was 80.1 (69.4, 90.7) compared with 62.6 (54.1, 71.1) at baseline (28% relative increase). The median average daily dose of mOCS decreased from 10.0 to 1.5 mg·day^{-1} (85% relative reduction from baseline); 44% of patients discontinued completely. The minimum clinically important difference in ACQ-5 (improvement ≥0.5) was achieved by 82% of patients, with a mean (95% CI) reduction of 1.76 (2.34, 1.19).

Conclusions: These real-world findings provide evidence for the 2-year sustained benefit following initiation of mepolizumab in patients with severe asthma who have poor disease control and BEC ≥150-<300 cells·μL^{-1}.

Conflict of interest statement

Conflict of interest: G.W. Canonica reports research grants and fees from A. Menarini, ALK-Abelló, Allergy Therapeutics, AstraZeneca, Chiesi Farmaceutici, Faes, Firma, Guidotti-Malesci, GSK, Hal Allergy, Innovacaremd, Novartis, Om Pharma, RedMaple, Regeneron, Sanofi-Aventis, Sanofi-Genzyme, Stallergenes-Greer, Thermofisher, Uriach Pharma and Valeas. D. Bagnasco reports advisory

board positions for and speaker fees from GSK, AstraZeneca, Sanofi, Novartis, Menarini Group, Zambon and Firma. J.K. Lee reports research grant from Regeneron, GSK, AstraZeneca, and Sanofi-Genzyme and Novartis, Genentech, Roche, Incyte, Escient, Takeda and Medexus; speaking fees from Sanofi-Genzyme, AstraZeneca, Novartis, Mylan, Medexus, Aralez, Merck, Valeo, AbbVie and Pfizer and GSK; and consultancy advisory board meetings for Medexus, GSK, Regeneron, Sanofi-Genzyme, Novartis, AstraZeneca, Pfizer, AbbVie, Valeo and Leo. G. Chupp reports an investigator-initiated study with GSK; consultancy fees from GSK, AstraZeneca, Sanofi Genzyme, Regeneron, Amgen, Genentech, RAPT and Merck; clinical trial site PI for GSK and AstraZeneca; research grant from GSK. F. Schleich reports research grants from GSK, AstraZeneca, ALK, Chiesi, Novartis, TEVA, Sanofi; consulting fees from GSK, AstraZeneca and Chiesi; and speakers fees from GSK, AstraZeneca, Chiesi, ALK, Novartis and Teva. J.J. Oppenheimer reports positions on adjudication committees or data and safety monitoring boards for AstraZeneca, GSK, Novartis and Sanofi; consultancy fees from AstraZeneca, GSK and Sanofi; and grants and personal fees from GSK. L. Zhang, R. Alfonso-Cristancho and P. Howarth are employed by GSK and hold financial equities in GSK.

- 33 references
- 6 figures

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. 2025 Nov 10;11(6):00048-2025.

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Hospitalisations for bronchiectasis compared to COPD and asthma in the USA

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Affiliations Expand

- PMID: 41220813
- PMCID: PMC12598614

- DOI: 10.1183/23120541.00048-2025

Abstract

Objective: Understanding how bronchiectasis hospitalisations differ from those of COPD and asthma could guide clinical practice and improve care. This study aims to compare outcomes of hospitalisations for bronchiectasis exacerbation with those for COPD and asthma exacerbations.

Methods: This study used a US all-payer database to evaluate hospitalisations for bronchiectasis, COPD and asthma exacerbations from January 2017 to December 2021. Demographic data, hospital characteristics, comorbidities, costs, length of stay and mortality were analysed. Associations between the SARS-CoV-2 pandemic and hospitalisation incidence and mortality were also assessed. A secondary analysis examined outcomes in bronchiectasis exacerbation with overlapping airway diseases.

Results: The bronchiectasis cohort (n=232 825) had a median age of 72 years (IQR: 57-81); 59% were female and 73% were white. Compared to COPD and asthma, hospitalisations for bronchiectasis had longer median stays (5 *versus* 4 *versus* 3 days) and higher median costs (USD 50 393 *versus* USD 38 040 *versus* USD 31 262). After adjusting for age, year of hospitalisation and comorbidity burden, hospitalisations for bronchiectasis were 1.2 times more likely to result in death than for COPD, and 3.0 times more likely than for asthma (p<0.0001). During the pandemic years (2020-2021), hospitalisations for bronchiectasis declined by only 8%, compared to 26% for COPD and 28% for asthma, while mortality increased across all cohorts. Overlap of bronchiectasis exacerbation with COPD or asthma did not result in higher mortality than bronchiectasis alone.

Conclusions: Hospitalisations for bronchiectasis in the USA are associated with worse outcomes, including higher mortality, costs and length of stay, compared to those for COPD and asthma exacerbations.

Conflict of interest statement

Conflict of interest: The authors have nothing to disclose.

- 34 references
- 4 figures

Full text links

Comparative Study

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. 2025 Nov 11;51(1):299.

doi: 10.1186/s13052-025-02142-0.

Comparison of ERS/ATS guidelines across versions: differences in the application of bronchodilator responsiveness criteria in pediatric asthma by age subgroups (2005 vs 2021)

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Affiliations Expand

- PMID: 41219993

- PMCID: PMC12606916

- DOI: 10.1186/s13052-025-02142-0

Abstract

Background: The 2021 updated guidelines revised the bronchodilator responsiveness (BDR) positivity criteria to an increase in FEV_1 or FVC of > 10% of the predicted value. This new standard aims to reduce the impact of baseline lung function variability in determining BDR. However, it should be noted that supporting evidence for children and young adults is limited and thus cannot provide fully substantiated recommendations. The study systematically compare the test results of the BDR diagnostic criteria in the 2005 and 2021 versions of the ERS/ATS guidelines in a clinical setting in children of different age groups with asthma and to explore the reasons for the differences.

Methods: This was a single-center, retrospective, cross-sectional study. The applications of the 2005 and 2021 versions of BDR standards in different age groups(4-5 years, 6-11 years, 12-18 years) with asthma was compared, the lung-function characteristics of children with inconsistent results were analyzed, and the trend of the proportion of BDR + changing with the degree of airflow obstruction was analyzed.

Results: A total of 1,525 children with asthma were included in this study. There is a significant difference in the number of inconsistent group between the two methods ($P < 0.01$). In each age group, the number of people in the 2005 + 2021- group was

higher than that in the 2005-2021 + group. The kappa consistency test revealed the kappa values of all age groups to be > 0.80 (P < 0.01) and consistent. The inconsistent group had lower lung-function values than the consistent group. The 2005BDR-2021BDR + group of lung-function values were higher than 2005BDR + 2021BDR- group. The analysis revealed that only Z-FEV1 (OR = 0.773, 95% CI: 0.650 to 0.919, p = 0.004) was an independent factor of Inconsistent results.The trends of 2005BDR + and 2021BDR + were consistent with the degree of airflow obstruction, indicating a weak positive correlation.

Conclusions: The kappa test showed that the results of 2005BDR and 2021BDR were consistent, but there were differences between the inconsistent groups. Z-FEV1 is an independent factor affecting the inconsistent results, so baseline data is the main reason for the inconsistent results of the two methods. The 2021BDR standard may reduce the influence of baseline lung function when determining the results. The positive rate obtained based on the two evaluation criteria maintained the same trend with the degree of airflow obstruction. All showed a weak positive correlation.

