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

1

Int J Tuberc Lung Dis

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. 2025 Aug 29;29(9):428-429.

doi: 10.5588/ijtld.25.0266.

Potential future impact of dupilumab on COPD

J L Lopez-Campos [1], B Muñoz-Sanchez [2], E Quintana-Gallego [1]

Affiliations Expand

- **PMID: 40883890**

- **DOI: 10.5588/ijtld.25.0266**

No abstract available

Full text links

UNIMORE

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Cite

2

Clinical Trial

Pneumologie

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. 2025 Aug 29.

doi: 10.1055/a-2677-8679. Online ahead of print.

[Impact of malnutrition and sarcopenia on the outcomes of pulmonary rehabilitation in patients with COPD]

[Article in German]

Marc Spielmanns [1 2], Patrick Heeb [1], Kirsten Grossmann [1 3], Corina Schaer [1], Sabine Spielmanns [1], Undine Lehmann [4], Katja Uhlmann [4], Pavel Sirotkin [5], Gilbert Buesching [5], Ramin Khatami [6 7], Zhongxing Zhang [6]

Affiliations Expand

- PMID: 40882943

- DOI: 10.1055/a-2677-8679

Abstract

in English, German

Malnutrition and sarcopenia are common conditions in older people and are associated with increased morbidity and mortality. The results of the Malnut-Reha study, which was conducted in 5 Swiss rehabilitation centers and investigated the prevalence of these conditions in inpatient rehabilitation, have recently been published. The present subgroup analysis assesses the impact of malnutrition and sarcopenia on pulmonary rehabilitation (PR) outcomes in patients with Chronic Obstructive Pulmonary Disease (COPD).A total of 67 patients with COPD from 2 Swiss rehabilitation centers were included in the analysis. Standardized assessments were used to evaluate rehabilitation outcomes, including the 6-Minute Walk Test (6MWT), the Functional Independence Measure (FIM), and the handgrip strength measurement (HGS). The prevalence of malnutrition and sarcopenia was 46% each, with 33% of patients presenting both conditions. Despite the worst initial physical and functional status, patients with malnutrition and/or sarcopenia showed significant improvements in 6MWT and FIM after PR, independently of their nutritional status or muscle mass.The findings of this analysis confirm the effectiveness of PR in patients with COPD, regardless of the presence of

malnutrition or sarcopenia. Future studies should investigate whether extended targeted nutritional and exercise interventions could provide additional benefits.

Conflict of interest statement

Die Autorinnen/Autoren geben an, dass kein Interessenkonflikt besteht.

Supplementary info

Publication typesExpand

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Cite

3

Editorial

Eur Radiol

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. 2025 Aug 28.

doi: 10.1007/s00330-025-11970-x. Online ahead of print.

Bronchiectasis in COPD patients: AI-based CT extent assessment

Philippe A Grenier [1]

Affiliations Expand

- PMID: 40875019

- DOI: 10.1007/s00330-025-11970-x

No abstract available

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Philippe A. Grenier. Conflict of interest: The author of this manuscript declares relationships with the following companies: Speaking fees from Siemens

Healthineers, advisory boards of Median Technology and Sophia Genetics. Statistics and biometry: No complex statistical methods were necessary for this paper. Informed consent: n/a. Ethical approval: n/a. Study subjects or cohorts overlap: n/a. Methodology: Commentary

Comment on

- Bronchiectasis in patients with chronic obstructive pulmonary disease: AI-based CT quantification using the bronchial tapering ratio.

Park H, Choe J, Lee SM, Lim S, Lee JS, Oh YM, Lee JB, Hwang HJ, Yun J, Bae S, Yu D, Loh LC, Ong CK, Seo JB.Eur Radiol. 2025 Aug 26. doi: 10.1007/s00330-025-11969-4. Online ahead of print.PMID: 40858775

- 10 references

Supplementary info

Publication typesExpand

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Cite

4

Review

Expert Rev Med Devices

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. 2025 Aug 29:1-11.

doi: 10.1080/17434440.2025.2554764. Online ahead of print.

Profile of the Respimat soft mist inhaler for chronic obstructive pulmonary disease treatment: overview of its safety and efficacy

Alessandra Sorano [1], Francesca Buttini [2], P N Richard Dekhuijzen [3], Omar S Usmani [4], Federico Lavorini [1]

Affiliations Expand

- PMID: 40874573

- DOI: 10.1080/17434440.2025.2554764

Abstract

Introduction: The Respimat Soft Mist Inhaler (SMI), introduced in the early 2000s, represented a significant, represented a significant advancement in inhaled drug delivery for chronic obstructive pulmonary disease (COPD). It offers improved lung deposition, lower oropharyngeal impaction, and enhanced ease of use compared to traditional pressurized or dry powder inhalers.

Area covered: This review provides an up-to-date overview of the Respimat SMI's design, inhaler performance, aerosol and lung deposition characteristics, clinical efficacy, patient-reported outcomes, and environmental impact. Comparative data with pressurized metered-dose inhalers (pMDIs), dry powder inhalers (DPIs), and emerging generic alternatives (e.g. MRX004) are critically discussed. The review also addresses usability, patient preference, and the increasing shift toward reusable, propellant-free inhalation platforms.

Expert opinion: Respimat provides an effective, user-friendly alternative to conventional inhalers, especially for patients with suboptimal inspiratory flow or poor coordination Its fine-particle aerosol, high peripheral deposition, and environmentally sustainable design align with evolving clinical, economic, and policy priorities. Although further real-world data are needed, particularly regarding long-term adherence and device mastery, Respimat sets a benchmark for future inhaler innovation in terms of therapeutic performance, sustainability, and patient-centered care.

Keywords: Chronic obstructive pulmonary disease; Respimat; inhaler; inhaler technique; soft mist inhaler.

. 2025 Aug 28.

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

Adding Weight to the Evidence: MMP-9 as a Predictor of COPD Development

Niki L Reynaert [1], Didier Cataldo [2 3]

Affiliations Expand

- PMID: 40874454

- DOI: 10.1111/resp.70119

No abstract available

- 15 references

Supplementary info

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Cite

6

Respirology

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. 2025 Aug 28.

doi: 10.1111/resp.70122. Online ahead of print.

Artificial Intelligence Will Boost Repurposing of Registered Compounds for Respiratory and Other Indications

Philip G Bardin [1], Belinda J Thomas [1], Jane E Bourke [1]

Affiliations Expand

- PMID: 40874446

- DOI: 10.1111/resp.70122

No abstract available

Keywords: COPD; artificial intelligence; asthma; corticosteroid-sparing; drug repurposing; respiratory disease.

- **10 references**

Full text links

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Cite

7

Comment

Radiol Artif Intell

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. 2025 Sep;7(5):e250555.

doi: 10.1148/ryai.250555.

Advancing Early Detection of Chronic Obstructive Pulmonary Disease Using Generative AI

Quincy A Hathaway [1], Yashbir Singh [2 3]

Affiliations Expand

- **PMID: 40862689**

- **DOI: 10.1148/ryai.250555**

No abstract available

Comment on

- **Single Inspiratory Chest CT-based Generative Deep Learning Models to Evaluate Functional Small Airways Disease.**

Zhang D, Zhao M, Zhou X, Li Y, Guan Y, Xia Y, Zhang J, Dai Q, Zhang J, Fan L, Zhou SK, Liu S.Radiol Artif Intell. 2025 Sep;7(5):e240680. doi: 10.1148/ryai.240680.PMID: 40668132

Supplementary info

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Cite

8

EClinicalMedicine

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. 2025 Aug 12:87:103402.

doi: 10.1016/j.eclinm.2025.103402. eCollection 2025 Sep.

Safety of budesonide/glycopyrronium/formoterol fumarate dihydrate delivered by HFO-1234ze versus HFA-134a in chronic obstructive pulmonary disease: a phase 3, multi-site, randomised, double-blind, parallel-group, active-comparator study

Omar S Usmani [1], Fernando J Martinez [2], Hitesh Pandya [3], Matthew Camiolo [4], Artur Bednarczyk [5], Kinga Kucz [5], Marek Kokot [5], Christer Gottfridsson [6], Magnus Aurivillius [7], Lars Pettersson [7], Jie Mei [7], Karin Skansen [7], Jennifer L Bell [8], David Petullo [9], Kathryn Collison [10], Patrik Bondarov [11], Mandeep Jassal [12], Mehul Patel [3]

Affiliations Expand

- PMID: 40831469

- PMCID: PMC12359160

- DOI: 10.1016/j.eclinm.2025.103402

Abstract

Background: Pressurised metered dose inhalers (pMDIs) contain a hydrofluorocarbon propellant, such as hydrofluoroalkane-134a (HFA-134a), which is known to have global warming potential (GWP). Transitioning pMDIs to propellants with lower GWP will reduce the environmental impact of pMDIs. This study assessed the safety of a near-zero GWP propellant, hydrofluoroolefin-1234ze (HFO-1234ze), compared with HFA-134a when used in the delivery of budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF) in participants with chronic obstructive pulmonary disease (COPD). The results of this study advance our understanding of the safety of HFO-1234ze compared with HFA-134a.

Methods: This phase 3, double-blind, parallel-group study (ClinicalTrials.gov[NCT05573464]) across 9 countries (Argentina, Bulgaria, Canada, Germany, Mexico, Poland, Turkey, the United Kingdom, the United States) included participants (aged 40-80 years) with physician-diagnosed COPD using dual or triple inhaled maintenance therapies, COPD Assessment Test score ≥10, ≥10 pack-years smoking history, and no comorbid diagnosis of asthma or other clinically significant diseases impacting study outcomes. Participants were randomised (1:1) to receive either BGF HFO-1234ze or BGF HFA-134a (two inhalations of 160/7·2/5·0 µg twice daily) for 12 weeks in the main safety analysis set (or 52 weeks [first 120 participants per treatment]). Safety endpoints included the incidence of adverse events (AEs), measures of vital signs, clinical laboratory tests, and electrocardiograms.

Findings: Participants were recruited between 27 September 2022 and 19 May 2023. A total of 874 participants were screened. Of 558 treated participants (mean [standard deviation] age, 67·0 [7·4] years; male, 315 [56·5%]) in the 12-week safety analysis set, 280 received BGF HFO-1234ze, and 278 received BGF HFA-134a. The AE incidence was balanced between formulations in the 12-week (HFO-1234ze, 124 [44·3%]; HFA-134a, 114 [41·0%]) and 52-week (HFO-1234ze, 80 [66·7%]; HFA-134a, 94 [78·3%]) safety analysis sets.

Interpretation: These findings support the potential for HFO-1234ze to replace HFA-134a in pMDIs containing BGF, which could be evaluated further in a real-world setting.

Funding: The study was supported by AstraZeneca.

Keywords: Budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF); Chronic obstructive pulmonary disease (COPD); Hydrofluoroalkane-134a (HFA-134a); Hydrofluoroolefin-1234ze (HFO-1234ze); Inhaled triple therapy; Safety.

Conflict of interest statement

Omar S. Usmani has received personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, Covis, Deva, GlaxoSmithKline, Kamada, Menarini, Mundipharma, Novartis, Orion, Sandoz, Takeda, Trudell Medical, and UCB; has received research grants from AstraZeneca, Boehringer Ingelheim, Chiesi, and GlaxoSmithKline; and has received consulting fees from AstraZeneca, Cipla, and Mereo Biopharma. He is also President of the International Society of Aerosols in Medicine, Chair of the UK Inhaler Group, the European Respiratory Society Council Chair elect 2024–2025, and was the Assembly 5 Head of the European Respiratory Society from 2020 to 2023. Fernando J. Martinez has consulted for AstraZeneca, Chiesi, DevPro, GlaxoSmithKline, Novartis, and Roche; has received honoraria from Sanofi/Regeneron, and UpToDate; and received payment or honoraria for lectures and presentations from AstraZeneca, GlaxoSmithKline, and Roche. Support for the study and for development of the current manuscript was provided by AstraZeneca. Jennifer L. Bell is contracted by AstraZeneca. Hitesh Pandya, Matthew Camiolo, Artur Bednarczyk, Christer Gottfridsson, Magnus Aurivillius, Lars Pettersson, Jie Mei, Karin Skansen, Kathryn Collison, Patrik Bondarov, Mandeep Jassal, and Mehul Patel are employees of AstraZeneca and hold stock and/or stock options in the

company. Kinga Kucz, Marek Kokot, and David Petullo are employees of AstraZeneca.

- 22 references
- 3 figures

Supplementary info

Associated dataExpand

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Pharmacoepidemiol Drug Saf

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. 2025 Sep;34(9):e70204.

doi: 10.1002/pds.70204.

