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

1

Biomed Eng Online

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. 2025 Nov 26;24(1):139.

doi: 10.1186/s12938-025-01470-w.

The influencing factors of chronic obstructive pulmonary disease concomitant with pulmonary heart disease and the diagnostic value of myocardial markers

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Affiliations Expand

- **PMID: 41299633**
- **DOI: 10.1186/s12938-025-01470-w**

Abstract

Background: To analyze the influencing factors of chronic obstructive pulmonary disease (COPD) concomitant with pulmonary heart disease (PHD) and the diagnostic value of myocardial markers.

Methods: A retrospective study was conducted on 117 COPD patients. According to whether there were concomitant PHD, 117 cases were distinguished as the combined group (45 cases) and uncombined group (72 cases). Independent risk

factors were screened using multivariate logistic regression analysis. The levels of serum markers were determined. Pearson correlation analysis was used to evaluate the correlation between myocardial markers and cardiac function indicators. The expression of myocardial markers in different COPD severity groups was analyzed. The receiver operating characteristic curve (ROC) was adopted to evaluate the diagnostic value of serum markers.

Results: Compared with the uncombined group, patients in the combined group had significantly increased left atrial diameter (LAD), pulmonary artery pressure (PAP), and inducible co-stimulator ligand (ICOSL) levels, with decreased left ventricular ejection fraction (LVEF) levels ($P < 0.05$). Serum N-terminal pro-B type natriuretic peptide (NT-proBNP), creatine kinase myocardial band (CK-MB), and cardiac troponin I (cTnI) levels were also markedly increased ($P < 0.05$). CTnI, CK-MB, and NT proBNP were all negatively correlated with LVEF ($r = - 0.642, - 0.587, - 0.723$, respectively, $P < 0.001$), and positively correlated with PAP ($r = 0.698, 0.634, 0.781$, respectively, $P < 0.001$). In patients with GOLD grades 3-4 even without concomitant PHD, the levels of cTnI, CK-MB, and NT proBNP were significantly higher than those in patients with GOLD grades 1-2 ($P < 0.05$). The area under the curve (AUC) of combined serum markers for predicting PHD in COPD patients was 0.921, with specificity and sensitivity of 88.89% and 86.11%, respectively.

Conclusions: PAP, ICOSL, cTnI, CK-MB, and NT proBNP were all independent risk factors relating to the occurrence of COPD concomitant with PHD. The combined detection of cTnI, CK-MB, and NT-proBNP had certain diagnostic reference value for COPD concomitant with PHD. Monitoring these myocardial markers may provide clues for early identification of patients with COPD concomitant with PHD and assist in the clinical development of targeted intervention programs.

Keywords: Cardiac biomarkers; Chronic obstructive pulmonary disease; Combined detection; Prediction; Pulmonary heart disease.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study was approved by The Ethics Committee of Zhejiang Jinhua Guangfu Cancer Hospital (No. JHGF2024013). Informed consent was obtained from every human participant in the study, and the patients participating in the study all agreed to publish the research results. Consent for publication: Not applicable. Competing interests: The authors declare that they have no competing interests.

- 35 references

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Cite

2

Respir Med

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. 2025 Nov 24:108536.

doi: 10.1016/j.rmed.2025.108536. Online ahead of print.

Extremely-to-very preterm birth and being small for gestational age increase the risk of severe airflow obstruction in patients with asthma

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- PMID: 41297685

- DOI: 10.1016/j.rmed.2025.108536

Abstract

Background: Severity of airflow obstruction in patients with asthma can be influenced by features beyond lung function impairment. The aim of this study was to assess the severity of obstruction according to the 2022 European Respiratory Society/American Thoracic Society standards, and its associations with perinatal factors, as well as potential interactions with background and clinical factors.

Methods: The study population consisted of 44,394 patients with asthma, aged 7-49 years, with at least one measurement of forced expiratory volume in 1 second (FEV_1) and forced vital capacity (FVC) recorded in the Swedish National Airway Register in 2014-2022, who were included in the Medical Birth Register between 1973-2015 with data on gestational age (GA) and birthweight. Airflow obstruction was defined as pre-bronchodilator FEV_1/FVC<lower limit of normal and categorized as mild, moderate, or severe based on FEV_1 z-score. Normal FEV_1 served as the reference category.

Results: Among 7,873 (17.7%) patients with airflow obstruction, the prevalence of severe obstruction pre-bronchodilator was 6.1%. Patients born extremely-to-very preterm or small for GA (SGA) had increased relative risk ratios for severe obstruction pre-bronchodilator (RRR_{adj} 2.34, 95% CI 1.24-4.41, and 2.03, 1.38-2.98) compared with those born at term and appropriate for GA, respectively, with obstruction and normal FEV_1. For GA and birthweight, there were non-significant interactions with background or clinical factors.

Conclusions: Severe obstruction was prevalent in children and adults with asthma. Patients born extremely-to-very preterm or SGA exhibited a significant association with severe obstruction pre-bronchodilator, regardless of background and clinical factors.

Keywords: airflow obstruction; asthma; birthweight; gestational age; lung function; perinatal factors; severity.

Conflict of interest statement

Declaration of Competing Interest MÖ and NA have no conflicts of interest to disclose. HB reports personal fees for advisory board work for Chiesi outside the submitted work. LEGWV reports personal fees for advisory boards and/or lectures for AstraZeneca, GSK, Chiesi, Boehringer Ingelheim, Novartis, Grifols, and Pulmonx outside the submitted work. CS reports personal fees from AstraZeneca and GSK, and institutional fees from Chiesi and TEVA outside the submitted work. JRK reports personal fees from Novartis and institutional fees from Regeneron Pharmaceuticals and Thermo Fisher Scientific outside the submitted work.

3

J Psychosom Res

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. 2025 Nov 24:200:112472.

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The impact of age on prevalence of anxiety, depression and stress in patients with chronic obstructive pulmonary disease

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Affiliations Expand

- **PMID: 41297341**

- **DOI: 10.1016/j.jpsychores.2025.112472**

Abstract

Background: Over 40 % of patients with chronic obstructive pulmonary disease (COPD) suffer from mood and anxiety disorders. However, little is known about the impact of age on the prevalence of anxiety, depression and stress in patients with COPD. We examined the prevalence of depression, anxiety and stress in patients with COPD aged 65 years and older compared to less than 65 years old and their relation to quality of life (QoL), dyspnea, lung function and exercise capacity.

Methods: From our research database, we examined 993 clinically stable COPD patients recruited from 2013 to 2019, before entering pulmonary rehabilitation (PR). At baseline, COPD patients completed: dyspnea measured by modified Medical Research Council (mMRC) scale, exercise capacity by incremental shuttle walk test (ISWT), QoL by St. George's Respiratory Questionnaire (SGRQ), and psychological distress by Depression Anxiety Stress Scale (DASS).

Results: Seven-hundred-sixty-seven patients with COPD ≥65 years with mean age (SD) 75 (6) years were compared to 226 patients with COPD <65 years with mean age 58 (6) years. Patients <65 years compared to patients ≥65 years with COPD had higher scores for DASS-depression ≥10, (61 % vs. 38 %), DASS-anxiety ≥8 (73 % vs 51 %) and DASS-stress ≥15 (45 % vs. 25 %) all ($p < 0.001$). Younger patients with COPD had poorer QoL, elevated dyspnea, and lower FEV_1 percentage predicted, (all $p < 0.001$). No significant difference in exercise capacity was seen between the two groups ($p = 0.58$).

Conclusion: Younger COPD patients exhibited higher levels of depression, anxiety and stress, with poorer QoL and elevated symptoms of dyspnea compared to older patients.

Keywords: COPD depression anxiety stress quality of life dyspnoea.

Conflict of interest statement

Declaration of competing interest None.

Full text links

Cite

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J Cardiopulm Rehabil Prev

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. 2025 Nov 24.

doi: 10.1097/HCR.0000000000000991. Online ahead of print.

Beyond Physical Frailty-the Value of Lifestyle and Social Frailty Factors to Predict Mortality and Hospitalization in COPD

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Affiliations Expand

- PMID: 41295267

- DOI: 10.1097/HCR.0000000000000991

Abstract

Purpose: Lifestyle and social frailty factors are a new focus in the multidimensional concept of frailty, as recent reports have found strong associations with negative health outcomes. We searched for specific social and lifestyle frailty factors independently associated with 5-year survival and the risk of hospitalization in patients with severe chronic obstructive pulmonary disease (COPD).

Methods: We retrospectively analyzed questionnaire data from the National Emphysema Treatment Trial (NETT) and identified items related to the published definition of social frailty. Classification and Regression Tree, a machine learning method, was used to select variables most strongly associated with survival time or hospitalizations beyond 12 months of NETT study enrollment. Kaplan-Meier curves, log-rank tests, and Cox proportional hazards models were used to determine relationships between social/lifestyle variables and hospitalization and survival.

Results: Four social and lifestyle frailty factors were significantly related to survival (impaired lifting, bathing and dressing, in-store shopping, and loneliness). Two social and lifestyle frailty factors were significantly related to risk of hospitalization (emotional distress and difficulty performing work or activities). A combination of 6 questions provided clinical phenotypes that were robustly and independently associated with mortality risk and hospitalization with hazard ratios that ranged from 2.4 to 11.2 and 2.2 to 3.5 for survival and hospitalization, respectively, after adjustment for age, sex, disease severity, and physical frailty.

Conclusion: Lifestyle and social frailty factors that could be easily identified in practice may represent a novel approach to a multidimensional frailty assessment to predict survival and hospitalization in patients with severe COPD.

Keywords: COPD; hospitalizations; social frailty; survival.

Conflict of interest statement

All authors declare no conflicts of interest. All authors meet the 4 ICMJE criteria for authorship. All authors have reviewed and approved this manuscript.

- 46 references

Full text links

5

J Cardiopulm Rehabil Prev

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. 2025 Nov 24.

doi: 10.1097/HCR.0000000000000990. Online ahead of print.

Depression Symptoms in Patients With COPD: A Randomized Study of Home-Based Pulmonary Rehabilitation With Health Coaching

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Affiliations Expand

- PMID: 41295266

- DOI: 10.1097/HCR.0000000000000990

Abstract

Purpose: Patients with chronic obstructive pulmonary disease (COPD) and symptoms of depression have increased health care utilization and lower quality of life. There is a knowledge gap regarding feasible and effective approaches for the management of depressive symptoms in patients with COPD. The objective of this randomized clinical trial sub-study is to determine whether 12-weeks of home-based pulmonary rehabilitation (PR) with health coaching is feasible and effective for improving depressive symptoms in patients with COPD.

Methods: Patients with severe COPD and symptoms of depression (Patient Health Questionnaire-9 [PHQ-9] ≥5 points) randomized to the intervention (N = 90) or control (N = 78) groups in the parent study were included. The primary outcome of this sub-study was the 12-week change in the PHQ-9 score. Secondary outcomes included dyspnea, fatigue, emotions, and mastery (self-management) as measured by the Chronic Respiratory Questionnaire (CRQ) and daily physical activity and sleep measured by ActiGraph.

Results: Home-based PR with health coaching was associated with improved measures of depression (P = .07), dyspnea, fatigue, emotion, and mastery (self-management) (P < .001). Being in the intervention group was associated with a higher odds of improving by the minimal clinically important difference on the PHQ-

9 (OR = 2.10: 95% CI, 1.06-4.27), CRQ-Dyspnea (OR = 2.37: 95% CI, 1.11-5.26), CRQ-Fatigue (OR = 3.35: 95% CI, 1.59-7.35), CRQ-Emotions (OR = 4.59: 95% CI, 2.13-10.40), and CRQ-Mastery (OR = 3.36: 95% CI 1.60-7.28) after multivariable adjustment. The improvement in depression symptoms was maintained for 3 and 6 months after finishing the intervention.

Conclusion: Home-based PR with health coaching is feasible and possibly effective in improving depressive symptoms and quality of life in patients with COPD and symptoms of depression.

Keywords: COPD; depressionhealth coaching; quality of life.

- 29 references

Full text links

Proceed to details

Cite

6

ERJ Open Res

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. 2025 Nov 24;11(6):00428-2025.

doi: 10.1183/23120541.00428-2025. eCollection 2025 Nov.

Impulse oscillometry-defined airway abnormalities as a treatable trait for mild-to-moderate COPD: a prospective cohort study with 3-year follow-up

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- PMID: 41293775

- PMCID: PMC12643031

- DOI: 10.1183/23120541.00428-2025

Abstract

Background: Treatable traits (TTs) can effectively conduct personalised assessment and treatment for patients with mild-to-moderate COPD. After excluding the classic TTs, do some neglected TTs remain? We evaluated associations of impulse oscillometry (IOS)-defined airway abnormalities (AAs) with respiratory health outcomes and prognoses in patients with mild-to-moderate COPD.

Methods: We analysed the baseline and 3-year follow-up data from a prospective cohort in China. Patients with mild-to-moderate COPD were enrolled with excluded classic TTs (COPD Assessment Test ≥10, modified Medical Research Council score ≥2, frequent acute exacerbations (AEs) and forced expiratory volume in 1 s (FEV_1) % pred <60%). AAs were defined based on IOS parameter resonant frequency greater than the upper limit of normal. Differences in lung function decline and AEs were examined among groups with normal spirometry, AAs and without AAs in patients with mild-to-moderate COPD.

Results: 1328 participants were finally enrolled (799 normal spirometry, 230 without AAs and 299 with AAs in mild-to-moderate COPD). The AA group was older and exhibited worse lung function, higher symptom scores and worse image abnormalities than the other groups. During the 3-year follow-up, compared with the group with normal spirometry, a faster FEV_1 decline and a higher risk of total AEs were observed in the AA group, but no differences in FEV_1 decline and total AEs were found in groups with normal spirometry and the group without AAs.

Conclusion: The AA group in mild-to-moderate COPD experienced worse image abnormalities, a higher risk of AEs and a faster FEV_1 decline. These results suggest that AAs may be a special TT in patients with mild-to-moderate COPD.

Conflict of interest statement

Conflict of interest: The authors have nothing to disclose.

- **47 references**
- **3 figures**

Full text links

Cite

7

Editorial

Respirology

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. 2025 Nov 25.

doi: 10.1002/resp.70173. Online ahead of print.

Towards Better Recognition of COPD Exacerbations With Patient-Centred Reporting Tools

Hao Wang [1], Ross Vlahos [1], Steven Bozinovski [1]

Affiliations Expand

- PMID: 41290550

- DOI: 10.1002/resp.70173

No abstract available

Keywords: AECOPD; COPD; COPD exacerbation tool; disease management.

- 10 references

Supplementary info

Publication typesExpand

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Cite

8

Meta-Analysis

Ren Fail

. 2025 Dec;47(1):2578837.

doi: 10.1080/0886022X.2025.2578837. Epub 2025 Nov 20.

The mechanisms of kidney-lung interactions in chronic kidney disease-associated pulmonary diseases: A two-sample Mendelian randomization study

Shengyi Yang [1], Changxian Wang [1], Zhenwei Li [1], Liyuan Sun [1], Yulu He [1], Qun Lu [1]

Affiliations Expand

- PMID: 41265392
- PMCID: PMC12636542
- DOI: 10.1080/0886022X.2025.2578837

Abstract

Background: The aim of this study was to investigate the relationship between chronic kidney disease and pulmonary diseases, and explore the mechanisms of kidney-lung interactions.

Methods: Two-sample Mendelian randomization (MR) was performed to explore the causal effect of chronic kidney disease (CKD) on pulmonary diseases, and two-step MR was performed to explore the mechanisms of lung-kidney interactions in chronic kidney disease-associated pulmonary diseases. The inverse variance weighted (IVW) meta-analysis was used as the main method for obtaining the MR estimate, and complementary analysis were performed using the weighted median method, maximum-likelihood, MR-RAPS.

Results: IVW analysis showed that genetically predicted CKD was positively associated with the increased risks of asthma (OR:1.005, 95%CI:1.001, 1.009), pneumonia (OR:1.066, 95%CI: 1.009, 1.127), adult respiratory distress syndrome (ARDS) (OR:2.110, 95%CI: 1.053, 4.231), and chronic obstructive pulmonary disease (COPD) (OR, 1.004; 95%CI:1.000, 1.008). Mediation analysis revealed that interleukin-1β mediated CKD's effect on pneumonia risk, tumor necrosis-α mediated its effects on both asthma and COPD, and parathyroid hormone (PTH) mediated its effects on pneumonia and ARDS, with mediated effects size ranging from 3.53% to 27.15%.

Conclusions: Predicted CKD was positively associated with the increased risk of asthma, pneumonia, ARDS, and COPD. Furthermore, interleukin-1β and tumor necrosis-α, 25-hydroxyvitamin D and PTH mediated the kidney-lung interactions in CKD-associated pulmonary diseases.

Keywords: Kidney–lung interactions; Mendelian randomization; chronic kidney disease; pulmonary diseases.

Conflict of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this study.

- 52 references
- 3 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

9

Review

JAAPA

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. 2025 Dec 1;38(12):e6-e9.

doi: 10.1097/01.JAA.0000000000000261. Epub 2025 Nov 20.

Reducing the frequency of COPD exacerbations with antimicrobial therapy

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Affiliations Expand

- PMID: 41263286

- DOI: 10.1097/01.JAA.0000000000000261

Abstract

Chronic obstructive pulmonary disease (COPD) exacerbations are a leading cause of hospitalization in the United States, incurring a large financial burden on the healthcare system and placing significant strain on patient quality of life. Adding empiric antimicrobial agents, specifically macrolides, to the medical regimen of patients with severe COPD has been shown to reduce the frequency of COPD exacerbation. Although prophylactic macrolide therapy may relieve COPD burden, providers should consider the consequences of long-term antimicrobial utilization before prescribing these drugs.

Keywords: COPD; antimicrobial therapy; drug resistance; exacerbation; macrolides; prophylactic.

- 19 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

10

Review

Sleep Med Clin

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. 2025 Dec;20(4):519-525.

doi: 10.1016/j.jsmc.2025.07.004. Epub 2025 Aug 12.

Home Mechanical Ventilators: Indications for Use in Chronic Respiratory Failure

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Affiliations Expand

- PMID: 41136083

- DOI: 10.1016/j.jsmc.2025.07.004

Abstract

Home mechanical ventilators (HMV) are positive pressure devices that allow patients with chronic respiratory failure to live in the comfort of their own homes. HMV are more advanced than standard respiratory assist devices, providing features including internal and external batteries for daytime use outside the house, unique modes such as volume-assured pressure support with auto expiratory positive airway pressure and mouthpiece ventilation, and more alarms to provide safety for patients with severe disease. The process of prescribing HMV in the United States can be complex.

Keywords: Chronic obstructive pulmonary disease; Hypercapnia; Hypercapnic respiratory failure; Neuromuscular disease; Noninvasive ventilation; Obesity hypoventilation syndrome.

Conflict of interest statement

Disclosure P.J. Choi—consults for Breas and Philips Respironics. J.V. Jimenez—no disclosure.

Supplementary info

Publication types, MeSH termsExpand

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Cite

11

Review

Sleep Med Clin

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. 2025 Dec;20(4):489-498.

doi: 10.1016/j.jsmc.2025.07.009. Epub 2025 Sep 10.

Hypercapnic Chronic Obstructive Pulmonary Disease and Overlap Syndrome

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Affiliations Expand

- **PMID: 41136080**

- **DOI: 10.1016/j.jsmc.2025.07.009**

Abstract

The role of noninvasive ventilation (NIV) in hypercapnic chronic obstructive pulmonary disease (COPD) respiratory failure and overlap syndrome have been confusing over the last several years. In addition, if able to understand the timing

and indications for NIV use, the clinical practice approach is riddled with hurdles to obtain in the United States. NIV for acute respiratory failure secondary to COPD exacerbation and NIV to prevent extubation failure in this patient population are not discussed here. Evidence for NIV in acute hospitalization is clearly accepted; however, bridging NIV from inpatient to home in hypercapnic COPD patients is a topic of debate, and a challenge for providers who are not experts in this space. This article discusses the evidence, interventions, timing, and insurance guidelines to assist health care providers.

Keywords: BPAP; COPD; Home mechanical ventilation; Non-invasive ventilation; OSA; Overlap syndrome.

Conflict of interest statement

Disclosures John Coleman serves on an Advisory Board for ResMed, Inc.

Supplementary info

Publication types, MeSH termsExpand

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Cite

12

Review

Heart Fail Rev

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. 2025 Dec;30(6):1525-1538.

doi: 10.1007/s10741-025-10566-3. Epub 2025 Oct 7.

Heart failure and chronic obstructive pulmonary disease. A combination not to be underestimated

Damiano Magrì [1], Emiliano Fiori [2], Piergiuseppe Agostoni [3 4], Michele Correale [5], Massimo Piepoli [6], Savina Nodari [7], Matteo Beltrami [8], Stefania Paolillo [9], Pasquale Perrone Filardi [9], Alberto Palazzuoli [10]; Working Group on Heart Failure of the Italian Society of Cardiology

Affiliations Expand

- PMID: 41053405
- PMCID: PMC12618358
- DOI: 10.1007/s10741-025-10566-3

Abstract

Chronic obstructive pulmonary disease (COPD) and heart failure (HF) frequently coexist and interact through complex and bidirectional hemodynamic mechanisms that amplify symptoms' burden and complicate clinical management. The present review explores the impact of COPD across the HF spectrum, particularly in HF with preserved ejection fraction (HFpEF), where comorbidities, such as COPD, exert a dominant role in disease expression. COPD-induced hyperinflation reduces cardiac preload and increases right ventricular afterload, while HF-related congestion impairs pulmonary function and gas exchange, illustrating a tight cardiorespiratory coupling. Diagnostic challenges stem from overlapping symptoms and the limited specificity of biomarkers, such as natriuretic peptides, especially in HFpEF. Cardiopulmonary exercise testing (CPET) emerges as a valuable tool for distinguishing between cardiac and pulmonary limitations and guiding individualized treatment strategies. From a therapeutic standpoint, β1-selective blockers are not only safe in COPD patients but are pivotal in those with HF with reduced ejection fraction (HFrEF), where they have been demonstrated to improve survival and reduce both HF and COPD exacerbations. Concerns regarding bronchodilator safety in HF remain largely theoretical, with current evidence supporting their continued use when clinically indicated. Ultimately, optimal care for patients with coexisting COPD and HF requires a phenotype-specific approach, incorporating insights from pathophysiology, diagnostic innovation, and evidence-based pharmacotherapy to improve outcomes in this challenging patient population.

Keywords: Cardiopulmonary exercise test; Cardiopulmonary interaction; Heart failure; Lung disease.

Conflict of interest statement

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

- 105 references
- 5 figures

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

13

COPD

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. 2025 Dec;22(1):2567022.

doi: 10.1080/15412555.2025.2567022. Epub 2025 Oct 2.

Lung Volume Reduction Therapies in Patients with Emphysema: A Systematic Review and Network Meta-Analysis

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Affiliations Expand

- PMID: 41037331

- DOI: 10.1080/15412555.2025.2567022

Free article

Abstract

Background: Severe emphysema, a major chronic obstructive pulmonary disease (COPD) phenotype characterized by hyperinflation, is associated with significant morbidity and mortality. Lung volume reduction (LVR) therapies, including surgical (LVRS) and bronchoscopic techniques (e.g. endobronchial valves (EBVs) and coils (ECs)), aim to reduce hyperinflation and improve outcomes, but their comparative efficacy and safety are unclear.

Methods: This network meta-analysis compared LVR therapies. We systematically evaluated LVRS, EBV, EC, intrabronchial valves (IBV), sealants (ELS), vapor ablation (BVA), or airway bypass stents (ABS) in adults with severe emphysema. The primary outcomes were early and overall mortality. The secondary outcomes included lung function (FEV1, RV reduction), exercise capacity (6MWD), quality of life (SGRQ), and adverse events. Bayesian analysis using R/BUGSNet was used to assess their effects and rankings.

Results: Twenty-six RCTs (4418 patients) were included. No LVR therapy significantly reduced mortality compared with standard medical care (SMC) (early mortality, 1.6%; overall mortality, 10.9%; and highest rates of LVRS). Compared with SMC, LVRS and EBV significantly improved FEV1, RV reduction, and the 6MWD; LVRS consistently ranked most effectively. After excluding the impact of collateral ventilation in the subgroup analysis, EC significantly improved the SGRQ and

6MWD, and a reduction in residual volume and IBV improved the SGRQ. LVRS, EBV, and EC had significantly higher adverse event rates than SMC did.