Keywords: 2005BDR; 2021BDR; Airway obstruction; Asthma; Bronchodilator responsiveness; Children.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Medical Ethics Committee of the Children's Hospital of Chongqing Medical University [(2025) Ethics Review (Clinical Research) Approval No. (68)]. Informed consent from patients/their legal guardians was not required owing to the retrospective nature of this study. Consent for publication: Not applicable. Competing interests: The authors declare that they have no competing interests.

- 16 references
- 1 figure

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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Difficult-to-treat COPD: from concept to practice

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Affiliations Expand

- PMID: 41218686

- DOI: 10.1016/j.lpm.2025.104321

Abstract

Most patients with Chronic Obstructive Pulmonary Disease (COPD) can be managed effectively through standard therapeutic strategies. However, a significant proportion remains symptomatic, experiences recurrent exacerbations, or shows accelerated lung function decline despite apparently appropriate care. These patients often fall into what could be referred to as "difficult-to-treat COPD", a term still lacking formal definition. Drawing on parallels with asthma, this article proposes to consider the concept of disease control in COPD as a key driver of COPD management, not representing a fixed target but a dynamic construct reflecting daily impact and long-term stability. We provide a structured framework for reassessing diagnosis accuracy, evaluating treatment adequacy, and identifying unresolved pathophysiological drivers in patients who remain uncontrolled. Core domains include persistent dyspnea, chronic bronchitis, frequent or severe exacerbations, and rapid lung function decline. Each is explored with a focus on clinical reasoning, diagnostic tools, and phenotype- or endotype-based treatable trait-specific strategies. Importantly, the article argues that in patients remaining uncontrolled despite guideline-concordant care, the clinical response paradigm should shift from escalation to recharacterization. Practical pathways beyond standard care such as biologic therapy, lung volume reduction and transplantation, access to research protocols, and early integration of palliative care are reviewed. In the conclusion, we advocate for broader implementation of multidisciplinary case discussions and for using loss of disease control as a clinical trigger to prompt timely reassessment. Rather than defining a new phenotype, the aim is to promote a dynamic, precision-based approach to COPD management that aligns therapeutic strategies with evolving disease trajectories.

Keywords: Biotherapy; COPD; Control; Dyspnea; Exacerbations; Inhaled maintenance therapy.

Conflict of interest statement

Declaration of competing interest LR reports personal fees from AstraZeneca, Chiesi, GSK, and Sanofi, and institutional support for meeting attendance from AstraZeneca, Chiesi, and Sanofi. NR reports personal fees from GSK, AstraZeneca,

Sanofi, Chiesi, Pfizer, Austral, Biosency, Zambon, MSD, and Menarini for consulting or speaking engagements, and institutional support from Chiesi, GSK, and Pfizer. He also serves as Chair of the ERS Science Council.

Full text links

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MedComm (2020)

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. 2025 Nov 9;6(11):e70471.

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Quantitative Computed Tomographic Clusters in C-BIOPRED Asthma Cohort: Association with Sputum Proteomics

Zhenan Deng [1], Tingting Xia [2], Chenyang Lu [1], Xuliang Cai [1], Yujing Liu [3], Zhongmin Qiu [4], Xiaoyang Wei [5], Wei Gu [6], Dandan Chen [7], Jianping Zhao [8], Xiaoxia Liu [9], Shenghua Sun [10], Huaping Tang [11], Bei He [12], Shaoxi Cai [13], Ping Chen [14], Nanshan Zhong [1 15], Kian Fan Chung [16 17], Meiling Jin [18], Qingling Zhang [1 15]; C-BIOPRED Consortium

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- PMID: 41216128

- PMCID: PMC12596986

- DOI: 10.1002/mco2.70471

Abstract

Severe asthma exhibits heterogeneity in airflow obstruction, driven by airway remodeling and air trapping, which can be noninvasively assessed via quantitative computed tomography (qCT). This study aimed to identify asthma phenotypes by clustering qCT measurements of airway dimensions, lung volumes, and densitometry, and to elucidate the underlying molecular pathways through sputum proteomics. We applied consensus clustering to qCT data from 239 asthma patients (severe and mild/moderate) and 68 healthy controls from the Chinese C-BIOPRED

cohort. Four distinct qCT clusters emerged: cluster 1, characterized by luminal dilation, severe air trapping, and reduced lung density; cluster 2, with thickened airway walls and luminal narrowing without air trapping; cluster 3, showing mild luminal dilation, preserved lung volumes, and optimal spirometry; and cluster 4, featuring airway wall thickening, luminal narrowing, severe air trapping, and profound airflow obstruction. Sputum eosinophilia was elevated in clusters 1 and 4. Proteomics revealed upregulated pathways in apoptosis execution and cornified envelope formation in cluster 1, while clusters 2 and 4 exhibited enhanced complement activation, fibrin formation, plasma lipoprotein assembly, and insulin-like growth factor (IGF) transport regulation. These findings delineate qCT-derived phenotypes and their associated underlying mechanisms of airway remodeling and airflow obstruction in severe asthma.

Keywords: airflow obstruction; airway remodeling; asthma; high-resolution computed tomography; proteomics.

Conflict of interest statement

K. F. C. reports personal fees from attending Advisory Board meetings with GSK, AZ, Novartis, Roche, Merck, Trevi, Rickett-Beckinson, Nocion & Shionogi. He is a scientific adviser to The Clean Breathing Institute, supported by Haleon, and reports personal fees for speaking at meetings supported by GSK, Sanofi, Novartis & AZ. K. F. C., through his institution, has received research funding from Merck & GSK. Yujing Liu is an employee at AstraZeneca Co., but has no potential relevant financial or nonfinancial interests to disclose. The remaining authors declare no conflicts of interest.

- 47 references
- 5 figures

. 2025 Nov 10:1-24.

doi: 10.1080/08820139.2025.2583274. Online ahead of print.

Type 2 Inflammatory Phenotypes in Chronic Obstructive Pulmonary Disease and Asthma: Similarities and Differences

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Affiliations Expand

- PMID: 41215543

- DOI: 10.1080/08820139.2025.2583274

Abstract

Background: Asthma and chronic obstructive pulmonary disease (COPD) - two common airway diseases - have drawn greater attention lately because of their increasing occurrence and mortality rates. The main inflammatory types - type 2 and non-type 2, which include type 1 and type 3 inflammation - are distinguished by the presence of discrete immune cells, that coordinate the recruitment and activation of inflammatory cells, resulting in various pathological presentations, clinical symptoms, therapeutic responses, and prognoses. Despite significant differences, COPD and asthma share many inflammatory commonalities. In recent years, the type 2 inflammatory phenotype in COPD has steadily emerged as the focus of COPD research. Understanding the differences between COPD and asthma with type 2 inflammatory phenotypes is critical for designing individualized treatment strategies.

Methods and results: This review systematically searched for Chinese and English literature on COPD and asthma in the field of type 2 inflammation, and conducted a comprehensive review and analysis of the relevant content. It explored the similarities and differences between type 2 inflammatory phenotypes in COPD and asthma, with particular emphasis on their inflammatory mechanisms, clinical features, biomarkers, therapeutic targets, and treatment responses.

Conclusion: This review investigates the similarities and differences between type 2 inflammatory phenotypes in COPD and asthma, with the aim of better addressing their diversities, gain deeper insights into their underlying cellular and molecular mechanisms, develop novel therapies in unmet areas, explore more effective treatment directions, reduce the disease burden, and enhance patient outcomes.

Keywords: Chronic obstructive pulmonary disease; asthma; phenotype; type 2 inflammation.