Impact of Long-Acting Beta-Agonists on Progressive Risk of Lung Cancer in Patients With Chronic Obstructive Pulmonary Disease: A Nationwide Cohort Study

Shih-Hsun Lin [1], Yu-Chun Lin [1], Tsai-Hui Lin [1], Hung-Jen Lin [2 3], Mei-Chen Lin [4], Sheng-Teng Huang [1 2 5]

Affiliations Expand

- PMID: 40820473

- DOI: 10.1002/pds.70204

Abstract

Purpose: Chronic obstructive lung disease (COPD) is a common comorbid disease in lung cancer causing disability. A long-acting β2-agonist (LABA) is commonly given to patients with moderate to very severe COPD. This study aims to evaluate the relationship between LABA treatment and the risk of lung cancer in patients with COPD using a national representative database.

Methods: We conducted the analyses using the Longitudinal Health Insurance Database. Patients with at least two outpatient visits or one hospitalization due to

COPD diagnosis (ICD-9-CM: 491, 492, 494, 496) from 1997 to 2012 were identified. Patients in the LABA cohort had regularly used LABA during the study period, while the non-LABA cohort was those without receiving LABA treatment. A 1:2 propensity score matching by COPD diagnosis year, index year, sex, age, occupation, comorbidities, and medication usage was applied.

Results: A total of 3924 patients with COPD were enrolled in the study, 1308 patients with regular LABA treatment and 2616 patients without LABA treatment. Approximately half of the study subjects were male (54.8%), with a mean age of 63.1 years. Those with LABA treatment who were male (aHR = 2.15, 95% CI = 1.09-4.22) had an increased risk of lung cancer.

Conclusions: This study indicated that LABA treatment in patients with COPD was associated with lung cancer in older men; those with high cumulative daily doses.

Keywords: chronic obstructive pulmonary disease; long-acting β2 sympathomimetic agonists; lung cancer; observational research.

- 45 references

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

Full text links

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Cite

10

Review

Clin Chest Med

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. 2025 Sep;46(3):499-508.

doi: 10.1016/j.ccm.2025.04.008. Epub 2025 Jul 3.

Oscillometry

Claude S Farah [1], Leigh M Seccombe [2]

Affiliations Expand

- PMID: 40769595

- DOI: 10.1016/j.ccm.2025.04.008

Abstract

Respiratory oscillometry measures impedance during tidal breathing and is a sensitive marker of smaller airway function. Recent consensus documents provide a framework for the clinician to incorporate this lung function test into routine clinical practice. Oscillometry has an established role in pediatric respiratory medicine. In adults, an abnormal oscillometry result relates to patient symptoms and clinically important outcomes especially in asthma and chronic obstructive pulmonary disease. There is increasing interest in the role of oscillometry when monitoring patients longitudinally including after lung transplantation, and a greater appreciation of intrabreath analysis and the detection of dynamic elastance.

Keywords: Airway resistance; Forced oscillation technique; Oscillometry; Pulmonary disease; Respiratory function testing.

Conflict of interest statement

Disclosures C.S. Farah reports receiving speaker fees from Chiesi, AstraZeneca, GlaxoSmithKline and Sanofi unrelated to the content of this study. L.M. Seccombe has nothing to disclose.

Supplementary info

Publication types, MeSH termsExpand

Full text links

Cite

11

Review

Clin Chest Med

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. 2025 Sep;46(3):467-479.

doi: 10.1016/j.ccm.2025.04.006. Epub 2025 Jul 2.

Six-Minute Walk Testing: Performance, Properties, and Clinical Applications

Ella Ishaaya [1], Nathan Yee [2], Thomas W DeCato [3]

Affiliations Expand

- PMID: 40769593

- DOI: 10.1016/j.ccm.2025.04.006

Abstract

Field exercise testing, especially the 6-min walk test (6MWT), is widely used to assess functional exercise capacity in patients with chronic respiratory diseases. The 6MWT is safe, easy to administer, cost-effective, and represents a natural daily activity. Despite established guidelines, variability in test performance exists and can impact the interpretation of results. The 6MWT is reliable, repeatable, and has been extensively studied in conditions like chronic obstructive pulmonary disease, interstitial lung disease, and pulmonary hypertension. Application is both disease- and context-dependent. Emerging variations include shorter duration tests and telemetric versions, which may continue to expand its clinical utility and accessibility.

Keywords: 6-min walk test; Field exercise test; Functional capacity; Functional exercise capacity.

Conflict of interest statement

Disclosures E. Ishaaya and N. Yee have no conflicts of interest to disclose. T.W. DeCato receives support from NIH grant RO1HL166850, R2114021056, and consulting fees from MannKind Corporation and Pulmovant.

Supplementary info

Publication types, MeSH termsExpand

Full text links

Cite

12

Lancet Respir Med

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. 2025 Sep;13(9):778-781.

doi: 10.1016/S2213-2600(25)00236-X. Epub 2025 Jul 31.

Pre-COPD: an evolving concept with practice potential

Dinh S Bui [1], Rosa Faner [2], George Washko [3], Christine Jenkins [4], E Haydn Walters [5], Shyamali C Dharmage [6]

Affiliations Expand

- PMID: 40753996

- DOI: 10.1016/S2213-2600(25)00236-X

No abstract available

Conflict of interest statement

All authors declare no competing interests. EHW and SCD contributed equally.

Full text links

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Observational Study

Respir Investig

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. 2025 Sep;63(5):942-948.

doi: 10.1016/j.resinv.2025.07.016. Epub 2025 Jul 30.

Bronchiectasis in Japanese patients with chronic obstructive pulmonary disease: A prospective cohort study

Seiichi Kobayashi [1], Mitsuhiro Yamada [2], Masatsugu Ishida [3], Manabu Ono [3], Hikari Satoh [3], Masakazu Hanagama [3], Masaru Yanai [3]

Affiliations Expand

- PMID: 40743857

- DOI: 10.1016/j.resinv.2025.07.016

Abstract

Background: Bronchiectasis often coexists with chronic obstructive pulmonary disease (COPD) and is associated with worse clinical outcomes than COPD alone. However, there is limited evidence on Japanese patients with COPD. This study aimed to investigate the prevalence, clinical characteristics, and outcomes of bronchiectasis in Japanese patients with COPD.

Methods: This prospective observational study included a cohort of Japanese patients with COPD between April 2018 and January 2025. Patient characteristics, exacerbation frequency, and mortality were assessed over a 5-year follow-up period. The Cox proportional hazards model was used to evaluate the association between bronchiectasis and mortality.

Results: In total, 302 patients (287 males, 15 females; median age, 76 years) with stable COPD were enrolled, 15 % of whom had radiological bronchiectasis, and 3.3 % had ≥3 lobes involved or cystic bronchiectasis. Patients with COPD and bronchiectasis were older and had higher staging. No significant differences were observed in exacerbations or mortality rates between patients with and without bronchiectasis. Among patients with COPD and bronchiectasis, all-cause mortality was associated with airflow obstruction (hazard ratio [HR], 0.96; 95 % confidence interval [CI], 0.92-0.99), dyspnea (HR, 2.2; 95 %CI, 1.3-3.6), health status (HR 1.1; 95 %CI, 1.0-1.3), bronchiectasis severity index (HR, 1.3; 95 %CI, 1.1-1.6), and positive Pseudomonas aeruginosa culture (HR 6.7; 95 %CI, 1.3-33).

Conclusions: These findings demonstrated that radiological bronchiectasis was not associated with poor clinical outcomes within 5 years of follow-up. Among patients with COPD and bronchiectasis, mortality was associated with symptoms, disease severity, and positive Pseudomonas aeruginosa cultures.

Trial registration: This study was registered in the UMIN Clinical Trials Registry (UMIN000032112).

Keywords: Bronchiectasis; Chronic obstructive pulmonary disease (COPD); Exacerbations; Mortality.

Supplementary info

Publication types, MeSH terms, Supplementary conceptsExpand

Full text links

Cite

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J Cardiopulm Rehabil Prev

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. 2025 Sep 1;45(5):351-357.

doi: 10.1097/HCR.0000000000000975. Epub 2025 Aug 22.

The American Association of Cardiovascular and Pulmonary Rehabilitation National Pulmonary Rehabilitation Registry: Design and Participant Characteristics

Todd M Brown [1], Yu Zhang, Gerene Bauldoff, Chris Garvey, George Howard

Affiliations Expand

- PMID: 40719677

- DOI: 10.1097/HCR.0000000000000975

Abstract

Purpose: To describe the design of the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) national pulmonary rehabilitation (PR) registry and the demographic and clinical characteristics of enrolled participants.

Methods: We defined enrollment as attending at least 1 rehabilitation session. Participant characteristics are expressed as median (IQR) or number (%). We used participant zip codes to determine county of residence and created a heat map of participants per county in the continental US. In those aged 65 years and older, we compared participant characteristics with published data on Medicare beneficiaries.

Results: From 2013 to 2021, 70 085 individuals from 319 programs have enrolled. Median age is 70 years (63, 76), 52% are female, 78% are White, and 99% have health insurance. Comorbidities and a history of smoking are common. Chronic obstructive pulmonary disease, including emphysema and chronic bronchitis, is the primary admission diagnosis for 71% of enrollees. At least 1 participant resides in 42% of continental US counties, with more representation in counties from the upper Midwest and East Coast of the US. Demographic characteristics of those aged 65 years and older are similar to samples of Medicare beneficiaries.

Conclusions: The AACVPR PR registry provides a wealth of data to examine patient outcomes and quality of care in PR. Not surprisingly, non-White individuals, those with lower education levels, and those who are uninsured are underrepresented in the AACVPR PR registry, reflecting national trends.

Keywords: pulmonary rehabilitation; quality of care; secondary prevention.

Conflict of interest statement

T.M.B., G.H., and Y.Z. received financial support from the contract with AACVPR for the University of Alabama at Birmingham to serve as the AACVPR Registry Data Analytic Center. The other authors report no financial conflicts of interest.

- 16 references

Supplementary info

MeSH termsExpand

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Cite

15

Pulm Ther

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. 2025 Sep;11(3):443-459.

doi: 10.1007/s41030-025-00306-1. Epub 2025 Jul 13.

Clinically Important Improvements and Disease Stability with Fluticasone Furoate/Umeclidinium/Vilanterol Once-Daily Single-Inhaler Triple Therapy in the ELLITHE Trial: A Post Hoc Responder Analysis

Kai-Michael Beeh [1], Karl Scheithe [2], Heike Schmutzler [3], Saskia Krüger [3]

Affiliations Expand

- PMID: 40652438

- PMCID: PMC12373607

- DOI: 10.1007/s41030-025-00306-1

Abstract

Introduction: Responder analyses provide information about characteristics associated with therapeutic benefits. Short-term responses may predict long-term

benefits. We evaluated responders, clinically important improvement (CII), disease stability (DS), and the relation of short- to long-term responses in patients with chronic obstructive pulmonary disease (COPD) in ELLITHE.

Methods: ELLITHE was a multicenter, open-label, non-interventional effectiveness study between 2020 and 2022 evaluating the effects of treatment initiation with once-daily single-inhaler triple therapy (odSITT) FF/UMEC/VI (100/62.5/25 µg via ELLIPTA) on COPD Assessment Test (CAT), forced expiratory volume in 1 s (FEV_1), and exacerbations over 12 months. Post hoc responder analyses for CAT (≥ 2 units improvement), FEV_1 (≥ 100 ml change), and exacerbations (no event) were performed. Composite endpoints CII and DS (CII = response to at least two outcomes; DS = absence of clinically important deterioration for all outcomes) were also evaluated.

Results: A total of 786 patients had available data for any analysis. At study completion, 53.3% of patients were CAT, 36.7% FEV_1, and 90.2% exacerbation responders, with 22.1% responding to all outcomes; 64.3% had a CII, and 52.7% showed DS. CII and DS were more frequent in subjects with higher baseline CAT score, and DS in patients on prior ICS/LABA therapy (all $p < 0.05$). Early (3 months) CAT, FEV_1 and CII response strongly predicted respective responses at study end (odds ratios = OR ranging from 6.3 to 7.4), and DS (OR from 3.0 to 4.2). In the patient subset with available baseline eosinophil counts, response was generally similar at < 150 versus ≥ 150 cells/µl.

Conclusions: Despite overlapping responses to single and composite outcomes with odSITT, individual patterns support a multidimensional approach to evaluate benefits in COPD. Responders had higher baseline CAT scores and frequency of prior dual therapies. Short-term responses of FEV_1 and/or CAT were reasonable predictors of long-term responses, including DS. DS was achievable for the majority of patients and may represent a useful outcome for future COPD research and management.

Keywords: CAT score; COPD; Disease stability; Exacerbation; Lung function; Real-world evidence; Triple therapy.