Conclusions: While no LVR therapy improved survival over SMC, LVRS and some bronchoscopic techniques (EBV, EC) significantly enhanced lung function, exercise capacity, and quality of life in severe emphysema patients. LVRS offers the greatest efficacy benefits but carries the highest risks. Bronchoscopic options (EBV, EC) provide safer and more effective alternatives, particularly for symptoms and functional improvement. Careful patient selection on the basis of fissure status and emphysema pattern is paramount.

Keywords: Emphysema; complication; efficacy; lung volume reduction.

Plain language summary

This network meta-analysis provides a comprehensive assessment of surgical and bronchoscopic lung volume reduction therapies for severe emphysema. The key findings are as follows:Compared with standard medical care, no LVR therapy significantly reduced mortality.LVRS and EBV are the most effective interventions for improving lung function (FEV1, RV reduction), exercise capacity (6MWD), and health-related quality of life (SGRQ). LVRS offers the greatest magnitude of benefit but carries the highest degree of procedural risk.EC is an effective alternative, particularly for improving symptoms and exercise tolerance, and may be suitable for patients with homogeneous disease or incomplete fissures where valves are less effective. The IBV also showed a potential benefit in SGRQ for selected patients.Patient selection is critical. Fissure integrity is paramount for the efficacy of endobronchial valves (EBV, IBV). LVRS requires careful assessment of surgical risk and emphysema patterns.Bronchoscopic techniques (EBV, EC and IBV) present a significantly safer alternative to LVRS in terms of mortality risk, expanding treatment options for higher-risk patients.However, evidence for other bronchoscopic techniques (ELS, BVA and ABS) remains limited.

Supplementary info

Publication types, MeSH termsExpand

Full text links

Cite

14

Pulm Ther

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. 2025 Dec;11(4):553-567.

doi: 10.1007/s41030-025-00318-x. Epub 2025 Sep 27.

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

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Affiliations Expand

- PMID: 41014472
- PMCID: PMC12623595
- DOI: 10.1007/s41030-025-00318-x

Abstract

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

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

Plain language summary

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

their doctors regarding their experience of dyspnea. This article shares practical insights from respiratory doctors on how they help patients with COPD manage their dyspnea and provides an overview of the causes, measurement, and management of dyspnea.

Conflict of interest statement

Declarations. Conflict of Interest: Nirupama Putcha has served on advisory boards for Verona Pharma and AstraZeneca. Diego J. Maselli has served on consulting/advisory boards for GSK, AstraZeneca, Amgen, Sanofi/Regeneron, Insmed, and Verona Pharma; and has received speaker fees from GSK, AstraZeneca, Amgen, and Sanofi/Regeneron. Jessica Bon has received grant funding from the National Heart, Lung, and Blood Institute (NHLBI); has served on consulting/advisory boards for GSK, Sanofi/Regeneron, Verona Pharma, and Chiesi; and has received speaker fees from GSK and Sanofi/Regeneron. Michael G. Lester has served on consulting/advisory boards for Ryme Medical, Galvanize Therapeutics, and Verona Pharma. M. Bradley Drummond has served on consulting/advisory boards for GlaxoSmithKline, Boehringer Ingelheim, AstraZeneca, Verona, Genentech, Stratos Inc, Takeda, and Amgen and has received grant funding from National Institute of Health-NHLBI, Boehringer Ingelheim, Midmark, Teva and the American Lung Association. Ethical Approval: Given that this article is based on previously conducted studies and does not report any new research involving human participants or animals performed by any of the authors, there is no ethical compliance to declare.

- 90 references
- 1 figure

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Nucl Med Commun

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. 2025 Dec 1;46(12):1186-1193.

doi: 10.1097/MNM.0000000000002052. Epub 2025 Sep 19.

Lung-to-heart ratio on thallium-201 myocardial perfusion imaging in patients with chronic obstructive pulmonary disease

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Affiliations Expand

- PMID: 40970439

- DOI: 10.1097/MNM.0000000000002052

Abstract

Background: In thallium-201 (Tl-201) stress myocardial perfusion imaging (MPI), elevated lung-to-heart ratio (LHR) can help to predict adverse cardiac events and identify coronary artery disease. However, few studies have evaluated the LHR values on Tl-201 MPI in patients with chronic obstructive pulmonary disease (COPD).

Objective: To examine whether LHR in COPD may be altered, considering the combined effects of hypoxia, inflammation, and capillary loss.

Methods: We retrospectively evaluated patients with normal Tl-201 pharmacologic stress MPI, no adverse cardiac events in the subsequent 2 years, and pulmonary function tests, coronary angiography, and echocardiography results obtained within 6 months. Patients with COPD (study group) were matched 1:1 by sex and age to controls with normal pulmonary function (control group). Subgroups within the study group were established based on COPD severity determined by spirometry. MPI images were interpreted using a 17-segment american heart association (AHA) model and a 0-4-point scale. LHR and right ventricle/left ventricle (RV/LV) ratios were also documented.

Results: Patients with severe COPD exhibited lower poststress LHR values than those with mild-to-moderate COPD. Compared with the control group, the moderate COPD group displayed higher stress LHR, stress RV/LV ratio, and tricuspid regurgitation maximum pressure gradient (TRmaxPG) values. Moreover, poststress LHR showed a positive correlation with the stress RV/LV ratio and TRmaxPG value. These findings were statistically significant ($P < 0.05$).

Conclusion: In Tl-201 pharmacologic stress MPI, our study suggests a nuanced relationship between COPD severity and LHR, emphasizing the need to reconsider normal LHR thresholds in COPD. Larger studies are warranted to validate and expand upon these findings.

Keywords: chronic obstructive pulmonary disease; lung-to-heart ratio; myocardial perfusion imaging.

- 28 references

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Cite

16

Pulm Ther

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. 2025 Dec;11(4):705-722.

doi: 10.1007/s41030-025-00313-2. Epub 2025 Sep 16.

Real-world Comparative Effectiveness in Patients with Asthma Newly Initiating Fluticasone Furoate/Vilanterol or Budesonide/Formoterol: A United Kingdom General Practice Cohort Study

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

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- PMCID: PMC12623520
- DOI: 10.1007/s41030-025-00313-2

Erratum in

- Correction: Real-world Comparative Effectiveness in Patients with Asthma Newly Initiating Fluticasone Furoate/Vilanterol or Budesonide/Formoterol: A United Kingdom General Practice Cohort Study.

Woodcock A, Blakey J, Bourdin A, Canonica GW, Domingo C, Ford A, Hulme R, Tritton T, Palomares I, Sadhu S, Biswas A, Verma M.Pulm Ther. 2025 Dec;11(4):723-724. doi: 10.1007/s41030-025-00325-y.PMID: 41152572 Free PMC article. No abstract available.

Abstract

Introduction: It is important that treatment recommendations reflect real-world data when available, as randomised controlled trials have stringent eligibility criteria and do not represent the entire asthma population or their usual ecosystem of care.

Limited real-world evidence has compared the effectiveness of fluticasone furoate/vilanterol (FF/VI) and budesonide/formoterol (BUD/FOR) to date in asthma; we explored this in England using patients from general practice.

Methodology: We retrospectively compared new FF/VI users and new BUD/FOR users from 1 December 2015 to 28 February 2019, based on de-identified data from the Clinical Practice Research Datalink. The baseline period pre-index was ≥ 1 year; the follow-up period was 1 year. At index, eligible adults (≥ 18 years) with diagnosed asthma had ≥ 1 prescription for FF/VI or BUD/FOR, ≥ 1 years' general practitioner registration and records eligible for linkage to Hospital Episode Statistics. Chronic obstructive pulmonary disease was an exclusion criterion. The primary study outcome assessed the overall asthma exacerbation rate in new FF/VI or BUD/FOR users. Secondary outcomes included oral corticosteroid (OCS) use and medication persistence (analysed using Kaplan-Meier curves). For each treatment comparison, propensity scores were generated and confounding between baseline group characteristics was adjusted via inverse probability of treatment weighting, separately carried out for each study outcome. Intercurrent events (ICEs) were considered for analyses, such as death, loss to follow-up, rescue-medication use, treatment discontinuation or switching.

Results: Between groups, baseline attributes were well balanced. Annual per-person rates of exacerbation were numerically similar in the while on-treatment population (measuring outcome until ICE; FF/VI, 0.1356; BUD/FOR, 0.1583 [P = 0.3023]). Patients who continued initiation treatment for 1 year without interruption had significantly lower annual per-person exacerbation rates with FF/VI (0.0722 [n = 425]) versus BUD/FOR (0.2258 [n = 546]) (rate ratio 0.3197 [P = 0.0003]). Patients indexed on FF/VI had significantly fewer OCS prescriptions and lower OCS dosage versus BUD/FOR (respective coefficients: - 0.29 [P = 0.0352]; 0.41 [P = 0.0004]) and improved treatment persistence (hazard ratio: 0.62 [P < 0.0001]).

Conclusions: Patients who continued initiation treatment for a year without interruption had reduced exacerbation rates with FF/VI versus BUD/FOR. The FF/VI group also had reduced treatment discontinuation and OCS use.

Keywords: Asthma; Budesonide/formoterol; Comparative effectiveness; England; Fluticasone furoate/vilanterol; General practice; Real-world data.

Plain language summary

In this study, people in England beginning one of two common, daily, treatments for their asthma: budesonide/formoterol (shortened as BUD/FOR) or fluticasone furoate/vilanterol (shortened as FF/VI), were compared to determine how well the treatments work. Adults with asthma, starting these treatments from December 2015 to February 2019, were chosen from a database, holding information from general practice as well as hospital visits. Data were de-identified, meaning that study researchers were not able to tell who each patient was. The study did not include anyone with obstructive lung disease. The primary study question asked if asthma exacerbation rates were different in the groups who began BUD/FOR versus FF/VI. The frequency and dose of additional oral corticosteroids, and how many patients continued the new asthma treatment for 12 months were other study questions. In the interests of fairness, attributes of patients for both groups were examined and balanced. Per year, for every hundred patients, the FF/VI group had 14 exacerbations (2267 patients in total), similar to the 16 exacerbations in the

BUD/FOR group (7776 patients in total). Of the patients continuing treatment without interruption for a whole year, the overall number of exacerbations was significantly lower in the FF/VI group (7/100 patients [425 patients overall]) than in the BUD/FOR group (23/100 patients [546 patients overall]). Compared to patients treated with BUD/FOR, those treated with FF/VI had reduced use of oral corticosteroids and had a 38% lower risk of stopping treatment.

Conflict of interest statement

Declarations. Conflict of Interest: Ashley Woodcock has given lectures for Orion and consulted for GSK and Orion. John Blakey reports grants or contracts from AstraZeneca, GSK, and Novartis; consulting fees from Boehringer Ingelheim, Chiesi, and GSK; payment or honoraria from AstraZeneca, Chiesi, and GSK; support for attending meetings and/or travel from AstraZeneca, Boehringer Ingelheim, and GSK; receipt of medical writing support from GSK and Teva; payment to their institution for advisory work from Asthma Australia; and unpaid advisory work from Asthma WA. Arnaud Bourdin has received grants, personal fees, non-financial support, and other support from Actelion, AstraZeneca, Boehringer Ingelheim, and GSK; personal fees, non-financial support, and other support from Chiesi, Novartis, and Regeneron; personal fees and non-financial support from Teva; personal fees from Gilead; non-financial support and other support from Roche; and other support from Nuvaira. Giorgio Walter Canonica reports having received research grants as well as being a lecturer or having received advisory board fees from: A. Menarini, AstraZeneca, Celltrion, Chiesi, Faes, Firma, Genentech, GSK, Hal Allergy, Innovacaremd, Novartis, OM Pharma, Red Maple, Sanofi-Aventis, Sanofi-Regeneron, Stallergenes Greer, and Uriach Pharma. Christian Domingo declares having received financial aid for travel support and speakers' bureaus from ALK-Abello, Allergy Therapeutics, AstraZeneca, Chiesi, GSK, Hall Allergy, Inmunotek, A. Menarini Diagnostics, MSD, Novartis, ROXALL, Sanofi, and Stallergenes. Alexander Ford, Rosie Hulme and Theo Tritton are employees of Adelphi Real World, which received funding for this study from GSK. Arunangshu Biswas, Ines Palomares, Manish Verma, and Sanchayita Sadhu are GSK employees; Arunangshu Biswas, Ines Palomares and Manish Verma hold financial equities in GSK. Ethical Approval: This study was conducted according to GSK SOP52213 (Conducting Quality Control Review of Study Results generated using Existing Data in VEO and USVEO) and complied with all applicable laws regarding patient privacy. CPRD has NHS Health Research Authority (HRA) Research Ethics Committee (REC) approval to allow the collection and release of anonymised primary care data for observational research [NHS HRA REC reference number: 05/MRE04/87]. Each year CPRD obtains Section 251 regulatory support through the HRA Confidentiality Advisory Group (CAG), to enable patient identifiers, without accompanying clinical data, to flow from CPRD contributing GP practices in England to NHS Digital, for the purposes of data linkage [CAG reference number: 21/CAG/0008]. The protocol for this research was approved by CPRD's Research Data Governance (RDG) Process (protocol number: 221602) and the approved protocol is available upon request. Linked pseudonymised data were provided for this study by CPRD. Data are linked by NHS Digital, the statutory trusted third party for linking data, using identifiable data held only by NHS Digital. Select general practices consent to this process at a practice level with individual patients having the right to opt-out. This study is based in part on data from the CPRD obtained under license from the UK Medicines and

- 18 references
- 4 figures

Supplementary info

Grants and fundingExpand

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17

Comput Methods Programs Biomed

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. 2025 Dec:272:109066.

doi: 10.1016/j.cmpb.2025.109066. Epub 2025 Sep 3.

Quantitative correlation between small airway morphology with respiratory function during disease progression in COPD: CFD analysis of human airways based on CT and OCT imaging

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Affiliations Expand

- PMID: 40915094

- DOI: 10.1016/j.cmpb.2025.109066

Abstract

Background and objective: The quantitative knowledge of the influence of the small airway disease on the functional changes in chronic obstructive pulmonary disease (COPD) patients has been severely limited.

Methods: This study presents an innovative patient-specific computational framework that integrates CT and OCT imaging data with multiscale computational fluid dynamics (CFD) analysis. A three-dimensional tracheobronchial tree is reconstructed from CT scans of a mild COPD patient, spanning from the central airway to the 4th generation bronchial bifurcations. OCT imaging is subsequently conducted on upper, middle, and lower lobe bronchi of the right lung to quantify airway radius and wall thickness at 5th-9th generation bifurcations. These morphological parameters, hypothesized to correlate with small airway resistance and compliance, are implemented as impedance boundary conditions at the 3D model outlets.

Results: The simulation results demonstrate significant alterations in pressure gradients and velocity profiles under varying impedance conditions. The structure-function analysis quantify the morphological changes in small airways and their influences on the global respiratory function during disease progression. It is found that the relative residual volume (RV/TV) in the lung grows by up to 20 % from the early stage to the current stage of the disease. Additionally, the value of RV/TV may increase by up to 60 % if the radius of the 5th generation airway is halved.

Conclusions: By synergizing patient-specific geometry with impedance-adaptive boundary conditions derived from multimodal imaging, the framework facilitates accurate quantification of the structure-function relationships between small airway morphology and lung function, and enables patient-specific assessments for COPD patients.

Keywords: Aerodynamic simulation; COPD; Impedance boundary condition.

Conflict of interest statement

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

Supplementary info

MeSH termsExpand

Full text links

COPD

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. 2025 Dec;22(1):2544719.

doi: 10.1080/15412555.2025.2544719. Epub 2025 Aug 13.

Use of a Personalised Early Warning Decision Support System for Acute Exacerbations of Chronic Obstructive Pulmonary Disease: Results of the "Predict & Prevent" Phase III Trial

Eleni Gkini [1], Rajnikant L Mehta [2], Sarah Tearne [1], Lucy Doos [1], Sue Jowett [3], Nicola Gale [4], Alice M Turner [5]

Affiliations Expand

- PMID: 40799048

- DOI: 10.1080/15412555.2025.2544719

Free article

Abstract

Rationale: The Predict&Prevent trial was designed to provide a definitive randomised clinical trial of a personalised early warning decision support system, COPDPredict™.

Methods: Adults with ≥1 AECOPD were randomly assigned in a 1:1 ratio to use of a personalised early warning decision support system (COPDPredict™) or standard self-management plans with rescue medication (RM) (control). The primary outcome was number of hospital admissions for AECOPD at 12 months post-randomisation (intention to treat).

Results: Ninety (11%) of 789 screened patients were enrolled. Admissions per participant due to AECOPD at 12 months was lower with COPDPredict™: Incidence rate ratio (IRR) 0.64 (95% CI 0.19-2.17, $p = 0.478$). Exploratory Bayesian analysis and sensitivity analyses saw similar results. No significant differences were seen in inpatient days, visits to accident and emergency visits, and number of exacerbations. COPD Assessment Test (CAT) score benefits occurred at 3 and 6 months with COPDPredict™ (adjusted mean difference -3.8 points, 95% confidence interval (CI) -6.3 to -1.2, $p = 0.004$ and -3.0 points, 95% CI -5.7 to -0.4, $p = 0.025$, respectively) but was non-significant at longer periods ($p > 0.22$). There was not enough evidence to indicate a statistically significant treatment effect on the other outcomes.

Conclusions: COPDPredict™ failed to show a reduction in severe AECOPD events resulting in hospitalisations, although the number of admissions per participant was lower among users. The quality of life data (CAT scores) suggests that 6

months usage of COPDPredict™ period may be helpful to patients, with benefits exceeding the minimum clinically important difference throughout that time.

Trial registration: NCT04136418.

Keywords: Chronic obstructive pulmonary disease; clinical decision rules; digital health; randomised controlled trial; self-management.

Supplementary info

Publication types, MeSH terms, Associated dataExpand

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Review

COPD

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. 2025 Dec;22(1):2542153.

doi: 10.1080/15412555.2025.2542153. Epub 2025 Aug 12.

Patterns and Underlying Mechanisms of Airway Epithelial Cell Death in COPD

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Affiliations Expand

- PMID: 40798999

- DOI: 10.1080/15412555.2025.2542153

Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is a common lung disease characterized by chronic inflammation of small airways and lung parenchyma, which manifests as irreversible and progressive airflow limitation. Inhalation of toxic particles is a major risk factor for the development of COPD. Due to long-term

exposure to cigarettes, air pollutants, or occupational pollutants, the incidence of COPD continues to be stubbornly high. Although some treatments can improve symptoms, the remodeling of small airways in COPD cannot be reversed, which still brings heavy social and economic burdens. There is evidence that airway epithelial cells are actively involved in the development of COPD. Damage, fibrotic repair, and death of airway epithelial cells lead to chronic inflammation and dysfunction of small airways. This review article summarizes the pattern of airway epithelial cell death and its role in the progression of COPD. At the same time, the corresponding mechanism is discussed in depth.

Keywords: Chronic obstructive pulmonary disease; airway epithelial cells; cell death.

Supplementary info

Publication types, MeSH termsExpand

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Prev Med

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. 2025 Dec:201:108378.

doi: 10.1016/j.ypmed.2025.108378. Epub 2025 Jul 26.

Cigarette smoking and chronic disease in the United States, 2021-2023

Karin A Kasza [1], Richard J O'Connor [2], K Michael Cummings [3], Martin C Mahoney [2]

Affiliations Expand

- PMID: 40721112

- DOI: 10.1016/j.ypmed.2025.108378

Abstract

Objective: To quantify and describe the U.S. population of adults who smoke cigarettes daily and have chronic disease, determine their use of various products, and determine whether use of each product is associated with cigarette quitting.

Methods: PATH Study data collected in 2021 (Wave 6) and 2022/23 (Wave 7) were analyzed. Participants were adults who smoked cigarettes daily ages 40+ who were diagnosed with chronic obstructive pulmonary disease, chronic bronchitis, emphysema, congestive heart failure, heart attack, stroke, cancer, and/or diabetes as of 2021 (N = 1261). We determined in 2022/23 their past 12-month use of e-cigarettes, nicotine pouches, nicotine replacement therapy (NRT), and bupropion or varenicline; we evaluated whether use differed by several characteristics, and whether use was associated with cigarette quitting.

Results: Among adults who smoked with chronic disease, 40 % were not recently advised by a clinician to quit smoking and 27 % did not plan to ever quit. Between 2021 and 2022/23, 16 % used e-cigarettes, 14 % used NRT, 8 % used bupropion or varenicline, 3 % used nicotine pouches. Overall, <6 % quit smoking in 2022/23; quit rates were higher for those who used e-cigarettes (9 %) and those who used NRTs (12 %) than those who did not use each respective product (5 % and 5 %).

Conclusions: There are 9.9 million people with chronic disease who smoke cigarettes daily in the U.S; findings highlight opportunity for healthcare providers to enhance efforts to help people quit smoking, opportunity to improve low use rates of FDA-approved smoking cessation pharmacotherapies, and potential for e-cigarettes as a smoking cessation tool.

Keywords: Adult; Chronic disease; Cigarette smoking; Electronic nicotine delivery systems; Longitudinal; Nicotine; Population; Smoking cessation; Tobacco products; United States.

Conflict of interest statement

Declaration of competing interest K. Michael Cummings provides expert testimony on the health effects of smoking and tobacco industry tactics in lawsuits filed against the tobacco industry. Martin C. Mahoney has provided expert testimony on the health effects of smoking in lawsuits filed against the tobacco industry. He has also received research support from Pfizer, Inc., for a clinical trial of smoking cessation, and has previously served on external advisory panels sponsored by Pfizer to promote smoking cessation in clinical settings.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

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COPD

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. 2025 Dec;22(1):2534002.

doi: 10.1080/15412555.2025.2534002. Epub 2025 Jul 23.

Risk of Severe Exacerbation Associated with Gabapentinoid Use in Patients with Chronic Obstructive Pulmonary Disease: A Population-Based Cohort Study

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Affiliations Expand

- PMID: 40699157

- DOI: 10.1080/15412555.2025.2534002

Free article

Abstract

Evidence on the risk of adverse respiratory outcomes associated with gabapentinoids in patients with chronic obstructive pulmonary disease (COPD) remains limited. Thus, we aimed to assess the risk of severe COPD exacerbation associated with gabapentinoids. We assembled a base cohort of patients aged ≥ 55 years newly diagnosed with COPD between 1993 and 2021 using the UK's Clinical Practice Research Datalink, linked to the Hospital Episode Statistics, and Office for National Statistics datasets. Using a time-conditional propensity score (TCPS)-matched, new-user design, patients prescribed gabapentinoids with an indication of epilepsy, neuropathic pain, or other chronic pain were matched 1:1 with non-users with the same indication on age, sex, calendar year, COPD duration, and TCPS. Cox proportional hazards models were used to estimate the hazard ratios (HR) and 95% confidence intervals (CIs) of severe exacerbation associated with gabapentinoid use compared to non-use in the overall cohort, and by indication. The study cohort comprised 29,882 gabapentinoid users, including 1,256 with epilepsy, 19,155 patients with neuropathic pain, and 9,471 with other chronic pain matched 1:1 with non-users. Compared with non-use, gabapentinoid use was associated with an increased risk of severe exacerbation in the overall cohort (HR 1.43; 95% CI: 1.35-1.52), and among patients with epilepsy (HR 1.39; 95% CI: 1.11-1.74), neuropathic pain (HR 1.43; 95% CI: 1.32-1.54), and other chronic pain (HR 1.45; 95% CI: 1.31-1.60). These findings suggest that gabapentinoid use is associated with an increased risk of severe exacerbation among patients with COPD, consistent among patients with neuropathic pain, epilepsy, and other chronic pain.

Keywords: Chronic obstructive pulmonary disease (COPD); exacerbation; gabapentin; gabapentinoids; pregabalin.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

22

Eur Respir J

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. 2025 Nov 25;66(5):2402286.

doi: 10.1183/13993003.02286-2024. Print 2025 Nov.

Interstitial lung abnormalities, coronary heart disease and mortality

Claire C Cutting [1], Jonathan A Rose [1], Ann-Marcia C Tukpah [1], Noriaki Wada [2], Mizuki Nishino [3 4], Sean Kalra [1 5], Matthew R Moll [1 5 6], Michael H Cho [1 5], Edwin K Silverman [5], Gregory L Kinney [7], Harry B Rossiter [8], Heida Bjarnadottir [9], Valborg Gudmundsdottir [9], Sigurdur Sigurdsson [9], Gunnar Gudmundsson [10 11], Vilmundur Gudnason [9], George R Washko [1], Matthew J Budoff [8], Hiroto Hatabu [3], Gary M Hunninghake [1], Rachel K Putman [12]

Affiliations Expand

- PMID: 40610050

- DOI: 10.1183/13993003.02286-2024

Abstract

Background: Interstitial lung abnormalities (ILA) share common risk factors with coronary heart disease (CHD), including increased age and cigarette smoking; however, the relationship between ILA and CHD has not been well described.

