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

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NPJ Prim Care Respir Med

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. 2026 Apr 28.

doi: 10.1038/s41533-026-00519-0. Online ahead of print.

Inhaled corticosteroid overuse and deprescribing eligibility in COPD (iCODEC Study): a nationwide cross-sectional analysis in China

Changcheng Shi [1 2], Xuedi Ma [3], Weizhong Jin [4], Xinyi Li [1 5], Junbo Xia [6], Nengming Lin [2], Lihong Liu [7 8]

Affiliations Expand

- **PMID: 42049788**

- **DOI: 10.1038/s41533-026-00519-0**

Free article

Abstract

Inhaled corticosteroid (ICS) overuse is common in chronic obstructive pulmonary disease (COPD) and associated with substantial adverse effects. Deprescribing has emerged as a strategy to optimize therapy, yet large-scale evidence on the prevalence and associated factors of eligibility for ICS deprescribing is limited. This nationwide cross-sectional study analyzed data from the Cough and Wheeze Pharmaceutical Care Clinics database between January 2021 and September 2024.

Patients aged ≥40 years with physician-diagnosed COPD receiving long-acting inhaled therapies were included. We examined treatment patterns, estimated ICS use, and assessed eligibility for deprescribing using European Respiratory Society (ERS), American Thoracic Society (ATS), and Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2026 criteria, applied respectively to any ICS-containing regimens, triple therapy, and ICS/long-acting beta-agonist (LABA) combinations. Factors associated with ICS deprescribing eligibility were identified using multivariable logistic regression, with sensitivity analyses on complete-case data. Of 33,243 patients, 24,886 (74.9%) received ICS-containing regimens, mainly triple therapy and ICS/LABA. Among them, 79.5% met ERS criteria for deprescribing. In the triple therapy subgroup (n = 12,388), 68.9% met ATS criteria, while 74.0% of patients on ICS/LABA combinations (n = 12,340) met GOLD criteria. Eligibility was positively associated with male sex, older age, higher regional economic level, lack of health insurance, and care in secondary hospitals, whereas higher comorbidity burden was negatively associated. Sensitivity analyses yielded consistent results. These findings highlight that ICS overuse is common among COPD patients in China, with most being eligible for deprescribing. Implementing targeted strategies that address the identified associated factors could support deprescribing and enhance treatment optimization.

Conflict of interest statement

Competing interests: The authors declare no competing interests.

Supplementary info

Grants and fundingExpand

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2

JHLT Open

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. 2026 Mar 20:12:100542.

doi: 10.1016/j.jhlto.2026.100542. eCollection 2026 May.

Lung transplantation in recipients aged ≥70 years: a single-center experience

Jan Jelinek [1], Tomas Kusnirak [2], Monika Svorcova [1], Jaromir Vajter [3], Jan Balko [4], Gabriela Holubova [3], Zuzana Ozaniak Strizova [5], Pavel Pafko [1], Rene Novysedlak [1], Jiri Vachtenheim Jr [1], Robert Lischke [1]

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- PMID: 42005562
- PMCID: PMC13091370
- DOI: 10.1016/j.jhlto.2026.100542

Abstract

The suitability of lung transplantation (LTx) in recipients aged ≥70 years remains debated, despite reports of acceptable outcomes in selected elderly patients among other solid-organ transplantations. We retrospectively analyzed all LTx procedures performed in this age group within the Prague Lung Transplant Program between January 2012 and July 2025. Twelve patients aged ≥70 years underwent double (n = 5) or single (n = 7) LTx. The median age was 70.3 years. Indications were interstitial pulmonary disease (n = 7) and chronic obstructive pulmonary disease (n = 5). Median waiting time was 199.5 days. Primary graft dysfunction grade 2 occurred in 2 patients, with no cases of grade 3. Median ICU and hospital lengths of stay were 10 and 21.5 days, respectively. One-month and 1-year survival rates were 91.7% and 73%. These data indicate that LTx in carefully selected septuagenarian recipients can achieve favorable short-term outcomes.

Keywords: Lung transplantation; Organ donation; Primary graft dysfunction; Septuagenarian lung recipients; Transplant survival.

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.

- 11 references
- 1 figure

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3

Review

Respir Med

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. 2026 May:256:108812.

doi: 10.1016/j.rmed.2026.108812. Epub 2026 Apr 5.

Exploring AI and ML in managing overlap between cardiovascular disease and asthma or COPD: a scoping review

Luigino Calzetta [1], Mario Cazzola [2], Elena Pistocchini [2], Shima Gholamalishahi [2], Rossella Laitano [2], Paola Rogliani [2]

Affiliations Expand

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- **DOI: 10.1016/j.rmed.2026.108812**

Free article

Abstract

Cardiovascular disease (CVD) is a major comorbidity in asthma and chronic obstructive pulmonary disease (COPD), yet the contribution of artificial intelligence (AI) and machine learning (ML) to CVD risk assessment and management in these conditions remains insufficiently characterized. This scoping review identified the main original full-text studies applying AI/ML to the overlap between CVD and asthma or COPD for prediction, phenotyping or clinical decision support. Among the eleven identified studies, only one specifically addressed asthma, developing ML-based CVD risk prediction models from electronic health records that achieved good short-term discrimination but lacked external validation. The remaining studies focused on COPD and CVD, employing supervised learning, deep-learning survival analysis, natural language processing, unsupervised clustering and AI-enabled clinical decision support. Across these investigations, COPD and related comorbidities consistently emerged as strong predictors of CVD events, mortality and adverse clinical trajectories. Unsupervised clustering revealed COPD-dominant heart failure phenotypes with particularly poor outcomes, while AI-derived risk models frequently provided superior discrimination and calibration compared with traditional statistical approaches. However, most studies were retrospective, largely reliant on structured data, limited in generalizability and rarely implemented in routine care. Overall, current evidence indicates substantial potential for AI/ML to enhance CVD risk stratification, phenotyping and management in COPD, whereas applications in asthma are strikingly scarce. These findings underscore a critical need for large-scale, prospectively evaluated and clinically integrated AI/ML

strategies to improve detection, risk stratification and personalized management of CVD in patients with asthma or COPD.

Keywords: Artificial intelligence; Asthma; COPD; CVD; Comorbidity; Machine learning.

Conflict of interest statement

Declaration of competing interest LC has no conflict of interest to declare. MC has no conflict of interest to declare. EP has no conflict of interest to declare. SG has no conflict of interest to declare. RL has no conflict of interest to declare. PR has no conflict of interest to declare.

Supplementary info

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Review

Respir Med

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. 2026 May:256:108799.

doi: 10.1016/j.rmed.2026.108799. Epub 2026 Mar 30.

Effects of adding balance training to pulmonary rehabilitation in individuals with COPD: A systematic review and meta-analysis of randomized controlled trials

Walter Sepúlveda-Loyola [1], Jennifer Campos Aguayo [2], Joselyn González Pasten [2], Iván Cuyul-Vásquez [3], Juan José Valenzuela-Fuenzalida [4], Celso R F Carvalho [5]

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- PMID: 41921788

- DOI: 10.1016/j.rmed.2026.108799

Abstract

Background: COPD is associated with extrapulmonary manifestations, including balance impairment, which increases the fall risk and reduces functional independence and quality of life. Pulmonary rehabilitation (PR) rarely includes specific balance exercises. This systematic review evaluated the effectiveness of adding balance training (BT) to conventional PR in COPD patients.

Methods: This review was registered in PROSPERO (CRD42024523748) and conducted in accordance with PRISMA guidelines. Six databases were searched up to July 2025 for RCTs involving COPD patients aged ≥50 years that compared PR + BT with PR alone. The outcomes included static balance, dynamic balance, overall balance, balance confidence, functional exercise capacity, and health-related quality of life. The risk of bias was assessed using the Cochrane RoB-2 tool, and meta-analyses were performed using JAMOVI software 5.4.

Results: Seven trials with 548 participants were included. BT protocols involved static and dynamic exercises, dual-task activities, and progression from stable to unstable surfaces. Compared with PR alone, PR + BT significantly improved static balance (MD = 3.29 s; 95% CI: 2.76 to 3.82), dynamic balance (MD = -2.08 s; 95% CI: 2.48 to -1.69), overall balance (MD = 3.09 score; 95% CI: 1.11 to 5.06), balance confidence (MD = 6.48 score; 95% CI: 2.48 to 10.48), and health-related quality of life (SMD = -0.78; 95% CI: 1.45 to -0.11). No significant differences were found for functional exercise capacity.

Conclusion: Incorporating BT into PR improves balance and health-related quality of life among individuals with COPD. Given the high prevalence of balance impairments in this population, these findings support balance training as a clinically relevant component of PR.

Keywords: Balance training; Chronic obstructive pulmonary disease; Fall prevention; Pulmonary rehabilitation.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interestsWalter Sepulveda Loyola reports a relationship with University of the Americas that includes: employment. Walter Sepulveda Loyola reports a relationship with State University of Londrina that includes: non-financial support. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

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Case Reports

Am J Ind Med

. 2026 May;69(5):323-334.

doi: 10.1002/ajim.70070. Epub 2026 Mar 17.

Severe Occupational Hypersensitivity Pneumonitis: A Case Series of Four Patients Requiring Lung Transplantation

Ludwig Frei-Stuber [1 2], Judith Mohren [1 2], Ester Mau [1 2], Bernhard Werner [1 2], Rudolf A Hatz [2 3], Jürgen Barton [2 4], Dennis Nowak [1 2]

Affiliations Expand

- PMID: 41845945
- PMCID: PMC13070276
- DOI: 10.1002/ajim.70070

Abstract

Hypersensitivity pneumonitis (HP) is an immune-mediated interstitial lung disease triggered by repeated inhalation of organic or chemical antigens. Occupational exposures account for approximately 19% of all cases. Early diagnosis, identification of the responsible antigen(s), and immediate avoidance of exposure are crucial to prevent irreversible pulmonary fibrosis. However, HP often remains unrecognized or is misclassified as another respiratory disorder such as asthma, chronic obstructive pulmonary disease (COPD), or idiopathic pulmonary fibrosis. As a result, the causal link between symptoms and workplace exposure is frequently established only in advanced disease stages-or not at all. Such delays may result in chronic respiratory failure, occupational disability, prolonged oxygen therapy, and, in severe cases, lung transplantation. We report four patients in whom HP was ultimately recognized as an occupational disease or recommended for legal

recognition in court. At the time of diagnosis, all cases had progressed to advanced, fibrotic HP, rendering both primary and secondary prevention impossible. In each instance, earlier identification of the occupational trigger followed by immediate antigen avoidance could likely have prevented the development of irreversible lung damage. This case series underscores the need for early and comprehensive pulmonary assessment, including detailed occupational history-taking, serologic and radiologic evaluation, and prompt referral to an occupational physician when HP is suspected. Close interdisciplinary collaboration between pulmonologists and occupational medicine specialists is essential to reduce diagnostic latency, prevent progression to end-stage lung disease, and improve clinical and socioeconomic outcomes.

Keywords: antigen avoidance; early recognition; extrinsic allergic alveolitis; lung transplantation; occupational diseases; occupational exposure; occupational hypersensitivity pneumonitis; preventive occupational medicine; respiratory insufficiency; work-related interstitial lung disease.

Conflict of interest statement

Jürgen Barton, MD, has received consulting fees from AstraZeneca and Takeda, and honoraria for lectures from AstraZeneca and Vertex. Dennis Nowak, MD, PhD; Bernhard Werner, MD; Ester Mau, MD; Judith Mohren, MPH; and Ludwig Frei-Stuber, MD, have received fees for expert reports and lectures from statutory accident insurance providers and courts.

- 26 references
- 2 figures

Supplementary info

Publication types, MeSH termsExpand

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Lung Cancer

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. 2026 May:215:109352.

doi: 10.1016/j.lungcan.2026.109352. Epub 2026 Mar 4.

Volume and location of screen-detected lung nodules associated with lung cancer within two-year follow-up: Post hoc analysis from the UK Lung Cancer Screening (UKLS) trial

Oke Dimas Asmara [1], Harriet L Lancaster [2], John K Field [3], Michael P A Davies [3], Stephen W Duffy [4], E Christiaan Boerma [5], Edith Visser [6], Kim de Jong [6], Anand Devaraj [7], Marjolein A Heuvelmans [8], Wouter H van Geffen [9], Matthijs Oudkerk [10]

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Free article

Abstract

Introduction: Follow-up of radiologically suspicious lung nodules from screening programs remains complex and unstandardized. This study analyses distribution and characteristics of solid and part-solid non-calcified nodules ≥100 mm^3 and non-solid nodules ≥8 mm detected at baseline in the UK Lung cancer Screening (UKLS) trial, with insights into their relationship to screen-detected lung cancers.

Methods: UKLS participants with baseline indeterminate and positive lung nodules were included. Nodule location was categorized by lobe and by attachment: intraparenchymal, juxta pleural or pleural-based. Solid and part-solid were classified based on semi-automated volume: 100-300 mm^3 and ≥300 mm^3, and non-solid nodules based on diameter ≥8 mm. This measurement approach aligns with UKLS protocol and the British Thoracic Society (BTS) guideline. Their relationship to screen-detected lung cancer was based on histological outcomes after a 2-year follow-up period.

Results: 279 UKLS participants with 373 solid or part-solid lung nodules ≥100 mm^3 and 57 participants with 62 nonsolid nodules ≥8 mm were included. Among solid and part-solid nodules, 233 were 100-300 mm^3, with 39.5% in upper lobes and 72.5% intraparenchymal; 140 nodules were ≥300 mm^3, with 51.4% in upper lobes and 53.6% intraparenchymal. Nodules ≥300 mm^3 group were more likely to be in the upper lobes (OR 1.97 [95% CI 1.12-3.48]). Within 2 years, 34 solid or part-solid nodules were diagnosed as lung cancer, yielding a 2-year cancer probability of 9.1% (95% CI 6.6-12.5). The 2-year lung cancer probability was higher in nodules ≥300 mm^3 (RR 18.1, 95% CI 5.6-58.4; $p < 0.001$) and in upper lobe nodules (RR 2.7, 95% CI 1.3-5.5; $p = 0.009$).

Conclusion: Solid and part-solid nodules with volume ≥300 mm^3 were more often found in the upper lobes and were associated with a higher probability of lung cancer within a two-year follow-up period.

Keywords: Location; Lung cancer; Screening; UKLS; Volume.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interest: Michael P.A. Davies reports receiving support from the Roy Castle Lung Cancer Foundation. John K. Field reports receiving grants/contracts from EU Horizon, MRC-Saver, CRUK, IAA, Elypta, and Therapeutic Antibody Identification for Lung cancer and COPD, consulting fees from Elypta, Qure.ai, iDNA, and Astra Zeneca, and support for meeting attendance from IASLC. Wouter H. van Geffen: Outside of this manuscript: Leadership: Fiduciary Officer for the NVALT (Dutch Society of Respiratory Physicians), IKNL medical adviser. Other interests: Site investigator for trials run by his department funded by Roche, Pfizer, Novartis, Novocure, MSD, BMS, and Taiho. Matthijs Oudkerk: reports receiving support from EU Horizon grant as part of the ongoing 4ITLR screening implementation trial. All remaining authors have declared no conflicts of interest.

Supplementary info

MeSH termsExpand

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Review

Drugs

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. 2026 May;86(5):581-597.

doi: 10.1007/s40265-026-02303-3. Epub 2026 Mar 10.

GOLD 2026: Transforming COPD Management with Early Intervention, Multi-dimensional Assessment, and Personalized Care

Mario Cazzola [1], Jyoti Bajpai [2], Luigino Calzetta [3], Maria Gabriella Matera [4], Paola Rogliani [5]

Affiliations Expand

- **PMID: 41806208**

- **PMCID: PMC13109179**

- **DOI: 10.1007/s40265-026-02303-3**

Abstract

The 2026 report from the Global Initiative for Chronic Obstructive Lung Disease (GOLD) introduces substantial conceptual and practical updates to the management of chronic obstructive pulmonary disease. While maintaining the established spirometric definition, the report emphasizes early diagnosis, multi-dimensional assessment, and personalized treatment strategies that move beyond a spirometry-centric approach. Key innovations include formally recognizing disease activity as a therapeutic target, refining the ABE classification with a lower threshold for patients prone to exacerbations (Group E), and integrating blood eosinophil counts to guide inhaled corticosteroid therapy. Nonpharmacologic interventions, such as pulmonary rehabilitation, vaccination, smoking cessation, structured self-management, and post-exacerbation care, are elevated to core disease-modifying strategies. Pharmacological escalation is structured around dual bronchodilation as the preferred initial step, with further intensification to biomarker-guided triple therapy, including inhaled corticosteroids or other anti-inflammatory agents, reserved for selected patients who remain symptomatic or experience exacerbations despite optimized dual therapy. GOLD 2026 also introduces biologics, dupilumab and mepolizumab, as an add-on therapy for exacerbation-prone eosinophilic chronic obstructive pulmonary disease. However, it also highlights ongoing limitations in efficacy, cost effectiveness, and generalizability. Artificial intelligence and emerging digital technologies are recognized as promising adjuncts in the management of chronic obstructive pulmonary disease, though their clinical implementation remains preliminary. Overall, GOLD 2026 advances precision medicine in chronic obstructive pulmonary disease by combining structured individualized assessments with early targeted interventions. However, significant uncertainties remain, including biological variability of biomarkers, limited evidence for emerging therapies, and barriers to equitable access to nonpharmacologic and advanced interventions. Careful context-sensitive application and continued validation are essential.

Conflict of interest statement

Declarations. Conflict of interest: Mario Cazzola, Jyoti Bajpai, Luigino Calzetta, Maria Gabriella Matera, and Paola Rogliani have no financial or non-financial relationships or activities concerning this article. Mario Cazzola and Luigino Calzetta are Editorial Board members of Drugs. Mario Cazzola and Luigino Calzetta were not involved in the selection of peer reviewers for the manuscript nor any of the subsequent editorial decisions. Ethics approval: Not applicable. Consent to participate: Not applicable. Consent for publication: Not applicable. Availability of data and material: Not applicable. Code availability: Not applicable. Author contributions: All authors were involved in the initial conception of the manuscript.

MC and JB led the drafting and coordinated the revisions of the manuscript among all authors. LC, MGM, and PR critically revised the content on their areas of expertise. All authors approved the final draft.

- 83 references
- 3 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Scand J Rheumatol

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. 2026 May;55(3):163-171.

doi: 10.1080/03009742.2025.2603046. Epub 2026 Feb 16.

Chronic obstructive pulmonary disease and rheumatoid arthritis: severe exacerbations, pneumonia, and death in a population-based cohort

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Affiliations Expand

- PMID: 41697674

- DOI: 10.1080/03009742.2025.2603046

Abstract

Objective: Respiratory disease contributes to the excess mortality seen in rheumatoid arthritis (RA), and chronic obstructive pulmonary disease (COPD) is frequently encountered. The aim of this study was to investigate the risk of severe acute exacerbation, pneumonia, and death among patients with RA and COPD compared with patients with COPD alone.

Method: The study population was patients with hospital-based, outpatient follow-up for COPD identified from the Danish COPD registry. Diagnoses of RA, information about hospitalizations for acute exacerbations of COPD (AECOPD), pneumonia, and vital status were obtained from National Health Registries. Follow-up was 12 months after first outpatient contact for COPD. Hospitalizations for AECOPD and pneumonia, and risk of death in COPD with or without RA, were compared using Cox proportional hazards regression analysis. Covariates were balanced using inverse probability of treatment (IPT) weighting.

Results: The study included 58 655 patients with hospital-based follow-up for COPD, 2033 (3.5%) of whom had RA. More than 25% of the cohort experienced hospitalization with AECOPD and/or pneumonia in the first year after first outpatient COPD hospital contact. IPT-weighted unadjusted Cox regression analysis showed similar risk of hospitalization with AECOPD among patients with RA and COPD [hazard ratio (HR) 1.004, 95% confidence interval (CI) 0.89-1.13] and death (HR 1.13, 95% CI 0.98-1.30), but increased risk of hospitalization for pneumonia (HR 1.26, 95% CI 1.11-1.42).

Conclusion: The increased risk of pneumonia associated with RA may be attributed to immunosuppression. The findings should lead to increased focus on optimizing COPD therapies and preventive measures.

Supplementary info

MeSH termsExpand

Full text links

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J Asthma

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. 2026 May;63(5):582-589.

doi: 10.1080/02770903.2026.2612741. Epub 2026 Jan 10.

Small airway abnormalities in asthmatic patients with persistent airflow limitation

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- **PMID: 41504313**

- DOI: 10.1080/02770903.2026.2612741

Abstract

Background: A subset of patients with asthma develops persistent airflow limitation (PAL) despite optimal treatment. The role of small airways dysfunction (SAD) in this phenotype, and its relationship with symptoms, remains incompletely understood.

Objectives: To assess small airways function in asthmatic patients with PAL and compare it with patients with fully reversible asthma and with COPD; and to explore correlations between small airway indices and patient-reported outcomes.

Methods: We enrolled 60 patients (20 with asthma and PAL, 20 with fully reversible asthma, 20 with COPD) matched for age, sex, and pre-bronchodilator FEV1. Small airways function was evaluated using impulse oscillometry (IOS; R5-R20) and single-breath nitrogen washout test (SBNWT; dN2). Patients completed a daily symptom diary (dyspnea, cough, sputum, and rescue medication use) over four weeks.

Results: Compared with fully reversible asthma, asthmatic patients with PAL showed significantly higher dN2 and R5-R20 values, though less pronounced than in COPD. SAD (R5-R20 > 0.07 kPa·L^{-1}·s) was present in all COPD patients, 79% of PAL patients, and 37% of reversible asthma patients ($p < 0.001$). In PAL, R5-R20 correlated strongly with dyspnea scores ($r = 0.64$, $p < 0.001$). In reversible asthma, R5-R20 correlated with cough and rescue medication use, whereas in COPD, symptoms were primarily related to residual volume.

Conclusions: Small airways dysfunction is highly prevalent in asthmatic patients with PAL and significantly contributes to daily symptom burden. Its intermediate severity between COPD and reversible asthma suggests that SAD plays a central role in the pathogenesis of fixed obstruction, suggesting a potential role for targeted diagnostic and therapeutic strategies.

Keywords: COPD; Small airways; abnormalities; asthma; function.

. 2026 May-Jun:77:102692.

doi: 10.1016/j.hrtlng.2025.102692. Epub 2025 Dec 26.

Diaphragmatic ultrasound in guiding weaning from invasive mechanical ventilation in patients with acute exacerbation of chronic obstructive pulmonary disease

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Affiliations Expand

- PMID: 41455391

- DOI: 10.1016/j.hrtlng.2025.102692

Abstract

Background: Acute exacerbation of chronic obstructive pulmonary disease (AECOPD) often necessitates invasive mechanical ventilation (IMV), and timely weaning is critical to improving patient outcomes. However, reliable predictors of weaning success in this population remain unclear.

Objectives: To assess the predictive value of diaphragmatic function indicators for successful weaning from IMV in AECOPD patients.

Methods: This single-center, prospective observational study enrolled 120 AECOPD patients admitted to the intensive care unit (ICU) who received IMV. Based on weaning outcomes, patients were categorized into successful weaning (n = 84) and failed weaning (n = 36) groups. Clinical data, including baseline characteristics, diaphragmatic thickening fraction (DTF), diaphragmatic excursion (DE), rapid shallow breathing index (RSBI), and arterial blood gas parameters, were collected. Independent predictors of successful weaning were identified using logistic regression analysis. Receiver operating characteristic (ROC) curves were used to evaluate the predictive performance of these parameters. Correlation between DTF and RSBI was also analyzed.

Results: Compared with the failed group, patients in the successful weaning group demonstrated significantly higher DE and DTF, and lower RSBI values (all $P < 0.05$). Logistic regression revealed that DE, DTF, and RSBI were independent predictors of successful weaning. ROC analysis showed that the combined model of DE, DTF, and RSBI yielded an area under the curve (AUC) of 0.961, with 88.89% sensitivity and 92.86% specificity. Additionally, the failed group experienced longer mechanical ventilation duration, prolonged ICU stay, and higher complication rates.

Conclusion: DTF, DE, and RSBI are reliable predictors of successful IMV weaning in AECOPD patients. Early assessment of diaphragmatic function may enhance clinical decision-making in ventilator liberation.

Keywords: Acute exacerbation of chronic obstructive pulmonary disease; Diaphragmatic excursion; Diaphragmatic thickening fraction; Invasive mechanical ventilation; Rapid shallow breathing index; Weaning.

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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Am J Prev Med

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. 2026 May;70(5):108227.

doi: 10.1016/j.amepre.2025.108227. Epub 2025 Dec 19.

Chronic Conditions as Risk Factors for COVID-19-Associated Hospitalization Among Adults, 2020-2023

Sarah Hamid [1], Gordana Derado [2], Huong Pham [2], Rebecca C Woodruff [3], Michael Melgar [2], Jeremy L Roland [4], Breanna Kawasaki [5], James Meek [6], Lucy S Witt [7], Maya L Monroe [8], Libby Reeg [9], Erica Martin [10], Jennifer E Akpo [11], Grant Barney [12], Christina B Felsen [13], Nancy Moran [14], Melissa Sutton [15], H Keipp Talbot [16], Ashley Swain [17], Fiona P Havers [2], Christopher A Taylor [2]

Affiliations Expand

- **PMID: 41423029**

- **DOI: 10.1016/j.amepre.2025.108227**

Free article

Abstract

Introduction: Chronic conditions associated with COVID-19 hospitalization were identified early in the pandemic when underlying population immunity was low. Updated information on risk factors for COVID-19 hospitalization is needed.

Methods: Surveillance and cross-sectional survey data were combined to compare COVID-19 hospitalization rates in adults aged ≥18 years with and without 9 chronic conditions in 98 counties across 13 states. Hospitalization counts were obtained from the COVID-19-associated Hospitalization Surveillance Network. The adult population with and without chronic conditions was estimated from U.S. Census data and the Behavioral Risk Factor Surveillance System. Adjusted rate ratios were estimated using Poisson regression with Monte Carlo simulation, adjusting for age group, sex, and race and ethnicity.