Conflict of interest statement

Declarations. Conflict of Interest: Kai M. Beeh has received personal and/or institutional compensation for clinical research, consulting, and/or lecturing fees from AstraZeneca, Bosch Healthcare Solutions, Chiesi, Clario, GSK, Novartis, Menarini/Berlin Chemie, Orion, Sanofi, and Sterna. Kai M. Beeh is an Editor-in-Chief of Pulmonary Therapy. Kai M. Beeh was not involved in the selection of peer reviewers for the manuscript nor any of the subsequent editorial decisions. Karl Scheithe declares no conflict of interest. Heike Schmutzler is a current employee of the sponsor, Berlin Chemie. Saskia Krüger was an employee of the sponsor Berlin Chemie at the time the study was conducted and evaluated. Ethical Approval: The ELLITHE study was registered under the German Clinical Trials Register (identifier: DRKS00031897) The study was carried out in accordance with Good Clinical Practice guidelines under the provisions of the latest version of the Declaration of Helsinki (2013) and received approval from of the State Chamber of Physicians of Hesse ("Ethikkommission der Landesärztekammer Hessen") as the coordinating

ethics committee of the national chief investigator. The study was registered at the German Clinical Trials Register (DRKS00031897). All patients provided signed informed consent. Thanking Investigators and Patient Participants: The authors would like to thank all study sites and patients involved in the ELLITHE study.

- 48 references
- 3 figures

Full text links

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Cite

16

Editorial

Ann Am Thorac Soc

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. 2025 Sep;22(9):1297-1298.

doi: 10.1513/AnnalsATS.202507-703ED.

Chronic Exposure to $PM_{2.5}$ Can Be Deadly for People with Chronic Obstructive Pulmonary Disease

Shawn D Aaron [1]

Affiliations Expand

- PMID: 40632892
- DOI: 10.1513/AnnalsATS.202507-703ED

No abstract available

Comment on

- Fine Particulate Matter and Mortality in Chronic Obstructive Pulmonary Disease with Multimorbidity.

Robichaux CE, Baldomero AK, Gravely AA, Wendt CH, Berman JD.Ann Am Thorac Soc. 2025 Sep;22(9):1335-1342. doi: 10.1513/AnnalsATS.202411-1200OC.PMID: 40315387

Supplementary info

Publication typesExpand

Full text links

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Cite

17

Comparative Study

Adv Ther

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. 2025 Sep;42(9):4432-4446.

doi: 10.1007/s12325-025-03295-4. Epub 2025 Jul 7.

Comparative Effectiveness of FF/UMEC/VI and BUD/GLY/FORM in Patients with COPD Stepping Up From Dual Therapy

Jadwiga A Wedzicha [1], Stephen G Noorduyn [2 3], Valentina Di Boscio [4], Olivier Le Rouzic [5], Anurita Majumdar [6], Rosirene Paczkowski [7], Stephen Weng [8], Guillaume Germain [9], François Laliberté [9], David Mannino [10 11]

Affiliations Expand

- PMID: 40619503
- PMCID: PMC12394344
- DOI: 10.1007/s12325-025-03295-4

Abstract

Introduction: Recent data suggest differences in effectiveness of single-inhaler triple therapies (SITTs) for patients with chronic obstructive pulmonary disease (COPD); however, data specifically from patients previously treated with dual bronchodilator therapy are lacking. This real-world comparative effectiveness study assessed patients with COPD treated with fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) and

budesonide/glycopyrrolate/formoterol fumarate (BUD/GLY/FORM) who stepped up from dual therapy.

Methods: This retrospective study used healthcare claims from the Komodo Research database to identify patients with COPD and Medicare Fee-for-Service insurance on dual therapy as their most recent treatment in the 90 days pre-index, stepping up to FF/UMEC/VI or BUD/GLY/FORM between January 1, 2016 and December 31, 2023. Primary outcome was annualized rate of moderate-severe exacerbations per patient-year (PPY) compared using rate ratios (RRs) and 95% confidence intervals (CIs) from Poisson regression models after adjustment with overlap weighting. Secondary outcomes were time to first moderate-severe exacerbation (analyzed as a composite and separately), reported using Kaplan-Meier (KM) analysis and compared using hazard ratios (HRs) with 95% CIs from weighted Cox regression models. All-cause mortality (KM analysis) was included as an exploratory outcome.

Results: Overall, 10,093 FF/UMEC/VI and 3926 BUD/GLY/FORM patients stepping up from dual therapy were included. Patients stepping up to FF/UMEC/VI experienced an 18% significantly lower rate of moderate-severe COPD exacerbations compared with BUD/GLY/FORM [0.80 vs. 0.98 PPY; RR (95% CI) 0.82 (0.77, 0.88); P < 0.001]. Stepping up to FF/UMEC/VI was also associated with a 14% lower risk of moderate-severe COPD exacerbations [HR (95% CI) 0.86 (0.81, 0.92); P < 0.001] and 18% lower risk of all-cause mortality [HR (95% CI) 0.82 (0.68, 0.99); P = 0.040] at 12 months compared with BUD/GLY/FORM.

Conclusion: In this real-world study, SITT with FF/UMEC/VI was associated with a significantly lower rate and risk of exacerbations compared with BUD/GLY/FORM in patients stepping up from dual therapy.

Keywords: All-cause mortality; Budesonide/glycopyrrolate/formoterol fumarate; Chronic obstructive pulmonary disease; Exacerbations; Fluticasone furoate/umeclidinium/vilanterol; Real-world comparative effectiveness study.

Plain language summary

Chronic obstructive pulmonary disease (COPD) is a progressive respiratory disease and one of the leading causes of death worldwide. Triple therapy (a combination of three molecules) in a single inhaler is a recommended treatment option for patients with COPD to control COPD attacks; two such single-inhaler triple therapies are available in the United States (US), Europe, and elsewhere; however, information is limited on how they compare in controlling COPD attacks in patients who have previously been treated with dual therapy (a combination of two molecules). This study assessed the effect of treatment with the single-inhaler triple therapies fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) or budesonide/glycopyrrolate/formoterol fumarate (BUD/GLY/FORM) in patients with COPD in the US who had previously used dual therapy as their most recent treatment for 90 days; a healthcare claims database was used to identify the patients. The results of the study suggest that single-inhaler triple therapy with FF/UMEC/VI was associated with a significantly lower rate and risk of COPD attacks compared with BUD/GLY/FORM in patients who had previously used dual therapy. Patients stepping up to triple therapy with FF/UMEC/VI had an 18% lower rate of COPD attacks compared with BUD/GLY/FORM, a 14% lower risk of COPD attacks a year after step up, and an 18% lower risk of death in an exploratory endpoint. These

results may help healthcare providers choose the most appropriate treatment for patients with COPD who are inadequately controlled with dual therapy and require treatment with single-inhaler triple therapy.

Conflict of interest statement

Declarations. Conflict of Interest: Jadwiga A. Wedzicha reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, and Novartis, consulting fees from AstraZeneca, EpiEndo Pharmaceuticals, GSK, Gilead, Novartis, Pfizer, Roche, and Empirico, honoraria for lectures, presentations or educational events from AstraZeneca, Boehringer Ingelheim, Glenmark, GSK, Novartis, Recipharm, Roche, and Sanofi, and participation as the data safety monitoring board chair for Virtus. Stephen G. Noorduyn, Valentina Di Boscio, Anurita Majumdar, Rosirene Paczkowski, and Stephen Weng are employees of GSK and/or hold financial equities in GSK. Stephen G. Noorduyn is also a PhD candidate at McMaster University. Olivier Le Rouzic is a principal investigator of CSL Behring and Vertex studies and reports receiving personal fees and/or congress support from AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, Grifols, GSK, LFB, and Sanofi outside the submitted work. Guillaume Germain and François Laliberté are employees of Groupe d'analyse which received funding from GSK to conduct this study but not for manuscript development. David Mannino is a consultant for AstraZeneca, the COPD Foundation, Genentech, GSK, Regeneron, and UpToDate. David Mannino is also an expert witness on behalf of people suing the tobacco and vaping industries. Ethical Approval: The study complied with all applicable laws regarding patient privacy, as described in the Declaration of Helsinki. No direct patient contact or primary collection of individual human patient data occurred in this study. This study used existing, fully de-identified data that complied with the requirements of the Health Insurance Portability and Accountability Act and the patient(s) cannot be identified, directly or through identifiers. Study results were in tabular form and aggregate analyses that omit patient identification; therefore, informed consent and ethics committee or Institutional Review Board approval were not required.

- 21 references
- 4 figures

Supplementary info

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Review

Respir Med

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. 2025 Sep:246:108243.

doi: 10.1016/j.rmed.2025.108243. Epub 2025 Jul 3.

Targeting neutrophilic inflammation in obstructive airway disease - A narrative review of brensocatib therapy

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Affiliations Expand

- PMID: 40614835

- DOI: 10.1016/j.rmed.2025.108243

Abstract

Brensocatib is an oral inhibitor of dipeptidyl peptidase 1, an enzyme that activates neutrophil serine proteases. Its potential to reduce neutrophil-driven inflammation has generated interest across a range of chronic inflammatory and respiratory conditions, particularly non-cystic fibrosis (CF) bronchiectasis. As the body of evidence supporting brensocatib continues to expand, there is a clear need for a comprehensive, rigorous, and practical narrative review to consolidate current knowledge and highlight gaps for future research. The aim of this narrative review was to systematically examine and synthesize the existing literature on brensocatib, including its pharmacology, therapeutic applications, clinical trial outcomes, safety profile, and ongoing research efforts. A systematic search was performed across major databases, EMBASE, MEDLINE, Scopus, Web of Science, Google Scholar, and ClinicalTrials.gov, through April 2025. Studies involving brensocatib in preclinical or clinical contexts were thoroughly reviewed to evaluate its efficacy and safety. Data were extracted on study design, population, dosage, outcomes, adverse events (AEs), and key findings. The most extensively studied indication was non-CF bronchiectasis, where brensocatib demonstrated a reduction in exacerbation rates and neutrophil protease activity. Preliminary evidence also suggests potential applications in CF, chronic obstructive pulmonary disease, and other neutrophilic conditions. An evaluation of the safety data indicates that the AEs reported are generally mild to moderate in severity. Brensocatib demonstrates potential as a novel anti-inflammatory therapy targeting neutrophil-mediated disease mechanisms. Further research is needed to evaluate its long-term efficacy, safety across a broader population, and its role in combination therapies.

Keywords: Brensocatib; Bronchiectasis; Dipeptidyl peptidase 1; Inflammation; Neutrophil elastase; Neutrophils.

Conflict of interest statement

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

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Multicenter Study

Respir Med

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Adverse pregnancy outcomes and lung function later in life: The CARDIA lung study

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Abstract

Background: Pregnancy events are linked to future maternal health, although relationships between adverse pregnancy outcomes (APOs) and maternal respiratory health are unknown.

Methods: This is a secondary analysis of CARDIA, a multicenter cohort study. We included all women who had delivered a live infant. APOs were defined as a history of ever having a small-for-gestational-age infant, preterm birth, gestational diabetes mellitus, or hypertensive disorder of pregnancy. Women were categorized as having no, one or >1 pregnancy with any APOs. Outcomes included year 30 lung function, annual change in lung function from year 20-30 and presence of radiographic emphysema at year 25. Adjusted linear regression was used to evaluate associations between APO category and percent predicted forced expiratory volume in 1 s (FEV_1) (ppFEV_1), forced vital capacity (FVC) (ppFVC) and annual rate of decline in FEV_1 and FVC from year 20-30.

Results: Among 657 women, those with >1 pregnancy with APOs had a significantly lower year 30 ppFEV_1 and greater annual decline in FEV_1, compared to those without APOs (β co-efficient -2.45 %; 95 % CI, -4.87 to -0.03, and -6.67 ml/year; 95 % CI, -12.90 to -0.44, respectively). However, after adjustment for parity, findings were no longer statistically significant, raising the question of whether multiparity or recurrent pregnancies with APOs may be driving associations with lower FEV_1.

Conclusions: A history of APOs may represent a novel, early indicator of worse lifetime maternal respiratory health, although larger studies accounting for multiparity and other important confounders are needed to confirm this finding.

Keywords: Cohort study; Lung function; Pregnancy; Pulmonary emphysema.

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:Ravi Kalhan reports financial support was provided by NHLBI. Jing Gennie Wang reports a relationship with American College of Chest Physicians that includes: funding grants. Sadiya Khan reports a relationship with National Heart Lung and Blood Institute that includes: funding grants. Janet Catov reports a relationship with National Institute on Aging that includes: funding grants. Abbi Lane reports a relationship with National Heart Lung and Blood Institute that includes: funding grants. Erica Gunderson reports a relationship with National Institute of Diabetes and Digestive and Kidney Diseases that includes: funding grants. Sonali Bose reports a relationship with National Heart Lung and Blood Institute that includes: funding grants. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

- 11 references

Supplementary info

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Respir Med

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A lung function threshold for survival? - FEV_1Q and mortality in patients with COPD and chronic respiratory failure

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Affiliations Expand

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- DOI: 10.1016/j.rmed.2025.108242

Free article

Abstract

Introduction: The FEV_1 quotient (FEV_1Q), calculated as the index between FEV_1 and a theoretical lower survivable FEV_1 threshold of 0.4L for females and 0.5L for males, has been investigated as a novel method of interpreting results from lung function testing. The applicability of the FEV_1Q in populations with chronic respiratory failure has not been studied, and the continuous association between the FEV_1Q and mortality is unknown.

