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

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Practice Guideline

Pediatr Allergy Immunol

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. 2025 Nov;36(11):e70225.

doi: 10.1111/pai.70225.

Italian pediatric experts' consensus statement on diagnosis and management of primary atopic disorders

Fabio Cardinale [1], Ivan Taietti [2 3], Mayla Sgrulletti [4], Lucia Pacillo [5], Viviana Moschese [4], Caterina Cancrini [5 6], Raffaele Badolato [7], Michele Miraglia Del Giudice [8], Gian Luigi Marseglia [2 3], Elena Chiappini [9 10], Riccardo Castagnoli [2 3]; Primary Atopic Disorders Working Group; Italian Society of Pediatric Allergy and Immunology (SIAIP)

Collaborators, Affiliations Expand

- **PMID: 41177946**

- **DOI: 10.1111/pai.70225**

Abstract

Background: Primary Atopic Disorders (PAD) represent a recently recognized subset of inborn errors of immunity (IEI), characterized by severe atopy driven by genetic mutations leading to dysregulated type 2 immune responses, excessive mast cell activation, and hyper production of IgE. In PAD patients, severe atopic manifestations, including eczema, asthma, food allergies, and eosinophilic gastrointestinal disorders, are often associated with other signs of immune dysfunction.

Methods: Recognizing the need for standardized diagnostic and management guidelines for PAD, a Delphi-based expert consensus was developed within the Immunology Committee of the Italian Society of Pediatric Allergy and Immunology (SIAIP). After a systematic review of the literature and the development of the clinical statements, 45 specialists from multiple pediatric subspecialties reached an agreement on key aspects of PAD classification, diagnosis, and treatment.

Results: The consensus focuses on some red flags that could aid clinicians in suspecting PAD. The document also proposes a diagnostic work-up to differentiate monogenic PAD from polygenic allergic conditions. It also emphasizes the importance of molecular pathway analysis to direct precision treatments, including biological drugs. Given the complexity of the field and the potential overlap between PAD and other IEI, the consensus recommends a multidisciplinary approach to diagnosis and treatment. The document establishes a framework for early recognition of PAD, integrating emerging genetic insights into clinical practice and promoting personalized therapeutic strategies.

Conclusions: The present work is the first structured consensus to standardize PAD diagnosis and management among pediatric subspecialists, aiming to improve patient outcomes through early intervention and tailored therapies.

Keywords: early diagnosis; genetics; immune dysregulation; inborn errors of immunity; primary atopic disorders; severe atopic diseases; targeted treatment.

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- **154 references**

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J Allergy Clin Immunol Pract

. 2025 Oct 31:S2213-2198(25)01019-0.

doi: 10.1016/j.jaip.2025.10.032. Online ahead of print.

DUPILUMAB-INDUCED BLOOD EOSINOPHILIA IN PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPS: TEMPORAL TRENDS AND CORRELATION WITH ADVERSE EVENTS

Eugenio De Corso [1], Claudio Montuori [2], Ernesto Pasquini [3], Ignazio La Mantia [4], Angelo Ghidini [5], Carlotta Pipolo [6], Massimiliano Garzaro [7], Giancarlo Ottaviano [8], Veronica Seccia [9], Andrea Ciofalo [10], Sara Torretta [11], Elena Cantone [12], Giulia Danè [13], Fabio Pagella [14], Daniela Lucidi [15], Gian Luca Fadda [16], Alice Mannocci [17], Carlo Cavaliere [18], Giulio Pagliuca [19], Frank Rikki Mauritz Canevari [20], Stefano Settimi [2], Francesco Bussu [21], Marco Corbo [2], Silvia Baroni [22], Jacopo Galli [2]; Dupilumab Italian Study Group

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- PMID: 41177433

- DOI: 10.1016/j.jaip.2025.10.032

Abstract

Background: Chronic rhinosinusitis with nasal polyps (CRSwNP) patients treated with dupilumab may experience an increase in blood absolute eosinophil count (AEC). However, onset and temporal pattern of dupilumab-induced blood eosinophilia (DIBE) have not been thoroughly investigated in real life.

Objective: To evaluate DIBE prevalence and temporal pattern in CRSwNP patients, to determine associations between DIBE and adverse events (AEs), patients' clinical characteristics and treatment outcomes.

Methods: This is a multicentric historical prospective observational study conducted across 14 Italian centres of DUPIREAL network. DIBE onset and temporal pattern, clinical characteristics, CRSwNP outcomes and AEs were analyzed. DIBE was defined as AEC 50% increased from baseline and at least >500 cells/mm^3 or AEC >1500 cells/mm^3.

Results: A total of 564 CRSwNP patients were enrolled. Mean AEC peaked at 3 months and declined by 12 months. Among patients developing DIBE (48.2%), three distinct temporal patterns were identified basing on onset and duration: early-onset temporary (group 1, 30.7% patients), early-onset persistent (group 2, 14.4% patients), and late-onset (group 3, 3.2% patients). Asthma prevalence (p<0.001), use of asthma inhalers (p<0.001) and previous oral corticosteroid (OCS) use (p<0.045) were greater in patients with DIBE (group 1-3) than in patients without DIBE (group 0). DIBE >1500 cells/mm^3 was associated with a higher risk of developing mild AEs

(p<0.001). DIBE occurrence did not influence dupilumab outcomes in CRSwNP patients.

Conclusion: Distinct DIBE patterns have been identified in CRSwNP patients, based on eosinophilia temporal trends. DIBE was mainly observed in comorbid asthma patients and previous use of systemic steroids. The findings confirm that DIBE is a mostly transient and harmless phenomenon associated only with mild AEs.

Keywords: CRSwNP; adverse events; asthma; dupilumab; eosinophilia; safety; systemic steroids; temporal pattern.

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Review

Mol Biol Rep

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. 2025 Nov 1;53(1):36.

doi: 10.1007/s11033-025-11007-y.

Insights on inflammatory pathways and their cross-talk: a comprehensive review on asthma

Sadaf Naz [1 2 3], Aimen Wajid [2], Marya Nawaz Malik [2], Muhammad Khalid Tipu [4]

Affiliations Expand

- PMID: 41174322

- DOI: 10.1007/s11033-025-11007-y

Abstract

Allergic asthma is a heterogeneous respiratory disease characterized by recurring chest tightness, wheezing, coughing, and shortness of breath. Inflammation in asthma can be characterized into two types: T2 inflammation (Eosinophilic asthma)

and non-T2 inflammation (Neutrophilic asthma). T2 inflammation is mediated by T helper type 2 cells (Th2) And innate lymphoid type 2 cells (ILC2), whereas the involvement of neutrophils, macrophages, and cytokines such as IL-2, IL-6, and IL-17 characterizes non-T2 inflammation. Asthma pathophysiology is complexly linked to the dysregulation of key intracellular signaling pathways, including NF-κB, JAK-STAT, MAPK, PI3K, and Nrf2. NF-κB plays an important role in the maintenance of the chronic inflammatory response by increased expression of cytokines in the airway epithelium. In contrast, the MAPK signaling pathway, through the involvement of MAPKs, which belong to the family of serine/threonine protein kinases, contributes to inflammatory responses through responding to various stimuli such as osmotic stress, heat shock, mitogens, and the inflammatory cytokines, which result in the regulation of cell proliferation, cell survival, cell differentiation, and apoptosis. JAK-STAT signaling mediates cytokine responses critical for Th2-driven asthma phenotypes, while the PI3K pathway exacerbates inflammation and oxidative stress through several processes, e.g., cell growth, proliferation, survival, differentiation, and migration. Conversely, the Nrf2 pathway is a protective mechanism, regulating antioxidant defenses to counter oxidative damage in asthmatic airways. Exploring the interesting crosstalk between these pathways offers profound insights into asthma's intricate molecular mechanisms, thereby paving the way for targeted and personalized therapeutic interventions.

Keywords: Asthma phenotypes/Endotypes; Inflammation; Jak/STAT; MAPK; NF-κB; Nrf2.

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Conflict of interest statement

Declarations. Conflict of interest: The authors declare no competing interests that are relevant to the contents of this article. Consent for publication: The manuscript has been approved for publication by the authors.

- 141 references

Supplementary info

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BMJ Open Respir Res

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. 2025 Oct 31;12(1):e002992.

doi: 10.1136/bmjresp-2024-002992.

Fixed airway obstruction and bronchodilator responsiveness phenotypes in severe asthma population from SANI registry

Giuseppe Guida [1 2], Francesco Blasi [3 4], Giorgio Walter Canonica [5 6], Enrico Heffler [5 6], Pierluigi Paggiaro [7], Isabella Sala [8 9], Vincenzo Bagnardi [8], Fabio L M Ricciardolo [10 2], Manlio Milanese [11]; SANI Network; The SANI Network

Collaborators, Affiliations Expand

- PMID: 41173502

- DOI: 10.1136/bmjresp-2024-002992

Free article

Abstract

Background: Data on asthma with fixed airway obstruction (FAO) are heterogeneous due to different and misleading definitions. Describing the FAO phenotype has significant implications for severe asthma (SA) comprehension.

Objective: To characterise SA patients with FAO in the Severe Asthma Network in Italy (SANI) registry at baseline, and to compare with those with reversible airway obstruction (bronchodilator responsiveness, BDR). The potential for re-evaluating FAO or BDR in the follow-up was explored.

Methods: FAO was defined as a forced expiratory volume in the first second (FEV_1)/forced vital capacity ratio < Lower Limit of Normal (LNN) after a bronchodilator test with an increase in FEV_1 of <12% or 200 mL, compared with BDR and no airway obstruction (no-AO). Clinical reported outcomes, including asthma control (ACT), quality of life (AQLQ) and exacerbations (AEs) were collected. The effect of demographic, clinical and biohumoral variables on FAO, BDR and no-AO groups at baseline and during the follow-up was estimated.

Results: Among 354 patients, 190 (53.7%) reported AO with 116 (60.1%) resulting in FAO. The overall FAO rate at enrolment was 32.8%. Compared with BDR, FAO patients had better asthma control (34.5% vs 20.3%, p=0.004), a higher ACT (17.4 vs 15.2, p=0.005) and AQLQ (4.6 vs 3.8, p=0.001) score. FAO patients were less likely to visit the emergency room or be hospitalised than BDR (p=0.050), with no difference in AEs. The effect of airway calibre on fractional exhaled nitric oxide is more likely to cause its lower level within FAO compared with BDR (29.5 vs 46.0 ppb, p=0.04) than a lower T2 burden. A variation from FAO to BDR or no-AO was associated with the Global Initiative for Asthma classification (step 4 vs 5: HR 3.58 (95% CI 1.16 to 11.03)) and the age of asthma onset (30-39 vs <20 years: HR 3.94 (95% CI 1.09 to 14.30)) CONCLUSION: Stratifying SA patients from the SANI registry reveals an FAO phenotype that expresses different clinical outcomes and biological markers compared to BDR. Over time, FAO may be reversible in late-onset SA with less inhaled corticosteroid treatment.

Keywords: Asthma; Asthma Mechanisms; Pulmonary Disease, Chronic Obstructive; Respiratory Function Test.

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Conflict of interest statement

Competing interests: GG reports fee as speaker for AstraZeneca; FB received financial grants from AstraZeneca Financial grants from AstraZeneca, Chiesi Farmaceutici S.p.A and Insmed Inc.; he worked as a paid consultant for Menarini and Zambon; and received speaker fees from AstraZeneca, Chiesi Farmaceutici S.p.A., GlaxoSmithKline, Guidotti, Grifols, Insmed Inc., Menarini, Novartis AG, Sanofi-Genzyme, Viatris Inc., Vertex Pharmaceuticals and Zambo; GWC reports having received research grants as well as being lecturer or having received advisory board fees from: A. Menarini, Allergy Therapeutics, AstraZeneca, Chiesi Farmaceutici, Faes, Firma, Guidotti-Malesci, Glaxo Smith Kline, Hal Allergy, Innovacaremd, Novartis, OmPharma, RedMaple, Sanofi-Aventis, Sanofi-Genzyme, Stallergenes-Greer, Uriach Pharma, ThermoFisher, Valeas; EH received a research grant from GlaxoSmith&Kline, and fees for lectures from Sanofi, Regeneron, GlaxoSmith&Kline, AstraZeneca, Novartis, Chiesi, Stallergenes-Greer; and declares fees for advisory boards participation from Sanofi, Regeneron, Glaxo Smith Kline, AstraZeneca, Novartis, Chiesi, Almirall, Celltrion Healthcare, Bosch; PP received advisory board fees from Chiesi Farmaceutici, Glaxo Smith Kline and Sanofi, and fees for educational activities from: AstraZeneca, Chiesi Farmaceutici, Glaxo Smith Kline, Guidotti and Sanofi; IS and VB report no conflicts of interest; FLMR: reports grants, personal fees and other compensation from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK and Novartis, and personal fees and grants to support scientific research from Sanofi; MM reports grants from Astra-Zeneca, Glaxo Smith Kline and Sanofi-Genzyme.

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Clin Ther

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. 2025 Oct 29:S0149-2918(25)00346-7.

doi: 10.1016/j.clinthera.2025.09.020. Online ahead of print.

A Novel Metered Dose Inhaler Formulation of Triple-Drug Fixed-Dose Combination of Vilanterol, Glycopyrronium, and Fluticasone Furoate: A Phase III, Randomized, Multicenter Trial to Evaluate the Efficacy and Safety in Indian Patients With Uncontrolled Asthma

Chintan Patel [1], Diptikant Sahoo [2], Vaishal Sheth [3], Manish Kumar Jain [4], Ravi Koppula [5], Sanjay Verma [6], Deepak Kumar [7], Jayanta Kumar Panda [8], Deven Parmar [9], Kevinkumar Kansagra [9], Hardik Pathak [10]

Affiliations Expand

- PMID: 41168047

- DOI: 10.1016/j.clinthera.2025.09.020

Abstract

Purpose: This study aimed to evaluate the efficacy and safety of a fixed-dose combination (FDC) of vilanterol 12.5 µg, glycopyrronium 25 µg, and fluticasone furoate 100 µg (VIL-GLY-FF)-metered dose inhaler (MDI) (developed by M/s. Zydus Healthcare Limited) in comparison with the approved FDC of indacaterol 150 µg, glycopyrronium 50 µg, and mometasone furoate 160 µg (IND-GLY-MF)-dry powder inhaler (DPI) in patients with persistent asthma.

Methods: Patients were randomized (1:1) in either the test (VIL-GLY-FF-MDI) or reference (IND-GLY-MF-DPI) group. Fixed-dose combinations were administered once daily for 12 weeks; for VIL-GLY-FF-MDI, patients were instructed to administer TWO actuations at 1 time in a day, doubling the final doses delivered of its components. For IND-GLY-MF-DPI, (Zydus Healthcare Limited, Ahmedabad) patients inhaled 1 capsule via the Respihaler device once daily. The primary objective was to compare the between-group difference in the change in trough forced expiratory volume in 1 second (FEV1) at week 12 from baseline.

Findings: A total of 256 patients were enrolled. The change in least square mean (SE) in trough FEV1 at week 12 from baseline was 287.15 (18.00) mL and 284.94 (17.93) mL for the test and reference groups, respectively. For a predefined -150 mL noninferiority margin, 2-sided 95% CIs (-47.83 to 52.26 mL) for the difference in the mean change in trough FEV1 (2.21 mL) between the 2 groups reported the noninferiority of VIL-GLY-FF-MDI to IND-GLY-MF-DPI. The test FDC was well tolerated.

Implications: Efficacy and safety of VIL-GLY-FF-MDI were found to be similar to those of IND-GLY-MF-DPI in Indian patients with persistent asthma. Clinical Trial Registry India identifier: CTRI/2024/01/061230.

Keywords: Asthma; Fluticasone Furoate; Glycopyrronium; Phase III; Randomized; Vilanterol.

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Conflict of interest statement

Declaration of competing interest Kevinkumar Kansagra, Deven Parmar, and Hardik Pathak are employees of Zydus Lifesciences Ltd, Ahmedabad, India. All other authors have no conflicts of interest to declare.

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BMJ Open Qual

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. 2025 Oct 29;14(4):e003407.

doi: 10.1136/bmjoq-2025-003407.

Development and pilot of the BC Wildfire Smoke and Extreme Heat Action Plan: empowering patients with climate health readiness

Rose He [1], Erin Shellington [2], Prabjit Barn [3], Karen Rideout [4], Agustin Bueso [5], Isha Joshi [6], Stacey Maddocks [7], Pat G Camp [8], Mary Crocker [9 10], Eric Coker [11], Tina Afshar [5], Jacqueline Turvey [12], Emily Brigham [13 14]

Affiliations Expand

- **PMID: 41167627**

- **PMCID: PMC12574345**

- **DOI: 10.1136/bmjoq-2025-003407**

Abstract

Globally, wildfire smoke and extreme heat events are increasing in frequency and intensity. Western Canada, including the Province of British Columbia (BC), is impacted annually by these events, resulting in the accelerated development of public health messaging and emergency preparedness. It is particularly important to reach, educate and empower individuals who are highly susceptible to climate events, such as those with respiratory diseases, through targeted communication strategies delivered by trusted sources. We aimed to develop an evidence-informed action plan (AP) tool and pilot integration into clinical encounters with patients living with asthma and chronic obstructive pulmonary disease (COPD).The project

team developed a draft tool-a BC Wildfire Smoke and Extreme Heat AP document inspired by the concept of an Asthma AP-along with a guide to support healthcare providers in addressing questions during patient counselling sessions. Iterative feedback from trained patient partners, clinicians and knowledge translation specialists was incorporated to refine messaging and delivery. Use of the tool was piloted in clinical encounters between certified respiratory educators (CREs) and patients living with asthma and COPD in two regional health authorities. Additional process and content feedback was gathered via questionnaires and focus groups.Patients (project participants) reported that AP tool use increased their understanding and preparedness for wildfire smoke and extreme heat events. While the plan was positively received by providers in a CRE role, time constraints and staffing capacity were highlighted as barriers to implementation. Suggested improvements included strengthened public awareness, preseason deployment and enhancement of content and delivery. Additional quality improvement cycles are needed to increase readability, accessibility and actionability.

Keywords: Asthma; Communication; Healthcare quality improvement.

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Conflict of interest statement

Competing interests: PGC reports funding from the Canadian Institutes of Health Research for research related to wildfire smoke. JT reports speaker honouraria from the British Columbia Lung Foundation and the Canadian Respiratory Therapy Conference. EB reports funding from Michael Smith Health Research BC, the Canadian Institutes for Health Research, the British Columbia Lung Foundation for salary support and research related to wildfire smoke, a memorial award from AstraZeneca and speaker honouraria from the British Columbia Lung Foundation. All other authors have no relevant competing interests to declare.

- 48 references
- 2 figures

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J Allergy Clin Immunol Pract

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. 2025 Oct 28:S2213-2198(25)00956-0.

doi: 10.1016/j.jaip.2025.10.005. Online ahead of print.

Association of stepping-up to high dose inhaled corticosteroids and risk of future asthma exacerbations: data from the US

Trung N Tran [1], Marjan Kerkhof [2], Tham T Le [3], Mina Khezrian [4], Nicole Zubizarreta [5], Joshua Enxing [6], Kirsty Rhodes [7], Jonatan Hedberg [8], Bill Cook [9], Tianshi David Wu [10], Tim W Harrison [11]

Affiliations Expand

- PMID: 41167528

- DOI: 10.1016/j.jaip.2025.10.005

Abstract

Background: Real-world data on the benefit of high-dose inhaled corticosteroid (ICS) post-exacerbation are limited.

Objective: To investigate whether stepping-up to high-dose inhaled corticosteroid (ICS) post-severe exacerbation reduces future asthma exacerbation risk in a real-world setting.

Methods: This was a retrospective cohort study using the Optum® Clinformatics® database (October 2015-December 2023). Patients with asthma, aged ≥12 years, with ≥1 severe exacerbation and ≥2 ICS maintenance prescriptions in the 12-months pre-, and ≥1 ICS maintenance prescription in the 3-months post-exacerbation were included. Primary and secondary endpoints were annualized asthma exacerbation rate (AAER) and time to first subsequent severe exacerbation, respectively. We compared endpoints between ICS dose-changing patterns in the 3-month pre- and post-first eligible severe exacerbation: 1. low-to-high versus low-to-medium (low-dose cohort); 2. medium-to-high versus medium-to-medium (medium-dose cohort). Comparability of baseline characteristics was ensured by inverse probability of treatment weighting.

Results: 2,324 and 13,467 subjects were included in the low- and medium-dose cohorts, respectively. Stepping-up ICS from low-to-high versus low-to-medium-dose did not reduce AAER (rate ratio (RR): 0.896 [95% CI 0.738, 1.088]) and did not significantly increase time to next exacerbation (hazard ratio (HR): 0.869 [95% CI 0.720, 1.048]). Stepping-up ICS from medium-to-high versus medium-to-medium dose was associated with a significant increase in AAER (RR 1.169 [95% CI 1.023, 1.336]) and increased likelihood of experiencing an exacerbation (HR: 1.161 [95% CI 1.016, 1.325]). A similar pattern was noted when follow-up was restricted to a maximum of 12-months.

Conclusion: Post- severe exacerbation, stepping-up to high-dose ICS was not associated with reduced exacerbation risk in patients with persistent asthma. Other treatment strategies may prove to be better options in these patients.

Keywords: annualized severe asthma exacerbation rate; persistent asthma; real-world evidence; time to exacerbation.

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Int Arch Allergy Immunol

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. 2025 Oct 30:1-19.

doi: 10.1159/000549116. Online ahead of print.

Comparative effectiveness of approved biologics in treating moderate-to-severe allergic asthma: a systematic review and network meta-analysis

Yuelu Li, Huan Zong, Mengying Fang, Dan Luo, Xianming Fan

- **PMID: 41166521**
- **DOI: 10.1159/000549116**

Abstract

Objective: The aim of this study was to conduct a network meta-analysis of randomized controlled trials (RCTs) to compare the efficacy of various biologics for treating moderate-to-severe allergic asthma.

Methods: This study conducted a comprehensive and systematic literature search in Cochrane Library, Embase, PubMed, and Web of Science databases, from the inception to December 31, 2024.The data extracted from eligible literature were analyzed using the Cochrane Randomized Trials Risk of Bias 2 tool and Stata 18.0 program.

Results: A total of 19 RCTs, involving 7,449 patients with moderate-to-severe allergic asthma, were included in this network meta-analysis. In terms of reducing exacerbations, benralizumab (mean difference(MD) = -0.47, 95% confidence interval (CI)[-0.82, -0.12]), dupilumab (MD = -0.47, 95% CI[-0.72, -0.21]), omalizumab (MD = -0.30, 95% CI [-0.42, -0.17]), and tezepelumab (MD = -0.81, 95% CI [-1.09, -0.54]) all demonstrated superior efficacy compared to placebo. Additionally, tezepelumab

was markedly more advanced than omalizumab (MD = -0.52, 95% CI [-0.80, -0.23]). With regard to lung function improvement, dupilumab (MD=0.16, 95% CI [0.07, 0.24]) and tezepelumab (MD=0.08, 95% CI [0.03, 0.14]) both exceeded placebo. Regarding asthma control, dupilumab (MD=-0.40, 95% CI [-0.77, -0.04]) and omalizumab (MD=-0.49, 95% CI [-0.89, -0.08]) both effectively lowered scores on the asthma control questionnaire (ACQ) compared to placebo. For enhancing quality of life, omalizumab (MD=0.62, 95% CI[0.21, 1.03]) significantly raised scores on the standardized asthma quality of life questionnaire (AQLQ[S]+12) relative to placebo.

Conclusion: Considering its significant clinical advantages in reducing exacerbations and improving lung function, tezepelumab should be prioritized as a treatment option for moderate-to-severe allergic asthma.

S. Karger AG, Basel.

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Allergy

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. 2025 Oct 29.

doi: 10.1111/all.70119. Online ahead of print.

Characteristics of Adolescents With Uncontrolled Severe Asthma Starting Dupilumab: The PEDIASTHMA Registry

Stéphanie Wanin [1 2], Rola Abou Taam [3], Lisa Giovannini Chami [4], Christophe Marguet [5], Jocelyne Just [2 6], Christele Da Silva [7], Jérôme Msihid [7], Olivier Ledanois [8], Rebecca Gall [9], Harry J Sacks [9], Juby A Jacob-Nara [10], Capucine Daridon [7], Antoine Deschildre [11]

Affiliations Expand

- PMID: 41163372

- DOI: 10.1111/all.70119

No abstract available

Keywords: asthma; asthma treatment; biologics; inflammation; interleukins; pediatrics; quality-of-life.

Supplementary info

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Review

Respir Care

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. 2025 Oct 29.

doi: 10.1177/19433654251377005. Online ahead of print.

Effects of Wildfire Smoke Inhalation on Respiratory Health

Aleksandra Savich [1], Emily Zeng [2], Lauryn Tsai [2], Jie Li [1]

Affiliations Expand

- **PMID: 41163291**

- **DOI: 10.1177/19433654251377005**

Abstract

Wildfires have become increasingly frequent and severe, releasing large amounts of fine particulate matter ($PM_{2.5}$) and toxic gases that pose serious threats to respiratory health. This review summarizes current clinical evidence on the respiratory effects of wildfire smoke exposure, focusing on both short-term effects-such as respiratory symptoms, infections, and increased emergency department visits-and long-term consequences, including declines in pulmonary function and elevated mortality. The review highlights vulnerable populations-including pregnant individuals, infants, children, older adults, individuals with asthma or COPD, and

firefighters, who experience disproportionate risks. It also compares the toxicity of wildfire-derived $PM_{2.5}$ to other pollution sources and identifies differences in clinical impact. Evidence-based protective strategies are discussed, including respiratory protection, behavioral interventions, and health care provider preparedness. Finally, the review identifies gaps in the current literature and emphasizes the need for longitudinal studies to evaluate chronic outcomes and improve public health responses to future wildfire events.

Keywords: COPD; PM2.5; asthma; public health; respiratory health; vulnerable populations; wildfire smoke.

Supplementary info

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Review

Respir Res

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. 2025 Oct 29;26(1):302.

doi: 10.1186/s12931-025-03360-0.

Safety and tolerability of astegolimab, an anti-ST2 monoclonal antibody: a narrative review

Steven G Kelsen [1], Marcus Maurer [2 3], Michael Waters [4], Ajit Dash [5], Alice Fong [5], Divya Mohan [5], Wiebke Theess [6], Xiaoying Yang [5], Giuseppe Alvaro [6], Christopher E Brightling [7]

Affiliations Expand

- **PMID: 41163220**

- **PMCID: PMC12574037**

- DOI: 10.1186/s12931-025-03360-0

Abstract

Chronic inflammation is an underlying feature of respiratory diseases such as chronic obstructive pulmonary disease (COPD). Novel therapies that target the inflammatory mechanisms driving acute exacerbations of COPD are required. The ST2 receptor, which binds the alarmin interleukin (IL)-33 to initiate an inflammatory response, is a potential target. Astegolimab, a fully human immunoglobulin G2 monoclonal antibody, which binds with high affinity to ST2 to prevent binding of IL-33, is a potential therapy for COPD. However, targeting inflammatory pathways that form part of the immune system may have unintended consequences, such as implications for the response to infection and cardiovascular function. Therefore, an understanding of astegolimab's safety profile in clinical use is essential. This narrative review summarizes clinical safety data from published clinical trials of astegolimab with a focus on adverse events of interest, including infections and cardiac events. Astegolimab was shown to be well tolerated in > 580 patients with asthma, atopic dermatitis, COPD, and severe COVID-19 pneumonia who took part in Phase II trials. The frequency of adverse events (AEs) and serious AEs was similar between the astegolimab and placebo arms in each trial (AEs: 41-81% vs. 58-77%; serious AEs: 3-29% vs. 0-41%, respectively). The number of deaths was similar between treatment arms and there were no astegolimab-related deaths. Astegolimab did not increase the risk of infection or major adverse cardiac events. Ongoing Phase IIb and Phase III trials of astegolimab in patients with COPD who have a history of frequent acute exacerbation(s) of COPD will provide a future opportunity to confirm the safety profile of astegolimab.

Keywords: Astegolimab; Asthma; Chronic obstructive pulmonary disease; Immunogenicity; Infection; Inflammation; Interleukin-33 (IL-33); Major adverse cardiac events; ST2; Safety.