Methods: Participants from the Genetic Epidemiology of Chronic Obstructive Pulmonary Disease study (COPDGene) and Age Gene/Environment Susceptibility (AGES)-Reykjavik studies with ILA assessment, clinical CHD and coronary artery calcium (CAC) data were included. In both cohorts, CHD was defined by clinical history and additionally by CAC >100. Multivariable logistic regression assessed the relationship between ILA and CHD; Cox proportional hazards models were used to assess mortality associated with ILA and CHD.

Results: 9% of participants with CHD had ILA in both COPDGene and AGES-Reykjavik. Participants with ILA had increased odds of CHD defined by clinical history in COPDGene (OR 1.6, 95% CI 1.2-2.0; p<0.001) and AGES-Reykjavik (OR 1.6,

95% CI 1.2-2.0; p<0.001); similar results were seen with CAC >100. In both COPDGene and AGES-Reykjavik, participants with both CHD and ILA had a greater risk of death compared to those with CHD but without ILA (HR 2.0, 95% CI 1.4-2.7; p<0.001; and HR 1.3, 95% CI 1.1-1.4; p<0.001, respectively). In AGES-Reykjavik, ILA was associated with an over 9-fold increase in the odds of a respiratory death (OR 9.6, 95% CI 3.2-29.0; p<0.0001) among participants with CHD.

Conclusion: ILA are a common co-occurrence with CHD and associated with worse mortality, suggesting that ILA are a clinically important comorbidity in patients with CHD.

Conflict of interest statement

Conflict of interest: M. Nishino reports consulting fees from AstraZeneca, and receives research grants from Canon Medical Systems and Konica Minolta. M.R. Moll reports consulting fees from 2ndMD, Verona Pharma, TheaHealth, TriNetX, Genentech and Sanofi. M.H. Cho reports consulting fees from Apogee Therapeutics, and receives research grants from Bayer. In the past three years, E.K. Silverman received grant support from Bayer and Northpond Laboratories. H.B. Rossiter reports consulting fees from the National Institutes of Health RECOVER-ENERGIZE working group (1OT2HL156812), and is involved in contracted clinical research with GlaxoSmithKline, Genentech, Intervene Immune, Mezzion, Regeneron, Respira, Roche and United Therapeutics. G. Gudmundsson reports payment or honoraria for lectures, as well as support for attending meetings and/or travel from Boehringer Ingelheim. G.R. Washko reports ownership/dividend from Quantitative Imaging Solutions and consulting fees from Apogee Therapeutics, AstraZeneca, Intellia Therapeutics, Regeneron, Sanofi and Verona Pharma. H. Hatabu reports consulting fees from Canon Medical Systems Inc. and Boehringer Ingelheim; research grants from Canon Medical Systems Inc. and Konica Minolta Inc.; and the provisional US patent application with the serial number 63/610,842. G.M. Hunninghake reports consulting fees from Boehringer Ingelheim and Gerson Lehrman Group. The remaining authors have no potential conflicts of interest to disclose.

Comment in

- Shared pathways, shared risks: the overlap of interstitial lung abnormalities and coronary heart disease.

Podolanczuk AJ, Miller CL.Eur Respir J. 2025 Nov 25;66(5):2501522. doi: 10.1183/13993003.01522-2025. Print 2025 Nov.PMID: 41290324 No abstract available.

Supplementary info

MeSH termsExpand

Full text links

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. 2025 Dec;47(1):2524105.

doi: 10.1080/10641963.2025.2524105. Epub 2025 Jul 1.

Changes and significance of high-density lipoprotein A-I, A-II, and serum amyloid levels in patients with chronic obstructive pulmonary disease complicated by coronary heart disease

Yao Tian [1 2], Hongru Liu [2 3], Yaoyong Wang [2 3]

Affiliations Expand

- PMID: 40590531

- DOI: 10.1080/10641963.2025.2524105

Free article

Abstract

Objective: To investigate the significance of blood lipids and pro-inflammatory in chronic obstructive pulmonary disease (COPD) patients in stable and acute exacerbations (AECOPD) with or without coronary heart disease (CAD).

Methods: One hundred and sixty COPD patients were divided into four groups based on whether COPD was in the acute or stable phase and whether comorbid CAD: AECOPD without CAD group, AECOPD with CAD group, stable COPD without CAD group, and stable COPD with CAD group.

Results: The levels of ApoA-I and ApoA-II in the AECOPD group and AECOPD with CAD group were significantly lower than in the stable COPD group, stable COPD with CAD group, and control group. The levels of SAA, TNF-α, and IL-6 was significantly higher in AECOPD group with CAD or without CAD compared with control group. SAA levels were significantly increased in stable COPD with CAD group compared with control group.

Conclusion: The levels of ApoA-I and ApoA-II in the AECOPD without CAD group and AECOPD with CAD group were significantly lower than those in the stable COPD group, stable COPD with CAD group. The change of pro-inflammatory factor TNF-α and IL-6 levels would be an important reason. The SAA level was significantly increased in the AECOPD without CAD group and AECOPD with CAD group, which

indicated that the changes in HDL-C components in this group may be an important reason for promoting the progress of CAD.

Keywords: ApoA-I; ApoA-II; Chronic obstructive pulmonary disease; SAA; coronary heart disease.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

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Practice Guideline

Eur Respir J

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. 2025 Nov 25;66(5):2500094.

doi: 10.1183/13993003.00094-2025. Print 2025 Nov.

European Respiratory Society clinical practice guideline on telemedicine in home mechanical ventilation

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Affiliations Expand

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Abstract

Background: With the increasing prevalence of patients on home mechanical ventilation (HMV), changing indications, shortage of hospital resources and rapidly evolving technology, there is an urgent need for evaluating the added value of telemedicine in initiation and follow-up of HMV. This European Respiratory Society (ERS) clinical practice guideline provides evidence-based recommendations on the use of telemedicine in HMV.

Methods: The ERS Task Force consisted of 20 members, including a patient representative and her caregiver. The Task Force addressed five PICO (Population, Intervention, Comparison, Outcome) questions and three narrative questions. Systematic searches were performed in MEDLINE, Embase, Cochrane and CINAHL. Evidence was synthesised by conducting meta-analyses, when possible, or when not, narratively. Certainty of evidence was rated with GRADE (Grading of Recommendations Assessment, Development and Evaluation) guidance. The Evidence-to-Decision framework was used to decide on the direction and formulate strengths of recommendations.

Results: The panel makes a conditional recommendation for the initiation of HMV with telemedicine in patients with neuromuscular diseases or restrictive thoracic diseases and in patients with COPD. No recommendation could be made for obesity hypoventilation syndrome. The panel conditionally recommends the use of telemedicine for the follow-up of patients on HMV, although could not make recommendations on parameters to be monitored. Suggestions were mainly based on theoretical benefits and patient preferences, as our confidence in the evidence was low.

Conclusions: With these guidelines, clinical practice recommendations are provided for the use of telemedicine in HMV. Technological advances and the use of advanced data processing algorithms and artificial intelligence were identified as drivers for future research and telemedicine use.

Conflict of interest statement

Conflicts of interest: M.L. Duiverman reports support for the present study from the European Respiratory Society, grants from ResMed, Löwenstein, Vivisol, Sencure and Fisher & Paykel, payment or honoraria for lectures, presentations, manuscript writing or educational events from Chiesi, Breas and AstraZeneca, receipt of equipment, materials, drugs, medical writing, gifts or other services from ResMed, Sencure and Fisher & Paykel, and is Chair of Group 2.2 of ERS Assembly 2. C. Ribeiro reports a speaking fee from Vitalair, and support for attending meetings from Vitalair, Nippon, Vivisol, Linde and Novartis. T. Tonia acted as an ERS methodologist and reports no further conflicts of interest. C. Schöbel reports research grants from the German Joint Federal Committee, German Federal Ministry of Health, and German Federal Ministry of Education and Research, consulting fees from AstraZeneca, Chiesi, Idorsia, Inspire, Lilly, ResMed, ZOLL and Bioprojet, payment for lectures from AstraZeneca, Chiesi, Inspire, MSD, ResMed, BMS, Idorsia, Memetor, Lilly and ZOLL, and is board member of the German Sleep Society and German Society for Telemedicine, and working group member of the German Society for Internal Medicine, German Respiratory Society and the working group Cardiovascular Sleep Medicine of the German Cardiac Society. A. Özsancak Uğurlu

reports a fee for attending a meeting from AstraZeneca (ERS 2024 online), and reports being National Representative for IRC and coordinator of the Turkish Respiratory Coalition (unpaid). J-C. Borel reports consulting fees from AGIR à dom, French Homecare provider, and ICADOM, a contract research organisation. M. Patout reports research grants from Fisher & Paykel, ResMed and Asten Santé, consulting fees from Philips, ResMed, Asten Santé, GSK, Air Liquide Medical and Isis, honoraria for lectures from Philips, ResMed, SOS Oxygene, Chiesi, Löwenstein, Bastide Medical, Elivie, Asten Santé, Air Liquide Medical, Antadir, Jazz Pharmaceutical, Fisher & Paykel, Orkyn and Sanofi, support for meeting attendance from Asten Santé, Vitalair and Sonofi, participation in advisory boards for ResMed, Sanofi, Philips and Asten Santé, stock from Kernel Biomedical, and receipt of equipment from Philips, ResMed and Fisher & Paykel. B. Ergan reports a consulting fee from Breas, and support for attending a meeting from Fisher & Paykel. C. Carlin reports an unrestricted investigator initiated research award (to institution) from ResMed, advisory board and speaker fees from ResMed, and meeting support and speaker fees from Fisher & Paykel. P. Murphy reports grants to institution from Breas, Philips, ResMed, GSK and Fisher & Paykel, payment for lectures from Philips, ResMed, Fisher & Paykel, Breas, Löwenstein, Santhera, GSK and Chiesi, support for attending meetings from Philips, ResMed, Fisher & Paykel, Breas and Löwenstein, and participation on an advisory board for ResMed. R. Dellacà reports a patent on the automatic detection of tidal expiratory flow limitation, owned by his institution, which was licensed to Philips for the automatic tailoring of PEEP in non-invasive ventilation. The patent (and license) expired in 2023. The licensed technology was unrelated to the manuscript's content. M. Vitacca reports payment for lectures from AstraZeneca, GSK, Menarini, Vivisol and Chiesi. C. Crimi reports speaking fees from Fisher & Paykel, Vitalair, Philips, ResMed, Sanofi, GSK, Aerogen and AstraZeneca, a patent pending (number 102023000013077) not discussed in the present work, and participation on advisory boards for Vitalair and Aerogen (occasional). The remaining authors have no potential conflicts of interest to disclose.

Comment in

- How far are we with telemedicine in sleep apnoea and chronic respiratory failure?

Wijkstra P, Pépin JL.Eur Respir J. 2025 Nov 25;66(5):2501636. doi: 10.1183/13993003.01636-2025. Print 2025 Nov.PMID: 41290321 No abstract available.

Supplementary info

Publication types, MeSH termsExpand

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Ann Med

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. 2025 Dec;57(1):2482864.

doi: 10.1080/07853890.2025.2482864. Epub 2025 Mar 20.

Regarding 'childhood respiratory risk profiles associate with lung function and COPD among the old population'

Xiaoyan Hu [1], Peng Sun [1]

Affiliations Expand

- PMID: 40111419
- PMCID: PMC11926891
- DOI: 10.1080/07853890.2025.2482864

No abstract available

Conflict of interest statement

No potential conflict of interest was reported by the author(s).

- 3 references

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Ann Med

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. 2025 Dec;57(1):2477299.

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Clinical characteristics and outcomes of chronic obstructive pulmonary disease patients with family history of chronic airway disease

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Affiliations Expand

- PMID: 40074698
- PMCID: PMC11905302
- DOI: 10.1080/07853890.2025.2477299

Abstract

Background: Chronic Obstructive Pulmonary Disease (COPD) is a heterogeneous condition with different risk factors, including family history. This study aimed to explore association between a family history of chronic airway disease and features and outcomes of COPD.

Methods: Participants were obtained from the RealDTC study between December 2016 and December 2022. Data on demographics, pulmonary function, history of exacerbation at baseline, acute exacerbation during 1-year follow-up and survival status during 3-years follow-up were collected.

Results: 5020 patients were enrolled, with 1307 patients (26.0%) having a family history of chronic airway diseases. Compared with patients without a family history of chronic airway diseases, patients with a family history had a lower forced expiratory Volume in one second (FEV1), higher Modified Medical Research Council (mMRC) score and COPD Assessment Test (CAT) score, higher rate of acute exacerbation and hospitalization in the past year ($p < 0.05$) and rate of acute exacerbation and hospitalization during 1 year follow-up period ($p < 0.05$). It was an independent risk factor for acute exacerbation (OR = 2.196; 95% CI =1.873-2.576) and hospitalization (OR = 2.199; 95% CI =1.812-2.670). Over 3 years of follow-up, there were no significant differences in mortality rates and annual changes in FEV1 between two groups.

Conclusion: COPD patients with a family history of chronic airway disease are not rare, and they tend to have more severe symptoms and a higher risk of future deterioration. In the management of COPD, special attention should be paid to patients with a family history of chronic airway disease.

Keywords: Chronic obstructive pulmonary disease; acute exacerbation; family history; hospitalization.

Conflict of interest statement

No potential conflict of interest was reported by the authors.

- 31 references

- 1 figure

Supplementary info

MeSH termsExpand

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27

Editorial

COPD

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. 2025 Dec;22(1):2467657.

doi: 10.1080/15412555.2025.2467657. Epub 2025 Feb 24.

Biologics in COPD: The Road is Still Long and Winding

Konstantinos Kostikas [1], Athena Gogali [1]

Affiliations Expand

- PMID: 39992256

- DOI: 10.1080/15412555.2025.2467657

Free article

No abstract available

Supplementary info

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COPD

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. 2025 Dec;22(1):2449889.

doi: 10.1080/15412555.2025.2449889. Epub 2025 Jan 29.

Biologic Therapies for Chronic Obstructive Pulmonary Disease: A Systematic Review and Network Meta-Analysis of Randomized Controlled Trials

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Affiliations Expand

- PMID: 39877958

- DOI: 10.1080/15412555.2025.2449889

Free article

Abstract

Background: Despite limited breakthroughs in COPD pharmacotherapy, recent trials have shown promising results for biologics in COPD patients. However, robust evidence synthesis in this area is currently lacking.

Methods: We conducted a systematic review of MEDLINE, EMBASE, and Cochrane CENTRAL from inception to July 17, 2024, to identify randomized trials of biologic medications in patients with COPD. We performed a random effects frequentist network meta-analysis and present the results using relative risk (RR) and 95% confidence intervals (CI). We used the GRADE framework to rate the certainty of the evidence. Outcomes of interest included exacerbations, change in FEV1, change in quality of life, and serious adverse events.

Results: Dupilumab reduced exacerbations as compared to placebo (RR 0.68 [95% CI 0.59 to 0.79]) (high certainty). Benralizumab (RR 0.89 [95% CI 0.78 to 1]), itepekimab (RR 0.81 [95% CI 0.61 to 1.07]) and tezepelumab (RR 0.83 [95% CI 0.61 to 1.12]) may reduce exacerbations as compared to placebo (all low certainty). Dupilumab probably reduced exacerbations more than mepolizumab (RR 0.74 [95% CI 0.62 to 0.89]) (moderate certainty). Dupilumab may reduce exacerbations more than tezepelumab (RR 0.82 [95% CI 1.14]) (low certainty). For all patients, no treatment improved FEV1 above the pre-specified minimal clinically important difference (MCID) of 0.1 L. Dupilumab probably has no meaningful effect on FEV1 compared to placebo (MD 0.07 [95% CI 0.02 to 0.13]) (moderate certainty). However,

in the subgroup of patients with blood eosinophils ≥300/mcL, both tezepelumab (MD 0.15 [95% CI 0.05 to 0.26]) and dupilumab (MD 0.13 [95% CI 0.06 to 0.19]) probably improved FEV1 above the MCID.

Conclusion: Dupilumab is effective at improving patient-relevant outcomes in COPD with higher eosinophil levels. Other biological therapies, including tezepelumab, have no important effect on patient-relevant outcomes.

Keywords: COPD; biologics; network meta-analysis.

- Cited by 6 articles

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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WSAQ

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

1

BMC Med

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. 2025 Nov 26.

doi: 10.1186/s12916-025-04520-1. Online ahead of print.

Long-term accrual of conditions following myocardial infarction: a study of disease trajectories in the Wales Multimorbidity e-Cohort

Jonathan A Batty [1 2 3 4], Christopher J Hayward [5 6], Ronan A Lyons [7], Chris P Gale [5 6 8], Niels Peek [9 10], Marlous Hall [11 12]

Affiliations Expand

- PMID: 41299444

- DOI: 10.1186/s12916-025-04520-1

Abstract

Background: Improved survivorship following myocardial infarction (MI) has resulted in transferred morbidity to other long-term conditions (LTCs). Understanding of disease accrual over time following MI has been limited by a lack

of methodologies that consider real-world complexity. We characterised post-MI multimorbidity trajectories in a real-world population of individuals following MI.

Methods: This population-wide retrospective study comprised all individuals with MI in the Wales Multimorbidity e-Cohort (which included linked primary and secondary care data for 2,902,101 GP-registered residents of Wales; 2005-2019). Single-year post-MI disease clusters and multi-year latent multimorbidity trajectories were constructed from 227 chronic conditions and 62 acute conditions, using non-negative matrix factorisation (NMF). Multinomial logistic regression identified sociodemographic factors associated with single-year post-MI disease clusters. Time-updating flexible parametric survival models quantified the association between multi-year multimorbidity trajectories and long-term all-cause mortality, adjusting for age, sex, year of MI, socioeconomic deprivation and rurality.

Results: In total, 70,529 individuals had an incident MI during the study period (median [interquartile range] age 72 [62-82] years; 40.6% female), with restricted mean post-MI survival of 8.1 years. At MI diagnosis, 67,023 (95.0%) had ≥ 2 LTCs (median 8 [interquartile range; IQR 5-12]), which increased to 99.8% at 1 year (50,633/50,737 surviving patients, median [IQR] 12 [7-17]). NMF classified individuals into one of 10 post-MI disease clusters, based on all observed acute and chronic diagnoses (n = 3,954,622) accrued over time. Individuals that followed the most adverse latent multimorbidity trajectory (n = 26,035, 36.9%) were characterised by recurrent MI, acute infections and renal disease and had an increased risk of all-cause mortality (adjusted hazard ratio 6.62; 95% CI: 6.09-7.20) compared with individuals in the least adverse trajectory.

Conclusions: Patients with MI have a high pre-existing multimorbidity burden that increases post-MI. Using NMF, we were able to reduce the real-world complexity of all individual diseases accrued over time into 10 latent post-MI multimorbidity trajectories. These trajectories were characterised by specific patterns of acute and chronic conditions, with differential impact on outcomes. These trajectories may enable the implementation of targeted strategies for individuals that are at greatest risk of adverse outcomes.

Keywords: Clustering; Disease trajectories; Multimorbidity; Myocardial infarction; Non-negative matrix factorisation.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The use of de-identified data in this project was approved by the SAIL Information Governance Review Panel (26 June 2019, project 0911). The SAIL databank has ongoing ethical approval from the UK National Research Ethics Service (NRES). Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 64 references

Supplementary info

Grants and fundingExpand

Full text links

2

BMJ Open

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. 2025 Nov 23;15(11):e102833.

doi: 10.1136/bmjopen-2025-102833.

Perceptions of an AI-based clinical decision support tool for prescribing in multiple long-term conditions: a qualitative study of general practice clinicians in England

Alexander d'Elia [1], Simon George Morris [2], Jennifer Cooper [2], Krishnarajah Nirantharakumar [2], Thomas Jackson [3], Tom Marshall [4], Leah Fitzsimmons [2], Louise J Jackson [5], Francesca Crowe [2], Shamil Haroon [2], Sheila Greenfield [2], Ellie Hathaway [2]

Affiliations Expand

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- PMCID: PMC12645610
- DOI: 10.1136/bmjopen-2025-102833

Abstract

Background: Artificial intelligence (AI)-based clinical decision support systems (CDSSs) are currently being developed to aid prescribing in primary care. There is a lack of research on how these systems will be perceived and used by healthcare professionals and subsequently on how to optimise the implementation process of AI-based CDSSs (AICDSSs).

Objectives: To explore healthcare professionals' perspectives on the use of an AICDSS for prescribing in co-existing multiple long-term conditions (MLTC), and the relevance to shared decision making (SDM).

Design: Qualitative study using template analysis of semistructured interviews, based on a case vignette and a mock-up of an AICDSS.

Setting: Healthcare professionals prescribing for patients working in the English National Health Service (NHS) primary care in the West Midlands region.

Participants: A purposive sample of general practitioners/resident doctors (10), nurse prescribers (3) and prescribing pharmacists (2) working in the English NHS primary care.

Results: The proposed tool generated interest among the participants. Findings included the perception of the tool as user friendly and as a valuable complement to existing clinical guidelines, particularly in a patient population with multiple long-term conditions and polypharmacy, where existing guidelines may be inadequate. Concerns were raised about integration into existing clinical documentation systems, medicolegal aspects, how to interpret findings that were inconsistent with clinical guidelines, and the impact on patient-prescriber relationships. Views differed on whether the tool would aid SDM.

Conclusion: AICDSSs such as the OPTIMAL tool hold potential for optimising pharmaceutical treatment in patients with MLTC. However, specific issues related to the tool need to be addressed and careful implementation into the existing clinical practice is necessary to realise the potential benefits.

Keywords: Artificial Intelligence; Multimorbidity; Primary Health Care; QUALITATIVE RESEARCH.

Conflict of interest statement

Competing interests: None declared.

- **30 references**
- **1 figure**

Supplementary info

MeSH termsExpand

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Observational Study

Ann Med

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. 2025 Dec;57(1):2579789.

doi: 10.1080/07853890.2025.2579789. Epub 2025 Oct 31.

Comparison of the predictive performance of Cumulative Illness Rating Scale, Charlson Comorbidity Index and COMCOLD Index for moderate-to-severe exacerbations in elderly subjects with chronic obstructive pulmonary disease

Edoardo Pirera [1], Domenico Di Raimondo [1], Lucio D'Anna [2], Riccardo De Rosa [1], Martina Profita [1], Sergio Ferrantelli [1], Davide Paolo Bernasconi [3], Antonino Tuttolomondo [1]

Affiliations Expand

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• PMCID: PMC12581735

• DOI: 10.1080/07853890.2025.2579789

Abstract

Background and objective: Chronic Obstructive Pulmonary Disease (COPD) is frequently associated with multiple comorbidities that influence clinical outcomes. This study aimed to compare the predictive performance of the Cumulative Illness Rating Scale (CIRS) with the Charlson Comorbidity Index (CCI) and COMCOLD Index for moderate-to-severe COPD exacerbations.

Materials and methods: We conducted a prospective observational study involving 200 COPD patients followed for 52 weeks. CIRS indices (Total Score, Severity Index, Comorbidity Index), CCI, and COMCOLD were calculated at baseline. The primary outcome was time-to-first moderate-to-severe exacerbation. Cox regression analyses and time-dependent receiver operating characteristic curves were used to assess prognostic performance at 12, 24, and 52 weeks.

Results: During follow-up, 66 patients (33%) experienced at least one moderate-to-severe exacerbation. All CIRS indices demonstrated significant correlations with respiratory parameters and symptom burden. In crude models, CIRS indices were significantly associated with exacerbation risk (CIRS-TS: HR 1.11, 95%CI 1.06-1.16; CIRS-SI: HR 1.16, 95%CI 1.09-1.23; CIRS-CI: HR 1.37, 95%CI 1.20-1.56; all $p < 0.001$), maintaining significance after adjustment for clinical covariates. CIRS indices demonstrated superior discriminative performance compared to CCI and COMCOLD, with CIRS-SI achieving the highest time-dependent AUC values across all timepoints (0.704, 0.679, and 0.778 at 12, 24, and 52 weeks, respectively).

Conclusion: CIRS provides superior prognostic accuracy compared to established comorbidity indices in identifying COPD patients at increased risk of exacerbations. These findings highlight the clinical relevance of incorporating a comprehensive, severity-weighted comorbidity assessment in COPD management, supporting the

concept of COPD as a complex, multisystem disorder requiring an integrated approach to care.

Keywords: CIRS; COMCOLD; COPD; Charlson Comorbidity Index; Comorbidity; Cumulative Illness Rating Scale; acute exacerbation of COPD.