Supplementary info

Publication typesExpand

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. 2025 Nov 9;15(11):e105374.

doi: 10.1136/bmjopen-2025-105374.

Protocol for a systematic review assessing the role of digital health technology in optimising medication adherence in older patients with asthma or COPD

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Affiliations Expand

- PMID: 41213702
- PMCID: PMC12598943
- DOI: 10.1136/bmjopen-2025-105374

Abstract

Introduction: An estimated 262 million people lived with asthma globally in 2019. Similarly, in 2021, chronic obstructive pulmonary disease (COPD) was responsible for 3.5% million global deaths. They are usually distinct disorders, but the Global Initiative Chronic Obstructive Lung Disease (GOLD) 2024 strategy document asserts that asthma and COPD are conditions that may coexist in an individual and may require specific personalised approaches and treatments. It is acknowledged that they may share some common treatable traits and clinical features There are many challenges to manage asthma and COPD in the older population, including poor adherence to prescribed medications and poor inhaler techniques. The overall aim of this systematic review is to identify, appraise and synthesise available evidence around digital health interventions used to improve medication adherence in older people with asthma or COPD.

Methods and analysis: This systematic review will examine studies that evaluated digital health interventions for asthma or COPD in any setting (eg, primary or secondary care). To be included, studies must be reported in English, Arabic or French and published from the year 2000 onwards. A literature search will be performed in MEDLINE via Ovid, Cochrane Central Register of Controlled Trials

(CENTRAL), CINAHL, EMBASE and PsycINFO via Ovid to identify relevant articles published since 2000 and up to December 2024. No language restrictions will be applied.The Cochrane risk-of-bias tool for randomised trials will be used to assess the quality of retrieved randomised controlled trials and quasi-experimental studies. The quality of cross-sectional, cohort and case-control studies will be assessed using the Newcastle Ottawa Scale. Mixed-methods studies will be assessed using the Mixed Methods Appraisal Tool (MMAT). The quality of qualitative studies will be assessed using the Critical Appraisal Skills Programme (CASP) qualitative checklist.Data will be synthesised using a convergent segregated approach, which involves an independent synthesis of quantitative and qualitative data leading to the generation of quantitative and qualitative evidence, which will then be integrated.

Ethics and dissemination: Ethics approval is not applicable for this study since no original data will be collected. The results will be disseminated through a peer-reviewed publication and conference presentations. Findings will be used in a bigger project aimed to answer the question on how to embed a pharmacist-led digital health service to support older people with asthma or COPD into the NHS (National Health Service) usual care.

Prospero registration number: CRD42024575924.

Keywords: Asthma; Chronic airways disease; Digital Technology; Frail Elderly; Medication Adherence; Review.

Conflict of interest statement

Competing interests: None declared.

- 65 references

Supplementary info

MeSH termsExpand

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Cite

21

Allergy

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. 2025 Nov 10.

doi: 10.1111/all.70127. Online ahead of print.

Cluster Analysis to Identify Distinct Asthma Phenotypes in the ATLANTIS Cohort

Pauline J M Kuks [1 2], Tatiana Karp [1 2], Jorine E Hartman [1 2], Monica Kraft [3], Salman Siddiqui [4], Leonardo M Fabbri [5], Bianca Beghé [6], Klaus F Rabe [7 8], Alberto Papi [9], Christopher E Brightling [10], Dave Singh [11], Xingnan Li [3], Janwillem W H Kocks [1 2 12 13], Ulrica Scaffidi-Argentina [14], Huib A M Kerstjens [1 2], Irene H Heijink [1 2 15], Simon D Pouwels [1 2 15], Dirk-Jan Slebos [1 2], Maarten van den Berge [1 2]

Affiliations Expand

- PMID: 41212157

- DOI: 10.1111/all.70127

Abstract

Background: Previous cluster analyses have identified subgroups of asthma. However, only a few studies included parameters of small airways dysfunction (SAD), or gene expression profiles reflecting underlying disease mechanisms. We aimed to identify clinically distinct asthma phenotypes, beyond GINA asthma severity, using available data from the ATLANTIS study which focused on identifying the prevalence of SAD in asthma and its role in asthma control, exacerbations and quality of life.

Methods: The ATLANTIS study included 773 asthma patients (mean age 44 years, 58% female, 76% never-smoker, GINA 1-5). Subjects were extensively characterized, including symptoms, parameters of large and small airways dysfunction, blood and sputum differential cell counts, and genome-wide gene expression profiling from nasal brushes. Clusters were generated using the Self-Organizing Map-Ward's method.

Results: Four distinct clusters were identified: A (N = 62; 8%) characterized by the most frequent exacerbations, lower post-bronchodilator FEV_1 % predicted, more small airways dysfunction, higher sputum and blood eosinophils, and high expression of asthma-related genes. B (N = 206; 27%) consisting of atopic patients with early-onset asthma, uncontrolled symptoms, and normal lung function and bronchial hyperresponsiveness, along with a high expression of asthma-related genes in the nasal epithelium. C (N = 277; 36%), predominantly male former smokers, with well-controlled asthma, mild obstructive lung disease, and relatively high neutrophil levels. D (N = 228; 29%), with normal lung function and low blood and sputum eosinophils.

Conclusions: Four distinct clusters were identified, where the presence of SAD was associated with high type-2 inflammation, lower lung function, and frequent exacerbations. SAD may be a marker of poorly controlled asthma and should be considered as an important clinical trait.

Keywords: airway inflammation; asthma phenotypes; cluster analysis; gene expression profiling; small airways dysfunction.

- 25 references

Full text links

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Cite

22

J Asthma

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. 2025 Nov 13:1-8.

doi: 10.1080/02770903.2025.2581018. Online ahead of print.

Tapering of inhaled corticosteroids in stable T2-low asthma: a randomized trial of symptom- and biomarker trajectories

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- PMID: 41160477

- DOI: 10.1080/02770903.2025.2581018

Abstract

Objective: To investigate whether tapering of inhaled corticosteroids (ICSs) is non-inferior to standard of care (SoC) in asthma patients with a stable type 2 (T2)-low inflammatory profile, generally considered less responsive to ICS therapy, and to describe symptom and biomarker trajectories during tapering.

Methods: This randomized, controlled, open-label multicenter trial conducted across specialist centers between 2022 and 2024 recruited adult asthma patients with persistently low T2 biomarkers, defined as blood eosinophils <0.15 × 10^9/L, fractional exhaled nitric oxide (FeNO) <25 ppb, and non-allergic phenotype. Patients' adherent to medium- or high-dose ICS were randomized 1:1 to either ICS tapering (50% reduction at randomization and withdrawal after 8 weeks) or continued SoC. The primary endpoint was change in Asthma Control Questionnaire (ACQ) score at

16 weeks. Secondary endpoints included changes in blood and sputum eosinophils, FeNO, periostin, and lung function.

Results: Recruitment proved challenging as only 20 of 2766 screened patients met eligibility criteria, leading to early study termination. Median ACQ remained stable in the tapering group (0 [-0.14; 0.5]) and improved modestly in the SoC group (-0.44 [-0.9; -0.11]; $p = 0.211$). FeNO ($p = 0.038$) and periostin ($p = 0.031$) increased with tapering but remained within the T2 low range. Minimal changes were observed in blood eosinophils ($p = 0.3$) and FEV_1 ($p = 0.7$).

Conclusions: Premature trial termination due to recruitment challenges reflects the rarity of stable T2-low asthma. ICS tapering was not associated with greater symptom deterioration compared to SoC, although non-inferiority was not demonstrated.