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Conflict of interest statement

Declarations. Ethics approval and consent to participate: The ZENYATTA, ZARNIE, and COVASTIL trials were conducted in conformance with the International Council for Harmonisation E6 guideline for Good Clinical Practice, the principles of the Declaration of Helsinki, or the laws/regulations of the country where the research occurred, whichever provided better protection to the individual, and the trials complied with requirements of the International Council for Harmonisation E2A guideline. Ethics Committees for each site approved the protocols in each study. The COPD-ST2OP trial was performed in accordance with the principles of the Declaration of Helsinki and ethics approval given by East Midlands – Leicester South Research Ethics Committee. In all trials, patients (or their legally authorized representatives) provided written, informed consent. Consent for publication: Not applicable. Competing interests: SGK has received funding from Genentech Inc., Syneos, and Teva. MM was recently a speaker and/or advisor for and/or had received research funding from Alexion, Allakos, Almirall, Alvotech, Amgen, Aquestive Therapeutics, Arcensus, argenX, AstraZeneca, Astria Therapeutics, BioCryst Pharmaceuticals, Blueprint Medicines, Celldex Therapeutics, Celltrion, Clinuvel, Cogent Biosciences, CSL Behring, Escient Pharmaceuticals, Evommune, Excellergy Therapeutics, Genentech, Inc., GSK, Incyte, Jasper Therapeutics,

KalVista Pharmaceuticals, Kashiv Biosciences, Kyowa Kirin, Leo Pharma, Lilly, Menarini, Mitsubishi Tanabe Pharma, Moxie, Noucor, Novartis, Orion Biotechnology, Pharvaris, Resonance Medicine, Sanofi/Regeneron, Santa Ana Bio, Septerna, Servier, Takeda, Teva, Third Harmonic Bio, ValenzaBio, Vitalli Bio, Yuhan Corporation, and Zura Bio. MW has no competing interests to declare. GA and WT are employees of F. Hoffmann-La Roche, Ltd. AD, AF, and XY are employees of Genentech, Inc. DM is an employee of Genentech, Inc. and a shareholder of F. Hoffmann-La Roche, Ltd./Genentech, Inc. CEB has received grants and consultancy fees from 4D Pharma, Areteia, AstraZeneca, Chiesi, F. Hoffmann-La Roche, Ltd., Genentech, Inc., GlaxoSmithKline, Mologic, Novartis, Regeneron Pharmaceuticals, and Sanofi paid to his institution.

- 55 references
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Eur J Intern Med

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. 2025 Oct 28:106572.

doi: 10.1016/j.ejim.2025.106572. Online ahead of print.

Tezepelumab in severe asthma: Strengthening real-world evidence and addressing unresolved clinical questions

Jiamin Wang, Jingyi Li

- PMID: 41162257

- DOI: 10.1016/j.ejim.2025.106572

No abstract available

Conflict of interest statement

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

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13

Clin Exp Allergy

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. 2025 Oct 29.

doi: 10.1111/cea.70162. Online ahead of print.

Early and Sustained Asthma Control and Remission in Real-World Patients With Severe Eosinophilic Asthma Treated With Benralizumab: XALOC-2

[Erika Penz][1], [Thomas Rothe][2], [Lieven Dupont][3], [Trung N Tran][4], [Andrew Menzies-Gow][5], [Anat Shavit][5], [David Cohen][4], [Tanja Plate][6], [Sheena Kayaniyil][7], [An Herreman][8], [Claudio Schuoler][9], [Benjamin Emmanuel][4], [Marek Lommatzsch][10]

Affiliations Expand

- **PMID: 41162224**

- **DOI: [10.1111/cea.70162]**

Abstract

Background: Prospective real-world data concerning the early and sustained effects of benralizumab on asthma control in patients with severe eosinophilic asthma (SEA) is lacking.

Methods: XALOC-2 is a prospective, observational, multi-national, real-world study in adults with SEA treated with benralizumab. This integrated analysis assessed Asthma Control Questionnaire (ACQ) scores, achievement of 3-component clinical remission (which included well-controlled symptoms [ACQ score ≤ 0.75], no exacerbations, and no use of maintenance oral corticosteroids [mOCS]), and other clinical outcomes, over a 12-month baseline period and up to Week 56. Associations between remission status and key baseline characteristics were also assessed.

Results: 535 patients were included. Median (interquartile range) ACQ score at baseline was 3.0 (2.2-3.8). At Week 1, 58.0% (282/486) of patients had ACQ score reductions of ≥ 0.5 points (minimal clinically important difference [MCID]) and 35.0% (170/486) had reductions of ≥ 1 point (2× MCID). By Week 56, these increased to 78.6% (276/351) and 62.1% (218/351), respectively. Improved asthma control after benralizumab initiation was similar irrespective of previous biologic use status. By Week 56, clinical remission criteria were achieved in 26.7% (70/262) of patients versus 0% (0/374) at baseline. No mOCS use, lower body mass index, better asthma symptom control and higher peak blood eosinophil count at baseline were associated with meeting 3-component clinical remission criteria at Week 56.

Conclusions: Real-world patients receiving benralizumab showed early and sustained improvements in asthma symptoms, regardless of previous biologic use. More than a quarter of patients achieved clinical asthma remission after 1 year of benralizumab treatment.

Keywords: asthma control; benralizumab; clinical remission; eosinophils; severe asthma.

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- **42 references**

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Sci Transl Med

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. 2025 Oct 29;17(822):eadu3759.

doi: 10.1126/scitranslmed.adu3759. Epub 2025 Oct 29.

The IL-33 and IL-4Rα blocking antibodies itepekimab and dupilumab modulate both distinct and common inflammatory mediators in asthma

Seblewongel Asrat [1], Wei Keat Lim [1], Subhashini Srivatsan [1], Sivan Harel [1], Kaitlyn Gayvert [1], Dylan Birchard [1], Matthew F Wipperman [1], Dave Singh [2], Andrea T Hooper [1], George Scott [1], Julie E Horowitz [1], Jonas S Erjefält [3 4], Caroline

Sanden [3 4], Kirsten Nagashima [1], Brianna Buonagurio [1], Li-Hong Ben [1], Erica Chio [1], Audrey Le Floc'h [1], Jeanne Allinne [1], Jennifer Maloney [1], George D Kalliolias [1], Marcella Ruddy [1], Sara C Hamon [1], Gary A Herman [1], Andrew J Murphy [1], Helene Goulaouic [5], Matthew A Sleeman [1], Jennifer D Hamilton [1], Jamie M Orengo [1]

Affiliations Expand

- PMID: 41160665

- DOI: 10.1126/scitranslmed.adu3759

Abstract

Biologics targeting interleukin-4 receptor subunit α (IL-4Rα) and interleukin-33 (IL-33) have demonstrated clinical efficacy in asthma, highlighting the importance of IL-4, IL-13, and IL-33 in respiratory diseases. Despite this, few studies have linked preclinical models to human diseases or evaluated disease biology in clinical trials. To address these gaps, we evaluated transcriptional, cellular, and pathophysiological processes driven by IL-4/IL-13 and IL-33 using human innate cells in vitro, a mouse model of airway inflammation, and a bronchial allergen challenge (BAC) in house dust mite (HDM)-sensitized individuals with mild asthma. Our findings in mice revealed that the prophylactic blockade of IL-4/IL-13, but not IL-33, prevented the initiation of HDM-induced type 2 inflammation, whereas blocking IL-4Rα or IL-33 during peak inflammation ameliorated airway inflammation and remodeling. Each pathway had unique and overlapping effects on airway inflammation and remodeling, with combination blockade showing no additional benefit. Initiating either monotherapy during severe, mixed inflammation resulted in partial efficacy, whereas a combination of these two treatments led to a substantial reduction in airway inflammation and remodeling in sensitized mice. Some of these mechanistic observations translated to a human BAC model, where blocking IL-4Rα or IL-33 alone suppressed gene expression in sputum and circulating biomarkers. As observed in mice, combination treatment in individuals with allergic asthma did not provide additional benefit compared to monotherapy. Overall, these results provide insight into the differences in targeting IL-4Rα or IL-33 pathways in asthma independently or in combination.

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Science Translational Medicine UNIMORE

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15

J Asthma

. 2025 Oct 29:1-11.

doi: 10.1080/02770903.2025.2581018. Online ahead of print.

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

Christiane Hammershaimb E Mosbech [1], Nina Skavlan Godtfredsen Clinical associate professor [1 2], Ida Skovgaard Christiansen [3], Lasse Kristoffer Bak Professor [4 5 6], Charlotte Suppli Ulrik Professor [1 2], Christian Grabow Westergaard [1]

Affiliations Expand

- PMID: 41160477

- DOI: 10.1080/02770903.2025.2581018

Abstract

ObjectiveTo investigate whether tapering of inhaled corticosteroids (ICS) is non-inferior to standard of care (SoC) in asthma patients with a stable T2-low inflammatory profile, generally considered less responsive to ICS therapy, and to describe symptom and biomarker trajectories during tapering.MethodsThis randomized, controlled, open-label multicenter trial conducted across specialist centers between 2022-2024 recruited adult asthma patients with persistently low T2 biomarkers, defined as blood eosinophils <0.15 × 10^9/L, fractional exhaled nitric oxide (FeNO) <25 ppb, and non-allergic phenotype. Patients' adherent to medium- or high-dose ICS were randomized 1:1 to either ICS tapering (50% reduction at randomization and withdrawal after 8 weeks) or continued standard of care (SoC). The primary endpoint was change in Asthma Control Questionnaire (ACQ) score at 16 weeks. Secondary endpoints included changes in blood and sputum eosinophils, FeNO, periostin, and lung function.ResultsRecruitment proved challenging as only 20 of 2766 screened patients met eligibility criteria, leading to early study termination. Median ACQ remained stable in the tapering group (0 [-0.14; 0.5]) and improved modestly in the SoC group (-0.44 [-0.9; -0.11]; p = 0.211). FeNO (p = 0.038) and periostin (p = 0.031) increased with tapering but remained within the T2 low range. Minimal changes were observed in blood eosinophils (p = 0.3) and FEV_1 (p = 0.7).ConclusionPremature trial termination due to recruitment challenges reflects the rarity of stable T2-low asthma. ICS tapering was not associated with greater symptom deterioration compared to SoC, although non-inferiority was not demonstrated.

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

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ERJ Open Res

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. 2025 Oct 27;11(5):01128-2024.

doi: 10.1183/23120541.01128-2024. eCollection 2025 Sep.

Airway wall thickness in asthma remission

Lisa H van Smoorenburg [1 2], Orestes A Carpaij [1 2], Craig J Galban [3], Alex J Bell [3], Oliver Weinheimer [4], Martijn C Nawijn [2 5], Huib A M Kerstjens [1 2 6], Maarten van den Berge [1 2 6]

Affiliations Expand

- PMID: 41158487

- PMCID: PMC12557377

- DOI: 10.1183/23120541.01128-2024

Abstract

Airway wall thickness, assessed by HRCT, is increased in patients with asthma compared to healthy controls, but reverted towards normal in those with complete remission of their asthma https://bit.ly/4jaM2HV.

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Conflict of interest statement

Conflict of interest: C.J. Galban reports a financial interest in Imbio, LLC, and NIH/NHLBI funding support for airway analysis (R01HL139690). O. Weinheimer reports licences to Imbio, LLC. M.C. Nawijn reports unrestricted research grants paid to institution: European Union's H2020 Research and Innovation Program under grant agreement, the Ministry of Economic Affairs and Climate Policy (the Netherlands) through a PPP-allowance from the Top Sector Life Sciences & Health, GSK Ltd Stevenage (UK), Netherlands Lung Foundation, the Chan Zuckerberg Initiative, The Stichting Astmabestrijding; support of travel costs by the Belgian Respiratory Society and unpaid leadership of the Lung Bionetwork of the Human

Cell Atlas consortium. H.A.M. Kerstjens reports grants paid to the University from Boehringer, GSK, Chiesi and AstraZeneca, all outside the submitted work. M. van den Berge reports grants paid to the University from GSK, Chiesi, Teva, AstraZeneca and Genentech, outside the submitted work. All other authors report no conflicts of interest.

- 8 references
- 1 figure

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. 2025 Oct 27;11(5):01278-2024.

doi: 10.1183/23120541.01278-2024. eCollection 2025 Sep.

Oral contraceptives and the risk of asthma attacks: a population-based cohort study

Bohee Lee [1 2], Amir Reza Rafati Fard [3 2], Ernie Wong [1], Tricia Tan [4], Chloe I Bloom [1]

Affiliations Expand

- PMID: 41158485
- PMCID: PMC12557376
- DOI: 10.1183/23120541.01278-2024

Abstract

Background: The role that sex hormones play in asthma remains unclear. The oral contraceptive pill (OCP), commonly used by younger women, acutely increases sex hormones providing an opportunity to observe their effect. The objective of the present study was to evaluate the association between OCP and asthma attacks.

Methods: Using the UK's Clinical Practice Research Datalink, linked to hospital admission and mortality data, 2004 to 2020, we observed women with asthma (18-50 years), comparing OCP never-users to new-users; separated into a combined oral contraceptive (COC) cohort and progestogen-only pill (POP) cohort. We applied inverse-probability of treatment weighting and Cox proportional hazards, accounting for demographics, asthma severity/control and comorbidities. Additionally, we stratified by potential modifiers: age, body mass index (BMI), blood eosinophils (normal <$0.3\times10^{9}\cdot L^{-1}$, eosinophilia ≥$0.3\times10^{9}\cdot L^{-1}$) and corticosteroid use (lower use: ≤3 inhaled corticosteroids prescriptions, higher use: ≥4 inhaled and/or oral corticosteroids).

Results: 132 676 and 129 151 women were eligible for the COC and POP cohorts, respectively. There was no association between COC, or POP, and asthma attacks (COC: weighted-HR 1.00, 95% CI 0.89-1.13; POP 1.11, 95% CI 0.97-1.28). However, POP association was modified by asthma phenotype and corticosteroid use, but not BMI, after accounting for asthma severity/control, demographics and comorbidities. In the POP users, women who were younger than 35 years (weighted-HR 1.39, 95% CI 1.12-1.72), those with eosinophilia (weighted-HR 1.24, 95% CI 0.97-1.58) or those with lower corticosteroid use (weighted-HR 1.20, 95% CI 1.03-1.40) had an elevated risk of asthma attacks.

Conclusions: Commencing exogenous progesterone without an oestrogen component (POP) was associated with increased asthma attacks in asthma phenotypes including in younger women, eosinophilic asthma and women with lower corticosteroid use.

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Conflict of interest statement

Conflict of interest: B. Lee reports support for the present study from Asthma+Lung UK and is a member of the early career mentoring programme of this journal. E. Wong reports consultancy fees from AstraZeneca Plc; payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca Plc and Chiesi Limited; and support for attending meetings from GSK Plc. C.I. Bloom reports support for the present study from Asthma+Lung UK, and grants from the National Institute for Health and Social Care Research. The remaining authors have nothing to disclose.

- 42 references
- 2 figures

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Case Reports

Am J Ind Med

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. 2025 Oct 28.

doi: 10.1002/ajim.70035. Online ahead of print.

Occupational Asthma to UV-Hardened Acrylate-Based Car Paint

Hille Suojalehto [1], Saara Eskola [2], Henna Kuparinen [3], Irmeli Lindström [1], Katri Suuronen [1]

Affiliations Expand

- **PMID: 41157816**

- **DOI: 10.1002/ajim.70035**

Abstract

Products containing acrylates are used in the coating of metal surfaces. Previous case series have reported occupational asthma caused by various acrylates including solitary cases related to coating products. We report on a case of occupational asthma caused by a new type of UV-hardened car paint that included several reactive acrylates (tripropyleneglycol diacrylate, epoxy diacrylate, neopentylglycol propoxylate diacrylate and ethoxylated trimethylolpropane-triacrylate) in a car shop worker. The paint was sprayed a few times a day within 1-2 m distance from the patient. Two years after the product's introduction, this worker developed typical symptoms of occupational asthma, reversible airway obstruction, and eosinophilic airway inflammation. Workplace peak expiratory flow monitoring was typical for occupational asthma. The specific inhalation challenge showed positive early reaction, along with a significant post-challenge increase in nonspecific bronchial hyperresponsiveness and markers of T2 inflammation, further supporting occupational asthma. The patient's asthma symptoms significantly improved once exposure to the offending agent was ceased. This is the first reported case of occupational asthma confirmed with specific inhalation challenge to a new type of UV-hardened car paint containing reactive acrylates.

Keywords: acrylate; chemical; low-molecular-weight agent; occupational asthma; specific inhalation challenge.

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- **22 references**

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Am J Respir Crit Care Med

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. 2025 Oct 28.

doi: 10.1164/rccm.202509-2140ED. Online ahead of print.

Progress in Treating Mucus Plugs in Asthma

John V Fahy[1]

Affiliations Expand

- **PMID: 41151010**

- **DOI: 10.1164/rccm.202509-2140ED**

No abstract available

Keywords: Asthma; Muco-active treatment; Mucus plugs; Type 2 inflammation.

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Review

Cell Mol Immunol

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. 2025 Oct 27.

doi: 10.1038/s41423-025-01357-9. Online ahead of print.

Immunotherapy for asthma

Hamida Hammad [1 2], Engi Ahmed [3 4 5], Bart N Lambrecht [3 4]

Affiliations Expand

- PMID: 41145900

- DOI: 10.1038/s41423-025-01357-9

Abstract

Type 2^{high} asthma, which accounts for the majority of asthma cases, is driven by Th2 cells that produce cytokines such as IL-4, IL-5, and IL-13. These cytokines promote several features of the disease, including eosinophilia, IgE production, bronchial hyperresponsiveness (BHR), mucus hypersecretion, and susceptibility to exacerbations. In contrast, type 2^{low} asthma is characterized by the presence of neutrophils and reduced responsiveness to corticosteroids. In recent years, advances in our understanding of the distinct mechanisms at play in each asthma endotype have paved the way for the development of targeted therapies tailored to specific patient profiles. In this review, we first explore the underlying immunological mechanisms of various asthma endotypes. We also provide an overview of the different types of immunotherapies currently available to asthmatic patients and their clinical efficacy. Finally, we highlight emerging therapeutic strategies that hold promise for improving asthma management in the future.

Keywords: Asthma; allergens; biologics.; endotypes; immunotherapy.

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Conflict of interest statement

Competing interests: The authors declare no competing interests.

- 149 references

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21

Am J Respir Crit Care Med

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. 2025 Oct 27.

doi: 10.1164/rccm.202410-1894OC. Online ahead of print.

Effect of Dupilumab on Mucus Burden in Patients with Moderate-to-Severe Asthma: The VESTIGE Trial

Celeste Porsbjerg [1,2], Eleanor M Dunican [3], Njira L Lugogo [4], Mario Castro [5], Alberto Papi [6], Vibeke Backer [7], Christopher E Brightling [8], Arnaud Bourdin [9], J Christian Virchow [10], Mei Zhang [11], Xavier Soler [12], Paul J Rowe [11], Yamo Deniz [12], Lucía de Prado Gómez [13], Harry J Sacks [12], Juby A Jacob-Nara [14]

Affiliations Expand

- PMID: 41145399

- DOI: 10.1164/rccm.202410-1894OC

Abstract

Rationale: Chronic mucus hypersecretion contributes to airway obstruction in asthma.

Objectives: Assess dupilumab efficacy by baseline mucus plug score.

Methods: In VESTIGE (NCT04400318), adults with moderate-to-severe asthma, baseline blood eosinophils ≥300 cells/μL, and fractional exhaled nitric oxide (FeNO) ≥25 ppb received dupilumab 300 mg (*n*=72) or placebo (*n*=37) every 2 weeks for 24 weeks. *Post hoc* analyses included mucus plug score change from baseline, and patient proportion achieving FeNO <25 ppb, percent predicted FEV_1, and FVC stratified by baseline mucus plug score (high/low defined by score ≥4/0-3.5, respectively, derived from high-resolution computed tomography scans).

Measurements and main results: Fewer dupilumab-receiving patients had high mucus plug score at Week 24 than at baseline (32.8% vs 67.2%); proportions remained similar in placebo-receiving patients (76.7% vs. 73.3%). Dupilumab versus placebo recipients were more likely to achieve FeNO <25 ppb in high-/low-mucus-plug score subgroups (odds ratio: 6.64; *P* = 0.003/8.54; *P* = 0.024). Dupilumab versus placebo significantly increased pre-/post-bronchodilator percent predicted FEV_1 (least squares mean difference (LSMD) [95% CI]: 16.77 percentage points [9.81-23.73]; *P* <0.0001/12.70 [3.87-21.52]; *P* = 0.0055) and pre-bronchodilator FVC (LSMD [95% CI]: 0.42 mL [0.17-0.66]; *P* = 0.001), and numerically improved post-bronchodilator FVC (LSMD [95% CI]: 0.30 mL [0.01-0.59]; *P* = 0.0399) in the high-mucus-plug score subgroup.

Conclusions: Dupilumab reduced mucus plug scores and improved lung function in patients with moderate-to-severe asthma with high baseline mucus plug score, and increased the likelihood of achieving FeNO <25 ppb regardless of baseline mucus plug score. This article is open access and distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives License 4.0 (http://creativecommons.org/licenses/by-nc-nd/4.0/). Clinical trial registration available at www.

Clinicaltrials: gov, ID: NCT04400318.

Keywords: airway remodeling; forced expiratory volume; forced vital capacity; fractional exhaled nitric oxide; lung volume measurements.

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22

Review

Inflamm Res

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. 2025 Oct 27;74(1):151.

doi: 10.1007/s00011-025-02115-3.

Aquaporins: a novel perspective in the treatment of lung diseases

Mengyuan Wu [#1], Zhiming Miao [#1], Fuxian Liu [1], Sichao Dai [1], Yangyang Li [1], Ting Zhou [1,2], Qihong Zhuo [1], Huanhuan Zhang [1], Zhangbo Song [1], Haiyi Nie [1], Wenxing Yong [3], Liying Zhang [4,5], Yonggi Liu [6,7,8]

Affiliations Expand

- **PMID: 41144048**

- **DOI: 10.1007/s00011-025-02115-3**

Abstract

Background: Aquaporins (AQPs) are a class of channel proteins expressed on the cell membrane, responsible for facilitating the transport of water molecules and certain small solutes across the membrane. Their dysregulation is involved in the occurrence and progression of major lung diseases.

Findings: We systematically reviewed the expression and functional alterations of AQPs in acute lung injury (ALI), pneumonia, asthma, chronic obstructive pulmonary disease (COPD), pulmonary fibrosis (PF) and lung cancer, and integrated the potential molecular mechanisms. In addition, we examine the regulatory mechanisms of traditional Chinese medicine on lung AQPs, and summarizes the research progress of inhibitors and small molecular compounds that modulate AQPs in lung diseases.

Implications: AQPs may serve as promising therapeutic targets for lung diseases. This review offers novel insights and a foundation for the diagnosis, treatment, and drug development of lung diseases, positioning AQPs as a potential tool in combating these conditions.

Keywords: ALI; Aquaporins; Asthma; COPD; Lung cancer; Traditional Chinese medicine.

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Conflict of interest statement

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

- **171 references**

Supplementary info

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J Allergy Clin Immunol Glob

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. 2025 Sep 8;4(4):100567.

doi: 10.1016/j.jacig.2025.100567. eCollection 2025 Nov.

Effectiveness of indacaterol/glycopyrronium/mometasone for refractory asthmatic cough after switching from inhaled corticosteroid/long-acting β2-agonist therapy

Akio Niimi [1], Hiroyuki Ohbayashi [2], Hitoshi Asamoto [3], Tadashi Kamei [4], Arihiro Kiyosue [5], Yasushi Fukushima [6], Hirofumi Matsuoka [7], Naoki Miyao [8], Takao Tochigi [9], Eiji Yamagata [10], Toshinaga Tsuji [11], Toshiaki Mikami [11], Junpei Saito [12], Yoshihiro Kanemitsu [1], Tomoko Tajiri [1], Johsuke Hara [13]

Affiliations Expand

- PMID: 41113250
- PMCID: PMC12528903
- DOI: 10.1016/j.jacig.2025.100567

Abstract

Background: Cough is a major symptom in poorly or partially controlled asthma, which persists despite treatment, thus impairing quality of life.

Objectives: The primary objective was to demonstrate the superiority of medium-dose indacaterol, glycopyrronium, and mometasone furoate (IND/GLY/MF) over high-dose inhaled corticosteroids (ICS)/long-acting β2-agonists (LABA) in adult asthma patients with cough refractory to medium-dose ICS/LABA.

Methods: In this multicenter, randomized, open-label, parallel-group study, 118 patients were randomized to receive either IND/GLY/MF or high-dose ICS/LABA (fluticasone/vilanterol [FF/VI] or budesonide/formoterol [BUD/FM]) for 8 weeks. Efficacy was measured by the Japanese version of the Leicester Cough Questionnaire at week 8. Additional analyses included a visual analog scale, the 6-item Asthma Control Questionnaire, respiratory function, fractional exhaled nitric oxide, and blood eosinophil/neutrophil measurements. Registration: Public clinical trials registry as study jRCTs04122000.

Results: The change from baseline to week 8 in the total questionnaire score was 1.99 ± 3.48 in the IND/GLY/MF group and 2.50 ± 4.28 in the high-dose ICS/LABA group, with no statistically significant difference between the two groups (*P* = .5037). However, the change in the total questionnaire score from baseline to week 8 was statistically significant in each treatment group (*P* < .0001 in the IND/GLY/MF group, *P* = .0242 in the FF/VI comparator group, and *P* = .0012 in the BUD/FM comparator group). Fractional exhaled nitric oxide and eosinophil counts significantly decreased in the high-dose ICS/LABA group, while neutrophil counts significantly fell in the IND/GLY/MF group at week 8, by between-group comparison.

Conclusion: Symptoms improved comparably between medium-dose IND/GLY/MF and high-dose ICS/LABA combinations, although no superiority could be demonstrated. Medium-dose IND/GLY/MF may be an alternative to high-dose ICS/LABA.

Keywords: Asthma; ICS/LABA; cough; eosinophils; fractional exhaled nitric oxide (Feno); indacaterol/glycopyrronium/mometasone; neutrophils.

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Conflict of interest statement

Funded by 10.13039/100008792Novartis Pharma K.K., Japan. Employees of Novartis Pharma were involved in the study design, analysis plan, and interpretation of the data. Data sharing statement: Data to support the findings of this study are available from 10.13039/501100008883Nagoya City University, but availability of the data is restricted and can only be granted under license, and cannot be published by the licensee. Data are, however, available from the authors on reasonable request and with the permission of Novartis Pharma. Disclosure of potential conflict of interest: A. Niimi has received speaker fees from Novartis Pharma, AstraZeneca, GlaxoSmithKline, and Boehringer. H. Ohbayashi has received speaker fees from GlaxoSmithKline, and has served as a representative of Kracie. A. Kiyosue has received speaker fees from Novartis Pharma. Y. Fukushima has received study materials for this report and was involved in medical writing. T. Tochigi had received fees as a speaker and for expert testimony in a keynote lecture from GlaxoSmithKline, and support for attending meetings from Novartis Pharma and GlaxoSmithKline. T. Tsuji and T. Mikami are employees of Novartis Pharma. Y. Kanemitsu has received funding from Novartis Pharma for this report, research grants from MSD/MSD life foundations; speaker fees from GlaxoSmithKline, AstraZeneca, Sanofi, Kyorin Pharmaceutical, Novartis Pharma, and Zeria Pharmaceutical, and support for attending meetings from Sanofi and GlaxoSmithKline. T. Tajiri has received lecturer fees from Sanofi. J. Hara has received speaker fees from AstraZeneca, GlaxoSmithKline, and Kyorin Pharmaceutical. The rest of the authors declare that they have no relevant conflicts of interest.

- **31 references**
- **3 figures**

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Environ Res Lett

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. 2025 Nov 1;20(11):114042.

doi: 10.1088/1748-9326/ae10c9. Epub 2025 Oct 17.

Assessing $PM_{2.5}$ pollution in the Northeastern United States from the 2023 Canadian wildfire smoke: an episodic study integrating air quality and health impact modeling with emissions and meteorological uncertainty analysis

Hao He [1], Timothy P Canty [1], Russell R Dickerson [1], Joel Dreessen [2], Amir Sapkota [3], Michel Boudreaux [4]

Affiliations Expand

- PMID: 41112350
- PMCID: PMC12533810
- DOI: 10.1088/1748-9326/ae10c9

Abstract

Between June 6 and 8, 2023, wildfires in Quebec, Canada generated massive smoke plumes that traveled long distances and deteriorated air quality across the Northeastern United States (US). Surface daily $PM_{2.5}$ observations exceeded 100 $\mu g\ m^{-3}$, affecting major cities such as New York City and Philadelphia, while many areas lacked $PM_{2.5}$ monitors, making it difficult to assess local air quality conditions. To address this gap, we developed a WRF-CMAQ-BenMAP modeling system to provide rapid, spatially continuous estimates of wildfire-attributable $PM_{2.5}$ concentrations and associated health impacts, particularly benefiting regions lacking air quality monitoring. CMAQ simulations driven by two wildfire emissions datasets and two meteorological drivers showed good agreement with $PM_{2.5}$ observations, with linear regression results of R^2 ~0.6 and slope ~0.9. We further quantified uncertainties introduced by varying emissions and meteorological drivers and found the choice of wildfire emissions dataset alone can alter $PM_{2.5}$ simulations by up to 40 $\mu g\ m^{-3}$ (~40%). Short-term health impacts were evaluated using the BenMAP model. Validation against asthma-associated emergency department (ED) visits in New York State confirmed the framework's ability to replicate real-world outcomes, with ED visits increased up to ~40%. The modeling results identified counties most severely affected by wildfire plumes, the majority of which lack regulatory air quality monitors. Our approach highlights the value of integrated modeling for identifying vulnerable populations and delivering timely health burden estimates, regardless of local monitoring availability.

Keywords: BenMAP; CMAQ; air quality; wildfire.

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Conflict of interest statement

The authors declare no conflict of interest.

- 53 references
- 7 figures

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Editorial

Lancet Respir Med

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. 2025 Nov;13(11):951.

doi: 10.1016/S2213-2600(25)00367-4. Epub 2025 Oct 14.