Results: From October 2022 through September 2023 (2022-2023), COVID-19 hospitalization rates were greater among adults with chronic kidney disease (adjusted rate ratio [95% uncertainty interval]=4.5 [3.4-5.9]), diabetes (2.2 [1.7-2.8]), stroke (2.1 [1.5-2.9]), severe obesity (2.0 [1.5-2.8]), coronary artery disease (2.0 [1.5-2.5]), chronic obstructive pulmonary disease (1.9 [1.5-2.5]), smoking (1.5 [1.2-2.0]), and asthma (1.5 [1.1-2.0]) than among adults without a given condition. Nonsevere obesity was not associated with increased risk. Hospitalization rates were 18.0 times higher among adults aged ≥75 years than among those aged 18-49 years. Hospitalized adults in 2022-2023 were more likely to be aged ≥75 years or to have ≥3 chronic conditions than in earlier seasons (2020-2022).

Conclusions: Of 9 chronic conditions assessed, 8 were associated with increased risk of COVID-19 hospitalization; risk varied by condition and age. Older age was the strongest risk factor. Findings can guide prevention and treatment by identifying populations at greatest risk of COVID-19 hospitalization.

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Supplementary info

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12

Eur Radiol

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. 2026 May;36(5):4098-4109.

doi: 10.1007/s00330-025-12188-7. Epub 2025 Dec 9.

Quantitative CT of emphysema, wall thickness and mucus plugs in alpha-1-antitrypsin deficiency: relationship to clinical outcomes

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Affiliations Expand

- PMID: 41364209

- PMCID: PMC13086677

- DOI: 10.1007/s00330-025-12188-7

Abstract

Objectives: Alpha-1-antitrypsin deficiency (AATD) is a rare genetic disorder leading to chronic obstructive pulmonary disease (COPD). Emphysema is the major structural damage visible on CT scans. However, there is little knowledge on the association between other structural abnormalities, such as bronchiectasis (BE), airway wall thickening (WT) or mucus plugs (MP), and clinical features.

Materials and methods: Retrospective study between 2008 and 2022 at one University Hospital of Bordeaux on all consecutive AATD patients. Bronchial and parenchymal alterations were evaluated with an (artificial intelligence) AI-driven Normalized Volume of Airway Abnormalities (NOVAA-CT) scoring system, including BE, WT, MP and emphysema quantifications. We evaluated correlations between forced expiratory volume in 1-s (FEV1%), dyspnea severity through the mMRC scale and the occurrence of at least one exacerbation in the year following CT scan.

Results: Fifty-two AATD patients were included (median FEV1: 47% (40-65)). CT features of BE, WT and MP were present in 100%, 94.2% and 59% of the study population, respectively, with a lower versus upper lung predominance ($p < 0.05$). WT ($p < 0.001$) and BE ($p = 0.04$) correlated with FEV1% but not mMRC ($p \geq 0.09$). Conversely, MP did not correlate with FEV1% ($p = 0.08$) but with mMRC ($p = 0.01$). Emphysema strongly correlated with both FEV1% and mMRC ($p < 0.001$). In multivariate analysis, after adjustment for age, genotype and tobacco consumption, the best predictor of exacerbation was WT (OR = 1.12 [1.02-1.22]; $p = 0.01$).

Conclusion: This study demonstrates that AI-assisted identification of structural airway abnormalities is frequent in AATD patients and carries distinct clinical significance. Among them, WT was the most robust predictor of exacerbations.

Key points: Question Emphysema is the major structural damage in alpha-1-antitrypsin deficiency (AATD). Clinical associations of bronchial abnormalities such as bronchiectasis (BE), mucus plugs (MP) and wall thickness (WT) are lacking.

Findings Quantitative CT of BE and WT correlated with PFT ($p \leq 0.05$), while MP correlated with dyspnea scale ($p = 0.01$). The best predictor of exacerbation was WT (OR = 1.12 [1.02-1.24]). Clinical relevance AI-assisted identification of bronchial abnormalities is frequent in AATD patients in addition to emphysema alone and carries distinct clinical significance. These findings highlight the importance of comprehensive CT-based evaluations to better characterize disease phenotype and guide clinical management in AATD.

Keywords: Alpha-1-antitrypsin deficiency; Artificial intelligence; CT scan; Chronic obstructive pulmonary disease; Exacerbation.

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Gael Dournes. Conflict of interest: The authors of this manuscript declare relationships with the following companies: Patrick Berger: GSK, AstraZeneca, Sanofi, Chiesi. Maeva Zysman: GSK, AstraZeneca, Menarini, Novartis, CSL Behring, Chiesi, Pfizer. Gael Dournes: Sanofi, AstraZeneca, Vertex Pharmaceuticals. The other authors do not have relationship of interest with the manuscript content. Statistics and biometry: One of the authors (Patrick Berger) has significant statistical expertise. No complex statistical methods were necessary for this paper. Informed consent: Written informed consent was waived by the Institutional Review Board. Ethical approval: Institutional Review Board approval was obtained. Study subjects or cohorts overlap: None. Methodology: Retrospective Observational Performed at one institution

- **37 references**
- **5 figures**

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

1

Clin Exp Allergy

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. 2026 May 1.

doi: 10.1111/cea.70331. Online ahead of print.

Aeroallergen Sensitization Phenotypes and Multimorbidity in Allergic Rhinitis and Asthma: A Large Urban Cluster Analysis

Raj Kumar [1], Attahalli Shivanarayanprasad Praveena [2], Sonam Spalgais [1], Mandya Venkateshmurthy Greeshma [3], Mohammed Kaleem Ullah [4 5], Padukudru Anand Mahesh [3]

Affiliations Expand

- PMID: 42065142

- DOI: 10.1111/cea.70331

No abstract available

Full text links

Proceed to details

Cite

2

Review

Intensive Care Med

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. 2026 Apr 30.

doi: 10.1007/s00134-026-08427-0. Online ahead of print.

Standard of care for rehabilitation in critical illness

Carol L Hodgson [1 2 3 4], Elizabeth Ayre [5], Tessa Broadley [5], Lisa Burry [6 7 8 9], Kelly Casey [10], Craig Dale [11 12], Sabrina Eggmann [5 13 14], Amy Freeman-Sanderson [5 15 16 17], Michelle E Kho [18 19 20], Michelle Paton [5 21], Emma J Ridley [5 22], Louise Rose [23], Stefan J Schaller [24 25], Margaret S Herridge [9 26 27]

Affiliations Expand

- PMID: 42059920

- DOI: 10.1007/s00134-026-08427-0

Abstract

Background: Rehabilitation is recognised as a cornerstone of intensive care, essential for optimising functional recovery and reducing long-term disability. Contemporary ICU populations, characterised by advanced age, multimorbidity, and prolonged stays, are at heightened risk of muscle wasting, immobility, frailty, cognitive decline, and functional dependence. Mitigation of these sequelae requires careful interprofessional collaboration for person-centred rehabilitation across the care continuum.

Content: This review synthesises evidence from randomised controlled trials, meta-analyses, and clinical practice guidelines on rehabilitation during and after intensive care. Best practice within the ICU begins with early awakening and mobilisation with evidence demonstrating that physical rehabilitation is safe, with low adverse-event rates. Furthermore, multiprofessional strategies that span across ICU, ward, and community are required to address complex problems including physical, cognitive, and psychological sequelae of critical illness.

Future directions: Research priorities include detailed reporting of intervention dose (timing, intensity, duration) for both usual care and rehabilitation provided within clinical trials, and development of intervention implementation strategies that enhance uptake and fidelity in routine practice.

Conclusion: Rehabilitation is integral to contemporary ICU care, spanning the trajectory of recovery into the community. Within the ICU, it requires interprofessional, experienced healthcare personnel to assess clinical status for safe rehabilitation and to identify an individual's anticipated recovery trajectory. Standardised intervention reporting and implementation-focussed research are essential to advance evidence and improve outcomes for critically ill patients.

Keywords: Critical illness; Intensive care; Physical function; Recovery; Rehabilitation.

Conflict of interest statement

Declarations. Conflicts of interest: Carol L. Hodgson and Stefan J. Schaller are Section Editors for Intensive Care Medicine. They have not taken part in the review or selection process of this article.

- **85 references**

Supplementary info

Publication typesExpand

Full text links

3

PLoS One

. 2026 Apr 29;21(4):e0346341.

doi: 10.1371/journal.pone.0346341. eCollection 2026.

Catastrophic health care expenditure among older people with non-communicable diseases in 11 European Union Member States

Seda Kutluer [1 2], Milena Pavlova [1], Wim Groot [1]

Affiliations Expand

- PMID: 42054308
- PMCID: PMC13127918
- DOI: 10.1371/journal.pone.0346341

Abstract

Background: Out-of-pocket payments by patients with chronic diseases can result in catastrophic expenditures. This study examines how chronic disease burden, measured by the presence of any chronic condition such as diabetes, cancer, chronic lung disease, heart attack, stroke and high blood pressure and the number of chronic conditions are associated with the likelihood of catastrophic out-of-pocket payments among older adults in 11 European Union (EU) countries.

Methods: The 2017 wave of the SHARE (Survey of Health, Ageing and Retirement in Europe) provides the most recent dataset suitable for our analysis. The sample size was 13,437. Probit regression models were estimated at 10%, 25% and 40% catastrophic health expenditure thresholds, controlling for demographic, socioeconomic and lifestyle characteristics, with standard errors clustered at the country level.

Results: Our findings show that the number of chronic conditions was statistically significant association with catastrophic health expenditures across all thresholds, whereas the presence of any chronic condition was significant only at the 10% threshold and not at higher thresholds. Compared to older people in Spain, which country has the lowest level of catastrophic out-of-pocket health expenditures in the EU, older people in the Czech Republic, Greece, Italy and Poland more frequently experienced catastrophic health expenditure, whereas older people in Austria, Germany, Sweden, France, and Denmark exhibited lower risks.

Discussion: Our findings demonstrate that multimorbidity, rather than the presence of a single chronic condition, drives catastrophic health expenditures among older

adults. Older adults in the Czech Republic, Greece, Italy and Poland are more likely to experience catastrophic health expenditures compared to those in Spain, where out-of-pocket health expenditures are the lowest in the EU.

Conflict of interest statement

The authors have declared that no competing interests exist.

- 68 references
- 1 figure

Supplementary info

MeSH termsExpand

Full text links

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Cite

4

J Am Heart Assoc

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. 2026 Apr 27:e046820.

doi: 10.1161/JAHA.125.046820. Online ahead of print.

Comorbidity Clusters in Acute Heart Failure: Insights From the AMERICCAASS Registry

Juan Pablo Arango-Ibanez [#1,2], Sebastián Seni-Molina [#1], Juan Andrés Muñoz-Ordoñez [1,2], Valeria Azcárate-Rodríguez [1,2], Andrea Valencia-Orozco [1,2], Mario Miguel Barbosa Rengifo [1,2], Luis Eduardo Echeverría Correa [3], Adrián Lescano [4,5], Juan Pablo Allende [6], Tessa Negrín Valdés [7], Maikel Santos Medina [8], Miguel Angel Quintana Da Silva [9], José Jesús Marval [10], Paola Oliver Rengifo [11], Harold Segundo Cedeño Macias [12], Luis Pérez-Plata [13], Alexander Romero-Guerra [14], Eduardo R Perna [15], Víctor Rossel [16,17], Daniel Quesada-Chaves [18], Mario Speranza [19], Mark H Drazner [20], Walter Alarco [21], Carolyn S P Lam [22,23], Juan Esteban Gómez-Mesa [1,2,24]; AMERICCAASS Research Group ‡

Collaborators, Affiliations Expand

- PMID: 42037456

- DOI: 10.1161/JAHA.125.046820

Free article

Abstract

Background: Acute heart failure (HF) frequently coexists with multimorbidity. Comorbidity clusters have been associated with distinct clinical outcomes, but data from the Americas remain limited. We aimed to identify comorbidity clusters in patients with acute HF and assess their association with in-hospital outcomes.

Methods: This cohort study applied latent class analysis to patients from the AMERICCAASS Registry (Registro Americano de Insuficiencia Cardiaca Ambulatoria o Agudamente descompensada). Adjusted Poisson regression assessed in-hospital mortality and intensive care unit (ICU) admission, and multivariable analysis identified independent predictors of ICU admission.

Results: Among 1638 patients, 60.6% were men and the median age was 67.2 years. Hypertension (69.4%), smoking (40.3%), and coronary artery disease (33.8%) were common comorbidities. Cluster 1 (Young, n=828) included the youngest patients (median age 63.2 years) with the fewest comorbidities. Cluster 2 (Cardio-Kidney-Metabolic, n=512) represented the oldest group (median age 71.8 years) with the highest median body mass index (27.7 kg/m^2), the greatest proportion of HF with mildly reduced or preserved ejection fraction (44.7%), and a high comorbidity burden. Cluster 3 ("Ischemic," n=298) was characterized by older patients (median age 70.2 years) with an exceptionally high prevalence of coronary artery disease (96.3%) and the greatest proportion of HF with reduced ejection fraction (61.4%). ICU admission risk was higher in Cluster 2 (adjusted risk ratio [aRR], 1.15 [95% CI, 1.03-1.27]; *P*=0.009) and Cluster 3 (aRR, 1.25 [95% CI, 1.12-1.39]; *P*<0.001), compared with Cluster 1. Severe valvular insufficiency, peripheral artery disease, dyslipidemia, cancer, acute coronary syndrome, anemia, and cardiogenic shock were associated with higher ICU admission risk.

Conclusions: Patients with acute HF in the Americas exhibit distinct comorbidity patterns associated with different clinical profiles and ICU admission rates, which may inform risk stratification and management strategies.

Registration: URL: https://www.clinicaltrials.gov; Unique Identifier: NCT05295641.

Keywords: Americas; acute heart failure; clusters; comorbidity; heart failure; multimorbidity.

Supplementary info

Associated dataExpand

Full text links

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Cite

5

Lancet Public Health

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. 2026 May;11(5):e269-e270.

doi: 10.1016/S2468-2667(26)00070-8.

Can multimorbidity research progress from description to intervention?

Martin Gulliford [1]

Affiliations Expand

- PMID: 42020084

- DOI: 10.1016/S2468-2667(26)00070-8

Free article

No abstract available

Conflict of interest statement

I declare no competing interests.

Full text links

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Cite

6

Editorial

Lancet Public Health

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. 2026 May;11(5):e268.

doi: 10.1016/S2468-2667(26)00078-2.

An opportunity to confront multimorbidity

The Lancet Public Health

- PMID: 42020083

- DOI: 10.1016/S2468-2667(26)00078-2

Free article

No abstract available

Supplementary info

Publication typesExpand

Full text links

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Cite

7

Review

Ageing Res Rev

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. 2026 May:117:103060.

doi: 10.1016/j.arr.2026.103060. Epub 2026 Feb 10.

Quality and recommendations of guidelines for multimorbidity and polypharmacy in older adults: A systematic review

Jiang Yang [1], Huiru Li [1], Yaolong Chen [2], Tao Chen [3], Qionghua Xiao [1], Hulei Zhao [4], Jianxin Wang [5], Suyun Li [4], Yang Xie [4], Brian Oliver [6], Minghang Wang [7], Jiansheng Li [8]

Affiliations Expand

- PMID: 41679655

- DOI: 10.1016/j.arr.2026.103060

Free article

Abstract

Background: Global population aging exacerbates the challenges of multimorbidity and polypharmacy in older adults. Clinical practice guidelines are essential for addressing these issues. This systematic review aims to evaluate the quality of existing guidelines and synthesize their recommendations based on the Ariadne principles, to inform future guideline development and clinical practice.

Methods: We searched nine databases and five guideline repositories (e.g., PubMed, Web of Science, Cochrane Library, CNKI, WHO) up to August 2025. Guidelines and consensus documents focusing on multimorbidity or polypharmacy in older adults, published in English or Chinese, were included. Each guideline was evaluated using four validated tools: AGREE II (methodological quality), RIGHT (reporting completeness), AGREE-REX (recommendation credibility and applicability), and GLIA (implementation feasibility). Recommendations were categorized and synthesized according to the Ariadne principles, with independent screening and data extraction and consensus resolution of discrepancies.

Results: The multidimensional appraisal of the 21 included guidelines revealed consistent weaknesses. According to AGREE II, the domains of Scope and Purpose (81.9 %) and Clarity of Presentation (61.1 %) demonstrated the highest median scores, whereas Rigor of Development (16.7 %) and Applicability (8.3 %) scored the lowest. Based on the RIGHT checklist, overall reporting completeness was 43.2 %, with the Evidence (0.0 %) and Quality Assurance (0.0 %) domains being particularly underreported. AGREE-REX evaluation indicated limited implementability at the individual recommendation level (12.5 %), and GLIA, while suggesting moderate implementability at the guideline level (65.4 %), identified frequent barriers in the domains of Measurable Outcomes (100.0 %) and Innovation Requirements (66.7 %). Thematically, most guidelines addressed interaction assessment (n = 15, 71.4 %), but far fewer incorporated patient preferences (n = 9, 42.9 %) or monitoring strategies (n = 9, 42.9 %). Only three guidelines (14.3 %) fully adhered to all five steps of Ariadne principles.

Conclusion: Current guidelines for older adults with multimorbidity or polypharmacy exhibit substantial weaknesses in methodological rigor, reporting completeness, and implementation feasibility. Synthesis based on the Ariadne principles revealed an imbalanced pattern of recommendations, with a predominant focus on medication safety rather than patient-centered and longitudinal care management. Future guideline development should strengthen methodological processes, systematically integrate patient perspectives, and co-design practical implementation strategies to better support personalized care for an aging population.

Keywords: Guidelines; Multimorbidity; Older adults; Polypharmacy; 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

Full text links

[Proceed to details]

Cite

8

Am Heart J

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. 2026 May:295:107356.

doi: 10.1016/j.ahj.2026.107356. Epub 2026 Jan 22.

Integrated care management for older multimorbid patients with atrial fibrillation: Rationale, design and baseline characteristics for the atrial fibrillation integrated approach in frail, multimorbid and polymedicated older people (AFFIRMO) trial

[Marco Proietti] [1], [Gregory Y H Lip] [2], [John Ainsworth] [3], [Gheorghe-Andrei Dan] [4], [Lars Frost] [5], [Guendalina Graffigna] [6], [Donata Lucci] [7], [Francisco Marin] [8], [Tatjana S Potpara] [9], [Alam Sanaullah] [3], [Mariya Tokmakova] [10], [Søren Paaske Johnsen] [11], [Aldo Pietro Maggioni] [7]; [AFFIRMO Study Investigators and Consortium]

Affiliations Expand

- **PMID: 41580107**

- **DOI: [10.1016/j.ahj.2026.107356]**

Free article

Abstract

Introduction: Atrial fibrillation (AF) is the most common arrhythmia in older people, with an increasing prevalence of various geriatric conditions, such as multimorbidity, and frailty. A contemporary integrated approach is effective in reducing the risk of clinical adverse events, particularly when streamlined through

the application of the Atrial Fibrillation Better Care (ABC) pathway, as proven in 2 non-European trials.

Methods: The atrial fibrillation integrated approach in frail, multimorbid and polymedicated older people (AFFIRMO) trial, a European multicenter, open-label, cluster-randomized study, will examine whether a mobile-health integrated care approach based on the ABC pathway combined with a multidimensional Comprehensive Geriatric Assessment (CGA) can reduce the 12-month risk of unplanned all-cause hospitalizations in patients with AF ≥65 years with ≥1 concomitant chronic condition(s).

Results: The AFFIRMO trial enrolled 1,260 patients with AF (mean age 74 [SD 6] years; 44.4% female) across 6 European countries (Bulgaria, Denmark, Italy, Romania, Serbia, and Spain). At baseline, the median (IQR) CHA_2DS_2-VASc score was 4 (3-5), and the median (IQR) HAS-BLED score was 1 (1-2). Hypertension was reported in 992 (78.7%) patients, and diabetes mellitus in 369 (29.3%) patients. Among the enrolled patients, 507 (40.5%) were prefrail, and 171 (13.7%) were frail. Oral anticoagulants (OACs) were prescribed for 1,225 (97.2%) patients, with 1,149 (91.2%) patients receiving non-VKAs oral anticoagulants (NOACs). Follow-up is ongoing and planned to be completed in January 2026.

Conclusions: The AFFIRMO trial will provide evidence on the efficacy of the ABC pathway in conjunction with the CGA approach in reducing the risk of unplanned all-cause hospitalizations and other clinical adverse events in older, multimorbid patients with AF.

Registration: ClinicalTrials.gov identifier: NCT06775028.

Conflict of interest statement

Conflicts of interest MP: Speaker activity for Pfizer and BMS/JJ Alliance and consultant activity for Regeneron Pharmaceuticals; Italian national Principal Investigator of the AFFIRMO project on multimorbidity in atrial fibrillation, which has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 899871; GYHL: Consultant and speaker for BMS/Pfizer, Boehringer Ingelheim, Daiichi-Sankyo, Anthos. No fees are received personally. He is a National Institute for Health and Care Research (NIHR) Senior Investigator Emeritus and co-PI of the AFFIRMO project on multimorbidity in AF (grant agreement No 899871), TARGET project on digital twins for personalized management of atrial fibrillation and stroke (grant agreement No 101136244) and ARISTOTELES project on artificial intelligence for management of chronic long term conditions (grant agreement No 101080189), which are all funded by the EU's Horizon Europe Research & Innovation program; GAD: Small speaker fees from AstraZeneca and Berlin–Chemie. He is also the national leader of both the AFFIRMO project (grant agreement No. 899871) and the ARISTOTELES project (grant agreement No. 101080189); FM: Consultant and speaker for Boehringer Ingelheim, Bayer, Novartis, Daiichi Sankyo, and BMS/Pfizer. All the other authors have nothing to declare.

Supplementary info

Publication types, MeSH terms, Substances, Associated dataExpand

9

Eur J Cancer Prev

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. 2026 May 1;35(3):211-221.

doi: 10.1097/CEJ.0000000000000998. Epub 2025 Nov 18.

Cancer as a main contributor to multimorbidity in the UK Biobank: analysis of risk factors using conventional statistical modelling and machine learning

Linia Patel [1], Silvia Mignozzi [1], Margherita Pizzato [1], Giovanni Corso [2 3], Carlo La Vecchia [1], Gianfranco Alicandro [4 5]

Affiliations Expand

- PMID: 41247703

- DOI: 10.1097/CEJ.0000000000000998

Abstract

Cancer frequently co-occurs with other chronic conditions, contributing substantially to disease burden. Multimorbidity is an increasing public health concern, resulting from complex interactions between sociodemographic, lifestyle, and environmental factors. The study aimed to identify the main predictors of multimorbidity using both conventional statistical models and machine learning approaches. We analysed data from 138 126 UK Biobank participants aged 39-73 years. Twenty potential risk factors were assessed using Fine and Gray competing risk regression and random survival forests (RSF). Over the five-year follow-up period, 4384 individuals developed multimorbidity, with cancer present in 52.3% of cases. Five-year cumulative incidence was 3.9% in males and 2.6% in females. Increased waist circumference [males - hazard ratio: 1.15, 95% confidence interval (CI): 1.00-1.31; females - hazard ratio: 1.29, 95% CI: 1.09-1.54] and smoking (per 5 pack-years: males - hazard ratio: 1.06, 95% CI: 1.05-1.07; females - hazard ratio: 1.08, 95% CI: 1.06-1.10) significantly increased risk. Both insufficient and prolonged sleep were linked to a higher risk, especially among females (hazard ratio for prolonged sleep: 1.68, 95% CI: 1.17-2.40). Compared with moderate drinkers, former drinkers, lifelong abstainers, and heavy drinkers showed elevated risks. RSF found smoking, waist circumference, and sleep duration as key predictors in men, while

alcohol use, smoking, and waist circumference were most important in women. Available dietary information, physical activity, and air pollution were not major predictors. Smoking, obesity, alcohol, and sleep duration are key risk factors to target in midlife to reduce the future burden of multimorbidity.

Keywords: lifestyle; multimorbidity; risk factors; sleep duration; smoking; waist circumference.

- 42 references

Supplementary info

MeSH termsExpand

Full text links

Proceed to details

Cite

10

J Clin Nurs

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. 2026 May;35(5):2140-2149.

doi: 10.1111/jocn.17520. Epub 2025 Jan 9.

Classifying and Characterising Unmet Integrated Care Needs of Older Adults With Multimorbidity: A Latent Profile Analysis

Jingjie Wu [1,2], Erxu Xue [2], Chunbo Liu [1], Jing Shao [3], Yujia Fu [3], Binyu Zhao [3], Dandan Chen [3], Hui Zhang [4], Zhihong Ye [2]

Affiliations Expand

- PMID: 39789809

- DOI: 10.1111/jocn.17520

Abstract

Aims: To classify the unmet integrated care needs of older adults with multimorbidity and to explore the factors associated with different categories of unmet integrated care needs among the target population.

Design: A cross-sectional survey using the statistical method of latent profile analysis.

Methods: From July 2022 to March 2023, 397 older adults with multimorbidity, aged 60 years or older, were recruited from one primary healthcare setting and from four secondary and tertiary hospitals to participate in face-to-face questionnaire surveys. The questionnaire used in this study to assess unmet integrated care needs among older adults with multimorbidity was self-designed through a series of steps, including a scoping review, expert consultation and cognitive interviews. Latent profile analysis was applied to uncover distinct profiles of unmet integrated care needs, and multinomial logistic regression was employed to explore whether the profiles were further distinguished by participants' sociodemographic and health-related covariates. The data were analysed using IBM SPSS v.29.0 and Mplus v.8.0.

Results: The optimal solution was a four-profile model, characterised by high unmet integration needs, high unmet system integration needs, low unmet system integration needs and low unmet integration needs, respectively. Multinomial logistic regression results indicated that profile differences were associated with place of residence, number of coresidents and the presence or absence of complex multimorbidity.

Conclusion: The integrated care needs of older adults with multimorbidity have not yet been fully met. Classifying and characterising unmet integrated care needs profiles is a crucial step in the rational allocation of integrated care resources.