Keywords: ICS withdrawal; T2-low asthma; asthma control; biomarker guided therapy; individualized treatment.

23

J Affect Disord

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. 2025 Nov 15:389:119677.

doi: 10.1016/j.jad.2025.119677. Epub 2025 Jun 12.

Association of depression, anxiety with asthma outcomes and allergic comorbidities: results from the National Health Interview Survey

Yu Chen [1], Hui Cai [2], Xiaofen Ye [3], Guiping Zhu [4], Yansha Song [4], Zilinuer Abuduxukuer [4], Chong Lu [4], Yingying Zeng [4], Wenjun Peng [4], Hua Chen [5], Meiling Jin [6]

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- PMID: 40516621

- DOI: 10.1016/j.jad.2025.119677

Abstract

Background: Depression and anxiety are common among asthmatic patients and are associated with asthma control. However, there is limited research on the nationwide prevalence of mental disorders and the association of depression/anxiety with asthma outcomes, remission and allergic comorbidities.

Objective: Our study aimed to evaluate the effect of depression/anxiety on asthma outcomes and allergic comorbidities.

Methods: This study used data from 231,460 adults (19,195 current asthma, 11,972 ever asthma, 200,293 never asthma) participated in the National Health Interview Survey 2010-2022. Depression/anxiety were identified based on self-reported frequency and intensity of mental symptoms. Multivariable logistic regressions and trend tests were employed.

Results: Compared with never asthma group, the morbidities of depression/anxiety among participants with current asthma (13.82 % with depression, 25.43 % with anxiety) and ever asthma (8.44 % with depression, 19.12 % with anxiety) were much higher. Depression and anxiety were associated with increased asthma risk (depression: OR 1.34, 95%CI 1.25-1.44; anxiety: OR 1.45, 95%CI 1.38-1.52) and reduced likelihood of asthma remission (depression: OR 1.19, 95%CI 1.04-1.35; anxiety: OR 1.17, 95%CI 1.06-1.28). Patients with depression/anxiety experienced more exacerbations (depression: OR 1.31, 95%CI 1.15-1.50; anxiety: OR 1.30, 95%CI 1.17-1.44), and more comorbid allergic diseases (depression: 1.15 vs 0.99, p = 0.018; anxiety: 1.20 vs 0.95, p < 0.001), including respiratory, skin and food allergy, compared to those without depression/anxiety.

Conclusion: Depression and anxiety were associated with an increased risk of asthma, poorer symptoms control and a reduced likelihood of clinical remission. Asthmatic patients experiencing psychological distress were also at an elevated risk of developing comorbid allergic conditions.

Keywords: Allergic comorbidities; Anxiety; Asthma; Asthma remission; Depression.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no competing interests.

Supplementary info

MeSH termsExpand

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

Observational Study

Medicine (Baltimore)

. 2025 Nov 14;104(46):e45738.

doi: 10.1097/MD.0000000000045738.

Efficacy of individual increment on house dust mite sublingual immunotherapy in low-response patients with allergic rhinitis

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Affiliations Expand

- PMID: 41239732

- DOI: 10.1097/MD.0000000000045738

Abstract

This study aimed to investigate the clinical improvement of the incremental dosage regimen in allergic rhinitis (AR) patients with low response to sublingual immunotherapy (SLIT). This retrospective study included 65 AR patients with low response to dust mite SLIT after 6-month treatment. Patients were divided into regular-dose (RD) group (n = 23) and high-dose (HD) group (n = 42). The RD group maintained the previous standard dose, while the HD group received the higher tolerated dose and further categorized into 2 subgroups based on increased doses. Total nasal symptoms score (TNSS), total medication score (TMS), combined symptom and medication score (CSMS), and visual analog scale were compared at baseline, 6 months, and 1 year. Safety was assessed by reported adverse events (AEs).There were no significant differences between RD and HD groups at baseline and 6 months. However, patients in the HD group showed significantly lower TNSS, TMS, CSMS, and visual analog scale at 1 year compared to the RD group (all P <.01). Continued improvements in TNSS, TMS, and CSMS were only found in the HD group from 6-month to 1-year treatment (all P <.01). Moreover, there was no statistical difference between HD subgroups at any follow-up points. In addition, a higher proportion of patients in the HD group discontinued medication. No difference was observed in AEs between RD and HD groups. Dose increment after 6-month SLIT treatment could significantly enhance efficacy in low-response AR patients over a 1-year course without raising the risk of AEs.

Keywords: allergen-specific immunotherapy; allergic rhinitis; dose adjustment; house dust mite; sublingual immunotherapy.

Conflict of interest statement

The authors have no funding and conflicts of interest to disclose.

- 31 references

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

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Eur J Pediatr

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. 2025 Nov 15;184(12):761.

doi: 10.1007/s00431-025-06624-5.

Prick test accuracy for Der p components in pediatric rhinitis

Antonio Bonillo-Perales [1], Esperanza Jiménez-Nogueira [1], Patricia Juárez-Marruecos [1], José Sánchez-López-Gay [1], María Del Mar Martínez-Aparicio [1], María García-Carrillo [1], Andrea Premoli-López [2], Bruno José Nievas-Soriano [3]

Affiliations Expand

- PMID: 41239047

- DOI: 10.1007/s00431-025-06624-5

Abstract

This study aimed to evaluate the accuracy of prick tests for Der p1, Der p2, and Der p23 in estimating specific IgE sensitization to these components in children with rhinitis. A retrospective cohort study was conducted in 125 children with rhinitis who had a positive prick test to Dermatophagoides pteronyssinus. We compared the number of children sensitized by prick test to Der p1, Der p2, and Der p23 with those sensitized by specific IgE (ImmunoCAP) for each component. We used Student's t-test and chi-squared tests for the analysis. We also evaluated the accuracy of the molecular prick tests for estimating specific IgE to the components using ROC curves. The percentage of children sensitized by the prick test differed from those sensitized by specific IgE for Der p1 and Der p2. For Der p1, the percentages were 62.4% vs. 78.9% (p = 0.03). For Der p2, the rates were 41.4% vs. 72.7% (p < 0.001). For Der p23, the difference was not significant (64.2% vs. 68.2%, p = NS). Positive prick tests showed high accuracy for estimating specific IgE

sensitization to Der p1 (AUC: 0.88, PPV: 93.7%, p < 0.001), Der p2 (AUC: 0.78, PPV: 100%, p < 0.001), and Der p23 (AUC: 0.86, PPV: 92.3%, p < 0.001).

Conclusions: Prick tests are highly accurate for estimating specific IgE sensitization to Der p1, Der p2, and Der p23. When positive, they could guide specific immunotherapy in children without the need for additional laboratory tests.

What is known: • IgE Der p components are highly useful for diagnostic and prognostic evaluation. They also guide the indication for immunotherapy in children with rhinitis, with or without allergic asthma, sensitized to D. pteronyssinus.

What is new: • This study is the first to describe the profile of allergic sensitization to Der p components using a prick test in children with rhinitis sensitized to D. pteronyssinus. Additionally, we describe for the first time the high predictive value of having positive IgE to Der p components in children with rhinitis who show positive prick test results for Der p components.

Keywords: D. pteronyssinus; Accuracy; Der p1; Der p2; Der p23; Mites; Molecular components; Prick test; ROC curve; Real-world study; Rhinitis; Specific IgE.

Conflict of interest statement

Declarations. Ethics approval: This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of the Torrecardenas University Hospital, with reference code MRO032025. Competing interests: The authors declare no competing interests.