Redefining outcomes in asthma-remission and beyond

The Lancet Respiratory Medicine

- **PMID: 41106414**

- **DOI: 10.1016/S2213-2600(25)00367-4**

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Editorial

Am J Respir Crit Care Med

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. 2025 Nov;211(11):1982-1983.

doi: 10.1164/rccm.202509-2272ED.

The Case for Case-Finding in Asthma and Chronic Obstructive Pulmonary Disease

Jerry A Krishnan [1]

Affiliations Expand

- PMID: 41086412

- DOI: 10.1164/rccm.202509-2272ED

No abstract available

Comment on

- Patient Factors and Clinical Efficacy of Early Identification and Treatment of Chronic Obstructive Pulmonary Disease and Asthma.

Tardif A, Whitmore GA, Vandemheen KL, Bergeron C, Boulet LP, Cote A, McIvor RA, Penz E, Field SK, Lemière C, Mayers I, Bhutani M, Azher T, Lougheed MD, Gupta S, Ezer N, Licskai CJ, Hernandez P, Ainslie M, Alvarez GG, Mulpuru S, Aaron SD.Am J Respir Crit Care Med. 2025 Nov;211(11):2053-2059. doi: 10.1164/rccm.202505-1260OC.PMID: 41056133 Clinical Trial.

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J Allergy Clin Immunol Glob

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. 2025 Sep 4;4(4):100566.

doi: 10.1016/j.jacig.2025.100566. eCollection 2025 Nov.

Clinical and pathophysiological roles of lower lobe-dominant mucus plugs on computed tomography in patients with asthma with and without bronchiectasis

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- PMID: 41080412

- PMCID: PMC12509975

- DOI: 10.1016/j.jacig.2025.100566

Abstract

Background: Despite the clinical relevance of mucus plugging, the role of spatial distribution of mucus plugs remains unclear in patients with asthma.

Objective: We sought to examine whether greater lower lobe mucus plug dominance is associated with more clinical and pathophysiological impairments in 2 cohorts, including patients with and without bronchiectasis.

Methods: Patients with asthma without and with clinical diagnosis of bronchiectasis underwent chest computed tomography at Kyoto University Hospital (Kyoto cohort) and Japanese multicenters (bronchiectasis and asthma [BEXAS] cohort), respectively. Mucus plugs in airways were visually scored on computed tomography, and the difference in mucus plug score between lower and upper-middle lobes (Δ mucus plug score) was calculated.

Results: Among 176 (Kyoto) and 42 (BEXAS) enrolled patients, 82 and 33 exhibited mucus plug scores greater than or equal to 1, respectively. Higher Δ mucus plug score was associated with lower percentage of the predicted FEV_1 and the presence of exacerbation history in both cohorts. Higher Δ mucus plug score was associated with luminal narrowing of the fifth-generation, but not the third- or fourth-generation, lower lobe airways in the Kyoto cohort, and bronchiolitis score in the BEXAS cohort. In the multivariable model, higher Δ mucus plug score was associated with symptoms and exacerbations, independent of whole-lung mucus plug score in the Kyoto cohort.

Conclusions: Lower lobe-dominant mucus plugs were associated with lower lung function and exacerbations in patients with asthma, irrespective of comorbid bronchiectasis. The spatial distribution of mucus plugs additionally to whole-lung

mucus plug score may help to understand clinical roles of mucus plugging in asthma.

Keywords: Asthma; comorbid bronchiectasis; exacerbations; exhaled nitric oxide; lower lobe dominance; lung function; mucus plug; spatial distribution.

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Conflict of interest statement

This study was partially supported by grants from 10.13039/501100002424Fujifilm Corporation, the 10.13039/501100001691Japan Society for the Promotion of Science (Grants-in-Aid for Scientific Research; grant no. 22K08233), and the Scientific Assembly of Allergy, Immunology & Inflammation, Japanese Respiratory Society. Disclosure of potential conflict of interest: N. Tanabe received research grants from Daiichi Sankyo and Fujifilm Co, Ltd, and lecturer fees from Sanofi K.K., AstraZeneca K.K., and GlaxoSmithKline, outside the submitted work. H. Matsumoto received lecturer fees from Sanofi K.K., AstraZeneca K.K., GlaxoSmithKline, Kyorin Pharmaceutical Co, and Boehringer Ingelheim; received grants from Kyorin Pharmaceutical Co, Boehringer Ingelheim, and Teijin Pharma, outside the submitted work; and received support from the Japanese Respiratory Society and Research Grant from Novartis Japan. O. Matsuno received lecturer fees from Sanofi K.K., AstraZeneca K.K., and GlaxoSmithKline. K. Fukunaga received lecturer fees from Sanofi K.K., AstraZeneca K.K., GlaxoSmithKline, Kyorin Pharmaceutical Co, Boehringer Ingelheim, and Novartis Pharma KK, outside the submitted work; and received grants from Boehringer Ingelheim and Chugai Pharmaceutical, outside the submitted work. N. Hashimoto received research grants from the Japan Science and Technology Age and Nippon Boehringer Ingelheim, outside the submitted work. N. Hattori received lecturer fees from Sanofi K.K., AstraZeneca K.K., GlaxoSmithKline, Kyorin Pharmaceutical Co, Ono Pharmaceutical Co, MSD, and Pfizer Japan, outside the submitted work. S. Inoue received research grant from Kyorin Pharmaceutical Co and lecture fees from Novartis Pharma K.K., AstraZeneca K.K., GlaxoSmithKline, Boehringer Ingelheim (Japan), Kyorin Pharmaceutical Co, and Sanofi K.K., outside the submitted work. K. Matsunaga received lecturer fees from Sanofi K.K., AstraZeneca K.K., and Kyorin Pharmaceutical Co, outside the submitted work. K. Otsuka received lecture fees from Boehringer Ingelheim, Kyorin Pharmaceutical Co, and Novartis Pharma K.K., outside the submitted work. H. Iijima received lecture fees from AstraZeneca K.K., Kyorin Pharmaceutical Co, MSD, and Asahi Kasei Pharma Corp, outside the submitted work. H. Nagase received lecturer fees from Sanofi K.K., AstraZeneca K.K., GlaxoSmithKline, Kyorin Pharmaceutical Co, and Novartis Pharma K.K., outside the submitted work; received grants from GlaxoSmithKline; and serves on the advisory board of Sanofi K.K., AstraZeneca K.K., and GlaxoSmithKline. T. Sakagami received lecturer fees from AstraZeneca K.K., GlaxoSmithKline, Novartis Pharma K.K., and Boehringer Ingelheim, outside the submitted work. T. Kijima received lecturer fees from AstraZeneca K.K. and GlaxoSmithKline. T. Hirai received lecturer fees from AstraZeneca K.K., Kyorin Pharmaceutical Co, and Boehringer Ingelheim, outside the submitted work. The rest of the authors declare that they have no relevant conflicts of interest.

- **39 references**
- **3 figures**

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Observational Study

Respir Med

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. 2025 Nov:248:108403.

doi: 10.1016/j.rmed.2025.108403. Epub 2025 Oct 6.

Metformin use is associated with reduced systemic steroid courses among pediatric asthma patients with diabetes or elevated blood glucose levels

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- PMID: 41061902

- PMCID: PMC12551444 (available on 2026-10-06)

- DOI: 10.1016/j.rmed.2025.108403

Abstract

Background: Patients with asthma and abnormal glucose metabolism have increased asthma exacerbations, worse lung function, and higher health care utilization. Metformin, an insulin-sensitizing agent with anti-inflammatory properties, may modify these outcomes.

Objective: This study explored the association between metformin use and acute asthma exacerbations in children with asthma with elevated blood glucose or a type 2 diabetes diagnosis.

Methods: This observational study was conducted among children aged 10-17 years with asthma and evidence of type 2 diabetes, abnormal glucose, or serum glucose ≥200 mg/dL, using the Linked Network in TrinetX data. Two cohorts were

constructed: a metformin treatment group and a comparison group without metformin. Groups were matched 1:1 using a propensity score algorithm on baseline characteristics. Negative binomial models were used to compare asthma-related healthcare utilizations and systemic steroid courses. Kaplan-Meier analysis using the log-rank test compared the time to-first asthma exacerbation.

Results: After propensity score matching, there were 536 children each in the metformin user and comparison groups. Metformin use was associated with a significantly lower rate of systemic corticosteroid courses, with a 42 % reduction compared to the comparison group (IRR = 0.58; 95 % CI: 0.40-0.85; p = 0.005). There was no difference in the median time to the first occurrence of asthma hospitalizations, ER visits, or systemic steroid courses between the metformin use and comparison group.

Conclusion: Metformin use was associated with a significantly lower rate of systemic corticosteroid courses, although no differences were observed in acute care utilization and in time to first asthma exacerbation.

Keywords: Hospitalizations; Insulin resistance; Obesity; Oral steroids; Type 2 diabetes.

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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:Erhan Ararat reports financial support was provided by University of Arkansas for Medical Sciences. 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.

- **25 references**

Supplementary info

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Randomized Controlled Trial

Am J Respir Crit Care Med

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. 2025 Nov;211(11):2053-2059.

doi: 10.1164/rccm.202505-1260OC.

Patient Factors and Clinical Efficacy of Early Identification and Treatment of Chronic Obstructive Pulmonary Disease and Asthma

Arianne Tardif [1], G A Whitmore [2], Katherine L Vandemheen [1], Celine Bergeron [3], Louis-Philippe Boulet [4], Andreanne Cote [4], R Andrew McIvor [5], Erika Penz [6], Stephen K Field [7], Catherine Lemière [8], Irvin Mayers [9], Mohit Bhutani [9], Tanweer Azher [10], M Diane Lougheed [11], Samir Gupta [12], Nicole Ezer [13], Christopher J Licskai [14], Paul Hernandez [15], Martha Ainslie [16], Gonzalo G Alvarez [1], Sunita Mulpuru [1], Shawn D Aaron [1]

Affiliations Expand

- PMID: 41056133

- DOI: 10.1164/rccm.202505-1260OC

Abstract

Rationale: The Undiagnosed COPD and Asthma Population trial showed that early diagnosis and treatment of asthma and chronic obstructive pulmonary disease (COPD) by pulmonologists improved healthcare use, respiratory symptoms, and quality of life. Objectives: To determine if the benefits of early diagnosis and treatment were greater in individuals with more advanced disease or in individuals with asthma as opposed to COPD. We also assessed whether pulmonologist-directed care benefited asthma and COPD subgroups equally. Methods: Case finding was used to identify adults with undiagnosed chronic respiratory symptoms in the community. A total of 508 newly diagnosed participants with COPD or asthma were randomized to receive pulmonologist-care intervention or usual care. Low and high disease burden categories for the St. George's Respiratory Questionnaire (SGRQ) and COPD Assessment Test were defined using a median-split of baseline scores, and minimal clinically important difference thresholds were used to define significant responses. Benefits of pulmonologist care were assessed by evaluating treatment effects within subgroups and by assessing treatment-by-subgroup interactions. Measurements and Main Results: Patients with higher disease burden at diagnosis were more likely to benefit from early diagnosis and treatment compared with those with lower disease burden. A total of 71% of those with high disease burden showed an improvement in COPD Assessment Test score by $\geqslant$2 points over 12 months compared with 47% with low disease burden (odds ratio, 2.78; 95% confidence interval, 1.90-4.07; $P < 0.001$). Similar results were seen for SGRQ and FEV_1 improvements. In contrast, responses to early diagnosis and treatment were similar for those with asthma versus COPD. Individuals with asthma randomized to undergo pulmonologist-directed care showed greater 1-year improvements in COPD Assessment Test score, SGRQ score, 36-item Short Form score, and FEV_1 compared with individuals randomized to receive primary care.

However, individuals with COPD experienced similar improvements regardless of whether their treatment was managed by a pulmonologist or primary care provider. Treatment-by-disease interaction terms were not statistically significant. Conclusions: Patients with greater disease burden who exhibited more advanced and symptomatic asthma and COPD at the time of diagnosis benefited more from earlier diagnosis and treatment. Patients with asthma tended to derive greater benefit from pulmonologist-directed care than patients with COPD.

Keywords: COPD; asthma; case-finding; disease burden; early diagnosis.

Comment in

- The Case for Case-Finding in Asthma and Chronic Obstructive Pulmonary Disease.

Krishnan JA.Am J Respir Crit Care Med. 2025 Nov;211(11):1982-1983. doi: 10.1164/rccm.202509-2272ED.PMID: 41086412 No abstract available.

Supplementary info

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Observational Study

Lancet Respir Med

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. 2025 Nov;13(11):990-1000.

doi: 10.1016/S2213-2600(25)00283-8. Epub 2025 Sep 29.

Assessment of the role of small airway dysfunction in relation to exacerbation risk in patients with well controlled asthma (ATLANTIS): an observational study

Stanley P Galant [1], Pauline J M Kuks [2], Tessa M Kole [2], Monica Kraft [3], Salman Siddiqui [4], Leonardo M Fabbri [5], Bianca Beghé [6], Klaus F Rabe [7], Alberto Papi [8], Christopher E Brightling [9], Dave Singh [10], Janwillem W H Kocks [11], Laura Franzini [12], Judith M Vonk [13], Huib A M Kerstjens [2], Irene H Heijink [14], Simon D Pouwels [14], Dirk-Jan Slebos [2], Maarten van den Berge [2]

Affiliations Expand

- **PMID: 41038213**

- **DOI: 10.1016/S2213-2600(25)00283-8**

Abstract

Background: Recent surveys suggest that asthma remains inadequately controlled in more than 50% of adults with asthma despite guideline-based standard therapy. Small airways are often under-recognised as major sites of airway obstruction and inflammation. This might be related to lack of assessment with current tools such as impulse oscillometry, and thus under-treatment might explain inadequate control. Small airway dysfunction, which is common in adults with well controlled asthma, might represent an important biomarker of future risk of exacerbations. We aimed to investigate whether small airway dysfunction is present in patients with well controlled asthma and, if so, whether it is a risk factor for future exacerbations in this population.

Methods: The observational Assessment of Small Airways Involvement in Asthma (ATLANTIS) study included 773 extensively characterised patients with asthma aged 18-65 years from 29 primary and specialty clinics in nine countries from June 30, 2014, to March 3, 2017. Patients were required to be diagnosed with asthma at least 6 months before inclusion based on evidence of airway hyper-responsiveness, bronchodilator reversibility, or peak expiratory flow variability. Patients were required to have stable asthma, defined as no asthma exacerbations and regular asthma treatment at a consistent dose for 8 weeks before baseline visits. The current analysis included patients with well controlled asthma, defined as an Asthma Control Questionnaire (ACQ-6) score of less than 0·75 at baseline. Small airway dysfunction was defined, based on deviation from predicted values of impulse oscillometry parameters, as a Z score of more than 1·645 for R5-R20 (resistance at 5 Hz minus resistance at 20 Hz) and AX (area of reactance) and a Z score of less than -1·645 for X5 (reactance at 5 Hz), with additional analyses exploring severe small airway dysfunction (Z score of 3 or -3). ATLANTIS is registered with ClinicalTrials.gov, NCT02123667.

Findings: Of 773 patients, ACQ-6 assessments were available for 772 patients. Among these patients, 384 (50%) were classified as having well controlled asthma, and small airway dysfunction was present in 108 (36% [95% CI 30-41]) of 304 patients with impulse oscillometry data available for R5-R20, 89 (34% [28-42]) of 261 patients with data for AX, and 79 (26% [21-31]) of 303 patients with data for X5. In the multivariable analysis, we found that R5-R20-defined small airway dysfunction was associated with increased risk of future exacerbations, independent of age, sex, smoking status, Global Initiative for Asthma steps 4-5, previous exacerbations, percentage of predicted FEV_1, ratio of residual volume to total lung capacity, and peripheral blood eosinophil count (hazard ratio [HR] 2·26 [95% CI 1·05-4·85]; p=0·038), whereas AX (2·07 [0·91-4·70]; p=0·082) and X5 (0·86 [0·33-2·21]; p=0·75) were not associated with exacerbations. For severe small airway disease, both R5-R20 (HR 2·80 [95% CI 1·26-6·26]; p=0·012) and AX (2·51 [1·04-6·04]; p=0·041) became independent predictors of future exacerbations, whereas X5 remained non-significant (0·99 [0·29-3·32]; p=0·98).

Interpretations: We have addressed an undervalued trait by showing that small airway dysfunction is a common, sensitive, early independent risk biomarker for future exacerbations in adults with well controlled asthma.

Funding: Chiesi Pharmaceuticals and the Dutch Ministry of Health.

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Conflict of interest statement

Declaration of interests MK reports grants paid to their institution from the US National Institutes of Health, American Lung Association, Areteia, AstraZeneca, and Sanofi; personal fees for consultancy from AstraZeneca, Sanofi, Chiesi, GSK, Kinaset, and Genentech; speaker fees from Chiesi and Regeneron; travel support from the European Respiratory Society; equity in RaeSedo; leadership in the Association of Professors of Medicine; and personal fees as a Section Editor for UpToDate. SS reports speaker fees from Chiesi for presenting ATLANTIS data; travel support from the European Respiratory Society for attending science council meetings; and membership in the ATLANTIS scientific steering group. LMF reports consulting fees from Chiesi, GSK, AstraZeneca, Novartis, Verona Pharma, and ICON; speaker fees from Chiesi and GSK; and participation on advisory boards for Novartis and Chiesi. BB reports honoraria for lectures from AstraZeneca, GSK, Chiesi, Sanofi Menarini, and Guidotti; support for attending meetings from GSK, Firma, and AstraZeneca; and participation on advisory boards for GSK and AstraZeneca. KFR reports payments for lectures from AstraZeneca, Boehringer Ingelheim, Chiesi Pharmaceuticals, Novartis, Sanofi & Regeneron, GSK, Berlin Chemie, and Roche Pharma; participation on advisory boards for AstraZeneca, Boehringer Ingelheim, and Sanofi & Regeneron; and leadership roles in the German Center for Lung Research (DZL), German Chest Society (DGP), and American Thoracic Society (ATS). AP reports grants to their institution from Chiesi, AstraZeneca, GSK, and Sanofi; consulting fees from Chiesi, AstraZeneca, GSK, Novartis, Sanofi, Iqvia, Avillion, Elpen Pharmaceuticals, Moderna, and Roche; honoraria for lectures from Chiesi, AstraZeneca, GSK, Menarini, Zambon, Mundipharma, Sanofi, Edmond Pharma, Iqvia, Avillion, and Regeneron; participation on advisory boards for Chiesi, AstraZeneca, GSK, Novartis, Sanofi, Iqvia, Avillion, Elpen Pharmaceuticals, and Moderna; and receipt of materials from Consorzio Futuro in Ricerca. CEB reports grants and consultancy fees paid to their institution from 4D Pharma, Areteia, AstraZeneca, Chiesi, Genentech, GSK, Mologic, Novartis, Regeneron Pharmaceuticals, Roche, and Sanofi. DS reports consulting fees received from Aerogen, AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, CSL Behring, EpiEndo, Genentech, GSK, Glenmark, Gossamer Bio, Kinaset Therapeutics, Menarini, Novartis, Orion, Pulmatrix, Sanofi, Synairgen, Teva, Theravance Biopharma, and Verona Pharma. JWHK reports grants to their institution from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, and Valneva; consulting fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, TEVA, MSD, COVIS Pharma, and Janssen; honoraria for lectures from Mundi Pharma and ALK-Albello; leadership roles as European Respiratory Society group chair, President/board member of the International Primary Care Respiratory Group, member of the CAHAG scientific committee, and board member of the Inhalation Institute Netherlands; stocks as Director of the General Practitioners Research Institute and 3% shares in Lothar Medtec. LF reports being employed by Chiesi

Farmaceutici. IHH reports receiving research grants from Roche, Boehringer Ingelheim, Health Holland, Netherlands Lung Foundation, and the Dutch Research Council (NWO), outside of the submitted work. MvdB reports receiving research grants paid to their institution from GSK, Chiesi, AstraZeneca, Novartis, Genentech, and Roche. All other authors declare no competing interests.

Supplementary info

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Review

Lancet Respir Med

. 2025 Nov;13(11):1026-1040.

doi: 10.1016/S2213-2600(25)00299-1. Epub 2025 Sep 29.

Reframing remission in severe asthma: a conceptual framework for distinguishing disease activity versus damage

Celeste Porsbjerg [1], Hitasha Rupani [2], John D Brannan [3], Shigeharu Ueki [4], Martijn C Nawijn [5], Jonas S Erjefält [6], Pascal Chanez [7], Gary P Anderson [8], Ian D Pavord [9]

Affiliations Expand

- PMID: 41038212

- DOI: 10.1016/S2213-2600(25)00299-1

Abstract

Remission is emerging as a feasible treatment goal in moderate-to-severe asthma, driven by the success of biologic therapies in controlling inflammation and reducing exacerbations. Yet current definitions of remission-focused on symptom control, lung function, and corticosteroid reduction-lack precision, can only be ascertained retrospectively, and do not reflect the underlying mechanisms and

pathology that drive disease progression. This gap limits the clinical applicability of these definitions and might obscure opportunities for early, disease-modifying intervention. In this Series paper, we propose a refined framework for understanding and reaching remission, centred on distinguishing modifiable disease activity from irreversible remodelling and comorbidity-related factors that contribute to disease burden. We introduce the concept of at-risk asthma as a crucial phase characterised by high disease activity and immune dysregulation, in which timely intervention might prevent irreversible airway and extrapulmonary damage and support long-term disease modification. We examine how symptoms, lung function impairment, and exacerbations can arise from distinct and overlapping mechanisms, underscoring the need for careful attribution in clinical assessment. We also outline four key pathophysiological domains-airway hyper-responsiveness, immune hyper-responsiveness, immune remodelling, and structural remodelling-and describe their temporal evolution and implications for treatment responsiveness. Finally, we present a domain-based strategy for assessment and intervention, linking targeted therapies to underlying mechanisms. This approach supports more personalised treatment decisions and redefines remission, not simply as the absence of symptoms, but as stabilisation of disease biology. As the field advances towards earlier intervention and more tailored application of biologics in at-risk asthma, such a framework could be essential to improve long-term outcomes and prevent overtreatment of irreversible disease.

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Conflict of interest statement

Declaration of interests CP declares grants from AstraZeneca, GSK, Sanofi, Novartis, and Chiesi; consulting fees from AstraZeneca, GSK, Sanofi, and ALK; honoraria for lectures from AstraZeneca, GSK, Sanofi, and ALK; financial support for attending conferences from AstraZeneca and Sanofi; and advisory board honoraria from AstraZeneca, GSK, and Sanofi. HP declares a research grant to their institution from GSK; speaker fees from AstraZeneca, GSK, Chiesi, and Sanofi; financial support for attending conferences from AstraZeneca and Sanofi; and financial support for participation in an advisory board with AstraZeneca and GSK. JDB declares no competing interests. SU declares support from Japan Society for the Promotion of Science for the present manuscript; grants from Japan Agency of Medical Research, VIB Maruho, and AstraZeneca, all paid to the institution; and payments for presentations from AstraZeneca and GSK. MCN declares research grants from GSK, AstraZeneca, Novartis, Roche, and Genentech; consulting fees from GSK and AstraZeneca; and speaker honoraria from GSK and AstraZeneca. JSE declares research grants from Sanofi, AstraZeneca, Regeneron, and Roche; consulting fees from AstraZeneca, GSK, and Regeneron; speaker fees from AstraZeneca and GSK; and advisory board fees from GSK. PC declares fees for consultancies, advisory boards, and lectures from ALK, AstraZeneca, Chiesi, GSK, Menarini, Novartis, and Sanofi. GPA declares support from the National Health and Medical Research Council of Australia for the present manuscript. IDP declares a research grant from Chiesi; speaker fees from Aerocrine, Almirall, AstraZeneca, Chiesi, GSK, Novartis, Sanofi, and Regeneron; payments for organisation of educational events from AstraZeneca, Chiesi, GSK, Regeneron, and Sanofi; international meeting sponsorships from AstraZeneca, Chiesi, GSK, Regeneron, Sanofi, and Napp Pharmaceuticals; consultancy fees from Almirall, AstraZeneca,

Novartis, Cicassia, Dey Pharma, Genentech, Knopp Biosciences, Merck, Merck Sharp and Dohme, Napp Pharmaceuticals, Respiverts, and Schering-Plough.

Supplementary info

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Review

Lancet Respir Med

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. 2025 Nov;13(11):1011-1025.

doi: 10.1016/S2213-2600(25)00256-5. Epub 2025 Sep 29.

Genetic and environmental risk factors for asthma: towards prevention

Gerard H Koppelman [1], Maria Pino-Yanes [2], Erik Melén [3], Pippa Powell [4], Ken R Bracke [5], Juan C Celedón [6], Guy G Brusselle [7]

Affiliations Expand

- PMID: 41038211

- DOI: 10.1016/S2213-2600(25)00256-5

Abstract

Asthma is a common chronic airway disease affecting an estimated 260 million individuals of all ages worldwide, contributing to substantial morbidity, mortality, and economic burden. Asthma is heterogeneous in age at onset (childhood vs adult onset), clinical presentation, type of underlying airway inflammation (type 2 high vs type 2 low), prognosis, and treatment response. Asthma is caused by multiple genetic and environmental factors, and possibly their interaction, across the life course. Genetic studies have provided important insights into the pathogenesis, biology, and immunology of asthma, fostering drug discovery. The role of polygenic risk scores in aiding asthma diagnostics and delineating individuals at high risk of

asthma development is becoming more evident. Four modifiable environmental, social, and lifestyle risk factors for asthma are responsible for nearly 30% of the global disability-adjusted life-years asthma burden: high BMI, occupational exposures, NO_2 (as a proxy for traffic-related air pollution), and smoking. These modifiable risk factors offer substantial opportunities for primary prevention of asthma, at the individual and societal level. National, regional, and global strategies aligned with the UN Sustainable Development Goals are urgently needed to attenuate the predicted increase in asthma cases by 2050.

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Conflict of interest statement

Declaration of interests GHK reports grant support from ZonMw (Vici grant) for this manuscript and from the Netherlands Lung Foundation, Vertex, Netherlands Growth Fund, and EU (Horizon 2020) outside this work; consulting fees from AstraZeneca and PureIMS; and honoraria for lectures from AstraZeneca and Sanofi, outside the submitted work (money to institution). GHK is chair of the exquAIro foundation (unpaid). MP-Y has received grant support from the Spanish Ministry of Science, Innovation, and Universities (MICIU/AEI/10.13039/501100011033), Fundación Canaria Instituto de Investigación Sanitaria de Canarias, and CSL Behring, outside the scope of the submitted study; and received lecture fees from AstraZeneca, outside the scope of the submitted study. EM reports advisory board fees from ALK-Abelló and AstraZeneca; and lecture fees from ALK-Abelló, AstraZeneca, Chiesi, and Sanofi, outside the submitted work. GGB reports advisory board and speaker fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Merck Sharp & Dohme, Novartis, Sanofi, and Teva. All other authors declare no competing interests.

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Lancet Respir Med

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. 2025 Nov;13(11):955-956.

doi: 10.1016/S2213-2600(25)00325-X. Epub 2025 Sep 29.

Inclusion of small airway dysfunction in asthma assessment and management: a place for impulse oscillometry?

Anna-Carin Olin [1]

Affiliations Expand

- PMID: 41038210

- DOI: 10.1016/S2213-2600(25)00325-X

No abstract available

Conflict of interest statement

A-CO is the primary inventor of the Particles in Exhaled Air (PexA) method and a shareholder and board-member of PExA, a small spin-off company formed to promote the commercialisation and use of the method. The PExA method is a novel technique to sample lining fluid from small airways. A-CO receives an honorarium from the company. A-CO served as a scientific adviser and a temporary principal investigator for a study conducted by Chiesi in 2023, and receives an honorarium for being a member of the scientific board of AFA, an organisation owned by Sweden's labour market parties. AFA insures employees within the private sector and finances scientific studies related to healthy work life. A-CO is also principal investigator for grants from Formas, the Swedish Heart Lung foundation, and ALF (grants from Sahlgrenska University Hospital) that are paid to her institution for ongoing research.

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Lancet Respir Med

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. 2025 Nov;13(11):965-966.

doi: 10.1016/S2213-2600(25)00337-6. Epub 2025 Sep 29.

Guy Brusselle: using hypothesis-driven and hypothesis-free research to aid people with asthma

Peter Ranscombe

- PMID: 41038209

- DOI: 10.1016/S2213-2600(25)00337-6

No abstract available

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35

Respir Med

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. 2025 Nov:248:108378.

doi: 10.1016/j.rmed.2025.108378. Epub 2025 Sep 26.

Predicting response to inhaled corticosteroid maintenance therapy in patients with chronic obstructive pulmonary disease using machine learning models

Shan-Chieh Wu [1], Chih-Ying Wu [2], Jung-Yien Chien [3], Yaa-Hui Dong [4], Fang-Ju Lin [5]

Affiliations Expand

- PMID: 41015395

- DOI: 10.1016/j.rmed.2025.108378

Abstract

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

Methods: Using a nationwide administrative database linked with individual laboratory results, we identified COPD patients initiating ICS between 2015 and 2019. Patients were stratified into low- and high-exacerbation-risk groups based on prior exacerbation frequency. Prediction models for favorable ICS response were developed using logistic regression, lasso regression, and extreme gradient

boosting (XGBoost). Model performance was assessed by receiver operating characteristic (ROC) curves and calibration plots. Key predictors were identified using Shapley Additive exPlanations.