Reporting method: This study was reported based on the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) for cross-sectional studies.

Patient or public contribution: All participants were older adults with multimorbidity, and they were informed that they could withdraw from the study at any time.

Keywords: care continuity; care coordination; healthcare needs assessment; healthcare service delivery; multiple chronic conditions.

- **Cited by 1 article**
- **40 references**

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

1

Comparative Study

Sci Rep

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. 2026 May 1;16(1):13148.

doi: 10.1038/s41598-026-45628-5.

Enhancing aerosol delivery in asthma and COPD: a comparison of MDI, valved holding chamber, and DPI systems using functional respiratory imaging (FRI)

Mark W Nagel [1], Hosein Sadafi [2], Jason A Suggett [3]

Affiliations Expand

- PMID: 42067539

- DOI: 10.1038/s41598-026-45628-5

Abstract

Effective respiratory therapy relies heavily on inhaler device efficiency and patient technique. While device performance is well-documented in idealized induction ports, there remains a critical lack of data integrating patient-specific disease states to compare pressurized metered-dose inhaler (MDI) and valved holding chamber (VHC) efficiency against legacy dry powder inhaler (DPI) formulations. This study addresses this gap using Functional Respiratory Imaging (FRI) which combines high-resolution computed tomography (CT) scans with Computational Fluid Dynamics (CFD) to quantitatively assess aerosol deposition in asthma and Chronic Obstructive Pulmonary Disease (COPD) patient models. We evaluated the performance of MDIs alone and with various VHCs, against DPIs under optimal and sub-optimal inhalation profiles. Our results indicate that while MDIs alone require precise coordination, the addition of a VHC (AeroChamber Plus Flow-Vu) maintains high intrathoracic deposition and significantly minimizes oropharyngeal deposition, even with inhalation delays. Furthermore, the MDI/VHC combination demonstrated superior lung delivery compared to other tested VHCs and DPIs. Notably, the MDI/VHC system exhibited greater consistency across varying flow rates, whereas the DPIs tested showed higher sensitivity to sub-optimal maneuvers. Using FRI as tool for comparative inhaler assessment these results suggest that MDIs with appropriate VHCs provide the most consistent medication delivery for obstructive airway diseases.

Conflict of interest statement

Declarations. Competing interests: MN and JS are employed by one of the devices mentioned in the manuscript.

- 20 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

2

Eur Respir J

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. 2026 May 1:2501570.

doi: 10.1183/13993003.01570-2025. Online ahead of print.

Distribution of Blood Eosinophil Count in the Chinese General Population

Peiji Yao [1 2], Lan Yang [1 2], Dan Liu [1], Dongyu He [1], Lei Li [1 3], Yifei Lin [4 3], Jin Huang [4 3], Weimin Li [5 6 7 8 9 3]

Affiliations Expand

- PMID: 42067210

- DOI: 10.1183/13993003.01570-2025

Abstract

Background: Current clinical assessments of blood eosinophil (EOS) count often overlook demographic variability, particularly in Asian populations, where large-scale data remain scarce. We aimed to define demographic-specific distributions of EOS counts and identify factors associated with elevated levels in the general Chinese population.

Methods: Using the large-scale Chinese health-check population dataset comprising over 680 000 participants (2010-2023), we conducted a cross-sectional study to characterize overall and demographic-stratified distributions of blood eosinophil counts and construct age- and sex-specific percentile curves. We then applied multivariable regression to quantify associations between EOS counts and selected respiratory and systemic conditions, adjusting for key demographic and clinical covariates. Robustness was evaluated through sensitivity analyses.

Results: EOS counts showed a right-skewed distribution (median 100 cells·μL^{-1}, IQR 60-170) and were consistently higher in males than females (120 [80-200] *versus* 90 [50-140]). Age- and sex-specific centile curves defined population-based reference ranges and demonstrated a U-shaped trajectory across age. In multivariable analyses, higher EOS counts were associated with male sex, age <20

or ≥70, smoking, and higher BMI. EOS counts were positively associated with major respiratory conditions, including asthma and COPD, as well as selected systemic comorbidities (all *P*_Bonferroni <0.05). Findings were robust in sensitivity analyses.

Conclusions: In this large Chinese health-check population, blood eosinophil counts showed substantial demographic heterogeneity. These findings support age- and sex-stratified reference ranges and may inform more context-specific thresholds for eosinophilia in clinical practice.

Full text links

Cite

3

Editorial

Br J Gen Pract

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. 2026 Apr 30;76(766):199-201.

doi: 10.3399/BJGP.2025.0629. Print 2026 May 1.

The 2024 UK asthma guidelines: considerations for patients with asthma not responding to maintenance and reliever therapy

Liam G Heaney [1], Dominick Shaw [2], Paul Pfeffer [3], Ian Pavord [4]

Affiliations Expand

- **PMID: 42062082**

- **DOI: 10.3399/BJGP.2025.0629**

No abstract available

Supplementary info

Publication typesExpand

Full text links

Cite

4

Chest

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. 2026 Apr 28:S0012-3692(26)00563-5.

doi: 10.1016/j.chest.2026.04.019. Online ahead of print.

Eosinophil Counts in Adults with Asthma Treated with Anti-IL-4Rα Rademikibart: Exploratory Analyses in a Randomized Trial

Michael E Wechsler [1], Barry Quart [2], Raúl Collazo [3]

Affiliations Expand

- PMID: 42061700

- DOI: 10.1016/j.chest.2026.04.019

Abstract

Background: Eosinophil counts increased with IL-4Rα inhibition in Phase 3 trials. Rademikibart, a next-generation IL-4Rα inhibitor, resulted in rapid lung function improvements, sustained across 24 weeks of treatment, in adults with uncontrolled moderate-to-severe asthma during the CBP-201-WW002 Phase 2b trial.

Research question: To investigate whether hypereosinophilia is a class (IL-4Rα inhibitor) effect, we analyzed eosinophil counts during treatment with rademikibart.

Study design and methods: As in previous Phase 3 trials of anti-IL-4Rα therapy, patients with eosinophil counts >1500 cells/μL at screening were excluded from this Phase 2b trial of rademikibart. Blood eosinophil counts were analyzed in 322 patients randomized to rademikibart 150 mg or 300 mg every two weeks (following a 600-mg loading dose) versus placebo. The study comprised of 24-week treatment and 8-week follow-up periods.

Results: In rademikibart 150 mg, 300 mg, and placebo groups, respectively, mean eosinophil counts (268, 320, and 299 cells/μL at baseline) changed by -8, -25, and 2 cells/μL at Week 12 and by -30, -97, and -23 cells/μL at Week 24. In a post hoc analysis of patients with ≥500 cells/μL at baseline, >1500 cells/μL were experienced by 10.0% (n = 3) of rademikibart-treated patients vs 18.8% (n = 3) with placebo. In patients with <500 cells/μL at baseline, >1500 cells/μL were experienced by 1.1% (n

= 2) of rademikibart-treated patients vs 1.1% (n = 1) with placebo. One patient experienced >3000 cells/μL, during off-treatment follow-up (rademikibart 150 mg group). Two patients (rademikibart 300 mg group) experienced non-serious Grade 1 treatment-emergent adverse events (TEAEs) of 'eosinophil count increased' (n = 2) and 'eosinophil percentage increased' (n = 1). No clear differences occurred in infection or cardiovascular TEAEs per treatment group.

Interpretation: Exploratory analyses suggest that rademikibart therapy may not result in hypereosinophilia, although larger confirmatory analyses are required.

Clinical trial registration: ClinicalTrials.gov, NCT04773678.

Keywords: IL-4Rα; asthma; eosinophils; rademikibart; type 2 inflammation.

Supplementary info

Associated dataExpand

Full text links

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5

Review

World Allergy Organ J

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. 2026 Apr 20;19(5):101383.

doi: 10.1016/j.waojou.2026.101383. eCollection 2026 May.

Clinical remission in allergy and clinical immunology practice: State of the art and World Allergy Organization (WAO) call to action

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Affiliations Expand

- PMID: 42058161

- PMCID: PMC13122681

- DOI: 10.1016/j.waojou.2026.101383

Abstract

Recent advances in biological therapies, small molecules and allergen-specific immunotherapy are reshaping the management of immunoallergic diseases, progressively shifting therapeutic goals from short-term disease control toward the possibility of achieving sustained clinical remission. Despite increasing evidence across multiple conditions, a universally accepted and disease-transversal definition of clinical remission (CR) remains lacking. In this review we propose a comprehensive framework for defining clinical remission across a broad spectrum of immune-mediated diseases traditionally managed in Allergy and Clinical Immunology practice, including asthma, allergic rhinitis, chronic rhinosinusitis with nasal polyps, chronic urticaria, atopic dermatitis, mastocytosis, food allergy, and eosinophilic esophagitis. Clinical remission is defined as a sustained state of absence of clinically relevant disease manifestations, independently of underlying biological activity; suppression of inflammatory pathways and normalization of biomarkers define biological remission, which may coexist with, but is not required for, clinical remission. We introduce the 3D-CR model, a pragmatic, disease-adaptable framework integrating 3 complementary domains - clinical, biological, and functional - to characterize remission states as complete, partial, or absent. Building on this model, we propose the Allergic Disease Remission Score (ADReS) as a modular tool designed to support standardized assessment, longitudinal follow-up, and cross-disease comparison in clinical trials and real-world settings. These tools are intended as conceptual and research instruments rather than prescriptive algorithms for individual therapeutic decision-making. Finally, we outline a World Allergy Organization call to action advocating for a harmonized global approach to defining, measuring, and implementing clinical remission as a meaningful treatment target. Establishing standardized remission endpoints has the potential to improve patient outcomes, facilitate precision medicine strategies, enhance comparability across studies, and reduce heterogeneity in clinical research and practice worldwide.

Keywords: Allergic diseases; Biological therapy; Precision medicine; Remission; Treatment outcome; Type 2 inflammation; World allergy organization.

- 109 references
- 1 figure

Supplementary info

Publication typesExpand

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Cite

6

Thorax

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. 2026 Apr 29:thorax-2025-224686.

doi: 10.1136/thorax-2025-224686. Online ahead of print.

Trends in asthma-related paediatric mortality

Isabel J Hardee [1], Michael C Monuteaux [2], Robert M Hoffmann [2], Alexander W Hirsch [2], Susan Lipsett [2], Kyle A Nelson [2], Mark Neuman [2]

Affiliations Expand

- PMID: 42055910

- DOI: 10.1136/thorax-2025-224686

Abstract

Asthma is a leading cause of paediatric mortality. This study aims to elucidate trends in paediatric mortality over time. Using US Centers for Disease Control (CDC) WONDER data, we conducted a cross-sectional analysis of paediatric asthma-related mortality between 1999 and 2023, overall and stratified by year, age, sex, race and region. Negative binomial regression was used to test the linear temporal trend and conduct group comparisons in asthma-related mortality rates. Over the study period, there were 5357 asthma deaths. The mortality rate was 3 per 1 000 000 children and rates remained stable over this period. Asthma mortality was higher in males, children 10-19 years (compared to children 5-9 years) and black (relative to white) children. Advances in the treatment of paediatric asthma should be aimed at reducing mortality and addressing differential health outcomes among black children.

Keywords: Asthma; Asthma Epidemiology; Child; Mortality; Paediatric Physician; Paediatric asthma.

Conflict of interest statement

Competing interests: None declared.

Full text links

Proceed to details

Cite

7

Review

Allergol Int

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. 2026 Apr 28:S1323-8930(26)00044-4.

doi: 10.1016/j.alit.2026.04.001. Online ahead of print.

Update in childhood asthma

Andrew Bush [1]

Affiliations Expand

- PMID: 42055854

- DOI: 10.1016/j.alit.2026.04.001

Free article

Abstract

The areas covered represent a personal selection in the field. Asthma is defined in this manuscript as a clinical syndrome of wheeze, breathlessness and chest tightness, sometimes with excess cough. No assumptions are made about underlying pathology, and asthma thus becomes a clinical description, not a diagnosis. The areas covered include the need never to forget the importance of getting the basics right, including correct diagnosis and appropriate management; most children with asthma do not need biologics. Recent advances in preschool wheeze are covered next, especially the beginnings of phenotype-driven treatment,

and the difficult issue of understanding non-eosinophilic wheezing. It is becoming clearer that infection likely plays a big role, but management is very difficult with no evidence base. We are now coming to realize the importance of phenotyping acute asthma attacks; one size does not fit all, but whereas many are eosinophilic, some are infection driven and are non-eosinophilic, especially in the preschool years. A phenotypic approach may allow us to reduce the burden of repeated oral corticosteroid bursts. Furthermore, we need to move beyond mere cell counting to assessing functional status. We are increasingly appreciating the importance of replacing short-acting β-2 agonist reliever therapy with combined inhaled corticosteroid and a fast acting short- and especially long-acting β-2 agonists. Finally, the use of biologicals in severe asthma is discussed. The possibility that early use of biologics may induce remission or even cure asthma.

Keywords: Asthma attack; Eosinophil; Exhaled nitric oxide; Prednisolone; Preschool wheeze.

Conflict of interest statement

Conflict of interest The author has no conflict of interest to declare.

Supplementary info

Publication typesExpand

Full text links

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Cite

8

Review

Eur Respir Rev

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. 2026 Apr 29;35(180):250293.

doi: 10.1183/16000617.0293-2025. Print 2026 Apr.

Oscillometry for the diagnosis of asthma in children: a systematic review

Senali Y Seneviratne [1 2], Saxon Law-Gleen [1], Jonathan Broomfield [1 3], Pip Divall [4], Pooja Devani [1], Francine M Ducharme [5 6], Erol A Gaillard [7 4 6]

Affiliations Expand

- PMID: 42055592

- PMCID: PMC13126124

- DOI: 10.1183/16000617.0293-2025

Abstract

Background: Diagnosing asthma in children and young people (CYP) remains challenging. Oscillometry is a promising tool and is feasible from 2 years of age. European Respiratory Society (ERS) technical standards and bronchodilator response (BDR) oscillometry thresholds have been published, but diagnostic accuracy is not established.

Methods: We systematically reviewed studies comparing oscillometry and spirometry in CYP under investigation for asthma. Reference standards were positive BDR or positive methacholine challenge test (MCT). Primary aims were to investigate the sensitivity and specificity of current ERS oscillometry thresholds (>40% decrease in resistance at 5 Hz (R_5), >50% increase in reactance at 5 Hz (X_5) or >80% decrease in the area under the reactance curve); secondary aims were to identify oscillometry threshold values optimising both sensitivity and specificity.

Results: 11 studies were included; six (n=992 CYP) utilised BDR and five (n=531 CYP) MCT as reference standard. Meta-analysis was not possible due to heterogeneity of results reported. In two studies using current ERS BDR thresholds, zero sensitivity and high specificity (>85%) were observed. In weighted regression analyses of BDR studies, a 17.0% decrease in resistance at 5-6 Hz had sensitivity and specificity of 71.6% (95% CI 69.7-73.7%); a 20.2% increase in X_5 had sensitivity and specificity of 68.6% (95% CI 66.6-70.8%). Similarly, 27.7% increase in R_5 had sensitivity and specificity of 73.6% (95% CI 71.9-75.3%) for MCT.

Conclusion: Currently recommended ERS thresholds for oscillometry BDR have low sensitivity. Proposed thresholds for defining positive BDR and MCT by oscillometry require prospective validation and adoption of standards for measuring and reporting oscillometry parameters in future diagnostic comparative studies.

Conflict of interest statement

Conflict of interest: S.Y. Seneviratne, S. Law–Gleen, J. Broomfield, P. Divall and P. Devani have nothing to disclose. F.M. Ducharme reports grants from Medteq and Thorasys. E.A. Gaillard reports payment or honoraria for lectures, presentations, manuscript writing or educational events from Thorasys.

- 56 references

- 3 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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9

Allergy Asthma Proc

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. 2026 May 1;47(3):e24-e35.

doi: 10.2500/aap.2026.47.260016.

Follow-up after discontinuation of omalizumab in patients with moderate-to-severe asthma: A systematic review

Qiu-Li Yan [1], Li-Yuan Zhang [2], Wen-Si Niu [1], Jin-Jin Shi [1], Ying-Qing Chen [1], Fang-Yuan Zhang [1], Lei Cheng [2]

Affiliations Expand

- PMID: 42050841

- DOI: 10.2500/aap.2026.47.260016

Abstract

Background: Omalizumab is a well-established add-on therapy for patients with moderate-to-severe asthma. However, there is limited systematic evidence on the long-term outcomes after discontinuation of this treatment. Objective: To address this evidence gap, this review aimed to systematically evaluate the follow-up outcomes in patients with moderate-to-severe asthma after discontinuation of omalizumab treatment. Methods: The research was conducted in accordance with the systematic reviews and meta-analyses guidelines. We systematically searched medical literature data bases from December 2003 to August 2025 for observational studies (prospective or retrospective) on omalizumab discontinuation in moderate-to-severe asthma. Data extraction was conducted on key variables: omalizumab treatment regimens, postdiscontinuation long-term outcomes, asthma control status, relapse risk factors, asthma exacerbation rates, corticosteroid use, and

patterns of omalizumab reinitiation. Results: A total of 11 eligible studies were included in the review. After discontinuation, most patients showed no remarkable changes in forced expiratory volume in 1 second, fractional exhaled nitric oxide level, total immunoglobulin E value, or absolute eosinophil count. Moreover, no obvious deterioration was observed in patient-reported quality of life. These findings confirm the sustained long-term benefits of previous omalizumab add-on therapy because the majority of patients maintained favorable disease control after discontinuation. Subgroup analyses further indicated that asthma exacerbations, when they occurred, predominantly occurred within the first year after discontinuation. Conclusion: This review indicates that, although most patients maintain stable objective indicators after omalizumab discontinuation, a significant proportion are at increased risk for exacerbations, deterioration in asthma control, and increased corticosteroid use, particularly within the first year.

10

Allergy Asthma Proc

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. 2026 May 1;47(3):196-206.

doi: 10.2500/aap.2026.47.260021.

Comorbidity burden in patients with anaphylaxis: A 25-year nationwide population-based matched case-control study

Eli Magen [1], Israel Magen [2], Eugene Merzon [1], Eldad Rahamim [2], Ilan Green [1], Avivit Golan-Cohen [1], Shlomo Vinker [1], Ariel Israel [1]

Affiliations Expand

- **PMID: 42050834**

- **DOI: 10.2500/aap.2026.47.260021**

Abstract

Background: Anaphylaxis is a severe systemic hypersensitivity reaction that occurs in diverse clinical contexts. Its broader comorbidity profile in population-based settings has not been well characterized. Objective: The objective was to evaluate the prevalence and spectrum of comorbid diseases in patients with anaphylaxis compared with matched controls in a nationwide population. Methods: We conducted a retrospective population-based matched case-control study by using electronic health record data from a nationwide health maintenance organization in Israel between 2001 and 2024. Anaphylaxis cases were confirmed by manual chart review according to World Allergy Organization criteria with documented epinephrine treatment. The controls were matched on age, sex, and calendar time, and had no history of anaphylaxis. Baseline comorbidities documented at least 3 months before the index date were analyzed by using conditional logistic regression. Multiple comparisons were addressed by using false discovery rate adjustment. Results: The study included 778 patients with anaphylaxis and 3112 matched controls. The patients with anaphylaxis had a significantly higher prevalence of atopic and allergic diseases, including asthma, allergic rhinitis, allergic conjunctivitis, atopic dermatitis, contact dermatitis, and chronic idiopathic urticaria. The composite atopic disease burden was markedly higher in the anaphylaxis group. Selected immune-mediated and cardiovascular conditions were also more prevalent, although the effect sizes were generally modest and several associations did not remain statistically significant after a multiple-comparison correction. An eliciting allergen was identified in 82.4% of the patients, with drugs as the most frequent triggers, followed by food and insect venom. Idiopathic anaphylaxis accounted for 17.6% of the patients. Baseline medication utilization was higher among the patients with anaphylaxis, particularly for allergic, respiratory, and gastrointestinal therapies. Conclusion: In this nationwide adult cohort, individuals with anaphylaxis demonstrated a higher prevalence of atopic disease and modest differences in selected systemic comorbidities compared with matched controls. These findings describe epidemiologic associations and do not imply causality. Further prospective studies are warranted.

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Observational Study

PLoS One

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. 2026 Apr 28;21(4):e0343757.

doi: 10.1371/journal.pone.0343757. eCollection 2026.

Determinants of clinical severity in children with sickle cell disease and confirmed asthma

Gabriel Bafunyembaka [1 2], Mathieu Nacher [3], Ariel Makembi [4], Nadia Nathan [5], Narcisse Elenga [6]

Affiliations Expand

• PMID: 42048365

• PMCID: PMC13124003

• DOI: 10.1371/journal.pone.0343757

Abstract

Background: Asthma is a frequent comorbidity in children with sickle cell disease and has been associated with an increased risk of acute complications, particularly vaso-occlusive crises and acute chest syndrome. However, determinants of clinical severity among children with sickle cell disease and confirmed asthma remain poorly characterized, especially in tropical settings. This study aimed to identify factors associated with clinical severity in this population.

Methods: We conducted an observational study among children with sickle cell disease followed in French Guiana. The analysis was restricted to children with confirmed asthma. Clinical severity was defined as the occurrence of at least two hospitalizations during the 12 months preceding evaluation for vaso-occlusive crises and/or acute chest syndrome. Factors associated with severity were assessed using univariate and multivariate logistic regression analyses.

Results: A total of 138 children with sickle cell disease and confirmed asthma were included, of whom 102 (73.9%) presented a severe clinical form. In multivariate analysis, no variable was independently associated with clinical severity. However, a trend toward an increased risk of severe disease was observed among children living in rural areas (adjusted OR = 1.94; 95% CI: 0.77-4.86), while a trend toward a protective effect was observed for Strongyloides stercoralis infection (adjusted OR = 0.18; 95% CI: 0.02-1.51). Allergic sensitization, although frequent (64.5%), was not associated with clinical severity after adjustment (adjusted OR = 0.66; 95% CI: 0.31-1.44).

Conclusion: Among children with sickle cell disease and confirmed asthma, more than one third experience severe clinical disease. No independent predictors of severity were identified. Observed trends should be interpreted cautiously and considered exploratory. These findings support a stratified approach to sickle cell-

associated asthma to identify high-risk children and prevent avoidable acute complications.

Conflict of interest statement

The authors declare that they have no conflicts of interest.

- **31 references**
- **1 figure**

Supplementary info

Publication types, MeSH termsExpand

Full text links

Cite

12

Respiration

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. 2026 Apr 28:1-18.

doi: 10.1159/000552098. Online ahead of print.

Severe Asthma in Women: Clinical Characteristics and Pharmacological Implications for tailored management

Elena Villamañán, Carlos Carpio, Daniel Laorden, Laura Carrasco, David Romero, Javier Domínguez-Ortega, Leticia de Las Vecillas, Carmen Sobrino, Jose Antonio Guerra, Luis Gallego, Susana de Andrés, Magdalena Lluch, Alicia Herrero, Santiago Quirce, Rodolfo Álvarez-Sala

- **PMID: 42048306**
- **DOI: 10.1159/000552098**

Free article

Abstract

Background: Sex-specific differences in severe asthma-particularly those affecting women-remain underexplored, despite their potential impact on disease management and outcomes. A better understanding of these differences is key to advancing personalized and equitable care. Multiple population based cohorts have reported a higher prevalence of asthma in adult women than in men, underscoring the clinical relevance of sex based differences.

Objective: To describe and compare sex-based clinical and pharmacological profiles among patients with severe asthma managed at a Severe Asthma Clinic (SAC) in a tertiary hospital in Spain.

Methods: This retrospective cohort study included adult patients with severe asthma followed at the SAC in 2024. Clinical variables (comorbidities, pulmonary function, biomarkers, asthma control) and pharmacological variables (inhaled therapy prescriptions and adherence, rescue overuse, oral corticosteroid use, biologics, and comorbidity-related treatments) were analyzed using electronic health and pharmacy records.

Results: A total of 223 patients were included (157 women, 66 men). Women showed significantly poorer asthma control (ACT 18.3 vs. 21.5, $p < 0.05$), lower FENO and IgE levels ($p < 0.05$), and higher rates of depression/anxiety (18.5% vs. 6.1%, $p = 0.012$). Pulmonary function tests revealed higher FVC but lower FEV_1/FVC ratios in women ($p < 0.05$). Poor adherence to inhaled therapies (26.0% vs. 15.4%, $p < 0.05$) and intranasal corticosteroids (59% vs. 34.6%, $p = 0.038$), as well as higher oral corticosteroid use (20.6% vs. 15.1%, $p = 0.031$), were more frequent in women. Biologic prescription rates and rescue inhaler overuse were similar between sexes.

Conclusions: Women with severe asthma exhibit distinct clinical and pharmacological profiles that warrant sex-specific approaches to improve disease management and outcomes.

Full text links

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Cite

13

Respir Res

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. 2026 Apr 27.

doi: 10.1186/s12931-026-03691-6. Online ahead of print.

Unsupervised comprehensive CT imaging clusters reveal distinct morphological phenotypes in asthma: insights from two prospective cohorts

Yusuke Hayashi [1], Naoya Tanabe [2 3], Atsuyasu Sato [1], Tsunahiko Hirano [4], Hiroshi Iwamoto [5], Tomoki Maetani [1], Yusuke Shiraishi [1], Ryo Sakamoto [6], Hironobu Sunadome [1], Ayumi Fukatsu-Chikumoto [4], Toshihito Otani [5], Naoko Higaki [5], Yoshihiro Amano [7], Tamio Okimoto [7], Mayuka Yamane [8], Akihito Yokoyama [8], Hiroshi Date [9], Susumu Sato [1 10], Noboru Hattori [5], Kazuto Matsunaga [4], Toyohiro Hirai [1]

Affiliations Expand

- PMID: 42046063

- DOI: 10.1186/s12931-026-03691-6

Free article

No abstract available

Keywords: Airway dilatation; Airway remodeling; Asthma; Cluster analysis; Computed tomography; Imaging; Phenotype.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Ethics Committee of Kyoto University Hospital (No. R2911-3, R4917, R1660-7) in accordance with the Declaration of Helsinki. Written informed consent was obtained from all patients with asthma but waived for healthy controls due to the retrospective design. Consent for publication: Not applicable. Competing interests: Naoya Tanabe and Toyohiro Hirai received research grants from Daiichi Sankyo and Fujifilm Co. Ltd. outside the submitted work. Susumu Sato received grants from Nippon Boehringer Ingelheim, Philips-Respironics, Fukuda Denshi, Fukuda Lifetec Keiji, and ResMed outside of the submitted work. None of these companies played a role in the design or analysis of the study or writing of the manuscript. The remaining authors have no conflicts of interest to declare.