- **31 references**

Supplementary info

MeSH terms, SubstancesExpand

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Int J Pediatr Otorhinolaryngol

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. 2025 Nov 11:199:112646.

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Patients with allergic rhinitis are more likely to need a secondary adenoidectomy after 6 months

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Affiliations Expand

- PMID: 41232154

- DOI: 10.1016/j.ijporl.2025.112646

Abstract

Background: Adenoidectomy, without concomitant procedures like tonsillectomy, is the third most common ambulatory pediatric operation. Allergic rhinitis is a common comorbidity that is known to cause adenoid hypertrophy. With time and progression, adenoid hypertrophy can become symptomatic and necessitate removal. Our aim is to assess how patients diagnosed with allergic rhinitis affect the need for a secondary adenoidectomy over time.

Methods: We queried the TriNetX database and produced the statistical analysis for this project. The control group consisted of patients who have not been diagnosed with allergic rhinitis and have undergone a primary adenoidectomy. Cohorts were balanced using native TriNetX propensity matching before analysis. Outcomes measured included the presence of secondary adenoidectomy after 0-0.5, 0.5-1, 1-2, 2-3, 3-4, 4-5, 5-7, and 7+ years of primary adenoidectomy.

Results: 65,106 patients were assessed with a mean average age of 6.36 ± 7.82 and 6.34 ± 7.71 years between the control and experimental group. There was no difference in secondary adenoidectomy occurrences between the two groups between 1 day and 0.5 years after primary adenoidectomy ($p = 0.896$, RR 1.632 (0.922,2.888)). There was a difference between 0.5 and 1 year ($p < 0.0001$), 1-2 years ($p < 0.0001$), 2-3 years ($p < 0.0001$), 3-4 years ($p = 0.001$), 4-5 years ($p = 0.001$), 5-7 years ($p = 0.0002$), and more than 7 years ($p = 0.0023$).

Conclusions: After 0.5 years of primary adenoidectomy surgery, patients diagnosed with allergic rhinitis are more likely to need a secondary adenoidectomy compared to their counterparts not diagnosed with allergic rhinitis.

Keywords: Adenoidectomy; Allergic rhinitis; Pediatric otolaryngology.

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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Review

Curr Allergy Asthma Rep

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. 2025 Nov 10;25(1):52.

doi: 10.1007/s11882-025-01234-5.

Choice of Mucosa Removal in Endoscopic Sinus Surgery for Chronic Rhinosinusitis with Nasal Polyps: A Systematic Review and Network Meta-Analysis

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Affiliations Expand

- PMID: 41212426

- DOI: 10.1007/s11882-025-01234-5

Abstract

Purpose of review: The optimal management of mucosal tissues during endoscopic sinus surgery (ESS) for chronic rhinosinusitis with nasal polyps (CRSwNP) remains controversial. This systematic review and network meta-analysis aimed to compare the efficacy and safety between mucosa-preserving surgical techniques, such as functional endoscopic sinus surgery (FESS) and extended endoscopic sinus surgery (EESS), and radical mucosa-resecting endoscopic sinus surgery (RESS) for the treatment of CRSwNP.

Recent findings: Nine studies involving 1,224 patients were included. RESS was associated with significantly lower recurrence rates compared to both FESS (relative risk [RR]: 2.37; 95% confidence interval [CI]: 1.64, 3.43) and EESS (RR: 2.22; 95% CI: 1.48, 3.36). EESS demonstrated a significantly lower revision surgery rate than FESS (RR: 2.95; 95% CI: 1.89, 4.82). Additionally, RESS showed greater improvement in overall symptom/severity visual analogue scale (VAS, 0-10 cm) scores compared to FESS (mean difference [MD]: -2.82, 95% CI: -3.02, -2.62) and EESS (MD: -2.64, 95% CI: -4.09, -1.21). No significant differences were observed in complication rates among these surgical techniques. Besides, no statistically

significant differences were found in VAS-loss of smell score, Sino Nasal Outcome Test-22 score, or Lund-Kennedy endoscopic score. Mucosal resection during endoscopic sinus surgery is associated with reduced postoperative recurrence and improved overall symptom control in patients with CRSwNP compared to mucosal preservation techniques. The safety profiles of these surgical approaches are comparable.

Keywords: Chronic rhinosinusitis with nasal polyps; Endoscopic sinus surgery; Mucosal removal; Network meta-analysis.

Conflict of interest statement

Declarations. Competing Interests: The authors declare no competing interests. Human and Animal Rights and Informed Consent: All reported studies/experiments involving human subjects performed by the authors were in accordance with the ethical standards of institutional and/or national research committee.

- 31 references

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

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5

Clin Exp Allergy

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. 2025 Nov 9.

doi: 10.1111/cea.70173. Online ahead of print.

Assessment of the Effectiveness of Allergic Rhinitis Medications Using a Target Trial Emulation Approach Based on Mobile Health Data

Nuno Lourenço-Silva [1 2], Bernardo Sousa-Pinto [1 2], Antonio Bognanni [3 4], Matteo Martini [5 6], Michal Ordak [7], Giovanni Paoletti [8 9], Sara Gil-Mata [1 2], Rita Amaral [1 2 10 11], Anna Bedbrook [12 13], Patrizia Bonadonna [14], Luisa Brussino [15 16], G Walter Canonica [8 9], João Coutinho-Almeida [1 2], Alvaro A Cruz [17], Wienczyslawa Czarlewski [12 13 18], Mark Dykewicz [19], Mattia Giovannini [20 21], Bilun

Gemicioglu [22 23], Juan Carlos Ivancevich [24], Ludger Klimek [25 26], Violeta Kvedariene [27 28], Desiree E Larenas-Linnemann [29], Manuel Marques-Cruz [1 2], André Moreira [30 31 32], Marek Niedoszytko [33], Ana Margarida Pereira [1 2 34], Nikolaos G Papadopoulos [35], Nhân Pham-Thi [36 37 38], Frederico S Regateiro [39 40 41 42], Sanna K Toppila-Salmi [43 44], Boleslaw Samolinski [45], Joaquin Sastre [46], Luís Taborda-Barata [47 48], Tuuli Thomander [1 49], Ilgım Vardaloğlu Koyuncu [50], Arunas Valiulis [51 52], Leticia de Las Vecillas [53], Maria Teresa Ventura [54 55], Jolanta Walusiak-Skorupa [56], Yi-Kui Xiang [57 58 59], Oliver Pfaar [60], João A Fonseca [1 2], Torsten Zuberbier [57 58], Holger J Schünemann [3 4 58], Danilo di Bona [61], Jean Bousquet [57 58], Rafael José Vieira [1 2]

Affiliations Expand

- **PMID: 41207877**

- **DOI: 10.1111/cea.70173**

No abstract available

Supplementary info

Grants and fundingExpand

Full text links

chronic cough

1

Case Reports

Medicine (Baltimore)

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. 2025 Nov 14;104(46):e45864.

doi: 10.1097/MD.0000000000045864.

Diagnostic challenges of yellow nail syndrome in an older patient with recurrent pleural effusion: A case report

Dalin Di [1], Qingxiang Zhang [2], Yanyan Zhang [3], Chun'e Gao [2], Zongliang Li [2], Zhiwen Xu [4], Yuxia Li [1 5]

Affiliations Expand

- **PMID: 41239673**

- **DOI: 10.1097/MD.0000000000045864**

Abstract

Rationale: Yellow nail syndrome (YNS) is a rare disorder characterized by a triad of yellow nails, lymphedema, and respiratory manifestations, which primarily presents as recurrent pleural effusion in older patients. Given that all 3 features of the triad may not be present synchronously, diagnosis of YNS poses a significant clinical challenge, especially in elderly populations.