Plain language summary

In elderly patients with COPD, CIRS provided superior prognostic accuracy for moderate-to-severe exacerbations compared with the Charlson Comorbidity Index and COMCOLD;The prognostic advantage of CIRS likely derives from its comprehensive, severity-weighted assessment of multimorbidity across multiple organ systems;Incorporating multidimensional comorbidity evaluation, such as CIRS, into clinical practice may improve risk stratification and support more personalized COPD management.

Conflict of interest statement

No potential conflict of interest was reported by the author(s).

- 40 references

Supplementary info

Publication types, MeSH termsExpand

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Review

Ageing Res Rev

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. 2025 Dec:112:102897.

doi: 10.1016/j.arr.2025.102897. Epub 2025 Sep 9.

Prognostic effects of multimorbidity clusters on health outcomes in adults: A systematic review and meta-analysis

Jing Xi [1], Miao Miao [1], Polly W C Li [2], Doris S F Yu [3]

Affiliations Expand

- **PMID: 40934974**

- **DOI: 10.1016/j.arr.2025.102897**

Abstract

Background: Multimorbidity is an important global health concern. We evaluated the prognostic impacts of multimorbidity clusters on health outcomes in adults.

Methods: This study was registered in PROSPERO (CRD42024528148), and no funding was received. Eight databases (PubMed, EMBASE, Cochrane Library, Web of Science, PsycINFO, CINAHL, Wan Fang, and CNKI) were searched for longitudinal studies reporting the prognostic impacts of multimorbidity clusters. Methodological quality was assessed using Newcastle-Ottawa Scale. Data analysis incorporated narrative synthesis, random-effects meta-analysis, subgroup analysis, meta-regression, sensitivity analysis, and Egger's test.

Results: Forty articles identifying 12 multimorbidity clusters were included. Cardiometabolic multimorbidity (adjusted hazard ratio [HR]: 1.97, 95 % confidence interval [CI]: 1.76-2.21; adjusted odds ratio [OR]: 1.44, 95 % CI: 1.16-1.80) had strong prognostic impact on all-cause mortality, followed by cardiopulmonary (adjusted HR: 1.70, 95 % CI: 1.38-2.09), and digestive multimorbidity (adjusted HR: 1.46, 95 % CI: 1.11-1.93). It also predicted circulatory (adjusted HR: 3.41, 95 % CI: 2.27-5.12) and cancer mortality (adjusted HR: 1.32, 95 % CI: 1.04-1.67), activities of daily living disability (adjusted OR: 1.76, 95 % CI: 1.57-1.99), and depression (adjusted OR: 1.53, 95 % CI: 1.27-1.85). Multi-system multimorbidity predicted all-cause mortality (adjusted OR: 1.41, 95 % CI: 1.12-1.77) and activities of daily living disability (adjusted OR: 2.04, 95 % CI: 1.36-3.05). Cardiometabolic multimorbidity predicted a higher risk of all-cause mortality when identified using a pre-determined method.

Conclusion: Multimorbidity clusters strongly impact activities of daily living, depression, and mortality, with cardiometabolic multimorbidity warranting particular attention. However, due to methodological limitations, heterogeneity, Asian-dominant samples, and language bias, these results should be interpreted with caution.

Keywords: Meta-analysis; Multimorbidity cluster; Prognosis; Systematic review.

Conflict of interest statement

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

Supplementary info

Publication types, MeSH termsExpand

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Br J Clin Pharmacol

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. 2025 Dec;91(12):3511-3520.

doi: 10.1002/bcp.70243. Epub 2025 Aug 20.

Understanding the impact of multimorbidity, medications and frailty on zoledronic acid efficacy in treating osteoporosis among older adults

Bersan Ozcan [1], Serdar Ceylan [2], Munevver Ozcan [2], Merve Guner [2], Cafer Balcı [2], Mustafa Cankurtaran [2], Meltem Halil [2], Burcu Balam Dogu [2]

Affiliations Expand

- PMID: 40835589

- DOI: 10.1002/bcp.70243

Abstract

Aims: This study investigates the interplay between drug effects, multimorbidity, frailty and comprehensive geriatric evaluation on zoledronic acid (ZA) treatment success in osteoporosis (OP), particularly among frail, older adults, a group often excluded from research.

Methods: In this retrospective cohort study, a retrospective analysis of 156 OP-treatment-naïve geriatric outpatients who received their first ZA treatment was conducted. Bone mineral density (BMD) and T-scores in the lumbar, femoral neck and total femur regions were assessed using dual-energy X-ray absorptiometry and patients' fall history was assessed. BMD decrease exceeding the LSC was considered sufficient to define treatment failure, alongside the occurrence of two or more new fragility fractures.

Results: In a predominantly female cohort (76%) with a median age of 75 years, 23.1% experienced frailty and 17.3% had malnutrition, yet most remained independent and cognitively intact. Over a median follow-up of 14.4 months, significant improvements in BMD and reduced fragility fractures were observed, with 70.5% responding successfully to treatment. Univariate analysis identified advanced age, prolonged dosing intervals, illiteracy, multimorbidity, polypharmacy and diabetes mellitus as factors that reduced treatment efficacy. Regression

analysis supported these findings, highlighting the complexities of managing OP in older adults.

Conclusions: The study emphasizes that identifying barriers to treatment success is crucial for optimizing OP management. ZA improves BMD and reduces fractures, even in frail older adults with multimorbidity, supporting its use across diverse patient profiles and stressing the need for personalized treatment strategies.

Keywords: frailty; multimorbidity; osteoporosis; polypharmacy; zoledronic acid.

- **50 references**

Supplementary info

MeSH terms, SubstancesExpand

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Cite

6

Review

Ageing Res Rev

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. 2025 Dec:112:102870.

doi: 10.1016/j.arr.2025.102870. Epub 2025 Aug 13.

Biomarkers of multimorbidity: A systematic review

Maria Beatrice Zazzara [1], Federico Triolo [2], Leonardo Biscetti [3], Ersilia Paparazzo [4], Marco Fiorillo [5], Davide Liborio Vetrano [6], Graziano Onder [7]; BIO-SIGN Study Investigators

Affiliations Expand

- **PMID: 40816451**

- **DOI: 10.1016/j.arr.2025.102870**

Free article

Abstract

The development of multiple chronic diseases in the same individual (i.e., multimorbidity) results from the loss of homeostasis across several biological systems. Identifying pathophysiological pathways common to multiple diseases, using accessible biomarkers, could increase our understanding of multimorbidity and improve its prognostication and management. We conducted a systematic review of peer-reviewed articles published till September 2024 that investigated biomarkers of multimorbidity. Due to study heterogeneity, a synthesis without meta-analysis was performed on 43 studies employing harvest plots based on direction of effect, sample size and study quality. Findings highlight how inflammatory and metabolic biomarkers, such as interleukin-6 (IL-6) and glycated haemoglobin (HbA1c) especially, but also triglycerides, low-density lipoprotein (LDL) cholesterol and kidney and liver markers, along with markers of neurodegeneration including Neurofilament Light Chain (NfL) and Phospho-Tau 217 (p-tau 217), were directly associated with multimorbidity. Nonetheless, evidence for hormonal and vascular activation markers, as well as more novel geroscience biomarkers, remains limited. These markers could have a key role in identifying individuals at high risk of developing or worsening multimorbidity. The review also highlights how methodological challenges, including heterogeneity in study design, populations, and multimorbidity definitions, impact on comparability and generalizability of findings. Addressing these gaps through standardized, longitudinal studies and multi-omics approaches is crucial to improve our understanding of the pathophysiological mechanisms of multimorbidity. In summary, this review outlines the independent association of diverse biomarkers with multimorbidity, opening to the possibility of identifying specific pathophysiological pathways for risk stratification and possible target of future personalized interventions.

Keywords: Aging; Biomarkers; Individualized care; Multimorbidy; Pathophysiological pathways.

Conflict of interest statement

Declaration of Competing Interest None of the authors declare conflicts of interest to disclose.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Psychol Health Med

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. 2025 Dec;30(10):2207-2223.

doi: 10.1080/13548506.2025.2502841. Epub 2025 May 7.

Individual and joint associations of depression and physical multimorbidity with all-cause mortality: a prospective cohort study

Qingcui Wu [1], Zhilin Li [1], Naijian Zhang [1], Huijie Huang [1], Siting Wang [1], Yuanyuan Liu [1], Jiageng Chen [1], Jun Ma [1]

Affiliations Expand

- **PMID: 40336250**

- **DOI: 10.1080/13548506.2025.2502841**

Abstract

The study aimed to investigate the separate, interactive, and combined effects of depression and physical multimorbidity on all-cause mortality using data from the National Health and Nutrition Examination Survey (NHANES) 2005-2016. Depression was assessed using the Patient Health Questionnaire-9 (PHQ-9), and multimorbidity was defined as the presence of ≥ 2 chronic conditions. Cox proportional hazards models were used to assess these associations. During a median follow-up of 8.3 years (interquartile range, 5.4-11.4), 3,005 deaths occurred. After adjusting for potential confounders and multimorbidity, each one-point increase in depression score was associated with a 3% higher risk of mortality (hazard ratio [HR]: 1.03, 95% confidence interval [CI]: 1.02-1.04). Compared to those without depressive symptoms, mild and moderate to severe symptoms were linked to a 27% (HR: 1.27, 95% CI: 1.11-1.47) and 37% (HR: 1.37, 95% CI: 1.17-1.61) higher mortality risk, respectively. However, among women, only moderate to severe depression was significantly associated with increased mortality (HR: 1.50, 95% CI: 1.19-1.89). After adjusting for potential confounders and depression, multimorbidity was associated with a 64% higher mortality risk (HR: 1.64, 95% CI: 1.46-1.86). No significant interaction between depression and multimorbidity was found. Joint analysis showed that among participants without multimorbidity, moderate to severe depressive symptoms increased mortality risk (HR: 1.54, 95% CI: 1.09-2.17). In those with multimorbidity, risk increased with depression severity, peaking at HR: 2.22 (95% CI: 1.85-2.65). These findings highlight depression and multimorbidity as independent mortality risk factors, with their combined presence further amplifying this risk.

Keywords: Depression; NHANES; all-cause mortality; chronic physical conditions; multimorbidity.

Supplementary info

MeSH termsExpand

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Cite

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

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J Asthma

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. 2025 Nov 26:1-17.

doi: 10.1080/02770903.2025.2592244. Online ahead of print.

Identifying Future Risk Factors of Uncontrolled Asthma Control: The TAAR Study Perspective

Nurgul Bozkurt [1], Oznur Abadoglu [2], Ayse Bilge Ozturk Onaran [3], Derya Gokmen [4], Gozde Koycu Buhari [5], Omur Aydin [6], Ummuhan Seker [7], Mehmet Polatli [8], Ali Cengiz [6], Zeynep Celebi Sozener [9], Bilun Gemicioglu [10], Ismet Bulut [11], Sengul Beyaz [12 13], Cihan Orcen [14], Secil Kepil Ozdemir [15], Metin Keren [11], Ebru Damadoglu [16], Tugce Yakut [17], Ayse Fusun Kalpaklioglu [18], Ayse Baccioglu [18], Sumeyra Alan Yalim [18], Insu Yilmaz [19], Ilkay Koca Kalkan [5], Mehmet Atilla Uysal [9], Elif Yelda Ozgun Niksarlioglu [9], Ali Fuat Kalyoncu [16], Gul Karakaya [16], Muge Erbay [20], Sibel Nayci [21], Fatma Merve Tepetam [11], Asli Akkor Gelincik [12], Hulya Dirol [1], Ozlem Goksel [22], Selen Karaoglanoglu [23], Ferda Oner Erkekol [24 25], Sacide Rana Isik [26], Fusun Yildiz [27 28], Yasemin Yavuz [4], Dilek Karadogan [29], Ipek Kivilcim Oguzulgen [30], Ilknur Basyigit [27], Serap Argun Baris [27], Elif Yilmazel Ucar [31], Tuba Erdogan [32], Dane Ediger [33], Fatma Esra Gunaydin [33], Murat Turk [19 34], Leyla Pur [35], Zeynep Yegin Katran [11], Yonca Sekibag [10], Enes Furkan Aykac [10], Dilsad Mungan [6], Ozcan Gul [6], Bulent Akkurt [15], Seyma Ozden [11], Semra Demir [12], Derya Unal [12], Ayse Feyza Aslan [12], Ali Can [12], Reyhan Gumusburun [22], Gulhan Bogatekin [22], Hatice Serpil Akten [22], Sinem Inan [22], Munevver Erdinc [36], Aliye Candan Ogus [1], Murat Kavas [11], Demet Polat Yulug [37], Mehmet Erdem Cakmak [16], Saltuk Bugra Kaya [16], Gulistan Alpagat [18], Eylem Sercan Ozgur [21], Oguz Uzun [38], Sule Tas Gulen [8], Gulseren Pekbak [33], Deniz Kizilirmak [39], Yavuz Havlucu [39], Halil Donmez [40], Bahar Arslan [19], Gulden Pacaci Cetin [19], Sadan Soyyigit [24], Bilge Yilmaz Kara [29], Gulden Pasaoglu Karakis [41], Adile Berna

Dursun [40] [42], Resat Kendirlinan [43], Can Sevinc [44], Gokcen Omeroglu Simsek [44], Pamir Cerci [45], Taskin Yucel [46], Irfan Yorulmaz [47], Zahide Ciler Tezcaner [47], Emel Cadalli Tatar [48], Ahmet Emre Suslu [46] [49], Serdar Ozer [46], Engin Dursun [50], Arzu Yorgancioglu [39], Gulfem Elif Celik [6]

Affiliations Expand

- PMID: 41305966

- DOI: 10.1080/02770903.2025.2592244

Abstract

Objective: Risk factors associated with asthma symptom control is crucial for disease management. This study aimed to determine the risk factors of patients with uncontrolled asthma and to examine the relationship with their geographical patterns.

Methods: This cross-sectional study was conducted at 36 centers across Turkey. Future risk factors (FRFs) such as exposure to triggers/allergens and inadequate or poor inhalation technique etc were identified based on the Global Initiative for Asthma (GINA) guidelines. The associations between FRFs and demographic and clinical characteristics, geographical regions, and levels of asthma control were analyzed.

Results: The study included 2053 adult asthma patients.At least one FRF was identified in 1576(76.8%) patients. The most common FRFs were exposure to allergens/triggers (n:664; 32.3%), impaired asthma symptom control(n:540; 26.3%) and eosinophilia(n:526; 25.6%). Regarding regional differences, the most prevalent FRFs in the Marmara region were exposure to allergens/triggers and frequent use of short-acting beta-2 agonists (>3 boxes/year). In contrast, eosinophilia was more common in the Southeastern region, while inadequate or poor inhalation technique, non-compliance with treatment, and psychosocial or socioeconomic problems were more frequently observed in the Eastern Anatolia region. Asthma control was achieved in 79.5% of patients without any FRFs; however, this rate decreased significantly to 25% among patients with more than four FRFs.

Conclusions: This study demonstrates that FRFs in asthma vary according to demographic and disease characteristics, as well as geographical distribution. An increased number of FRFs was associated with asthma control. However, an individualized approach remains essential for achieving optimal asthma management.

Keywords: Asthma; asthma control; risk factors; severe asthma; uncontrolled asthma.

Cite

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BMC Pulm Med

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. 2025 Nov 26.

doi: 10.1186/s12890-025-04044-7. Online ahead of print.

Clinical outcomes after switching from omalizumab to anti-IL-5/IL-5R biologics in severe asthma: a retrospective cohort study

Fatma Arzu Akkuş [1], Fatih Çölkesen [2], Tuğba Önalan [3], Mehmet Emin Gerek [2], Mehmet Kılınç [4], Şevket Arslan [2]

Affiliations Expand

- PMID: 41299451

- DOI: 10.1186/s12890-025-04044-7

Abstract

Background: Severe asthma (SA) is a heterogeneous disease composed of various clinical phenotypes, and criteria for selecting the most appropriate biological agent remain unclear. Therefore, when optimal control cannot be achieved with the initial biological therapy, switching between biological drugs is often performed.

Methods: This real-world study evaluated patients with severe asthma who initiated omalizumab treatment. Based on their treatment response, patients were divided into two groups: those who continued omalizumab and those who switched to mepolizumab or benralizumab. Clinical data were evaluated before biological treatment, after omalizumab therapy, and following the second biological therapy. Additionally, factors influencing the decision to switch and the effectiveness of the switch were analyzed.

Results: Of the total 51 patients, 45.1% (n = 23) switched to a second biological agent due to inadequate response to the initial treatment. In the "Switch" group, baseline forced expiratory volume in one second (FEV_1) levels were significantly lower, while blood eosinophil counts (BEC) and exacerbation frequency were higher ($p < 0.05$). Although limited clinical improvement was observed after omalizumab treatment, significant improvements in asthma control test (ACT) scores, FEV_1, BEC, exacerbations, and hospitalizations were noted following the second biological therapy ($p < 0.001$). Low baseline FEV_1, high BEC, and frequent exacerbations were the main predictors of the decision to switch.

Conclusions: In severe asthma patients who do not achieve adequate control with omalizumab, switching to interleukin-5 (IL-5) targeted biological therapies may provide clinically significant improvements. Baseline clinical parameters can serve as useful predictors for the need to change biological treatment.

Keywords: Benralizumab; Biologic therapy; Eosinophils; Mepolizumab; Omalizumab; Severe asthma; Switching.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Ethics committee approval was received for this study from the Ethics Committee of Necmettin Erbakan University, who approved this study protocol (2025/5663). The study followed the guidelines and principles of the Declaration of Helsinki. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- **21 references**

Full text links

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3

Respir Med

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. 2025 Nov 24:108536.

doi: 10.1016/j.rmed.2025.108536. Online ahead of print.

Extremely-to-very preterm birth and being small for gestational age increase the risk of severe airflow obstruction in patients with asthma

Caroline Stridsman [1], Jon R Konradsen [2], Niklas Andersson [3], LowieEGW Vanfleteren [4], Helena Backman [5], Maria Ödling [6]

Affiliations Expand

- **PMID: 41297685**

- **DOI: 10.1016/j.rmed.2025.108536**

Abstract

Background: Severity of airflow obstruction in patients with asthma can be influenced by features beyond lung function impairment. The aim of this study was to assess the severity of obstruction according to the 2022 European Respiratory Society/American Thoracic Society standards, and its associations with perinatal factors, as well as potential interactions with background and clinical factors.

Methods: The study population consisted of 44,394 patients with asthma, aged 7-49 years, with at least one measurement of forced expiratory volume in 1 second (FEV_1) and forced vital capacity (FVC) recorded in the Swedish National Airway Register in 2014-2022, who were included in the Medical Birth Register between 1973-2015 with data on gestational age (GA) and birthweight. Airflow obstruction was defined as pre-bronchodilator FEV_1/FVC<lower limit of normal and categorized as mild, moderate, or severe based on FEV_1 z-score. Normal FEV_1 served as the reference category.

Results: Among 7,873 (17.7%) patients with airflow obstruction, the prevalence of severe obstruction pre-bronchodilator was 6.1%. Patients born extremely-to-very preterm or small for GA (SGA) had increased relative risk ratios for severe obstruction pre-bronchodilator (RRR_{adj} 2.34, 95% CI 1.24-4.41, and 2.03, 1.38-2.98) compared with those born at term and appropriate for GA, respectively, with obstruction and normal FEV_1. For GA and birthweight, there were non-significant interactions with background or clinical factors.

Conclusions: Severe obstruction was prevalent in children and adults with asthma. Patients born extremely-to-very preterm or SGA exhibited a significant association with severe obstruction pre-bronchodilator, regardless of background and clinical factors.

Keywords: airflow obstruction; asthma; birthweight; gestational age; lung function; perinatal factors; severity.

Conflict of interest statement

Declaration of Competing Interest MÖ and NA have no conflicts of interest to disclose. HB reports personal fees for advisory board work for Chiesi outside the submitted work. LEGWV reports personal fees for advisory boards and/or lectures for AstraZeneca, GSK, Chiesi, Boehringer Ingelheim, Novartis, Grifols, and Pulmonx outside the submitted work. CS reports personal fees from AstraZeneca and GSK, and institutional fees from Chiesi and TEVA outside the submitted work. JRK reports personal fees from Novartis and institutional fees from Regeneron Pharmaceuticals and Thermo Fisher Scientific outside the submitted work.

Case Reports

Toxicol Rep

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. 2025 Oct 28:15:102150.

doi: 10.1016/j.toxrep.2025.102150. eCollection 2025 Dec.

Occupational asthma following single exposure to polyurethane foam containing methylene diphenyl diisocyanate - A case report

Albin Stjernbrandt [1]

Affiliations Expand

- PMID: 41234293
- PMCID: PMC12605998
- DOI: 10.1016/j.toxrep.2025.102150

Abstract

Diisocyanates are a group of chemicals used in many different applications, such as plastics, foams, coatings, adhesives, and sealants. Prolonged occupational exposure can result in severe asthma. This case report presents a non-smoking male without any previous respiratory disease, where severe obstructive airway symptoms developed during a single event with high airborne exposure to polyurethane foam containing methylene diphenyl diisocyanate during the coating of a large vehicle. The subject was subsequently diagnosed with occupational asthma based on a significant variability in a two-week peak expiratory flow curve and a positive metacholine challenge. Despite aborted exposure and optimized asthma treatment, the subject continued to experience debilitating airway symptoms. This case report demonstrates that severe asthma can develop following a single exposure to polyurethane foam containing methylene diphenyl diisocyanate, underscoring the importance of preventive measures in workplaces where such chemicals are used.

Keywords: Asthma; Isocyanates; Occupational; Reactive airways dysfunction syndrome.

Conflict of interest statement

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.

- 22 references
- 1 figure

Supplementary info

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MethodsX

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. 2025 Oct 15:15:103679.

doi: 10.1016/j.mex.2025.103679. eCollection 2025 Dec.

Patient reported outcome measures relevant to asthma remission: scoping review protocol

Allison Michaud [1 2], John Politis [1], Lachlan Faktor [1], Philip G Bardin [1], Amy Hy Chan [3], Paul Leong [1]

Affiliations Expand

- **PMID: 41209337**
- **PMCID: PMC12590250**
- **DOI: 10.1016/j.mex.2025.103679**

Abstract

Introduction: Asthma affects over 260 million people globally. Recent advances in asthma care have highlighted remission as a key treatment goal. While remission requires agreement between patients and healthcare providers, there is no standard way to assess the patient experience of remission. This scoping review aims to

identify validated Patient Reported Outcome Measures (PROMs) that capture patient experiences of disease remission and may be applicable to asthma. Determining items and domains that are most important to patients will inform the development of a conceptual framework for a PROM for asthma remission.

Methods and analysis: This review will identify PROMs that quantify remission in long-term diseases. It will follow the Joanna Briggs Institute Manual and the PRISMA-ScR guidelines. Two independent reviewers will screen titles and abstracts following a training and calibration phase. Data extraction will also be performed independently by two authors, with disagreements resolved through discussion or a third reviewer.

Ethics and dissemination: No ethics approval is required as no human participants are involved. Findings will be shared at academic conferences and published in peer-reviewed journals.

Keywords: Asthma patient experience; Chronic illness measurement tools; Disease remission assessment.

Conflict of interest statement

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: AM has received honoraria from Valeo Pharma. JP and LF have no disclosures of interest. PB has served on Advisory Boards and provided educational lectures for GlaxoSmithKline, AstraZeneca, Sanofi and Chiesi. Honoraria are donated to a charitable research institute. AHYC reports research grants from Health Research Council of New Zealand, Asthma UK, University of Auckland, Oakley Mental Health Foundation, Chorus Ltd, World Health Organisation, and Hong Kong University, outside the submitted work and all paid to her institution (the University of Auckland). AC previously held the Robert Irwin Postdoctoral Fellowship and is the current recipient of the Auckland Medical Research Foundation Senior Research Fellowship. AHYC also reports consultancy fees from AcademyeX and Spoonful of Sugar Ltd, travel support from AstraZeneca, and was previously on the Board of Asthma NZ. She is a member of Respiratory Effectiveness Group (REG), member of the Scientific Advisory Board for Asthma Respiratory Foundation NZ, international member of the Pharmacy Respiratory Task Force, and working group lead for the European Respiratory Society Clinical Research Collaboration "CONNECT". PL has received honoraria from GlaxoSmithKline, AstraZeneca and Chiesi.

- 17 references
- 1 figure

6

Review

Curr Opin Allergy Clin Immunol

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. 2025 Dec 1;25(6):488-492.

doi: 10.1097/ACI.0000000000001112. Epub 2025 Oct 1.