Ital J Pediatr

. 2026 Apr 27.

doi: 10.1186/s13052-026-02219-4. Online ahead of print.

Evidence-based clinical recommendations on the use of telemedicine for the management of children, adolescents and young adults with moderate-severe asthma

Giulia Brigadoi [#1], Daniele Donà [#2], Giovanni Boscarino [#3], Marco Masetti [#3], Rachele Antignani [4], Elisa Barbieri [2], Elisabetta Bignamini [5], Beatrice Campana [3], Fabio Capello [6], Loretta Carturan [7], Alessia Ciardelli [8], Alessia Colombo [9], Renato Cutrera [10], Dario Galante [11], Antonio Guarini [12], Emanuela Malorgio [13], Anna Mandelli [14], Anna Maria Moretti [15], Niccolò Parri [16], Sara Sablone [17], Nora Terrasini [18], Mariangela Tosca [19], Stefania La Grutta [20], Susanna Esposito [3]; Pediatric Telemedicine Working Group

Affiliations Expand

- PMID: 42045978

- DOI: 10.1186/s13052-026-02219-4

Free article

No abstract available

Keywords: Adolescent; Asthma; Children; Innovation technologies; Telemedicine; Young adult.

Conflict of interest statement

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

Supplementary info

Publication typesExpand

Full text links

Cite

15

Multicenter Study

Lung

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. 2026 Apr 27;204(1):25.

doi: 10.1007/s00408-026-00874-2.

High Serum IgE is Associated with Risk of Severe Exacerbations Among Non-Eosinophilic Bronchiectasis

Ting-Wei Kao [1], Ya-Hui Wang [2], Chia-Ling Chang [3], Chau-Chyun Sheu [4 5], Ping-Huai Wang [6], Meng-Heng Hsieh [7 8], Wu-Huei Hsu [9 10 11], Ming-Tsung Chen [12], Wei-Fan Ou [13], Yu-Feng Wei [14 15], Tsung-Ming Yang [16], Chou-Chin Lan [17], Cheng-Yi Wang [18], Chih-Bin Lin [19 20], Ming-Shian Lin [21], Yao-Tung Wang [22 23], Ching-Hsiung Lin [24 25 26], Shih-Feng Liu [8 27 28], Meng-Hsuan Cheng [4 29], Yen-Fu Chen [30 31], Wen-Chien Cheng [9 11], Chung-Kan Peng [12 32], Ming-Cheng Chan [33 34], Ching-Yi Chen [35], Lun-Yu Jao [20], Chi-Jui Chen [19], Shih-Pin Chen [22 23], Yi-Hsuan Tsai [27 36], Shih-Lung Cheng [6], Horng-Chyuan Lin [7 8 37], Jung-Yien Chien [1], Hao-Chien Wang [1 37 38]; Taiwan Bronchiectasis Research Collaboration (TBARC)

Affiliations Expand

- PMID: 42045520

- PMCID: PMC13121277

- DOI: 10.1007/s00408-026-00874-2

Abstract

Purpose: Bronchiectasis has traditionally been characterized as a neutrophil-driven disease, yet emerging evidence suggested inflammatory heterogeneities. The prognostic significance of elevated serum immunoglobulin E (IgE) in patients without peripheral eosinophilia remains unclear.

Methods: We conducted a multicenter prospective cohort study between 2017 and 2020 across 16 institutions in Taiwan. Individuals with bronchiectasis but without allergic bronchopulmonary aspergillosis were included. Patients were stratified by baseline absolute eosinophil count (cutoff 300 /uL) and serum IgE level (≤ 100, 100-500, > 500 IU/mL). The primary endpoint was severe exacerbations resulting in

hospitalization at one year. Secondary endpoints included all-cause mortality, distribution of sputum pathogen, imaging pattern, and lung function.

Results: A total of 579 individuals were enrolled. Nontuberculous mycobacteria (10.7%) and Pseudomonas aeruginosa (9.0%) were the most commonly isolated microorganisms in sputum. 493 patients (85.1%) were categorized as low-eosinophil bronchiectasis, and 41 (7.1%) presented serum IgE levels exceeding 500 IU/mL. The rate of hospitalization for acute exacerbation in such group was pronouncedly higher than in patients with lower IgE levels (9.8% vs. 0.9% and 2.3%; P = 0.009). In multivariate analysis, IgE exceeding 500 IU/mL was the strongest independent predictor of hospitalization (adjusted odds ratio, 7.38; 95% confidence interval, 2.40-22.7; P < 0.001). The association was particularly pronounced in female and patients with coexisting asthma. All-cause mortality did not differ significantly among IgE strata.

Conclusion: Markedly elevated serum IgE independently predicted severe exacerbations resulting in hospitalization in patients with non-eosinophilic bronchiectasis, identifying a high-risk subgroup that may benefit from targeted immunomodulatory therapies.

Keywords: Bronchiectasis; Eosinophilic; Exacerbation; Immunoglobulin E; Type 2 inflammation.

Conflict of interest statement

Declarations. Competing interests: All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript. Ethical approval: This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by Research Ethics Committee C of the National Taiwan University Hospital (No. 202110079RINC). Consent to participate: Informed consent was obtained from all individual participants included in the study. Consent to publish: Not applicable.

- 31 references
- 4 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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16

Lancet Public Health

. 2026 May;11(5):e280-e292.

doi: 10.1016/S2468-2667(26)00052-6.

Progression of multiple long-term conditions (multimorbidity) in England: a population-based descriptive study of 49·6 million adults

Eirion Slade [1], Ellie Bragan Turner [2], Adrian Pratt [3], Rupert Dunbar-Rees [2], Nasrin Hafezparast [2], Emma Barron [4], Chirag Bakhai [5], Gary Wainman [6], Nina Robery [2], Anju Paul [3], Kamil Barczak [3], Edward Gregg [7], Kamlesh Khunti [8], Jonathan Valabhji [4]

Affiliations Expand

- PMID: 42020088

- DOI: 10.1016/S2468-2667(26)00052-6

Free article

Abstract

Background: Incidence of multiple long-term conditions (MLTCs), or multimorbidity, is inconsistently defined and infrequently reported at whole-population level. We aimed to measure the MLTC incidence and progression rates, examining the interaction between ethnicity and socioeconomic deprivation, using routinely collected health-care data covering the adult population of England, UK.

Methods: Using the National Segmentation Dataset, we measured incidence of 28 long-term conditions, that align with the Delphi consensus for the definition of MLTCs in research, among adults aged 20 years and older in England between April 1, 2022, and March 31, 2023. We defined MLTC progression rate as the incidence of events in which disease burden progresses through the acquisition of one or more long-term conditions. We measured this over a longer 6-year period, identifying adults aged 20 years and older acquiring their first or second long-term condition between April 1, 2017, and March 31, 2018, and measuring the MLTC progression rate to March 31, 2023. Cox proportional hazard regression was used to examine sociodemographic associations.

Findings: Among 49·6 million adults between April 1, 2022, and March 31, 2023, conditions occurring as a first condition with the highest incidence were depression (1088 [95% CI 1085-1092] cases per 100 000 person-years), hypertension (885 [882-888]), cancer (525 [522-528]), diabetes (464 [462-466]), asthma (440 [438-443]), osteoarthritis (394 [392-396]), coronary heart disease (252 [250-254]), and cerebrovascular disease (196 [194-197]). These accounted for 78·5% of all first conditions. Of 1 092 728 people acquiring their first and 535 661 their second conditions between April 1, 2017, and March 31, 2018, median follow-up time was 5·16 years (IQR 2·58-5·50) and 4·41 years (IQR 1·33-5·41), respectively. Progression

rate per 100 person-years was 8·56 (95% CI 8·53-8·58) from one condition to two or more conditions and 13·60 (13·55-13·65) from two conditions to three or more conditions. Among those aged 40-49 years at baseline, the progression rate from two to three or more conditions (9·48 [9·36-9·60]) was 46% higher than one to two or more conditions (6·48 [6·42-6·53]). Proportional hazards models showed progression from one to two or more conditions was highest in the most deprived quintile (hazard ratio [HR] 1·37 [1·36-1·39]; p<0·0001 compared with least deprived) and the Black ethnic group (HR 1·19 [1·11-1·29]; p<0·0001 compared with the White ethnic group), and lower in females (HR 0·95 [0·94-0·95]; p<0·0001 compared with males). Negative interaction coefficients between Black ethnicity and most deprived quintile (index of multiple deprivation quintile 1) showed a reduced association between progression and deprivation within the Black ethnic group (HR 0·78 [0·72-0·85]; p<0·0001).

Interpretation: In this whole-population study of adults in England, eight long-term conditions (ie, depression, hypertension, cancer, diabetes, asthma, osteoarthritis, coronary heart disease, and cerebrovascular disease) account for the majority of the first conditions people acquire. The presence of existing conditions is associated with higher MLTC progression rate. Socioeconomic deprivation is strongly associated with progression, apart from in the Black ethnic group in which progression is high across all intersectional ethnicity and deprivation subgroups, highlighting the importance of intersectional approaches in public health policy and research.

Funding: None.

Conflict of interest statement

Declaration of interests ES, EBT, RD-R, NH, and NR are employed by Outcomes Based Healthcare (OBH), which receives funding from National Health Service (NHS) organisations (including NHS England) for providing analytical services. RD-R and NH were co-founders and shareholders of OBH until June, 2024. EBT and NR were employee share options holders of OBH until June, 2024. KK has acted as a consultant, acted as a speaker, or received grants for investigator-initiated studies for AstraZeneca, Boehringer Ingelheim, Lilly, MSD, Novo Nordisk, Sanofi, Servier, Oramed Pharmaceuticals, Roche, Daiichi-Sankyo, Applied Therapeutics, Amgen, Bristol Myers Squibb, Pfizer, Embecta, and Nestle Health Science. CB is a clinical advisor for NHS England and lead for long-term conditions at NHS Bedfordshire Luton and Milton Keynes Integrated Care Board. JV is the National Specialty Advisor for multiple long-term conditions at NHS England, was the National Clinical Director for diabetes and obesity at NHS England from April, 2013, to September, 2023, and was an International Advisor for the Ministry of Public Health in Qatar's Diabetes, Obesity and Atherosclerotic Cardiovascular Disease Strategy 2024 to 2030 for a 3-month period in 2024.

Supplementary info

MeSH termsExpand

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J Allergy Clin Immunol Glob

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Dog exposure and subsequent asthma outcomes in children with asthma and allergy

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Affiliations Expand

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- PMCID: PMC13091991
- DOI: 10.1016/j.jacig.2026.100692

Abstract

Background: While early-life dog exposure and its association with subsequent asthma is well studied, less is known about the impact of continuous or discontinued exposure on asthma outcomes in children with established asthma and allergy.

Objectives: We sought to estimate the association between dog exposure and long-term asthma outcomes.

Methods: A cohort study was conducted using Swedish national registers, following 99,389 children aged 3-16 years at asthma and allergy diagnosis until age 19, emigration, death, or year 2023. Dog exposure was categorized as "continuous" (parental dog ownership at diagnosis and throughout follow-up), "discontinued" (ownership ceased sometime after diagnosis), and "no exposure." Outcomes included moderate-to-severe asthma (defined by treatment steps) at 2-, 4-, and 6-year follow-up and asthma exacerbation (emergency visits and high short-acting β-2 agonist use) throughout follow-up.

Results: In the cohort (median age 6.6 years; 41% female), 12.8% had continuous exposure and 1.2% had discontinued exposure. Compared to nonexposed, no association between continuous exposure and moderate-to-severe asthma was observed (adjusted odds ratio at 2-year follow-up: 1.00; 95% CI: 0.94-1.07); discontinued exposure showed similar result (adjusted odds ratio: 1.07; 95% CI: 0.93-1.23). However, both exposure groups had increased risk of exacerbations (continuous exposure: adjusted hazard ratio: 1.17; 95% CI: 1.06-1.29; and discontinued: hazard ratio: 1.52; 95% CI: 1.15-2.00), with no significant difference between the groups.

Conclusion: In children with established asthma and allergy, continuous dog exposure does not seem to increase the risk of moderate-to-severe asthma, but it is associated with a modest increased risk of exacerbations. Discontinued exposure does not appear to improve asthma outcomes at the population level.

Keywords: Asthma; allergic asthma; allergy; asthma exacerbation; asthma severity; dog; dog exposure.

Conflict of interest statement

This work was supported by the 10.13039/501100004359Swedish Research Council (grant 2023-02327), the 10.13039/501100003793Swedish Heart-Lung Foundation (grant 20240974), the Swedish Asthma and Allergy Association Research Fund (grant 2024-0010), as well as grants provided by Region Stockholm (ALF project RS2022-0674), the Strategic Research Program in Epidemiology at Karolinska Institutet, and the Foundation Frimurare Barnhuset in Stockholm. The funder had no role in the design, data collection, data analysis, and reporting of this study. Disclosure of potential conflict of interest: The authors declare that they have no relevant conflicts of interest.

- **38 references**
- **2 figures**

Full text links

18

Randomized Controlled Trial

Respir Med

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. 2026 May:256:108814.

doi: 10.1016/j.rmed.2026.108814. Epub 2026 Apr 6.

Safety and tolerability of the low global warming potential propellant HFA-152a in patients with asthma receiving beclometasone dipropionate/formoterol fumarate/glycopyrronium: The TRECOS study

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Affiliations Expand

- PMID: 41951188

- DOI: 10.1016/j.rmed.2026.108814

Free article

Abstract

Background: Propellants currently used in pressurised metered-dose inhalers (e.g., HFA-134a) are being replaced by low global warming potential alternatives, including HFA-152a. This study aimed to assess the bronchoconstriction potential and the safety and tolerability of triple combination beclometasone dipropionate/formoterol fumarate/glycopyrronium (BDP/FF/G) HFA-152a pMDI compared to BDP/FF/G HFA-134a pMDI.

Methods: Adults with moderate-to-severe controlled asthma received BDP/FF/G HFA-134a pMDI for a two-week run-in, then were randomised 1:2 to either continue the HFA-134a pMDI formulation or switch to the HFA-152a pMDI formulation, both for 12 weeks. The primary objective was to compare the bronchoconstriction potential of BDP/FF/G HFA-152a vs HFA-134a in terms of the relative change from pre-dose in forced expiratory volume in 1 s (FEV_1) at 10 min post-dose on Day 1. Safety and tolerability assessments included adverse event occurrence.

Results: Of 553 patients randomised to treatment, 539 (97.5%) completed the study (356/368 [96.7%] and 183/185 [98.9%] with the HFA-152a and HFA-134a formulations, respectively). There was no difference between the two groups for the primary endpoint, with an adjusted mean (95% confidence interval) HFA-152a vs HFA-134a difference of -1.143% (-2.769%, 0.483%). A total of 19.3% patients experienced adverse events with the HFA-152a formulation (71/368) compared to 27.6% with the HFA-134a formulation (51/185); most events with both formulations were mild or moderate in severity.

Conclusions: Overall, transitioning to the low global warming potential HFA-152a formulation had no impact on the safety and tolerability of BDP/FF/G, with the positive effect on lung function comparable to the original HFA-134a formulation.

Keywords: Asthma; Bronchoconstriction; Climate change; Formulation; Propellant; Triple therapy.

Conflict of interest statement

Declaration of competing interest In addition to the medical writing support disclosed below, the authors have the following conflicts of interest. Dave Singh received personal fees from Adovate, Aerogen, Almirall, Apogee, Arrowhead, AstraZeneca, Bial, Boehringer Ingelheim, Chiesi, Cipla, CONNECT Biopharm, Covis, CSL Behring, DevPro Biopharma LCC, Elpen, Empirico, EpiEndo, Genentech, Generate Biomedicines, GlaxoSmithKline, Glenmark, Kamada, Kinaset Therapeutics, Kymera, Menarini, MicroA, OM Pharma, Orion, Pieris Pharmaceuticals, Pulmatrix, Revolo, Roivant Sciences, Sanofi, Synairgen, Tetherex, Teva, Theravance Biopharma, Upstream and Verona Pharma, all outside the scope of the current manuscript. Lorenzo Mancini was engaged as a consultant by Chiesi. Giada Melis, Mauro Cortellini, Chiara Rostello and Kusum S Mathews are employees of Chiesi, the sponsor of the study.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

19

Review

Respir Med

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. 2026 May:256:108812.

doi: 10.1016/j.rmed.2026.108812. Epub 2026 Apr 5.

Exploring AI and ML in managing overlap between cardiovascular disease and asthma or COPD: a scoping review

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Affiliations Expand

- PMID: 41941973

- DOI: 10.1016/j.rmed.2026.108812

Free article

Abstract

Cardiovascular disease (CVD) is a major comorbidity in asthma and chronic obstructive pulmonary disease (COPD), yet the contribution of artificial intelligence (AI) and machine learning (ML) to CVD risk assessment and management in these conditions remains insufficiently characterized. This scoping review identified the main original full-text studies applying AI/ML to the overlap between CVD and asthma or COPD for prediction, phenotyping or clinical decision support. Among the eleven identified studies, only one specifically addressed asthma, developing ML-based CVD risk prediction models from electronic health records that achieved good short-term discrimination but lacked external validation. The remaining studies focused on COPD and CVD, employing supervised learning, deep-learning survival analysis, natural language processing, unsupervised clustering and AI-enabled clinical decision support. Across these investigations, COPD and related comorbidities consistently emerged as strong predictors of CVD events, mortality and adverse clinical trajectories. Unsupervised clustering revealed COPD-dominant heart failure phenotypes with particularly poor outcomes, while AI-derived risk models frequently provided superior discrimination and calibration compared with traditional statistical approaches. However, most studies were retrospective, largely reliant on structured data, limited in generalizability and rarely implemented in routine care. Overall, current evidence indicates substantial potential for AI/ML to enhance CVD risk stratification, phenotyping and management in COPD, whereas applications in asthma are strikingly scarce. These findings underscore a critical need for large-scale, prospectively evaluated and clinically integrated AI/ML strategies to improve detection, risk stratification and personalized management of CVD in patients with asthma or COPD.

Keywords: Artificial intelligence; Asthma; COPD; CVD; Comorbidity; Machine learning.

Conflict of interest statement

Declaration of competing interest LC has no conflict of interest to declare. MC has no conflict of interest to declare. EP has no conflict of interest to declare. SG has no conflict of interest to declare. RL has no conflict of interest to declare. PR has no conflict of interest to declare.

Supplementary info

Publication types, MeSH termsExpand

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Cite

20

Clinical Trial

Lancet Respir Med

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. 2026 May;14(5):405-416.

doi: 10.1016/S2213-2600(25)00439-4. Epub 2026 Apr 2.

Rilzabrutinib for patients with moderate-to-severe asthma with uncontrolled symptoms: a double-blind, placebo-controlled, phase 2 study

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Affiliations Expand

- PMID: 41936356

- DOI: 10.1016/S2213-2600(25)00439-4

Abstract

Background: Uncontrolled symptomatic asthma is a substantial challenge for patients despite optimised treatment. Bruton's tyrosine kinase (BTK) plays a key part in immune cell signalling involved in airway inflammation, and its inhibition might improve asthma control. We aimed to explore the effects of BTK inhibition by oral rilzabrutinib on asthma control as well as safety in participants with moderate-to-severe asthma with uncontrolled symptoms.

Methods: This double-blind, placebo-controlled, phase 2 study, which was done at 48 centres across 13 countries, enrolled people aged 18-70 years with physician-diagnosed moderate-to-severe asthma for at least 12 months with uncontrolled symptoms on inhaled glucocorticoids plus a long-acting β_2-adrenergic agonist. In two staggered cohorts, participants were randomly assigned (1:1) to rilzabrutinib 800 mg per day orally or matching placebo (low-dose cohort), and rilzabrutinib 1200 mg per day or matching placebo (high-dose cohort), with background therapy gradually withdrawn by weeks 4-9 and resumed at week 12. The primary endpoint was the proportion of participants with a loss-of-asthma-control (LOAC) event during treatment and was assessed in the modified intention-to-treat population, which included all randomly assigned participants who received at least one dose of study drug. A key secondary endpoint was asthma control assessed by the 5-

item Asthma Control Questionnaire in the modified intention-to-treat population. Safety was assessed in all randomly assigned participants who received at least one dose of study drug. The trial was registered on ClinicalTrials.gov, NCT05104892.

Findings: 310 participants were screened for eligibility, with 196 (122 female and 74 male) randomly assigned in the low-dose cohort between Jan 6, 2022, and Feb 22, 2023 (32 to rilzabrutinib 800 mg per day and 32 to placebo) and randomly assigned in the high-dose cohort between Feb 23 and Nov 14, 2023 (64 to rilzabrutinib 1200 mg per day and 68 to placebo). Over 12 weeks, LOAC events occurred in 12 (38%) participants with rilzabrutinib 800 mg per day versus 16 (50%) with placebo (relative risk reduction 25%; absolute risk difference 12·3%; odds ratio 0·57 [95% CI 0·20-1·61], p=0·29); and 12 (19%) with 1200 mg per day versus 20 (29%) with placebo (relative risk reduction 36%; absolute risk difference 8·8%; 0·58 [0·25-1·35], p=0·21). Asthma control improvements were observed as early as week 2 with rilzabrutinib compared with placebo and sustained up to week 12 without background therapy (least-squares mean difference -0·59 [95% CI -1·07 to -0·10], p=0·018, for the 800 mg per day group; -0·54 [-0·86 to -0·21], p=0·0013, for the 1200 mg per day group). The most frequent adverse event with rilzabrutinib was diarrhoea. No increase in infections was observed with either dose of rilzabrutinib.

Interpretation: BTK inhibition with rilzabrutinib was associated with a numerical decrease in LOAC events that was not statistically significant. However, continued meaningful asthma symptom improvements over 12 weeks were observed, despite background therapy withdrawal, potentially identifying a novel mechanism to treat uncontrolled symptomatic asthma.

Funding: Sanofi.

Conflict of interest statement

Declaration of interests JFM is a speaker, an adviser, or a clinical investigator for Sanofi, GSK, AstraZeneca, Insmed, Inmunotek, Teva, Novartis, and Noucor, and has received research grants from Sanofi, GSK, AstraZeneca, Insmed, Inmunotek, Teva, Novartis, and Noucor. IDP has received speaker's honoraria for speaking at sponsored meetings from AstraZeneca, Aerocrine, Sanofi/Regeneron, Menarini, and GSK; payments for organising educational events from AstraZeneca, GSK, and Sanofi/Regeneron; honoraria for attending advisory panels from Sanofi/Regeneron, AstraZeneca, GSK, Merck, Circassia, Chiesi, and Areteia; and sponsorship to attend international scientific meetings from GSK, AstraZeneca, and Sanofi/Regeneron. MEW has received consulting, advisory, or speaking honoraria from Allakos, Amgen, Areteia Therapeutics, Arrowhead Pharmaceutical, AstraZeneca, Avalo Therapeutics, Celldex, Connect Biopharma, Eli Lilly, Equillium, GSK, Incyte, Kinaset, Kymera, Merck, MyBiometry, Pharming, Phylaxis, Pulmatrix, Rapt Therapeutics, Recludix Pharma, Regeneron, Roche/Genentech, Sanofi/Genzyme, Sentien, Sound Biologics, Tetherex Pharmaceuticals, Uniquity Bio, Upstream Bio, Verona Pharma, and Zurabio. WB is a consultant for GSK, Sanofi, and Regeneron; has received payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events, as well as congress attendance support from GSK, Sanofi, and Regeneron; and receives royalties or licenses from GSK, Sanofi, and

Regeneron. TML has served on scientific advisory boards for GSK, Sanofi-Genzyme, Novartis, Eli Lilly, and Regeneron. RMM has received speaker's honoraria for speaking at sponsored meetings from AstraZeneca, Chiesi, Berlin-Chemie, Novartis, Roche, and MSD, and payments for organising educational events from AstraZeneca, Chiesi, Berlin-Chemie, and Novartis; honoraria for attending advisory panels from AstraZeneca, Chiesi, Novartis, Roche, MSD, and Bristol Myers Squibb; and sponsorship to attend international scientific meetings from AstraZeneca, Chiesi, and Novartis. TL, VM, BTS, JG, LM, and RM are Sanofi employees and may hold stock or stock options in the company.

Supplementary info

Publication types, MeSH terms, Substances, Associated dataExpand

Full text links

Cite

21

Lancet Respir Med

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Rilzabrutinib and the evolving landscape of oral therapies for uncontrolled asthma

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Affiliations Expand

- PMID: 41936355

- DOI: 10.1016/S2213-2600(26)00001-9

No abstract available

Conflict of interest statement

I declare no competing interests.

Full text links

22

Respir Med

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. 2026 May:256:108790.

doi: 10.1016/j.rmed.2026.108790. Epub 2026 Mar 24.

Oscillometry defined small airways dysfunction in patients with severe uncontrolled asthma and preserved spirometry

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Affiliations Expand

- PMID: 41887372

- DOI: 10.1016/j.rmed.2026.108790

Free article

Abstract

Small airways dysfunction (SAD) is an important treatable trait in asthma that is often under-recognised. It can be assessed through spirometry as forced expiratory flow between 25% and 75% of vital capacity however this is limited due to being both effort and volume dependent. Forced oscillometry technique is effort independent and showing to be more sensitive for SAD. We reviewed patients with severe uncontrolled asthma prior to commencing biologic therapy to identify the incidence of abnormal SAD defining values. SAD was identified in 63% of patients. Of the 31 patients with preserved spirometry (normal FEV1 and FEV1/FVC), only 6% had an impaired FEF25-75 while 29% had impaired oscillometry. This result highlights SAD is a common finding in severe uncontrolled asthma and that oscillometry is more sensitive than spirometry at identifying SAD, particularly when spirometry is preserved.