Results: Among 23,587 ICS-naïve patients, favorable ICS response rates were 73.7 % in the low-risk group and 59.1 % in the high-risk group. XGBoost model outperformed other models in discriminative ability, achieving an area under the ROC curve of 0.72 (95 % CI, 0.70-0.74) for the low-risk group and 0.67 (95 % CI, 0.64-0.70) for the high-risk group in the validation dataset. Younger age, male sex, comorbid asthma, and lower prior use of COPD-related medications were significant predictors of ICS response. The relationship between prior exacerbations on ICS response varied between risk groups. Elevated blood eosinophil levels demonstrated relatively limited predictive ability.

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

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

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Conflict of interest statement

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

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Multicenter Study

Respir Med

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. 2025 Nov:248:108357.

doi: 10.1016/j.rmed.2025.108357. Epub 2025 Sep 23.

SGLT2-inhibitors and asthma outcomes in type 2 diabetes: Insights from a large multicenter study

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Affiliations Expand

- PMID: 40998132

- DOI: 10.1016/j.rmed.2025.108357

Abstract

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

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

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

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

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

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Conflict of interest statement

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

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. 2025 Nov;14(11):2479-2488.

doi: 10.1007/s40121-025-01216-0. Epub 2025 Sep 22.

Lung Health and Respiratory Syncytial Virus: Podcast of a Patient-Physician Discussion Based on Insights from a Patient Advisory Board Meeting

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Affiliations Expand

- **PMID: 40983812**
- **PMCID: PMC12511475**
- **DOI: 10.1007/s40121-025-01216-0**

Abstract

An advisory board meeting was held with five participants living with chronic respiratory conditions or having experienced a severe episode of respiratory syncytial virus (RSV) infection, to understand the challenges faced by such individuals and their experiences with lung health. In this podcast, we relate the points discussed during that meeting, providing further reflections from a patient and a physician on awareness, the lived experience of RSV, the risks it poses to adults living with chronic respiratory conditions and healthcare system support in managing lung health. Experiences shared by participants illustrate how RSV and chronic respiratory conditions can impact many aspects of a person's life, beyond the acute illness, such as feelings of isolation. While many individuals are at risk of severe outcomes from RSV infection, the general population and healthcare practitioners (HCPs) are often unaware of the disease and its potential consequences in adults. Knowing the risk factors for severe RSV and exacerbation of underlying conditions, such as chronic obstructive pulmonary disease, asthma and cardiovascular diseases, could support physicians in discussing risks and preventive measures with their patients. This could help align patients' expectations of HCPs and the healthcare system with the care they receive by providing more guidance on the multifactorial management of their respiratory health. Discussions about the preferred sources of information identified patient groups as the most trustworthy source, followed by HCPs, who can play a key role in helping patients to

identify reliable sources of information. Despite involving only a small group of people, the discussion provided valuable insights from participants which can raise awareness about the risks and impact of RSV on people's lives and empower healthcare professionals to better support their patients in managing their patients' lung health.

Keywords: Exacerbations; Lung health; Older adults; Patients' and HCPs' perspective; Prevention; Respiratory syncytial virus; Underlying health conditions.

Plain language summary

A meeting of people that have chronic lung health conditions or have experienced respiratory syncytial virus (RSV) infection was organised by GSK to gain insights about RSV, awareness and support from the health service.Participants agreed that they had limited understanding and awareness of RSV before the meeting, unless they had already knowingly experienced an RSV infection.All patients explained how they manage their lung conditions day to day owing to limited support from the health service available.It was noted that doctors could provide more assistance and information on how lifestyle choices can make a difference to lung health. This guidance from health practitioners is often limited by their lack of RSV awareness and the common belief that RSV is a paediatric disease. However, RSV can affect adults and lead to severe illness, especially in those with long-term conditions such as asthma. People also sometimes struggle with daily activities and may fear making their illness worse so take preventative measures such as staying indoors, which can then lead to, for example loneliness or depression. As people with some health conditions are at risk of worsening of their condition or getting very ill with RSV, it is key that they receive guidance and help to navigate and understand the vast amount of information to help them make the right choices for their health, in partnership with their doctor. Podcast Video (MP4 858810 kb).

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Conflict of interest statement

Declarations. Conflict of Interest: Bela Vatsa and Frithjof Kosfeld are employed by and hold financial equities in GSK. Lisa McNeil, Peter Deussen, Steven Homewood and Steven Worsnip received honorarium from GSK for their participation to the advisory board. These authors declare no other financial and non-financial relationships and activities. Ethical Approval: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

- 12 references

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J Allergy Clin Immunol Glob

. 2025 Aug 5;4(4):100550.

doi: 10.1016/j.jacig.2025.100550. eCollection 2025 Nov.

Lung function impairment and eosinophilia in patients with eosinophilic chronic rhinosinusitis

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Affiliations Expand

- PMID: 40978168
- PMCID: PMC12446768
- DOI: 10.1016/j.jacig.2025.100550

Abstract

Background: Eosinophilic chronic rhinosinusitis (ECRS) is characterized by intense eosinophil infiltration in nasal polyps (NPs), related to asthma comorbidity and elevated circulating eosinophil levels. The mechanism by which these systemic components affect type 2 inflammation in NPs is poorly understood.

Objective: We sought to evaluate the relationship between lung function and eosinophilia in chronic rhinosinusitis and assess whether ECRS reflects lower airway involvement and systemic eosinophilic inflammation.

Methods: We examined 198 patients with chronic rhinosinusitis. Lung function was assessed preoperatively using spirometry and fractional exhaled nitric oxide (Feno). Patients were classified into ECRS and non-ECRS groups on the basis of the Japanese Epidemiological Survey of Refractory Eosinophilic Chronic Rhinosinusitis score, and patients with odontogenic maxillary sinusitis (OMS) were included for comparison. mRNA expressions of inflammatory cytokines in NPs were measured by quantitative real-time PCR.

Results: FEV_1/forced vital capacity ratio, predicted FEV_1/forced vital capacity, and predicted maximum midexpiratory flow were significantly lower in the ECRS group than in the non-ECRS and OMS groups. Feno levels were significantly higher in the ECRS group. The Japanese Epidemiological Survey of Refractory Eosinophilic Chronic Rhinosinusitis score correlated with lung function and Feno. Notably, some

patients with ECRS showed impaired respiratory function and elevated Feno levels without a documented asthma diagnosis, suggesting possible undiagnosed asthma. Gene expression levels of type 2 cytokines in NPs were elevated in patients with ECRS and in those with peripheral eosinophilia greater than 5%.

Conclusions: Respiratory function was significantly lower in patients with ECRS without an asthma diagnosis compared with non-ECRS and OMS groups. Enhanced eosinophilic inflammation in NPs may affect the lower airways, suggesting an eosinophilic united airway disease.

Keywords: Eosinophilic chronic rhinosinusitis; asthma; eosinophils; lung function; nasal polyps; type 2 cytokines.

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Conflict of interest statement

This work was supported by Japan Society for the Promotion of Science 10.13039/501100001691KAKENHI (grant nos. JP17K11355 and 21K09558 to Y.I.), 10.13039/501100013236MSD Life Science Foundation, Public Interest Incorporated Foundation, and 10.13039/100007428Naito Foundation (to Y.I.). Disclosure of potential conflict of interest: Y. Imoto reports personal fees from 10.13039/100004330GlaxoSmithKline (GSK) and Sanofi as speakers bureau. S. Ueki received honoraria from AstraZeneca, GSK, and Sanofi; and received grants from AstraZeneca, VIB, Cytrill, and Maruho Co, Ltd. T. Yamada received honoraria from Mitsubishi Tanabe Pharma, Kyorin Pharma, Sanofi, and GSK; and received grant support from Sanofi. S. Fujieda reports personal fees from Kyorin, 10.13039/501100012351Mitsubishi Tanabe Pharma, Taiho Pharma, and Sanofi as speakers bureau; and has also served on the advisory board for AstraZeneca, GSK, and Sanofi. The rest of the authors declare that they have no relevant conflicts of interest.

- 60 references
- 6 figures

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J Allergy Clin Immunol Glob

. 2025 Aug 14;4(4):100555.

doi: 10.1016/j.jacig.2025.100555. eCollection 2025 Nov.

Determinants of airway morphology in asthma: Inflammatory and noninflammatory factors

Kaoruko Shimizu [1], Naoya Tanabe [2], Hirokazu Kimura [1], Jun Miyata [3], Shotaro Chubachi [3], Yuji Nakamaru [4], Akira Oguma [5], Nobuyasu Wakazono [1], Kazufumi Okada [6], Houman Goudarzi [1], Ichizo Tsujino [1], Hironi Makira [1 7], Masaharu Nishimura [1 7], Satoshi Konno [1]

Affiliations Expand

- PMID: 40978164

- PMCID: PMC12446637

- DOI: 10.1016/j.jacig.2025.100555

Abstract

Background: Patients with asthma may exhibit impaired airway tree morphology. The impact of difficult-to-treat traits on airway tree morphology remains unclear.

Objective: We sought to identify determinants of total airway branch count (TAC) detectable via computed tomography and explore associated blood and sputum biomarkers in nonsmokers and smokers with asthma.

Methods: Baseline computed tomography scans and pulmonary function tests (spirometry, diffusion capacity of carbon monoxide, and lung volume) were analyzed from the Hokkaido Severe Asthma Cohort (N = 190). TAC, segmental airway, visually evident mucus plugging and bronchiectasis, and parenchymal and extrapulmonary indices, such as the Lund-Mackay score, were evaluated. Relationships between TAC, difficult-to-treat traits, and blood/sputum biomarkers were analyzed using crude or multivariable regression models, adjusted for demographic factors.

Results: Blood or sputum eosinophilia, mucus plugs, high body mass index (BMI), asthma duration, and higher Lund-Mackay score correlated with low TAC. Low TAC was linked to airflow obstruction and heterogeneous ventilation (low alveolar volume/total lung capacity). BMI was inversely associated with TAC, independent of age, sex, smoking status, sputum eosinophil ratio, and asthma duration. The presence of bronchiectasis correlated with an increase in TAC. Sputum IL-5, IL-6, RANTES, and circulating YKL-40 (chitinase-3-like-1 protein) and leptin also inversely correlated with TAC.

Conclusions: BMI, asthma duration, sinusitis, and the presence of bronchiectasis are significant determinants of airway tree morphology in asthma, alongside inflammation and mucus plugs. Both inflammatory and noninflammatory biomarkers were associated with low TAC.

Keywords: Airway remodeling; Lund-Mackay score; asthma; body mass index; computed tomography; eosinophils; leptin; mucus plugs; obesity; type 2 inflammation.

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Conflict of interest statement

This work was supported by the 10.13039/501100001700Ministry of Education, Culture, Sports, Science and Technology of Japan (grant nos. 24249049 and 26461151); the Japan Allergy Foundation; AstraZeneca K.K; and 10.13039/100019271Kyorin Pharmaceutical Co, Ltd. Disclosure of potential conflict of interest: K. Shimizu was supported by grants from Daiwa Health Development, Inc, outside the submitted work. N. Tanabe was supported by grants from FUJIFILM Co, Ltd, and Daiichi Sankyo Co, Ltd; and received honoraria from AstraZeneca, outside the submitted work. J. Miyata was supported by grants from GlaxoSmithKline; and received payment for lectures from GlaxoSmithKline, AstraZeneca, and Sanofi, outside the submitted work. Y. Nakamaru received payment for lectures from Sanofi Co, Ltd. I. Tsujino was supported by grants from Mochida Pharmaceuticals K.K., Nippon Shinyaku Co, Ltd, Nippon Boehringer Ingelheim Co, Ltd, Medical System Network Co, Ltd, Kaneka Corp, and Takeyama Co, Ltd; and received honoraria from Nippon Shinyaku Co, Ltd, and Janssen Pharmaceutical K.K., outside the submitted work. S. Konno was supported by grants from Mochida Pharmaceuticals K.K., Nippon Shinyaku Co, Ltd, Nippon Boehringer Ingelheim Co, Ltd, Medical System Network Co, Ltd, Kaneka Corp, Takeyama Co, Ltd, and Novartis; and received honoraria from AstraZeneca and KYORIN Pharmaceutical, outside the submitted work. The rest of the authors declare that they have no relevant conflicts of interest.

- **47 references**
- **8 figures**

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J Asthma

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. 2025 Oct 31:1-10.

doi: 10.1080/02770903.2025.2562583. Online ahead of print.

Risk factors for uncontrolled asthma in a pediatric population with severe asthma: FRAMAG study

Elida Duenas-Meza [1 2], Sarah Pulido-Fentanes [3], Monica Mendez-Moreno [4 5], Nadia Juliana Proaños-Jurado [4 6]

Affiliations Expand

- PMID: 40952380

- DOI: 10.1080/02770903.2025.2562583

Abstract

Objective: Severe asthma (SA) in children is associated with significant morbidity, increased healthcare utilization, and reduced quality of life. Despite appropriate treatment, achieving optimal asthma control remains challenging, particularly in pediatric populations.This study aimed to identify factors associated with poor asthma control in children with SA, focusing on clinical, functional, and caregiver-related variables.

Methods: This retrospective cohort study included children aged 6-17 years with SA followed for up to three years in the Asmaire-Rexpira Program in Bogota, Colombia. Asthma control was defined using a comprehensive composite score integrating symptom questionnaires, exacerbation history, corticosteroid use, hospitalizations, and spirometry. Multivariable logistic regression was used to identify independent risk factors for uncontrolled asthma.

Results: Of the 228 children included, 35.5% had uncontrolled asthma. Obstructive sleep apnea (OR: 2.16; 95% CI: 1.13-4.11; p = .019) and moderate to severe impairment in caregiver quality of life (OR: 12.35; 95% CI: 4.15-36.80; p < .001) were independently associated with uncontrolled asthma. Systemic corticosteroid use and hospitalization in the prior year were significantly more common in this group. Lung function was preserved in most children.

Conclusions: Uncontrolled asthma in children with SA is associated with comorbid sleep apnea and caregiver burden. These findings underscore the need for multidimensional evaluation, caregiver support, and longitudinal monitoring to optimize asthma control in high-risk pediatric populations.

Keywords: Severe asthma; adherence; conditional change; quality of life.

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Review

Respir Med

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. 2025 Nov:248:108344.

doi: 10.1016/j.rmed.2025.108344. Epub 2025 Sep 5.

Asthma-OSA overlap syndrome: A distinct endophenotype?

Antonio Fabozzi [1], Izolde Bouloukaki [2], Matteo Bonini [3], Sophia E Schiza [2], Paolo Palange [3]

Affiliations Expand

- **PMID: 40915327**

- **DOI: 10.1016/j.rmed.2025.108344**

Free article

Abstract

Purpose: Asthma and obstructive sleep apnea (OSA) are two respiratory diseases that often may coexist, resulting in Alternative Overlap Syndrome (aOVS), which is still underestimated and underdiagnosed.

Objectives: This state-of-art review aims to describe the current evidence on aOVS, including its pathophysiology, clinical, functional and therapeutic implications. A secondary objective is to assess whether aOVS can be identified as a distinct endophenotype needing personalized diagnostic and therapeutic strategies.

Results: Asthma and OSA share several common risk factors, including obesity, gastroesophageal reflux disease (GERD) and rhinitis, which contribute to the pathogenesis of aOVS. From a pathophysiological perspective, aOVS has unique characteristics such as a low arousal threshold, nocturnal bronchial hyperresponsiveness and autonomic nervous system (ANS) dysfunction. These features lead to sleep fragmentation, altered ventilatory control, increased upper and lower airway resistance, and airway and systemic inflammation. From a functional perspective, patients with aOVS present lower FEV_1 and increased nocturnal hypoxemia compared to subjects with only asthma or only OSA. From a clinical perspective, aOVS is linked to reduced asthma control, frequent exacerbations, and a lower quality of life. From a therapeutic perspective, continuous positive airway pressure (CPAP) has a positive impact on asthma control, symptom burden and inflammatory response. Weight loss, GERD and rhinitis management, and emerging therapies such as GLP-1 agonists and biological agents may provide additional benefit.

Conclusions: Current evidence suggests that aOVS may be considered a distinct clinical endophenotype. Its identification is crucial to ensure timely diagnosis, improve management, and direct future research about long-term outcomes and personalized therapy.

Keywords: Alternative overlap syndrome; Asthma; Bronchial asthma; Continuous positive airway pressure; Disorders of excessive somnolence; Obstructive sleep apnea; Polysomnography.

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Conflict of interest statement

Declaration of competing interest 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.

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Observational Study

Respir Med

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. 2025 Nov:248:108340.

doi: 10.1016/j.rmed.2025.108340. Epub 2025 Sep 3.

Mepolizumab treatment and reduced oral corticosteroid exposure improves symptoms of depression and anxiety in severe eosinophilic asthma: data from the Australian Mepolizumab Registry

Erin S Harvey [1], Yuto Hamada [2], Sarah A Hiles [3], David Langton [4], Dennis Thomas [5], Vanessa M McDonald [1], Philip Bardin [6], Matthew Peters [7], Paul N Reynolds [8], John W Upham [9], John Blakey [10], Simon Bowler [11], Jimmy Chien [12], Li Ping Chung [13], Claude S Farah [7], Andrew Gillman [14], John Harrington [1], Mark Hew [15], Christine Jenkins [16], Constance H Katelaris [17], Gregory P

Katsoulotos [18], Vicky Kritikos [19], Joy Lee [20], Naghmeh Radhakrishna [21], Pathmanathan Sivakumaran [22], Peter A B Wark [23], Peter G Gibson [24]; Australian Mepolizumab Registry Investigators

Affiliations Expand

- PMID: 40912662

- DOI: 10.1016/j.rmed.2025.108340

Free article

Abstract

Background: The benefits of oral corticosteroid (OCS) stewardship approaches - including monoclonal antibody treatments for severe asthma- on reducing toxic OCS exposure and related comorbidities such as depression and anxiety require real-world evaluation.

Methods: This real-world observational study investigated OCS exposure and associated complications over 24 months in patients enrolled in the Australian Mepolizumab Registry (n = 412).

Results: Patients were median age 59 years, 58 % were female. The proportion of patients receiving OCS burst in the year prior to commencement was 95 % (44 % during second year of treatment, p < 0.001). In the year prior to baseline, 64 % received toxic level OCS exposure (≥1000 mg), with more disease burden and doctor diagnosed depression (27 % v 15 %, p = 0.020). Ongoing toxic level exposure was reduced to 25 % of patients in the second year of mepolizumab treatment (p < 0.001). At baseline, 42 % required maintenance OCS which reduced to 18 % after two years of treatment (p < 0.001). Hospital Anxiety and Depression Scale (HADS)-Depression score ≥8 was evident in 37 % of patients at baseline and reduced to 15 % after two years (p < 0.001). HADS-Anxiety score ≥8 was reduced from 44 % of patients to 25 % after two years (p < 0.001). Improvements in HADS scores correlated with improvement in Asthma Quality of Life Questionnaire score.

Conclusion: Mepolizumab treatment reduces exposure to toxic levels of OCS in severe eosinophilic asthma, with reduction in associated complications, confirming the importance of OCS stewardship initiatives. Improvements in both asthma outcomes, and clinically relevant treatable traits including depression and anxiety, further highlights the role of biologics within the OCS stewardship framework.

Keywords: Anxiety; Depression; Mepolizumab; Oral corticosteroid stewardship; Severe asthma.

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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: Erin S Harvey reports financial support was provided by GlaxoSmithKline, paid to her employer. Peter G Gibson reports financial support was provided by

GlaxoSmithKline. Peter G Gibson reports a relationship with GlaxoSmithKline that includes: payment or honoraria, and funding grants. Peter G Gibson reports a relationship with AstraZeneca that includes: payment or honoraria, and funding grants. Peter G Gibson reports a relationship with Sanofi that includes: payment or honoraria. Yuto Hamada reports a relationship with AstraZeneca that includes: payment or honoraria. David Langton reports a relationship with GlaxoSmithKline that includes: consulting or advisory. Dennis Thomas reports a relationship with GlaxoSmithKline that includes: funding grants, outside the submitted work. Vanessa M McDonald reports a relationship with GlaxoSmithKline that includes: consulting or advisory, payment or honoraria, and travel reimbursement. Vanessa M McDonald reports a relationship with Boehringer Ingelheim that includes: payment or honoraria, and travel reimbursement. Vanessa M McDonald reports a relationship with Menarini that includes: payment or honoraria, and travel reimbursement. Vanessa M McDonald reports a relationship with National Health and Medical Research Council that includes: funding grants. Vanessa M McDonald reports a relationship with Australian Government Medical Research Future Fund that includes: funding grants. Philip Bardin reports a relationship with Monash Lung and Sleep which includes: per patient trial participation fees during the conduct of this study. Philip Bardin reports fees for consulting or advisory, outside the submitted work. Matthew Peters reports a relationship with Sanofi Genzyme that includes: consulting or advisory, outside the submitted work. Matthew Peters reports a relationship with Novartis Pharmaceuticals that includes: consulting or advisory, outside the submitted work. Matthew Peters reports a relationship with AstraZeneca that includes: consulting or advisory, outside the submitted work. John W Upham reports a relationship with GlaxoSmithKline that includes: funding grants. John W Upham reports a relationship with Moderna that includes: consulting or advisory. John W Upham reports a relationship with AstraZeneca that includes: consulting or advisory, and payment or honoraria. John D Blakey reports relationships with GlaxoSmithKline, AstraZeneca, Chiesi, Boehringer-Ingelheim, Sanofi, and Asthma Australia for institutional and personal payments or in-kind benefit for educational, research, and advisory work from, outside the submitted work. Simon Bowler reports a relationship with GlaxoSmithKline that includes: consulting or advisory, outside the submitted work. Jimmy Chien reports a relationship with GlaxoSmithKline that includes: personal fees, outside the submitted work. Jimmy Chien reports a relationship with AstraZeneca that includes: consulting or advisory, outside the submitted work. Li Ping Chung reports a relationship with GlaxoSmithKline that includes: honorarium. Li Ping Chung reports a relationship with AstraZeneca that includes: honorarium. Li Ping Chung reports a relationship with Boehringer Ingelheim that includes: honorarium. Li Ping Chung reports a relationship with Sanofi that includes: honorarium. Li Ping Chung reports a relationship with Chiesi that includes: consulting or advisory, and funding grants, all outside the submitted work. Claude S Farah reports a relationship with AstraZeneca that includes: personal fees, outside the submitted work. Claude S Farah reports a relationship with Boehringer Ingelheim that includes: personal fees, outside the submitted work. Claude S Farah reports a relationship with GlaxoSmithKline that includes: personal fees, outside the submitted work. Claude S Farah reports a relationship with Sanofi Genzyme that includes: personal fees, outside the submitted work. Andrew Gillman reports a relationship with GlaxoSmithKline that includes: consulting or advisory, and speaking or lecture fees, outside the submitted work. John Harrington reports a relationship with AstraZeneca that includes: consulting or advisory, and speaking or lecture fees,

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Review

Respir Med

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. 2025 Nov:248:108333.

doi: 10.1016/j.rmed.2025.108333. Epub 2025 Aug 29.

Comorbidities as treatable traits of chronic airway diseases

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Affiliations Expand

- PMID: 40886804

- DOI: 10.1016/j.rmed.2025.108333

Free article

Abstract

Chronic airway diseases, including asthma, chronic obstructive pulmonary disease, and bronchiectasis, are increasingly recognized as heterogeneous conditions influenced not only by airway pathology but also by a wide range of extrapulmonary and behavioral comorbidities. The treatable traits (TT) model, as it has emerged in recent medical literature, offers a precision medicine framework that redefines comorbidities as clinically relevant, identifiable, and modifiable traits. This paradigm shifts the focus from conventional disease labels to a multidimensional approach that considers the individual's unique constellation of pulmonary, extrapulmonary, and psychosocial features. A growing body of research has identified critical targets for intervention. The efficacy of this approach is supported by evidence from clinical trials and real-world studies. These studies demonstrate that trait-based management, especially when incorporating comorbidities, results in improved disease control, reduced symptom burden, enhanced quality of life, and decreased frequency of exacerbations. The implementation of multidimensional assessment tools and multidisciplinary care models is imperative for operationalizing this strategy within both primary and secondary care settings. Future directions for this

field include leveraging artificial intelligence and machine learning to refine trait identification and predict individualized treatment responses. Longitudinal studies and adaptive trial designs are also necessary to evaluate the long-term effectiveness, cost-efficiency, and scalability of trait-based interventions across diverse healthcare systems. The recognition of comorbidities as TTs signifies a substantial advancement in the delivery of holistic, patient-centered care for individuals with chronic airway diseases.

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Conflict of interest statement

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Respir Med

. 2025 Nov:248:108316.

doi: 10.1016/j.rmed.2025.108316. Epub 2025 Aug 21.

Safety of the 6-min walk test in adults with severe asthma

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Affiliations Expand

- **PMID: 40849077**

- **DOI: 10.1016/j.rmed.2025.108316**

Free article

Abstract

Background: This study aimed to assess the safety of 6-min walk test (6MWT) in people with severe asthma compared with non-severe asthma, chronic obstructive pulmonary disease (COPD), and healthy controls. Secondly, we sought to compare 6MWT outcomes between adults with severe asthma receiving monoclonal antibody therapy (mAb) or not.

Methods: A total of 403 participants (severe asthma n = 175; non-severe asthma n = 64; COPD n = 99; controls n = 65) underwent a cross-sectional multidimensional assessment that included a 6MWT. Groups were compared regarding adverse events, limiting factors, and physiological responses during the 6MWT.

Results: Participants with severe asthma, mostly female (65 %), with an average (median [quartile1, quartile3]) age of 60 [45,69] years and BMI of 31 [26,37] kg/m^2 showed no adverse events during the 6MWT, irrespective of mAb treatment. The proportion of participants who rested during 6MWT was similar between participants with severe (10 %) and non-severe asthma (9 %), but lower than those with COPD (23 %). The severe asthma group experienced greater breathlessness from the 6MWT compared with non-severe asthma and controls ($p < 0.001$). Fewer participants with severe asthma had SpO_2 decrease to <85 % during the test compared with COPD (3 % vs 14 %, $p < 0.05$). No differences in the 6MWT distance were observed between mAb-treated or non-treated severe asthma participants ($p = 0.13$). Those receiving mAb therapy did not report respiratory limitations during the test.

Conclusion: The 6MWT is safe for adults with severe asthma when pre-bronchodilation is provided and SpO_2 <85 % is used as a stopping criterion. Participants treated or not with mAb achieved comparable 6MWT distances.

Keywords: Antibodies; Asthma; Exercise test; Musculoskeletal pain; Patient safety; Safety management.

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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: Vanessa M McDonald reports financial support was provided by John Hunter Hospital Charitable Trust. Vanessa M Mcdonald reports financial support was provided by National Health and Medical Research Council. Joice M de Oliveira reports financial support was provided by Coordination of Higher Education Personnel Improvement. Hayley Lewthwaite reports a relationship with Hunter Medical Research Institute that includes: funding grants. Hayley Lewthwaite reports

a relationship with Diabetes Australia that includes: funding grants. Hayley Lewthwaite reports a relationship with Boehringer Ingelheim Ltd that includes: consulting or advisory. Hayley Lewthwaite reports a relationship with Lung Foundation Australia that includes: speaking and lecture fees. Hayley Lewthwaite reports a relationship with Thoracic Society of Australia and New Zealand that includes: speaking and lecture fees. Hayley Lewthwaite reports a relationship with Exercise and Sports Science Australia that includes: speaking and lecture fees. Hayley Lewthwaite reports a relationship with European Respiratory Society that includes: speaking and lecture fees. Hayley Lewthwaite reports a relationship with 4DMedical that includes: equity or stocks. Vanessa L Clark reports a relationship with AstraZeneca that includes: speaking and lecture fees. Karina C Furlanetto reports a relationship with National Foundation for the Development of Private Higher Education that includes: funding grants. Peter G Gibson reports a relationship with AstraZeneca that includes: funding grants. Peter G Gibson reports a relationship with GlaxoSmithKline that includes: funding grants. Peter G Gibson reports a relationship with Novartis Pharmaceuticals Corporation. Vanessa M Mcdonald reports a relationship with AstraZeneca that includes: funding grants. Vanessa M McDonald reports a relationship with GlaxoSmithKline that includes: funding grants. Vanessa M McDonald reports a relationship with Boehringer Ingelheim Ltd.

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. 2025 Jul 3;4(4):100529.

doi: 10.1016/j.jacig.2025.100529. eCollection 2025 Nov.

Consensus from European experts on severe eosinophilic asthma and chronic rhinosinusitis with nasal polyps: Results from the OverSEA Delphi study

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Affiliations Expand

- **PMID: 40832363**

- **PMCID: PMC12359228**

- **DOI: 10.1016/j.jacig.2025.100529**

Abstract

Background: Managing patients with severe asthma with an eosinophilic phenotype (SEA) with comorbid respiratory conditions such as chronic rhinosinusitis with nasal polyps (CRSwNP) continues to encounter significant challenges and lack of coordinated management among treating physicians.

Objective: The OverSEA study aims to provide insights into current clinical practices and formulate recommendations for managing these patients.