Methods: Longitudinal analysis of data from the DISCOVERY database. First percentile values of FEV_1 were determined. The predictive ability of FEV_1Q and FEV_1 %-predicted values for overall and respiratory mortality were compared using Cox and Fine-Gray regression models with C-statistics. The continuous association between FEV_1Q and mortality was evaluated using a restricted cubic spline.

Results: A total of 5,711 patients (61 % females) with oxygen-dependent COPD were studied. First-percentile values of FEV_1 were 0.3L for females, and 0.4L for males. Higher levels of FEV_1Q were associated with a lower risk of overall and respiratory

mortality when adjusting for age, sex, height, smoking status, A-a-gradient, and education. For overall mortality, FEV_1Q and FEV1 %-predicted models had identical C-statistics of 0.60 (95 %CI 0.59-0.61). The association between FEV_1Q and overall mortality was J-shaped, with a threshold of increased risk at FEV_1Q values < 1.0.

Conclusion: While first-percentile values of FEV_1 were lower in this cohort than in previous studies, a population threshold for increased mortality risk was identified at FEV_1Q levels corresponding to those originally presented. For individual subjects, neither FEV_1Q, nor FEV1 %-predicted, were identified as useful predictors of mortality.

Keywords: FEV(1)Q; LTOT; Mortality.

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: Filip Bjorklund reports financial support was provided by Agreement concerning research and education of doctors. Magnus Ekstrom reports financial support was provided by Swedish Research Council. Andreas Palm reports a relationship with ResMed that includes: consulting or advisory. Josefin Sundh reports a relationship with AstraZeneca that includes: consulting or advisory. Josefin Sundh reports a relationship with Boehringer Ingelheim GmbH that includes: consulting or advisory. Josefin Sundh reports a relationship with Chiesi Pharmaceuticals Inc that includes: consulting or advisory. Josefin Sundh reports a relationship with Novartis that includes: consulting or advisory. Magnus Ekstrom reports a relationship with ResMed that includes: funding grants. Magnus Ekstrom reports a relationship with AstraZeneca that includes: consulting or advisory. Magnus Ekstrom reports a relationship with Boehringer Ingelheim GmbH that includes: consulting or advisory. Magnus Ekstrom reports a relationship with Novartis that includes: consulting or advisory. Magnus Ekstrom reports a relationship with Roche that includes: consulting or advisory. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

. 2025 Sep:246:108215.

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Visceral fat-to-muscle mass ratio to predict cardiovascular events and mortality in patients with chronic obstructive pulmonary disease: A prospective cohort study

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Affiliations Expand

- PMID: 40571165

- DOI: 10.1016/j.rmed.2025.108215

Abstract

Background: Chronic obstructive pulmonary disease (COPD) patients can have increased cardiovascular events risk, which might be impacted by an imbalance between fat and muscle mass. This study explores the relationships between visceral fat-to-muscle mass ratio (VMR) and cardiovascular events and mortality in COPD patients.

Methods: A prospective cohort study was performed on COPD patients from May 2018 to December 2023. Baseline information and VMR were collected. The primary outcome was major adverse cardiovascular events (MACE), including cardiovascular death, myocardial infarction, stroke, and exacerbation of congestive heart failure. Secondary outcomes were non-fatal cardiovascular events and mortality. Cox regression models, Kaplan-Meier curves, and restricted cubic splines were applied to assess the relationship between VMR and outcomes.

Results: Of 1045 COPD patients, 138 (13.2 %) experienced MACE, and 169 (16.2 %) experienced non-fatal cardiovascular events and mortality during an average of 62-month follow-up period. VMR was nonlinearly associated with MACE (P = 0.023), with one-standard-deviation VMR increase leading to a 50 % increase in MACE risk (hazard ratio, HR, = 1.50, 95 % confidence interval, CI = 1.17-1.93) and 20 % increase in non-fatal cardiovascular event and mortality risk (HR = 1.20, 95 % CI = 1.08-1.34). The cumulative MACE incidence rose with higher VMR categories (log-rank P < 0.0001). In the fully adjusted model, the highest VMR quartile was significantly associated with a greater MACE risk than the lowest VMR (HR = 5.18, 95 % CI = 2.75-9.75). Sensitivity analyses confirmed the robustness of these findings. Subgroup analyses indicated a more significant VMR impact in those below 60.

Conclusions: Elevated VMR was associated with increased MACE among COPD patients.

Keywords: Cardiovascular events; Chronic obstructive pulmonary disease; Mortality; Muscle mass; Visceral fat.

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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Meta-Analysis

Int J Infect Dis

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. 2025 Sep:158:107958.

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Risk of severe outcomes from COVID-19 in comorbid populations in the Omicron era: A systematic review and meta-analysis

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Affiliations Expand

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- **DOI: 10.1016/j.ijid.2025.107958**

Free article

Abstract

Objectives: This is the first meta-analysis assessing mortality and hospitalization risk from COVID-19 in individuals with comorbidities versus those without during the Omicron era.

Methods: A systematic search (Embase, MEDLINE, PubMed, Europe PMC, Latin American and Caribbean Health Sciences Literature, Cochrane COVID-19 Study Register, WHO COVID-19 Database) identified studies published between January 2022 and March 2024. Studies included people with at least one of the following comorbidities: cardiovascular/cerebrovascular disease, chronic lung conditions, diabetes, and obesity. Studies were synthesized quantitatively using random-effect models. Evaluated outcomes were risk of death, hospitalization, intensive care unit (ICU) admission, and any combination of these outcomes.

Results: Of 72 studies, 68 were meta-analyzed. Participant numbers per comorbidity ranged from 328,870 to 13,720,480. Risks of death, hospitalization, and the combined outcome were increased in individuals with cerebrovascular disease, chronic obstructive pulmonary disease, diabetes, respiratory diseases, heart disease, and heart failure (pooled relative risk [RR] range: 1.27 [heart disease, hospitalization; 95% CI: 1.17-1.38] to 1.78 [heart failure, death: 95% CI: 1.46-2.16]). Diabetes and obesity were associated with increased ICU admission risk (RR: 1.20, 95% CI: 1.04-1.38; RR: 1.32, 95% CI: 1.11-1.57, respectively).

Conclusion: During the Omicron era, individuals with comorbidities faced increased risks of severe outcomes from COVID-19.

Keywords: COVID-19; Cardiovascular diseases; Chronic obstructive pulmonary disease; Comorbidity; Diabetes mellitus; SARS-CoV-2.

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: Sultan Abduljawad is an employee of BioNtech UK Ltd. Dan H. Barouch has no conflicts of interest. Akvile Chapman is an employee of Maverex Ltd., which received consulting fees from BioNTech SE. Gregory Y. H. Lip is a consultant and speaker for BMS/Pfizer, Boehringer Ingelheim, Daiichi Sankyo, and Anthos. No fees were received personally. He is a National Institute for Health and Care Research (NIHR) Senior Investigator. Triantafyllos Pliakas receives consulting fees from BioNTech SE, GlaxoSmithKline, UNAIDS, and USAID. Eva Polverino receives speaker and consultancy fees from Pfizer and Moderna. Harald Sourij receives consulting fees and speaker's honoraria from Amgen, Amarin, Bayer, Boehringer Ingelheim, Cancom, Daiichi Sankyo, Eli Lilly, Novo Nordisk.

Supplementary info

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Int J Infect Dis

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Estimating global antibiotic needs for chronic obstructive pulmonary disease and community- and hospital-acquired pneumonia in 20 countries: A modelling analysis

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Affiliations Expand

- PMID: 40541770

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Free article

Abstract

Introduction: Antibiotic stewardship advocates for prudent antibiotic use. However, estimates of "appropriate" antibiotic use remain limited.

Methods: We estimated the total antibiotics required to treat chronic obstructive pulmonary disease (COPD) exacerbations and pneumonia in 2019 across the 20 most populous countries. Antibiotic needs were determined according to World Health Organization AWaRe guidelines. The proportion of cases requiring antibiotics was based on bacterial etiology averages. Patients not responding to first-line treatment were assumed to either recover after second-line treatment, discontinue further care, or die during treatment. Where two treatment options were available, patients were assumed to be evenly split.

Results: Penicillins (76.1%) and cephalosporins (22.6%) were the most frequently needed antibiotics for treatment of community-acquired pneumonia, followed by hospital-acquired pneumonia and COPD exacerbations. India and China were estimated as the greatest consumers of penicillins (37% and 21% of total use, respectively), followed by the US, Brazil, and Indonesia (15% combined). Per capita penicillin consumption was highest in India, Brazil, and Germany. In total, 2276,046 and 676,098 million mg of penicillins and cephalosporins, respectively, were needed.

Conclusion: Prudent antibiotic use is essential to curb antimicrobial resistance. This framework offers a method for estimating needs and informing global planning.

Keywords: Antibiotic stewardship; Antimicrobial resistance; COPD; Pneumonia.

Conflict of interest statement

Declarations 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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Am J Respir Crit Care Med

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. 2025 Sep;211(9):1600-1609.

doi: 10.1164/rccm.202408-1602PP.

Post-COPD: Can Emphysema Be Repaired?

J Michael Wells [1 2 3], Jerry A Krishnan [4 5], R Chad Wade [1 2 3], Greg Kinney [6], Robert A Wise [7], Enid Neptune [7], Francesca Polverino [8], Nicola A Hanania [8], Matthew Moll [9 10 11], Melanie Königshoff [12], Divay Chandra [12], Frank Sciurba [12], Nathaniel Marchetti [13], Raúl San José Estépar [14], Alejandro A Diaz [14], Karim El-Kersh [15], Mario Castro [16], Ying Zhang [17], Janet T Holbrook [18], Elizabeth A Sugar [18], Monica Kraft [19], Robert J Kaner [20 21], Barry Make [22], Stephen Rennard [23]

Affiliations Expand

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Supplementary info

Grants and fundingExpand

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Observational Study

Clin Lung Cancer

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Mortality in a Diverse, Real-World Lung Cancer Screening Cohort

Mary E Gwin [1], Tanushree Prasad [2], Urooj Wahid [2], Sheena Bhalla [3], Song Zhang [2], Jessica L Lee [2], David H Johnson [3], George Oliver [4], Lauren Vice [5], Cornelia Tan [5], Cynthia Watkins [5], David E Gerber [6]

Affiliations Expand

- PMID: 40480945

- DOI: 10.1016/j.cllc.2025.05.004

Abstract

Background: Lung cancer screening (LCS) is indicated exclusively for older individuals with substantial tobacco use, a risk factor not only for lung cancer but also for other malignancies, cardiovascular disease, and chronic obstructive pulmonary disease. Because LCS trial populations are commonly regarded as healthier than the broader LCS-eligible population, the real-world mortality rate among individuals undergoing LCS represents a key consideration in LCS implementation.

Methods: We performed a retrospective, observational cohort study of individuals for whom LCS was ordered between March 2017 and December 2022 in an integrated safety-net healthcare system. Demographic characteristics and Charlson

comorbidity index were obtained from the medical record. Dates and causes of death were captured from the medical record and National Death Index. We compared mortality according to patient characteristics using Cox proportional hazard ratios.

Results: A total of 1598 patients (mean age 62 years, 43% female, 45% Black, 18% Hispanic) were included in the analysis, of whom 60% had moderate and 20% severe comorbidity; 91% of patients were current smokers. With a median follow-up of 31.3 months, 93 patients (6%) had died. For patients without a date of death, 55% had an encounter in the healthcare system within 3 months of data collection. Mortality was significantly associated with age (HR 1.06; 95% CI, 1.02-1.11; P = .01), but not with patient sex, race, comorbidity, smoking status, or LCS completion.

Conclusions: Despite substantial comorbidity burden, short-term mortality is low in a diverse, real-world LCS population, suggesting potential for benefit from screening and early detection of lung cancer.

Keywords: Comorbidity; Diversity; National Death Index; Safety-net; Smoking.

Conflict of interest statement

Disclosure The authors have stated that they have no conflicts of interest.

Supplementary info

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Meta-Analysis

J Cardiopulm Rehabil Prev

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Optimal Pulmonary Rehabilitation Program and Timing of Program Initiation for Patients With Chronic Obstructive Pulmonary Disease: A Systematic Review and Network Meta-Analysis

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Affiliations Expand

- PMID: 40455963

- DOI: 10.1097/HCR.0000000000000954

Abstract

Purpose: Evidence for optimal timing of pulmonary rehabilitation initiation, especially during stable chronic obstructive pulmonary disease (COPD) or following its acute exacerbation (AE), is conflicting.