Keywords: Oscillometry; Severe asthma; Small airways dysfunction; Spirometry.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Robert Greig reports a relationship with AstraZeneca UK Limited that

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

Supplementary info

MeSH termsExpand

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23

Case Reports

Am J Ind Med

. 2026 May;69(5):323-334.

doi: 10.1002/ajim.70070. Epub 2026 Mar 17.

Severe Occupational Hypersensitivity Pneumonitis: A Case Series of Four Patients Requiring Lung Transplantation

Ludwig Frei-Stuber [1 2], Judith Mohren [1 2], Ester Mau [1 2], Bernhard Werner [1 2], Rudolf A Hatz [2 3], Jürgen Barton [2 4], Dennis Nowak [1 2]

Affiliations Expand

- PMID: 41845945
- PMCID: PMC13070276
- DOI: 10.1002/ajim.70070

Abstract

Hypersensitivity pneumonitis (HP) is an immune-mediated interstitial lung disease triggered by repeated inhalation of organic or chemical antigens. Occupational exposures account for approximately 19% of all cases. Early diagnosis, identification of the responsible antigen(s), and immediate avoidance of exposure are crucial to prevent irreversible pulmonary fibrosis. However, HP often remains unrecognized or is misclassified as another respiratory disorder such as asthma, chronic obstructive pulmonary disease (COPD), or idiopathic pulmonary fibrosis. As a result, the causal link between symptoms and workplace exposure is frequently established only in advanced disease stages-or not at all. Such delays may result in chronic respiratory failure, occupational disability, prolonged oxygen therapy, and, in severe cases, lung transplantation. We report four patients in whom HP was ultimately recognized as an occupational disease or recommended for legal recognition in court. At the time of diagnosis, all cases had progressed to advanced, fibrotic HP, rendering both primary and secondary prevention impossible. In each instance, earlier identification of the occupational trigger followed by immediate antigen avoidance could likely have prevented the development of irreversible lung damage. This case series underscores the need for early and comprehensive pulmonary assessment, including detailed occupational history-taking, serologic and radiologic evaluation, and prompt referral to an occupational physician when HP is suspected. Close interdisciplinary collaboration between pulmonologists and occupational medicine specialists is essential to reduce diagnostic latency, prevent progression to end-stage lung disease, and improve clinical and socioeconomic outcomes.

Keywords: antigen avoidance; early recognition; extrinsic allergic alveolitis; lung transplantation; occupational diseases; occupational exposure; occupational hypersensitivity pneumonitis; preventive occupational medicine; respiratory insufficiency; work-related interstitial lung disease.

Conflict of interest statement

Jürgen Barton, MD, has received consulting fees from AstraZeneca and Takeda, and honoraria for lectures from AstraZeneca and Vertex. Dennis Nowak, MD, PhD; Bernhard Werner, MD; Ester Mau, MD; Judith Mohren, MPH; and Ludwig Frei-Stuber, MD, have received fees for expert reports and lectures from statutory accident insurance providers and courts.

- **26 references**
- **2 figures**

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

24

J Allergy Clin Immunol Glob

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. 2026 Jan 10;5(3):100641.

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Burden of chronic oral corticosteroids among adults with asthma in the United States

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Affiliations Expand

- **PMID: 41768097**

- **PMCID: PMC12937168**

- **DOI: 10.1016/j.jacig.2026.100641**

Abstract

Background: Up to 60% of patients with severe asthma are prescribed oral corticosteroids (OCS) despite their adverse effects, increased risks of long-term complications, and development of comorbid conditions.

Objective: We aimed to assess the clinical and economic burden of chronic OCS receipt in treating asthma.

Methods: This retrospective study included real-world data from the IQVIA PharMetrics Plus claims database between January 2015 and December 2019. Adult patients with asthma were classified into 3 non-mutually exclusive groups according to definition of OCS receipt: *continuous* (≥10 mg/d taken over 90 days), *cumulative* (≥500 mg taken over 12 months), or *burst* (≥2 bursts taken over 12 months). Patient demographics, OCS-related and other comorbidities, treatment patterns, health care resource utilization (HRU), and costs were described before and after patients met the definition of chronic OCS receipt.

Results: The OCS continuous (≥10 mg/d), cumulative (≥500 mg), and burst (≥2 bursts) groups included 1358, 43,215, and 46,774 patients, respectively. Before OCS receipt, continuous recipients were older and had higher comorbidity burden than cumulative and burst recipients. After OCS receipt, continuous recipients had higher OCS exposure, higher OCS comorbidity rates, higher asthma-related HRU, and higher asthma-related health care costs than cumulative and burst recipients. Respiratory medication receipt and asthma exacerbation rates were similar across groups, both at baseline and after identification of chronic OCS receipt.

Conclusion: Our findings highlight increased OCS-related comorbidity, HRU, and economic burden after chronic OCS receipt among US patients with asthma.

Keywords: Chronic oral corticosteroid use; asthma; clinical and economic burden; oral corticosteroid adverse events; oral corticosteroid treatment pattern; patients with uncontrolled asthma.

Conflict of interest statement

Funded by 10.13039/100004330GSK (GSK 212742; HO-20-19554). GSK was involved at all stages of the study, including study design, data collection, analysis and interpretation, and preparation of the report. Data availability statement: The data that support the findings of this study are available from IQVIA and are not publicly available. Restrictions apply to the availability of these data, which were used under license for the current study. GSK makes available anonymized individual participant data and associated documents from interventional clinical studies that evaluate medicines, on approval of proposals submitted to https://www.gsk-studyregister.com/en/. To access data for other types of GSK sponsored research, for study documents without patient-level data, and for clinical studies not listed, please submit an enquiry via the website. Disclosure of potential conflict of interest:

M. Bogart and C. Averell were employees of GSK at the time of the study and held financial equities in GSK. G. Germain, F. Laliberté, S. D. MacKnight, and M. S. Duh are employees of Analysis Group Inc, a consulting company that received research funds from GSK to conduct this study. B. Modena has received funds from GSK for speaking engagements and participation in advisory boards.

- 21 references
- 5 figures

Full text links

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Cite

25

Otolaryngol Head Neck Surg

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. 2026 May;174(5):1188-1196.

doi: 10.1002/ohn.70176. Epub 2026 Feb 24.

The Association Between Allergic Rhinitis, Eosinophilic Inflammation, and Postoperative Recurrence in Nasal Polyps

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Affiliations Expand

- PMID: 41733103
- PMCID: PMC13126432
- DOI: 10.1002/ohn.70176

Abstract

Objective: Although allergic rhinitis (AR) commonly co-occurs with chronic rhinosinusitis with nasal polyps (CRSwNP), its impact on tissue endotypes and prognosis remains unclear. This study examines the impact of AR on CRSwNP, focusing on its links to tissue eosinophilic inflammation and postoperative recurrence risk.

Study design: Retrospective cohort study.

Setting: Tertiary referral center.

Methods: A retrospective analysis was conducted on CRSwNP patients who underwent functional endoscopic sinus surgery. Based on the presence of comorbid AR, patients were categorized into AR and non-AR groups. Baseline clinical data, peripheral and tissue eosinophil levels, and prognosis were analyzed. Multivariate Cox regression and Kaplan-Meier survival analyses were used to assess associations with postoperative recurrence.

Results: A total of 603 patients with CRSwNP were included; 202 had comorbid AR. Compared with non-AR patients, the AR group had higher rates of prior surgery and asthma and showed increased tissue eosinophil counts and percentages. During follow-up, patients who recurred had a higher prevalence of AR, elevated peripheral and tissue eosinophil levels, more prior surgery, and higher Lund-Mackay scores. Multivariable Cox regression and Kaplan-Meier analysis identified AR as an independent predictor of postoperative recurrence. Moreover, a high tissue eosinophil burden independently associated with recurrence; within the recurrence cohort, AR patients exhibited significantly higher tissue eosinophil counts and percentages than non-AR patients.

Conclusion: Comorbid AR identifies a CRSwNP subgroup with marked tissue eosinophilia and increased risk of postoperative recurrence. It independently predicts earlier relapse and shorter recurrence-free survival, likely by amplifying local eosinophilic inflammation.

Keywords: allergic rhinitis; chronic rhinosinusitis with nasal polyps; eosinophilic inflammation; postoperative recurrence.

Conflict of interest statement

None.

- **40 references**
- **3 figures**

Supplementary info

MeSH terms, Grants and fundingExpand

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Cite

26

Eur Respir J

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. 2026 May 1:2502687.

doi: 10.1183/13993003.02687-2025. Online ahead of print.

Obesity and asthma: obesity causes and aggravates asthma across the entire type-2 inflammation spectrum

Sebastian Riemann [1 2 3], Imke Matthys [4], Tania Maes [5 3], Bruno Lapauw [3 4], Guy Brusselle [5 2 3 6]

Affiliations Expand

- PMID: 41713950

- DOI: 10.1183/13993003.02687-2025

Free article

Abstract

Obesity affects more than 650 million adults worldwide, with prevalence continuing to rise across all age groups and continents. This trend has important implications for asthma: individuals with obesity have a 30-50% higher risk of developing asthma, and obesity is highly prevalent among people with established disease. Mean Body Mass Index (BMI) in clinical trials and registries of adults with asthma consistently ranges from 28-30 $kg \cdot m^{-2}$, with up to 70% of patients being overweight or obese. These numbers highlight obesity as one of the most common comorbidities in asthma, consistently associated with poorer asthma control and a higher risk of exacerbations. Although obesity-associated asthma is often described as Type-2 (T2)-low phenotype, it is increasingly recognized as a heterogeneous condition not restricted to a single phenotype. Excess adiposity influences asthma through multiple mechanisms, including dysregulated adipokine signaling, impaired ILC2-eosinophil-macrophage crosstalk in adipose tissue, systemic low-grade inflammation, metabolic dysfunction, and mechanical effects on lung volumes. This diversity complicates diagnosis, endotyping, and treatment stratification. Obesity should therefore be considered a treatable trait in asthma. Weight reduction - through lifestyle interventions, pharmacotherapy, or bariatric surgery - improves symptoms, lung function, and exacerbation risk across both T2-high and T2-low asthma. Importantly, patients with obesity experience similar reductions in exacerbations with anti-T2 biologics as their lean counterparts, though improvements in symptoms and lung function are variable. Future research should prioritize randomized, placebo-controlled trials evaluating GLP-1 and dual GLP-1/GIP-agonist therapies specifically in patients with asthma and obesity, and elucidate how obesity modifies inflammatory endotypes and treatment responses.

Full text links

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Cite

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Review

Curr Opin Pulm Med

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. 2026 May 1;32(3):239-244.

doi: 10.1097/MCP.0000000000001252. Epub 2026 Feb 11.

Green inhalers: reducing the carbon footprint of asthma care

Alexander J K Wilkinson [1], Laura-Jane E Smith [2], Ashley Woodcock [3]

Affiliations Expand

- PMID: 41670025

- DOI: 10.1097/MCP.0000000000001252

Abstract

Purpose of review: The respiratory community faces an urgent need to reduce the environmental impact of care as the wider climate crisis threatens to worsen airways disease worldwide. Inhalers contribute a disproportionate share of healthcare emissions because of the hydrofluorocarbon (HFC) propellants in pressurized metered-dose inhalers (pMDIs). We already have effective, low-carbon, per- and polyfluoroalkyl substances (non-PFAS) options; particularly dry-powder inhalers (DPIs). This review summarizes recent developments in propellant technology and evidence on optimizing asthma care to improve outcomes while lowering emissions.

Recent findings: Life-cycle studies confirm that pMDI emissions are dominated by propellant released during use, whereas DPIs have far lower footprints. New global warming potential (low-GWP) propellants are in advanced development, and the first inhaler using HFO-1234ze(E) has recently been licensed in the UK. Emerging clinical and prescribing data show that optimized therapy, particularly strategies that

incorporate low-carbon inhalers, can reduce short-acting beta-agonist (SABA) over-reliance, exacerbations, and per-patient emissions. Guideline-driven, health-system approaches using prescribing data and formulary design can accelerate sustainable, evidence-based inhaler use.

Summary: The most immediate path to reducing inhaler-related emissions is to optimize asthma care while prioritizing low-carbon devices where appropriate. As low-GWP pMDIs enter the market, careful planning will be needed to ensure reliable, affordable access to pMDIs is maintained or improved globally, particularly in low- and middle-income countries.

Keywords: asthma; carbon footprint; inhalers; propellants; sustainable prescribing.

- **32 references**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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28

Review

Curr Opin Pulm Med

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. 2026 May 1;32(3):203-209.

doi: 10.1097/MCP.0000000000001254. Epub 2026 Feb 10.

Corticosteroid stewardship in asthma: from individual prescribers to system-level change

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Affiliations Expand

- **PMID: 41664503**

- DOI: 10.1097/MCP.0000000000001254

Abstract

Purpose of review: In this review, we discuss the under-recognition of harms associated with corticosteroid overuse in asthma and highlight the concept of corticosteroid stewardship as an approach to address these harms.

Recent findings: Adverse health effects of chronic systemic steroids to treat asthma are well known in the medical community. There is less familiarity with recent data showing similar harms from repeated short courses of systemic corticosteroids (SCS) to treat asthma flares and long-term use of high dose inhaled corticosteroids (ICS). In this review, we summarize recent advances in our knowledge of adverse effects of corticosteroid overuse in asthma, highlight recent calls for corticosteroids stewardship in asthma care, and describe effective systems-based strategies used to reduce corticosteroid overuse in asthma.

Summary: Those involved in primary care, acute care, and specialty care of asthma may use this review for an updated understanding of corticosteroid associated harms, and as a guide to both individual practitioner and health systems-based approaches to corticosteroid stewardship.

Keywords: asthma treatment; corticosteroid stewardship; corticosteroids side effects.

- 45 references

Supplementary info

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29

Review

Curr Opin Pulm Med

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. 2026 May 1;32(3):195-202.

doi: 10.1097/MCP.0000000000001249. Epub 2026 Feb 10.

GLP-1 receptor agonists in asthma: targeting metabolic-inflammatory crossroads

Helen O'Brien [1 2], Alessandro N Franciosi [1 2], Marcus W Butler [1 2]

Affiliations Expand

- PMID: 41664500

- DOI: 10.1097/MCP.0000000000001249

Abstract

Purpose of review: The application of GLP-1 receptor agonists as metabolic modulators is one the most exciting and advancing areas in medicine today. Early studies suggest a positive signal in asthma care in both obese and nonobese patients highlighting their multimodal utility across multiple disease phenotypes.

Recent findings: Asthmatic patients living with obesity are more likely to experience poor disease control, higher exacerbation rates and poor response to conventional asthma therapies. While weight loss interventions have repeatedly shown benefits in these patients, recent studies demonstrate that modulating insulin resistance may lead to improvement of asthma control, independent of weight. Recent translational/mechanistic/observational studies and meta-analyses provide a basis for pursuing GLP1RAs as putative asthma add-on therapies. This represents a novel area of treatment at the overlap between the inflammatory and metabolic nexus, potentially leading to better outcomes in uncontrolled asthma.

Summary: GLP-1RAs are receiving attention as potentially exciting therapies for treatment of asthma patients with comorbid obesity and/or diabetes mellitus; however, the exact mechanisms underpinning their utility in these cohorts are poorly understood. Further randomised controlled and pragmatic trials are needed to define their potential benefits/harms, mechanisms of action and where GLP1RAs might fit into existing treatment pathways for uncontrolled asthma.

Keywords: GLP1-RAs; airway inflammation; metabolic dysregulation; obesity.

- 76 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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30

Observational Study

Lancet Infect Dis

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. 2026 May;26(5):522-534.

doi: 10.1016/S1473-3099(25)00742-X. Epub 2026 Jan 12.

Impact of universal nirsevimab prophylaxis in infants on hospital and primary care outcomes across two respiratory syncytial virus seasons in Galicia, Spain (NIRSE-GAL): a population-based prospective observational study

Josefina L Razzini [1], Iago Giné-Vázquez [2], Jing Jin [3], María-Isolina Santiago-Pérez [4], Olaia Pérez-Martínez [4], María-Teresa Otero-Barrós [4], Nuria Suárez-Gaiche [4], Rolf Kramer [3], Leticia Platero-Alonso [3], Rosa-María Álvarez-Gil [5], Olga-María Ces-Ozores [5], Victoria Nartallo-Penas [5], Susana Mirás-Carballal [5], Marta Piñeiro-Sotelo [4], Juan-Manuel González-Pérez [6], Carmen Rodríguez-Tenreiro-Sánchez [2], Ángela Manzanares-Casteleiro [1], Ana Dacosta-Urbieta [7], Cintia Álvarez-Smith [1], Irene Rivero-Calle [1], Antonio Salas [8], Carmen Durán-Parrondo [9], Narmeen Mallah [10], Federico Martinón-Torres [11]

Affiliations Expand

- **PMID: 41539320**

- **DOI: 10.1016/S1473-3099(25)00742-X**

Erratum in

- Correction to Lancet Infect Dis 2026; 26: 522-34.

[No authors listed]Lancet Infect Dis. 2026 May;26(5):e213. doi: 10.1016/S1473-3099(26)00185-4.PMID: 42031445 No abstract available.

Abstract

Background: Real-world evidence on nirsevimab impact beyond the first season when given under universal immunisation programmes is emerging. We aimed to assess the medium-term impact of universal infant respiratory syncytial virus (RSV) prophylaxis with nirsevimab across inpatient and outpatient settings during two consecutive RSV seasons.

Methods: NIRSE-GAL is an ongoing, population-based, prospective, longitudinal study in Galicia, Spain. For this study, we included all infants eligible for nirsevimab in the 2023-24 RSV campaign in Galicia, followed up from their first RSV season

(2023-24) until the end of their second RSV season (2024-25). The primary endpoint was RSV-related lower respiratory tract infection (LRTI) hospitalisation. Secondary endpoints were LRTI hospitalisation, acute bronchitis or bronchiolitis hospitalisation, pneumonia admissions, all-cause hospitalisations, and primary health-care outcomes (acute bronchitis or bronchiolitis, wheezing or asthma, LRTI, respiratory infections, acute otitis media, and all otitis diagnoses). The first recurrences of these endpoints were also assessed as secondary endpoints. Impact was estimated by Poisson regression models using weekly incidence rates of historical non-pandemic seasons (2017-18 to 2022-23) as comparators, adjusted for RSV seasonality, and evaluated across three follow-up periods: the first RSV season, the second RSV season, and up to 18 months. This study is registered with ClinicalTrials.gov, NCT06180993.

Findings: Of 12 492 eligible infants, 11 796 received nirsevimab (94·4% coverage). Compared with historical cohorts, RSV-related LRTI hospitalisations decreased by 85·9% (95% CI 80·2-90·0) in the first season and 55·3% (22·5-74·3) in the second, with an estimated 123 infants needing to be immunised to prevent a second-season admission. First LRTI hospitalisations decreased by 59·8% (46·5-69·8) in the first season and 48·1% (33·1-59·7) up to 18 months. Acute bronchitis or bronchiolitis admissions decreased by 59·0% (37·9-72·9) in the first season and 58·7% (40·6-71·3) up to 18 months. All-cause hospitalisation declined by 20·3% (3·1-34·4) in the first season, with no significant reduction thereafter. First recurrent admissions in the second season decreased by 78·2% (25·6-93·6) for RSV-related LRTI, 62·4% (30·9-79·6) for LRTI, and 76·9% (5·3-94·4) for acute bronchitis or bronchiolitis. First outpatient visits declined during the first season by 30·8% (17·5-41·9) for bronchitis or bronchiolitis, 33·4% (21·6-43·4) for LRTI, and 27·7% (14·9-38·5) for wheezing or asthma. First recurrent outpatient visits also declined, by 52·5% (39·7-62·6) for acute bronchitis or bronchiolitis, 28·2% (17·8-37·3) for wheezing or asthma, and 47·3% (35·3-57·2) for LRTI.

Interpretation: Universal infant nirsevimab prophylaxis markedly reduced RSV-related hospitalisations and outpatient morbidity, with sustained reductions in RSV-related LRTI hospitalisations into the second season and no signal of adverse shift in RSV morbidity. These findings provide robust population-level evidence that could be valuable for infant immunisation policies and cost-effectiveness models.

Funding: Sanofi and AstraZeneca.

Translation: For the Spanish translation of the abstract see Supplementary Materials section.

Conflict of interest statement

Declaration of interests FM-T reports having acted as principal investigator in randomised controlled trials for Ablynx, Abbott, Seqirus, Sanofi Pasteur MSD, Cubist, Wyeth, Merck, Pfizer, Roche, Regeneron, Janssen, MedImmune, Novavax, Novartis, and GSK; honoraria paid to institution by Sanofi AstraZeneca, GSK, and Pfizer; travel and meeting fees from Pfizer, MSD, GSK, and Sanofi; consulting or advisory roles with GSK Vaccines, Pfizer, Sanofi Pasteur, Janssen, MSD, Seqirus, Biofabri, and AstraZeneca; and unpaid roles in ETAGE-WHO Europe, Spanish

Pediatric Clinical Trials Network, and WHO Collaborating Centre for Vaccine Safety. RK, JJ, and LP-A report employment by and share ownership in Sanofi. CD-P reports being a sub-investigator in RSV vaccine trials for Pfizer and GSK, and travel support for attending meetings from Pfizer. SM-C and MP-S report involvement through the management of the Galician vaccination programme with Seqirus, MSD, Sanofi, Pasteur, Pfizer, Roche, Janssen, Moderna, Novavax, Novartis, and GSK. SM-C reports travel managed by Sanofi and MSD. MP-S reports travel managed by Sanofi, MSD, and Pfizer. IR-C reports honoraria paid to institution by Sanofi AstraZeneca; travel and meeting fees from Pfizer, MSD, Sanofi, and Moderna; consulting or advisory roles with Pfizer, MSD, and Sanofi; honoraria payments from MSD, GSK, Sanofi, Moderna, and Pfizer; and acting as sub-investigator in vaccine clinical trials for Ablynx, Abbot, Seqirus, Sanofi Pasteur MSD, Sanofi Pasteur, Cubist, Wyeth, Merck, Pfizer, Roche, Regeneron, Janssen, MedImmune, Novavax, Novartis, and GSK. JLR and CA-S report travel support for attending meetings from Sanofi. AD-U reports travel support for attending meetings from Pfizer. All other authors declare no competing interests.

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J Asthma

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. 2026 May;63(5):561-568.

doi: 10.1080/02770903.2025.2612527. Epub 2026 Jan 16.

Breath metabolomics to determine the sputum inflammatory markers of asthma and COPD

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Affiliations Expand

- PMID: 41510796

- DOI: 10.1080/02770903.2025.2612527

Abstract

Objective: Differentiating between asthma and chronic obstructive pulmonary disease (COPD) and treating them correctly is challenging because their symptoms overlap and current diagnostic methods are inadequate. We explored the potential of integrating breath metabolomics with sputum inflammatory phenotyping to enhance the discrimination and characterization of respiratory diseases.

Methods: Exhaled breath samples were gathered from 74 participants (35 with asthma, 39 with COPD), and sputum samples were examined for eosinophil and neutrophil counts. Orthogonal partial least squares-discriminant analysis (OPLS-DA), logistic regression, and principal component analysis (PCA) were used for the identification of significant volatile organic compounds (VOCs) that discriminate between the diseases, and to determine their relationship to disease state and inflammatory classifications.

Results: Breath metabolomics effectively distinct asthma from COPD with 93.2% accuracy, identifying 10 important VOC biomarkers. Significantly, predicting sputum eosinophilia and neutrophilia phenotypes using established thresholds was more accurate (80.6%-90.5%, AUROC 0.67-0.91) compared to directly differentiating the diseases, where each inflammatory subtype presented its own VOC profile. Specific biomarkers, such as allyl methyl sulfide, epizonarene, and camphor, were identified as potential indicators of disease status and inflammatory subtypes.

Conclusion: Using breath metabolomics in conjunction with sputum inflammatory phenotyping shows promise in effectively distinguishing between asthma and COPD, as well as identifying inflammatory subtypes, which can aid in creating personalized treatment strategies.

Keywords: Asthma; breath metabolomics; chronic obstructive pulmonary disease; personalized medicine; sputum inflammatory phenotyping.

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J Asthma

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. 2026 May;63(5):582-589.

doi: 10.1080/02770903.2026.2612741. Epub 2026 Jan 10.

Small airway abnormalities in asthmatic patients with persistent airflow limitation

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Affiliations Expand

- PMID: 41504313

- DOI: 10.1080/02770903.2026.2612741

Abstract

Background: A subset of patients with asthma develops persistent airflow limitation (PAL) despite optimal treatment. The role of small airways dysfunction (SAD) in this phenotype, and its relationship with symptoms, remains incompletely understood.

Objectives: To assess small airways function in asthmatic patients with PAL and compare it with patients with fully reversible asthma and with COPD; and to explore correlations between small airway indices and patient-reported outcomes.

Methods: We enrolled 60 patients (20 with asthma and PAL, 20 with fully reversible asthma, 20 with COPD) matched for age, sex, and pre-bronchodilator FEV1. Small airways function was evaluated using impulse oscillometry (IOS; R5-R20) and single-breath nitrogen washout test (SBNWT; dN2). Patients completed a daily symptom diary (dyspnea, cough, sputum, and rescue medication use) over four weeks.

Results: Compared with fully reversible asthma, asthmatic patients with PAL showed significantly higher dN2 and R5-R20 values, though less pronounced than in COPD. SAD (R5-R20 > 0.07 kPa·L^{-1}·s) was present in all COPD patients, 79% of PAL patients, and 37% of reversible asthma patients ($p < 0.001$). In PAL, R5-R20 correlated strongly with dyspnea scores ($r = 0.64$, $p < 0.001$). In reversible asthma, R5-R20 correlated with cough and rescue medication use, whereas in COPD, symptoms were primarily related to residual volume.