Methods: The two-round Delphi survey, conducted March-June 2023, was developed by a multidisciplinary 11-member Scientific Committee including pulmonologists, allergists, and ear, nose and throat specialists, and involved 205 experts from these specialties across 8 European countries. Consensus was defined as ≥70% agreement. Topics covered included the initial assessment, treatment, follow-up, and multidisciplinary management of patients with SEA and CRSwNP.

Results: There was a consensus that evaluating for CRSwNP (88%), allergic rhinitis (79%), chronic rhinosinusitis without nasal polyps (77%), and aspirin/nonsteroidal anti-inflammatory-exacerbated respiratory disease (71%) is crucial for diagnosing upper respiratory tract comorbidities in patients with SEA. The necessity of a multidisciplinary approach for all stages of disease management (diagnosis, 82%; treatment decision-making, 83%, follow-up, 79%), and the usefulness of biologics in simultaneously managing asthma and CRSwNP symptoms (87%) were emphasized.

Conclusion: The OverSEA study is the largest European initiative providing recommendations for optimizing the management of patients with SEA and comorbid CRSwNP. It underscores the importance of evaluating patients with SEA for comorbid upper airways diseases, particularly CRSwNP, and promotes a multidisciplinary approach, encouraging pulmonologists, allergists, and otorhinolaryngologists to collaborate closely to streamline patient diagnosis, follow-up, and treatment decisions.

Keywords: Severe asthma; biologics; biomarkers; chronic rhinosinusitis; comorbidities; eosinophilic phenotype; multidisciplinary; nasal polyps; type 2 inflammation.

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Conflict of interest statement

This study was supported by GSK, which funded Adelphi Targis to design and conduct the survey following Delphi methodology and to provide medical writing support to the authors. The authors are solely responsible for opinions, conclusions, and interpreting results, and they approved the final content. The authors took the decision to submit for publication, and the sponsor did not restrict access to the data or the statements made. Disclosure of potential conflict of interest: C. Bachert has attended advisory boards/received lecture fees from GSK, Novartis, 10.13039/100004339Sanofi and 10.13039/100009857Regeneron, and Insmed. G. Brusselle has attended advisory boards/received lecture fees from AstraZeneca, Chiesi, GSK, Novartis, and Sanofi and Regeneron; and attended advisory boards from Boehringer-Ingelheim and MSD. J. A. Castillo Vizuete has received payment/honoraria from AstraZeneca, GSK, and ALK-Abelló; has received support for attending meetings/travel from AstraZeneca, GSK, and Sanofi-Genzyme; has participated on data safety monitoring board/advisory board of AstraZeneca, GSK, and ALK-Abelló; and is chairman of the Rhinitis, Rhinosinusitis and Nasal Polyposis Group in Asthma Section Sociedad Española de Neumologia (SEPAR). I. Dávila has received grants/contracts from 10.13039/501100004587Instituto de Salud Carlos III, Junta de Castilla y León, and Thermo Fisher Scientific; consulting fees from Allergy Therapeutics, AstraZeneca, GSK, MSD, Novartis, and Sanofi; and payments/honoraria for lectures from Allergy Therapeutics, Sanofi, AstraZeneca, MSD, GSK, Chiesi, Novartis, and Diater. M. Laudien has received support from GSK; grants/contracts from Olympus Deutschland GmbH & Europa SE & Co KG, Brainlab Sales, AEDA, Flagon, and Medtronic; payments/honoraria for lectures from Novartis Pharma, Sanofi-Aventis Deutschland, GSK, and CSL Vifor; and has played a leadership/fiduciary role in AG Rhinologie/Rhinochirurgie DGHNO, John Grube Foundation, and CRS Register. V. Seccia has participated in advisory boards, received payments/honoraria for lectures, and participated on data safety monitoring board/advisory board from GSK, Sanofi, and AstraZeneca; and has received support for attending meetings/travel from Sanofi. P. Schmid-Grendelmeier has attended advisory boards, contributed to the discussion, and received honoria from AstraZeneca, GSK, Novartis, and Sanofi. A. Vultaggio has attended advisory boards and received payments/honoraria for lectures from AstraZeneca, GSK, Sanofi, and Novartis. K. Kallinikou and L. Walrave are employees of GSK and hold stocks/shares in GSK. L. Klimek has received grants/contracts from Allergopharma, Viatris, LETI Pharma, and Stallergenes; grants from HAL Allergie, ALK-Abelló, Quintiles, Lofarma, Allergopharma, Viatris, HAL Allergie, ALK-Abelló, LETI Pharma, Stallergenes, Quintiles, Sanofi, Lofarma, Allergy Therapeutics, AstraZeneca, GSK, Inmunotek, Cassella med, Novartis, Regeneron Pharmaceuticals, and ROXALL Medizin; consulting fees from Allergopharma, GSK, Viatris, LETI Pharma, Novartis, Stallergenes, Sanofi, and AstraZeneca; and has other financial or nonfinancial interests related to: president of German Allergy Society AeDA, vice president of German Academy for Allergy and Clinical Immunology and the European Academy of Allergy and Clinical Immunology, and member of DGHNO, HNO-BV, and GPA.

- **30 references**
- **3 figures**

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Case Reports

J Allergy Clin Immunol Glob

. 2025 Jul 3;4(4):100530.

doi: 10.1016/j.jacig.2025.100530. eCollection 2025 Nov.

Dupilumab treatment and 3-dimensional bronchial tree changes in asthma-COPD overlap

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Affiliations Expand

- PMID: 40727649
- PMCID: PMC12302644
- DOI: 10.1016/j.jacig.2025.100530

Abstract

Dupilumab treatment might be effective in improving lung function and exercise tolerance in patients with asthma-chronic obstructive pulmonary disease overlap. Three-dimensional bronchial tree visualization is a useful tool when assessing the functional response after treatment in these patients.

Keywords: 3-dimensional bronchial tree visualization; Asthma–chronic obstructive pulmonary disease overlap; asthma; chronic obstructive pulmonary disease; dupilumab.

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Conflict of interest statement

Disclosure of potential conflict of interest: The authors declare that they have no relevant conflicts of interest.

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J Allergy Clin Immunol Glob

. 2025 Jun 12;4(4):100515.

doi: 10.1016/j.jacig.2025.100515. eCollection 2025 Nov.

Type 2 immune responses are associated with less severe COVID-19 in a hospitalized cohort

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Collaborators, Affiliations Expand

- PMID: 40709330

- PMCID: PMC12284355

- DOI: 10.1016/j.jacig.2025.100515

Abstract

Background: The novel coronavirus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spread rapidly after its identification in December 2019 to cause a global pandemic. The respiratory tract is the primary site of infection, and there is a large range in the severity of respiratory illnesses caused by the virus. Defining

molecular and cellular factors for protection from severe disease and death has been a goal to better understand and to predict and mitigate the effects of SARS-CoV-2 and future coronaviruses.

Objective: Despite well-known susceptibilities to respiratory viral infections, respiratory allergy and allergic asthma have not been identified as risk factors for severe coronavirus disease 2019 (COVID-19) in most epidemiologic studies and may be protective. We sought to investigate associations between markers of type 2 (T2) immune responses with SARS-CoV-2 clinical outcomes and virus loads in a cohort of 1164 individuals hospitalized for COVID-19 from May 2020 to March 2021 as part of the IMPACC study.

Methods: We characterized the clinical outcomes, as defined by severity trajectory groups reflecting the degree of respiratory support required, virus loads, and antibody titers of COVID-19 infections in IMPACC participants in relation to molecular and cellular markers of T2 immune responses through multiple assays, including, (1) IL-4, IL-5, and IL-13 levels in serum Olink data, (2) T2 cellular signatures in blood cytometry by time of flight data, (3) relative quantification of T2 signaling gene pathways in airway RNA sequencing data, and/or (4) T2 pathways in peripheral blood mononuclear cell RNA sequencing data. We also investigated the outcomes of individuals with self-reported asthma and evidence of T2 immune responses.

Results: The diagnosis of asthma (odd ratio = 1.27), elevated serum T2 cytokine levels (median fold change = 1.06), and a higher frequency of T_H2 cells (difference = +2%) were associated with less severe clinical disease during hospitalization. Distinct T2-related transcriptomic changes in nasal and blood samples were associated with reduced virus loads. This included the expression of T2-regulated genes implicated in T-/B-cell activation and apoptosis in nasal samples and the expression of T2-regulated genes implicated in myeloid differentiation and reactive oxygen species signaling in blood. Among these, several canonical T2-regulated genes that were increased in less severe disease were identified to have antiviral properties in large high-throughput screens.

Conclusion: T2 immune responses were associated with lower virus loads and more favorable clinical outcomes, suggesting that T2 inflammation related to asthma and allergic diseases may have a direct protective effect against SARS-CoV-2.

Keywords: Asthma; IMPACC; SARS-CoV-2.

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Conflict of interest statement

Funded by the 10.13039/100000002National Institutes of Health (NIH; 5R01AI135803-03, 5U19AI118608-04, 5U19AI128910-04, 4U19AI090023-11, 4U19AI118610-06, R01AI145835-01A1S1, 5U19AI062629-17, 5U19AI057229-17, 5U19AI125357-05, 5U19AI128913-03, 3U19AI077439-13, 5U54AI142766-03, 5R01AI104870-07, 3U19AI089992-09, 3U19AI128913-03, and 5T32DA018926-18); the 10.13039/100000060National Institute of Allergy and Infectious Diseases, NIH (3U19AI1289130, U19AI128913-04S1, and R01AI122220); and the 10.13039/100000001National Science Foundation (DMS2310836). Disclosure of potential conflict of interest: C. B. Cairns serves as consultant to bioMérieux; and is

funded by a grant from the Bill & Melinda Gates Foundation. C. S. Calfee has received research funding from the National Institutes of Health, the US Food and Drug Administration, the Department of Defense, Roche-Genentech, and Quantum Leap Healthcare Collaborative; and has performed consulting services for Janssen, Vasomune, Gen1e Life Sciences, NGMBio, and Cellenkos. L. N. Geng has received research funding paid to her institution from Pfizer. F. Krammer reports that the Icahn School of Medicine at Mount Sinai has filed patent applications relating to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) serologic assays and NDV-based SARS-CoV-2 vaccines listing him as coinventor (Mount Sinai has spun off a company, Kantaro, to market serologic tests for SARS-CoV-2); has consulted for Merck and Pfizer (before 2020) and is currently consulting for Pfizer, Seqirus, 3rd Rock Ventures, Merck, and Avimex; and reports that his laboratory is also collaborating with Pfizer on animal models of SARS-CoV-2. O. Levy is a named inventor on patents held by Boston Children's Hospital relating to vaccine adjuvants and human in vitro platforms that model vaccine action; his laboratory has received research support from GSK. G. A. McComsey has received research grants from Rehdhill, Cognivue, Pfizer, and Genentech; and has served as a research consultant for Gilead, Merck, Viiv/GSK, and Jenssen. E. Melamed has received research funding from Babson Diagnostics; has received honoraria from the Multiple Sclerosis Association of America; and has served on advisory boards of Genentech, Horizon, Teva, and Viela Bio. V. Simon is coinventor of a patent filed relating to SARS-CoV-2 serologic assays. The rest of the authors declare that they have no relevant conflicts of interest.

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J Asthma

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. 2025 Nov;62(11):1939-1949.

doi: 10.1080/02770903.2025.2537406. Epub 2025 Jul 25.

Pediatric chronic cough: Allergies, environmental factors, and asthma-associated inflammation

Kaiwen Zheng [1], Qin Wang [2], Linyan Tang [1], Xing Chen [2]

Affiliations Expand

- PMID: 40698599

- DOI: 10.1080/02770903.2025.2537406

Abstract

Background: Chronic cough (CC) is a common respiratory symptom in children, often linked to allergic conditions, environmental exposures, and potentially indicative of underlying asthma.

Objective: To investigate the relationships of CC in children with allergic predispositions, environmental exposures, and airway inflammatory markers.

Methods: A case-control study was conducted at a tertiary hospital. Data on cough duration, personal and family allergic histories, and environmental exposures were collected. Airway inflammation was assessed using fractional exhaled nitric oxide ($FeNO_{50}$), and lung function was evaluated *via* spirometry.

Results: Children with CC showed a higher prevalence of allergic conditions, including rhinitis (74.77% vs. 24.13%, OR = 9.312, $p < 0.0001$), food allergy (59.81% vs. 27.59%, OR = 3.907, $p = 0.0017$), eczema (55.14% vs. 31.03%, OR = 2.731, $p = 0.0213$), and family history of allergies (71.96% vs. 27.59%, OR = 6.738, $p < 0.001$). Environmental exposures, such as household smoking (55.14% vs. 20.69%, OR = 4.712, $p = 0.001$) and mold exposure (28.68% vs. 7.35%, OR = 3.442, $p = 0.0251$), were more common in the CC group. CC children exhibited elevated $FeNO_{50}$ (median: 18 vs. 14 ppb, $p = 0.0153$) and impaired small airway function (FEF75%pred: 53.84 ± 20.21 vs. 65.07 ± 28.52, $p = 0.0170$).

Conclusions: Pediatric CC is strongly associated with allergic predispositions, environmental exposures, and eosinophilic airway inflammation, potentially reflecting an asthma-related phenotype.

Keywords: Chronic cough; FeNO50; airway inflammation; allergies; children; environmental exposures; lung function.

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Am J Respir Crit Care Med

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. 2025 Nov;211(11):2072-2085.

doi: 10.1164/rccm.202410-2005OC.

Reductions in Respiratory Hospital Visits after a Coal Coking Plant Closure: A Natural Experiment

Wuyue Yu [1], George D Thurston [1]

Affiliations Expand

- PMID: 40691837

- DOI: 10.1164/rccm.202410-2005OC

Abstract

Rationale: Abrupt air quality improvements have followed the closure or dramatic emission control of large air pollution sources. These "natural experiments" provide ideal opportunities to assess the real-world health benefits of air quality improvements. The shutdown of the Shenango coking plant, a significant fossil-fuel pollution source located on an island in the Ohio River near Pittsburgh, Pennsylvania, presented such an opportunity to test for changes in respiratory health in the local community after the closure. Objectives: We sought to identify and quantify the immediate and/or longer term changes in respiratory hospitalizations and emergency department (ED) visits among the population residing near the Shenango coke plant at the time of its closure. Methods: We acquired data for respiratory hospitalizations and ED visit counts from residents living in zip codes surrounding the plant, as well as at comparison control sites, 3 years before and after the shutdown date. The immediate and longer term changes of respiratory health outcomes were tested with an interrupted time series model and compared with findings from external control sites and internal control outcomes. Measurements and Main Results: We found that the closure of the Shenango plant was associated with an immediate 20.5% (95% confidence interval = 12.8-27.6) decrease for weekly respiratory ED visits and an immediate 41.2% (95% confidence interval = 14.4-59.9) decrease in ED visits for pediatric asthma, followed by an additional 4% per-month longer term downward trend. Longer term reductions, as compared with preclosure trends, were also observed for hospitalizations for chronic obstructive pulmonary disease. Conclusions: Our study provides strong confirmation that reductions in fossil-fuel-related air pollution produce both short-term and longer term respiratory health benefits.

Keywords: COPD; air pollution; asthma; interrupted time series analysis.

Comment in

- Natural Experiments: An Efficient Tool for Population Respiratory Health Evaluation.

Croft DP, Rich DQ.Am J Respir Crit Care Med. 2025 Nov;211(11):1986-1988. doi: 10.1164/rccm.202505-1137ED.PMID: 40758580 No abstract available.

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

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Cite

5

Review

Drug Deliv Transl Res

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. 2025 Nov;15(11):4098-4114.

doi: 10.1007/s13346-025-01909-6. Epub 2025 Jul 14.

Inhaled biologics for respiratory diseases: clinical potential and emerging technologies

Nur Adania Shaibie [1], Nur Dini Fatini Mohammad Faizal [1], Fhataheya Buang [1], Teerapol Srichana [2], Mohd Cairul Iqbal Mohd Amin [3]

Affiliations Expand

- PMID: 40660066
- PMCID: PMC12508015
- DOI: 10.1007/s13346-025-01909-6

Erratum in

- Publisher Correction: Inhaled biologics for respiratory diseases: clinical potential and emerging technologies.

Shaibie NA, Mohammad Faizal NDF, Buang F, Srichana T, Mohd Amin MCI.Drug Deliv Transl Res. 2025 Sep 27. doi: 10.1007/s13346-025-01985-8. Online ahead of print.PMID: 41015633 No abstract available.

Abstract

The pulmonary route has gained significant attention as a drug delivery method, particularly for managing respiratory diseases. This approach provides several benefits, such as rapid therapeutic action, minimized systemic exposure, improved patient adherence, and the ability to deliver high drug concentrations directly to the lungs. Advances in inhalation devices, including pressurized metered-dose inhalers (pMDIs), dry powder inhalers (DPIs), and nebulizers, have established the pulmonary route as effective for administering both small-molecule drugs and complex biologics. Recent research has showcased the successful use of inhaled biologics such as monoclonal antibodies, nanobodies, and protein-based treatments in conditions like asthma, chronic obstructive pulmonary disease (COPD), pulmonary fibrosis, COVID-19, and respiratory syncytial virus (RSV). These treatments employ innovative mechanisms, such as muco-trapping and immune modulation, to optimize site-specific drug delivery and minimize systemic side effects. As technologies for pulmonary administration continue to evolve, they provide a non-invasive and highly promising platform for enhancing respiratory therapies and broadening the applications of biologics.

Keywords: Asthma; Biologics; COVID-19; Pulmonary delivery; Respiratory diseases.

© 2025. The Author(s).

Conflict of interest statement

Declarations. Ethics approval and consent to participate: No ethics approvals were required for this review and no human subjects were involved. Consent for publication: No consents were required for this review and no human subjects were involved. Competing interests: 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.

- 115 references
- 5 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

6

J Asthma

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. 2025 Nov;62(11):1926-1932.

doi: 10.1080/02770903.2025.2531500. Epub 2025 Aug 1.

Artificial intelligence performance in pediatric asthma

Ece Senbaykal Yigit [1], Ilke Taskirdi [1 2], Idil Akay Haci [1], Tuba Tuncel [1 2]

Affiliations Expand

- PMID: 40643318

- DOI: 10.1080/02770903.2025.2531500

Abstract

Objective: Asthma is the most common chronic disease of childhood, characterized by symptoms such as wheezing, shortness of breath, and coughing. With the advancement of technology, artificial intelligence (AI) applications are increasingly being used in various fields, among which ChatGPT is one of the most widely utilized. The aim of this study is to evaluate the reliability, quality, and readability of the answers provided by the ChatGPT-4o application to questions related to pediatric asthma.

Methods: The ChatGPT-4o application was used to record answers to 25 of the most frequently asked questions about asthma in children. To determine the quality and reliability of the answers, we used the Global Quality Scale and modified DISCERN tool. We tested readability using seven indices: Automated Readability Index, Flesch Reading Ease Score, Flesch-Kincaid Grade Level (FKGL), Gunning Fog Readability Index, Simple Measure of Gobbledygook, Coleman-Liau Readability Index, and Linsear Write Formula.

Results: The answers provided by the ChatGPT-4o application to questions about childhood asthma were found to have good reliability (88% by the first evaluator and 84% by the second evaluator) and high quality (88% by both evaluators). The application scored 10.77 ± 1.58 on the FKGL scale, and in conjunction with the other indices, the results indicated that the answers required a high level of reading proficiency.

Conclusions: Artificial intelligence can be a reliable tool for parents in providing information about pediatric asthma. However, these findings suggest that readability issues may hinder the clinical application of AI-generated content in asthma diagnosis and treatment.

Keywords: ChatGPT; childhood; quality; readability; reliability.

Supplementary info

MeSH termsExpand

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7

Review

J Asthma

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. 2025 Nov;62(11):1831-1842.

doi: 10.1080/02770903.2025.2526376. Epub 2025 Jul 10.

The efficacy of dexamethasone compared to prednisone/prednisolone for the management of pediatric patients with acute exacerbation of asthma: a systematic review and meta-analysis

Haochang Wang [1], Jiapei Wang [1], Xuanya He [1]

Affiliations Expand

- PMID: 40577515

- DOI: 10.1080/02770903.2025.2526376

Abstract

Objective: This updated meta-analysis aimed to investigate the efficacy of dexamethasone compared to prednisone/prednisolone for the management of pediatric patients with acute exacerbation of asthma.

Data sources: PubMed, Web of Science, the Cochrane Library, and Scopus were systematically searched from the inception to March 8, 2025.

Study selections: Randomized controlled trials comparing the effect of dexamethasone with prednisone/prednisolone on hospital admission, relapse, readmission, length of hospital stay, pediatric respiratory assessment measure (PRAM) score, intensive care unit (ICU) admission, noncompliance, and vomiting

among pediatric patients with acute asthma exacerbation were identified. Studies other than randomized controlled trials, studies lacking both groups and those not reporting the outcomes of interest were excluded. A random-effects model was adopted to pool data.

Results: Sixteen studies with 1481 individuals in the dexamethasone group and 1436 individuals in the prednisone/prednisolone group were included. No significant differences were found between dexamethasone and prednisone/prednisolone groups in terms of the risk of hospitalization (RR 0.96, 95% CI (0.79, 1.17), I^2 = 0.00%), ICU admission (RR 0.64, 95% CI (0.08, 4.88), I^2 = 0.00%), relapse (RR 0.99, 95% CI (0.71, 1.38), I^2 = 0.00%), hospital readmission (RR 0.90, 95% CI (0.34, 2.35), I^2 = 30.98%), the PRAM score (RR -0.24, 95% CI (-0.54, 0.06), I^2 = 41.30%), the length of hospital stay (RR -2.69 h, 95% CI (-6.91, 1.53), I^2 = 69.50%), and noncompliance (RR 0.47, 95% CI (0.07, 3.01), I^2 = 65.20%). Moreover, dexamethasone decreased the risk of vomiting (RR 0.39, 95% CI (0.25, 0.59), I^2 = 26.62%) compared to prednisone-prednisolone.

Conclusion: Dexamethasone was not inferior to prednisolone/prednisone in the management of pediatric asthma exacerbation.

Keywords: Dexamethasone; asthma exacerbation; hospitalization; prednisolone; prednisone; relapse.

Supplementary info

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8

Review

Expert Rev Respir Med

. 2025 Nov;19(11):1097-1109.

doi: 10.1080/17476348.2025.2526774. Epub 2025 Jul 1.

An update on oscillometry in asthma

Francesco Menzella [1], Rory Chan [2], Carlo Lombardi [3], Alvise Berti [4], Marcello Cottini [5]

Affiliations Expand

- PMID: 40576552

- DOI: 10.1080/17476348.2025.2526774

Abstract

Introduction: Notwithstanding considerable progress in asthma management, a significant proportion of patients continue to demonstrate suboptimal control. Research has identified small airways dysfunction (SAD) as a critical site for airflow limitation and an independent risk factor of exacerbations, with airway oscillometry (AO) playing a pivotal role in this field.

Areas covered: Spirometry is widely accepted as the gold standard for evaluating respiratory function. However, it is primarily sensitive to large airway obstruction… AO has emerged as a valuable tool for quantifying SAD, and recent studies have established strong correlations between AO, advanced imaging techniques and type 2 biomarkers. We conducted a review of the English-language literature from the beginning of the databases reviewed through June 2025.

Expert opinion: In recent years, a substantial body of literature has emerged, leading to a resurgence of interest in the role of AO in asthma management. It is recommended that AO be utilized as a primary diagnostic tool for the early detection of SAD, even when spirometric values are within normal limits. The identification of patients with asthma in accordance with the criteria of defined severe SAD-oscillometry signifies the culmination of the evolution of AO from a research tool to a clinical tool.

Keywords: FOT; IOS; Severe asthma; biologics; oscillometry; small airways dysfunction; spirometry.

- Cited by 1 article

Supplementary info

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. 2025 Nov;62(11):1871-1879.

doi: 10.1080/02770903.2025.2526377. Epub 2025 Jul 1.

Lifestyle and environmental risk factors for comorbidities in adolescents with asthma

Eliza Mireya Vázquez-Rodríguez [1], Carlos Francisco Vázquez-Rodríguez [2], Francisco Vázquez-Nava [3], Raul de León Escobedo [3], Nancy V Ortega-Betancourt [2], Octelina Castillo-Ruiz [4], Josefina Altamira García [3], Jaime Paz Ávila [3]

Affiliations Expand

- PMID: 40576339

- DOI: 10.1080/02770903.2025.2526377

Abstract

Objective: The prevalence of comorbidities in patients with uncontrolled asthma ranges from 33.0 to 70.0%. Given this statistic, the main objective of our research focused on adolescents with asthma to determine the relationship between sedentary lifestyle, parental smoking, consumption of alcoholic beverages, intake of foods rich in carbohydrates, and poor oral hygiene with the development of comorbidities. Identifying factors associated with comorbidities in adolescents could help establish measures that facilitate control and limit the development of severe or difficult-to-manage asthma. Methods: In this cross-sectional study, information from 1,178 adolescents was analyzed. Participants answered a self-administered questionnaire and received both a physical and dental examination.

Results: A total of 126 adolescents were diagnosed with asthma. Of this group, the prevalence of allergic rhinitis was 57.1%, drug allergy was 17.5%, dental caries were detected in 69.8%, and gingivitis was detected in 36.5%. Approximately 28.6% of the young people with asthma were overweight, and 11.1% were obese. A multivariate logistic regression analysis found that living in a household with parents who smoke, having a sedentary lifestyle, or inadequate oral hygiene with tooth decay or gingivitis are significantly ($p < 0.05$) associated with the development of some comorbidities in adolescents with asthma.

Conclusions: Early detection of factors related to comorbidities in patients with asthma can help control respiratory symptoms and limit their progression to severe or uncontrolled asthma. For adolescents suffering from asthma, these findings can be used to promote a healthy lifestyle, by encouraging behaviors, such as healthy eating and adequate physical activity.

Keywords: Severe asthma; gingivitis; obesity; oral hygiene; parents who smoke; unhealthy lifestyle.

Supplementary info

MeSH termsExpand

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Ann Allergy Asthma Immunol

. 2025 Nov;135(5):537-546.e12.

doi: 10.1016/j.anai.2025.06.017. Epub 2025 Jun 20.

Impact of clinical remission on quality of life in severe eosinophilic asthma treated with mepolizumab

Yuto Hamada [1], Dennis Thomas [2], Vanessa M McDonald [3], Erin S Harvey [4], Michael Fricker [5], Andrew Gillman [6], Mark Hew [7], Vicky Kritikos [8], John W Upham [9], Peter G Gibson [4]

Affiliations Expand

- PMID: 40545234

- DOI: 10.1016/j.anai.2025.06.017

Abstract

Background: Biologics can induce clinical remission in severe asthma. However, the benefits of achieving remission from the patient's perspective remain unclear.

Objective: To assess the association between achieving clinical remission and health-related quality of life (HRQoL) in patients with severe eosinophilic asthma treated with mepolizumab.

Methods: In this nested, matched case-control study, data from the Australian Mepolizumab Registry (AMR) were used to compare the proportions of participants attaining Asthma Quality of Life Questionnaire (AQLQ[S]) scores of greater than or equal to 6, indicating minimal or no HRQoL impairment, between 42 participants who achieved clinical remission at 12 months and 64 propensity score-matched participants who did not. Assessed AQLQ(S) scores included overall and domain scores for symptoms, activity limitation, emotional function, and environmental stimuli. Clinical remission was assessed at 12 months, defined as Asthma Control Questionnaire-5 score less than 1.5, no exacerbations in the previous 12 months, and no oral corticosteroids use for asthma.

Results: A greater proportion of participants achieving clinical remission had AQLQ(S) scores of greater than or equal to 6 at 12 months compared with those who did not: overall scores (61.9% vs 26.6%, P = .001), symptom domain (59.5% vs 29.7%, P = .004), activity limitation domain (59.5% vs 28.1%, P = .003), emotional function domain (69.0% vs 31.2%, P < .001), and environmental stimuli domain (57.1% vs 34.4%, P = .035).

Conclusion: Achieving clinical remission at 12 months was associated with minimal or no impairment in HRQoL, although approximately 38% of participants in remission still experienced impaired HRQoL, highlighting residual unmet needs. Further research is needed to better understand the benefits of asthma remission from the patient's perspective.

Clinical trial registration: The AMR is registered in the Australian New Zealand Clinical Trials Registry (ACTRN12618001497291). The AMR is a nationwide, multicenter, prospective, observational registry for the postmarketing surveillance of mepolizumab in severe eosinophilic asthma. The AMR is approved by the Human Research Ethics Committees in the study sites, and all participants provided written informed consent before enrollment.

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Conflict of interest statement

Disclosures Dr Hamada reports receiving lecture fees from AstraZeneca outside the submitted work. Dr Thomas reports receiving grants from GlaxoSmithKline outside the submitted work. Dr McDonald reports receiving grants from the National Health and Medical Research Council and Medical Research Futures Fund; consulting fees from GlaxoSmithKline; payment or honoraria from GlaxoSmithKline, Boehringer Ingelheim, and Menarini Foundation; and travel support from GlaxoSmithKline, Boehringer Ingelheim, and Menarini Foundation. Dr Harvey reports receiving grants from GlaxoSmithKline that were paid to her employer during the conduct of the study. Dr Fricker reports receiving grants from GlaxoSmithKline outside the submitted work. Dr Hew reports receiving grants, consulting fees, and payment or honoraria from AstraZeneca, GlaxoSmithKline, Novartis, and Sanofi; consulting fees from Seqirus; payment or honoraria from Teva and Chiesi; and advisory board fees from Aravax outside the submitted work, all paid to his institutional employer, Alfred Health. Dr Kritikos reports receiving grants from GlaxoSmithKline and payment or honoraria from AstraZeneca. Dr Upham reports receiving grants from GlaxoSmithKline; consulting fees from Moderna and AstraZeneca; payment or honoraria from AstraZeneca; and advisory board fees from Moderna and AstraZeneca. Dr Gibson reports receiving grants and payment or honoraria from GlaxoSmithKline. Dr Gillman has no conflicts of interest to report.