Review methods: PubMed, EMBASE, and Cochrane CENTRAL were systematically searched before August 2022. The identified interventions were classified as single-component programs (endurance, resistance, and respiratory muscle training) and multi-component programs (combinations of these interventions). The revised risk-of-bias tool 2.0 was used to assess the risk of bias of the included studies. Network meta-analyses were performed separately for stable COPD and AECOPD using a random-effects model to calculate mean differences (MD). A total of 52 trials with 2,828 patients were included. For patients with stable COPD, multi-component programs combining endurance, resistance, and respiratory muscle training significantly improved the six-minute walk test (6MWT) distance (MD = 72.09: 95% CI, 48.16-96.02 meters) compared to usual care. In AECOPD, post-discharge initiation of rehabilitation with a combination of endurance and resistant training significantly reduced the readmission rate (OR = 0.44: 95% CI, 0.21-0.91); conversely, pre-discharge initiation with endurance training alone achieved the most significant improvements in both the readmission rate (OR = 0.09: 95% CI, 0.01-0.56) and 6MWT distance (MD = 167.69: 95% CI, 81.23-254.15 meters).

Summary: The integration of endurance, resistance, and respiratory muscle training improved exercise capacity in patients with stable COPD. Prioritizing endurance training prior to discharge demonstrated the most favorable outcomes in both readmission rates and exercise capacity for patients with AECOPD, although further validation is needed.

Keywords: acute exacerbation; chronic obstructive pulmonary disease; network meta-analysis; pulmonary rehabilitation; systematic review.

Conflict of interest statement

The authors declare that they have no conflict of interest.

- 19 references

Supplementary info

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Am J Emerg Med

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Serum troponin testing and adverse cardiovascular outcomes in supraventricular tachycardia: A retrospective study from TriNetX

Samantha Camp [1], Ameen Elhamdani [2], Samrawit Zinabu [3], Patrick McGinnis [4], Nateniel Mearns-Escobar [5], Miriam Michael [6], Ali Pourmand [7], Becker A Brent [8], Bennett A Myers [9], Quincy K Tran [10]

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- PMID: 40349636

- DOI: 10.1016/j.ajem.2025.04.067

Abstract

Introduction: Emergency department (ED) patients presenting with supraventricular tachycardia (SVT) often undergo laboratory testing, including troponin levels, despite previous literature suggesting an overall low prevalence of major adverse cardiac events (MACE) in this population. Better understanding of the prognostic utility of troponin in patients with SVT may help optimize disposition of these patients. We aimed to compare rates of 30-day MACE among SVT patients with serum troponin testing (YesTrop) versus those without (NoTrop).

Methods: This retrospective, propensity-score-matched cohort study was completed using the TriNetX database. TriNetX includes data from 93 different large healthcare organizations (HCOs) with over 132 million patient records, including over 500,000 patients with a diagnosis of SVT presenting to an ED. Patients were included if they presented to ED with first-time SVT, with or without troponin

testing. Patients were excluded if they had previous MACE history. Propensity-score matching was performed according to past medical history, triage vital signs, and laboratory markers. Statistical analyses, including risk analysis and outcome frequency, were conducted using TriNetX analytical tools.

Results: The TriNetX database yielded a total of 225,778 patients meeting inclusion criteria with 31,291 included in each group after propensity score matching. Mean age (+/- Standard Deviation [SD] was 58 +/- 18 years), 17,043 (54.5 %) were female and a majority were white (69.8 %). Individual components of MACE with the greatest risk difference were acute myocardial infarct with a risk difference of -3.3 % (95 % CI -0.356 to -0.299, p < 0.001) and heart failure with a risk difference of -3.8 % (95 % CI -0.414 to -0.336, p < 0.001). Total MACE for the NoTrop group was 10.5 % (3816 events) vs 21.6 % (7826 events) in the YesTrop group (Risk difference 11.1 %, 95 % CI -0.11 to -0.116, P < 0.001). Higher percentage of YesTrop group had hospital diagnoses of hypertension, diabetes, and chronic respiratory diseases, including COPD, emphysema, and bronchitis.

Conclusion: In this study involving a large number of patients with SVT, patients who had serum troponin evaluation were associated with higher-risk of 30-day MACE events. However, patients who had troponin evaluation also had higher rates of comorbidity that might have prompted clinicians to check troponin. Until further studies are available, clinicians should exercise their clinical judgement in weighing the risks and benefits of ordering troponin on patients presenting with SVT.

Keywords: SVT; Troponin.

Conflict of interest statement

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

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Cite

28

Eur J Clin Invest

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doi: 10.1111/eci.70054. Epub 2025 May 8.

Impact of smoking in MINOCA patients

Hersh Osman [1 2], Clara Schlettert [3], Daniel Materzok [3], Muharrem Akin [3], Mohammad Abumayyaleh [4], Ibrahim Akin [4], Andreas Mügge [1 2 3], Assem Aweimer [5], Nazha Hamdani [1 2 3 6 7], Ibrahim El-Battrawy [1 3]

Affiliations Expand

- PMID: 40342090

- DOI: 10.1111/eci.70054

Abstract

Background: Considerable research has been conducted in recent years on patients afflicted with myocardial infarction with nonobstructive coronary disease (MINOCA), focussing on its prognosis, prevalence and predisposing risk factors. Nevertheless, there remains a dearth of information regarding the baseline characteristics and outcomes of MINOCA patients with a history of smoking. This study endeavours to examine the in-hospital complications and baseline characteristics of a presumed MINOCA cohort comprising individuals with a history of smoking.

Methods: In this study, a total of 373 patients (85 current smokers and 283 non-smokers), who exhibited elevated troponin levels but had no evidence of obstructive coronary artery disease, were enrolled between 2010 and 2021. MINOCA patients had to fulfil the modified criteria for acute myocardial infarction (AMI) based on the 'Fourth Universal Definition of Myocardial Infarction', including an up- or downregulated troponin level with at least one value exceeding the 99th percentile, along with clinical evidence of infarction (e.g. ischaemic ECG changes, myocardial damage or coronary thrombus). Additionally, patients with less than 50% stenosis of a major epicardial vessel without intervention and those with alternative diagnoses mimicking troponin-positive nonobstructive coronary disease were excluded. It should be noted that there were five patients for whom data regarding smoking status were not available. The primary objective of this investigation was to evaluate the occurrence of various in-hospital events, including pulmonary oedema, invasive ventilation, cardiogenic shock, stroke, cardiopulmonary resuscitation, malignant cardiac arrhythmias, supraventricular arrhythmias, left ventricular thrombus, thromboembolic events and in-hospital mortality. Additionally, long-term cardiovascular events were assessed over an 11-year follow-up period.

Results: Baseline demographics in smokers and non-smokers showed notable differences in the prevalence of supraventricular arrhythmia, particularly atrial fibrillation (5.8% vs. 17.4%; p = .020), diabetes mellitus (DM) (10.5% vs. 19.7%; p = .051), kidney disease (9.3% vs. 15.9%; p = .075) and chronic obstructive pulmonary disease (COPD) (18.6% vs. 10.8%; p = .057). The occurrence of in-hospital cardiovascular events and mortality rates was found to be comparable between smokers and non-smokers. However, non-smokers experienced a higher incidence of long-term cardiovascular events compared to smokers. A multivariable Cox analysis for long-term outcomes indicated that individuals under the age of 50 who

were smokers had a more favourable outcome. Nonetheless, the presence of DM, supraventricular tachycardia, pulmonary disease and neurological disease were all associated with a diminished long-term prognosis.

Conclusion: Although the long-term health outcomes for smokers are comparatively superior to those of non-smokers, this contrast can be attributed to the increased incidence of cardiovascular comorbidities and the older age distribution within the non-smoking population.

Keywords: arrhythmias; atrial fibrillation; in-hospital complication; myocardial infarction; nonobstructive coronary artery disease; smoking.

- 31 references

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

29

Am J Cardiol

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. 2025 Sep 1:250:70-78.

doi: 10.1016/j.amjcard.2025.04.028. Epub 2025 May 6.

Incidence and Risk of Heart Failure in Patients With Coronary Heart Disease and Stroke: A Population-Based Cohort Study

Xiaofei Liu [1], Peng Shen [2], Yi Chen [1], Yexiang Sun [2], Qi Chen [2], Hongbo Lin [2], Xun Tang [3], Pei Gao [4]

Affiliations Expand

- PMID: 40339776

- DOI: 10.1016/j.amjcard.2025.04.028

Free article

Abstract

Heart failure (HF) is a major global health issue, with coronary heart disease (CHD) and stroke being risk factors with different mechanisms. The risk of HF in stroke patients remain poorly characterized despite the potential contributions of "stroke-heart syndrome." This study aimed to evaluate HF incidence and risk factors across different cardiovascular disease (CVD) subtypes in a large population-based Chinese cohort. This study included 13,258 CVD patients, i.e. 3,470 patients with CHD (including 610 with myocardial infarction [MI]) and 10,048 with total stroke (comprising 8,631 ischemic and 1,515 hemorrhagic stroke), and 66,290 age- and sex-matched controls without CVD (1:5 ratio). The primary outcome was new-onset HF. Cumulative incidence functions were estimated with non-HF death as a competing event, stratified by CVD subtypes. Cox proportional hazard models were used to assess the risk factors of HF and compare relative hazard ratio (HR) between CHD and stroke patients. The 10-year cumulative incidence of HF was 25.3% in patients with CHD (24.6% in MI patients), 13.5% in stroke patients (14.7% and 7.3% for ischemic and hemorrhagic stroke, respectively), and 6.9% in controls. Hypertension (81.8% in CHD, 81.0% in stroke) significantly increased HF risk compared to those without it (incidence rate ratio: 1.74, 95% CI: 1.41 to 2.12 for stroke; 1.42, 95% CI: 1.12 to 1.78 for CHD). Obesity showed a stronger association with HF in stroke patients than in CHD patients (HR: 1.43, 95%CI: 1.15 to 1.78 vs 0.94, 95%CI: 0.69 to 1.28, ratio of HRs: 1.67, 95% CI: 1.14 to 2.42). Other significant risk factors in both CHD and stroke patients include older age, male sex, former smoking, diabetes, chronic kidney disease, and chronic obstructive pulmonary disease. In conclusion, heart failure incidence varies by CVD subtypes, with the highest risk rates in CHD and MI patients, followed by stroke. Hypertension and obesity notably increase HF risk for stroke patients. Tailored risk management strategies are needed, considering the differential impact of risk factors across CVD subtypes.

Keywords: coronary heart disease; heart failure; risk factor; stroke; survival.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Pei Gao reports financial support was provided by Beijing Natural Science Foundation and Noncommunicable Chronic Diseases - National Science and Technology Major Project of China. Xun Tang reports financial support was provided by National Natural Science Foundation of China. Pei Gao reports a relationship with Bayer that includes: funding grants. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

MeSH termsExpand

Full text links

Cite

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Ann Am Thorac Soc

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. 2025 Sep;22(9):1335-1342.

doi: 10.1513/AnnalsATS.202411-1200OC.

Fine Particulate Matter and Mortality in Chronic Obstructive Pulmonary Disease with Multimorbidity

Camille E Robichaux [1], Arianne K Baldomero [1 2 3], Amy A Gravely [4], Chris H Wendt [1 2], Jesse D Berman [5]

Affiliations Expand

- PMID: 40315387

- DOI: 10.1513/AnnalsATS.202411-1200OC

Abstract

Rationale: Exposure to particulate matter with an aerodynamic diameter ≤2.5 μm ($PM_{2.5}$) is associated with respiratory dysfunction and increased risk of death. The U.S. Environmental Protection Agency has established regulatory standards for long-term exposure in the general population, but the risk for individuals with existing respiratory disease is unclear. Objectives: Estimate the association between long-term $PM_{2.5}$ exposure and mortality in individuals with chronic obstructive pulmonary disease (COPD), including the modifying effects of comorbidities at low levels of exposure. Methods: We performed a retrospective cohort analysis of all patients with a COPD diagnosis in the Veterans Health Administration between 2016 and 2019. Annual ambient concentrations of $PM_{2.5}$ were obtained from publicly available pollutant models and spatially assigned to patient households. Primary outcomes were adjusted odds of mortality per 1-$\mu g/m^3$ increase in 5-year $PM_{2.5}$ concentrations and identification of comorbidities associated with increased susceptibility. Results: Medical records from 1,124,973 veterans with COPD were analyzed. Most of the cohort were male (95.60%), and the cohort had diverse racial, socioeconomic, and geographic characteristics. The odds of death was 3.8% higher for every 1-$\mu g/m^3$ increase in long-term $PM_{2.5}$ (adjusted odds ratio [aOR], 1.038; 95% confidence interval [CI], 1.035-1.040). For people with comorbid lung cancer (aOR, 1.051; 95% CI, 1.035-1.068), coronary arterial disease

(aOR, 1.039; 95% CI, 1.033, 1.044), or chronic kidney disease (aOR, 1.042; 95% CI, 1.034, 1.049), the risk of death was significantly higher than for those without. Conclusions: The risk of mortality increases at even small magnitudes of increased $PM_{2.5}$ concentrations in people with COPD. The risk was higher for those with comorbid lung cancer, coronary artery disease, and chronic kidney disease. The current standard of 9 $\mu g/m^3$ for the general population should be reevaluated for those with existing COPD.