Conclusions: Small airways dysfunction is highly prevalent in asthmatic patients with PAL and significantly contributes to daily symptom burden. Its intermediate severity between COPD and reversible asthma suggests that SAD plays a central role in the pathogenesis of fixed obstruction, suggesting a potential role for targeted diagnostic and therapeutic strategies.

Keywords: COPD; Small airways; abnormalities; asthma; function.

Supplementary info

MeSH termsExpand

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Am J Prev Med

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. 2026 May;70(5):108227.

doi: 10.1016/j.amepre.2025.108227. Epub 2025 Dec 19.

Chronic Conditions as Risk Factors for COVID-19-Associated Hospitalization Among Adults, 2020-2023

Sarah Hamid [1], Gordana Derado [2], Huong Pham [2], Rebecca C Woodruff [3], Michael Melgar [2], Jeremy L Roland [4], Breanna Kawasaki [5], James Meek [6], Lucy S Witt [7], Maya L Monroe [8], Libby Reeg [9], Erica Martin [10], Jennifer E Akpo [11], Grant Barney [12], Christina B Felsen [13], Nancy Moran [14], Melissa Sutton [15], H Keipp Talbot [16], Ashley Swain [17], Fiona P Havers [2], Christopher A Taylor [2]

Affiliations Expand

- PMID: 41423029

- DOI: 10.1016/j.amepre.2025.108227

Free article

Abstract

Introduction: Chronic conditions associated with COVID-19 hospitalization were identified early in the pandemic when underlying population immunity was low. Updated information on risk factors for COVID-19 hospitalization is needed.

Methods: Surveillance and cross-sectional survey data were combined to compare COVID-19 hospitalization rates in adults aged ≥18 years with and without 9 chronic conditions in 98 counties across 13 states. Hospitalization counts were obtained from the COVID-19-associated Hospitalization Surveillance Network. The adult population with and without chronic conditions was estimated from U.S. Census data and the Behavioral Risk Factor Surveillance System. Adjusted rate ratios were estimated using Poisson regression with Monte Carlo simulation, adjusting for age group, sex, and race and ethnicity.

Results: From October 2022 through September 2023 (2022-2023), COVID-19 hospitalization rates were greater among adults with chronic kidney disease (adjusted rate ratio [95% uncertainty interval]=4.5 [3.4-5.9]), diabetes (2.2 [1.7-2.8]), stroke (2.1 [1.5-2.9]), severe obesity (2.0 [1.5-2.8]), coronary artery disease (2.0 [1.5-

2.5]), chronic obstructive pulmonary disease (1.9 [1.5-2.5]), smoking (1.5 [1.2-2.0]), and asthma (1.5 [1.1-2.0]) than among adults without a given condition. Nonsevere obesity was not associated with increased risk. Hospitalization rates were 18.0 times higher among adults aged ≥75 years than among those aged 18-49 years. Hospitalized adults in 2022-2023 were more likely to be aged ≥75 years or to have ≥3 chronic conditions than in earlier seasons (2020-2022).

Conclusions: Of 9 chronic conditions assessed, 8 were associated with increased risk of COVID-19 hospitalization; risk varied by condition and age. Older age was the strongest risk factor. Findings can guide prevention and treatment by identifying populations at greatest risk of COVID-19 hospitalization.

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Multicenter Study

J Eur Acad Dermatol Venereol

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. 2026 May;40(5):841-855.

doi: 10.1111/jdv.70080. Epub 2025 Oct 13.

Safety and efficacy of nemolizumab for atopic dermatitis up to 2 years in open-label extension study

Matthias Augustin [1], Marie Tauber [2], Robert Sidbury [3], Jonathan I Silverberg [4], Kim A Papp [5 6], Diamant Thaçi [7], Marjolein S De Bruin-Weller [8], Adam Reich [9], Ketty Peris [10 11], Kirk Barber [12], Ryszard Galus [13 14], Andrzej Kaszuba [15], Matthew Zirwas [16], Walter K Nahm [17], Gretel Trullenque [18], Laura Maintz [19 20], Sady Alpizar [21], Sang Wook Son [22], Vivian Laquer [23], Linda Stein Gold [24], Soo Yeon Cheong [25], Anna Ryzhkova [26], Agnes Drahos [27], Liliana Ulianov [27], Christophe Piketty [26]

Affiliations Expand

- PMID: 41081535

- PMCID: PMC13109752

- DOI: 10.1111/jdv.70080

Abstract

Background: Atopic dermatitis (AD) is a common, chronic, relapsing, pruritic, neuroimmune skin disease, requiring long-term symptom control.

Objectives: The ARCADIA long-term extension (LTE) study evaluates nemolizumab safety and efficacy in ≥12-year-old patients with moderate-to-severe AD up to 200 weeks.

Methods: Patients from previous nemolizumab AD trials (Phase 2/3) or newly recruited adolescents with moderate-to-severe AD were enrolled. A background regimen of topical corticosteroids with/without topical calcineurin inhibitors was permitted based on disease control. Long-term safety was the primary endpoint. Efficacy assessments were secondary endpoints, including the proportion of patients achieving Investigator's Global Assessment (IGA) 0/1 (clear/almost clear), Eczema Area and Severity Index (EASI)-75 (75% improvement from lead-in baseline in EASI), Visual Analogue Scale (VAS) Pruritus and VAS sleep loss ≥4-point improvement from lead-in baseline and quality of life. Observed data up to Week (W) 104 are presented for patients with previous nemolizumab experience (PNE) and no previous nemolizumab experience (NNE) at LTE baseline.

Results: At interim analysis data cut-off (21 July 2024), 1062 of 1901 patients completed W104. Exposure to nemolizumab in this study was equal across cohorts. The majority (92.6%) of treatment-emergent adverse events (TEAEs) were mild/moderate in severity; only 22.1% were considered related to nemolizumab. The most common (≥5.0%) TEAEs were COVID-19 (19.6%), nasopharyngitis (19.5%), atopic dermatitis (18.1%), upper respiratory tract infection (12.7%), headache (6.5%) and asthma (5.5%). At LTE baseline, the proportion of PNE and NNE patients was IGA 0/1: 27.1% and 17.1%; EASI-75: 38.8% and 25.8%; VAS Pruritus ≥4-point improvement: 58.7% and 31.6%; and VAS sleep loss ≥4-point improvement: 52.9% and 31.6%, respectively. At W104, this proportion was IGA 0/1: 62.6% and 58.2%; EASI-75: 88.2% and 85.4%; VAS Pruritus ≥4-point improvement: 87.2% and 82.0%; and VAS sleep loss ≥4-point improvement: 70.8% and 68.9%, respectively.

Conclusions: Continuous nemolizumab treatment was well-tolerated through W104 with clinically meaningful improvements in AD signs and symptoms and patient-reported outcomes.

Trial registration: NCT03989206: https://clinicaltrials.gov/search?term=NCT03989206; EUDRACT number: 2019-001889-15. Data available upon request: clinical.studies@galderma.com.

Keywords: IL-31; Pruritus; adolescent; adult; atopic dermatitis; nemolizumab.

Plain language summary

Atopic dermatitis, also known as eczema, is a common long-lasting condition that causes itchy, inflamed and irritated skin. It often comes and goes and can have a big impact on well-being with severe itch, skin pain, sleep deprivation, anxiety and depression. The world-wide ARCADIA long-term extension study followed 1901 patients with atopic dermatitis aged 12 years and older for up to 2 years to learn if nemolizumab, a medicine that stops itching and skin inflammation, was safe to use and improved atopic dermatitis and patient well-being. Patients in the study received nemolizumab injections every 4 weeks, along with other skin creams or ointments. The study included patients who had never used nemolizumab before, and patients who had used nemolizumab in earlier studies. The researchers found that common adverse effects included cold-like symptoms, worsening of atopic dermatitis, headaches and worsening of asthma. Most adverse effects were mild or moderate. 75% of adverse effects were unrelated to treatment with nemolizumab. After 2 years of treatment with nemolizumab, around 60% of patients had skin that was clear or almost clear of atopic dermatitis, and over 85% of patients had less severe atopic dermatitis. Over 80% of patients felt less itchy. Around 70% of patients slept better, and over 90% of patients said that atopic dermatitis had no or minimal impact on their well-being. Nemolizumab appears to be a safe and effective long-term treatment for atopic dermatitis. It can help clear the skin, reduce itching and improve sleep and well-being.

Conflict of interest statement

Matthias Augustin has served as a consultant, lecturer and/or researcher and has received institutional research grants from companies manufacturing drugs for atopic dermatitis, including AbbVie, Almirall, Beiersdorf, Eli Lilly, Galderma, Incyte, LEO Pharma, L'Oréal, Novartis, Pfizer, Regeneron, Roche-Posay and Sanofi-Genzyme. Marie Tauber has served as an advisor and/or paid speaker for and/or participated in clinical trials sponsored by AbbVie, Almirall, Boehringer Ingelheim, Galderma, Janssen-Cilag, LEO Pharma, Eli Lilly, MEDAC, Novartis, Pfizer and Sanofi; and has received consulting fees from Almirall, Janssen-Cilag, LEO Pharma and Sanofi. Robert Sidbury has served as an investigator and/or participated in advisory boards for Arcutis, Avene, Castle, Dermavent, Galderma, LEO Pharma, Eli Lilly, Pfizer, Regeneron and UCB; been a speaker at Beiersdorf; had institutional contracts with Regeneron and Incyte (as an investigator on studies); received consulting fees from Leo, Lilly, and Alphyn; served as an (unpaid) board member of the Society for Pediatric Dermatology and the Washington State Dermatology Association. Jonathan Silverberg has received honoraria as a consultant and/or advisory board member from AbbVie, Afyx, Aobiome, Arena, Asana, Aslan, BioMX, Bluefin, Bodewell, Boehringer-Ingelheim, Celgene, Connect Biopharma, Dermavant, Dermira, Eli Lilly, Galderma, GlaxoSmithKline, Incyte, Kiniksa, LEO Pharma, Luna, Menlo, Novartis, Pfizer, RAPT, Regeneron and Sanofi-Genzyme and as a speaker from AbbVie, Eli Lilly, LEO Pharma, Pfizer, Regeneron and Sanofi-Genzyme; his institution has received grants from Galderma and Pfizer. Kim A Papp has received clinical research grants, honoraria and/or consultant fees and/or served as a scientific advisor, investigator, speaker and/or medical officer: AbbVie, Acelyrin, Akros, Alumis, Amgen, Arcutis, Bausch Health/Valeant, Boehringer Ingelheim, Bristol Myers Squibb, Can-Fite, Celltrion, Concert, Dermavant, Dermira, Dice

Pharmaceuticals, Dice Therapeutics, Eli Lilly, Evelo, Forbion, Galderma, Horizon, Incyte, Johnson and Johnson, Kymab, Kyowa Hakko Kirin, LEO, Meiji Seika, Mitsubishi, Nimbus, Novartis, Pfizer, Reistone, Sanofi-Aventis/Genzyme, Sandoz, Sun, Takeda, Tarsus, UCB and Zai Lab Co. Diamant Thaçi is a lecturer and/or consultant for AbbVie, Almirall, Amgen, Boehringer-Ingelheim, Bristol Myers Squibb, Celltrion, Galderma, Genzyme, Incyte, Johnson & Johnson, Kyowa Kirin, LEO Pharma, L'Oréal, Eli Lilly, New Bridge, Novartis, Pfizer, Regeneron, Sanofi, Stada, Sun-Pharma, Target RWE, UCB and Vichy and received grants from AbbVie, LEO and Novartis (paid to institution). Marjolein S. De Bruin-Weller has served as an investigator for AbbVie, Almirall, Amgen, Eli Lilly, Galderma, Leo Pharma, Pfizer, Regeneron Pharmaceuticals, Inc. and Sanofi-Genzyme, and has received honoraria from AbbVie, Almirall, Amgen, Arena, Aslan, Eli Lilly, Galderma, Janssen, Leo Pharma, Pfizer, Regeneron and Sanofi-Genzyme. Adam Reich has served as an investigator and/or participated in advisory boards for AbbVie, Alvotech, Amgen, AnaptysBio, Arcutis, Biogen, Biotherapy, Bristol Myers Squibb, Celgene, Celltrion, Dermira, Galderma, Inflarx, Janssen, Kiniksa, Kymab, LEO Pharma, Novartis, Pfizer, Pierre Fabre, Trevi Therapeutics and UCB, and has received honoraria from Chema Rzeszów, Eli Lilly, LEO Pharma, Novartis, Sandoz and Takeda. Ketty Peris reports grants and personal fees from Almirall and AbbVie during the conduct of the study, and personal fees from Biogen, Eli Lilly, Galderma, Leo Pharma, Novartis, Pierre Fabre, Philogen, Sanofi, Sun Pharma and Janssen outside the submitted work. Kirk Barber has served as a consultant, investigator and/or speaker for AbbVie, Allergan, Amgen, Anacor, Aristea, Arcutis, Bausch Health, Boehringer Ingelheim, Bristol Myers Squibb, BioPharma, Celgene, Celltrion, Centacor, Concert Pharmaceuticals, Dermavant, Dermira, Dice, Dow Pharma, Eli Lilly, Galderma, GlaxoSmithKline, Incyte, Janssen, LEO Pharma, Merck, Nimbus Lakshmi Inc., National Institute of Health, Novartis, Pfizer, Regeneron, Roche, Sandoz, Sanofi, Sun Pharma, Takeda, UCB, Valeant, Wyeth, Xenon. Ryszard Galus has served as an investigator for Galderma, Amgen, Chugai, Dermira, Glenmark, Incyte, Kymab, Pfizer, Regeneron Pharmaceuticals Inc., Sanofi and reported personal fees from Synexus; lecturer at the Medical University of Warsaw. Andrzej Kaszuba is an investigator for Galderma. Matthew Zirwas is a consultant and investigator or a speaker for AbbVie, Acrotech, Advanced Derm Solutions, Aldeyra, All Free Clear / Sun, Amgen, Anaptys Bio, Apogee, Arcutis, Bausch and Lomb, Beiersdorf, Biocon, Bristol Myers Squibb, Celldex, Cara, Sun, Dermavant, Evommune, Evelo, Galderma, Google, Incyte, Janssen, L'Oréal, Leo, Lilly, LUUM, Meta, Nimbus, Novan, Novartis, Pfizer, Q32 Bio, Regeneron, Sanofi, Supernus, Takeda, Trevi, Trifecta, UCB and Verrica. Walter K Nahm is an investigator for Galderma. Gretel Trullenque is an investigator for Galderma. Laura Maintz has served as an investigator for AbbVie, Anaptys Bio, Almirall, Amgen, Bioprojet, Bristol-Myers Squibb, Eli Lilly, Galderma, LEO Pharma, Numab, OM Pharma, Pfizer, Sanofi/Regeneron, UCB; an advisor for AbbVie, Almirall, LEO Pharma, Sanofi/Regeneron; received speaker honoraria from AbbVie, Almirall, Eli Lilly, LEO Pharma, Sanofi/Regeneron; received research funding from CK-CARE, Eli Lilly, LEO Pharma and Sanofi/Regeneron; and received reimbursement for travel costs from Pfizer. Sady Alpizar is an investigator for Galderma. Sang Wook Son is an investigator for Galderma. Vivian T. Laquer has served as investigator for AbbVie, Acelyrin, Acrotech, Amgen, Argenx, Arcutis, Aslan, Biofrontera, Bristol Myers Squibb, Cara, Dermavant, Eli Lilly, Galderma, Horizon Therapeutics, Incyte, Janssen, Leo, Novartis, Padagis, Pfizer, Q32, Rapt, Sun, UCB and Ventyx. Linda Stein Gold has received grants, contracts, consulting fees, payments or honoraria from Galderma, AbbVie, Amgen, BMS, J&J, Lilly, Leo, Sanofi, Regeneron, Incyte and

Arcutis, and is an investigator for Allergan plc and Galderma. Soo Yeon Cheong, Anna Ryzhkova, Agnes Drahos and Christophe Piketty are employees of Galderma. Liliana Ulianov is an employee of Galderma and holds stock or stock options.

- 35 references
- 5 figures

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

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Eur J Pediatr

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. 2026 Apr 30;185(5):327.

doi: 10.1007/s00431-026-06975-7.

Systemic endothelial activation and eosinophilic inflammation in pediatric allergic rhinitis: diagnostic value of endocan and eosinophil-derived neurotoxin

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Affiliations Expand

- PMID: 42060193

- DOI: 10.1007/s00431-026-06975-7

Abstract

Objective biomarkers that reflect systemic inflammation in pediatric allergic rhinitis to support clinical diagnosis. We aimed to evaluate serum levels of endocan (a marker of endothelial activation) and eosinophil-derived neurotoxin (EDN; reflecting eosinophil degranulation) in children with AR and investigate their diagnostic performance and associations with disease severity and conventional inflammatory markers. In this prospective case-control study, 85 children with AR and 67 healthy controls were enrolled. Serum endocan and EDN were measured via sandwich ELISA. Primary outcomes included group comparisons of biomarker levels and their diagnostic accuracy determined by receiver operating characteristic (ROC) curve analysis. Serum endocan and EDN levels were significantly elevated in children with AR compared to controls (both $p < 0.001$). Both biomarkers demonstrated high diagnostic performance, with an area under the curve (AUC) of 0.931 for endocan and 0.929 for EDN, showing greater diagnostic accuracy than absolute eosinophil counts (AUC, 0.871). Endocan and EDN showed a strong intercorrelation ($r = 0.88$, $p < 0.001$) and significant positive correlations with total IgE and eosinophil counts.

However, no significant associations were observed between these biomarkers and disease severity, symptom control scores, or allergen sensitization patterns.

Conclusions: Serum endocan and EDN are significantly elevated in children with AR and demonstrate high diagnostic discrimination in this cohort. These findings suggest that endocan and EDN may serve as promising complementary biomarkers for the objective assessment of allergic inflammation in children, although further multicenter studies are needed to confirm their clinical utility.

What's known: • Allergic rhinitis (AR) is common in childhood and involves systemic inflammatory pathways; however, objective biomarkers to support diagnosis in pediatric practice remain limited. • Endocan and eosinophil-derived neurotoxin (EDN) reflect endothelial activation and eosinophil degranulation, respectively, and have been studied in other atopic and inflammatory conditions.

What is new: • This study concurrently evaluates serum Endocan and EDN in children with AR in a prospective case-control design. • Both biomarkers demonstrated high discriminatory performance (AUC~ 0.93 in this cohort) and showed greater diagnostic accuracy than absolute eosinophil counts . • Endocan and EDN are largely independent of generalized systemic inflammatory indices (NLR, SII, SIRI), supporting specificity for the endothelial- eosinophilic axis in pediatric AR.

Keywords: Allergic rhinitis; Endocan; Endothelial activation; Eosinophil-derived neurotoxin; Eosinophilic inflammation.

Conflict of interest statement

Declarations. Ethics approval: The study was conducted as a non-interventional, observational study. Since there was no medical intervention, treatment modification, or experimental procedure involved, the study does not qualify as a clinical trial. Ethical approval was obtained from the Giresun Training and Research Hospital Scientific Research Ethics Committee (Desicion No: 25.12.2023/16), and the study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Consent to participate: Written informed consent was obtained from the parents or legal guardians of all participants. Consent for publication: The authors affirm that all participants' parents or legal guardians provided informed consent for the publication of this research. Competing interests: The authors declare no competing interests.

- 18 references

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

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Cite

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Review

World Allergy Organ J

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. 2026 Apr 20;19(5):101383.

doi: 10.1016/j.waojou.2026.101383. eCollection 2026 May.

Clinical remission in allergy and clinical immunology practice: State of the art and World Allergy Organization (WAO) call to action

Mário Morais-Almeida [1], Giorgio Walter Canonica [2 3], Pedro Giavina-Bianchi [4], Stefania Arasi [5], Marco Caminati [6], Alessandro Fiocchi [5], Luz S Fonacier [7], Mara Giavina-Bianchi [8], R Maximiliano Gómez [9], Sandra N González-Diaz [10], Bryan L Martin [11], José Antonio Ortega Martell [12], Helena Pitè [1], Philip Rouadi [13], Jorge Sánchez Caraballo [14], Rosalaura V Villarreal-González [10], Johann Christian Virchow [15], Claus Bachert [16], Jonathan A Bernstein [17], Antonella Cianferoni [18], Ignacio Dávila [19], Nicola A Hanania [20], Enrico Heffler [21], Parameswaran Nair [22], Hae-Sim Park [23], Hirohisa Saito [24], Gilda Varricchi [25], Anahí Yáñez [26], Ignacio J Ansotegui [27]

Affiliations Expand

- PMID: 42058161

- PMCID: PMC13122681

- DOI: 10.1016/j.waojou.2026.101383

Abstract

Recent advances in biological therapies, small molecules and allergen-specific immunotherapy are reshaping the management of immunoallergic diseases, progressively shifting therapeutic goals from short-term disease control toward the possibility of achieving sustained clinical remission. Despite increasing evidence across multiple conditions, a universally accepted and disease-transversal definition of clinical remission (CR) remains lacking. In this review we propose a comprehensive framework for defining clinical remission across a broad spectrum of immune-mediated diseases traditionally managed in Allergy and Clinical Immunology practice, including asthma, allergic rhinitis, chronic rhinosinusitis with

nasal polyps, chronic urticaria, atopic dermatitis, mastocytosis, food allergy, and eosinophilic esophagitis. Clinical remission is defined as a sustained state of absence of clinically relevant disease manifestations, independently of underlying biological activity; suppression of inflammatory pathways and normalization of biomarkers define biological remission, which may coexist with, but is not required for, clinical remission. We introduce the 3D-CR model, a pragmatic, disease-adaptable framework integrating 3 complementary domains - clinical, biological, and functional - to characterize remission states as complete, partial, or absent. Building on this model, we propose the Allergic Disease Remission Score (ADReS) as a modular tool designed to support standardized assessment, longitudinal follow-up, and cross-disease comparison in clinical trials and real-world settings. These tools are intended as conceptual and research instruments rather than prescriptive algorithms for individual therapeutic decision-making. Finally, we outline a World Allergy Organization call to action advocating for a harmonized global approach to defining, measuring, and implementing clinical remission as a meaningful treatment target. Establishing standardized remission endpoints has the potential to improve patient outcomes, facilitate precision medicine strategies, enhance comparability across studies, and reduce heterogeneity in clinical research and practice worldwide.

Keywords: Allergic diseases; Biological therapy; Precision medicine; Remission; Treatment outcome; Type 2 inflammation; World allergy organization.

- 109 references
- 1 figure

Supplementary info

Publication typesExpand

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3

J Asthma

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. 2026 Apr 30:1-13.

doi: 10.1080/02770903.2026.2666091. Online ahead of print.

Factors Affecting Length of Hospital Stay in Children with Moderate-to-Severe Asthma Exacerbations

Aymen Hişmioğullari [1], Özlem Sancakli [1], Soner Günder [1], Figen Çelebi Çelik [1], Canan Şule Karkiner [1], Demet Can [1]

Affiliations Expand

- PMID: 42057739

- DOI: 10.1080/02770903.2026.2666091

Abstract

Background: Hospitalizations due to moderate to severe asthma exacerbations in children present significant challenges for health systems and families. Identifying factors affecting duration of hospitalization (DOH) is crucial for optimizing asthma management and reducing morbidity.

Objective: To investigate demographic and clinical factors associated with prolonged DOH in children hospitalized due to moderate to severe asthma exacerbations.

Methods: This prospective cohort study included 159 children aged 5-18 years hospitalized with moderate to severe asthma exacerbations in a tertiary children's hospital between January 1, 2024, and December 31, 2024. The severity of asthma exacerbations was classified using the Global Asthma Initiative criteria, and length of hospital stay was divided into two groups according to the University of California, San Francisco Consensus Guidelines for Inpatient Treatment of Asthma Patients: short-term hospital stay (≤72 hours) and long-term hospital stay (>72 hours). Demographic, clinical, and laboratory data were obtained from an electronic medical record system.

Results: Of 159 patients (52.8% female, median age 8 [IQR: 6-12]), 34% experienced a short-term hospital stay and 66% experienced a long-term hospital stay. The determinants of longer hospital stay, as determined by multivariate regression analysis, were weekend hospital stays (OR: 4.564,p = 0.004), number of exacerbations requiring systemic steroid treatment in the past year (OR:1.620,p = 0.012), and time spent at home before hospital admission (OR: 1.069,p < 0.001). Additionally, female gender, tobacco exposure, obesity, polysensitivity, concomitant allergic rhinitis, rhinovirus infection, and non-adherence to treatment were also significantly associated with longer hospital stays.

Conclusion: This study demonstrated that prolonged hospital stay in children experiencing moderate to severe asthma attacks was associated with female gender, environmental tobacco exposure, obesity, previous severe exacerbations, medication non-compliance, weekend hospitalizations, and multiple sensitivities. Early diagnosis, patient education, and environmental control measures through multidisciplinary approaches are essential to reduce hospital stay and improve quality of life.

Keywords: Asthma; Asthma Exacerbation; Hospitalization; Length of Stay; Risk Factors.

Curr Opin Allergy Clin Immunol

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. 2026 Jun 1;26(3):233-236.

doi: 10.1097/ACI.0000000000001159. Epub 2026 Apr 29.

Allergen-specific immunotherapy at earlier stages of allergic respiratory diseases: a change is in the air!

Carlo Lombardi [1], Giovanni Paoletti [2 3], Giovanni Passalacqua [4], Simona Barbaglia [5], Giorgio Walter Canonica [2 3]

Affiliations Expand

- PMID: 42055088

- DOI: 10.1097/ACI.0000000000001159

Abstract

Purpose: This expert point of view discusses why allergen-specific immunotherapy (AIT) should be considered earlier in the management of allergic rhinitis and asthma, highlighting a shift from its traditional use as a last-line add-on therapy toward a more proactive, disease-modifying intervention in carefully selected patients.