Supplementary info

MeSH terms, SubstancesExpand

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11

Am J Respir Crit Care Med

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. 2025 Nov;211(11):2208-2211.

doi: 10.1164/rccm.202503-0576RL.

Mucus Plug Density and Type 2 Inflammation in Asthma and/or Chronic Obstructive Pulmonary Disease: Ultrahigh-Resolution Computed Tomography Study

Naoya Tanabe [1], Hisako Matsumoto [2], Yusuke Hayashi [1], Ryo Sakamoto [3], Hironobu Sunadome [4], Susumu Sato [4], Atsuyasu Sato [1], Toyohiro Hirai [1]

Affiliations Expand

- PMID: 40460341

- DOI: 10.1164/rccm.202503-0576RL

No abstract available

Supplementary info

Publication types, Grants and fundingExpand

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

1

Review

Cureus

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. 2025 Oct 28;17(10):e95631.

doi: 10.7759/cureus.95631. eCollection 2025 Oct.

Vasomotor Rhinitis: Current Concepts and Emerging Therapies

Ghezlan Aldawas [1 2], Imtiyaz N Bhat [1]

Affiliations Expand

- PMID: 41169602

- PMCID: PMC12570286

- DOI: 10.7759/cureus.95631

Abstract

Vasomotor rhinitis (VMR) is a non-infectious, non-allergic subtype of rhinitis, which is characterized by nasal blockage, liquid runny rhinorrhea, and increased sensitivity to nonspecific nasal triggers (such as changing temperature and smell). Although VMR is a disease with a high prevalence rate, it is wrongly diagnosed and under-treated due to its clinical manifestation with allergic rhinitis. Databases such as PubMed, EMBASE, and Cochrane Library were searched to obtain articles published between 2000 and 2025. Randomized controlled trials, cohort studies, and major clinical guidelines were included, while case reports and non-English studies were excluded to ensure consistency and reproducibility of the findings. Existing evidence shows that multiple regulations of the autonomic nervous system, neuropathway neuroplasticity and inflammation, and excessive quantitative stimulation of transient receptor potential (TRP) channels all play a role in the pathophysiology of VMR. Variable therapies include corticosteroids, intranasal antihistamines, and anticholinergics, although ipratropium bromide has had the best dependability results in terms of rhinorrhea. Surgical procedures that may be considered include intranasal capsaicin, botulinum toxin injections, ablation of the posterior nasal nerve (radiofrequency ablation or cryotherapy), and vidian neurectomy, but these interventions are not yet conclusively demonstrated or established as promising to help the patient with refractory symptoms. VMR is a condition that has not been adequately studied but is common and requires a progressive management style that relies on triggers. Whereas conventional intranasal treatment is the most appropriate in the first case, nerve-specific treatment has promising outcomes in the case of relapse.

Keywords: botulinum toxin; capsaicin; cryotherapy; idiopathic rhinitis; intranasal ipratropium; non-allergic rhinitis; posterior nasal nerve ablation; rhinorrhea; vasomotor rhinitis; vidian neurectomy.

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Conflict of interest statement

Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following: Payment/services info: All authors have declared that no financial support was received from any organization for the submitted work. Financial relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. Other relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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

Supplementary info

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2

Editorial

J Allergy Clin Immunol

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. 2025 Oct 28:S0091-6749(25)01039-5.

doi: 10.1016/j.jaci.2025.10.009. Online ahead of print.

"Molecular Allergology World Atlas": Calling to bridge IgE microarrays and artificial intelligence

Paolo Maria Matricardi [1]

Affiliations Expand

- **PMID: 41167401**

- **DOI: 10.1016/j.jaci.2025.10.009**

No abstract available

Keywords: Immunoglobulin E; World Health Organization (WHO); allergen; allergen immunotherapy; allergic diseases; allergic rhinitis; artificial intelligence; asthma; atlas; atopic dermatitis; climate; component-resolved-diagnosis; diet; environment; epidemiology; genetics; global warming; molecular allergology; prevention; therapy.

Supplementary info

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3

Rhinology

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. 2025 Oct 27.

doi: 10.4193/Rhin25.348. Online ahead of print.

Sex differences in CRSwNP: focus on histopathological endotypes and recurrence

W Chen [1 2], H Wang [1 3], D Wang [4], W Li [1 3], Y Li [1], J Chen [4], Q Yang [1 3], Y Zhang [1 3]

Affiliations Expand

- **PMID: 41143461**
- **DOI: 10.4193/Rhin25.348**

Abstract

Background: Chronic rhinosinusitis with nasal polyps (CRSwNP) exhibits sex-specific differences in prevalence and clinical presentation. However, the underlying histopathological characteristics and recurrence remain underexplored.

Methodology: A retrospective cohort of 410 CRSwNP patients (287 males, 123 females) undergoing endoscopic sinus surgery between January 2021 and June 2024 was analyzed. Histological evaluation was employed by H&E staining and features of inflammatory profile were identified by immunohistochemistry. Multivariate logistic regression and receiver operating characteristic analyses were performed to assess predictors of recurrence.

Results: Males exhibited higher body mass index (BMI) and greater allergic rhinitis prevalence, while females had more asthma comorbidity and higher SNOT-22 scores. While no significant sex differences were observed in histopathological endotypes, elevated BMI was more likely to exacerbate inflammation in males than females. Additionally, males showed a higher recurrence rate, with male sex being identified as an independent risk factor. However, females who experienced recurrence exhibited more severe eosinophilic and T2 inflammation compared to their male counterparts. Therefore, higher threshold values for tissue eosinophil counts and Charcot-Leyden crystals were required to predict recurrence in female patients.

Conclusions: These findings underscore the necessity for sex tailored therapeutic strategies, particularly emphasizing weight control in male patients and intensified anti-T2 inflammation management in female patients with recurrent CRSwNP. Further research is needed to investigate the underlying causes and to offer evidence-based treatment guidelines.

Full text links

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Dermatol Ther (Heidelb)

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. 2025 Nov;15(11):3425-3436.

doi: 10.1007/s13555-025-01522-y. Epub 2025 Sep 12.

Real-World Onset of Atopic Comorbidities Relative to Atopic Dermatitis in Pediatric Patients

Yael A Leshem [1 2], Clara Weil [3], William W Busse [4], Lisa A Beck [5], Gabriel Chodick [3], Sonya L Cyr [6], Kwinten Bosman [7], Robert Lubwama [8]

Affiliations Expand

- **PMID: 40938519**
- **PMCID: PMC12550081**
- **DOI: 10.1007/s13555-025-01522-y**

Abstract

Introduction: Patients with atopic dermatitis (AD) have a high atopic comorbidity burden. Although traditionally seen as beginning with AD and progressing to other atopic comorbidities, the "atopic march" model does not fit all patients. This manuscript describes the onset of atopic comorbidities among children newly diagnosed with AD.

Methods: This retrospective, observational, cohort study used data from the Israeli Maccabi Healthcare Services. Patients (< 18 years) first diagnosed with AD during 2000-2019 with ≥ 12-month enrollment before and after AD diagnosis were included. Outcomes included cumulative asthma, allergic rhinitis (AR), and food allergy (FA) prevalence. Patients were grouped by age at AD diagnosis (< 3, 3-5, 6-11, and 12-17 years).

Results: Of 177,081 included patients, 60.4% were < 3 years old at AD diagnosis. The baseline asthma prevalence (at or before AD diagnosis) was lower in children aged < 3 versus ≥ 3 years at AD diagnosis (10.6% versus 26.3-28.5%). The baseline AR prevalence increased with age from 2.2% (< 3 years) to 23.2% (12-17 years), while FA decreased from 4.9% (< 3 years) to 2.1% (12-17 years). Cumulative asthma and FA prevalence increased sharply in the year following AD diagnosis among children diagnosed at < 3 years old. The cumulative ≥ 1 asthma/AR/FA prevalence increased to approximately 50% by 10 years after AD diagnosis.

Conclusions: Children diagnosed with AD at an early age mostly acquire atopic comorbidities within 1 year following AD diagnosis, while children diagnosed later have often already developed them. Eventually, all pediatric patients with AD display a similar, significant burden of atopic multimorbidity. Graphical abstract available for this article.

Trial registration: Not applicable.

Keywords: Allergic rhinitis; Asthma; Atopic dermatitis; Eczema; Food allergy; Israel; Pediatric; Prevalence.

Plain language summary

People with eczema (also known as atopic dermatitis) often have related diseases, including asthma, hay fever (or allergic rhinitis), and food allergies. Data suggest that eczema develops first, followed by these other diseases (the “atopic march”). This study used healthcare data from Israel to examine how many, and how quickly, children with eczema developed related diseases after their eczema diagnosis. Most children were less than 3 years old when they were first diagnosed with eczema, at which time 16% of them already had a related diagnosis. The percentage of children in this age group with asthma, hay fever, and/or food allergies increased rapidly, to nearly 30% just 1 year later, and almost 50% after 10 years. In contrast, children whose first eczema diagnosis was when they were older (3–17 years old) were much more likely to already have a related diagnosis (nearly 40%), but this then only increased gradually, again reaching around 50% after 10 years. The sharpest increase in asthma and food allergies occurred within 1 year following eczema diagnosis in the youngest age group (children less than 3 years old).

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Conflict of interest statement

Declarations. Conflict of Interest: Yael A. Leshem declares consultant and speaker fees from AbbVie, Dexcel Pharma, Eli Lilly, Genentech, Janssen, Pfizer, Regeneron Pharmaceuticals Inc., and Sanofi; has received an independent research grant from AbbVie; and is an investigator without personal compensation for AbbVie, Eli Lilly, Pfizer, and Sanofi. Clara Weil has nothing to declare. William W. Busse is a consultant for and received speaker fees from GSK, Regeneron Pharmaceuticals Inc., and Sanofi. Lisa A. Beck is a consultant for Allakos, Arena Pharmaceuticals, DermTech, Evelo Biosciences, Galderma, Incyte, Janssen, LEO Pharma, Merck, Nektar Therapeutics, Numab Therapeutics, Pfizer, RAPT Therapeutics, Regeneron Pharmaceuticals Inc., Ribon Therapeutics, Sanofi, Stealth BioTherapeutics, Trevi Therapeutics, UNION therapeutics, Xencor; investigator for AbbVie, AstraZeneca, DermTech, Kiniksa Pharmaceuticals, Pfizer, Regeneron Pharmaceuticals Inc., Ribon Therapeutics, and Sanofi. Gabriel Chodick has nothing to declare. Sonya L. Cyr is an employee and shareholder at Regeneron Pharmaceuticals Inc. Kwinten Bosman is an employee and shareholder at Sanofi. Robert Lubwama is an employee at Sanofi and may hold stock and/or stock options in the company. Ethical Approval: The MHS institutional review board approved the study, which was conducted in accordance with the Good Clinical Practice guidelines of the International Council for Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use and with the Declaration of Helsinki, Ethical Principles for Medical Research Involving Human Subjects. MHS institutional review board granted a consent waiver owing to the study's retrospective nature.

- 23 references
- 3 figures

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Cite

5

Review

Respir Med

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. 2025 Nov:248:108344.

doi: 10.1016/j.rmed.2025.108344. Epub 2025 Sep 5.

Asthma-OSA overlap syndrome: A distinct endophenotype?

Antonio Fabozzi [1], Izolde Bouloukaki [2], Matteo Bonini [3], Sophia E Schiza [2], Paolo Palange [3]

Affiliations Expand

- PMID: 40915327

- DOI: 10.1016/j.rmed.2025.108344

Free article

Abstract

Purpose: Asthma and obstructive sleep apnea (OSA) are two respiratory diseases that often may coexist, resulting in Alternative Overlap Syndrome (aOVS), which is still underestimated and underdiagnosed.

Objectives: This state-of-art review aims to describe the current evidence on aOVS, including its pathophysiology, clinical, functional and therapeutic implications. A secondary objective is to assess whether aOVS can be identified as a distinct endophenotype needing personalized diagnostic and therapeutic strategies.

Results: Asthma and OSA share several common risk factors, including obesity, gastroesophageal reflux disease (GERD) and rhinitis, which contribute to the pathogenesis of aOVS. From a pathophysiological perspective, aOVS has unique characteristics such as a low arousal threshold, nocturnal bronchial hyperresponsiveness and autonomic nervous system (ANS) dysfunction. These features lead to sleep fragmentation, altered ventilatory control, increased upper and lower airway resistance, and airway and systemic inflammation. From a functional perspective, patients with aOVS present lower FEV_1 and increased nocturnal hypoxemia compared to subjects with only asthma or only OSA. From a clinical perspective, aOVS is linked to reduced asthma control, frequent exacerbations, and a lower quality of life. From a therapeutic perspective, continuous positive airway pressure (CPAP) has a positive impact on asthma control, symptom burden and inflammatory response. Weight loss, GERD and rhinitis management, and emerging therapies such as GLP-1 agonists and biological agents may provide additional benefit.

Conclusions: Current evidence suggests that aOVS may be considered a distinct clinical endophenotype. Its identification is crucial to ensure timely diagnosis, improve management, and direct future research about long-term outcomes and personalized therapy.

Keywords: Alternative overlap syndrome; Asthma; Bronchial asthma; Continuous positive airway pressure; Disorders of excessive somnolence; Obstructive sleep apnea; Polysomnography.

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Conflict of interest statement

Declaration of competing interest 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.

Supplementary info

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J Allergy Clin Immunol Glob

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. 2025 Jul 3;4(4):100529.

doi: 10.1016/j.jacig.2025.100529. eCollection 2025 Nov.

Consensus from European experts on severe eosinophilic asthma and chronic rhinosinusitis with nasal polyps: Results from the OverSEA Delphi study

Claus Bachert [1], Guy Brusselle [2], José Antonio Castillo Vizuete [3], Ignacio Dávila [4], Martin Laudien [5], Veronica Seccia [6], Peter Schmid-Grendelmeier [7], Alessandra Vultaggio [8], Konstantina Kallinikou [9], Laura Walrave [10], Ludger Klimek [11]

Affiliations Expand

- **PMID: 40832363**
- **PMCID: PMC12359228**
- **DOI: 10.1016/j.jacig.2025.100529**

Abstract

Background: Managing patients with severe asthma with an eosinophilic phenotype (SEA) with comorbid respiratory conditions such as chronic rhinosinusitis with nasal polyps (CRSwNP) continues to encounter significant challenges and lack of coordinated management among treating physicians.

Objective: The OverSEA study aims to provide insights into current clinical practices and formulate recommendations for managing these patients.

Methods: The two-round Delphi survey, conducted March-June 2023, was developed by a multidisciplinary 11-member Scientific Committee including pulmonologists, allergists, and ear, nose and throat specialists, and involved 205 experts from these specialties across 8 European countries. Consensus was defined as ≥70% agreement. Topics covered included the initial assessment, treatment, follow-up, and multidisciplinary management of patients with SEA and CRSwNP.

Results: There was a consensus that evaluating for CRSwNP (88%), allergic rhinitis (79%), chronic rhinosinusitis without nasal polyps (77%), and aspirin/nonsteroidal anti-inflammatory-exacerbated respiratory disease (71%) is crucial for diagnosing upper respiratory tract comorbidities in patients with SEA. The necessity of a multidisciplinary approach for all stages of disease management (diagnosis, 82%; treatment decision-making, 83%, follow-up, 79%), and the usefulness of biologics in simultaneously managing asthma and CRSwNP symptoms (87%) were emphasized.

Conclusion: The OverSEA study is the largest European initiative providing recommendations for optimizing the management of patients with SEA and comorbid CRSwNP. It underscores the importance of evaluating patients with SEA for comorbid upper airways diseases, particularly CRSwNP, and promotes a multidisciplinary approach, encouraging pulmonologists, allergists, and otorhinolaryngologists to collaborate closely to streamline patient diagnosis, follow-up, and treatment decisions.

Keywords: Severe asthma; biologics; biomarkers; chronic rhinosinusitis; comorbidities; eosinophilic phenotype; multidisciplinary; nasal polyps; type 2 inflammation.

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Conflict of interest statement

This study was supported by GSK, which funded Adelphi Targis to design and conduct the survey following Delphi methodology and to provide medical writing support to the authors. The authors are solely responsible for opinions, conclusions, and interpreting results, and they approved the final content. The authors took the decision to submit for publication, and the sponsor did not restrict access to the data or the statements made. Disclosure of potential conflict of interest: C. Bachert has attended advisory boards/received lecture fees from GSK, Novartis, 10.13039/100004339Sanofi and 10.13039/100009857Regeneron, and Insmed. G. Brusselle has attended advisory boards/received lecture fees from AstraZeneca, Chiesi, GSK, Novartis, and Sanofi and Regeneron; and attended advisory boards from Boehringer-Ingelheim and MSD. J. A. Castillo Vizuete has received payment/honoraria from AstraZeneca, GSK, and ALK-Abelló; has received support for attending meetings/travel from AstraZeneca, GSK, and Sanofi-Genzyme; has participated on data safety monitoring board/advisory board of AstraZeneca, GSK, and ALK-Abelló; and is chairman of the Rhinitis, Rhinosinusitis and Nasal Polyposis Group in Asthma Section Sociedad Española de Neumologia (SEPAR). I. Dávila has received grants/contracts from 10.13039/501100004587Instituto de Salud Carlos III, Junta de Castilla y León, and Thermo Fisher Scientific; consulting fees

from Allergy Therapeutics, AstraZeneca, GSK, MSD, Novartis, and Sanofi; and payments/honoraria for lectures from Allergy Therapeutics, Sanofi, AstraZeneca, MSD, GSK, Chiesi, Novartis, and Diater. M. Laudien has received support from GSK; grants/contracts from Olympus Deutschland GmbH & Europa SE & Co KG, Brainlab Sales, AEDA, Flagon, and Medtronic; payments/honoraria for lectures from Novartis Pharma, Sanofi-Aventis Deutschland, GSK, and CSL Vifor; and has played a leadership/fiduciary role in AG Rhinologie/Rhinochirurgie DGHNO, John Grube Foundation, and CRS Register. V. Seccia has participated in advisory boards, received payments/honoraria for lectures, and participated on data safety monitoring board/advisory board from GSK, Sanofi, and AstraZeneca; and has received support for attending meetings/travel from Sanofi. P. Schmid-Grendelmeier has attended advisory boards, contributed to the discussion, and received honoria from AstraZeneca, GSK, Novartis, and Sanofi. A. Vultaggio has attended advisory boards and received payments/honoraria for lectures from AstraZeneca, GSK, Sanofi, and Novartis. K. Kallinikou and L. Walrave are employees of GSK and hold stocks/shares in GSK. L. Klimek has received grants/contracts from Allergopharma, Viatris, LETI Pharma, and Stallergenes; grants from HAL Allergie, ALK-Abelló, Quintiles, Lofarma, Allergopharma, Viatris, HAL Allergie, ALK-Abelló, LETI Pharma, Stallergenes, Quintiles, Sanofi, Lofarma, Allergy Therapeutics, AstraZeneca, GSK, Inmunotek, Cassella med, Novartis, Regeneron Pharmaceuticals, and ROXALL Medizin; consulting fees from Allergopharma, GSK, Viatris, LETI Pharma, Novartis, Stallergenes, Sanofi, and AstraZeneca; and has other financial or nonfinancial interests related to: president of German Allergy Society AeDA, vice president of German Academy for Allergy and Clinical Immunology and the European Academy of Allergy and Clinical Immunology, and member of DGHNO, HNO-BV, and GPA.

- 30 references
- 3 figures

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Review

Int Immunopharmacol

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. 2025 Oct 30:164:115319.

doi: 10.1016/j.intimp.2025.115319. Epub 2025 Aug 6.

Programmed cell death in allergic rhinitis: pathogenic mechanisms and therapeutic potential from a cellular perspective

Lijuan Zhao [1], Fengzhao Liu [2], Lijie Qi [3], Xiangjing Chen [3], Yunhong Ning [4]

Affiliations Expand

- PMID: 40773894

- DOI: 10.1016/j.intimp.2025.115319

Free article

Abstract

Allergic rhinitis (AR), a prevalent chronic inflammatory respiratory disease, is increasing in global incidence, significantly compromising patients' quality of life and imposing considerable socioeconomic burdens. Given the limitations of current clinical treatments, elucidating the pathogenesis of AR is critical for advancing precision therapeutics. Programmed cell death (PCD), which encompasses apoptosis, autophagy, pyroptosis, and other forms, plays a pivotal role in AR. Emerging evidence indicates that dysregulated PCD is closely linked to aberrant immune cell states, such as epithelial cells, dendritic cells, eosinophils, and T-cell subsets, in the nasal mucosa of AR patients. Such dysregulation disrupts nasal mucosal epithelial barrier integrity, impairs immune cell function, and promotes inflammatory cytokine dysregulation. Although PCD-targeted therapies have shown promise in preclinical and clinical studies, significant challenges remain. This review systematically demonstrates the close relationship between the damage of nasal mucosal epithelial cells and the imbalance of immune cell subsets in the pathogenesis of AR, revealing that its essence lies in the imbalance of the homeostasis of the immune microenvironment and the regulatory network of cell death. By constructing a cellular-level dynamic PCD regulatory map, we explore the molecular mechanisms underlying diverse PCD forms in AR progression and propose targeted intervention strategies. Our findings aim to provide a novel theoretical framework and therapeutic avenues for precision AR treatment.

Keywords: Allergic rhinitis; Programmed cell death; T cell subsets; dendritic cells; eosinophils; nasal mucosal epithelial cells.

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Multicenter Study

Am J Rhinol Allergy

. 2025 Nov;39(6):398-409.

doi: 10.1177/19458924251360889. Epub 2025 Aug 4.

Three-Year Outcomes After Temperature-Controlled Radiofrequency Ablation of the Posterior Nasal Nerve for Chronic Rhinitis

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Affiliations Expand

- PMID: 40760831
- PMCID: PMC12480620
- DOI: 10.1177/19458924251360889

Abstract

BackgroundChronic rhinitis (CR) is characterized by refractory symptoms such as rhinorrhea, sneezing, nasal congestion, postnasal drip (PND), and cough. Most patients do not achieve lasting symptom relief with medical management.ObjectiveTo evaluate the long-term efficacy and safety of temperature-controlled radiofrequency treatment targeting posterior nasal nerves (PNNs) for CR.MethodsThis prospective, single-arm, open-label, multicenter study included patients aged 18-85 years across 19 centers in the United States and Germany. Outcome measures included reflective Total Nasal Symptom Score (rTNSS), PND and cough scores, and the Mini Rhinoconjunctivitis Quality of Life Questionnaire (MiniRQLQ). Outcomes, including adverse events, were reported through 3 years post-procedure.SettingAll procedures were performed in an outpatient office-based setting.ResultsOne hundred twenty-nine patients received treatment; 101 completed 3-year follow-up. The adjusted mean rTNSS Score improved from 7.8 (95% confidence interval [CI]: 7.5-8.1) at baseline to 3.2 (95% CI: 2.8-3.7) at 3 years (mean change: -4.5 [95% CI: -5.1 to -4.0]; *P* < .001). Rhinorrhea symptom scores improved from 2.6 to 1.2 (55.8% reduction). Compared to baseline, at 3 years, adjusted mean cough and PND scores declined from 1.3 to 0.4 (mean change: -0.9; *P* < .001, 69%

reduction) and from 2.4 to 1.2 (mean change: -1.2; *P* < .001, 50% reduction), respectively. MiniRQLQ scores were significantly reduced from an adjusted mean of 3.0 (95% CI: 2.8-3.2) at baseline to 1.2 (95% CI: 1.0-1. 4) at 3-year follow-up; *P* < .001. No serious device- or procedure-related adverse events were reported.ConclusionA single temperature-controlled radiofrequency treatment of the PNN safely and effectively reduced CR symptoms, including cough and PND, improved quality of life, and decreased medication burden through a period of 3 years with no serious adverse events.

Keywords: ablation; allergic rhinitis; chronic rhinitis; congestion; neurolysis; posterior nasal nerve; postnasal drip; rTNSS; temperature-controlled radiofrequency; vasomotor rhinitis.

Conflict of interest statement

Declaration of Conflicting InterestsThe authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Detlef Brehmer has received research funding from Aerin Medical, Jivianne Lee, Daniel Charous, and Elina Toskala are consultants for Aerin Medical.

- 34 references
- 8 figures

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J Asthma

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. 2025 Nov;62(11):1939-1949.

doi: 10.1080/02770903.2025.2537406. Epub 2025 Jul 25.

Pediatric chronic cough: Allergies, environmental factors, and asthma-associated inflammation

Kaiwen Zheng [1], Qin Wang [2], Linyan Tang [1], Xing Chen [2]

Affiliations Expand

- PMID: 40698599

- DOI: 10.1080/02770903.2025.2537406

Abstract

Background: Chronic cough (CC) is a common respiratory symptom in children, often linked to allergic conditions, environmental exposures, and potentially indicative of underlying asthma.

Objective: To investigate the relationships of CC in children with allergic predispositions, environmental exposures, and airway inflammatory markers.

Methods: A case-control study was conducted at a tertiary hospital. Data on cough duration, personal and family allergic histories, and environmental exposures were collected. Airway inflammation was assessed using fractional exhaled nitric oxide ($FeNO_{50}$), and lung function was evaluated *via* spirometry.

Results: Children with CC showed a higher prevalence of allergic conditions, including rhinitis (74.77% vs. 24.13%, OR = 9.312, $p < 0.0001$), food allergy (59.81% vs. 27.59%, OR = 3.907, $p = 0.0017$), eczema (55.14% vs. 31.03%, OR = 2.731, $p = 0.0213$), and family history of allergies (71.96% vs. 27.59%, OR = 6.738, $p < 0.001$). Environmental exposures, such as household smoking (55.14% vs. 20.69%, OR = 4.712, $p = 0.001$) and mold exposure (28.68% vs. 7.35%, OR = 3.442, $p = 0.0251$), were more common in the CC group. CC children exhibited elevated $FeNO_{50}$ (median: 18 vs. 14 ppb, $p = 0.0153$) and impaired small airway function (FEF75%pred: 53.84 ± 20.21 vs. 65.07 ± 28.52, $p = 0.0170$).

Conclusions: Pediatric CC is strongly associated with allergic predispositions, environmental exposures, and eosinophilic airway inflammation, potentially reflecting an asthma-related phenotype.

Keywords: Chronic cough; FeNO50; airway inflammation; allergies; children; environmental exposures; lung function.

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Review

Am J Rhinol Allergy

. 2025 Nov;39(6):444-452.

doi: 10.1177/19458924251360917. Epub 2025 Jul 20.

Aqueous Versus Aerosol Intranasal Corticosteroid Spray for Allergic Rhinitis: Systematic Review and Meta-Analysis

Dylan A Levy [1], Ajibola B Bakare [2], Robert E Gurevich [1], Edward D McCoul [1 3]

Affiliations Expand

- PMID: 40685623

- DOI: 10.1177/19458924251360917

Abstract

Background: Allergic rhinitis (AR) affects millions of people worldwide, impacting quality of life and causing economic burden. Intranasal corticosteroids (INCs) are the mainstay treatment for AR, delivered via aerosol or aqueous sprays. Objective: This systematic review and meta-analysis investigate the comparative efficacy and safety of aerosol and aqueous delivery methods in AR treatment. Methods: Two independent reviewers searched 4 databases (Embrace, Cochrane Central Register of Controlled Trials (CENTRAL), PubMed, and Web of Science) for English-language, prospective randomized controlled trial (RCT), comparing aqueous and aerosol INCs for AR treatment. Studies were excluded for specific reasons (wrong comparisons, full text unavailable, insufficient data for extraction, wrong patient population, incorrect route of administration (non-intranasal), unverifiable inclusion criteria). Primary outcomes were Total Nasal Symptom Score (TNSS) and subset scores; secondary outcome was adverse event (AEs). Results: No significant difference in overall TNSS was found between the delivery methods. However, aqueous sprays showed a slight edge in reducing specific symptoms like congestion, itching, sneezing, and rhinorrhea. AEs did not differ significantly. Conclusion: Our findings suggest no significant difference in efficacy or safety between aerosol and aqueous INCs for AR treatment. Patient preference should be a primary consideration when choosing a delivery method to optimize adherence and symptom control.

Keywords: adverse events; aerosol; allergic rhinitis; allergy; aqueous; intranasal corticosteroids; quality of life; randomized controlled trials; sprays; total nasal symptom score.

Conflict of interest statement

Declaration of Conflicting InterestsThe author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: EDM is a consultant for 3D Matrix, Advanced Rx, Optinose, Sanofi,

Stryker, and Zsquare. The other authors have no financial disclosures. We employed AI tools, including Grammarly for Microsoft Office, and ChatGPT to assist in revising sections of this article, with the sole aim of improving clarity and readability. However, all AI-generated content underwent thorough review, editing, and final verification by the authors. The authors take full responsibility for the content of the publication.