Keywords: air pollution; chronic kidney diseases; coronary artery disease; lung cancer; obstructive lung disease.

Comment in

- Chronic Exposure to $PM_{2.5}$ Can Be Deadly for People with Chronic Obstructive Pulmonary Disease.

Aaron SD.Ann Am Thorac Soc. 2025 Sep;22(9):1297-1298. doi: 10.1513/AnnalsATS.202507-703ED.PMID: 40632892 No abstract available.

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

Full text links

AnnalsATS Full Text UNIMORE

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31

Meta-Analysis

Heart Lung

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. 2025 Sep-Oct:73:33-41.

doi: 10.1016/j.hrtlng.2025.04.024. Epub 2025 Apr 23.

Association between patent foramen ovale and chronic obstructive pulmonary disease: A systematic review and meta-analysis

Sruthy Balakumar [1], Naya Nadeem [2], Areeba Asghar [3], Claudia Frankfurter [4], Ashley Farrell [5], Eduardo Flores-Umanzor [6], Eric Horlick [7], Lusine Abrahamyan [8]

Affiliations Expand

- PMID: 40273808

- DOI: 10.1016/j.hrtlng.2025.04.024

Abstract

Background: Patent foramen ovale (PFO) is a defect in the intra-atrial septum that occurs when the foramen ovale does not close postnatally. Chronic obstructive pulmonary disease (COPD) is a respiratory condition that causes airflow obstruction.

Objective: This systematic review aimed to consolidate current evidence on the association between PFO and COPD outcomes.

Methods: We searched Medline, Embase, and Cochrane databases from inception to November 2023 for studies conducted among adults who have been diagnosed with COPD and underwent testing for PFO. A structured data extraction sheet was created to collect data from selected studies. A meta-analysis with a random effects model was considered when feasible.

Results: The initial search identified 765 records. After screening for eligibility, we included six cross-sectional and three case report studies. In cross-sectional studies, patients with COPD had almost three times higher odds of having PFO than controls (OR = 2.72, 95 % CI: 1.57 to 4.70, I^2 =0 %). When comparing COPD patients with and without PFO, the pooled mean difference was -2.99 mmHg; 95 % CI:5.55 to -0.44, I^2 =77 %) in oxygen saturation (SaO2), -6.85 mmHg (95 %CI:11.71 to -2.39, I^2 =35 %) in arterial oxygen partial pressure (PaO2) and 9.65 mmHg (95 %CI: 3.38 to 12.92, I^2 =0 %) in pulmonary arterial pressure.

Conclusions: Evidence, based on a few and small size studies, indicates that PFO presence may be associated with worse outcomes in COPD patients. The long-term impact of these findings on COPD outcomes and the need for identifying high-risk patients for PFO screening should be evaluated.

Keywords: Chronic obstructive pulmonary disease; Hypoxemia; Patent foramen ovale; Systematic review.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Dr. Horlick is a consultant for Abbott, Edwards, and Medtronic. He has received research grants from Abbott and Occlutech for other projects. The Structural Heart Disease program at the University Health Network receives educational support from Abbott, Edwards, and Medtronic. Abbott, Edwards, Medtronic, or Occlutech were not involved in the planning or execution of this study and have not seen or reviewed this manuscript. All other authors have no conflict of interest. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

Publication types, MeSH termsExpand

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Review

Am J Cardiovasc Drugs

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. 2025 Sep;25(5):577-592.

doi: 10.1007/s40256-025-00732-1. Epub 2025 Apr 19.

Appraisal of β-Blocker Use in Patients with Cardiovascular Disease and Chronic Obstructive Pulmonary Disease

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Affiliations Expand

- PMID: 40252175

- PMCID: PMC12378896

- DOI: 10.1007/s40256-025-00732-1

Abstract

β-blockers are a fundamental component of cardiovascular disease (CVD) management, while β_2-agonists are used to treat chronic obstructive pulmonary disease (COPD). Current guidelines recommend that these conditions be treated as usual, even when they coexist. However, there have been concerns over COPD exacerbation risk with β-blockers and attenuation of the beneficial effects of β_2-agonists in this comorbid population, leading to β-blocker underuse. Recent evidence suggests that β-blockers, particularly cardioselective β-blockers, do not increase COPD exacerbations, demonstrate good efficacy and safety, and improve

survival in patients with COPD after first-time myocardial infarction. In atrial fibrillation with COPD, both cardioselective and nonselective β-blockers may be associated with a lower COPD exacerbation risk than calcium channel blockers, as well as improving outcomes and reducing mortality risk. In this review, we summarize the β-blocker prescribing patterns in patients with CVD and COPD; describe the reasons for β-blocker underuse in patients with CVD with COPD; collate up-to-date evidence on the effects of β-blockers on symptoms and outcomes in each of these comorbid populations; and review the current treatment guidelines for coexisting COPD and CVD to support the rational prescribing of β-blockers. Finally, we provide recommendations for future research needed to demonstrate the clinical rationale of prescribing β-blockers and to encourage the generation of more robust evidence-based guidelines for β-blockers use. Future large-scale, prospective, randomized controlled trials are needed to expand the body of evidence and better understand the effects of β-blockers in CVD with comorbid COPD.

Conflict of interest statement

Declarations. Funding: This work was supported by funding from the Clinical Research Foundation of the Cardiovascular Society of the Chinese Medical Association and the 2022–2024 Guangdong Basic and Applied Basic Research Foundation to the authors' institutions, Guangdong National Science Foundation (Nos. 2022A1515012161, 2022A1515010227, 2023A1515011794, 2024A1515010458) and by Merck Serono Co., Ltd, Beijing, China. Conflict of interest: Q.Y. is an employee of Merck Serono Co., Ltd, China (an affiliate of Merck KGaA Darmstadt, Germany). All other authors report no conflict of interest. Ethics approval: Not applicable. Consent to participate: Not applicable. Consent for publication: Not applicable. Availability of data and material: No new data were generated or analyzed in support of this research. Code availability: Not applicable. Author contributions: All authors were involved with the conception and design of this manuscript, the drafting and critical revision of the manuscript, and final approval of the manuscript.

- 69 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Cite

33

Am J Respir Crit Care Med

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. 2025 Sep;211(9):1652-1661.

doi: 10.1164/rccm.202501-0028OC.

Oscillometry-defined Small Airway Dysfunction in Tobacco-exposed Adults with Impaired or Preserved Airflow

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Affiliations Expand

- PMID: 40173271

- DOI: 10.1164/rccm.202501-0028OC

Abstract

Rationale: Small airway dysfunction (SAD) is a key feature of chronic obstructive pulmonary disease and might present in tobacco-exposed adults with normal spirometry. So far, the role of oscillometry-defined SAD in this population is largely unexplored. Objective: To investigate the prevalence of oscillometry-defined SAD and its associations with airway structural changes, quality of life (QoL), metabolic disease, and cardiovascular disease (CVD) in tobacco-exposed adults with impaired airflow or preserved airflow (PA). Methods: In a subcohort (*n* = 1,628) nested within a lung cancer screening trial, we assessed airway disease using pre-bronchodilator spirometry, oscillometry, and artificial intelligence-powered computed tomography. Impaired airflow included airflow obstruction (AFO) and preserved ratio impaired spirometry (PRISm). Subjects with PA, defined as FEV_1 and FEV_1:FVC greater than the lower limit of normal, were further stratified as PA with SAD (PA-SAD) or normal lung function. SAD was defined as the frequency dependence of resistance or reactance area greater than the upper limit of normal. Computed tomography biomarkers included airway wall thickness, luminal diameter, branch count, and emphysema. QoL was measured using the euroqol 5-dimension 5-level (EQ-5D-5L). Measurements and Main Results: The overall prevalence of SAD was 39%. SAD was present in 26% of subjects with PA and in 60% of those with impaired airflow. The frequency of AFO, PRISm, and PA-SAD was 21%, 15%, and 16%, respectively. Similar to those with impaired airflow, subjects with PA-SAD had lower EQ-5D-5L scores, greater airway wall thickness, narrower lumen, lower branch count, and higher rate of metabolic disease and CVD than those with normal lung function (*P* < 0.01 for all). However, they had minimal emphysema and significantly higher branch count than those with AFO. Subjects with AFO or PRISm and concurrent SAD had greater structural changes and more frequent CVD than those with AFO or PRISm alone. SAD was associated with CVD (odds ratio, 1.91 [95% confidence interval, 1.55-2.36]), even after adjusting for confounders and metabolic

disease. Conclusions: SAD is highly prevalent among tobacco-exposed adults and is associated with airway structural changes, impaired QoL, and an increased rate of CVD, even among those with PA. PA-SAD is distinct from AFO by its preserved airway count and minimal emphysema.

Keywords: PRISm; SAD; airway wall thickness; emphysema; oscillometry.

Comment in

- Understanding Small Airway Dysfunction in Tobacco-Exposed Adults Using Oscillometry.

Baalachandran R, Kaminsky DA.Am J Respir Crit Care Med. 2025 Sep;211(9):1543-1544. doi: 10.1164/rccm.202504-0921ED.PMID: 40608420 No abstract available.

Supplementary info

MeSH terms, Grants and fundingExpand

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Comparative Study

Eur Radiol

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. 2025 Sep;35(9):5626-5634.

doi: 10.1007/s00330-025-11471-x. Epub 2025 Mar 6.

CT features of pathologically proven smoking-related interstitial fibrosis: compared with emphysema and usual interstitial pneumonia

ChanU Jeong [#1], Taein An [#1,2], Myung Jin Chung [1], Joungho Han [3], Hongseok Yoo [4], Yoon Ki Cha [5]

Affiliations Expand

- PMID: 40047919

- DOI: 10.1007/s00330-025-11471-x

Abstract

Objectives: To differentiate smoking-related interstitial fibrosis (SRIF) from emphysema and usual interstitial pneumonia (UIP) using CT.

Materials and methods: From January 2016 to October 2023, a total of 123 patients who underwent lung surgery with pathologically proven SRIF (n = 23), emphysema (n = 50), and UIP (n = 50) were included. Three radiologists retrospectively reviewed preoperative chest CTs for imaging features of centrilobular/paraseptal emphysema, multiple thin-walled cysts (MTWC), honeycombing, traction bronchiectasis, subpleural ground-glass opacity (GGO)/reticulation, and presence of smoking-related disease (SRD) and compared the CT features by subgroup.

Results: A total of 123 patients (23 SRIF, 50 emphysema, 50 UIP; mean age, 64.9 ± 8.96 years; 99 males) were involved. Centrilobular emphysema, paraseptal emphysema, MTWC, honeycombing, traction bronchiectasis, subpleural GGO/reticulation, and SRD were identified in SRIF (100%, 100%, 73.9%, 8.7%, 100%, 100%, 47.8%), emphysema (94%, 60%, 2%, 2%, 4%, 8%, 10%), and UIP (48%, 40%, 0%, 42%, 100%, 100%, 6%) cases, respectively. In the univariable analysis of SRIF and emphysema, MTWC, traction bronchiectasis, subpleural GGO/reticulation, and the presence of SRD were predictive features of SRIF (all $p < 0.05$). In the multivariable analysis of SRIF and emphysema, MTWC and subpleural GGO/reticulation were predictive of SRIF (all $p < 0.05$). In both univariable and multivariable analyses of SRIF and UIP, MTWC and the presence of SRD were predictive features of SRIF (all $p < 0.05$), whereas honeycombing was significant only in univariable analysis ($p = 0.01$).

Conclusion: Imaging features of MTWC, subpleural GGO/reticulation, and the presence of SRD on CT may help differentiate SRIF from emphysema and UIP.

Key points: Question SRIF is recognized as a separate entity; however, insufficient radiological studies have been conducted. Findings CT imaging features of MTWC, subpleural GGO/reticulation, and the presence of SRD are predictive factors for SRIF. Clinical relevance SRIF, emphysema, and UIP have overlapping imaging/clinical features but different treatments and prognoses. As treatment for UIP slows the disease progression, accurate differentiation based on imaging findings is essential for improving prognosis.

Keywords: Computed tomography; Emphysema; Smoking-related interstitial fibrosis; Usual interstitial pneumonia.

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Prof. Yoon Ki Cha. Conflict of interest: The authors of this manuscript declare no relationships with any companies, whose products or services may be related to the subject matter of the article. Statistics and biometry: One of the authors (Taein An) has significant statistical expertise. Informed consent: Written informed consent was waived by the Institutional Review Board. Ethical approval: Institutional Review Board approval was obtained. Study subjects or cohorts overlap: Some study subjects or cohorts have not been previously reported in any

other journal. Methodology: Retrospective Observational Performed at one institution

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

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Observational Study

Int J Geriatr Psychiatry

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. 2025 Sep;40(9):e70147.

doi: 10.1002/gps.70147.