Patient concerns: A 75-year-old male with a history of chronic obstructive pulmonary disease and eczema presented with worsening cough, dyspnea, and recurrent left-sided pleural effusion. Physical examination revealed characteristic yellow nails exhibiting thickening, discoloration, increased curvature, and absence of lunulae and cuticles, along with mild facial and ankle edema.

Diagnoses: YNS was diagnosed based on the presence of characteristic yellow nails, lymphocyte-predominant exudative pleural effusion, and the exclusion of infectious, malignant, and tuberculous etiologies through comprehensive evaluations including pleural fluid analysis, cytology, microbiology, chest imaging, and bronchoscopy.

Interventions: The patient underwent therapeutic thoracentesis with drainage of 4760 mL of pleural fluid over a 20-day period. Anti-infective therapy was administered (initially cefoxitin, later escalated to piperacillin-tazobactam and levofloxacin) along with oral vitamin E supplementation (1200 IU/d) initiated on the fourth day of hospitalization.

Outcomes: Following treatment, the patient experienced gradual improvement in dyspnea with substantial reduction in pleural effusion from 8.25 cm to 0.36 cm in depth. During the long-term follow-up (June 2021-May 2025, approximately 47 months), sustained improvement in respiratory symptoms was observed, with progressive improvement in fingernail morphology, though yellow discoloration partially persisted.

Lessons: This case highlights the importance of considering YNS in the differential diagnosis of recurrent pleural effusion in older patients, even in the absence of typical lymphedema. The improvements observed following vitamin E therapy suggest its potential therapeutic benefit; however, further studies are warranted to establish definitive treatment protocols for this rare condition.

Keywords: older; recurrent pleural effusion; vitamin E; yellow nail syndrome.

Conflict of interest statement

The authors have no conflicts of interest to disclose.

- **21 references**

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

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Respir Med

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. 2025 Nov 12:108499.

doi: 10.1016/j.rmed.2025.108499. Online ahead of print.

Frequent productive cough in COPD relates to exacerbation risk and treatment benefit from budesonide/glycopyrrolate/formoterol fumarate: a post hoc analysis of KRONOS

Mehul Patel [1], Jonathan Marshall [2], Fernando J Martinez [3], Alec Mushunje [4], Karin Bowen [5], Martin Jenkins [6]

Affiliations Expand

- PMID: 41237914

- DOI: 10.1016/j.rmed.2025.108499

Abstract

Background: Frequent productive cough (FPC) is associated with increased exacerbation risk in chronic obstructive pulmonary disease (COPD). These post-hoc analyses examined COPD exacerbations in participants without a recent exacerbation history by baseline FPC status (defined as COPD Assessment Test [CAT] subscores ≥2 for both cough and sputum) and for budesonide/glycopyrrolate/formoterol fumarate (BGF) versus dual therapies.

Methods: KRONOS (NCT02497001) was a 24-week, double-blind, parallel-group, multi-center, Phase III, randomized study in symptomatic people with moderate-to-very severe COPD; COPD exacerbation in the preceding 12 months was not required. Participants were randomized 2:2:1:1 to receive BGF 320/18/9.6 µg, glycopyrrolate/formoterol fumarate (GFF) 18/9.6 µg, budesonide/formoterol fumarate (BFF) 320/9.6 µg via metered-dose inhaler, or open-label budesonide/formoterol

fumarate 400/12 µg via dry-powder inhaler (BUD/FORM), as two inhalations twice-daily.

Results: Of 1,411 participants in the modified intent-to-treat population without a recent COPD exacerbation history, 965 (68.4%) had baseline FPC. Moderate/severe exacerbation rates were higher in those with versus without FPC (BGF, 0.47 vs 0.29; BFF, 0.45 vs 0.37; BUD/FORM, 0.67 vs 0.14), except for GFF (0.79 vs 0.83). BGF was associated with reduced moderate/severe exacerbation rates among those with FPC (41% reduction) and without FPC (65% reduction) at baseline versus GFF, with similar findings observed in moderate COPD (FPC: 37% reduction; without FPC, 72% reduction).

Conclusions: Among participants without an exacerbation history in the prior 12 months, FPC identified those at higher exacerbation risk. Further, BGF was associated with lower COPD exacerbation rates versus GFF, including numerically lower among those with moderate COPD and regardless of FPC status.

Clinical trial registration: NCT02497001.

Keywords: budesonide; chronic obstructive pulmonary disease; exacerbation; formoterol fumarate; frequent productive cough; glycopyrrolate; triple therapy.

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:Mehul Patel reports financial support was provided by AstraZeneca. Jonathan Marshall reports financial support was provided by AstraZeneca. Fernando J Martinez reports financial support was provided by AstraZeneca. Alec Mushunje reports financial support was provided by AstraZeneca. Karin Bowen reports financial support was provided by AstraZeneca. Martin Jenkins reports financial support was provided by AstraZeneca. Mehul Patel reports a relationship with AstraZeneca that includes: employment and equity or stocks. Jonathan Marshall reports a relationship with AstraZeneca that includes: employment and equity or stocks. Alec Mushunje reports a relationship with AstraZeneca that includes: employment and equity or stocks. Karin Bowen reports a relationship with AstraZeneca that includes: employment and equity or stocks. Martin Jenkins reports a relationship with AstraZeneca that includes: employment and equity or stocks. Fernando J Martinez reports a relationship with AstraZenaca that includes: funding grants and non-financial support. Fernando J. Martinez reports grants, personal fees, and non-financial support from AstraZeneca during the conduct of the study; grants, personal fees, and non-financial support from AstraZeneca, Chiesi, GlaxoSmithKline, Metronic, Novartis, Sanofi/Regeneron; grants and personal fees from AstraZeneca, Chiesi, GlaxoSmithKline, and Sanofi/Regeneron. 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

Associated dataExpand

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ERJ Open Res

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. 2025 Nov 10;11(6):00364-2025.

doi: 10.1183/23120541.00364-2025. eCollection 2025 Nov.

Chronic cough and chronic pruritus in older adults: a population-based cross-sectional study

Juliette F Bollemeijer [1], Sebastian Riemann [2 3], Hok Bing Thio [1], Tamar E C Nijsten [1], Guy Brusselle [2 3 4], Luba M Pardo [1]

Affiliations Expand

- PMID: 41220829
- PMCID: PMC12598587
- DOI: 10.1183/23120541.00364-2025

Abstract

Background: Chronic pruritus (CP) and chronic cough (CC) are prevalent conditions with shared underlying mechanisms, including neuronal sensitisation and inflammation. While previous studies identified associations between pruritus and CC, limited data exist on their interplay when accounting for confounders such as smoking and asthma.

Methods: This cross-sectional study analysed middle-aged and older participants from a population-based cohort, the Rotterdam Study. Logistic regression models assessed associations between demographic and lifestyle factors (*e.g.* smoking), CC (categorised as new-onset or persistent based on longitudinal data), asthma, and CP, reported as odds ratios with 95% confidence intervals. Sensitivity analyses sequentially excluded participants with atopic dermatitis, asthma and a combination of atopic conditions.

Results: In total, 4364 participants (age range 48-99 years, median age 71; 58.8% women) were included. Persistent CC was strongly associated with CP, doubling the odds in multivariable analyses (OR 2.07, 95% CI 1.43-3.00). Smoking was independently associated with CP, with the highest odds in current smokers (OR 1.46, 95% CI 1.10-1.92). The association between persistent CC and CP remained robust across all sensitivity analyses.