Recent findings: Large real-world datasets, including the REACT program and the EfficAPSI study, show that adding AIT to standard care in patients with allergic rhinitis, with or without mild-to-moderate asthma, is associated with sustained reductions in pharmacologic treatment needs, fewer severe asthma exacerbations, and lower healthcare utilization over long-term follow-up. Pediatric and adolescent analyses suggest that starting AIT earlier in life enhances these benefits, supporting the concept of a "window of opportunity" during which immune modulation may

prevent or delay asthma onset and limit new sensitizations, in line with the notion of the allergic march.

Summary: The accumulating real-world evidence that early AIT can alter the natural history of allergic airway disease provides a strong rationale to reposition AIT within clinical algorithms, moving it from a rescue option for pharmacologic failures to an earlier, integrated disease-modifying strategy. Earlier use of AIT, alongside optimized pharmacotherapy, may improve long-term control, reduce progression to severe asthma, with important implications for patients and health-care systems.

Keywords: allergen immunotherapy; allergic rhinitis; asthma; disease modification; early intervention.

- **10 references**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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5

Allergy Asthma Proc

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. 2026 May 1;47(3):196-206.

doi: 10.2500/aap.2026.47.260021.

Comorbidity burden in patients with anaphylaxis: A 25-year nationwide population-based matched case-control study

Eli Magen [1], Israel Magen [2], Eugene Merzon [1], Eldad Rahamim [2], Ilan Green [1], Avivit Golan-Cohen [1], Shlomo Vinker [1], Ariel Israel [1]

Affiliations Expand

- **PMID: 42050834**

- **DOI: 10.2500/aap.2026.47.260021**

Abstract

Background: Anaphylaxis is a severe systemic hypersensitivity reaction that occurs in diverse clinical contexts. Its broader comorbidity profile in population-based settings has not been well characterized. Objective: The objective was to evaluate the prevalence and spectrum of comorbid diseases in patients with anaphylaxis compared with matched controls in a nationwide population. Methods: We conducted a retrospective population-based matched case-control study by using electronic health record data from a nationwide health maintenance organization in Israel between 2001 and 2024. Anaphylaxis cases were confirmed by manual chart review according to World Allergy Organization criteria with documented epinephrine treatment. The controls were matched on age, sex, and calendar time, and had no history of anaphylaxis. Baseline comorbidities documented at least 3 months before the index date were analyzed by using conditional logistic regression. Multiple comparisons were addressed by using false discovery rate adjustment. Results: The study included 778 patients with anaphylaxis and 3112 matched controls. The patients with anaphylaxis had a significantly higher prevalence of atopic and allergic diseases, including asthma, allergic rhinitis, allergic conjunctivitis, atopic dermatitis, contact dermatitis, and chronic idiopathic urticaria. The composite atopic disease burden was markedly higher in the anaphylaxis group. Selected immune-mediated and cardiovascular conditions were also more prevalent, although the effect sizes were generally modest and several associations did not remain statistically significant after a multiple-comparison correction. An eliciting allergen was identified in 82.4% of the patients, with drugs as the most frequent triggers, followed by food and insect venom. Idiopathic anaphylaxis accounted for 17.6% of the patients. Baseline medication utilization was higher among the patients with anaphylaxis, particularly for allergic, respiratory, and gastrointestinal therapies. Conclusion: In this nationwide adult cohort, individuals with anaphylaxis demonstrated a higher prevalence of atopic disease and modest differences in selected systemic comorbidities compared with matched controls. These findings describe epidemiologic associations and do not imply causality. Further prospective studies are warranted.

Supplementary info

MeSH termsExpand

Full text links

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Cite

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Br J Dermatol

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. 2026 Apr 28:ljag167.

doi: 10.1093/bjd/ljag167. Online ahead of print.

Preterm Birth Is Associated with Reduced Risk of Atopic Dermatitis and a Distinct Allergic Comorbidity Profile in Early Childhood

Iben Frier Ruge [1 2], Mia-Louise Nielsen [1], Anne Sofie Halling [1 2], Trine Gerner [2], Maria Rasmussen Rinnov [2 3], Simon Trautner [3], Simon Francis Thomsen [1], Lone Skov [2 4], Alexander Egeberg [1 4], Ivone Jakasa [5], Sanja Kezic [6], Alan Irvine [7], Emma Guttman-Yassky [8], Klaus Bønnelykke [9], Jacob P Thyssen [1]

Affiliations Expand

- PMID: 42049246

- DOI: 10.1093/bjd/ljag167

Abstract

Background: Pediatric atopic dermatitis (AD) is the most common inflammatory disease of childhood and is closely linked to the subsequent development of food allergy, asthma, and rhinitis. There is currently limited insight into the occurrence of AD and allergic comorbidity in early childhood according to gestational maturity.

Objectives: To investigate the occurrence of AD, food allergy, asthma, and rhinitis in term and preterm children from birth to age 4-5 years.

Methods: A prospective birth cohort of 389 children (261 term, 128 preterm) was followed from birth to 4-5 years. Clinical visits were conducted at birth, 2 months, and 12 months, with additional visits for skin signs of AD during the first two years. At age 4-5 years, parents completed a structured telephone interview. We compared the prevalence, age at onset, and persistence of AD and allergic comorbidities between preterm and term children using Mann-Whitney U and Fisher's exact tests.

Results: The overall prevalence of AD was 29.6% at age 2 years and 33.0% at 4-5 years. Preterm children had a lower prevalence of AD (19.2% vs. 39.8%, $p < 0.0001$), later AD onset (median 12.0 vs. 7.5 months, $p < 0.01$), milder disease severity (median EASI 1.4 vs. 4.8, $p < 0.01$), and less persistent AD (11.5% vs. 19.9%, $p < 0.0001$) than term children. Among children born preterm and term, the prevalence of food allergy, asthma, and rhinitis at ages 4-5 years was 1.6% vs. 3.1%, 20.0% vs. 13.0%, and 6.2% vs. 4.6%, respectively. No preterm children with AD (n=25) developed food allergies within 4-5 years compared to 6.7% among term-born children, whereas asthma prevalence was higher among preterm children with AD (36.0%) compared to term children with AD (17.3%) ($p=0.05$).

Conclusion: In this cohort, preterm birth was associated with a lower observed incidence of AD, with later onset and a milder and less persistent disease course. Among children with AD, those born preterm had no food allergy and a higher prevalence of asthma compared with term-born children.

7

Review

Curr Opin Pulm Med

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. 2026 May 1;32(3):226-231.

doi: 10.1097/MCP.0000000000001259. Epub 2026 Feb 25.

Update on allergen immunotherapy for asthma

R John Looney [1]

Affiliations Expand

- PMID: 41733137

- DOI: 10.1097/MCP.0000000000001259

Abstract

Purpose of review: The usefulness of allergen-specific immunotherapy for asthma is controversial. Publications from 2024 and 2025 on allergen immunotherapy for asthma will be reviewed.

Recent findings: A trial of house dust mite for asthma was strikingly positive for a subset of patients with variant alleles in chromosome 17q12-21. A trail of cockroach immunotherapy for asthma was negative based on nasal challenge. However, there were promising effects on T cells. New allergen-specific vaccines using allergoids and adjuvants are being developed in Europe and look promising for reducing the number of injections and improving safety. Small clinical trials have shown that trained immunity vaccines containing bacterial lysates can reduce wheezing in young children and animal models suggest these vaccines can affect allergen

sensitization and asthma. Recent reviews of multiple clinical trials have shown allergen-specific immunotherapy can reduce symptoms and medications in asthmatic individuals but not objective measures of lung fucntion. Recent reviews of combining biologics with allergen-immunotherapy suggest improved safety.

Summary: Allergen-specific immunotherapy remains an important treatment for allergic rhinitis and conjunctivitis and can be used safely in patients with mild or moderate well controlled asthma. Several new approaches look promising but need a lot more work.

Keywords: allergen immunotherapy; cockroach, chromosome 17q12-21; trained immunity.

- **45 references**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Otolaryngol Head Neck Surg

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. 2026 May;174(5):1188-1196.

doi: 10.1002/ohn.70176. Epub 2026 Feb 24.

The Association Between Allergic Rhinitis, Eosinophilic Inflammation, and Postoperative Recurrence in Nasal Polyps

Wei Zhong [1 2 3 4], Shaobing Xie [1 2 3 4], Haijun He [5 6], Hua Zhang [1 2 3 4], Weihong Jiang [1 2 3 4], Can Liao [1 2 3 4], Zhihai Xie [1 2 3 4]

Affiliations Expand

- **PMID: 41733103**

- **PMCID: PMC13126432**

- DOI: 10.1002/ohn.70176

Abstract

Objective: Although allergic rhinitis (AR) commonly co-occurs with chronic rhinosinusitis with nasal polyps (CRSwNP), its impact on tissue endotypes and prognosis remains unclear. This study examines the impact of AR on CRSwNP, focusing on its links to tissue eosinophilic inflammation and postoperative recurrence risk.

Study design: Retrospective cohort study.

Setting: Tertiary referral center.

Methods: A retrospective analysis was conducted on CRSwNP patients who underwent functional endoscopic sinus surgery. Based on the presence of comorbid AR, patients were categorized into AR and non-AR groups. Baseline clinical data, peripheral and tissue eosinophil levels, and prognosis were analyzed. Multivariate Cox regression and Kaplan-Meier survival analyses were used to assess associations with postoperative recurrence.

Results: A total of 603 patients with CRSwNP were included; 202 had comorbid AR. Compared with non-AR patients, the AR group had higher rates of prior surgery and asthma and showed increased tissue eosinophil counts and percentages. During follow-up, patients who recurred had a higher prevalence of AR, elevated peripheral and tissue eosinophil levels, more prior surgery, and higher Lund-Mackay scores. Multivariable Cox regression and Kaplan-Meier analysis identified AR as an independent predictor of postoperative recurrence. Moreover, a high tissue eosinophil burden independently associated with recurrence; within the recurrence cohort, AR patients exhibited significantly higher tissue eosinophil counts and percentages than non-AR patients.

Conclusion: Comorbid AR identifies a CRSwNP subgroup with marked tissue eosinophilia and increased risk of postoperative recurrence. It independently predicts earlier relapse and shorter recurrence-free survival, likely by amplifying local eosinophilic inflammation.

Keywords: allergic rhinitis; chronic rhinosinusitis with nasal polyps; eosinophilic inflammation; postoperative recurrence.

Conflict of interest statement

None.

- **40 references**
- **3 figures**

Supplementary info

MeSH terms, Grants and fundingExpand

Full text links

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Cite

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Comparative Study

Clin Otolaryngol

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. 2026 May;51(3):449-457.

doi: 10.1111/coa.70094. Epub 2026 Jan 28.

The Association Between Rhinitis Subtypes and Migraine: A Comparative Clinical Study

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Affiliations Expand

- PMID: 41605462

- DOI: 10.1111/coa.70094

Abstract

Objective: This cross-sectional analysis aimed to determine and compare the prevalence, severity, and associated disability of migraine in individuals with allergic rhinitis (AR), non-allergic rhinitis (NAR), and healthy controls.

Methods: In this prospective, cross-sectional study, 497 participants were enrolled: 200 with AR, 109 with NAR, and 188 controls. All participants underwent detailed assessment using the Total Rhinoconjunctivitis Score (TRS), Nasal Obstruction Symptom Evaluation (NOSE) scale, and were evaluated by a neurologist. Migraine was diagnosed according to ICHD-3 criteria. Migraine-related disability and impact were measured using the Migraine Disability Assessment (MIDAS) and Headache Impact Test-6 (HIT-6).

Results: The prevalence of migraine was significantly higher in the combined rhinitis group (24.9%) compared to controls (16.0%) (OR = 1.75, p = 0.018). When

analysed separately, the AR group had the highest migraine prevalence (26.0%), followed by the NAR group (22.9%). Patients with AR and migraine exhibited significantly higher MIDAS and HIT-6 scores than controls and those with NAR ($p < 0.05$), indicating greater disability. Both AR and NAR groups had significantly worse TRS and NOSE scores than controls ($p < 0.001$).

Conclusions: Rhinitis, particularly the allergic subtype, is significantly associated with a higher prevalence and greater severity of migraine. These findings highlight the importance of integrated management of nasal and headache symptoms.

Keywords: allergic rhinitis; comorbidity; migraine.

- 22 references

Supplementary info

Publication types, MeSH termsExpand

Full text links

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10

Review

Am J Rhinol Allergy

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. 2026 May;40(3):245-256.

doi: 10.1177/19458924251414922. Epub 2026 Jan 13.

Steroid-Sparing Effects of Biologics in Chronic Rhinosinusitis with Nasal Polyps: Systematic Review and A Meta-Analysis of Randomized Controlled Trials

Ali M Alsudays [1], Yasser G Alarimah [2], Khaled A Almanea [3], Ahmad Alrogi [1]

Affiliations Expand

- PMID: 41529095

- DOI: 10.1177/19458924251414922

Abstract

BackgroundChronic rhinosinusitis with nasal polyps (CRSwNP) presents significant management challenges, largely due to reliance on systemic corticosteroids (SCS) for symptom control. Advances in biologic therapies targeting type 2 inflammation have shown promise in reducing polyp burden, improving symptoms, and decreasing the need for SCSs and surgery.ObjectiveThis systematic review and meta-analysis compare the steroid-sparing efficacy of biologics and safety with other biologics or standard care in CRSwNP. Key outcomes include reducing SCS Use and drug safety.MethodsWe searched PubMed, Embase, Cochrane Library, Scopus, and the Web of Science. We included randomized controlled trials (RCTs) comparing biologics versus placebo/standard care in adults with CRSwNP. The primary outcomes were SCS reduction and safety. Meta-analyses, which use a statistical method called random effects models, were employed.ResultsThis meta-analysis of seven RCTs (n = 3097) revealed that biologic therapies significantly reduce SCS use in CRSwNP patients (pooled proportion: 20.9%, 95% CI: 8.4%-37.0%), though with substantial heterogeneity (I^2 = 98.3%). Trial-level predictors included control-arm safety profiles (higher serious adverse events (SAEs) reduced treatment effects) [odds ratio (OR) 0.70]. In contrast, placebo-arm SAEs enhanced them [OR 1.81]) and sample size (larger trials showed diluted responses [OR 0.993 per patient]). These results highlight the role of trial design and baseline patient risk in determining the interest of the results. They further highlight the possibility for individualized strategies in terms of treatment and call for more in-depth studies with patient-level data to refine the steroid-sparing therapeutic strategy, providing an impetus for future work in this area.ConclusionsThe biologics, specifically dupilumab, represent a paradigm shift in treating CRSwNP, significantly decreasing the burden of SCS-their consistent safety and efficacy support integration into treatment algorithms for severe cases.

Keywords: biologics; chronic rhinosinusitis; corticosteroid reduction; dupilumab; meta-analysis; nasal polyps; quality of life; randomized controlled studies; steroid-sparing; type 2 inflammation.

Conflict of interest statement

Declaration of Conflicting InterestsAhmad Alroqi reports serving as an advisory board member for Sanofi, GlaxoSmithKline (GSK), and AstraZeneca. The remaining authors declare no conflicts of interest.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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11

Clin Otolaryngol

. 2026 May;51(3):409-417.

doi: 10.1111/coa.70084. Epub 2026 Jan 11.

Dupixent's Efficacy in Cystic Fibrosis Related Chronic Rhinosinusitis With Nasal Polyposis: A Pilot Study

Piero Giuseppe Meliante [1 2 3], Edoardo Covelli [1], Giuseppe Cimino [4], Roger Altomari [2], Irene Fatuzzo [2 3], Chiara Filippi [1], Giorgio Bandiera [1], Antonella Polimeni [5], Antonio Greco [2], Marco de Vicentiis [2], Serena Bertin [2]

Affiliations Expand

- PMID: 41520682

- DOI: 10.1111/coa.70084

Abstract

Introduction: Cystic fibrosis (CF) patients often contend with chronic rhinosinusitis with nasal polyposis (CRSwNP), with higher relapse rates after surgery compared to non-CF individuals. CRSwNP has a significant impact on their quality of life and increases pulmonary infections risk. Traditional medical and surgical interventions are frequently inadequate. Dupixent is endorsed for persistent CRSwNP following conventional treatment in non-CF subjects; its effectiveness in CF patients remains unexplored considering that those patients are frequently affected by mixed endotypes of CRS with some type-2 features. This study delves into the assessment of Dupixent in CF-related CRSwNP and compares it with a matched control group.

Methods: This is a non-randomised single-centre trial enrolling CF patients and non-CF controls. SNOT-22 and NPS scores before, 1 and 6 months after therapy were documented.

Results: Dupixent exhibited a significant reduction in SNOT-22 scores after 6 months in both CF and control groups (V = 21, p value = 0.031, both). While NPS scores showed non-significant improvement in CF, the control group experienced a notable reduction after 6 months (V = 10, both; p value = 0.10; p value = 0.034, respectively). No statistical differences were observed between CF and control groups in SNOT-22 and NPS scores after 6 months.

Conclusions: This pilot study observed Dupixent's potential in managing CRSwNP in CF patients since SNOT-22 improvement was statistically significant and comparable to the non-CF patients. Although NPS scores improved without statistical significance, no differences emerged between CF and control groups. Therefore, Dupixent achieved comparable results between CF and non-CF patients suffering from CRSwNP.

Keywords: Dupixent; biologic therapies; chronic rhinosinusitis; cystic fibrosis; nasal polyps.

- 42 references

Supplementary info

MeSH termsExpand

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12

Multicenter Study

Laryngoscope

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. 2026 May;136(5):2073-2081.

doi: 10.1002/lary.70309. Epub 2025 Dec 12.

Orbital Complications of Acute Rhinosinusitis in Adulthood: Predictors of Outcome and Management

Alessandro Vinciguerra [1], Vittorio Rampinelli [2], Mario Turri-Zanoni [1], Marco Ferrari [3 4], Marco Valentini [1], Alberto Daniele Arosio [5], Federico Raimondi [6], Florian Chatelet [7], Stefano Taboni [3], Davide Mattavelli [2], Alberto Schreiber [2], Fabio Sovardi [8], Matteo Barucco [9], Lorena Di Girolami [9], Piergiorgio Gaudioso [3 4], Antonio Daloiso [3], Giulia Danè [10], Umberto Tanzini [10], Nicola Tessari [3 4], Jessica Zuppardo [11 12], Kays Burak Cakir [13], Yetkin Zeki Yilmaz [13], Yasar Unlu [14], Andrea Ronchi [5], Stefania Gallo [5], Francesca De Bernardi [5], Vasileios Chatzinakis [15], Argyro Leventi [15], Fabio Pagella [8], Benjamin Verillaud [7], Giuseppe Mercante [11 12], Apostolos Karligkiotis [10], Mario Bussi [10], Cesare Piazza [2], Alperen Vural [13], Paolo Castelnuovo [1], Piero Nicolai [3 4], Maurizio Bignami [5], Christos Georgalas [15], Iacopo Dallan [9], Philippe Herman [7], Paolo Battaglia [1]

Affiliations Expand

- **PMID: 41388488**

- PMCID: PMC13067212

- DOI: 10.1002/lary.70309

Abstract

Objectives: Orbital infections of acute rhinosinusitis are commonly classified thanks to the Chandler classification and may lead to vision loss or diplopia if not properly managed. While pediatric cases are well documented and their management is supported by clear evidence, data guiding adult management remain limited and fragmented. This study analyzes a large international cohort of patients that evaluates treatment approaches and outcome predictors for orbital complications (OCs) of acute sinusitis in adulthood.

Methods: This multicentric retrospective study included adults with OCs of acute sinonasal infections. Patients were classified using the Chandler classification, with an additional subdivision for pre-septal infections (modified Chandler classification). Clinical, radiologic, and therapeutic data were analyzed, evaluating treatment success, hospital stay, and complications. Predictors of treatment and outcomes were studied ($p < 0.05$).

Results: Among 213 patients (65.3% male, median age 48), 68.2% required surgery, mainly endoscopic (60.7%). Logistic regression identified the presence of additional complications ($p = 0.015$) and modified Chandler classification ($p < 0.001$) as the strongest predictors for treatment modality, while sinus opacification and visual impairment lost significance in the multivariate model. Infection resolution after primary treatment was significantly associated with nasal corticosteroid use ($p = 0.037$). Despite differences in treatment approach and hospitalization duration across modified Chandler categories, no significant differences were observed in final ophthalmologic outcomes.

Conclusion: This study emphasizes the role of the modified Chandler classification for upfront treatment decisions. Abscess-related and type II OCs often needed surgery, yet all cases achieved similarly optimal ophthalmologic outcomes and final infectious resolution.

Keywords: Chandler classification; acute sinusitis; orbital cellulitis; orbital infection; pre-septal cellulitis.

Conflict of interest statement

The authors declare no conflicts of interest.

- 24 references
- 1 figure

chronic cough

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Laryngoscope

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. 2026 Apr 28.

doi: 10.1002/lary.70598. Online ahead of print.

Diagnosis and Treatment of Refractory Chronic Cough: An American Broncho-Esophagological Association Expert Consensus Statement

Ronit E Malka [1], Anirudh Saraswathula [1], Gabriela Lilly [2], Marisa A Ryan [3], Andrew Bowen [4], Kenneth W Altman [5], Milan Amin [6], Laura Matrka [7], Ashli K O'Rourke [8], C Blake Simpson [9], Jonathan Bock [10], Paul C Bryson [11], Thomas L Carroll [12], Lee M Akst [1]

Affiliations Expand

- PMID: 42049642

- DOI: 10.1002/lary.70598

Abstract

Objective: To develop an expert consensus statement (ECS) on the diagnosis and treatment of refractory chronic cough (RCC) in adults. RCC was defined as cough lasting longer than 8 weeks and refractory to standard management of pulmonary, gastrointestinal, sinonasal, and medication-induced etiologies.

Methods: An expert panel of otolaryngologists used published consensus statement methodology to develop statements guiding the diagnosis and management of RCC from an otolaryngologic perspective. A modified Delphi method was used to iteratively select, eliminate, and refine statements based upon accepted methodology until consensus was achieved.

Results: Three iterative Delphi surveys were performed with discussion rounds between each of the voting sessions. Twenty-seven statements met consensus while six statements did not. The clinical statements were grouped into 9 categories: operational definition, pathophysiology, assessment of prior work-up, phenomenology and symptomatology, four treatment categories (neuromodulators, superior laryngeal nerve blocks, behavioral cough suppression, and emerging treatments), and overall treatment approaches.

Conclusion: The panel reached consensus for 27 statements related to the diagnosis and treatment of adults with RCC from an otolaryngologic perspective. These statements may be used to standardize evaluation and improve quality of care, while also identifying areas for future investigation in the management of RCC.

Keywords: SLN block; chronic cough; chronic cough treatment; cough hypersensitivity; idiopathic cough; irritable larynx; laryngeal hypersensitivity; laryngopharyngeal reflux; multi-disciplinary cough management; neurogenic cough.

- **141 references**

Full text links

Proceed to details

Cite

2

Respiration

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. 2026 Apr 28:1-17.

doi: 10.1159/000552275. Online ahead of print.

AN ITALIAN NETWORK FOR THE MANAGEMENT OF SEVERE COVID-19 DISEASE IN RESPIRATORY INTERMEDIATE CARE UNITS (RICU): THE PNEUMO-COV-VEN-IT

Martina Turrin, Andrea Francavilla, Elisabetta Balestro, Lucio Michieletto, Silvia Iovino, Paolo Spagnolo, Manuele Nizzetto, Dimitri San Lorenzo, Stefano Calabro, Laura Spillere, Riccardo Drigo, Francesco Menzella, Elisabetta Marcon, Gian Luca Casoni, Claudio Micheletto, Ernesto Crisafulli, Enrico Orzes, Dario Gregori, Micaela Romagnoli

- **PMID: 42048295**

- **DOI: 10.1159/000552275**

Abstract

Introduction: Evidence on the management of COVID-19 patients with severe acute respiratory failure outside Intensive Care Units (ICU) is limited. To assess mortality, outcomes/complications and their risk factors in COVID-19 patients with bilateral interstitial pneumonia and severe respiratory failure treated in Respiratory Intermediate Care Units (RICU) within an Italian pulmonology network.

Methods: retrospective observational multicentre study was performed collecting data regarding severe respiratory failure due to SARS-CoV-2 bilateral interstitial pneumonia in 13 RICU in the Veneto region from February 2020 to May 2023.

Results: A total of 1557 patients were included (median age 69 years; male 71% vs female 29%, p-value=0.009). The most frequent symptoms at ER admission were fever (78%), dyspnoea (72%), and cough (48%). At RICU admission, patients showed severe hypoxemia (median PaO_2/FiO_2 = 140, IQR 100-209). Respiratory support included non-invasive ventilation (NIV) and/or continuous positive airway pressure (CPAP) plus high-flow nasal cannula (HFNC) in 72%, HFNC alone in 12%, and low-flow oxygen in 16%. Overall, in-hospital mortality was 25%; in-RICU mortality was 16%. The 19.7% of patients were transferred to ICU, and 91% of them were intubated. ICU mortality was 51.8%. Independent mortality risk factors included chronic kidney disease (+13%) and diabetes (+7.4%), while mortality decreased significantly during the third pandemic timeframe (p<0.001). Male sex and older age were associated with higher risk of mortality.

Conclusions: This large multicentre study across 2020-2023 demonstrates that RICU management provided favourable outcomes in severe COVID-19, even among elderly and comorbid patients.

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J Voice

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. 2026 May;40(3):924.e1-924.e6.

doi: 10.1016/j.jvoice.2023.11.011. Epub 2023 Dec 5.

Chronic Refractory Cough: Long-Term Outcomes Following Cough Suppression Therapy

Ethan Simmons [1], Jessica F Kim [2], Daniel DeChance [2], Benjamin J Becerra [3], Brianna Crawley [4], Priya Krishna [5], Thomas Murry [4]

Affiliations Expand

- **PMID: 38057227**

- **DOI: 10.1016/j.jvoice.2023.11.011**

Abstract

Objective: This study aimed to determine the long-term outcomes of patients with chronic refractory cough (CRC) following treatment for cough suppression therapy (CST). Currently, there is a lack of objective data regarding the long-term outcome of behavioral treatment for CRC.