Depemokimab: a new long-acting anti-IL5 treatment for severe asthma and chronic rhinosinusitis with nasal polyps

David I Bernstein [1]

Affiliations Expand

- PMID: 41158017

- DOI: 10.1097/ACI.0000000000001112

Abstract

Purpose of review: Clinical data are reviewed pertaining to depemokimab, the first extended life anti-IL5 mAb, for treating severe eosinophilic asthma. This molecule was engineered through amino acid modification (YTE mutation) of the Fc region. This modification increases Fc receptor affinity and enables antibody recycling, thereby greatly extending serum half-life and will allow a dosing duration of 26 weeks.

Recent findings: Phase 1 and 3 clinical studies have demonstrated that depemokimab maintains drug concentrations and reduces peripheral eosinophils over a single 26-week dosing interval. A 52-week double-blinded, placebo-controlled (DBPC) Phase 3 study of patients with severe eosinophilic asthma demonstrated that depemokimab reduced annualized asthma exacerbations by 54% compared with placebo, the primary efficacy outcome. No significant differences between active and placebo arms were detected for secondary endpoints (e.g., symptoms, FEV1 and quality of life). Results of a noninferiority study comparing depemokimab, benralizumab and mepolizumab are pending. In a DBPC trial of chronic rhinosinusitis with nasal polyps (CRSwNP), depemokimab was also effective in reducing nasal polyp endoscopy scores and nasal obstruction.

Summary: Depemokimab could offer patients with severe persistent asthma a more convenient add-on treatment option than existing shorter acting biologics and thereby improve overall adherence.

Keywords: eosinophil; half-life; interleukin 5; mAb; severe asthma.

- **13 references**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Pulm Ther

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. 2025 Dec;11(4):725-740.

doi: 10.1007/s41030-025-00327-w. Epub 2025 Oct 28.

Exacerbation Reduction in Patients with Asthma Following Escalation to FF/UMEC/VI from ICS/LABA: Retrospective Cohort Study

Alan P Baptist [1], Rosirene Paczkowski [2], Guillaume Germain [3], Jacob Klimek [4], François Laliberté [3], Robert C Schell [5], Sergio Forero-Schwanhaeuser [6], Alison Moore [7], Stephen G Noorduyn [8 9]

Affiliations Expand

- **PMID: 41148557**

- **PMCID: PMC12623575**

- **DOI: 10.1007/s41030-025-00327-w**

Abstract

Introduction: Despite fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) being available for asthma treatment in the US (United states) since 2020, real-world evidence on its clinical and economic benefits in patients with asthma is lacking. This study aimed to assess the effectiveness of FF/UMEC/VI (100/62.5/25 µg and

200/62.5/25 µg) in US patients with asthma previously on inhaled corticosteroid/long-acting β_2-agonists (ICS/LABA) using administrative claims data.

Methods: Retrospective, longitudinal, pre-post study utilizing data from the Komodo Health database between 09/09/2019 and 12/31/2023. Eligible adults with asthma had been treated with ICS/LABA prior to FF/UMEC/VI initiation (index date: first FF/UMEC/VI prescription). Rates of moderate-severe exacerbations, asthma-related healthcare resource utilization, oral corticosteroid (OCS) and short-acting β_2-agonist (SABA) use, and asthma-related medical costs were evaluated pre- (12 months pre-index) and post-FF/UMEC/VI initiation (12 months post-index). Statistical analyses involved rate ratios (RRs) from a Poisson regression model, odds ratios (ORs) from logistic regression models, and mean differences from linear regression models. Exploratory analyses stratified these results by pre-index ICS/LABA combination and FF/UMEC/VI index dose.

Results: In total, 17,959 patients were included. Following FF/UMEC/VI initiation, odds of having ≥ 1 exacerbation were reduced by 52% (OR [95% confidence interval (CI)] 0.48 [0.46, 0.50]; P < 0.001), rate of moderate-severe exacerbations reduced by 38% (RR [95% CI] 0.62 [0.61, 0.64]; P < 0.001) and asthma-related hospitalizations by 25% (RR [95% CI] 0.75 [0.68, 0.83]; P < 0.001). Odds of ≥ 1 OCS dispensing were reduced by 36% (OR [95% CI] 0.64 [0.62, 0.67]; P < 0.001) and ≥ 1 SABA canister use by 54% (OR [95% CI]: 0.46 [0.44, 0.48]; P < 0.001) post initiation; mean annualized asthma-related medical costs were reduced by $1115 ([95% CI] [$ -1771, $ -459]; P < 0.001). Both FF/UMEC/VI dosage groups had similar results.

Conclusions: In patients who remain uncontrolled despite ICS/LABA treatment, escalating to FF/UMEC/VI is associated with reductions in asthma exacerbations, asthma-related hospitalizations, OCS use, SABA use, and asthma-related medical costs.

Keywords: Asthma, clinical practice; FF/UMEC/VI; Real-world evidence; Single-inhaler triple therapy; United States.

Conflict of interest statement

Declarations. Conflicts of Interest: Alan P. Baptist reports grant support from GSK, AstraZeneca, and Teva. Rosirene Paczkowski, Sergio Forero-Schwanhaeuser, Alison Moore, and Stephen G. Noorduyn are employees of GSK and hold financial equities in GSK. Stephen G. Noorduyn is also a PhD candidate at McMaster University. Guillaume Germain, Jacob Klimek, François Laliberté, and Robert C. Schell are employees of Analysis Group, a consulting company that has received research funds from GSK to conduct this study. Ethical Approval: The study was considered exempt research under 45 CFR § 46.104(d)(4) as it involved only the secondary use of data that were de-identified in compliance with the Health Insurance Portability and Accountability Act (HIPAA): specifically, 45 CFR § 164.514. Komodo Health has a standard license agreement, which includes restrictive covenants governing the use of the data.

- 24 references
- 4 figures

8

Review

Adv Ther

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. 2025 Dec;42(12):5950-5959.

doi: 10.1007/s12325-025-03392-4. Epub 2025 Oct 24.

Visualizing Improvements in Airway Dysfunction After Inhaled Therapy in Patients With Uncontrolled Asthma: A Narrative Review

Sam Tcherner [1 2], Ali Mozaffaripour [1 3], Cory Yamashita [4], Grace Parraga [5 6 7 8 9]

Affiliations Expand

- PMID: 41134514

- PMCID: PMC12618298

- DOI: 10.1007/s12325-025-03392-4

Abstract

Clinical trials investigating asthma therapies typically rely on pulmonary function tests including spirometry markers, such as forced expiratory volume in 1 s, to evaluate efficacy. While these measures provide insights into the action of bronchodilators on global lung function, their specific effects on the airways and the relationship between clinical improvements and airway dysfunction remains poorly understood. In recent years, pulmonary functional imaging methods, such as hyperpolarized ^{129}Xe magnetic resonance imaging (MRI), have enabled the analysis of airway dysfunction in patients with asthma utilizing ventilation defect percent (VDP). In this narrative review, we summarize clinical evidence about the impact of inhaled bronchodilator therapies on airway dysfunction in patients with asthma, focusing on studies that utilized ^{129}Xe MRI to visualize and quantify MRI VDP. ^{129}Xe MRI VDP has been shown to be a well-tolerated and sensitive technique for enabling

the visualization and quantification of airway functional changes over time in patients with asthma. This has been shown not only in a controlled clinical trial environment but also in a real-world setting, in patients with both controlled and poorly controlled asthma. A recent study evaluating single-inhaler triple therapy in patients with uncontrolled moderate-severe asthma, despite inhaled corticosteroid/long-acting β_2-agonist maintenance therapy, demonstrated that daily fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI 200/62.5/25 µg) led to significantly improved ^{129}Xe MRI VDP after only 6 weeks, which was in line with broader central/distal airway function and quality of life improvements. These results highlight the capacity of ^{129}Xe MRI VDP to detect early responses to treatment. In addition, the mechanistic insights provided by ^{129}Xe MRI VDP also indicated that these benefits are likely due to the combination of UMEC (a long-acting muscarinic antagonist) and an efficacious inhaled corticosteroid, addressing undertreated inflammatory bronchoconstriction, helping to restore airway caliber and function that more closely resemble the airways of a healthy individual.Videos available for this article.

Keywords: 129Xe magnetic resonance imaging; Airway dysfunction; Asthma; Fluticasone furoate/umeclidinium/vilanterol; ICS/LAMA/LABA; Ventilation defect percent.

Conflict of interest statement

Declarations. Conflict of Interest: Sam Tcherner, Ali Mozaffaripour, and Cory Yamashita have no conflicts of interest pertaining to the work. Grace Parraga has received speaking honoraria from GSK, AstraZeneca, Polarean, and Sanofi, as well as study funding from AstraZeneca and GSK. Ethical Approval: As a narrative review, this article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors. As such, no additional approvals or informed consent were obtained above those collected as part of the original clinical studies.

- 29 references
- 2 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

. 2025 Dec;42(12):6045-6058.

doi: 10.1007/s12325-025-03346-w. Epub 2025 Oct 6.

The Global Patient Perspective on Uncontrolled Moderate-to-Severe Asthma: Reducing Delays in Diagnosis and Treatment

Karen Rance [1], Brenda Young [2], Gretchen McCreary [2], Stephanie Williams [2], Marilyn Urrutia-Pereira [3], Kristen Willard [2], Ghulam Mustafa [4], Purvi Parikh [5], Tonya Winders [2], Ruth Tal-Singer [2]

Affiliations Expand

- PMID: 41051638
- PMCID: PMC12618345
- DOI: 10.1007/s12325-025-03346-w

Abstract

Introduction: Uncontrolled asthma greatly affects quality of life globally and highlights unmet medical needs. Despite advances in treatment and care, many patients still experience delayed diagnoses, poor symptom control, and a reliance on emergency care. The Global Allergy and Airways Patient Platform (GAAPP) surveyed patients with moderate-to-severe uncontrolled asthma to assess their care experiences.

Methods: The GAAPP Time Clock Survey is a cross-sectional, online, multilingual survey of adults living in Brazil, Germany, Italy, Japan, Saudi Arabia, the United Arab Emirates, and the US. The survey examined diagnosis, symptoms, treatment outcomes, challenges in self-management, and timelines for care coordination.

Results: A total of 1401 individuals with self-reported asthma using combination inhaler therapy and experiencing symptoms were enrolled in this study. Among these participants, 56% reported waiting more than 1 month to undergo pulmonary function testing for diagnosis. Additionally, 51% indicated minimal to no improvement in quality of life despite treatment interventions. Difficulties in asthma management were reported by 42% of participants, with some describing the process as difficult or very difficult. Approximately 32% of individuals used daily corticosteroids. Nearly half of the cohort consulted three or more healthcare providers in their pursuit of effective asthma management. Emergency department visits were common, with 50% seeking urgent care for uncontrolled symptoms and 35% requiring hospitalization.

Conclusion: This study underscores the importance of policy reforms that prioritize timely diagnosis, shared decision-making, and long-term disease control. Improving

outcomes for patients with uncontrolled asthma will require both clinical innovation and structural transformation.

Keywords: Asthma diagnosis delays; Asthma management barriers; Biologic therapies; GINA step 3; Global patient survey; Moderate-to-severe asthma; Multidisciplinary asthma care; Uncontrolled asthma.

Conflict of interest statement

Declarations. Conflict of Interest: Karen Rance, Brenda Young, Gretchen McCreary, Stephanie Williams, Kristen Willard, and Ghulam Mustafa, as well as Marilyn Urrutia Pereira, have no disclosures to report. Purvi Parikh is a speaker for Genentech. Tonya Winders is a paid advisor and speaker for AstraZeneca, Chiesi, GSK, Novartis, Roche, and Sanofi Regeneron. Ruth Tal-Singer is a shareholder of GSK and holds share options in ENA Respiratory and reports personal fees from AstraZeneca, Boehringer Ingelheim, ENA Respiratory, Janssen, Roche, Vocalis Health, Teva, ImmunoMet, Renovion, Samay Health, GSK, ItayAndBeyond, COPD Foundation, and GlobalSkin. Ethical Approval: The United States-based research team received an exemption for the English version of the survey, recruitment text, images, and consent form from a central institutional review board (BRANY, Lake Success, NY), granted an exempt determination for the English version of the survey, recruitment text, images. No incentives were provided for survey participation. The study adhered to the ethical principles outlined in the Declaration of Helsinki and followed the Consensus-Based Checklist for Reporting of Survey Studies (CROSS) [5]. The survey was administered electronically and included a mix of multiple-choice, Likert scale, and open-ended questions to gather both quantitative and qualitative data. All participants provided electronic consent prior to beginning the survey, during which the study's purpose, procedures, and other relevant details were clearly explained. Participation was voluntary, with the option to withdraw any time.

- **13 references**
- **3 figures**

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

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Review

Curr Opin Pediatr

. 2025 Dec 1;37(6):597-605.

doi: 10.1097/MOP.0000000000001514. Epub 2025 Oct 6.

Early-life viral infections and asthma: new cells and ideas

Jie Lan [1], Alysia McCray [1], Emma Brown [1], Taylor Eddens [1 2]

Affiliations Expand

- PMID: 41051175
- PMCID: PMC12594164
- DOI: 10.1097/MOP.0000000000001514

Abstract

Purpose of review: Asthma is among the most common conditions managed by pediatricians. This review summarizes recent advances in our immunologic understanding of asthma, focusing on cell types implicated in pathogenesis outside of the Th2 paradigm. Early-life respiratory viral infections are a key risk factor for the development of pediatric asthma. Literature detailing the epidemiologic and immunologic connection between early-life viral infections and asthma is also reviewed.

Recent findings: Asthma is an umbrella term used clinically, but the underlying immune mechanisms can be highly variable. These differing endotypes of asthma can be driven by distinct granulocyte, CD4 + T-cell, and innate-cell subsets, all with therapeutic implications. Early-life viral infection is a well described risk factor for asthma development. Understanding the differences in the immune system early in life, focused on the lung milieu, has shed light on the mechanisms connecting these two conditions.

Summary: Early-life respiratory viral infections and asthma have high prevalence in pediatrics, with the former raising the risk for the latter. Understanding the immunologic mechanisms is critical in understanding this connection. Further, our understanding of the drivers of asthma in pediatrics has expanded beyond the canonical pathways.

Keywords: asthma; early-life viral infection; lung immunology.

Conflict of interest statement

There are no conflicts of interest.

- 141 references
- 2 figures

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

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Cite

11

Comparative Study

Adv Ther

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. 2025 Dec;42(12):5960-5977.

doi: 10.1007/s12325-025-03349-7. Epub 2025 Sep 25.

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

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

Affiliations Expand

- PMID: 40996636
- PMCID: PMC12618389
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Erratum in

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

Woodcock A, Blakey J, Bourdin A, Canonica GW, Domingo C, Ford A, Hulme R, Tritton T, Palomares I, Sadhu S, Biswas A, Verma M.Adv Ther. 2025 Dec;42(12):5978-5979. doi: 10.1007/s12325-025-03407-0.PMID: 41175324 Free PMC article. No abstract available.

Abstract

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

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

Results: Weighted group standard mean differences showed adequate balance for most covariates. Patients initiating BDP/FOR (n = 46,809) and FF/VI (n = 3773) had numerically similar exacerbation rates per person per year (PPPY) while-on index treatment [measuring outcome until ICE; BDP/FOR, 0.1479 (n = 31,715); FF/VI, 0.1338 (n = 2547); rate ratio 0.9048, p = 0.2841]. Patients continuing uninterrupted index treatment for 12 months had a lower exacerbation rate PPPY for FF/VI [0.0681 (n = 384)] than BDP/FOR [0.1104 (n = 3342); rate ratio, 0.6162 (p = 0.0293)]. For patients initiating FF/VI versus BDP/FOR, treatment persistence was greater [hazard ratio, 0.76 (p < 0.0001)].

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

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

Plain language summary

We compared how well two common, daily, asthma treatments work, by comparing people with asthma in England who started treatment with beclometasone

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

Conflict of interest statement

Declarations. Conflict of Interest: Ashley Woodcock has given lectures for Orion, and consulted for GSK and Orion. John Blakey reports grants or contracts from AstraZeneca, GSK and Novartis; consulting fees from Boehringer Ingelheim, Chiesi and GSK; payment or honoraria from AstraZeneca, Chiesi and GSK; support for attending meetings and/or travel from AstraZeneca, Boehringer Ingelheim and GSK; receipt of medical writing support from GSK and Teva; payment to their institution for advisory work from Asthma Australia; and unpaid advisory work from Asthma WA. Arnaud Bourdin has received grants, personal fees, non-financial support and other support from Actelion, AstraZeneca, Boehringer Ingelheim and GSK; personal fees, non-financial support and other support from Chiesi, Novartis and Regeneron; personal fees and non-financial support from Teva; personal fees from Gilead; non-financial support and other support from Roche; and other support from Nuvaira. Giorgio Walter Canonica reports having received research grants as well as being a lecturer or having received advisory board fees from: A.Menarini, AstraZeneca, Celltrion, Chiesi, Faes, Firma, Genentech, GSK, Hal Allergy, Innovacaremd, Novartis, OmPharma, RedMaple, Sanofi–Aventis, Sanofi–Regeneron, Stallergenes–Greer and Uriach Pharma. Christian Domingo declares having received financial aid for travel support and speakers' bureaus from ALK-Abello, Allergy Therapeutics, AstraZeneca, Chiesi, GSK, Hall Allergy, Inmunotek, A.Menarini Diagnostics, MSD, Novartis, Roxall, Sanofi and Stallergenes. Alexander Ford, Rosie Hulme and Theo Tritton are employees of Adelphi Real World, which received funding for this study from GSK. Ines Palomares, Arunangshu Biswas, Sanchayita Sadhu and Manish Verma are GSK employees; Ines Palomares, Arunangshu Biswas and Manish Verma hold financial equities in GSK. Ethical Approval: This study was conducted according to GSK SOP52213 (Conducting Quality Control Review of Study Results generated using Existing Data in VEO and USVEO) and complied with all applicable laws regarding patient privacy. CPRD has NHS Health Research Authority (HRA) Research Ethics Committee (REC) approval to allow the collection and release of anonymised primary care data for observational research [NHS HRA REC reference

number: 05/MRE04/87]. Each year, CPRD obtains Section 251 regulatory support through the HRA Confidentiality Advisory Group (CAG), to enable patient identifiers, without accompanying clinical data, to flow from CPRD contributing GP practices in England to NHS Digital, for the purposes of data linkage [CAG reference number: 21/CAG/0008]. The protocol for this research was approved by CPRD's Research Data Governance (RDG) Process (protocol number: 221602) and the approved protocol is available upon request. Linked pseudonymised data were provided for this study by CPRD. Data are linked by NHS Digital, the statutory trusted third party for linking data, using identifiable data held only by NHS Digital. Select general practices consent to this process at a practice level with individual patients having the right to opt-out. This study is based in part on data from the CPRD obtained under license from the UK Medicines and Healthcare products Regulatory Agency. The data are provided by patients and collected by the NHS as part of their care and support. The Office for National Statistics (ONS) was the provider of the ONS Data contained within the CPRD Data and maintains a Copyright© [2025], The Hospital Episode Statistics (HES) was the provider of HES-Admitted Patient Care and HES-Outpatient databases contained within the CPRD Data and maintain a Copyright© [2025] and Copyright© [2025] respectively. Linked data were re-used with the permission of The Health & Social Care Information Centre, all rights reserved. As this study used aggregate CPRD-HES data omitting patient identification, no patient contact or primary collection of data from human participants was required. The interpretation and conclusions contained in this study are those of the authors alone.

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Observational Study

J Asthma

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. 2025 Dec;62(12):2114-2124.

doi: 10.1080/02770903.2025.2558755. Epub 2025 Sep 29.

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

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

Affiliations Expand

- PMID: 40991264

- DOI: 10.1080/02770903.2025.2558755

Free article

Abstract

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

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

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

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

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

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Review

Curr Opin Allergy Clin Immunol

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. 2025 Dec 1;25(6):500-510.

doi: 10.1097/ACI.0000000000001110. Epub 2025 Sep 23.

Patients' perspective on allergen immunotherapy for respiratory allergy

Francesco Catamerò [1 2], Simona Barbaglia [3], Enrico Heffler [4 5], Mattia Giovannini [1 2], Giovanni Paoletti [4 5]

Affiliations Expand

- PMID: 40986466
- PMCID: PMC12582610
- DOI: 10.1097/ACI.0000000000001110

Abstract

Purpose of review: This review explores patients' perspective on allergen immunotherapy (AIT) for respiratory allergy, addressing awareness, motivations, adherence challenges, perceived benefits and risks, and the importance of education and shared decision-making. It also summarizes the data on patient-reported outcomes, considers the role of patient associations, and outlines future directions for enhancing adherence and advancing patient-centered care.

Recent findings: AIT is the only treatment capable of modifying the natural course of allergic diseases, providing lasting benefits in terms of symptom reduction, quality of life (QoL), and asthma control. Despite its efficacy and safety, AIT remains underused due to several factors, including cost, misinformation, patient skepticism, and adherence challenges. Limited reimbursements further restrict access.

Summary: The patient's perspective is crucial in AIT, as it directly impacts adherence and treatment outcomes. Allergic rhinitis and asthma significantly reduce the QoL, especially when poorly controlled, but their burdens are often underestimated. Adherence to AIT depends on multiple factors including age, physician engagement, perceived efficacy, convenience, education, and socioeconomic status. Effective communication, shared decision-making, and tailored education enhance long-term compliance, while financial barriers and lack of reimbursement remain significant obstacles. Patient-reported outcome measures (PROMs) are essential tools for assessing symptom burden, disease control, and QoL, supporting clinical decisions and research. Validated PROMs, as well as combined symptom-medication scores, help personalize care and are increasingly integrated into digital platforms for real-time monitoring. Respiratory patient associations play a vital role in promoting education, empowerment, and advocacy, enhancing adherence and access to care.

Keywords: adherence; allergen Immunotherapy; patient's association; patient's perspective.

Conflict of interest statement

M.G. reports personal fees from Sanofi, Thermo Fisher Scientific. E.H. reports fees for speaker activities and/or advisory boards participation from Sanofi, Regeneron, GSK, Novartis, AstraZeneca, Chiesi, Almirall, Bosch Healthcare, Lofarma, Orion Pharma, Celltrion-Healthcare, Apogee Therapeutics, Blueprint Medicines, Gentili, Firma outside the submitted work. GP reports fees for speaker activities and/or advisory boards participation from Lofarma, GSK, and AstraZeneca, outside the submitted work. The other authors declare that they have no conflict of interests to disclose in relation to this paper.

- **148 references**
- **3 figures**

Supplementary info

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14

Review

Curr Opin Allergy Clin Immunol

. 2025 Dec 1;25(6):518-523.

doi: 10.1097/ACI.0000000000001113. Epub 2025 Sep 18.

Allergen immunotherapy: effective on lung function?

Edoardo Cavaglià [1 2], Maurizio Marogna [3], Giovanni Paoletti [1 2], Giorgio Walter Canonica [1 2], Enrico Heffler [1 2]

Affiliations Expand

- PMID: 40965439

- DOI: 10.1097/ACI.0000000000001113

Abstract

Purpose of review: This review evaluates the evidence on the effects of allergen immunotherapy (AIT) on lung function in asthma, with a focus on long-term outcomes. The topic is timely given the increasing interest in disease-modifying strategies that may alter asthma's natural course, particularly through interventions targeting type 2 inflammation.

Recent findings: Previous long-term observational and randomized studies suggest that sublingual immunotherapy (SLIT) can sustain clinical benefits and may positively impact lung function. However, while improvements in asthma control and exacerbation reduction are consistent, recent and robust evidence for lung function preservation remains limited. Real-world prospective studies from European and Chinese cohorts, point to possible allergen-independent benefits on forced expiratory volume in one second.

Summary: While AIT is a proven disease-modifying intervention for allergic diseases, its role in preventing or slowing lung function decline in asthma is underexplored. Future research should prioritize longitudinal spirometry data across diverse allergens and patient populations to clarify AIT's potential to alter asthma progression.

Keywords: allergen immunotherapy; asthma; disease modification; lung function; sublingual immunotherapy.

- 31 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Pulm Ther

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. 2025 Dec;11(4):705-722.

doi: 10.1007/s41030-025-00313-2. Epub 2025 Sep 16.

Real-world Comparative Effectiveness in Patients with Asthma Newly Initiating Fluticasone Furoate/Vilanterol or Budesonide/Formoterol: A United Kingdom General Practice Cohort Study

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

Affiliations Expand

- PMID: 40956480
- PMCID: PMC12623520
- DOI: 10.1007/s41030-025-00313-2

Erratum in

- Correction: Real-world Comparative Effectiveness in Patients with Asthma Newly Initiating Fluticasone Furoate/Vilanterol or Budesonide/Formoterol: A United Kingdom General Practice Cohort Study.