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Review

Ann Allergy Asthma Immunol

. 2025 Nov;135(5):511-520.

doi: 10.1016/j.anai.2025.05.003. Epub 2025 May 9.

Current updates in the epidemiology and comorbidities of atopic dermatitis

Shanthi Narla [1], Jonathan I Silverberg [2]

Affiliations Expand

- PMID: 40350074

- DOI: 10.1016/j.anai.2025.05.003

Abstract

Atopic dermatitis (AD) is a chronic, inflammatory skin disorder that affects individuals across the lifespan, with significant implications for both public health and individual well-being. This paper provides an overview of the epidemiology of AD, focusing on its prevalence, incidence, and risk factors across different populations and regions. We evaluate the growing global burden of AD, highlighting trends in both high-income and low- to middle-income countries, and the impact of

socioeconomic, environmental, and genetic factors on disease manifestation. The review also explores the variations in disease severity, age of onset, and comorbidities such as asthma and allergic rhinitis. This paper emphasizes the need for more robust epidemiologic studies to further elucidate the complex interactions between genetic predisposition and environmental exposures in the development and progression of AD and explores the potential role of technology (eg, artificial intelligence) in helping to collect robust epidemiologic data. Understanding the epidemiology of AD is crucial for identifying high-risk groups, informing preventive strategies, and optimizing management approaches.

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Conflict of interest statement

Disclosures Dr Narla is a subinvestigator for Eli Lilly, Oruka, and Moonlake. Dr Silverberg has received honoraria as a consultant and/or advisory board member for AbbVie, Afyx, Arena, Asana, BioMX, Bluefin, Bodewell, Boehringer-Ingelheim, Celgene, Dermavant, Dermira, Eli Lilly, Galderma, GlaxoSmithKline, Incyte, Kiniksa, Leo, Luna, Menlo, Novartis, Pfizer, RAPT, Regeneron, and Sanofi; is a data safety monitoring committee member for Afyx, Hoth, and MorphoSys; and is a speaker for Pfizer, Regeneron, and Sanofi-Genzyme; the institution received grants from Galderma.

Supplementary info

Publication types, MeSH terms

chronic cough

1

Lancet Respir Med

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. 2025 Oct 27:S2213-2600(25)00361-3.

doi: 10.1016/S2213-2600(25)00361-3. Online ahead of print.

Remission in chronic cough: an achievable target?

Ewan C Mackay [1], Peter S P Cho [1], Surinder S Birring [1], James H Hull [2]

Affiliations Expand

- PMID: 41167230

- DOI: 10.1016/S2213-2600(25)00361-3

No abstract available

Conflict of interest statement

PSPC receives research grants from Merck and King's Health Partners; and consultation fees from GSK and Strados. SSB received research grants to their institution from Merck; fees from Leicester Cough Monitor and Leicester Cough Questionnaire; consultation fees from Merck, GSK, Trevi, Nerre, Nocion, Axalbion, Genentech, CMOS, and Clairways; lecture fees from AstraZeneca; and has stock options in Siva. All other authors declare no competing interests.

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Comparative Study

Respir Med

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. 2025 Nov:248:108389.

doi: 10.1016/j.rmed.2025.108389. Epub 2025 Sep 29.

Comparison of chronic bronchitis definitions in COPD for predicting 10-year all-cause mortality

Joon Young Choi [1], Hyoung Kyu Yoon [2], Youlim Kim [3], Jong Geol Jang [4], Jae Ha Lee [5], Yong Bum Park [6], Cheon Woong Choi [7], Chang-Hoon Lee [8], Kwang Ha Yoo [3], Chin Kook Rhee [9]

Affiliations Expand

- PMID: 41033585

- DOI: 10.1016/j.rmed.2025.108389

Abstract

Background: Chronic bronchitis (CB) is a common phenotype of chronic obstructive pulmonary disease (COPD) associated with poor outcomes. This study aimed to compare the predictive performance of a CB definition based on the COPD Assessment Test (CAT-CB) with that of the classic definition for 10-year all-cause mortality in patients with COPD.

Methods: We analyzed 3476 participants in a prospective, multicenter study, namely, the Korea COPD Subgroup Study (KOCOSS). CB was classified using both the classic ATS definition (cough + sputum ≥3 months per year for 2 consecutive years) and the CAT-CB definition (CAT item 1 [cough] > 2 and item 2 [sputum] > 2). CAT-CB was further stratified as mild (any item ≤3) or severe (both items >3). Mortality data were ascertained from national death records; follow-up was truncated at 10 years. Cox proportional hazards models were used to evaluate mortality risk.

Results: At baseline, 354 patients (11.0 %) met the classic CB definition and 774 (22.6 %) met the CAT-CB definition. CAT-CB was independently associated with higher all-cause mortality, whereas classic CB was not. Mortality risk was confined to the severe CAT-CB subgroup, whereas patients with mild CAT-CB showed no significant excess risk. Individually, CAT-cough >2 and CAT-sputum >2 each predicted mortality; the classic subcomponents did not.

Conclusions: A CAT-based definition of CB better identifies COPD patients with increased risk of long-term mortality relative to the classic definition.

Keywords: COPD assessment test; Chronic bronchitis; Chronic obstructive pulmonary disease; Definition; KOCOSS; Mortality.

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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: Chin Kook Rhee reports financial support was provided by Korea National Institute of Health. Joon Young Choi reports financial support was provided by Catholic Medical Center Research Foundation. Kwang Ha Yoo reports financial support was provided by Korea National Institute of Health. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Clinical Trial

Lancet Respir Med

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. 2025 Nov;13(11):967-977.

doi: 10.1016/S2213-2600(25)00205-X. Epub 2025 Sep 28.

Morphine for chronic breathlessness (MABEL) in the UK: a multi-site, parallel-group, dose titration, double-blind, randomised, placebo-controlled trial

Miriam J Johnson [1], Bronwen Williams [2], Catriona Keerie [3], Sharon Tuck [3], Simon Hart [2], Sabrina Bajwah [4], Nazia Chaudhuri [5], Mark Pearson [2], Judith Cohen [2], Rachael A Evans [6], David C Currow [7], Irene J Higginson [4], Peter Hall [8], Marek Atter [8], John Norrie [9], Marie T Fallon [8]; MABEL collaborative

Collaborators, Affiliations Expand

- PMID: 41033333

- DOI: 10.1016/S2213-2600(25)00205-X

Free article

Abstract

Background: The effectiveness of opioids for breathlessness seen in laboratory-based studies has not been replicated in clinical trials. We aimed to assess the effectiveness of oral morphine for breathlessness in long-term conditions.

Methods: This phase 3, parallel-group, double-blind, placebo-controlled trial across 11 centres randomly assigned consenting adults (1:1, stratified by site and causal disease) with a modified Medical Research Council breathlessness score of 3 or more due to cardiorespiratory conditions to receive 5-10 mg twice daily oral long-acting morphine or placebo (as well as a blinded laxative) for 56 days. The primary outcome was worst breathlessness score in the past 24 h at day 28, measured using a numerical rating scale (NRS; 0=not breathless at all; 10=worst imaginable breathlessness). Secondary outcomes included physical activity levels, worst cough NRS, quality of life, and morphine-related toxicities. Patients who received at least one dose of study drug were eligible for inclusion in efficacy and safety analyses. The trial was registered with ISRCTN (ISRCTN87329095) and the EU Clinical Trials Register (EudraCT 2019-002479-33).

Findings: Between March 18, 2021, and Oct 26, 2023, 143 participants were randomly assigned to receive either morphine (73 participants) or placebo (67 participants) and were included in the analyses; three participants did not receive the allocated treatment. Participants had a mean age of 70·5 (SD 9·4) years, were mostly male (93 [66%]), and were mostly White (132 [94%]). By day 28, 64 (88%) participants in the morphine group versus 66 (99%) in the placebo group had 90% adherence or greater. We found no evidence of difference in worst breathlessness at day 28 (morphine 6·19 [95% CI 5·57 to 6·81] vs placebo 6·10 [5·44 to 6·76]; adjusted mean difference 0·09 [95% CI -0·57 to 0·75], p=0·78) or any secondary measure, except for improved cough seen at day 56 (adjusted mean difference -1·41 [-2·18 to -0·64]). Increased moderate to vigorous physical activity was seen at day 28 (adjusted mean difference 9·51 min/day [0·54-18·48]) but this was not significant after multiple-measures correction. The morphine group had more adverse events (251 vs 162), serious adverse events (15 vs three, of which three in the morphine group and zero in the placebo group were deemed to be related to the study), and study drug withdrawals (13 vs two). There were no treatment-related deaths.

Interpretation: We found no evidence that morphine improves worst breathlessness intensity. Further research is needed to understand whether there is any role for morphine in chronic breathlessness, but our findings do not support its use in this setting.

Funding: NIHR Health Technology Assessment programme (HTA Project 17/34/01).

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Conflict of interest statement

Declaration of interests MJJ reports grants from the National Institute for Health and Care Research (NIHR). MTF reports grants from NIHR; and is on the Pfizer Steering Committee and Ananda Advisory Board. IJH reports grants from the European Union, Marie Curie Cancer Care, and NIHR; is the scientific director of Cicely Saunders International and an NIHR Emeritus senior investigator; and is an Honorary Clinical Consultant in Palliative Medicine for hospitals under Kings College Hospital National Health Service Foundation Trust outside of the submitted work. DCC reports personal fees from Mayne Pharma International. JN is the Chair of the NIHR EME Funding Panel. PH reports institutional research funding from Lilly, Eisai, Novartis, Gilead, Sanofi, Roche, AstraZeneca, Novartis, DxCover, Abbvie, Merck, Sharp & Dohme, and SeaGen. SH is a trustee for Action for Pulmonary Fibrosis. RAE reports grants from NIHR, UK Research and Innovation, Wolfson Foundation, and Roche; consulting fees from AstraZeneca/Evidera for long COVID; speaker fees from Moderna; and is the chair of the European Respiratory Society Group 01·02 Pulmonary Rehabilitation and Chronic Care and the American Thoracic Society Pulmonary Rehabilitation Assembly. All other authors declare no competing interests.

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Respir Med

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. 2025 Nov:248:108367.

doi: 10.1016/j.rmed.2025.108367. Epub 2025 Sep 18.

Drug-induced cough risk: A pharmacovigilance study of FDA adverse event reporting system database

Yang Rui [1], Tianyuan Xin [1], Yu Chen [1], Beiyi Xiang [1], Changwen Chen [1], Zhe Chen [2]

Affiliations Expand

- PMID: 40975140

- DOI: 10.1016/j.rmed.2025.108367

Abstract

Background: Drug-induced cough is a prevalent adverse drug reaction; however, the risk of cough associated with various drug classes in real-world settings has not been thoroughly elucidated.

Objectives: This study aims to systematically identify drug risk signals that are significantly associated with cough through the FAERS database, covering data from the first quarter of 2004 to the fourth quarter of 2024. The findings will provide evidence-based support for clinical medication safety and individualized monitoring.

Methods: We extracted reports in which cough was identified as the primary adverse event (AE) from the FAERS database. After data cleaning to exclude duplicate and non-drug-related records, use the Reporting Odds Ratio (ROR) and Proportional Reporting Ratio (PRR) for disproportionality analysis. Standardize the Preferred Term (PT) for cough using MedDRA 27.1. Additionally, classify each drug using the World Health Organization's Anatomical Therapeutic Chemical (ATC) classification system.

Results: This study identified 1951 drugs associated with the AE of "cough," affecting a total of 247,158 patients. The drug categories most commonly linked to cough included antineoplastic and immunomodulating agents, respiratory system

medications, and cardiovascular system medications. The drugs (primary suspect) with the highest number of reported cough cases were adalimumab, etanercept, and sacubitril/valsartan.

Conclusion: This study is the first to systematically reveal the strength of association and baseline characteristics between multiple categories of drugs and the risk of cough, confirming the high efficiency and sensitivity of the FAERS database in pharmacovigilance. The findings of this study provide an important basis for drug risk assessment and clinical intervention.

Keywords: Adverse events; Drug-induced cough; FAERS; Pharmacovigilance.

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Conflict of interest statement

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

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Int J Infect Dis

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. 2025 Nov:160:108071.

doi: 10.1016/j.ijid.2025.108071. Epub 2025 Sep 17.

Success and limitations of the French public health strategy after 2 years of large implementation of respiratory syncytial virus prophylaxis: experience of a tertiary hospital (2018-2025)

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Affiliations Expand

- **PMID: 40972816**

- DOI: 10.1016/j.ijid.2025.108071

Free article

Abstract

Objectives: France has gradually implemented prophylaxis against RSV infections in infants since 2023 and, more recently, in the elderly. This study described the recent evolution of the RSV-hospital burden in a French tertiary hospital.

Methods: Characteristics of patients admitted during the 2023/2024 and 2024/2025 RSV seasons with a RSV-lower respiratory tract infection (LRTI) were compared to those of patients admitted during three preprophylaxis RSV seasons.

Results: Overall, 1114 pediatric inpatients and 41 adults with RSV-LRTI were enrolled, of whom 36% had ≥1 chronic complex condition (CCC). Compared to the preprophylaxis period, the RSV-hospital burden decreased in pediatric units in 2024/2025 (1.4 versus 1.7/1000 inpatients, P = 0.004), as did the proportion of infants aged <6 months among inpatients with RSV-LRTI (27.8% versus 57.7%, P < 0.0001) and that of all subjects requiring admission to intensive care units (17.4% versus 37.7%, P < 0.0001). However, the proportion of inpatients with RSV-LRTI from other age groups did not decrease in recent years. In adult units, the RSV-hospital burden increased in 2024/2025 compared to the preprophylaxis period (0.8 versus 0.4/1000 inpatients, P < 0.0001).

Conclusions: The reduction of the RSV-hospital burden mostly impacted infants <6 months of age. Efforts are needed to reduce the RSV-hospital burden in other age groups, especially in children aged 6-11 months and older individuals with CCC.

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Conflict of interest statement

Declaration of competing interest PF has received research grants from ANRS-MIE, French Ministry of Health and the European Union which were paid to his institution, support for attending meetings and/or travel grants from Pfizer, AstraZeneca and Moderna. MLV has received nonfinancial and other support from BioMérieux and nonfinancial support from Abbott and Roche, outside the submitted work. All other authors declare no competing interests.

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Review

Curr Opin Pulm Med

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. 2025 Nov 1;31(6):622-627.

doi: 10.1097/MCP.0000000000001217. Epub 2025 Sep 5.

Bronchiectasis evaluation 2025: pediatric and adult perspectives

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Affiliations Expand

- **PMID: 40916968**

- **DOI: 10.1097/MCP.0000000000001217**

Abstract

Purpose of review: There is a significant overlap between the diagnostic evaluation for adult and pediatric patients with bronchiectasis; however, also important age-specific unique considerations. This review focuses on these specific considerations.

Recent findings: Bronchiectasis refers to the radiographic evidence of dilation of distal and proximal bronchi secondary to chronic infection and inflammation. Bronchiectasis can be suspected on plain chest radiograph but is confirmed and detailed through computed tomography (CT) imaging. Several different measures and descriptions of the radiographic findings of bronchiectasis exist, but the most common is a bronchial diameter equal to or greater than an adjacent blood vessel. Consideration for the presence of bronchiectasis begins with recognition of clinical symptoms of suppurative lung disease including persistent sputum producing cough and recurrent respiratory infections. Bronchiectasis etiologies include inherited forms, such as cystic fibrosis and primary ciliary dyskinesia, as well as secondary forms including chronic aspiration as well as certain infections, and immunodeficiency. Up to 40% remain idiopathic even after a comprehensive evaluation.

Summary: It is important to start a bronchiectasis evaluation with a broad differential, but secondary testing should focus on etiologies specific to the patient. A thoughtful combination of testing is often required to arrive at an etiology. Patients with bronchiectasis require ongoing monitoring including longitudinal follow-up of respiratory cultures, lung function testing, and repeat CT imaging.

Keywords: bronchiectasis; evaluation; suppurative lung disease.

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Multicenter Study

Am J Rhinol Allergy

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. 2025 Nov;39(6):398-409.

doi: 10.1177/19458924251360889. Epub 2025 Aug 4.

Three-Year Outcomes After Temperature-Controlled Radiofrequency Ablation of the Posterior Nasal Nerve for Chronic Rhinitis

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Affiliations Expand

- PMID: 40760831

- PMCID: PMC12480620

- DOI: 10.1177/19458924251360889

Abstract

BackgroundChronic rhinitis (CR) is characterized by refractory symptoms such as rhinorrhea, sneezing, nasal congestion, postnasal drip (PND), and cough. Most patients do not achieve lasting symptom relief with medical

management.ObjectiveTo evaluate the long-term efficacy and safety of temperature-controlled radiofrequency treatment targeting posterior nasal nerves (PNNs) for CR.MethodsThis prospective, single-arm, open-label, multicenter study included patients aged 18-85 years across 19 centers in the United States and Germany. Outcome measures included reflective Total Nasal Symptom Score (rTNSS), PND and cough scores, and the Mini Rhinoconjunctivitis Quality of Life Questionnaire (MiniRQLQ). Outcomes, including adverse events, were reported through 3 years post-procedure.SettingAll procedures were performed in an outpatient office-based setting.ResultsOne hundred twenty-nine patients received treatment; 101 completed 3-year follow-up. The adjusted mean rTNSS Score improved from 7.8 (95% confidence interval [CI]: 7.5-8.1) at baseline to 3.2 (95% CI: 2.8-3.7) at 3 years (mean change: -4.5 [95% CI: -5.1 to -4.0]; *P* < .001). Rhinorrhea symptom scores improved from 2.6 to 1.2 (55.8% reduction). Compared to baseline, at 3 years, adjusted mean cough and PND scores declined from 1.3 to 0.4 (mean change: -0.9; *P* < .001, 69% reduction) and from 2.4 to 1.2 (mean change: -1.2; *P* < .001, 50% reduction), respectively. MiniRQLQ scores were significantly reduced from an adjusted mean of 3.0 (95% CI: 2.8-3.2) at baseline to 1.2 (95% CI: 1.0-1. 4) at 3-year follow-up; *P* < .001. No serious device- or procedure-related adverse events were reported.ConclusionA single temperature-controlled radiofrequency treatment of the PNN safely and effectively reduced CR symptoms, including cough and PND, improved quality of life, and decreased medication burden through a period of 3 years with no serious adverse events.

Keywords: ablation; allergic rhinitis; chronic rhinitis; congestion; neurolysis; posterior nasal nerve; postnasal drip; rTNSS; temperature-controlled radiofrequency; vasomotor rhinitis.

Conflict of interest statement

Declaration of Conflicting InterestsThe authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Detlef Brehmer has received research funding from Aerin Medical, Jivianne Lee, Daniel Charous, and Elina Toskala are consultants for Aerin Medical.

- 34 references
- 8 figures

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J Asthma

. 2025 Nov;62(11):1939-1949.

doi: 10.1080/02770903.2025.2537406. Epub 2025 Jul 25.

Pediatric chronic cough: Allergies, environmental factors, and asthma-associated inflammation

Kaiwen Zheng [1], Qin Wang [2], Linyan Tang [1], Xing Chen [2]

Affiliations Expand

- PMID: 40698599

- DOI: 10.1080/02770903.2025.2537406

Abstract

Background: Chronic cough (CC) is a common respiratory symptom in children, often linked to allergic conditions, environmental exposures, and potentially indicative of underlying asthma.

Objective: To investigate the relationships of CC in children with allergic predispositions, environmental exposures, and airway inflammatory markers.

Methods: A case-control study was conducted at a tertiary hospital. Data on cough duration, personal and family allergic histories, and environmental exposures were collected. Airway inflammation was assessed using fractional exhaled nitric oxide ($FeNO_{50}$), and lung function was evaluated *via* spirometry.

Results: Children with CC showed a higher prevalence of allergic conditions, including rhinitis (74.77% vs. 24.13%, OR = 9.312, $p < 0.0001$), food allergy (59.81% vs. 27.59%, OR = 3.907, $p = 0.0017$), eczema (55.14% vs. 31.03%, OR = 2.731, $p = 0.0213$), and family history of allergies (71.96% vs. 27.59%, OR = 6.738, $p < 0.001$). Environmental exposures, such as household smoking (55.14% vs. 20.69%, OR = 4.712, $p = 0.001$) and mold exposure (28.68% vs. 7.35%, OR = 3.442, $p = 0.0251$), were more common in the CC group. CC children exhibited elevated $FeNO_{50}$ (median: 18 vs. 14 ppb, $p = 0.0153$) and impaired small airway function (FEF75%pred: 53.84 ± 20.21 vs. 65.07 ± 28.52, $p = 0.0170$).

Conclusions: Pediatric CC is strongly associated with allergic predispositions, environmental exposures, and eosinophilic airway inflammation, potentially reflecting an asthma-related phenotype.

Keywords: Chronic cough; FeNO50; airway inflammation; allergies; children; environmental exposures; lung function.

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Eur J Prev Cardiol

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. 2025 Oct 28;32(15):1445-1460.

doi: 10.1093/eurjpc/zwaf119.

Identification and management of cardiopulmonary risk in patients with chronic obstructive pulmonary disease: a multidisciplinary consensus and modified Delphi study

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Collaborators, Affiliations Expand

- PMID: 40037333

- DOI: 10.1093/eurjpc/zwaf119

Free article

Abstract

Aims: Cardiovascular disease is a common comorbidity in chronic obstructive pulmonary disease. Yet, cardiovascular disease and risk are underdiagnosed in chronic obstructive pulmonary disease and are often undertreated, increasing the risk of cardiopulmonary events.

Methods and results: We formed a Global Working Group of experts in chronic obstructive pulmonary disease and cardiovascular disease to produce a consensus statement detailing the identification and management of cardiopulmonary risk in patients with chronic obstructive pulmonary disease. We conducted virtual meetings supplemented by remote working and communication. The Chairs (C.P.G.,

M.B.) proposed a draft consensus statement, which was further developed by the Global Working Group. The selection of the final consensus statement and key points were obtained using the modified Delphi method. The consensus statement is, 'Given the high burden of fatal and non-fatal major cardiovascular and respiratory events in patients with COPD it is important that cardiopulmonary risk is assessed and managed'. Patients with cardiovascular risk factors or disease who have regular cough or expectoration, recurrent 'chest infections', a significant smoking history, or dyspnoea should complete spirometry to confirm the presence of chronic obstructive pulmonary disease. Prevalent and incident cardiovascular disease and risk in patients with chronic obstructive pulmonary disease, including heart failure, dyslipidaemia, hypertension, ischaemic heart disease, and atrial fibrillation, should be managed according to clinical guidelines. In addition, chronic obstructive pulmonary disease exacerbation risk in patients with chronic obstructive pulmonary disease should be addressed to reduce cardiopulmonary risk. Enhanced integration with specialists in cardiology, pulmonology, and primary care is recommended.

Conclusion: The identification and management of cardiopulmonary risk in patients with chronic obstructive pulmonary disease are an unmet public health need that can be addressed through shared understanding and multidisciplinary working to improve cardiopulmonary outcomes.

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

Plain language summary

This paper, produced by the Global Working Group of experts in chronic obstructive pulmonary disease and cardiovascular disease, is about the identification and management of cardiopulmonary risk in patients with chronic obstructive pulmonary disease.Individuals with cardiovascular risk factors or disease who have a regular cough or expectoration, recurrent ‘chest infections’, a significant smoking history, or breathlessness should complete spirometry to confirm the presence of chronic obstructive pulmonary disease.Cardiovascular disease and risk in individuals with chronic obstructive pulmonary disease, including heart failure, dyslipidaemia, hypertension, ischaemic heart disease, and atrial fibrillation, should be managed according to clinical guidelines.Identifying cardiopulmonary risk to prevent exacerbations of chronic obstructive pulmonary disease, treat established cardiovascular disease, and reduce cardiovascular risk in patients with chronic obstructive pulmonary disease offers the prospect to improve cardiopulmonary outcomes.

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Conflict of interest statement

Conflict of interest: There are no declarations with respect to this manuscript. Outside this work: A. Abdin reports payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from Boston Scientific and Bayer GmbH. A.B.A. reports honoraria for lectures from AstraZeneca, GlaxoSmithKline, and Pfizer; leadership or fiduciary role in other board, society, committee, or advocacy group, paid or unpaid as a member of the

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- Cited by 1 article

Supplementary info

Publication types, MeSH terms

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

J Allergy Clin Immunol Pract

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. 2025 Oct 29:S2213-2198(25)01015-3.

doi: 10.1016/j.jaip.2025.10.028. Online ahead of print.

Validation of the Bronchiectasis Health Questionnaire in Bronchiectasis and Estimation of the Meaningful Score Difference for ABPA

Pratibha Jha [1], Surinder S Birring [1], Inderpaul S Sehgal [1], Valliappan Muthu [1], Sahajal Dhooria [1], Kuruswamy T Prasad [1], Ashutosh N Aggarwal [1], Ritesh Agarwal [2]

Affiliations Expand

- PMID: 41173385

- DOI: 10.1016/j.jaip.2025.10.028

Abstract

Background: The Bronchiectasis Health Questionnaire (BHQ) is a validated tool for assessing health-related quality of life in bronchiectasis. Its psychometric performance and meaningful score difference (MSD) have not been evaluated in allergic bronchopulmonary aspergillosis (ABPA).

Objective: To evaluate the psychometric properties of the BHQ in bronchiectasis and estimate the MSD in ABPA subjects.

Methods: Thirty bronchiectasis subjects (cohort 1, 83% ABPA) completed the BHQ and SGRQ at baseline and after 14 days to assess acceptability, validity, internal consistency, and test-retest reliability. For MSD estimation, 72 treatment-naïve ABPA subjects (cohort 2) were assessed before and two months after oral prednisolone therapy. Clinical measures included BHQ scores, modified Medical Research Council (mMRC) grade, visual analogue scale (VAS) for dyspnea, spirometry, total IgE levels, chest radiographs, and subjective global assessment. Only anchors with correlation ≥0.30 with BHQ change were used for MSD estimation through linear regression, ROC curve analysis, and t-test, supported by distribution-based methods.

Results: The BHQ demonstrated acceptability, strong correlation with SGRQ (r=-0.80), good internal consistency (Cronbach's α=0.81), and test-retest reliability (ICC=0.81). Item analysis showed 9/10 items with adequate item-total correlations (r=0.43-0.80). Only mMRC and VAS correlations met anchor thresholds. BHQ scores improved significantly (mean, 57 to 72; p <0.001). MSD estimates across anchor-based methods ranged from 7.2 to 14.5 points; triangulation yielded an estimate of 10 points.

Conclusion: The BHQ showed acceptable preliminary psychometric properties in predominantly ABPA-associated bronchiectasis. The first MSD estimate for ABPA patients is 10 points, though comprehensive multicenter validation is needed to confirm these findings.

Keywords: asthma; bronchiectasis; patient-reported outcome; quality of life.

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. 2025 Oct 31.

doi: 10.1002/resp.70154. Online ahead of print.

Comment on "High Airway-to-Vessel Volume Ratio and Visual Bronchiectasis Are Associated With Exacerbations in COPD"

Junyi Bai [1], Junchao Yang [2]

Affiliations Expand

- PMID: 41170561

- DOI: 10.1002/resp.70154

No abstract available

Keywords: AVR; COPD; airway markers.

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. 2025 Oct 30.

doi: 10.1007/s41030-025-00328-9. Online ahead of print.

Nonpharmacologic Care of Bronchiectasis: Addressing Frailty with Nutrition and Physical Activity

Chetana Pendkar [1], Amarpreet K Ahluwalia [2]

Affiliations Expand

- PMID: 41166057

- DOI: 10.1007/s41030-025-00328-9

Free article

Abstract

Introduction: Bronchiectasis is a chronic airway disease marked by recurrent infections, progressive inflammation, and declining pulmonary function. While pharmacologic therapies remain central to management, nonpharmacologic strategies-particularly nutrition and physical activity-are underutilized, despite growing evidence.

Objective: This review examines the role of nutritional support and physical activity in managing bronchiectasis, highlighting their impact on frailty, systemic inflammation, and functional outcomes.

Discussion: Frailty is increasingly recognized in bronchiectasis, particularly in patients with comorbid nontuberculous mycobacterial lung disease (NTM-LD), where prevalence may exceed 40%. Malnutrition, low body mass index (BMI), and sarcopenia are associated with poorer lung function, increased hospitalizations, and mortality. Meanwhile, physical inactivity-measured by low step count and prolonged sedentary time-is a strong predictor of exacerbation risk and healthcare utilization. Evidence supports the use of high-calorie, protein-rich diets and resistance-based exercise training to improve muscle mass, immune function, and quality of life. Synergistic effects are observed when nutritional interventions are combined with pulmonary rehabilitation. However, barriers to implementation remain, including a lack of access, under-referral, and limited emphasis on guidelines.

Conclusion: Nutritional and physical activity interventions offer measurable clinical benefits in bronchiectasis and should be integrated into routine multidisciplinary care. Future research should prioritize the validation of frailty screening tools, the implementation of effective strategies, and the development of policy mechanisms to expand coverage for dietetic and rehabilitation services.