Methods: From the charts of 106 adult patients diagnosed with CRC, 24 patients were identified as having long-term data at least 3 months post-CST in the form of otolaryngologic examination, Voice Handicap Index-10 (VHI-10), and Cough Severity Index (CSI) scores. Patients underwent otolaryngologic evaluation and completed the VHI-10 and CSI assessments during pretreatment, posttreatment, and long-term follow-up visits. Patients were also divided into two groups based on their number of comorbidities.

Results: Twenty of the 24 patients had significant reduction in cough severity after completing CST ($P < 0.001$). A significant difference was also found in CSI scores from pretherapy to the long-term follow-up visits ($P = 0.001$). No significant difference was found in CSI scores from posttherapy to long-term follow-up visits ($P = 0.93$). No significant difference was found in VHI-10 scores over time ($P = 0.83$). No correlation was found between changes in cough and voice severity and number of comorbidities at the tested level.

Conclusions: Findings of no significant change in CRC over the long term compared to posttherapy measures suggest that patients were able to maintain improvement in cough over the long term despite various comorbidities. The current results suggest that CST represents a satisfactory approach to treating CRC and provides patients with an ongoing tool to maintain reduced cough severity. No significant correlations between number of comorbidities and mean CSI or VHI-10 scores were found over the long term.

Keywords: Chronic cough; Chronic refractory cough; Cough severity; Cough suppression therapy; Long-term outcomes.

. 2026 May;105(5):302-307.

doi: 10.1177/01455613231205393. Epub 2023 Oct 13.

Characteristics of Laryngopharyngeal Reflux in Patients with Chronic Cough Induced by Gastroesophageal Reflux Disease

Yu Zhao [1], Honglei Han [1], Qiuping Lu [1], Yan Liang [2]

Affiliations Expand

- PMID: 37830343

- DOI: 10.1177/01455613231205393

Free article

Abstract

Objective: To summarize the characteristics of laryngopharyngeal reflux in patients with chronic cough induced by gastroesophageal reflux disease (GERD). Materials and Methods: The clinical data of patients with chronic cough induced by GERD treated at our hospital were retrospectively analyzed, including their reflux symptom index (RSI), reflux finding scores (RFS), and results of oropharyngeal pH monitoring. Results: There were 44 patients in total, including 21 males and 23 females. The average history of chronic cough was 29.60 (29.60 ± 37.60) months. In addition to coughing, all patients had at least 2 symptoms of laryngopharyngeal reflux disease (LPRD), and their RSI averaged 15.66 (15.66 ± 6.33). The most frequent symptoms were cough, throat clearing, excessive phlegm, or postnasal drip. All patients had LPRD signs, with an average RFS of 10.89 (10.89 ± 2.81). The most frequent signs were erythema or hyperemia/vocal cord edema, posterior commissure hypertrophy, and diffuse laryngeal edema. There were 42 patients (42/44, 95.45%) whose RSI and/or RFS were abnormal. Oropharyngeal pH monitoring identified 10 patients (10/44, 22.72%) with abnormal Ryan scores. Conclusions: All patients with chronic cough induced by GERD had symptoms and signs of LPRD, and most of them had an abnormal RSI and/or RFS and could be diagnosed with suspect LPRD. A part of the patients had LPR episodes according to Dx-pH monitoring, most of which occurred in the upright position. These results indicated that most patients with chronic cough induced by GERD may have suspected LPRD simultaneously and that cough was one of their LPRD symptoms.

Keywords: chronic cough; gastroesophageal reflux disease; gastroesophageal reflux disease cough; laryngopharyngeal reflux; laryngopharyngeal reflux disease.

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.

- Cited by 2 articles

Supplementary info

MeSH termsExpand

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

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QJM

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. 2026 Apr 29:hcag114.

doi: 10.1093/qjmed/hcag114. Online ahead of print.

Update on Non- Cystic Fibrosis Bronchiectasis

Padraig Hawkins [1 2], Michael O'Mahony [1 2], Michael John Harrison [1 2], Jack Robert Rutherford [1], Ruth Cusack [1 2], Melissa Jane McDonnell [1 2], Rachel O'Neil [1], Niamh Duignan [1], John Bruzzi [3], Chris Ward [4], Robert Michael Rutherford [5]

Affiliations Expand

- **PMID: 42057306**

- **DOI: 10.1093/qjmed/hcag114**

No abstract available

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2

Review

Expert Opin Pharmacother

. 2026 Apr 28:1-9.

doi: 10.1080/14656566.2026.2664617. Online ahead of print.

Pharmacotherapy options and drug development in bronchiectasis: spotlight on dipeptidyl-peptidase inhibitors

Chiara Premuda [1], Andrea Gramegna [1 2], Sofia Misuraca [1], Federica Piedepalumbo [1], Leonardo Terranova [1], Martina Santambrogio [1], Martina Contarini [1], Margherita Ori [1], Francesco Blasi [1 2]

Affiliations Expand

- PMID: 42048140

- DOI: 10.1080/14656566.2026.2664617

Abstract

Introduction: In recent years, the central role of inflammation in the development and persistence of the vicious vortex of bronchiectasis has become increasingly evident, gradually reshaping the therapeutic landscape. Historically, treatment strategies have focused mainly on controlling infection, alleviating symptoms, and enhancing mucociliary clearance. However, accumulating evidence indicates that targeting the inflammatory component represents an important complementary strategy in bronchiectasis management.

Areas covered: Within this evolving framework, novel anti-inflammatory approaches are emerging, including the inhibition of dipeptidyl peptidase-1 (DPP-1) which can reduce neutrophil-driven airway inflammation and, consequently, exacerbations. The recent regulatory approval of brensocatib, a DPP-1 inhibitor, represents a milestone in the development of targeted therapies for bronchiectasis.This review provides a narrative overview of available treatments for bronchiectasis, with a particular focus on DPP-1 inhibitors, and discusses their potential role and integration into clinical practice.

Expert opinion: The emergence of DPP-1 inhibitors reflects a paradigm shift in bronchiectasis care. While promising, their role remains to be fully defined due to a lack of long-term real-world evidence and comparative studies against established strategies. A major challenge will be identifying the patients most likely to benefit. Despite uncertainties, these agents have the potential to redefine treatment for this complex disease.

Keywords: CatC; DPP-1; NCFBE; Non-cystic fibrosis bronchiectasis; brenoscatib; cathepisin C; inflammation; verducatib.

Supplementary info

Publication typesExpand

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Int J Tuberc Lung Dis

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. 2026 Apr 27;30(5):217-224.

doi: 10.5588/ijtld.25.0559.

The impact of TB on the risk of bronchiectasis: a nationwide cohort study

S M Moon [1], K-N Lee [2], K Han [3], D W Shin [4], H Lee [5]

Affiliations Expand

- PMID: 42046225

- DOI: 10.5588/ijtld.25.0559

Abstract

<sec><title>BACKGROUND</title>Post-TB lung disease contributes substantially to long-term morbidity, with bronchiectasis being a frequent sequela. However, its incidence and risk factors at the population level remain poorly defined.</sec><sec><title>METHODS</title>We conducted a nationwide cohort study including 12,626 TB survivors diagnosed between 2013 and 2017, matched 1:3 by age and sex to 37,878 controls. Participants were followed until bronchiectasis diagnosis, death, or December 2018. Incidence, relative risks, and risk factors were assessed.</sec><sec><title>RESULTS</title>During a median follow-up of 5.4 years, 875 bronchiectasis cases occurred. TB survivors showed a higher incidence than controls (7.09 vs. 1.98 per 1,000 person-years; *P* < 0.001) and a 2.68-fold elevated risk (95% confidence interval, 2.30-3.11). Risk was particularly elevated in younger individuals (<60 years, adjusted hazard ratio [aHR] 3.06), never- or light smokers (aHR 2.91-3.89), those with low comorbidity burden (aHR 3.39), and those without chronic airway disease (aHR 2.93). Within TB survivors, age ≥60 years, low body mass index, low income, and chronic airway disease were independent risk factors of bronchiectasis.</sec><sec><title>CONCLUSION</title>TB survivors had a markedly higher risk of bronchiectasis, highlighting the importance of vigilant

follow-up and preventive strategies to reduce long-term respiratory complications.</sec>.

Supplementary info

MeSH termsExpand

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4

Multicenter Study

Lung

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. 2026 Apr 27;204(1):25.

doi: 10.1007/s00408-026-00874-2.

High Serum IgE is Associated with Risk of Severe Exacerbations Among Non-Eosinophilic Bronchiectasis

Ting-Wei Kao [1], Ya-Hui Wang [2], Chia-Ling Chang [3], Chau-Chyun Sheu [4 5], Ping-Huai Wang [6], Meng-Heng Hsieh [7 8], Wu-Huei Hsu [9 10 11], Ming-Tsung Chen [12], Wei-Fan Ou [13], Yu-Feng Wei [14 15], Tsung-Ming Yang [16], Chou-Chin Lan [17], Cheng-Yi Wang [18], Chih-Bin Lin [19 20], Ming-Shian Lin [21], Yao-Tung Wang [22 23], Ching-Hsiung Lin [24 25 26], Shih-Feng Liu [8 27 28], Meng-Hsuan Cheng [4 29], Yen-Fu Chen [30 31], Wen-Chien Cheng [9 11], Chung-Kan Peng [12 32], Ming-Cheng Chan [33 34], Ching-Yi Chen [35], Lun-Yu Jao [20], Chi-Jui Chen [19], Shih-Pin Chen [22 23], Yi-Hsuan Tsai [27 36], Shih-Lung Cheng [6], Horng-Chyuan Lin [7 8 37], Jung-Yien Chien [1], Hao-Chien Wang [1 37 38]; Taiwan Bronchiectasis Research Collaboration (TBARC)

Affiliations Expand

- **PMID: 42045520**

- **PMCID: PMC13121277**

- **DOI: 10.1007/s00408-026-00874-2**

Abstract

Purpose: Bronchiectasis has traditionally been characterized as a neutrophil-driven disease, yet emerging evidence suggested inflammatory heterogeneities. The prognostic significance of elevated serum immunoglobulin E (IgE) in patients without peripheral eosinophilia remains unclear.

Methods: We conducted a multicenter prospective cohort study between 2017 and 2020 across 16 institutions in Taiwan. Individuals with bronchiectasis but without allergic bronchopulmonary aspergillosis were included. Patients were stratified by baseline absolute eosinophil count (cutoff 300 /uL) and serum IgE level (≤ 100, 100-500, > 500 IU/mL). The primary endpoint was severe exacerbations resulting in hospitalization at one year. Secondary endpoints included all-cause mortality, distribution of sputum pathogen, imaging pattern, and lung function.

Results: A total of 579 individuals were enrolled. Nontuberculous mycobacteria (10.7%) and Pseudomonas aeruginosa (9.0%) were the most commonly isolated microorganisms in sputum. 493 patients (85.1%) were categorized as low-eosinophil bronchiectasis, and 41 (7.1%) presented serum IgE levels exceeding 500 IU/mL. The rate of hospitalization for acute exacerbation in such group was pronouncedly higher than in patients with lower IgE levels (9.8% vs. 0.9% and 2.3%; P = 0.009). In multivariate analysis, IgE exceeding 500 IU/mL was the strongest independent predictor of hospitalization (adjusted odds ratio, 7.38; 95% confidence interval, 2.40-22.7; P < 0.001). The association was particularly pronounced in female and patients with coexisting asthma. All-cause mortality did not differ significantly among IgE strata.

Conclusion: Markedly elevated serum IgE independently predicted severe exacerbations resulting in hospitalization in patients with non-eosinophilic bronchiectasis, identifying a high-risk subgroup that may benefit from targeted immunomodulatory therapies.

Keywords: Bronchiectasis; Eosinophilic; Exacerbation; Immunoglobulin E; Type 2 inflammation.

Conflict of interest statement

Declarations. Competing interests: All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript. Ethical approval: This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by Research Ethics Committee C of the National Taiwan University Hospital (No. 202110079RINC). Consent to participate: Informed consent was obtained from all individual participants included in the study. Consent to publish: Not applicable.

- **31 references**
- **4 figures**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Lancet Respir Med

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. 2026 May;14(5):385-388.

doi: 10.1016/S2213-2600(26)00077-9. Epub 2026 Mar 14.

Ten unanswered questions about dipeptidyl peptidase-1 inhibition in bronchiectasis

Jiahui He [1], Chloe Hughes [1], Merete B Long [1], James D Chalmers [2]

Affiliations Expand

- PMID: 41839192

- DOI: 10.1016/S2213-2600(26)00077-9

No abstract available

Conflict of interest statement

JDC received consulting fees from AstraZeneca, Chiesi, GSK, Insmed, Grifols, Novartis, Boehringer Ingelheim, Pfizer, Janssen, and Antabio; and grants or contracts from AstraZeneca, Genentech, Boehringer Ingelheim, Gilead, Chiesi, Grifols, Insmed, and Trudell. MBL received consulting fees from Grifols. All other authors declare no competing interests.

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6

Review

Br J Pharmacol

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. 2026 May;183(9):1779-1813.

doi: 10.1111/bph.70376. Epub 2026 Mar 2.

Novel drugs approved by the EMA, the FDA and the MHRA in 2025: A year in review

Andreas Papapetropoulos [1 2], Stavros Topouzis [3], Steve P H Alexander [4], Miriam M Cortese-Krott [5], Zsuzsanna Helyes [6 7], Kirill Martemyanov [8], Claudio Mauro [9], Nithyanandan Nagercoil [10], Reynold A Panettieri Jr [11], Hemal H Patel [12], Rainer Schulz [13], Barbara Stefanska [14], Gary J Stephens [15], Nathalie Vergnolle [16], Xin Wang [17], Stephen Ward [18], Péter Ferdinandy [19 20 21]

Affiliations Expand

- **PMID: 41771767**

- **DOI: 10.1111/bph.70376**

Abstract

In the 2025 novel drug mini-review, one can take a full measure of the ingenuity that underlies current drug design and development, despite the year's smaller harvest (46 novel drugs) compared to 2024 (53) and 2023 (70). 54% of the novel drugs are first-in-class (FIC). The emphasis on proteins/antibodies is maintained (~25% novel drugs in 2025), an industry trend that does not seem to abate. Fewer than half of the novel medicines address major or common disorders. Among the FIC drugs, it is worth mentioning the $Na_V1.8$ channel inhibitor suzetrigine, the first non-opioid approved to palliate acute pain; the first positive allosteric modulator of transient receptor potential melastatin 8 (TRPM8), acoltremon, that increases basal tear production in dry eye disease, a globally common disorder; lerodalcibep, a 'third generation' adnectin inhibitor of the protease Proprotein Convertase Subtilisin/Kexin type 9 (PCSK9) to treat elevated LDL-c; and zoliflodacin and gepotidacin, both innovatively targeting bacterial topoisomerases to treat uncomplicated urinary tract infections. Most of the approved medicines target unmet medical need areas and/or orphan indications (the latter alone accounting for 41% of the 2025 novel drugs) by applying imaginative approaches. These approaches include: the combination of two FIC drugs, the RAF/MEK clamp avutometinib paired with the FAK/Pyk2 inhibitor defactinib, to block more efficiently the RAS-RAF-MEK-ERK/FAK oncogenic pathway in low-grade serous ovarian cancer; fitusiran, the first RNAi therapy for haemophilia, targeting for the first time the production of the natural anticoagulant anti-thrombin in the liver; and brensocatib, which attenuates the activation of downstream neutrophil proteases by inhibiting the protease DPP1, thereby preventing lung tissue destruction in bronchiectasis. The landscape of novel drugs approved in 2025 reveals that

pharmaceutical innovation continues to advance through FIC mechanisms, sophisticated therapeutic approaches, and a strong focus on unmet medical need.

Keywords: EMA; FDA; MHRA; drug development; first-in-class; mechanism of action; novel drug approvals.

- 210 references

Supplementary info

Publication types, MeSH termsExpand

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7

Comparative Study

Respirology

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. 2026 May;31(5):471-483.

doi: 10.1002/resp.70202. Epub 2026 Feb 4.

Body Composition and Muscle Function in Bronchiectasis: A Comparative Longitudinal Study

Joice Mara de Oliveira [1 2], Amber Smith [1 2], Paola D Urroz Guerrero [1 2], Laura Cordova Rivera [3], Dennis Thomas [2 4], Vanessa L Clark [1 2], Peter G Gibson [2 4 5], Vanessa M McDonald [1 2 5]

Affiliations Expand

- PMID: 41639944

- PMCID: PMC13125391

- DOI: 10.1002/resp.70202

Abstract

Background and objective: Adults with bronchiectasis often present with altered body composition and muscle strength, yet prognostic value of peripheral muscle strength are not well understood. This study compared body composition and muscle function between adults with bronchiectasis and healthy controls and examined whether peripheral muscle strength estimates one-year clinical outcomes.

Methods: Adults with HRCT-confirmed bronchiectasis and controls underwent assessments including DXA (body composition), dynamometry (leg and shoulder strength), and core endurance tests. Participants with bronchiectasis were classified as having retained or impaired leg strength based on the 10^{th} percentile of control values and were reassessed after one year for exacerbations, dyspnoea, quality of life, anxiety and depression, and exercise capacity.

Results: Seventy-one participants with bronchiectasis and 92 controls were included; 43 bronchiectasis participants completed follow-up. Females with bronchiectasis had lower appendicular muscle index ($p = 0.018$) and both sexes had lower bone mineral density compared to their control counterparts ($p < 0.001$). Osteopenia was 3 times more prevalent in females with bronchiectasis compared to their counterparts (54% versus 18%). Females with bronchiectasis have poorer lateral core endurance than those without ($p \leq 0.003$). Leg strength was reduced in bronchiectasis compared to controls, regardless of sex (mean difference [95% CI] for males -25 [-50; -1] Kg and females -18 [-29; -7] Kg). Reduced leg strength is associated with worse dyspnoea, health related quality of life, and functional capacity over one year, explaining up to 33% of the variance ($p \leq 0.001$).

Conclusion: Individuals with bronchiectasis exhibit impaired muscle function and bone health, with leg strength showing a significant association with clinical outcomes over one year.

Keywords: abdominal muscles; bronchiectasis; dyspnoea; quality of life; skeletal muscles; walk test.

Conflict of interest statement

Joice Mara de Oliveira, Amber Smith, Paola D. Urroz Guerrero have no conflicts of interest to disclose. Dennis Thomas reports grants from GlaxoSmithKline, outside the submitted work. Vanessa L. Clark has received speaking fees from Astra Zeneca, which are unrelated to this study. Peter G. Gibson or his institution have received research funding from GSK, and fees for speaking and advisory board attendance from AstraZeneca, GSK, Novartis, and Orion Pharmaceuticals, all unrelated to this study. Vanessa M. McDonald reports personal fees from AstraZeneca, GlaxoSmithKline, Menarini, and Boehringer Ingelhiem, and grants from AstraZeneca, GlaxoSmithKline, that are not related to the submitted manuscript. Vanessa M. McDonald is an Editorial Board member of Respirology and a co-author of this article. She was excluded from all editorial decision-making related to the acceptance of this article for publication.

- 52 references
- 2 figures

Supplementary info

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Heart Lung

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Is there a relationship between extracardiac pulmonary findings and coronary artery stenosis severity and plaque types?

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Abstract

Background: Extracardiac lung parenchymal findings (ECLF) are frequently identified during coronary computed tomography angiography (CCTA), although their relationship to coronary artery stenosis severity and plaque features is uncertain.

Objectives: To evaluate the relationship between the frequency and distribution of ECLF, observed in patients with normal coronary arteries and those with stenosed coronary arteries, the degree of coronary artery stenosis, and plaque types.

Methods: The examination of 335 patients who underwent CCTA for stable angina analyzed at the existence and types of ECLF, as well as the features of stenosis and

plaque types in the coronary arteries. Stenosis severity was defined as mild, moderate, or severe, and plaque type as calcified, soft, or mixed. ECLF such as emphysema, atelectasis, nodule, bronchiectasis, consolidation were systematically investigated.

Results: Patients with calcified and mixed-type plaques were significantly older than those without plaques ($p < 0.001$). The prevalence of ECLF was significantly higher in patients with soft and mixed plaques compared to those with calcified plaques ($p = 0.031$). A significant association was observed between coronary artery stenosis severity and presence of ECFL ($p = 0.0288$), with emphysema being significantly more common in patients with severe stenosis ($p < 0.001$). Pulmonary nodules were more frequently detected in cases with soft plaques, whereas atelectasis and emphysema were more commonly associated with calcified plaques.

Conclusion: The frequency of ECLF increased with the severity of coronary stenosis. These findings highlight the importance of systematic assessment of extracardiac structures during CCTA.

Keywords: Coronary artery disease (CAD); Coronary computed tomography angiography (CCTA); Extracardiac lung parenchymal findings (ECLF).

Conflict of interest statement

Declaration of competing interest Authors declare that they have no conflict of interest.

Supplementary info

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Eur Radiol

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Quantitative CT of emphysema, wall thickness and mucus plugs in alpha-1-antitrypsin deficiency: relationship to clinical outcomes

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Abstract

Objectives: Alpha-1-antitrypsin deficiency (AATD) is a rare genetic disorder leading to chronic obstructive pulmonary disease (COPD). Emphysema is the major structural damage visible on CT scans. However, there is little knowledge on the association between other structural abnormalities, such as bronchiectasis (BE), airway wall thickening (WT) or mucus plugs (MP), and clinical features.

Materials and methods: Retrospective study between 2008 and 2022 at one University Hospital of Bordeaux on all consecutive AATD patients. Bronchial and parenchymal alterations were evaluated with an (artificial intelligence) AI-driven Normalized Volume of Airway Abnormalities (NOVAA-CT) scoring system, including BE, WT, MP and emphysema quantifications. We evaluated correlations between forced expiratory volume in 1-s (FEV1%), dyspnea severity through the mMRC scale and the occurrence of at least one exacerbation in the year following CT scan.

Results: Fifty-two AATD patients were included (median FEV1: 47% (40-65)). CT features of BE, WT and MP were present in 100%, 94.2% and 59% of the study population, respectively, with a lower versus upper lung predominance ($p < 0.05$). WT ($p < 0.001$) and BE ($p = 0.04$) correlated with FEV1% but not mMRC ($p \geq 0.09$). Conversely, MP did not correlate with FEV1% ($p = 0.08$) but with mMRC ($p = 0.01$). Emphysema strongly correlated with both FEV1% and mMRC ($p < 0.001$). In multivariate analysis, after adjustment for age, genotype and tobacco consumption, the best predictor of exacerbation was WT (OR = 1.12 [1.02-1.22]; $p = 0.01$).

Conclusion: This study demonstrates that AI-assisted identification of structural airway abnormalities is frequent in AATD patients and carries distinct clinical significance. Among them, WT was the most robust predictor of exacerbations.

Key points: Question Emphysema is the major structural damage in alpha-1-antitrypsin deficiency (AATD). Clinical associations of bronchial abnormalities such as bronchiectasis (BE), mucus plugs (MP) and wall thickness (WT) are lacking. Findings Quantitative CT of BE and WT correlated with PFT ($p \leq 0.05$), while MP correlated with dyspnea scale ($p = 0.01$). The best predictor of exacerbation was WT (OR = 1.12 [1.02-1.24]). Clinical relevance AI-assisted identification of bronchial abnormalities is frequent in AATD patients in addition to emphysema alone and carries distinct clinical significance. These findings highlight the importance of comprehensive CT-based evaluations to better characterize disease phenotype and guide clinical management in AATD.

Keywords: Alpha-1-antitrypsin deficiency; Artificial intelligence; CT scan; Chronic obstructive pulmonary disease; Exacerbation.

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Gael Dournes. Conflict of interest: The authors of this manuscript declare relationships with the following companies: Patrick Berger: GSK, AstraZeneca, Sanofi, Chiesi. Maeva Zysman: GSK, AstraZeneca, Menarini, Novartis, CSL Behring, Chiesi, Pfizer. Gael Dournes: Sanofi, AstraZeneca, Vertex Pharmaceuticals. The other authors do not have relationship of interest with the manuscript content. Statistics and biometry: One of the authors (Patrick Berger) has significant statistical expertise. No complex statistical methods were necessary for this paper. Informed consent: Written informed consent was waived by the Institutional Review Board. Ethical approval: Institutional Review Board approval was obtained. Study subjects or cohorts overlap: None. Methodology: Retrospective Observational Performed at one institution

- **37 references**
- **5 figures**

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Defining CT subtypes in chronic obstructive pulmonary disease: real world daily practice does not meet guidelines

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Abstract

Aims: To evaluate the quality and inter-rater reliability of CT-definable chronic obstructive pulmonary disease (COPD) subtype reporting in CT chest reports in a real-world setting, and assess concordance with Fleischner Society guidelines.

Methods: We undertook a retrospective review of 100 randomly selected CT chest scans containing the terms 'emphysema' or 'COPD'. Existing reports were evaluated for the description of emphysema phenotype, severity, and location, as well as the presence of associated findings, benchmarked against the Fleischner Society guidelines for CT reporting. The scans were then read independently by two consultant thoracic radiologists and two radiology specialty residents, blinded to the original reports and each other's assessments. Inter-rater variability was assessed using Light's Kappa for categorical variables and intraclass correlation coefficient (ICC) for ordinal variables.

Results: Emphysema phenotype was described in 51 % of the pre-existing reports, with centrilobular emphysema being the most frequently reported subtype. Only 26 % of reports included all three key descriptors of phenotype, severity and location. Inter-rater agreement was fair for emphysema phenotype (κ = 0.371) and moderate for the grading of paraseptal emphysema (ICC = 0.733), but was more variable for associated features such as large airways disease (κ = 0.0646) and bronchiectasis (κ = 0.0996).

Conclusion: This study shows variability in the quality of CT reporting for COPD in a real-world setting, with frequent omissions of key descriptors and marked inter-rater variability. These findings highlight the need for standardisation in CT reporting, particularly in the context of increasing reliance on imaging for COPD diagnosis and management.

Keywords: Chronic obstructive pulmonary disease; Computed tomography; Fleischner society; Reporting quality; Standardisation.

Conflict of interest statement

Declaration of competing interest No conflicts declared.

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