Conclusions: Persistent CC is strongly associated with CP, emphasising shared pathogenic mechanisms. Smoking emerged as a modifiable risk factor for CP. Longitudinal studies are needed to establish causality and optimise therapeutic and management strategies.

Conflict of interest statement

Conflicts of interest: S. Riemann reports nonfinancial support from AstraZeneca and GlaxoSmithKline outside the submitted work. H.B. Thio received honoraria for consultancy and invited presentations from AbbVie, Almirall, AstraZeneca, Boehringer-Ingelheim, Eli Lilly, Janssen, LeoPharma, Sanofi and UCB. G. Brusselle has received fees for attending advisory boards and giving lectures from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis and Sanofi Regeneron. The other authors declare no conflict of interest within the scope of the submitted work.

- **39 references**
- **2 figures**

4

Observational Study

Zhonghua Jie He He Hu Xi Za Zhi

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. 2025 Nov 12;48(11):1028-1034.

doi: 10.3760/cma.j.cn112147-20250419-00214.

[Four-year real-world outcomes and prognostic factors in patients with chronic cough: a prospective observational study]

[Article in Chinese]

S Y Huang [1], W Q Zhao [1], M J Chen [1], G L Xu [1], J W Huang [1], Y L Hu [1], Y X Wu [1], Y M Ye [1], M Wang [1], S X Cai [1], H J Zhao [1]

Affiliations Expand

- PMID: 41218860

- DOI: 10.3760/cma.j.cn112147-20250419-00214

Abstract

in English, Chinese

Objective: To determine the 4-year clinical outcomes and systematically analyze key prognostic factors in these patients. Methods: From January 2018 to March 2019, this single-center, prospective observational study enrolled 202 consecutive patients with chronic cough, who underwent baseline assessments followed by 1-year and 4-year follow-up. The primary outcome was cough symptom resolution, categorized as significant improvement or no improvement. Univariate and multivariate analyses were performed to evaluate the impact of demographic factors(age, sex), clinical features (cough duration, smoking history, allergy history), etiological subtypes, Arnold's nerve reflex (ANR), and fractional exhaled nitric oxide (FeNO) on 4-year outcomes. Statistical analyses were performed using SPSS 19.0 software, and receiver operating characteristic curves were employed to assess the sensitivity and specificity of the data. Results: A total of 98 patients (48.5%) completed both 1-year and 4-year follow-up [47 males and 51 females, (35.1±10.3) years]. At 4-year, the rate of significant improvement was significantly higher than at 1 year [82.7% (81/98) *vs.* 72.5% (71/98), χ^2=49.78, *P*<0.001]. Prognostic analysis showed that the baseline cough duration in the improved group was significantly shorter than that in the non-improved group [0.58 (0.33, 2.00) years *vs.* 3 (1.84, 7.50) years, *Z*=-3.42, *P*=0.001]. Patients with allergy history had lower improvement rates compared with those without allergy [5/13 *vs.* 85% (76/85), χ^2=17.02, *P*<0.001].The cough variant asthma (CVA) and eosinophilic bronchitis (EB) subgroups had significantly lower improvement rates than the upper airway cough syndrome, gastroesophageal reflux cough, and allergic cough subgroups [73.8% (45/61) *vs.* 97.3% (36/37), χ^2=8.89, *P*=0.003]. Sex, age, smoking history, ANR, and FeNO showed no significant prognostic value. Multivariate analysis confirmed cough duration (*P*=0.014), allergy history (*P*=0.001), and etiological subtype (*P*=0.022) were independent predictors of 4-year outcomes, while demographic characteristics, smoking history, ANR, and FeNO were not significant. Conclusions: This study demonstrates that over 80% of chronic cough patients achieve significant improvement within 4 years of clinical management. Cough duration, allergy history, and etiological subtype are key determinants of long-term outcomes, highlighting the need for individualized long-term management strategies, particularly for patients with prolonged cough duration and concomitant allergy history in the CVA/EB subgroups.

Supplementary info

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Zhonghua Jie He He Hu Xi Za Zhi

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. 2025 Nov 12;48(11):1020-1027.

doi: 10.3760/cma.j.cn112147-20250303-00122.

[Brain activity alterations in chronic cough: a resting-state functional magnetic resonance imaging study]

[Article in Chinese]

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- PMID: 41218859

- DOI: 10.3760/cma.j.cn112147-20250303-00122

Abstract

in English, Chinese

Objective: To explore the characteristics of altered brain functional activity in patients with chronic cough using resting-state functional magnetic resonance imaging (fMRI). Methods: This was a prospective study. From January 2016 to January 2019, a total of 20 patients with refractory chronic cough [10 males and 10 females, (39.3±8.2) years], 19 patients with somatic cough syndrome [14 males and 5 females, (34.5±9.2) years], and 29 healthy controls [19 males and 10 females, (38.3±12.1) years] were recruited from the chronic cough outpatient clinic of the First Affiliated Hospital of Guangzhou Medical University for analysis. All participants underwent resting-state fMRI, as well as assessment of cough severity, and capsaicin cough challenge. The amplitude of low-frequency fluctuations (ALFF) was used to assess brain functional activity. First, differences in brain activity

between patients with refractory chronic cough and healthy controls were compared. Subsequently, brain regions showing significant differences were selected as seed points, and seed-based whole-brain functional connectivity (FC) analyses were performed to examine group differences. Cough severity was evaluated using the visual analog scale (VAS), and cough sensitivity was defined as the capsaicin concentration that elicited five coughs (C5), expressed as lgC5. One-way analysis of variance (ANOVA) was used to compare the differences in lung function among groups. The Kruskal-Wallis test was applied to compare the differences in cough symptom scores (VAS) and capsaicin cough sensitivity (lgC5) among groups. The fMRI data were statistically analyzed using Rest 1.8 software, and two independent-sample *t*-tests were conducted for each group. Results: Patients with refractory chronic cough exhibited significantly higher ALFF values in the right cerebellar region 8 (0.96±0.14 *vs.* 0.72±0.15, t=5.46, P<0.001) and the right cerebellar region Crus2 (0.87±0.11 *vs.* 0.68±0.11, t=6.25, P<0.001) than healthy controls. Patients with somatic cough syndrome had significantly higher ALFF values in the rectus frontal muscle than healthy controls (1.19±0.26 *vs.* 0.90±0.16, t=4.92, P<0.001). With the right cerebellar region 8 as the seed point, the analysis of the whole brain FC showed that patients with refractory chronic cough had higher FC values in the left cerebellar region 8 (0.60±0.18 *vs.* 0.35±0.15, t=5.47, P<0.001), cerebellar vermis (0.85±0.17 *vs.* 0.69±0.16, t=5.26, P<0.001), and claustrum (0.33±0.13 *vs.* 0.14±0.10, t=6.02, P<0.001). With the right cerebellar region Crus2 as the seed point, the analysis of the whole brain FC showed that patients with refractory chronic had higher FC values in the right middle temporal gyrus, thalamus (0.31±0.17 *vs.* 0.10±0.11, t=5.57, P<0.001), right dorsolateral superior frontal gyrus (0.35±0.16 *vs.* 0.1±0.13, t=6.20, P<0.001) and right posterior central gyrus (0.41±0.19 *vs.* 0.17±0.17, t=4.52, P<0.001). In the correlation analysis, there was a moderate positive correlation (r=0.57, P=0.001) between the ALFF values of the right cerebellar region 8 and Crus2 regions in patients with refractory chronic cough. Conclusions: Enhanced FC in multiple brain regions was found in patients with refractory chronic cough and patients with somatic cough syndrome, suggesting central sensitization in these patients. The different active brain regions in patients with refractory chronic cough and patients with somatic cough syndrome indicate different central hypersensitivity mechanisms among different causes of chronic cough.