Keywords: Bronchiectasis; Frailty; Malnutrition; Nonpharmacologic therapy; Physical activity; Pulmonary rehabilitation.

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Conflict of interest statement

Declarations. Conflict of interest: Chetana Pendkar and Amarpreet K. Ahluwalia have nothing to disclose. Ethical Approval: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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. 2025 Oct 27;11(5):01087-2024.

doi: 10.1183/23120541.01087-2024. eCollection 2025 Sep.

Bronchiectasis and sinonasal diseases: a narrative review

Edoardo Simonetta [1], Alessandro De Angelis [1 2], Margherita S Silani [3 4], Veronica Polelli [5], Mattia Nigro [1 2], Anna Stainer [1 2], Francesco Amati [1 2], Andrea Gramegna [3 4], Francesca Pirola [6], Giuseppe Mercante [2 6], Francesco Blasi [3 4], Luca Malvezzi [2 6], Stefano Aliberti [1 2]

Affiliations Expand

- PMID: 41158483

- PMCID: PMC12557435

- DOI: 10.1183/23120541.01087-2024

Abstract

Bronchiectasis and chronic rhinosinusitis are chronic diseases of the upper and lower respiratory tract characterised by both infective and inflammatory pathways. The two share many clinical, radiological, microbiological and pathophysiological aspects. Bronchiectasis and chronic rhinosinusitis may be characterised by different endotypes, with inflammation driven by either neutrophils and/or eosinophils. Although the two conditions may coexist, the prevalence of their association remains uncertain. To date, few studies have investigated the pathogenetic relationship between these disorders, with ambiguous results obtained in heterogeneous populations. Some findings suggest that patients with both chronic rhinosinusitis and bronchiectasis may have a heavier disease burden consisting of more exacerbations, more debilitating symptoms, higher radiological severity and worse quality of life. In light of this, identification of treatable traits is crucial and patients are likely to benefit from a multidisciplinary approach involving, among others, pulmonologists, ear-nose-throat physicians, respiratory physiotherapists and allergists/immunologists.

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Conflict of interest statement

Conflict of interest: All authors have nothing to disclose.

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Arthritis Care Res (Hoboken)

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. 2025 Oct 27.

doi: 10.1002/acr.25680. Online ahead of print.

Detection of lung abnormalities in smokers with rheumatoid arthritis screened for lung cancer with low-dose chest computed tomography imaging in routine clinical care: Results from a large multi-hospital system

Gregory C McDermott[#1,2], Mark Hammer[#1,2], Xiaosong Wang[1], Misti L Paudel[1,2], Sung Hae Chang[1,3,4], Pierre-Antoine Juge[5,6], Qianru Zhang[1,7], Jessica Lorusso[8], Amie Samuylov[8], Kathleen Mm Vanni[1], Alene Saavedra[1], Emily N Kowalski[1], Grace Qian[1], Katarina J Bade[1], Kevin T Mueller[1], Jeffrey A Sparks[#1,2], Suzanne Byrne[#1,2]

Affiliations Expand

- PMID: 41144903

- DOI: 10.1002/acr.25680

Abstract

Objective: Rheumatoid arthritis (RA) is associated with interstitial lung disease, bronchiectasis, rheumatoid lung nodules, and lung cancer. Recent guidelines

proposed criteria for lung disease screening in RA, but the prevalence of abnormal lung findings in RA patients is unknown.

Methods: Among all patients screened for lung cancer with low-dose chest computed tomography (CT) in the Mass General Brigham healthcare system between 2015 and 2023, we identified patients with and without RA. We compared the prevalence of lung nodules, "positive screen" (nodules requiring further imaging or biopsy), fibrotic lung changes, bronchiectasis, and lung cancer between RA cases and non-RA comparators using multivariable logistic regression.

Results: Among consecutive patients screened for lung cancer with clinically-indicated low-dose chest CT, we identified 228 RA cases and 14,805 non-RA comparators. "Positive screens" were noted in 26.8% of RA and 22.2% of non-RA patients (p=0.10). Lung cancer was found in 4.8% of RA and 3.6% of non-RA patients (p=0.33). In multivariable models, RA was associated with positive screen (OR 1.38 95%CI 1.02-1.87), fibrotic lung changes (OR 1.77, 95%CI 1.08-2.91), and bronchiectasis (OR 1.64 95%CI 1.12-2.39).

Conclusion: Patients with RA had higher prevalence of positive screening, fibrotic changes, and bronchiectasis detected by low-dose chest CT performed for lung cancer screening. Approximately 1 in 4 RA patients meeting USPSTF lung cancer screening criteria had a positive screen, while 1 in 20 had lung cancer. These results emphasize the importance of lung cancer screening among eligible RA patients and may inform screening strategies for other lung abnormalities.

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. 2025 Sep 4;4(4):100566.

doi: 10.1016/j.jacig.2025.100566. eCollection 2025 Nov.

Clinical and pathophysiological roles of lower lobe-dominant mucus plugs on computed tomography in patients with asthma with and without bronchiectasis

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Affiliations Expand

- PMID: 41080412

- PMCID: PMC12509975

- DOI: 10.1016/j.jacig.2025.100566

Abstract

Background: Despite the clinical relevance of mucus plugging, the role of spatial distribution of mucus plugs remains unclear in patients with asthma.

Objective: We sought to examine whether greater lower lobe mucus plug dominance is associated with more clinical and pathophysiological impairments in 2 cohorts, including patients with and without bronchiectasis.

Methods: Patients with asthma without and with clinical diagnosis of bronchiectasis underwent chest computed tomography at Kyoto University Hospital (Kyoto cohort) and Japanese multicenters (bronchiectasis and asthma [BEXAS] cohort), respectively. Mucus plugs in airways were visually scored on computed tomography, and the difference in mucus plug score between lower and upper-middle lobes (Δ mucus plug score) was calculated.

Results: Among 176 (Kyoto) and 42 (BEXAS) enrolled patients, 82 and 33 exhibited mucus plug scores greater than or equal to 1, respectively. Higher Δ mucus plug score was associated with lower percentage of the predicted FEV_1 and the presence of exacerbation history in both cohorts. Higher Δ mucus plug score was associated with luminal narrowing of the fifth-generation, but not the third- or fourth-generation, lower lobe airways in the Kyoto cohort, and bronchiolitis score in the BEXAS cohort. In the multivariable model, higher Δ mucus plug score was associated with symptoms and exacerbations, independent of whole-lung mucus plug score in the Kyoto cohort.

Conclusions: Lower lobe-dominant mucus plugs were associated with lower lung function and exacerbations in patients with asthma, irrespective of comorbid bronchiectasis. The spatial distribution of mucus plugs additionally to whole-lung mucus plug score may help to understand clinical roles of mucus plugging in asthma.

Keywords: Asthma; comorbid bronchiectasis; exacerbations; exhaled nitric oxide; lower lobe dominance; lung function; mucus plug; spatial distribution.

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Conflict of interest statement

This study was partially supported by grants from 10.13039/501100002424Fujifilm Corporation, the 10.13039/501100001691Japan Society for the Promotion of Science (Grants-in-Aid for Scientific Research; grant no. 22K08233), and the Scientific Assembly of Allergy, Immunology & Inflammation, Japanese Respiratory Society. Disclosure of potential conflict of interest: N. Tanabe received research grants from Daiichi Sankyo and Fujifilm Co, Ltd, and lecturer fees from Sanofi K.K., AstraZeneca K.K., and GlaxoSmithKline, outside the submitted work. H. Matsumoto received lecturer fees from Sanofi K.K., AstraZeneca K.K., GlaxoSmithKline, Kyorin Pharmaceutical Co, and Boehringer Ingelheim; received grants from Kyorin Pharmaceutical Co, Boehringer Ingelheim, and Teijin Pharma, outside the submitted work; and received support from the Japanese Respiratory Society and Research Grant from Novartis Japan. O. Matsuno received lecturer fees from Sanofi K.K., AstraZeneca K.K., and GlaxoSmithKline. K. Fukunaga received lecturer fees from Sanofi K.K., AstraZeneca K.K., GlaxoSmithKline, Kyorin Pharmaceutical Co, Boehringer Ingelheim, and Novartis Pharma KK, outside the submitted work; and received grants from Boehringer Ingelheim and Chugai Pharmaceutical, outside the submitted work. N. Hashimoto received research grants from the Japan Science and Technology Age and Nippon Boehringer Ingelheim, outside the submitted work. N. Hattori received lecturer fees from Sanofi K.K., AstraZeneca K.K., GlaxoSmithKline, Kyorin Pharmaceutical Co, Ono Pharmaceutical Co, MSD, and Pfizer Japan, outside the submitted work. S. Inoue received research grant from Kyorin Pharmaceutical Co and lecture fees from Novartis Pharma K.K., AstraZeneca K.K., GlaxoSmithKline, Boehringer Ingelheim (Japan), Kyorin Pharmaceutical Co, and Sanofi K.K., outside the submitted work. K. Matsunaga received lecturer fees from Sanofi K.K., AstraZeneca K.K., and Kyorin Pharmaceutical Co, outside the submitted work. K. Otsuka received lecture fees from Boehringer Ingelheim, Kyorin Pharmaceutical Co, and Novartis Pharma K.K., outside the submitted work. H. Iijima received lecture fees from AstraZeneca K.K., Kyorin Pharmaceutical Co, MSD, and Asahi Kasei Pharma Corp, outside the submitted work. H. Nagase received lecturer fees from Sanofi K.K., AstraZeneca K.K., GlaxoSmithKline, Kyorin Pharmaceutical Co, and Novartis Pharma K.K., outside the submitted work; received grants from GlaxoSmithKline; and serves on the advisory board of Sanofi K.K., AstraZeneca K.K., and GlaxoSmithKline. T. Sakagami received lecturer fees from AstraZeneca K.K., GlaxoSmithKline, Novartis Pharma K.K., and Boehringer Ingelheim, outside the submitted work. T. Kijima received lecturer fees from AstraZeneca K.K. and GlaxoSmithKline. T. Hirai received lecturer fees from AstraZeneca K.K., Kyorin Pharmaceutical Co, and Boehringer Ingelheim, outside the submitted work. The rest of the authors declare that they have no relevant conflicts of interest.

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. 2025 Oct 30:S0012-3692(25)05493-5.

doi: 10.1016/j.chest.2025.09.122. Online ahead of print.

The Association Between Incident Nontuberculous Mycobacteria Isolation and Antibiotic Exposure in Patients with Bronchiectasis

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Affiliations Expand

- **PMID: 41076063**

- **DOI: 10.1016/j.chest.2025.09.122**

No abstract available

Conflict of interest statement

Financial/Nonfinancial Disclosures None declared.

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. 2025 Nov 1;31(6):620-621.

doi: 10.1097/MCP.0000000000001216. Epub 2025 Oct 2.

The rapidly changing paradigms for the diagnosis and treatment of cystic fibrosis, bronchiectasis, and primary ciliary dyskinesia

Mark L Metersky [1], Douglas J Conrad [2], Adam J Shapiro [3]

Affiliations Expand

- PMID: 41037285

- DOI: 10.1097/MCP.0000000000001216

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J Allergy Clin Immunol Glob

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. 2025 Aug 14;4(4):100555.

doi: 10.1016/j.jacig.2025.100555. eCollection 2025 Nov.

Determinants of airway morphology in asthma: Inflammatory and noninflammatory factors

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- PMID: 40978164

- PMCID: PMC12446637

- DOI: 10.1016/j.jacig.2025.100555

Abstract

Background: Patients with asthma may exhibit impaired airway tree morphology. The impact of difficult-to-treat traits on airway tree morphology remains unclear.

Objective: We sought to identify determinants of total airway branch count (TAC) detectable via computed tomography and explore associated blood and sputum biomarkers in nonsmokers and smokers with asthma.

Methods: Baseline computed tomography scans and pulmonary function tests (spirometry, diffusion capacity of carbon monoxide, and lung volume) were analyzed from the Hokkaido Severe Asthma Cohort (N = 190). TAC, segmental airway, visually evident mucus plugging and bronchiectasis, and parenchymal and extrapulmonary indices, such as the Lund-Mackay score, were evaluated. Relationships between TAC, difficult-to-treat traits, and blood/sputum biomarkers were analyzed using crude or multivariable regression models, adjusted for demographic factors.

Results: Blood or sputum eosinophilia, mucus plugs, high body mass index (BMI), asthma duration, and higher Lund-Mackay score correlated with low TAC. Low TAC was linked to airflow obstruction and heterogeneous ventilation (low alveolar volume/total lung capacity). BMI was inversely associated with TAC, independent of age, sex, smoking status, sputum eosinophil ratio, and asthma duration. The presence of bronchiectasis correlated with an increase in TAC. Sputum IL-5, IL-6, RANTES, and circulating YKL-40 (chitinase-3-like-1 protein) and leptin also inversely correlated with TAC.

Conclusions: BMI, asthma duration, sinusitis, and the presence of bronchiectasis are significant determinants of airway tree morphology in asthma, alongside inflammation and mucus plugs. Both inflammatory and noninflammatory biomarkers were associated with low TAC.

Keywords: Airway remodeling; Lund-Mackay score; asthma; body mass index; computed tomography; eosinophils; leptin; mucus plugs; obesity; type 2 inflammation.

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Conflict of interest statement

This work was supported by the 10.13039/501100001700Ministry of Education, Culture, Sports, Science and Technology of Japan (grant nos. 24249049 and 26461151); the Japan Allergy Foundation; AstraZeneca K.K; and 10.13039/100019271Kyorin Pharmaceutical Co, Ltd. Disclosure of potential conflict of interest: K. Shimizu was supported by grants from Daiwa Health Development, Inc, outside the submitted work. N. Tanabe was supported by grants from FUJIFILM Co, Ltd, and Daiichi Sankyo Co, Ltd; and received honoraria from AstraZeneca, outside the submitted work. J. Miyata was supported by grants from GlaxoSmithKline; and received payment for lectures from GlaxoSmithKline, AstraZeneca, and Sanofi, outside the submitted work. Y. Nakamaru received payment for lectures from Sanofi Co, Ltd. I. Tsujino was supported by grants from Mochida Pharmaceuticals K.K., Nippon Shinyaku Co, Ltd, Nippon Boehringer Ingelheim Co, Ltd, Medical System Network Co, Ltd, Kaneka Corp, and Takeyama Co, Ltd; and received honoraria from Nippon Shinyaku Co, Ltd, and Janssen Pharmaceutical K.K., outside the submitted work. S. Konno was supported by grants from Mochida Pharmaceuticals K.K., Nippon Shinyaku Co, Ltd, Nippon Boehringer Ingelheim Co, Ltd, Medical System Network Co, Ltd, Kaneka Corp, Takeyama Co, Ltd, and Novartis; and received honoraria from AstraZeneca and

KYORIN Pharmaceutical, outside the submitted work. The rest of the authors declare that they have no relevant conflicts of interest.

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. 2025 Nov 1;31(6):628-634.

doi: 10.1097/MCP.0000000000001212. Epub 2025 Sep 12.

Primary ciliary dyskinesia phenotypes and correlation with genotype

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Affiliations Expand

- PMID: 40948093

- DOI: 10.1097/MCP.0000000000001212

Abstract

Purpose of review: Primary ciliary dyskinesia is a rare, inherited disease, and over 60 genes have been linked to motile ciliopathies. During the past quarter century, our understanding of the complex genetics and biological function of motile cilia has greatly advanced.

Recent findings: Our growing knowledge of genetics and pathophysiology of primary ciliary dyskinesia has yielded insights into novel clinical features and genotype-phenotype relationships in motile ciliopathies. Children with biallelic CCDC39 or CCDC40 mutations have greater lung disease, related to both cilia motility-dependent and motility-independent effects. Pathogenic variants in genes

involved in cilia generation, like CCNO , are also associated with more severe lung disease. Conversely, people who have defects in other genes, like DHAH11 and RSPH1 , have less severe lung disease, possibly related to residual ciliary motility. Finally, a growing number of primary ciliopathies are associated with abnormal motile cilia ultrastructure and function, and specific pathogenic variants can lead to distinct clinical presentations, best illustrated by structure-function studies in TUBB4B .

Summary: These findings have yielded new insights into the clinical heterogeneity of motile ciliopathies, thus broadening their clinical spectrum. Additional research to elucidate the underlying pathophysiology in these overlapping conditions is warranted.

Keywords: Kartagener syndrome; bronchiectasis; ciliopathy; genetics; primary ciliary dyskinesia.

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. 2025 Nov 1;31(6):635-643.

doi: 10.1097/MCP.0000000000001213. Epub 2025 Sep 5.

Primary ciliary dyskinesia: clinical manifestations and current diagnostic approaches

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Affiliations Expand

- PMID: 40916971

- DOI: 10.1097/MCP.0000000000001213

Abstract

Purpose of review: This review summarizes the clinical symptoms of primary ciliary dyskinesia (PCD) beginning at birth and current approaches for confirming diagnosis. Strengths and limitations of innovative adjunctive tests to improve detection are discussed, ultimately highlighting the importance of PCD expert networks to develop standardized guidelines and develop a standalone diagnostic tool.

Recent findings: PCD is underdiagnosed globally, reflecting overall awareness of this disease and limitations of diagnostic approaches. Over 50 disease-causing genes have been characterized, yet more are discovered each year. No single test can detect all PCD cases, therefore further research is needed to improve clinical options for diagnosis.

Summary: PCD is a genetic ciliopathy with serious health complications and impacts on quality of life. Clinical manifestation can vary significantly between individuals, which can delay diagnosis and negatively affect patient outcomes. Current diagnostic tests for PCD require significant resources and training to interpret, and the best-available tests may miss up to 30% of cases. Further work facilitated by expert collaborative networks will be instrumental to develop novel, enhanced diagnostic tools and ultimately improve outcomes for patients.

Keywords: ciliopathy; diagnosis; genetic testing; primary ciliary dyskinesia.

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Curr Opin Pulm Med

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. 2025 Nov 1;31(6):650-657.

doi: 10.1097/MCP.0000000000001214. Epub 2025 Sep 3.

New anti-infective approaches to treat airway infections in persons with cystic fibrosis and bronchiectasis

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Affiliations Expand

- PMID: 40916970

- DOI: 10.1097/MCP.0000000000001214

Abstract

Purpose of review: Cystic fibrosis (CF) and non-CF bronchiectasis can predispose patients to airway infections that are difficult to treat. The purpose of this review is to discuss recently developed anti-infectives which show promise in treating these infections.

Recent findings: The microbiology underlying respiratory tract infections in persons with CF (pwCF) and non-CF bronchiectasis is complex. Both traditional and nontraditional anti-infective approaches have recently been discovered and/or are actively being studied for the treatment of airway infections. Traditional antibiotics, including small molecules/compounds/formulations, and nontraditional methods, such as monoclonal antibodies and bacteriophages, have shown promise in their ability to treat airway infections in case studies, case series, and/or clinical trials.

Summary: Several new approaches are currently being developed to better manage airway infections associated with both CF and non-CF bronchiectasis. While many of these new therapies are promising, more studies are needed to assess their safety and efficacy.

Keywords: airway infections; anti-infectives; antibiotics; bronchiectasis.

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. 2025 Nov 1;31(6):622-627.

doi: 10.1097/MCP.0000000000001217. Epub 2025 Sep 5.

Bronchiectasis evaluation 2025: pediatric and adult perspectives

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Affiliations Expand

- PMID: 40916968

- DOI: 10.1097/MCP.0000000000001217

Abstract

Purpose of review: There is a significant overlap between the diagnostic evaluation for adult and pediatric patients with bronchiectasis; however, also important age-specific unique considerations. This review focuses on these specific considerations.

Recent findings: Bronchiectasis refers to the radiographic evidence of dilation of distal and proximal bronchi secondary to chronic infection and inflammation. Bronchiectasis can be suspected on plain chest radiograph but is confirmed and detailed through computed tomography (CT) imaging. Several different measures and descriptions of the radiographic findings of bronchiectasis exist, but the most common is a bronchial diameter equal to or greater than an adjacent blood vessel. Consideration for the presence of bronchiectasis begins with recognition of clinical symptoms of suppurative lung disease including persistent sputum producing cough and recurrent respiratory infections. Bronchiectasis etiologies include inherited forms, such as cystic fibrosis and primary ciliary dyskinesia, as well as secondary forms including chronic aspiration as well as certain infections, and immunodeficiency. Up to 40% remain idiopathic even after a comprehensive evaluation.

Summary: It is important to start a bronchiectasis evaluation with a broad differential, but secondary testing should focus on etiologies specific to the patient. A thoughtful combination of testing is often required to arrive at an etiology.

Patients with bronchiectasis require ongoing monitoring including longitudinal follow-up of respiratory cultures, lung function testing, and repeat CT imaging.

Keywords: bronchiectasis; evaluation; suppurative lung disease.

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Respir Med

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. 2025 Nov:248:108333.

doi: 10.1016/j.rmed.2025.108333. Epub 2025 Aug 29.

Comorbidities as treatable traits of chronic airway diseases

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Affiliations Expand

- **PMID: 40886804**

- **DOI: 10.1016/j.rmed.2025.108333**

Free article

Abstract

Chronic airway diseases, including asthma, chronic obstructive pulmonary disease, and bronchiectasis, are increasingly recognized as heterogeneous conditions influenced not only by airway pathology but also by a wide range of extrapulmonary

and behavioral comorbidities. The treatable traits (TT) model, as it has emerged in recent medical literature, offers a precision medicine framework that redefines comorbidities as clinically relevant, identifiable, and modifiable traits. This paradigm shifts the focus from conventional disease labels to a multidimensional approach that considers the individual's unique constellation of pulmonary, extrapulmonary, and psychosocial features. A growing body of research has identified critical targets for intervention. The efficacy of this approach is supported by evidence from clinical trials and real-world studies. These studies demonstrate that trait-based management, especially when incorporating comorbidities, results in improved disease control, reduced symptom burden, enhanced quality of life, and decreased frequency of exacerbations. The implementation of multidimensional assessment tools and multidisciplinary care models is imperative for operationalizing this strategy within both primary and secondary care settings. Future directions for this field include leveraging artificial intelligence and machine learning to refine trait identification and predict individualized treatment responses. Longitudinal studies and adaptive trial designs are also necessary to evaluate the long-term effectiveness, cost-efficiency, and scalability of trait-based interventions across diverse healthcare systems. The recognition of comorbidities as TTs signifies a substantial advancement in the delivery of holistic, patient-centered care for individuals with chronic airway diseases.

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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:We have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.Furthermore, we declare that this manuscript was not funded/sponsored, and no writing assistance was utilised in its production.Given their role as Editor-in-Chief (NAH), Deputy Editor (MC), and Editorial Board Member (PR), Nicola A. Hanania, Mario Cazzola and Paola Rogliani have no involvement in the peer-review of this article and have no access to information regarding its peer-review. Full responsibility for the editorial process for this article was delegated to another journal editor.

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Transplant Cell Ther

. 2025 Nov;31(11):922.e1-922.e12.

doi: 10.1016/j.jtct.2025.08.013. Epub 2025 Aug 14.

Bronchiectasis in Bronchiolitis Obliterans Syndrome after Hematopoietic Cell Transplantation

David J Epstein [1], Nidia Rodriguez-Ormaza [2], Husham Sharifi [3], Yu Kuang Lai [3], Haiwei Henry Guo [4], Carlos Hernandez Borges [3], Sarah Huda Omar [3], Ajaypal Sahota [3], Ekroop S Dhillon [3], Zayan Maliha Musa [3], Carson Tyler Moss [3], Paulami Chatterjee [3], Grady Harrison Hofmann [3], Laura Johnston [5], Sally Arai [5], Joe L Hsu [3]

Affiliations Expand

- PMID: 40818827

- DOI: 10.1016/j.jtct.2025.08.013

Abstract

Bronchiectasis-bronchial dilatation accompanied by impaired mucociliary clearance, chronic infection, and chronic inflammation-may contribute to poor outcomes in bronchiolitis obliterans syndrome (BOS) complicating hematopoietic cell transplantation, though its epidemiology and impact are poorly understood. We assessed factors associated with bronchiectasis in BOS. We also assessed relationships between bronchiectasis and survival, respiratory infections, and percent predicted forced expiratory volume in one second (FEV_1%). This single-center retrospective cohort study included adults who underwent allogeneic hematopoietic cell transplantation from 2010 to 2023 and who subsequently developed BOS. Bronchiectasis is defined based on validated radiographic and clinical criteria. We used multivariable logistic and linear regression, extended Cox regression models, negative binomial regression, and generalized estimating equations to determine relationships between pre-BOS events and subsequent bronchiectasis, and between bronchiectasis and death, infections, and FEV_1%. Among the 87 patients included for analysis, 54% developed bronchiectasis over a median follow-up of 2.2 yr (interquartile range, 1.0 to 5.8) after BOS diagnosis. Thirty-three patients (37.9%) died. None of the prespecified risk factors were associated with bronchiectasis. Bronchiectasis was associated with an increased risk of death (HR, 3.10; 95% CI, 1.40 to 6.48; P = .0048) and an increased incidence rate of respiratory infections (IRR, 1.93; 95% CI, 1.23 to 3.02; P = .0040), controlling for confounders. Among those with bronchiectasis, chronic infection with Pseudomonas aeruginosa occurred in 8 (17.0%) and nontuberculous mycobacteria in 11 (23.4%). FEV_1% was lower and declined more rapidly in those with bronchiectasis. Bronchiectasis frequently accompanies BOS and is associated with 2 poorer outcomes, though its causes in this population are not known.

Keywords: Bronchiectasis; Bronchiolitis obliterans syndrome; Chronic graft-versus-host-disease; Nontuberculous mycobacteria; Respiratory infections.

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J Cardiopulm Rehabil Prev

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. 2025 Nov-Dec;45(6):447-449.

doi: 10.1097/HCR.0000000000000983. Epub 2025 Oct 28.

Home-Based Rehabilitation With Health Coaching in Patients Living With Bronchiectasis

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Affiliations Expand

- **PMID: 40758084**

- **DOI: 10.1097/HCR.0000000000000983**

No abstract available

Conflict of interest statement

All authors have read and approved submission of the manuscript and the manuscript has not been published and is not being considered for publication elsewhere in whole or part in any language except as an abstract. The manuscript was proofed and edited by a native-English speaker and/or an editing service (such as:https://wkauthorservices.editage.com/). All authors meet the 4 ICMJE criteria for authorship. All authors declare no conflicts of interest.

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Multicenter Study

Eur J Prev Cardiol

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. 2025 Oct 28;32(15):1427-1435.

doi: 10.1093/eurjpc/zwaf122.

Risk of major cardiovascular events and all-cause death in patients with bronchiectasis and associated resistance to antimicrobial drugs

Tommaso Bucci [1 2], Ran Guo [3 4], Kai-Hang Yiu [3 4], Gregory Y H Lip [1 5 6], Freddy Frost [1 7]

Affiliations Expand

- PMID: 40037796

- DOI: 10.1093/eurjpc/zwaf122

Abstract

Aims: To assess the impact of antimicrobial resistance (AMR) on major adverse cardiovascular event (MACE) risk in patients with bronchiectasis.

Methods and results: This retrospective study utilized data from the TriNetX research network, analysing patients with bronchiectasis categorized by the presence or absence of AMR. Primary outcomes included the risk of MACE (myocardial infarction, stroke, and systemic thromboembolism, and cardiac arrest) and all-cause death. Cox regression analysis with 1:1 propensity score matching (PSM) was applied to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for the primary outcomes. Subgroup analyses were conducted to validate results in clinically relevant subgroups. Prior to PSM, patients with AMR (n = 6543, 61.0 ± 22.0 years, 55.8% female) were younger, more often male, and presented a higher prevalence of cardiovascular risk factors than those without AMR (n = 154 685, 67.3 ± 16.0 years, 59.4% female). After PSM, no significant differences were

found between groups. However, AMR patients showed a higher risk of MACE (HR 1.29, 95% CI 1.17-1.41) and all-cause death (HR 1.49, 95% CI 1.38-1.61) compared to non-AMR patients. The MACE risk was notably elevated among AMR patients without prior cardiovascular events (HR 1.56, 95% CI 1.34-1.81). Similar MACE risks were observed in cystic fibrosis (HR 1.24, 95% CI 0.86-1.78) and non-cystic fibrosis subgroups (HR 1.28, 95% CI 1.16-1.41), with consistent findings across different AMR types.

Conclusion: In patients with bronchiectasis, AMR is associated with an increased risk of MACE and all-cause death, suggesting that controlling AMR spread may confer broader health benefits, particularly in reducing cardiovascular risk.

Keywords: Bronchiectasis; Cardiovascular event; Resistance to antimicrobial drugs.

Plain language summary

In this study, we hypothesized that the pro-inflammatory state associated with bronchiectasis may be exacerbated by the onset of antimicrobial drug resistance, thereby increasing cardiovascular risk.Patients with bronchiectasis and antimicrobial drug resistance are at a high risk of major adverse cardiovascular events and all-cause death.The increased risk of adverse events appears to be independent of age, sex, the presence of cystic fibrosis or autoimmune diseases, and the specific type of antimicrobial drug resistance.

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Conflict of interest statement

Conflict of interest: G.Y.H.L. is a consultant and speaker for BMS/Pfizer, Boehringer Ingelheim, Daiichi-Sankyo, and Anthos. No fees are received personally. He is a National Institute for Health and Care Research (NIHR) Senior Investigator 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 programme. All other authors report no disclosures.

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