Woodcock A, Blakey J, Bourdin A, Canonica GW, Domingo C, Ford A, Hulme R, Tritton T, Palomares I, Sadhu S, Biswas A, Verma M.Pulm Ther. 2025 Dec;11(4):723-724. doi: 10.1007/s41030-025-00325-y.PMID: 41152572 Free PMC article. No abstract available.

Abstract

Introduction: It is important that treatment recommendations reflect real-world data when available, as randomised controlled trials have stringent eligibility criteria and do not represent the entire asthma population or their usual ecosystem of care.

Limited real-world evidence has compared the effectiveness of fluticasone furoate/vilanterol (FF/VI) and budesonide/formoterol (BUD/FOR) to date in asthma; we explored this in England using patients from general practice.

Methodology: We retrospectively compared new FF/VI users and new BUD/FOR users from 1 December 2015 to 28 February 2019, based on de-identified data from the Clinical Practice Research Datalink. The baseline period pre-index was ≥ 1 year; the follow-up period was 1 year. At index, eligible adults (≥ 18 years) with diagnosed asthma had ≥ 1 prescription for FF/VI or BUD/FOR, ≥ 1 years' general practitioner registration and records eligible for linkage to Hospital Episode Statistics. Chronic obstructive pulmonary disease was an exclusion criterion. The primary study outcome assessed the overall asthma exacerbation rate in new FF/VI or BUD/FOR users. Secondary outcomes included oral corticosteroid (OCS) use and medication persistence (analysed using Kaplan-Meier curves). For each treatment comparison, propensity scores were generated and confounding between baseline group characteristics was adjusted via inverse probability of treatment weighting, separately carried out for each study outcome. Intercurrent events (ICEs) were considered for analyses, such as death, loss to follow-up, rescue-medication use, treatment discontinuation or switching.

Results: Between groups, baseline attributes were well balanced. Annual per-person rates of exacerbation were numerically similar in the while on-treatment population (measuring outcome until ICE; FF/VI, 0.1356; BUD/FOR, 0.1583 [P = 0.3023]). Patients who continued initiation treatment for 1 year without interruption had significantly lower annual per-person exacerbation rates with FF/VI (0.0722 [n = 425]) versus BUD/FOR (0.2258 [n = 546]) (rate ratio 0.3197 [P = 0.0003]). Patients indexed on FF/VI had significantly fewer OCS prescriptions and lower OCS dosage versus BUD/FOR (respective coefficients: - 0.29 [P = 0.0352]; 0.41 [P = 0.0004]) and improved treatment persistence (hazard ratio: 0.62 [P < 0.0001]).

Conclusions: Patients who continued initiation treatment for a year without interruption had reduced exacerbation rates with FF/VI versus BUD/FOR. The FF/VI group also had reduced treatment discontinuation and OCS use.

Keywords: Asthma; Budesonide/formoterol; Comparative effectiveness; England; Fluticasone furoate/vilanterol; General practice; Real-world data.

Plain language summary

In this study, people in England beginning one of two common, daily, treatments for their asthma: budesonide/formoterol (shortened as BUD/FOR) or fluticasone furoate/vilanterol (shortened as FF/VI), were compared to determine how well the treatments work. Adults with asthma, starting these treatments from December 2015 to February 2019, were chosen from a database, holding information from general practice as well as hospital visits. Data were de-identified, meaning that study researchers were not able to tell who each patient was. The study did not include anyone with obstructive lung disease. The primary study question asked if asthma exacerbation rates were different in the groups who began BUD/FOR versus FF/VI. The frequency and dose of additional oral corticosteroids, and how many patients continued the new asthma treatment for 12 months were other study questions. In the interests of fairness, attributes of patients for both groups were examined and balanced. Per year, for every hundred patients, the FF/VI group had 14 exacerbations (2267 patients in total), similar to the 16 exacerbations in the

BUD/FOR group (7776 patients in total). Of the patients continuing treatment without interruption for a whole year, the overall number of exacerbations was significantly lower in the FF/VI group (7/100 patients [425 patients overall]) than in the BUD/FOR group (23/100 patients [546 patients overall]). Compared to patients treated with BUD/FOR, those treated with FF/VI had reduced use of oral corticosteroids and had a 38% lower risk of stopping treatment.

Conflict of interest statement

Declarations. Conflict of Interest: Ashley Woodcock has given lectures for Orion and consulted for GSK and Orion. John Blakey reports grants or contracts from AstraZeneca, GSK, and Novartis; consulting fees from Boehringer Ingelheim, Chiesi, and GSK; payment or honoraria from AstraZeneca, Chiesi, and GSK; support for attending meetings and/or travel from AstraZeneca, Boehringer Ingelheim, and GSK; receipt of medical writing support from GSK and Teva; payment to their institution for advisory work from Asthma Australia; and unpaid advisory work from Asthma WA. Arnaud Bourdin has received grants, personal fees, non-financial support, and other support from Actelion, AstraZeneca, Boehringer Ingelheim, and GSK; personal fees, non-financial support, and other support from Chiesi, Novartis, and Regeneron; personal fees and non-financial support from Teva; personal fees from Gilead; non-financial support and other support from Roche; and other support from Nuvaira. Giorgio Walter Canonica reports having received research grants as well as being a lecturer or having received advisory board fees from: A. Menarini, AstraZeneca, Celltrion, Chiesi, Faes, Firma, Genentech, GSK, Hal Allergy, Innovacaremd, Novartis, OM Pharma, Red Maple, Sanofi-Aventis, Sanofi-Regeneron, Stallergenes Greer, and Uriach Pharma. Christian Domingo declares having received financial aid for travel support and speakers' bureaus from ALK-Abello, Allergy Therapeutics, AstraZeneca, Chiesi, GSK, Hall Allergy, Inmunotek, A. Menarini Diagnostics, MSD, Novartis, ROXALL, Sanofi, and Stallergenes. Alexander Ford, Rosie Hulme and Theo Tritton are employees of Adelphi Real World, which received funding for this study from GSK. Arunangshu Biswas, Ines Palomares, Manish Verma, and Sanchayita Sadhu are GSK employees; Arunangshu Biswas, Ines Palomares and Manish Verma hold financial equities in GSK. Ethical Approval: This study was conducted according to GSK SOP52213 (Conducting Quality Control Review of Study Results generated using Existing Data in VEO and USVEO) and complied with all applicable laws regarding patient privacy. CPRD has NHS Health Research Authority (HRA) Research Ethics Committee (REC) approval to allow the collection and release of anonymised primary care data for observational research [NHS HRA REC reference number: 05/MRE04/87]. Each year CPRD obtains Section 251 regulatory support through the HRA Confidentiality Advisory Group (CAG), to enable patient identifiers, without accompanying clinical data, to flow from CPRD contributing GP practices in England to NHS Digital, for the purposes of data linkage [CAG reference number: 21/CAG/0008]. The protocol for this research was approved by CPRD's Research Data Governance (RDG) Process (protocol number: 221602) and the approved protocol is available upon request. Linked pseudonymised data were provided for this study by CPRD. Data are linked by NHS Digital, the statutory trusted third party for linking data, using identifiable data held only by NHS Digital. Select general practices consent to this process at a practice level with individual patients having the right to opt-out. This study is based in part on data from the CPRD obtained under license from the UK Medicines and

- 18 references
- 4 figures

Supplementary info

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Review

Curr Opin Allergy Clin Immunol

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. 2025 Dec 1;25(6):493-499.

doi: 10.1097/ACI.0000000000001111. Epub 2025 Aug 22.

Can immunotherapy prevent the progression of airway disease?

Josefine Gradman [1 2], Susanne Halken [1 2]

Affiliations Expand

- PMID: 40920231

- DOI: 10.1097/ACI.0000000000001111

Abstract

Purpose of review: The potential of allergen immunotherapy (AIT) to prevent allergic airway disease progression are demonstrated. Though not all patients benefit equally, there is limited research on which patients may benefit most.In this article, we focus on factors that may influence the risk of progression and their influence on the preventive effects of AIT, and whether some patients may benefit more than others may.

Recent findings: Various factors including age, genetic predisposition, number of sensitizations and co-morbidities, can influence the risk of progression, especially from allergic rhinitis/rhinoconjunctivitis (ARC) to asthma. Early age and severity are associated with a higher risk of progression. Younger children with ARC may benefit most from AIT with respect to prevent development of asthma. The number of sensitizations may not influence the effect. Since early allergic multisensitization and multimorbidity is associated with a low chance of remission and high risk of progression of allergic airway disease this group would be an obvious target for preventive AIT, which remains to be investigated.

Summary: AIT might be considered at an earlier age than hitherto. Most AIT studies have not stratified the results based on sensitizations and comorbidities. We recommend existing randomized controlled trial data to be reevaluated for this purpose.

Keywords: airway disease; allergen immunotherapy; progression.

- **53 references**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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17

Review

Hum Vaccin Immunother

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. 2025 Dec;21(1):2552557.

doi: 10.1080/21645515.2025.2552557. Epub 2025 Sep 3.

Awareness of respiratory syncytial virus and other respiratory disease vaccines among healthcare professionals and their patients in Italy: Insights from a literature review and a web-based survey

Claudio Micheletto [1], Giancarlo Lorenzini [2], Sara De Grazia [2], Fabiano Di Marco [3 4], Rosa Di Matteo [5], Paola Faverio [6 7], Andrea Gramegna [8 9], Marta Vicentini [2], Francesco Blasi [8 9]

Affiliations Expand

- PMID: 40899479

- PMCID: PMC12413043

- DOI: 10.1080/21645515.2025.2552557

Abstract

Respiratory syncytial virus (RSV) causes respiratory infections across all ages, with an increasingly recognized burden in older adults, particularly those with comorbidities. Despite the recent licensure of RSV vaccines, awareness of RSV and other respiratory disease vaccinations remains limited. We conducted a literature review and a web-based survey to explore the awareness of RSV and respiratory disease vaccinations among Italian healthcare professionals (HCPs) and patients. This survey (*N* = 540) was conducted between April and May 2023 by the Italian Society of Pneumology and the Italian Association of Hospital Pulmonologists. HCPs consider RSV a major concern and understand the importance of vaccination. However, HCPs have limited familiarity with RSV, which may contribute to sub-optimal vaccination adherence. Patients are concerned about RSV, but their awareness is lower than for other respiratory infections. As trusted sources of information, HCPs could enhance education and support patient care with an integrated approach, from prevention to treatment.

Keywords: Respiratory infection; asthma; chronic obstructive pulmonary disease; respiratory syncytial virus; vaccination; vaccine; viral infection.

Plain language summary

Respiratory syncytial virus (RSV) is a common virus that causes respiratory infections. RSV infection affects all ages and is frequent in older people. Those with chronic lung diseases, such as chronic obstructive pulmonary disease or asthma, are more vulnerable to RSV infection. New vaccines are available to protect against RSV. However, patients and their doctors are often not aware of this pathogen. In Italy, a large proportion of people do not have their recommended vaccinations. Lack of information and fear of side effects may be possible explanations. Doctors understand the importance of RSV vaccination, but have limited knowledge about RSV in adults. As patients trust their doctors, doctors are well-positioned to educate

patients. Thus, doctors require more information about the disease and the vaccine to educate themselves and their patients. Doctors need to support patient care with an integrated approach, from prevention to treatment.

Conflict of interest statement

GL, SDG and MV are employed by GSK. SDG and MV hold financial equities in GSK. CM reports receipt of payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from AstraZeneca, Berlin Chemie, Boehringher, Chiesi, Guidotti, GSK, Menarini, Novartis, Roche, Sanofi, Lusofarmaco and Zambon; support for attending meetings and/or travel from AstraZeneca and Sanofi; and participation on a Data Safety Monitoring Board or Advisory Board for GSK, Sanofi, and AstraZeneca, outside the submitted work. FDM reports receipt of consulting fees, of payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events, and of support for attending meetings and/or travel from Chiesi, GSK, Menarini, AZ, Neopharmed Gentili, Sanofi, Zambon and Grifols, outside the submitted work. PF reports receipt of payment for lectures from Boehringer Ingelheim outside the submitted work. AG reports receipt of personal consulting fees from Vertex Pharmaceuticals; and honoraria for lectures from Chiesi and Vertex Pharmaceuticals, outside the submitted work. FB reports receipt of grants from AstraZeneca, GSK and Insmed; personal consulting fees from Menarini; personal fees for lectures, presentations, speakers bureaus, manuscript writing or educational events from AstraZeneca, Chiesi, GSK, Grifols, Insmed, Menarini, OM Pharma Pfizer, Vertex, Viatris and Zambon, outside the submitted work. CM, GL, SDG, FDM, PF, AG, MV and FB declare no other financial and non-financial relationships and activities. RDM declares no financial and non-financial relationships and activities and no conflicts of interest.

- 88 references
- 4 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

18

Case Reports

J Asthma

-

. 2025 Dec;62(12):2125-2129.

doi: 10.1080/02770903.2025.2552744. Epub 2025 Sep 1.

Severe asthma, biologic hypersensitivity and inefficacy: overcoming treatment barriers with tezepelumab

Maria Bragança [1], Inês Barreto [2], Henrique Rodrigues [2], Ana Mendes [3], Carlos Lopes [4]

Affiliations Expand

- PMID: 40874999

- DOI: 10.1080/02770903.2025.2552744

Abstract

Severe asthma is a heterogeneous disease involving multiple inflammatory pathways, with significant therapeutic challenges. Biologic therapies targeting T2 inflammation improve outcomes but may, in rare cases, trigger hypersensitivity reactions due to anti-drug antibodies, excipients, or protein structure. Additionally, some patients exhibit suboptimal or no response. Tezepelumab, a thymic stromal lymphopoietin inhibitor, offers a novel upstream approach, addressing diverse endotypes.

We present a 30-year-old female with severe T2-high asthma, multiple allergies, and poor disease control despite optimal therapy. She experienced an allergic reaction with omalizumab and dupilumab and had inadequate response to benralizumab. Enrolled in an early access program for tezepelumab, she showed remarkable clinical improvement, with significant FEV1 increase and FeNO reduction, allowing discontinuation of systemic corticosteroids and supplemental oxygen.

Keywords: Severe asthma; Tezepelumab; biologic hypersensitivity; biologic inefficacy.

. 2025 Dec;22(1):2532076.

doi: 10.1080/15412555.2025.2532076. Epub 2025 Jul 28.

Current Practices on Prescribing and Deprescribing for Patients on Long-Term Antibiotic Treatment for Chronic Pulmonary Conditions: An Umbrella Review by the European Society of Clinical Pharmacy (ESCP)

Ivana Tadic [1], Daniela Fialová [2], Ankie Hazen [3], Martin C Henman [4], Betul Okuyan [5], Francesca Wirth [6], Abdikarim Abdi [7], Silvana Urru [8], Kayla R Stover [9], Anita E Weidmann [1]

Affiliations Expand

- PMID: 40719419

- DOI: 10.1080/15412555.2025.2532076

Free article

Abstract

Purpose: Chronic pulmonary conditions require complex treatment strategies involving long-term antibiotic treatment, which carries the highest risk of antimicrobial resistance and adverse drug events (ADE). Specific guidance on prescribing and deprescribing can help reduce these risks and improve therapy effectiveness. The aim of the study was to determine prescribing and deprescribing practices for long-term antibiotic treatment (≥30 days) in preventing exacerbations of stable chronic pulmonary conditions in adult patients across all healthcare settings.

Patients and methods: This umbrella review was part of a larger registered study (PROSPERO, CRD42022381268) including systematic reviews and meta-analyses retrieved from PubMed, Cochrane Library, and PsycInfo. Outcomes of interest included condition, antibiotic, dose, duration, (de-) prescribing advice. Standardized methodological tools were used to assess methodological quality of the selected publications (ROBIS), facilitate data extraction (EPOC), and guide narrative summary of findings (PRIOR).

Results: In total, *n* = 14 publications were analyzed. (De-)prescribing advice is summarized for treatment (≥30 days) of chronic obstructive pulmonary disease, asthma, non-cystic fibrosis bronchiectasis, cystic fibrosis, and bronchiolitis obliterans syndrome. Macrolides are the most commonly recommended antibiotic for stable chronic pulmonary conditions. ADEs are the main reason for antibiotic discontinuation. Little consideration is given to emergence of antibiotic resistance.

Conclusion: There is a significant paucity of literature providing specific (de-)prescribing advice for clinical practice. More precise recommendations are required in view of patient safety.

Keywords: Chronic obstructive pulmonary disease; antibiotics; asthma; bronchiolitis obliterans syndrome; lung diseases; non-cystic fibrosis bronchiectasis.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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Cite

20

J Pharm Pract

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. 2025 Dec;38(6):511-517.

doi: 10.1177/08971900251320740. Epub 2025 Feb 14.

Improvements in Asthma Control After Pharmacist Involvement in an Outpatient Pediatric Asthma Clinic

Lauren Anthony [1], Sandra Axtell [1], Bianca Nixon [1]

Affiliations Expand

- **PMID: 39953701**
- **DOI: 10.1177/08971900251320740**

Abstract

Background: Asthma is one of the most common pediatric disease states. However, current literature about outpatient pharmacy appointment effectiveness on pediatric asthma control is not widely available. Objective: To determine whether outpatient pharmacist visits in pediatric patients with asthma result in a measurable difference in asthma control, utilizing the validated asthma control test (ACT) and childhood asthma control test (C-ACT) scoring tools. Methods: This study enrolled 16 children ages 6-17 years old at an outpatient primary care clinic (November 2023-April 2024). The patients visited the outpatient pharmacist 2 to 3 times over a 12-week period.

The primary outcome was the change in the patient's ACT or C-ACT from the baseline to the final study visit. Additional outcomes of interest included improvement in inhaler technique using a Vitalograph AIM® device, medication adherence rates, and change in emergent interventions from 6 months before enrollment compared to 3 months after the final visit. Results: The median improvement in asthma control test was 3 at the final study visit (4 or 12 weeks after counseling), which was statistically significant (*P* = 0.0348). This was an improvement from 50% of patients controlled at baseline to 100% at the final visit (*P* = 0.0053). Emergent interventions including oral steroid courses, emergency department visits, and hospitalization for asthma were less common after pharmacist intervention than before enrollment (*P* = 0.0464). Improvements in technique were seen at the initial visit using Vitalograph AIM® to visualize counseling points. Conclusion: Our study supports that outpatient pharmacist visits can have a measurable impact on pediatric asthma control.

Keywords: ambulatory care; asthma; pediatric; pharmacist; primary care.

Conflict of interest statement

Declaration of Conflicting InterestsThe author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Supplementary info

MeSH terms, SubstancesExpand

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

1

Review

Respir Investig

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. 2025 Nov 25;64(1):101337.

doi: 10.1016/j.resinv.2025.101337. Online ahead of print.

How to choose a biologic agent considering comorbidities of bronchial asthma

Masamichi Itoga [1], Sadatomo Tasaka [2]

Affiliations Expand

- **PMID: 41297379**

- DOI: 10.1016/j.resinv.2025.101337

Abstract

Biologic therapies have revolutionized the treatment of severe asthma. However, the selection of the optimal biologic agent remains challenging because of the heterogeneity of disease phenotypes and frequent comorbidities. This mini-review explored the clinical relevance of comorbidities in the selection of biologics for patients with asthma. Herein, we summarize recent evidence on the prevalence of comorbidities associated with type 2 inflammation, including chronic spontaneous urticaria, atopic dermatitis, prurigo nodularis, chronic rhinosinusitis with nasal polyps, eosinophilic granulomatosis with polyangiitis, eosinophilic otitis media, aspirin-exacerbated respiratory disease, allergic rhinitis, allergic bronchopulmonary mycosis, obesity, and chronic obstructive pulmonary disease, and review the efficacy of five major biologics (omalizumab, mepolizumab, benralizumab, dupilumab, and tezepelumab) in these settings. Each biologic targets distinct immunologic pathways in type 2 inflammation, including IgE, IL-5, IL-5Rα, IL-4Rα, and thymic stromal lymphopoietin, respectively. In conclusion, the assessment of comorbidities in addition to biomarkers is essential for tailoring biologic therapies for severe asthma. Integrating comorbidity profiles into treatment strategies allows for a more precise and effective use of biologics, ultimately improving outcomes in complicated asthma cases.

Keywords: Biologic agent; Bronchial asthma; Clinical remission; Comorbidities; Type 2 inflammation.

Conflict of interest statement

Declaration of competing interest Masamichi Itoga has received lecture fees from GlaxoSmithLine (Tokyo, Japan). Dr. Sadatomo Tasaka has no conflicts of interest.

Supplementary info

Publication typesExpand

Full text links

. 2025 Nov 24;11(11):CD000247.

doi: 10.1002/14651858.CD000247.pub4.

Antibiotics for the common cold and acute purulent rhinitis

Tim Kenealy [1], Bruce Arroll [1]

Affiliations Expand

- PMID: 41277585

- PMCID: PMC12642827 (available on 2026-11-24)

- DOI: 10.1002/14651858.CD000247.pub4

Abstract

Background: It has long been believed that antibiotics have no role in the treatment of common colds yet they are often prescribed in the belief that they may prevent secondary bacterial infections.

Objectives: To determine the efficacy of antibiotics compared with placebo for reducing general and specific nasopharyngeal symptoms of acute upper respiratory tract infections (URTIs) (common colds). To determine if antibiotics have any influence on the outcomes for acute purulent rhinitis and acute clear rhinitis lasting less than 10 days before the intervention. To determine whether there are significant adverse outcomes associated with antibiotic therapy for participants with a clinical diagnosis of acute URTI or acute purulent rhinitis.

Search methods: For this 2013 update we searched CENTRAL 2013, Issue 1, MEDLINE (March 2005 to February week 2, 2013), EMBASE (January 2010 to February 2013), CINAHL (2005 to February 2013), LILACS (2005 to February 2013) and Biosis Previews (2005 to February 2013).

Selection criteria: Randomised controlled trials (RCTs) comparing any antibiotic therapy against placebo in people with symptoms of acute upper respiratory tract infection for less than seven days, or acute purulent rhinitis less than 10 days in duration.

Data collection and analysis: Both review authors independently assessed trial quality and extracted data.

Main results: This updated review included 11 studies. Six studies contributed to one or more analyses related to the common cold, with up to 1047 participants. Five studies contributed to one or more analyses relating to purulent rhinitis, with up to 791 participants. One study contributed only to data on adverse events and one met the inclusion criteria but reported only summary statistics without providing any

numerical data that could be included in the meta-analyses. Interpretation of the combined data is limited because some studies included only children, or only adults, or only males; a wide range of antibiotics were used and outcomes were measured in different ways. There was a moderate risk of bias because of unreported methods details or because an unknown number of participants were likely to have chest or sinus infections. Participants receiving antibiotics for the common cold did no better in terms of lack of cure or persistence of symptoms than those on placebo (risk ratio (RR) 0.83, 95% confidence interval (CI) 0.60 to 1.14, (random-effects)), based on a pooled analysis of six trials with a total of 1147 participants. The RR of adverse effects in the antibiotic group was 1.8, 95% CI 1.01 to 3.21, (random-effects). Adult participants had a significantly greater risk of adverse effects with antibiotics than with placebo (RR 2.62, 95% CI 1.32 to 5.18) (random-effects) while there was no greater risk in children (RR 0.91, 95% CI 0.51 to 1.63). The pooled RR for persisting acute purulent rhinitis with antibiotics compared to placebo was 0.73 (95% CI 0.47 to 1.13) (random-effects), based on four studies with 723 participants. There was an increase in adverse effects in the studies of antibiotics for acute purulent rhinitis (RR 1.46, 95% CI 1.10 to 1.94).

Authors' conclusions: There is no evidence of benefit from antibiotics for the common cold or for persisting acute purulent rhinitis in children or adults. There is evidence that antibiotics cause significant adverse effects in adults when given for the common cold and in all ages when given for acute purulent rhinitis. Routine use of antibiotics for these conditions is not recommended.

Conflict of interest statement

There are no known conflicts of interest.

Update of

- doi: 10.1002/14651858.CD000247.pub3
- 74 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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3

Review

Curr Opin Allergy Clin Immunol

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. 2025 Dec 1;25(6):488-492.

doi: 10.1097/ACI.0000000000001112. Epub 2025 Oct 1.

Depemokimab: a new long-acting anti-IL5 treatment for severe asthma and chronic rhinosinusitis with nasal polyps

David I Bernstein [1]

Affiliations Expand

- PMID: 41158017

- DOI: 10.1097/ACI.0000000000001112

Abstract

Purpose of review: Clinical data are reviewed pertaining to depemokimab, the first extended life anti-IL5 mAb, for treating severe eosinophilic asthma. This molecule was engineered through amino acid modification (YTE mutation) of the Fc region. This modification increases Fc receptor affinity and enables antibody recycling, thereby greatly extending serum half-life and will allow a dosing duration of 26 weeks.