Barthel Index Score at Admission to Predict 1-Month and 1-Year Prognosis in Inpatients Aged ≥ 75 Years With Multimorbidity

Xin Chen [1 2], Chen-Lu Zhang [1 2], Hua Jiang [1 2]

Affiliations Expand

- PMID: 40875287

- DOI: 10.1002/gps.70147

Abstract

Objective: To investigate the Barthel Index (BI) score in predicting the 1-month and 1-year prognosis after discharge.

Methods: This was a retrospective observational single-center study. We retrospectively enrolled consecutive inpatients aged ≥ 75 years from a large public hospital. Information of the basic demographic variables, BI score, disease burden, length of hospital stay, medical cost and outcomes of patients were collected. Then we analyzed the association between BI score and clinical outcomes.

Results: A total of 242 subjects were included in this study. The median of BI score was 40 (5, 70). There were 48.76% and 82.23% patients with poor prognosis within 1 month and 1 year after discharge. BI remained an independent predictor of poor outcome within 1 month (P < 0.001) and 1 year (P = 0.027) after adjusting other factors. BI score was negatively correlated with poor outcomes. The calibration of 1-year outcomes was better than that of 1-month outcomes. The ROC analysis

showed the AUC of the BI in predicting 1-month and 1-year outcomes were 0.860(P < 0.001) and 0.674(P < 0.001) respectively. The cutoff values for BI to predict 1-month and 1-year outcomes were 42.5 and 52.5.

Conclusions: The BI score at admission was an useful predictor of outcomes within 1 month and 1 year after discharge for very elderly multimorbidity inpatients.

Keywords: Barthel Index; elderly; multimorbidity; outcome.

- 27 references

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

Full text links

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Neth Heart J

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. 2025 Sep;33(9):270-280.

doi: 10.1007/s12471-025-01968-x. Epub 2025 Jul 18.

Hospital healthcare utilisation in patients with atrial fibrillation: the role of multimorbidity and age

Melissa E Middeldorp [1], Colinda van Deutekom [1], Liann I Weil [2], Ursula W De Ruijter [3], Patrick T Jeurissen [4], Isabelle C Van Gelder [1], Barbara C van Munster [2], Michiel Rienstra [5]

Affiliations Expand

- PMID: 40679582
- PMCID: PMC12364794
- DOI: 10.1007/s12471-025-01968-x

Abstract

Background: Patients with atrial fibrillation (AF) often present with multimorbidity and may require a higher healthcare utilisation. We aimed to compare hospital healthcare utilisation among AF patients to non-cardiovascular disease (non-CVD) patients and explore the role of multimorbidity and age.

Methods: We performed a retrospective cohort study using electronic health records data from three hospitals in the Netherlands. Patients aged ≥ 18 years with ≥ 1 inpatient or outpatient presentation were included. Diagnoses were determined using the International Classification of Diseases and Related Health Problems 10 codes and linked with the Dutch Hospital Data Clinical Classification Software to determine comorbidities.

Results: A total of 226,991 patients, 5,127 (2%) had AF. AF patients had significantly more outpatient visits (6.6 vs 3.6), emergency department visits (0.9 vs 0.2), and in-hospital days (4.0 vs 1.5) compared to non-CVD patients/year (all $p < 0.001$). AF patients saw more frequently multiple specialists, (13% vs 2% consulting ≥ 5 specialists, $p < 0.001$). Number of outpatient visits for AF patients increased with number of comorbidities: from a median of 1 (0-1 comorbidities) to 11 (≥ 4 comorbidities) ($p < 0.001$). Similarly, in-hospital days increased from 0.6 days (0-1 comorbidities) to 8.2 days (≥ 4 comorbidities) ($p < 0.001$). Regardless of age, AF patients had more outpatient and emergency department visits and more days in hospital days compared to non-CVD patients (all $p < 0.001$).

Conclusions: Patients with AF had significantly greater hospital healthcare utilisation use compared to non-CVD patients, independent of age. Therefore, there is a need for more cohesive care pathways in AF patients to reduce healthcare utilisation.

Keywords: Age; Atrial fibrillation; Comorbidities; Healthcare utilisation; Multimorbidity.

Conflict of interest statement

Conflict of interest: M.E. Middeldorp, C. van Deutekom, L.I. Weil, U.W. De Ruijter, P.T. Jeurissen, I.C. Van Gelder, B.C. van Munster and M. Rienstra declare that they have no competing interests.

- **27 references**
- **3 figures**

Full text links

Multicenter Study

Lancet Respir Med

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. 2025 Sep;13(9):821-832.

doi: 10.1016/S2213-2600(25)00135-3. Epub 2025 Jul 8.

Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts

Ramesh J Kurukulaaratchy [1], Anna Freeman [2], Aruna T Bansal [3], Latha Kadalayil [4], Eve Denton [5], Vanessa Clark [6], Peter G Gibson [7], Judit Varkonyi-Sepp [8], Ben Ainsworth [9], J J Hudson-Colby [10], Adam Lewis [11], Chellan Eames [12], Liuyu Wei [13], Wei Chern Gavin Fong [14], Ratko Djukanovic [2], Sanja Hromis [15], Tunn Ren Tay [16], Njira Lugogo [17], Vanessa M McDonald [6], Mark Hew [5], Hans Michael Haitchi [18]

Affiliations Expand

- PMID: 40645203

- DOI: 10.1016/S2213-2600(25)00135-3

Free article

Abstract

Background: Multimorbidity (ie, co-existence of two or more health conditions) is highly prevalent in patients with difficult-to-treat asthma. However, it remains unclear how multimorbidity correlates with disease severity and adverse health outcomes in these patients and which comorbidities are most important. We aimed to address this knowledge gap by developing a patient-centred, clinically descriptive multimorbidity score for difficult-to-treat asthma.

Methods: We used data from the UK-based Wessex Asthma Cohort of Difficult Asthma (WATCH; n=500, data collected between April 22, 2015, and April 1, 2020) to develop the Multimorbidity in Difficult Asthma Score (MiDAS). Initially, we created a modified Asthma Severity Scoring System (m-ASSESS) in WATCH. We then conducted univariate association analysis to test the association between the 13 commonest comorbidities and m-ASSESS in WATCH and used a branch-and-bound approach to select the most relevant comorbidities for inclusion in MiDAS. We calculated MiDAS values for all patients with complete information in WATCH (n=319) and assessed them for correlation with components of m-ASSESS, proinflammatory biomarkers, and St George's Respiratory Questionnaire (SGRQ) score, a quality-of-life measure. We also assessed the association of MiDAS with

multiple clinical outcomes in four international cohorts: two from Australia (n=236, data collected between June 14, 2014, and April 1, 2022; and n=140, Aug 6, 2012, to Oct 18, 2016), one from southeast Asia (n=151, March 21, 2017, to Jan 16, 2024), and one from the USA (n=100, July 9, 2021, to Dec 14, 2023).

Findings: We selected seven common comorbidities (ie, rhinitis, gastro-oesophageal reflux disease, breathing pattern disorder, obesity, bronchiectasis, non-steroidal anti-inflammatory drug-exacerbated respiratory disease, and obstructive sleep apnoea) for inclusion in MiDAS on the basis of the branch-and-bound analysis and combined them using multivariate linear regression to derive a MiDAS model associated with m-ASSESS in WATCH. The range of MiDAS scores was 9·6-16·2. In WATCH members, mean MiDAS value was 11·97 (SD 1·21) and MiDAS was nominally correlated with m-ASSESS components of poor asthma control (τ=0·31 [95% CI 0·24-0·38]) and exacerbations (τ=0·16 [0·08-0·24]). MiDAS was also correlated with worse total SGRQ score (r=0·39 [95% 0·28-0·49], p<0·0001) and with the proinflammatory plasma cytokines interleukin (IL)-4 (r=0·19 [95% CI 0·06-0·31], p=0·0036), IL-5 (r=0·35 [0·24-0·46], p<0·0001), and leptin (r=0·29 [0·17-0·40], p<0·0001) in WATCH. MiDAS values across the four international cohorts were similar to those of WATCH (UK cohort), with mean values of 12·33 (SD 1·47) and 12·31 (1·37) in the Australian cohorts, 11·80 (1·20) in the USA cohort, and 11·55 (1·23) in the Singapore cohort. In these cohorts, MiDAS correlated with worse asthma control, worse quality of life, anxiety, depression, and increased inflammation.

Interpretation: MiDAS highlights the co-occurrence of multimorbidity with the worst outcomes in difficult-to-treat asthma. These findings strongly indicate that an airway-centric approach is inadequate and that holistic and multidisciplinary care is imperative. This clinical score could help clinicians to identify patients most at risk from their multimorbidity.

Funding: UK National Institute for Health and Care Research, Australian National Health and Medical Research Council, Hunter Medical Research Institute, University of Newcastle (Australia), and John Hunter Hospital Charitable Trust.

Conflict of interest statement

Declaration of interests RJK co-holds a methods patent outside the submitted work on the cellular profiles of tissue resident memory T-cells and their use in asthma. BA is a member of the UK Taskforce for Lung Health, has received honoraria for educational talks from AstraZeneca, and sits on advisory boards for the Medito Foundation and earGym (all unrelated to this work). PGG reports personal fees from AstraZeneca, GSK, and Novartis and grants from AstraZeneca and GSK, outside the submitted work. VMM reports grants from GSK outside the submitted work, and advisory board and speaker fees from GSK, Menarini, and Boehringer-Ingelheim outside the submitted work. VC reports speakers fees from AstraZeneca, unrelated to the conduct of this study. MH has received grants and personal fees outside the submitted work from GSK, AstraZeneca, Sanofi, Novartis, Teva, and Chiesi, all paid to his employer Alfred Health. CE reports travel support from Chiesi and speaker fees from AstraZeneca outside the submitted work. RD is a co-founder of and consultant to Synairgen, has received funding for lectures from GSK, and has been

on advisory boards of GSK, Celltrion, ALK Abello, and ZenasBio, all unrelated to this work. Unrelated to this work, NL has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speakers bureau presentations from GSK, Teva, and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva, Regeneron, and GSK; her institution received research support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Niox, Regeneron, Sanofi, Novartis, and Teva. NL is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. SH reports speakers fees from AstraZeneca, Berlin-Chemie Menarini, Takeda, Providens, and Amicus Therapeutics; support for attending meetings from AstraZeneca, Chiesi (Providens), and Hemofarm; and payment for advisory boards from AstraZeneca, Berlin-Chemie Menarini, and Providens, all unrelated to this work. WCGF declares stock ownership in relation to Sanofi, GSK, and AstraZeneca, unrelated to this work. HMH co-holds a method patent on anti-ADAM33 oligonucleotides and related methods, which is unrelated to the current work. All other authors declare no competing interests.

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Lancet Respir Med

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. 2025 Sep;13(9):775-776.

doi: 10.1016/S2213-2600(25)00170-5. Epub 2025 Jul 8.

Beyond the airways in difficult-to-treat asthma: multimorbidity as the rule, not the exception

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Affiliations Expand

- PMID: 40645202

- DOI: 10.1016/S2213-2600(25)00170-5

No abstract available

Conflict of interest statement

HK reports personal fees for lectures and consulting from AstraZeneca, Boehringer-Ingelheim, Chiesi Pharma, Covis Pharma, GSK, MSD, Orion Pharma, and Sanofi, outside the submitted work. BIN declares no competing interests.

Full text links

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Cite

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Ann Am Thorac Soc

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. 2025 Sep;22(9):1335-1342.

doi: 10.1513/AnnalsATS.202411-1200OC.

Fine Particulate Matter and Mortality in Chronic Obstructive Pulmonary Disease with Multimorbidity

Camille E Robichaux [1], Arianne K Baldomero [1 2 3], Amy A Gravely [4], Chris H Wendt [1 2], Jesse D Berman [5]

Affiliations Expand

- **PMID: 40315387**
- **DOI: 10.1513/AnnalsATS.202411-1200OC**

Abstract

Rationale: Exposure to particulate matter with an aerodynamic diameter ≤2.5 μm ($PM_{2.5}$) is associated with respiratory dysfunction and increased risk of death. The U.S. Environmental Protection Agency has established regulatory standards for long-term exposure in the general population, but the risk for individuals with existing respiratory disease is unclear. Objectives: Estimate the association between long-term $PM_{2.5}$ exposure and mortality in individuals with chronic obstructive pulmonary disease (COPD), including the modifying effects of comorbidities at low levels of exposure. Methods: We performed a retrospective cohort analysis of all patients with a COPD diagnosis in the Veterans Health Administration between 2016 and 2019. Annual ambient concentrations of

$PM_{2.5}$ were obtained from publicly available pollutant models and spatially assigned to patient households. Primary outcomes were adjusted odds of mortality per 1-μg/m^3 increase in 5-year $PM_{2.5}$ concentrations and identification of comorbidities associated with increased susceptibility. Results: Medical records from 1,124,973 veterans with COPD were analyzed. Most of the cohort were male (95.60%), and the cohort had diverse racial, socioeconomic, and geographic characteristics. The odds of death was 3.8% higher for every 1-μg/m^3 increase in long-term $PM_{2.5}$ (adjusted odds ratio [aOR], 1.038; 95% confidence interval [CI], 1.035-1.040). For people with comorbid lung cancer (aOR, 1.051; 95% CI, 1.035-1.068), coronary arterial disease (aOR, 1.039; 95% CI, 1.033, 1.044), or chronic kidney disease (aOR, 1.042; 95% CI, 1.034, 1.049), the risk of death was significantly higher than for those without. Conclusions: The risk of mortality increases at even small magnitudes of increased $PM_{2.5}$ concentrations in people with COPD. The risk was higher for those with comorbid lung cancer, coronary artery disease, and chronic kidney disease. The current standard of 9 μg/m^3 for the general population should be reevaluated for those with existing COPD.