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. 2025 Nov 12;48(11):1001-1004.

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[Chronic cough: time to recognize it as a disease]

[Article in Chinese]

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- **DOI: 10.3760/cma.j.cn112147-20250312-00137**

Abstract

in English, Chinese

Clinically, chronic cough is typically defined as a condition in which cough is the sole or predominant symptom, persisting for more than 8 weeks, with no significant abnormalities detected on chest X-ray. Increasing evidence suggests that chronic cough represents a disease with a variety of phenotypes, characterized by cough hypersensitivity in clinical and pathophysiological aspects. Unexplained chronic cough or refractory chronic cough constitutes adistinct phenotype. Defining chronic cough as a distinct disease entity-shifting the focus from symptom management to disease management-can help standardize clinical diagnosis and epidemiological studies, update clinical medical education and health insurance reimbursement systems, improve doctor-patient communication, reduce unnecessary investigations and treatments, and promote research into the pathogenesis of chronic cough and the development of new drugs.

Supplementary info

Publication types, MeSH termsExpan

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

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Multicenter Study

J Clin Immunol

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. 2025 Nov 15;45(1):161.

doi: 10.1007/s10875-025-01962-3.

Bronchiectasis, Low IgG Levels and Lack of Vaccination are Risk Factors for Covid-19 Hospitalization in X-linked Agammaglobulinemia - A Retrospective Multicenter Study

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- PMID: 41240154

- DOI: 10.1007/s10875-025-01962-3

Abstract

X-linked agammaglobulinemia (XLA) is caused by loss-of-function variants in Bruton's tyrosine kinase, leading to absence of circulating B lymphocytes and inability to produce antibodies. Despite the fear that patients with XLA would be at high risk for severe infection when the novel virus SARS-CoV-2 emerged in the society with low pre-existing immunity, most patients with XLA did not suffer from severe disease. However, some patients were critically affected. Factors associated with hospitalization in patients with XLA remain poorly described. Thus, we designed a study to determine risk factors associated with hospitalization due to Covid-19 in patients with XLA. Data was collected from 17 sites in Europe and the US, comprising n = 81 patients, with hospitalization due to SARS-CoV-2 infection in 14 patients. Nearly 17% of patients with XLA required hospitalization due to Covid-19, but only 3 patients had ventilatory support. After correcting for the effect of the date of infection during the early pandemic, univariate and multiple logistic regression analysis showed that preexisting bronchiectasis and lower IgG serum trough levels (< 8 g/L) before infection were associated with an increased risk for hospitalization, with a high rate of superinfection. The lack of vaccination seemed to contribute to this risk, and ambulatory patients had higher amounts of $CD4^+$ T cells before infection compared to hospitalized patients. Thus, our data suggests a need for IgG trough levels above 8 g/L, especially in patients with bronchiectasis, to

protect patients with XLA during viral infections such as Covid-19 and reduce morbidity due to superinfections.

Keywords: Bronchiectasis; Covid-19; IgG trough levels; SARS CoV-2; Vaccination; X-linked agammaglobulinemia.

Conflict of interest statement

Declarations. Competing interests: Conflict of interest statement Timi Martelius reports payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from CSL Behring, support for attending meetings and/or travel from CSL Behring and Takeda. He is a member of the Finnish National immunization technical advisory group (NITAG).Anna Sediva reports payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Octapharma and Takeda. Börre Fevang reports payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Takeda. Isabel Hodl reports support for attending meetings and/or travel from CSL BehringJiri Litzman reports support for attending meetings and/or travel from CSL Behring Terese L Katzenstein has received grants or contracts from Gilead, consulting fees from Gilead, payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Takeda, Vertex, CLS Behring, support for attending meetings and/or travel from Vertex, Takeda and Viatris, She is a member of guidelines group under the auspices of the Danish Society for Infectious Diseases regarding spondylodiscitis, fertility therapy for individuals living with HIV and/or hepatitis and for post-exposure prophylaxis after possible HIV exposure. Klaus Warnatz reports grants or contracts from Takeda, consulting fees from Grifols and LFB Biomedicaments, payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from CSL Behring and Takeda. Peter Bergman reports honoraria for educational events from CSL Behring. No other author has any conflict of interest to declare.

- 72 references

Supplementary info

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. 2025 Nov 12;21(939):2041-2045.

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[Chronic inflammatory bowel disease and pulmonary involvement]

[Article in French]

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- PMID: 41234174

- DOI: 10.53738/REVMED.2025.21.939.48010

Abstract

in English, French

Pulmonary manifestations associated with chronic inflammatory bowel diseases (IBDs) are a factor of morbidity and mortality. This respiratory involvement can manifest in various ways (airways, interstitial, etc.) and remains rare, but is probably underestimated. Subclinical respiratory involvement is frequently found in IBD patients. Airway involvement with bronchiectasis is the most frequent respiratory manifestation. Management is based on a multidisciplinary approach (pulmonologist and gastroenterologist) and depends on the etiology.

Conflict of interest statement

Les auteurs n'ont déclaré aucun conflit d'intérêts en relation avec cet article.

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ERJ Open Res

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doi: 10.1183/23120541.00048-2025. eCollection 2025 Nov.

Hospitalisations for bronchiectasis compared to COPD and asthma in the USA

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- PMID: 41220813
- PMCID: PMC12598614
- DOI: 10.1183/23120541.00048-2025

Abstract

Objective: Understanding how bronchiectasis hospitalisations differ from those of COPD and asthma could guide clinical practice and improve care. This study aims to compare outcomes of hospitalisations for bronchiectasis exacerbation with those for COPD and asthma exacerbations.

Methods: This study used a US all-payer database to evaluate hospitalisations for bronchiectasis, COPD and asthma exacerbations from January 2017 to December 2021. Demographic data, hospital characteristics, comorbidities, costs, length of stay and mortality were analysed. Associations between the SARS-CoV-2 pandemic and hospitalisation incidence and mortality were also assessed. A secondary analysis examined outcomes in bronchiectasis exacerbation with overlapping airway diseases.

Results: The bronchiectasis cohort (n=232 825) had a median age of 72 years (IQR: 57-81); 59% were female and 73% were white. Compared to COPD and asthma, hospitalisations for bronchiectasis had longer median stays (5 *versus* 4 *versus* 3 days) and higher median costs (USD 50 393 *versus* USD 38 040 *versus* USD 31 262). After adjusting for age, year of hospitalisation and comorbidity burden, hospitalisations for bronchiectasis were 1.2 times more likely to result in death than for COPD, and 3.0 times more likely than for asthma ($p<0.0001$). During the pandemic years (2020-2021), hospitalisations for bronchiectasis declined by only 8%, compared to 26% for COPD and 28% for asthma, while mortality increased across all cohorts. Overlap of bronchiectasis exacerbation with COPD or asthma did not result in higher mortality than bronchiectasis alone.

Conclusions: Hospitalisations for bronchiectasis in the USA are associated with worse outcomes, including higher mortality, costs and length of stay, compared to those for COPD and asthma exacerbations.

Conflict of interest statement

Conflict of interest: The authors have nothing to disclose.

- **34 references**
- **4 figures**