Recent findings: Phase 1 and 3 clinical studies have demonstrated that depemokimab maintains drug concentrations and reduces peripheral eosinophils over a single 26-week dosing interval. A 52-week double-blinded, placebo-controlled (DBPC) Phase 3 study of patients with severe eosinophilic asthma demonstrated that depemokimab reduced annualized asthma exacerbations by 54% compared with placebo, the primary efficacy outcome. No significant differences between active and placebo arms were detected for secondary endpoints (e.g., symptoms, FEV1 and quality of life). Results of a noninferiority study comparing depemokimab, benralizumab and mepolizumab are pending. In a DBPC trial of chronic rhinosinusitis with nasal polyps (CRSwNP), depemokimab was also effective in reducing nasal polyp endoscopy scores and nasal obstruction.

Summary: Depemokimab could offer patients with severe persistent asthma a more convenient add-on treatment option than existing shorter acting biologics and thereby improve overall adherence.

Keywords: eosinophil; half-life; interleukin 5; mAb; severe asthma.

- 13 references

Supplementary info

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4

Review

Curr Opin Allergy Clin Immunol

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. 2025 Dec 1;25(6):500-510.

doi: 10.1097/ACI.0000000000001110. Epub 2025 Sep 23.

Patients' perspective on allergen immunotherapy for respiratory allergy

Francesco Catamerò [1 2], Simona Barbaglia [3], Enrico Heffler [4 5], Mattia Giovannini [1 2], Giovanni Paoletti [4 5]

Affiliations Expand

- PMID: 40986466

- PMCID: PMC12582610

- DOI: 10.1097/ACI.0000000000001110

Abstract

Purpose of review: This review explores patients' perspective on allergen immunotherapy (AIT) for respiratory allergy, addressing awareness, motivations, adherence challenges, perceived benefits and risks, and the importance of education and shared decision-making. It also summarizes the data on patient-reported outcomes, considers the role of patient associations, and outlines future directions for enhancing adherence and advancing patient-centered care.

Recent findings: AIT is the only treatment capable of modifying the natural course of allergic diseases, providing lasting benefits in terms of symptom reduction,

quality of life (QoL), and asthma control. Despite its efficacy and safety, AIT remains underused due to several factors, including cost, misinformation, patient skepticism, and adherence challenges. Limited reimbursements further restrict access.

Summary: The patient's perspective is crucial in AIT, as it directly impacts adherence and treatment outcomes. Allergic rhinitis and asthma significantly reduce the QoL, especially when poorly controlled, but their burdens are often underestimated. Adherence to AIT depends on multiple factors including age, physician engagement, perceived efficacy, convenience, education, and socioeconomic status. Effective communication, shared decision-making, and tailored education enhance long-term compliance, while financial barriers and lack of reimbursement remain significant obstacles. Patient-reported outcome measures (PROMs) are essential tools for assessing symptom burden, disease control, and QoL, supporting clinical decisions and research. Validated PROMs, as well as combined symptom-medication scores, help personalize care and are increasingly integrated into digital platforms for real-time monitoring. Respiratory patient associations play a vital role in promoting education, empowerment, and advocacy, enhancing adherence and access to care.

Keywords: adherence; allergen Immunotherapy; patient's association; patient's perspective.

Conflict of interest statement

M.G. reports personal fees from Sanofi, Thermo Fisher Scientific. E.H. reports fees for speaker activities and/or advisory boards participation from Sanofi, Regeneron, GSK, Novartis, AstraZeneca, Chiesi, Almirall, Bosch Healthcare, Lofarma, Orion Pharma, Celltrion-Healthcare, Apogee Therapeutics, Blueprint Medicines, Gentili, Firma outside the submitted work. GP reports fees for speaker activities and/or advisory boards participation from Lofarma, GSK, and AstraZeneca, outside the submitted work. The other authors declare that they have no conflict of interests to disclose in relation to this paper.

- **148 references**
- **3 figures**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

5

Glob Health Action

. 2025 Dec;18(1):2547434.

doi: 10.1080/16549716.2025.2547434. Epub 2025 Sep 10.

Bibliometric analysis of the association between air pollution and allergic rhinitis

Zhigang Geng [1], Yuqiang Ma [2], Xueping Qi [1]

Affiliations Expand

- PMID: 40926650
- PMCID: PMC12424152
- DOI: 10.1080/16549716.2025.2547434

Abstract

Background: Allergic rhinitis (AR) is an increasingly prominent global public health issue, where air pollution significantly contributes to its rising incidence. Although numerous studies have explored the link between air pollution and AR pathogenesis, comprehensive summaries are still limited.

Objective: This study performs a bibliometric analysis to identify research hotspots and emerging trends, offering insights into AR prevention and management.

Methods: Literature related to on air pollution and AR was retrieved from the Web of Science Core Collection database. Visualization tools, including VOSviewer, CiteSpace, and Bibliometrix R, were utilized to analyze contributions by countries, institutions, authors, journals, and keywords, with the aim of predicting future research trends.

Results: A total of 4,020 authors, 1,368 institutions, and 75 countries contributed to 753 publications. The United States leads in research contributions, while China has shown rapid growth since 2012. Prominent authors include Deng Qihong and Lu Chan have made significant contributions. Keyword analysis revealed five major clusters: Asthma and Allergic Diseases, Environmental Factors, Climate Change and Exposures, Epidemiology and Risk Factors, and Population-Specific Research. Key topics covered include atopy, childhood asthma, climate change, pollution exposure, and air pollutants.

Conclusion: This first bibliometric analysis of air pollution and AR highlights a strong link between air pollution and AR pathogenesis. Enhanced environmental controls and air quality monitoring are essential for AR prevention. However, the complex composition of air pollutants presents challenges in elucidating specific mechanisms.

Keywords: Bibliometric; Web of Science; air pollution; allergic rhinitis; visualization.

Plain language summary

Main findings: Air pollutant exposure has been identified as a significant risk factor contributing to the progressive rise in allergic rhinitis prevalence. As the first bibliometric analysis of the air pollution-Allergic rhinitis relationship, it shows contributions and theme evolution, enriching the research framework. Added knowledge: Our study identified 75 countries, 4,020 authors, and 1,368 institutions' global participation, with the US and China leading. Research grew notably from 2005-2011 and after 2010, and five keyword clusters clarified research focuses.Global health impact for policy and action: It also proves environmental governance and air quality monitoring are crucial for Allergic rhinitis prevention, with European strategies as models for global policy-making to relieve Allergic rhinitis epidemic pressure.

Conflict of interest statement

The authors declare that this article was conducted in the absence of any financial relationships that could be construed as a potential conflict of interest. All the data in this study are from the public database of Web of Science.

- **38 references**
- **8 figures**

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Cite

6

Review

Curr Opin Allergy Clin Immunol

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. 2025 Dec 1;25(6):493-499.

doi: 10.1097/ACI.0000000000001111. Epub 2025 Aug 22.

Can immunotherapy prevent the progression of airway disease?

Josefine Gradman [1 2], Susanne Halken [1 2]

Affiliations Expand

- PMID: 40920231

- DOI: 10.1097/ACI.0000000000001111

Abstract

Purpose of review: The potential of allergen immunotherapy (AIT) to prevent allergic airway disease progression are demonstrated. Though not all patients benefit equally, there is limited research on which patients may benefit most.In this article, we focus on factors that may influence the risk of progression and their influence on the preventive effects of AIT, and whether some patients may benefit more than others may.

Recent findings: Various factors including age, genetic predisposition, number of sensitizations and co-morbidities, can influence the risk of progression, especially from allergic rhinitis/rhinoconjunctivitis (ARC) to asthma. Early age and severity are associated with a higher risk of progression. Younger children with ARC may benefit most from AIT with respect to prevent development of asthma. The number of sensitizations may not influence the effect. Since early allergic multisensitization and multimorbidity is associated with a low chance of remission and high risk of progression of allergic airway disease this group would be an obvious target for preventive AIT, which remains to be investigated.

Summary: AIT might be considered at an earlier age than hitherto. Most AIT studies have not stratified the results based on sensitizations and comorbidities. We recommend existing randomized controlled trial data to be reevaluated for this purpose.

Keywords: airway disease; allergen immunotherapy; progression.

- 53 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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Cite

. 2025 Dec;37(12):e70108.

doi: 10.1111/nmo.70108. Epub 2025 Jun 14.

Increased Allergic Rhinitis Prevalence and Symptom Severity in Patients With Irritable Bowel Syndrome

María Cuende-Estévez [1], Hind Hussein [1], Fedrica Pia [1], Wout Backaert [2 3], Laura Van Gerven [2 3 4], Javier Aguilera-Lizarraga [1], Guy E Boeckxstaens [1]

Affiliations Expand

- PMID: 40516111

- DOI: 10.1111/nmo.70108

Abstract

Background: Patients with irritable bowel syndrome (IBS) have an increased risk of developing both airway and allergic diseases. However, the relationship between allergic rhinitis (AR), one of the most common chronic upper airway inflammatory diseases, and IBS remains poorly understood. The aim of this study is to provide a better understanding of airway complications in patients with IBS and to evaluate the presence of potential airborne and dietary antigen cross-reactivity in concomitant IBS and AR.

Methods: A total of 287 participants, 54 healthy volunteers without gastrointestinal complaints and 232 patients with I fulfilling Rome IV criteria, were invited to complete self-administered questionnaires assessing the severity of upper airway symptoms and the prevalence of allergic rhinitis.

Results: Overall, patients with IBS had a threefold higher risk of questionnaire-based allergic rhinitis than control subjects (95% CI, 1.49-6.12). Furthermore, patients with IBS + AR showed reduced sleep quality, mood, and personal satisfaction associated with their upper airway complaints, compared to IBS patients without AR. Forty-seven (18/38) percent of IBS + AR patients reported IBS symptoms in response to ingestion of food items with molecular mimicry of the aeroallergen to which the patient is sensitized.

Conclusion: Our study shows that patients with IBS have an increased frequency of concomitant allergic rhinitis, which contributes to a further reduction in quality of life. We also provide evidence of potential cross-reactive reactions between aeroallergens and dietary antigens in patients with concomitant IBS and AR.

Keywords: airway disease; allergic rhinitis; cross-reactivity; food antigens; irritable bowel syndrome.

- 52 references

Supplementary info

MeSH terms, Grants and fundingExpand

Full text links

Proceed to details

Cite

8

Review

Paediatr Respir Rev

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. 2025 Dec:56:3-9.

doi: 10.1016/j.prrv.2025.04.004. Epub 2025 Apr 22.

Management of acute rhinosinusitis in children

Yanisa Wannasuphoprasit [1], Mahmood F Bhutta [2]

Affiliations Expand

- PMID: 40368679

- DOI: 10.1016/j.prrv.2025.04.004

Free article

Abstract

Acute rhinosinusitis (ARS) is a common condition in children, usually preceded by a viral upper respiratory tract infection (URTI). Diagnosing ARS can be challenging, relying primarily on clinical history and examination. Differentiating between viral URTI, post-viral ARS and acute bacterial rhinosinusitis (ABRS) is crucial for guiding appropriate antibiotic treatment. Antibiotics have been showed to be effective in improving symptom scores and cure rates in ABRS. Adjunct therapies, including corticosteroids, nasal saline irrigation and analgesics, may provide symptomatic relief. While viral ARS is self-limiting, bacterial ARS can lead to severe complications, including orbital and intracranial involvement, necessitating timely

diagnosis and treatment. This review highlights current evidence on the diagnosis and management of ARS in children, emphasising best practices to optimise patient outcomes and prevent complications.

Keywords: ARS; Acute rhinosinusitis; Antibiotics; Children; Intracranial; Orbital; Paediatric.

Conflict of interest statement

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

Supplementary info

Publication types, MeSH terms, SubstancesExpand

chronic cough

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JAMA Otolaryngol Head Neck Surg

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. 2025 Nov 26.

doi: 10.1001/jamaoto.2025.4181. Online ahead of print.

Glucagon-Like Peptide-1 Receptor Agonists and Chronic Cough

Tyler J Gallagher [1], Diego E Razura [2], Albert Li [3], Ian Kim [4], Neelaysh Vukkadala [5], Anca M Barbu [5]

Affiliations Expand

- PMID: 41296333

- DOI: 10.1001/jamaoto.2025.4181

Abstract

Importance: Glucagon-like peptide-1 receptor agonists (GLP-1RAs) have become substantially more popular as a medication to treat obesity and type 2 diabetes (T2D). Despite their known association with gastroesophageal reflux disease and vagal nerve stimulation, the association between GLP-1RAs and chronic cough has not been previously studied.

Objective: To assess the clinical association between GLP-1RAs and chronic cough.

Design, setting, and participants: This large, multicenter cohort study used clinical records from a US-based collection of electronic medical record data from April 28, 2005, to April 15, 2025, from 70 health care organizations. Adults (≥18 years) with T2D and prescription of a GLP-1RA were identified. Additionally, groups with T2D and prescription of another second-line diabetes medication, including dipeptidyl peptidase-4 (DPP-4) inhibitors, sodium-glucose cotransporter 2 (SGLT2) inhibitors, and sulfonylureas were created. After propensity score matching for various demographic and clinical characteristics, adjusted hazard ratios (aHRs) and 95% CIs were calculated using Cox regression analyses to estimate the risk of new chronic cough or gastroesophageal reflux disease diagnosis.

Exposure: GLP-1RAs or other second-line diabetes medication.

Main outcomes and measures: Chronic cough.

Results: Cohorts included 427 555 individuals (mean [SD] age, 55.8 [13.8] years; 251 928 female individuals [58.9%]) with T2D who were prescribed a GLP-1RA and 1 614 495 individuals (mean [SD] age, 63.7 [13.3] years; 712 946 female individuals [44.4%]) with T2D who were prescribed another second-line diabetes medication. After propensity score matching, individuals prescribed a GLP-1RA had significantly increased risk of new chronic cough compared with individuals prescribed any non-GLP-1RA second-line medication (aHR, 1.12; 95% CI, 1.08-1.16), DPP-4 inhibitor (aHR, 1.18; 95% CI, 1.11-1.26), or sulfonylurea (aHR, 1.32; 95% CI, 1.24-1.40) but not compared with SLGT2 inhibitors (aHR, 1.03; 95% CI, 0.98-1.09). After removing patients with a previous diagnosis of gastroesophageal reflux disease from analysis, patients prescribed GLP-1RAs had significantly increased risk of chronic cough compared with those prescribed any non-GLP-1RA (aHR, 1.29; 95% CI, 1.17-1.42), DPP4 inhibitor (aHR, 1.36; 95% CI, 1.17-1.58), SGLT2 inhibitor (aHR, 1.14; 95% CI, 1.02-1.28), or sulfonylurea (aHR, 1.25; 95% CI, 1.09-1.42).

Conclusions and relevance: This cohort study suggests an association between GLP-1RA use and chronic cough. Further research is needed to confirm the existence, strength, and mechanisms of this association.

Full text links

Proceed to details

Cite

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J Med Econ

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. 2025 Dec;28(1):1798-1810.

doi: 10.1080/13696998.2025.2567761. Epub 2025 Oct 14.

Frequency, duration, and cost of pulmonary exacerbations among patients with bronchiectasis

Maitreyee Mohanty [1], Claudia Leiras [2], Haiyan Sun [2], Reina Rau [2], John Fastenau [1], Joseph Feliciano [1], Sunjay R Devarajan [3]

Affiliations Expand

- PMID: 41017477

- DOI: 10.1080/13696998.2025.2567761

Free article

Abstract

Background: In administrative claims database studies of bronchiectasis, pulmonary exacerbations are usually defined using a fixed period for their start and end, which prevents assessment of exacerbation duration and thereby limits assessment of exacerbation characteristics. Here, we applied a novel cost-based algorithm to characterize exacerbations.

Methods: This cohort study used the Merative MarketScan Commercial Claims and Encounters database, 1-Jan-2016 to 31-Dec-2022. Patients ≥18 years with bronchiectasis (≥2 outpatient or ≥1 inpatient claim with bronchiectasis; no cystic fibrosis) had 12 months of continuous enrollment before (baseline) and ≥12 months after (follow-up) index (first bronchiectasis claim). Cost-based exacerbations were identified by compound score of week with highest percentage all-cause cost increase during follow-up compared with baseline weekly maintenance all-cause cost, and week with highest absolute weekly cost during follow-up. Exacerbation duration was the period with significantly higher weekly cost difference during follow-up than mean baseline weekly cost. Cost-based exacerbations were compared with exacerbations identified using a traditional claims-based definition.

Results: Of 9,005 patients with bronchiectasis, 6,033 had 49,750 cost-based exacerbations during 2.5 years median follow-up. Mean (SD) cost-based exacerbation duration was 3.4 (8.6) weeks (median [Q1, Q3] 1 [1, 3] weeks). During follow-up, 82.8% patients had ≥3 cost-based exacerbations, and 67.5% patients needed hospitalization/intravenous antibiotic treatment for an exacerbation. Mean respiratory costs were higher for the first cost-based exacerbation ($7,738) than the second ($5,429). Annual respiratory costs were $14,116 for patients with (vs. $3,390 without) cost-based exacerbations. Overall, 95.7% patients with cost-based exacerbations had ≥1 claims-based exacerbation; 51.0% cost-based exacerbations met the claims-based definition.

Limitations: Cost-based exacerbations may not represent true exacerbations, because cost increases could also result from worsening comorbidities or other clinical events.

Conclusions: Exacerbations identified using a cost-based algorithm frequently lasted >3 weeks. Patients with cost-based exacerbations had higher healthcare costs, particularly respiratory costs, than those without.

Keywords: Bronchiectasis; I10; I11; claims; cost; duration; exacerbation; frequency; real-world.

Plain language summary

Bronchiectasis is a chronic lung disease where patients have symptoms including cough, congestion, shortness of breath, and fatigue. Symptoms may be more severe for some people than others, but many people with bronchiectasis have episodes where their symptoms get worse called exacerbations, or flares. People with flares often need antibiotic treatment and may need to be hospitalized. Flares are therefore a burden for patients and healthcare systems. This burden can be assessed using insurance claims data. Previous studies have identified flares based on patients receiving antibiotics in the week or two after a claim with a diagnosis code for bronchiectasis. However, flares can be different lengths and severities. This study quantified flares, and measured their duration and burden, using a new method that did not begin with any assumption of how long flares would last. Instead, flares were identified by flagging weeks with unusually high costs compared with the patient's usual healthcare costs. Using this method, identified flares often lasted more than 3 weeks. Healthcare costs were higher for people with flares than without, and a person's first flare was often the most expensive. Over 95% of people with high-cost flares had at least 1 flare that could be confirmed using the previous diagnosis-code based definition. This study provides a new research approach to identifying flares in people with bronchiectasis. The results show that flares may be longer than previously thought and place a high burden on healthcare. Future research will be needed to confirm this method using clinical data.

Supplementary info

MeSH termsExpand

Full text links

Cite

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Pulm Ther

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. 2025 Dec;11(4):553-567.

doi: 10.1007/s41030-025-00318-x. Epub 2025 Sep 27.

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

Nirupama Putcha [1], Diego J Maselli [2], Jessica Bon [3], Michael G Lester [4], M Bradley Drummond [5]

Affiliations Expand

- PMID: 41014472
- PMCID: PMC12623595
- DOI: 10.1007/s41030-025-00318-x

Abstract

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

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

Plain language summary

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

their doctors regarding their experience of dyspnea. This article shares practical insights from respiratory doctors on how they help patients with COPD manage their dyspnea and provides an overview of the causes, measurement, and management of dyspnea.

Conflict of interest statement

Declarations. Conflict of Interest: Nirupama Putcha has served on advisory boards for Verona Pharma and AstraZeneca. Diego J. Maselli has served on consulting/advisory boards for GSK, AstraZeneca, Amgen, Sanofi/Regeneron, Insmed, and Verona Pharma; and has received speaker fees from GSK, AstraZeneca, Amgen, and Sanofi/Regeneron. Jessica Bon has received grant funding from the National Heart, Lung, and Blood Institute (NHLBI); has served on consulting/advisory boards for GSK, Sanofi/Regeneron, Verona Pharma, and Chiesi; and has received speaker fees from GSK and Sanofi/Regeneron. Michael G. Lester has served on consulting/advisory boards for Ryme Medical, Galvanize Therapeutics, and Verona Pharma. M. Bradley Drummond has served on consulting/advisory boards for GlaxoSmithKline, Boehringer Ingelheim, AstraZeneca, Verona, Genentech, Stratos Inc, Takeda, and Amgen and has received grant funding from National Institute of Health-NHLBI, Boehringer Ingelheim, Midmark, Teva and the American Lung Association. Ethical Approval: Given that this article is based on previously conducted studies and does not report any new research involving human participants or animals performed by any of the authors, there is no ethical compliance to declare.

- 90 references
- 1 figure

Cite

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IJID Reg

. 2025 Aug 15:17:100733.

doi: 10.1016/j.ijregi.2025.100733. eCollection 2025 Dec.

Prevalence of cough and associated symptoms among pilgrims in large mass gathering event 2024: a cross-sectional study

Anas Khan [1], Fahad Alamri [2], Reem Hasan [3], Mariyyah Alburayh [3], Ghadah Alsaleh [3], Areej Alshamrani [3], Hala Aljishi [3], Jaffar Al-Tawfiq [4 5 6]

Affiliations Expand

- PMID: 40989229
- PMCID: PMC12452582
- DOI: 10.1016/j.ijregi.2025.100733

Abstract

Objectives: Large mass gathering events significantly increase the risk of infectious disease transmission, particularly respiratory infections, due to unavoidable overcrowding and exposure to airborne pathogens. Therefore, this study aims to assess the prevalence of cough, its duration, and associated symptoms during the religious mass gathering event among pilgrims in the 2024 Hajj season.

Methods: This cross-sectional study was conducted during Hajj in Makkah, Saudi Arabia, in 2024. A face-to-face random interview utilizing a structured questionnaire was employed to collect data from 2,913 pilgrims, who were randomly selected as participants and were at least 18 years old. Baseline demographic data and clinical characteristics were compiled using descriptive statistics. Continuous variables were presented as means and standard deviations, while categorical data were illustrated as counts and percentages.

Results: Among 2913 Hajj pilgrims, the average age was 53.9 ± 11.8 years, and 1,173 (40.4%) reported cough symptoms. The highest prevalence was in the 50-64 age group (60.7%). Chronic diseases were significantly more common in patients with cough (53.3%). Diabetes (357 cases) and hypertension (330 cases) were the most common conditions. Of the 1,173 participants with cough, 10.3% reported no associated symptoms, while sore throat (30.8%) was the most common. Logistic regression confirmed chronic disease, nationality, and age as significant predictors of cough.

Conclusions: A significant number of cough symptoms were reported, with the highest incidence in older adults. Additionally, notable associations were identified between cough and pre-existing health conditions, particularly diabetes mellitus, hypertension, chronic heart disease, and asthma.. Future research should investigate the long-term effects of cough and its related symptoms or use of medications in mass gatherings.

Keywords: Chronic diseases; Cough; Hajj; Infectious diseases; Mass gatherings; Public Health; Respiratory symptoms.

Conflict of interest statement

The authors have no competing interests to declare.

- 27 references
- 2 figures

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

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J Med Chem

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. 2025 Nov 27.

doi: 10.1021/acs.jmedchem.5c02638. Online ahead of print.

Design, Synthesis, and Biological Evaluation of the Novel Neutrophil Elastase Inhibitor CHF-6333 for the Inhaled Treatment of Bronchiectasis

Elisabetta Armani [1], Andrea Rizzi [1], Daniela Miglietta [1], Irene Bassanetti [1], Francesco Amadei [1], Giandomenico Brogin [1], Carmelida Capaldi [1], Fabio Rancati [1], Chiara Carnini [1], Sergio Xanxo Fernandez [1], Maurizio Civelli [1], Paola Puccini [1], Marta Bellini [1], Andrew Jennings [2], Robert A Heald [2], Lilian Alcaraz [2], Jonathan M Sutton [2], Harry Finch [3], Mary Fitzgerald [3], Craig Fox [3], Gino Villetti [1]

Affiliations Expand

- PMID: 41307403

- DOI: 10.1021/acs.jmedchem.5c02638

Abstract

The inhibitors of neutrophil elastase (NE) have long attracted interest for the treatment of respiratory diseases. We report the breakthrough of a new potent, selective NE inhibitor with a 24 h duration of action: CHF-6333, is currently undergoing clinical studies for the inhaled treatment of bronchiectasis (BE). The story of the discovery project to identify novel small molecules that inhibit extracellular elastase in the lung with prolonged activity is described. Medicinal chemistry investigation, supported by docking studies, led to N-quaternary compounds with an *in vitro* profile suitable for inhalatory administration. Compound 15 emerged from *in vivo* pharmacokinetic and pharmacodynamic studies, also showing safety and no off-target effects *in vitro*. Salt screening of

different counterions, in conjunction with *in vivo* local irritancy testing, aided in the selection of compound 15-xinafoate (CHF-6333). Efficacy in a lung injury model and no findings in non-GLP toxicity studies promoted CHF-6333 as a clinical candidate.

Full text links

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Cite

2

Review

Respir Res

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. 2025 Nov 26;26(1):332.

doi: 10.1186/s12931-025-03407-2.

Efficacy and safety of DPP-1 inhibitors in bronchiectasis: a GRADE-assessed meta-analysis of randomized controlled trials

Ahmed Emara [1], Ameer Awashra [2], Mohamed Ellebedy [3], Omar F Abbas [1], Ahmed Diaa [1], Mohamed S Elgendy [4], Mohamed Emara [1], Abdalhakim Shubietah [5], Abdul Muhsen Z Abdeen [6], Fadi Safi [7]

Affiliations Expand

- PMID: 41299471

- DOI: 10.1186/s12931-025-03407-2

Abstract

Background: Bronchiectasis is a chronic inflammatory airway disease characterized by frequent exacerbations and neutrophilic inflammation. Dipeptidyl peptidase-1 (DPP-1) inhibitors block neutrophil serine protease activation and represent a promising therapeutic approach. This meta-analysis aimed to evaluate the efficacy and safety of DPP-1 inhibitors in adults with bronchiectasis.

Methods: We systematically searched PubMed, Scopus, Web of Science, and Cochrane Central up to July 2025 for randomized controlled trials (RCTs) comparing DPP-1 inhibitors with placebo. Outcomes were pooled as risk ratios (RRs) or hazard ratio (HR) or mean differences (MDs) with 95% confidence intervals (CIs).

Prospero id: CRD420251116443.

Results: Four RCTs (n = 2,523 patients) were included. DPP-1 inhibitors significantly reduced the risk of having one exacerbation (RR 0.64; 95% CI: 0.52-0.78; P < 0.0001), severe exacerbations (RR 0.44; 95% CI: 0.21-0.92; P = 0.03), and increased the proportion of patients who remained exacerbation-free during treatment (RR 1.33; 95% CI: 1.13-1.57; P = 0.0008). Time to first exacerbation was delayed (HR 0.66; 95% CI: 0.50-0.88; P = 0.004). There was a significant improvement in respiratory symptom scores (MD 2.80; 95% CI: 1.10-4.50; P = 0.001), but no difference in FEV_1 post-bronchodilator or rates of 2 or ≥ 3 exacerbations (P > 0.05). DPP-1 inhibitors significantly reduced severe and serious adverse events without increasing overall adverse events, treatment discontinuations, or mortality.

Conclusion: DPP-1 inhibitors reduce exacerbation frequency, delay time to first exacerbation, and improve respiratory symptoms in bronchiectasis without compromising safety. These findings support their role as a potential disease-modifying therapy in bronchiectasis management. Further long-term studies are warranted to confirm their sustained clinical benefit.

Keywords: Brensocatib; Bronchiectasis; DPP-1 inhibitor; Exacerbation; GRADE; Meta-analysis; Neutrophil elastase; Randomized controlled trials.

Conflict of interest statement

Declarations. Ethics Approval and consent to participate: Not applicable. Consent to publish: Not applicable. Competing interests: The authors declare no competing interests.

- **33 references**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Cite

3

Review

Eur Respir Rev

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. 2025 Nov 26;34(178):250124.

doi: 10.1183/16000617.0124-2025. Print 2025 Oct.

Hyperconcentrated mucus in small airways: a mechanistic model for the pathogenesis of paediatric bronchiectasis

Grigorios Chatziparasidis [1], Anne B Chang [2 3 4], Andrew Bush [5], Ahmad Kantar [6 7], Kostas N Priftis [8]

Affiliations Expand

- PMID: 41297961

- DOI: 10.1183/16000617.0124-2025

Abstract

Background: Childhood bronchiectasis is an under-recognised and increasingly prevalent lung disease with a poorly understood pathogenesis. Traditional models focus on the damage in the large airways and the resultant microbial colonisation; however, the initiating events remain unclear.

Objective: We propose a unified, evidence-based model in which injury to the small airway epithelium leads to the formation of hyperconcentrated, stagnant mucus. This initiates a muco-inflammatory positive feedback loop that causes small airway wall thickening. The development of bronchiectasis in the large airways represents the final stage of this process.

Content: This review synthesises emerging clinical, histological and experimental data suggesting that small airway obstruction from hyperconcentrated mucus leads to localised hypoxia. In turn, hypoxic epithelial cells and stagnant mucus promote the release of alarmins, driving neutrophilic infiltration in the absence of infection. This process establishes a self-perpetuating muco-inflammatory loop characterised by excessive mucin production and immune dysregulation, which results in progressive thickening of the small airway walls through the formation of lymphoid follicles. Neutrophil recruitment into the major airways follows, marking the next step in the pathophysiology cascade. These events precede microbial colonisation and the characteristic radiological features of bronchiectasis.

Conclusion: By redefining hyperconcentrated mucus and small airway dysfunction as the initial events in the bronchiectasis cascade, our model offers novel mechanistic insight. Targeted interventions at various stages of this cascade are clearly needed. If validated, this model could shift therapeutic focus in paediatric bronchiectasis, from antibiotics toward muco-regulatory or anti-inflammatory agents, especially during the early, often asymptomatic stages of the disease.

Conflict of interest statement

Conflicts of interest: All authors declare no conflicts of interest.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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Cite

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Thorax

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. 2025 Nov 24:thorax-2024-222795.

doi: 10.1136/thorax-2024-222795. Online ahead of print.

Time to diagnosis and long-term outcomes for adults presenting with breathlessness

Urvee Karsanji [1], Claire A Lawson [2], Emily Petherick [3], Kamlesh Khunti [4], Gillian Doe [1], Jennifer K Quint [5], Alex Bottle [5], Michael C Steiner [1], Rachael A Evans [6]

Affiliations Expand

- PMID: 41285477

- DOI: 10.1136/thorax-2024-222795

Abstract

Background: The impact of delays to diagnosis for individuals presenting with chronic breathlessness is unknown. We investigated the time to diagnosis after presenting with chronic breathlessness and associations with future unplanned hospitalisation and mortality.

Methods: A retrospective cohort study using the UK Clinical Practice Research Datalink involving adults with a first recorded code for breathlessness and no pre-existing cardiorespiratory disease. Adjusted Cox regression was used to investigate the associations with unplanned hospitalisation and mortality during all follow-up and within 2 years after the first code of breathlessness between those with and without a diagnosis, and using landmark analysis for time to diagnosis.

Results: 66 909/101 369 (66%) of adults with a first recorded code for breathlessness received an explanatory diagnosis during a median 5 years of follow-up. 43 394 (43%) of adults received an explanatory diagnosis within 2 years

and had a higher risk (HR (95% CI)) of unplanned hospitalisation (1.25, 1.19 to 1.31) and mortality (1.84, 1.42 to 2.38) in the subsequent 2 years compared with adults without a diagnosis. In those with a recorded diagnosis, waiting ≥6 months was associated with increased mortality (6-24 months: 3.33 (2.13 to 5.20); ≥24 months: 13.30 (8.98 to 19.80)).

Conclusion: We describe better outcomes in adults coded for breathlessness without subsequent explanatory diagnoses. In adults with an explanatory diagnosis, waiting ≥6 months for a diagnosis was associated with reduced survival. Diagnostic pathways for chronic breathlessness need to differentiate between these two groups and achieve earlier diagnosis in those at higher risk.

Keywords: Asthma; Bronchiectasis; COPD epidemiology; Clinical Epidemiology; Interstitial Fibrosis; Symptom Assessment.

Conflict of interest statement

Competing interests: All authors have completed the ICMJE uniform disclosure. KK is supported by the National Institute for Health Research (NIHR) Applied Research Collaboration East Midlands (ARC EM) and the NIHR Leicester Biomedical Research Centre (BRC).

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Multicenter Study

Pulmonology

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. 2025 Dec 31;31(1):2591498.

doi: 10.1080/25310429.2025.2591498. Epub 2025 Nov 24.

Prognostic implications of cluster-defined phenotypes in AECOPD patients with bronchiectasis: A multicenter study

Jiaqi Pu [1 2], Yuanming Luo [3], Hailong Wei [4], Huiqing Ge [5], Huiguo Liu [6], Jianchu Zhang [7], Xianhua Li [8], Pinhua Pan [9], XiuFang Xie [8], Menggiu Yi [10], Lina Cheng [10], Hui

Zhou [11], Jiarui Zhang [1 2], Lige Peng [1 2], Jiaxin Zeng [1 2], Xueqing Chen [1 2], Qun Yi [1 12], Haixia Zhou [1 2]

Affiliations Expand

- PMID: 41277420

- DOI: 10.1080/25310429.2025.2591498

Free article

Abstract

Background: The clinical impact of bronchiectasis (BE) in acute exacerbations of COPD (AECOPD) remains controversial, with unclear phenotypic heterogeneity.

Research question: Does BE independently influence clinical outcomes and phenotypic heterogeneity in AECOPD patients?

Study design and methods: This prospective multicenter cohort study analysed 11 759 hospitalised AECOPD patients from 10 Chinese medical centres. Propensity score matching (1:3) balanced baseline characteristics, and unsupervised cluster analysis identified phenotypic subgroups. Primary endpoints included mortality and exacerbation frequency, with secondary endpoints assessing mechanical ventilation, ICU admission, and length of stay (LOS).

Results: AECOPD-BE patients had higher rates of non-invasive ventilation (23.5% vs 20.1%, $p = 0.002$), ICU admission (9.8% vs 6.5%, $p < 0.001$), and prolonged LOS (median 10 vs 9 days, $p < 0.001$). Mortality rates were similar (in-hospital: 1.1% vs 1.3%, $p = 0.477$; 3-year: 17.8% vs 21.6%, $p = 0.652$), but BE patients had more exacerbations (2.92 ± 4.30 vs 2.18 ± 2.72 events, $p = 0.004$). Cluster analysis revealed two phenotypes: a Systemic Inflammatory-High Risk (SI-HR) subgroup with severe inflammation and poorer outcomes, and a Stable Compensated (SC) subgroup with milder manifestations.

Conclusion: BE independently predicts increased acute healthcare utilisation and exacerbation risk in AECOPD without affecting mortality. The SI-HR phenotype identification supports targeted management strategies for this heterogeneous population.Clinical Trial Registration: Chinese Clinical Trail Registry NO.: ChiCTR2100044625; URL: http://www.chictr.org.cn/showproj.aspx?proj=121626.

Keywords: Chronic obstructive pulmonary disease; bronchiectasis; phenotype; prognosis.

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Review

Ann Med

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. 2025 Dec;57(1):2584413.

doi: 10.1080/07853890.2025.2584413. Epub 2025 Nov 6.

The role of neutrophils in bronchiectasis

Jifang Liang [1], Xueli Bai [1], Xiansheng Liu [1]

Affiliations Expand

- PMID: 41195478

- PMCID: PMC12599158

- DOI: 10.1080/07853890.2025.2584413

Abstract

Background: Neutrophils are pivotal inflammatory cells in bronchiectasis pathophysiology, yet their stage-specific roles remain incompletely understood. This review synthesizes evidence on neutrophil activation across disease stages and explores therapeutic implications.

Methods: We performed a thorough literature review analyzing neutrophil behavior in bronchiectasis, focusing on proliferation, activation, and their contributions to tissue damage during the early and middle stages and analyzing their behavior and its correlation with disease progression. To ensure a comprehensive review of the literature on the role of neutrophils in bronchiectasis, we conducted a systematic search using the following databases: PubMed, Embase, and Web of Science. The search terms included 'neutrophils,' 'bronchiectasis,' 'neutrophil elastase,' 'bronchiectasis treatment,' and 'neutrophilic inflammation'. The search period covered articles published from January 2000 to June 2024. We also reviewed the reference lists of relevant articles to identify additional studies.

Results: Neutrophils demonstrated significant proliferation and activation during the early and middle stages of bronchiectasis, leading to the release of inflammatory mediators and an exacerbation of tissue damage. In particular,

neutrophil activation during the middle stage of the disease was significantly positively correlated with the destruction of bronchial tissue. Furthermore, inhibiting neutrophil activation markedly reduced the release of inflammatory factors and improved the integrity of bronchial epithelial cells.

Conclusions: This study highlights the role of neutrophil activation at different stages of bronchiectasis and suggests that targeting neutrophil activation may represent a promising therapeutic strategy.

Keywords: Bronchiectasis; activation inhibition; bronchodilation; inflammatory mechanisms; neutrophils; targeted therapy.

Conflict of interest statement

No potential conflict of interest was reported by the author(s).

- **81 references**
- **2 figures**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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J Med Econ

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. 2025 Dec;28(1):1798-1810.

doi: 10.1080/13696998.2025.2567761. Epub 2025 Oct 14.

Frequency, duration, and cost of pulmonary exacerbations among patients with bronchiectasis

Maitreyee Mohanty [1], Claudia Leiras [2], Haiyan Sun [2], Reina Rau [2], John Fastenau [1], Joseph Feliciano [1], Sunjay R Devarajan [3]

Affiliations Expand

- **PMID: 41017477**

- **DOI: 10.1080/13696998.2025.2567761**

Free article

Abstract

Background: In administrative claims database studies of bronchiectasis, pulmonary exacerbations are usually defined using a fixed period for their start and end, which prevents assessment of exacerbation duration and thereby limits assessment of exacerbation characteristics. Here, we applied a novel cost-based algorithm to characterize exacerbations.

Methods: This cohort study used the Merative MarketScan Commercial Claims and Encounters database, 1-Jan-2016 to 31-Dec-2022. Patients ≥18 years with bronchiectasis (≥2 outpatient or ≥1 inpatient claim with bronchiectasis; no cystic fibrosis) had 12 months of continuous enrollment before (baseline) and ≥12 months after (follow-up) index (first bronchiectasis claim). Cost-based exacerbations were identified by compound score of week with highest percentage all-cause cost increase during follow-up compared with baseline weekly maintenance all-cause cost, and week with highest absolute weekly cost during follow-up. Exacerbation duration was the period with significantly higher weekly cost difference during follow-up than mean baseline weekly cost. Cost-based exacerbations were compared with exacerbations identified using a traditional claims-based definition.

Results: Of 9,005 patients with bronchiectasis, 6,033 had 49,750 cost-based exacerbations during 2.5 years median follow-up. Mean (SD) cost-based exacerbation duration was 3.4 (8.6) weeks (median [Q1, Q3] 1 [1, 3] weeks). During follow-up, 82.8% patients had ≥3 cost-based exacerbations, and 67.5% patients needed hospitalization/intravenous antibiotic treatment for an exacerbation. Mean respiratory costs were higher for the first cost-based exacerbation ($7,738) than the second ($5,429). Annual respiratory costs were $14,116 for patients with (vs. $3,390 without) cost-based exacerbations. Overall, 95.7% patients with cost-based exacerbations had ≥1 claims-based exacerbation; 51.0% cost-based exacerbations met the claims-based definition.

Limitations: Cost-based exacerbations may not represent true exacerbations, because cost increases could also result from worsening comorbidities or other clinical events.

Conclusions: Exacerbations identified using a cost-based algorithm frequently lasted >3 weeks. Patients with cost-based exacerbations had higher healthcare costs, particularly respiratory costs, than those without.

Keywords: Bronchiectasis; I10; I11; claims; cost; duration; exacerbation; frequency; real-world.

Plain language summary

Bronchiectasis is a chronic lung disease where patients have symptoms including cough, congestion, shortness of breath, and fatigue. Symptoms may be more severe for some people than others, but many people with bronchiectasis have episodes where their symptoms get worse called exacerbations, or flares. People with flares often need antibiotic treatment and may need to be hospitalized. Flares are therefore a burden for patients and healthcare systems. This burden can be

assessed using insurance claims data. Previous studies have identified flares based on patients receiving antibiotics in the week or two after a claim with a diagnosis code for bronchiectasis. However, flares can be different lengths and severities. This study quantified flares, and measured their duration and burden, using a new method that did not begin with any assumption of how long flares would last. Instead, flares were identified by flagging weeks with unusually high costs compared with the patient's usual healthcare costs. Using this method, identified flares often lasted more than 3 weeks. Healthcare costs were higher for people with flares than without, and a person's first flare was often the most expensive. Over 95% of people with high-cost flares had at least 1 flare that could be confirmed using the previous diagnosis-code based definition. This study provides a new research approach to identifying flares in people with bronchiectasis. The results show that flares may be longer than previously thought and place a high burden on healthcare. Future research will be needed to confirm this method using clinical data.

Supplementary info

MeSH termsExpand

Full text links

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Am J Med Sci

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. 2025 Dec;370(6):540-545.

doi: 10.1016/j.amjms.2025.08.002. Epub 2025 Aug 5.

Prognostic role of the pulmonary artery-to-aorta ratio and the N-terminal of prohormone brain natriuretic peptide in patients hospitalized with bronchiectasis exacerbation

Hyewon Seo [1], Seung-Ick Cha [2], Jongmin Park [3], Jae-Kwang Lim [3], Ji-Eun Park [1], Sun Ha Choi [1], Yong Hoon Lee [1], Seung-Soo Yoo [1], Shin-Yup Lee [1], Jaehee Lee [1], Chang-Ho Kim [1], Jae-Yong Park [1]

Affiliations Expand

- PMID: 40759364

- DOI: 10.1016/j.amjms.2025.08.002

Abstract

Background: Information regarding the role of the N-terminal of prohormone brain natriuretic peptide (NT-proBNP) and the ratio of the diameter of the pulmonary artery to the diameter of the aorta (PA:A ratio) on computed tomography in predicting prognosis in patients with bronchiectasis exacerbation is limited.

Methods: Retrospectively, patients with bronchiectasis exacerbation were classified into survivors and non-survivors based on 1-year mortality. Clinical, laboratory, and radiological variables were compared between the two groups.

Results: Based on 1-year mortality, patients (n = 389) were classified as non-survivors (67 [17.2 %]) or survivors (322 [82.8 %]). Age, body mass index <18.5 kg/m^2, ≥3 exacerbations in the previous year, NT-proBNP >404 pg/mL, and PA:A ratio >1 were independent predictors of 1-year mortality in patients hospitalized with bronchiectasis exacerbation. In terms of the prognostic performance of various factors for predicting 1-year mortality using receiver operating characteristic curves, NT-proBNP had the highest area under the curve, followed by PA:A ratio. Furthermore, the prognostic performance of the Bronchiectasis Severity Index, FACED score, NT-proBNP, and PA:A ratio in predicting 1-year mortality was assessed in 198 patients with spirometry results. Among these variables, the Bronchiectasis Severity Index exhibited the highest area under the curve, followed by NT-proBNP and PA:A ratio.

Conclusions: PA:A ratio and NT-proBNP may be valuable biomarkers for predicting 1-year mortality in patients with bronchiectasis exacerbation.

Keywords: Bronchiectasis; Computed tomography; Mortality; Prognosis; Pulmonary artery.

Conflict of interest statement

Declaration of competing interest None of the authors has a financial relationship with a commercial entity that has an interest in the subject of this manuscript.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

. 2025 Dec;22(1):2532076.

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Current Practices on Prescribing and Deprescribing for Patients on Long-Term Antibiotic Treatment for Chronic Pulmonary Conditions: An Umbrella Review by the European Society of Clinical Pharmacy (ESCP)

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Free article

Abstract

Purpose: Chronic pulmonary conditions require complex treatment strategies involving long-term antibiotic treatment, which carries the highest risk of antimicrobial resistance and adverse drug events (ADE). Specific guidance on prescribing and deprescribing can help reduce these risks and improve therapy effectiveness. The aim of the study was to determine prescribing and deprescribing practices for long-term antibiotic treatment (≥30 days) in preventing exacerbations of stable chronic pulmonary conditions in adult patients across all healthcare settings.

Patients and methods: This umbrella review was part of a larger registered study (PROSPERO, CRD42022381268) including systematic reviews and meta-analyses retrieved from PubMed, Cochrane Library, and PsycInfo. Outcomes of interest included condition, antibiotic, dose, duration, (de-) prescribing advice. Standardized methodological tools were used to assess methodological quality of the selected publications (ROBIS), facilitate data extraction (EPOC), and guide narrative summary of findings (PRIOR).

Results: In total, *n* = 14 publications were analyzed. (De-)prescribing advice is summarized for treatment (≥30 days) of chronic obstructive pulmonary disease, asthma, non-cystic fibrosis bronchiectasis, cystic fibrosis, and bronchiolitis obliterans syndrome. Macrolides are the most commonly recommended antibiotic for stable chronic pulmonary conditions. ADEs are the main reason for antibiotic discontinuation. Little consideration is given to emergence of antibiotic resistance.

Conclusion: There is a significant paucity of literature providing specific (de-)prescribing advice for clinical practice. More precise recommendations are required in view of patient safety.

Keywords: Chronic obstructive pulmonary disease; antibiotics; asthma; bronchiolitis obliterans syndrome; lung diseases; non-cystic fibrosis bronchiectasis.

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Quantitative spectral computed tomography detects different patterns of airway wall thickening and contrast enhancement in infective lung disease: a feasibility study

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Abstract

Objectives: We aimed to show that spectral computed tomography (CT) can identify different patterns of airway wall thickening and contrast enhancement in lung-healthy controls, coronavirus disease 2019 (COVID-19), and non-COVID-19 pneumonia patients, reflecting airway inflammation in both pneumonia subtypes and airway neovascularization in COVID-19.

Materials and methods: 331 subjects (age 58.9 ± 17.2 years) with 218 arterial and 113 venous phase spectral CT acquisitions were retrospectively recruited: 119 lung-healthy controls, 45 with COVID-19 and 167 with non-COVID-19 pneumonia. Scientific software was used for segmenting the airway tree. Wall thickness (WT_{5-10}) and the difference in median maximum airway wall attenuation (slope of the spectral attenuation curve) between 40 keV and 100 keV display energy were calculated and aggregated for subsegmental airway generations 5-10 (λHU_{5-10}). Descriptive statistics, correlations, t-tests, and ANOVA analyses were performed.

Results: Arterial phase WT_{5-10} was similarly increased in COVID-19 (1.70 ± 0.44 mm) and non-COVID-19 (1.64 ± 0.53 mm) pneumonia compared to controls (1.18 ± 0.34 mm, $p < 0.001$). Arterial phase λHU_{5-10} was significantly higher in patients with COVID-19 pneumonia (3.09 ± 2.27 HU/keV) than in non-COVID-19 pneumonia (2.18 ± 1.54 HU/keV, $p < 0.01$) and lung-healthy controls (2.06 ± 1.11 HU/keV, $p < 0.01$).

Conclusion: Spectral CT shows significant differences in segmental wall thickness and airway contrast enhancement between COVID-19 and non-COVID-19 pneumonia and lung-healthy controls. Airway contrast enhancement may be a feasible measure to detect airway inflammation in pneumonia and neovascularization in COVID-19 pneumonia.

Key points: Question Is spectral CT airway contrast enhancement a feasible quantitative method to detect airway inflammation or neovascularisation? Findings Spectral CT shows significant differences in segmental wall thickness and airway contrast enhancement between COVID-19 and non-COVID-19 pneumonia, and lung-healthy controls. Clinical relevance Spectral CT can be used to assess inflammatory airway diseases such as cystic fibrosis, COPD, asthma and bronchiectasis.

Keywords: COVID-19; Computed tomography; Inflammation; Lung; Pneumonia.

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Philip Konietzke. Conflict of interest: The authors of this manuscript declare relationships with the following companies: Institutional funding and material support by Philips; Provision of IQon Spectral CT and Spectral CT 7500 (all authors) and research funding by Philips (T.F. Weber, T.D. Do, H.U. Kauczor, W. Stiller). Airway analysis technology is licensed to Imbio, L.L.C. The funders and industries had no role in study design, data collection and analysis, decision to publish or preparation of the manuscript. Statistics and biometry: No complex statistical methods were necessary for this paper. Informed consent: This retrospective single-center study was conducted in accordance with the Declaration of Helsinki. Ethical approval was granted by the local ethics committee of the Medical Faculty of Heidelberg University Hospital (S-924/2019) and need for written informed consent was waived. Ethical approval: Institutional Review Board approval was obtained. Study subjects or cohorts overlap: We confirm that our manuscript contains original data, while 119 lung-healthy controls were included from a previously published patient collective published in European Radiology (Bodenberger et al [10]). Methodology: Retrospective Observational Single-center study

- 39 references
- 2 figures

Supplementary info

MeSH terms, Substances, Grants and funding