Keywords: air pollution; chronic kidney diseases; coronary artery disease; lung cancer; obstructive lung disease.

Comment in

- **Chronic Exposure to $PM_{2.5}$ Can Be Deadly for People with Chronic Obstructive Pulmonary Disease.**

Aaron SD.Ann Am Thorac Soc. 2025 Sep;22(9):1297-1298. doi: 10.1513/AnnalsATS.202507-703ED.PMID: 40632892 No abstract available.

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

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Int J Med Inform

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. 2025 Sep:201:105954.

doi: 10.1016/j.ijmedinf.2025.105954. Epub 2025 Apr 26.

Exploring Multimorbidity Patterns in older hospitalized Norwegian patients using Network Analysis modularity

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Affiliations Expand

- PMID: 40300484

- DOI: 10.1016/j.ijmedinf.2025.105954

Free article

Abstract

Background: Understanding Multimorbidity Patterns (MPs) is crucial for planning healthcare interventions, allocating resources, and improving patients' outcomes.

Objective: We aim to demonstrate the use of Network Analysis (NA) to explore the MPs in hospitalized Norwegian older patients.

Methods: We utilized data from the Norwegian Patient Registry (NPR) of all admissions between 2017 and 2019. The study population included patients ≥ 65 years old with two or more different conditions. Multimorbidity was defined as the co-occurrence of two or more associated chronic conditions. Chronic conditions were identified using the Chronic Condition Indicator Refined (CCIR) list. The association between chronic conditions was determined by calculating Relative Risk (RR) and Phi-correlation to detect pairs of conditions that co-occur beyond chance. A multimorbidity network was created, and MPs were detected using Louvain method for community detection. We suggested a clinical interpretation for these MPs.

Results: A total of 539 chronic conditions were used to create a multimorbidity network revealing several MPs. These modules included patterns of vision and hearing disorders, cardiorenal syndrome, metabolic and cardiovascular disorders, respiratory disorders, endocrine and skin conditions, autoimmune and musculoskeletal disorders, as well as mental and behavioral disorders. Using NA centrality measures, we identified the most influential conditions in each module. An interactive network and sunburst graphs for each module are publicly available.

Conclusion: The study demonstrates the use of NA modularity detection in identifying MPs. The findings highlight the complex interaction of chronic conditions in the elderly and the potential of NA methodology in exploring these relationships.

Keywords: Chronic conditions; Community detection; Comorbidity; Disease patterns; Modularity; Multimorbidity; Network analysis.

Conflict of interest statement

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

Supplementary info

MeSH termsExpand

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Psychol Health

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. 2025 Sep;40(9):1532-1550.

doi: 10.1080/08870446.2024.2339327. Epub 2024 May 1.

Older adult's experiences of navigating healthcare whilst living with multimorbidity

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Affiliations Expand

- **PMID: 38693663**

- **DOI: 10.1080/08870446.2024.2339327**

Abstract

Objective: The way older adults navigate their healthcare is critical to supporting positive health outcomes. However, navigating healthcare with multimorbidity is typically disjointed due to complexities in treatment, management, and service provision. This study sought to examine how older patients navigate healthcare whilst living with multimorbidity.

Methods and measures: Semi-structured interviews were undertaken with five older adults, aged 65 or older, living with multimorbidity in residential care in England. An Interpretive Phenomenological Analysis was undertaken.

Results: Overall, participants experienced navigating healthcare whilst living with multimorbidity as challenging. Group Experiential Themes included 'Health knowledge and understanding', 'Relationships and expectations' and 'Navigating health care with a single lens'. Collectively these themes represented narratives involving how having limited understanding of health conditions, experiencing challenges in communication with health professionals, and receiving segmented care in a health care system driven by a single condition focus interfered with navigation.

Conclusion: These findings highlight experiences of older adults living with multimorbidity navigating healthcare and illustrate several ways older adults living with multimorbidity may be supported to navigate services with less challenges. The research also promotes the need for future research in this area.

Keywords: Multimorbidity; healthcare navigation; older adults.

Supplementary info

MeSH termsExpand

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

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J Allergy Clin Immunol Pract

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. 2025 Aug 27:S2213-2198(25)00820-7.

doi: 10.1016/j.jaip.2025.08.019. Online ahead of print.

Idiopathic Anaphylaxis Grand Rounds

Moshe Ben-Shoshan [1], Cem Akin [2], Victoria E Cook [3], Roy Khalaf [4], George Freigeh [2]

Affiliations Expand

- **PMID: 40882893**

- **DOI: 10.1016/j.jaip.2025.08.019**

Abstract

Idiopathic anaphylaxis (IA) refers to recurrent, life-threatening hypersensitivity reactions without identifiable triggers, representing a diagnostic and therapeutic challenge. We describe a 17-year-old girl presenting with recurrent episodes of flushing, pruritus, and respiratory symptoms, without consistent allergen exposure or cofactor involvement. Evaluation revealed elevated acute tryptase levels with a normal baseline, negative skin testing, and negative alpha-gal and KIT mutation analysis. The patient improved on daily cetirizine with no further reactions. IA remains a diagnosis of exclusion, requiring careful consideration of IgE-mediated allergies, cofactor-dependent anaphylaxis, clonal mast cell disorders, and systemic mimics such as neuroendocrine tumors or vasovagal syncope. We summarize current evidence on IA pathogenesis, epidemiology, differential diagnosis, and management. While antihistamines and corticosteroids are commonly used prophylactically, emerging data suggest anti-IgE therapy with omalizumab may offer

benefit in refractory cases. Diagnostic workup should include serum tryptase measurement, trigger identification, and consideration of underlying mast cell disorders. Future research is needed to clarify the natural history, standardize diagnostic pathways, and evaluate long-term treatment strategies for this heterogeneous condition. CASE DESCRIPTION: A 17-year-old girl presented to the emergency department (ED) with a two-hour history of flushing, pruritus, and wheezing. The symptoms began after eating dinner, which included shepherd's pie and macadamia nuts, foods she had previously tolerated. There were no preceding exposures to medications, alcohol, or insect stings, and she did not engage in exercise prior to symptom onset. She reported three additional similar episodes. These were not consistently associated with eating, and there were no common foods or additives identified between episodes. There was no history of tick bite. There was no correlation between reactions and stage of her menstrual cycle. She did not have a personal or family history of atopy (atopic dermatitis, allergic rhinitis, asthma, IgE-mediated food allergy) or anaphylaxis. There was no history of spontaneous or inducible urticaria. She did not have a history of spontaneous flushing, pruritus, abdominal pain, diarrhea, presyncopal or syncopal episodes. She did not have a history of bony pain or fractures. At the time of the medical assessment in the ED, the patient's examination was notable for facial erythema and diffuse hives. Respiratory symptoms had resolved by the time of assessment. There were no cutaneous lesions suggestive of cutaneous mastocytosis. (Figure 1) The examination was otherwise unremarkable. She was given 2nd generation antihistamines, and symptoms gradually resolved over several hours. The serum tryptase drawn two hours following symptom initiation was 17.2 mcg/L. A repeat level five days later was 3.2 mcg/L. During a follow up visit three months after ED presentation, skin prick testing (SPT) was negative to a variety of food and inhalant allergens including macadamia nut, wheat and beef. Serum IgE testing to galactose-alpha-1,3-galactose (alpha-gal) was negative, and qPCR analysis for the KIT D816V mutation in peripheral blood was negative. The patient was prescribed prophylactic cetirizine (20 mg daily) for three months, during which she experienced no further reactions. Given the clinical presentation, absence of identifiable triggers and the tryptase levels obtained at the ED and five days later, the patient was diagnosed with idiopathic anaphylaxis (IA).

Keywords: “Anaphylaxis”; “idiopathic anaphylaxis”; “mast cell activation syndrome”; “mast cell”; “tryptase”.

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Intermittent Asthma and Risk of Severe Exacerbation in Children

Shahid Sheikh [1], Mariah Eisner [2], Wheaton Kelin [3], Joshua Kilbarger [3], Lisa Ulrich [4], Sabrina Palacios [4], Karen S McCoy [4]

Affiliations Expand

- PMID: 40882701

- DOI: 10.1016/j.chest.2025.07.4089

Abstract

Background: Because of risk of severe asthma exacerbations, current GINA recommendations advise against use of short acting beta agonists (SABA) alone as first step in mild asthma. It is unclear if everyone with mild asthma carries equal risk for severe asthma exacerbations.

Research question: Is there a subgroup of patients with mild asthma with very low risk of severe asthma exacerbations?.

Study design and methods: Our study cohort utilized administrative claims data for patients ages 2-18 years with intermittent asthma enrolled in Ohio Medicaid Managed Care Plans for three consecutive years. For the first two years, we identified a low-risk group. In the third year, we compared risk of severe asthma exacerbations among our low-risk group and rest of the cohort.

Results: 13,208 patients met inclusion criteria. In the third year, among 3,935 low-risk patients, rates of asthma hospitalization, ED and UC visits for those with 0-2 SABA canister dispensing/year were 3 (0.08%), 37 (0.97%) and 21 (0.55%), respectively, with relative risk of hospitalization 0.17 (95% CI: 0.06, 0.52) and relative risk of severe asthma exacerbation 0.18 (95% CI: 0.13, 0.27) compared to high-risk patients. In our low-risk cohort, the number of patients needed to treat to prevent one hospitalization was 5,535. The cost to prevent one hospitalization using a single inhaler of ICS/year was $779,716.

Interpretation: Among mild asthma patients, there is a subgroup of low-risk patients with lower risk of hospitalization and severe asthma exacerbation in which current GINA recommendations for first step may neither be needed nor cost effective.

Keywords: children; health care utilization; hospitalization; intermittent asthma; mild asthma; pediatric asthma; short acting beta agonist.

Full text links

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J Allergy Clin Immunol Pract

. 2025 Aug 27:S2213-2198(25)00818-9.

doi: 10.1016/j.jaip.2025.08.017. Online ahead of print.

How Infections and Immune Development Relate to Preschool Recurrent Wheezing and Asthma

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- PMID: 40882892

- DOI: 10.1016/j.jaip.2025.08.017

Abstract

The relationship between infections, immune development, and preschool recurrent wheezing and asthma is complex and multifaceted. RSV and RV are significant early-life triggers for wheezing, with differing immunologic and genetic associations. RV, especially RV-C, has been closely linked to asthma development, particularly allergic asthma. RSV wheezing illnesses can identify susceptible children and are linked to nonallergic asthma. Ongoing studies using broader RSV prevention (vaccines, monoclonal antibodies) in full-term infants may further clarify these relationships. Both RSV and RV infections are associated with changes in bacterial abundance. The timing of these changes and the bacterial strains that are altered are likely important factors in asthma development that are continually being investigated. Beyond viral triggers, asthma and recurrent wheeze in preschoolers result from a complex interplay of microbial (urban vs. rural living), environmental (e.g. air pollution levels, diet) and host immune factors. Strategies focusing on microbiome modulation (e.g. bacterial lysate ingestion), pollution reduction, increasing biodiversity, and nutritional support (e.g., vitamin D) may offer promising paths for prevention and improved management.

Keywords: asthma; immune development; infections; preschool wheeze.

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BMC Pulm Med

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. 2025 Aug 28;25(1):409.

doi: 10.1186/s12890-025-03878-5.

Asthma risk: the inseparable synergy of obesity and metabolism

Ruiqi Zhao [1], Raobin Xu [1], Jiabo Yuan [1], Congyao Wang [1], Zhuying Li [2], Jingbo Wang [3]

Affiliations Expand

- PMID: 40877838

- DOI: 10.1186/s12890-025-03878-5

Free article

No abstract available

Keywords: Asthma; Females; Metabolism; Obesity; Older Adults.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study obtained ethical approval from the NCHS Ethics Review Board, and written informed consent was obtained from all participants in the NHANES study. We confirmed that all methods were performed in accordance with relevant guidelines and regulations to protect human subjects. Consent to publication: Not applicable. Competing interests: The authors declare no competing interests.

- 64 references

Supplementary info

Grants and fundingExpand

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Eur Respir J

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. 2025 Aug 28:2501327.

doi: 10.1183/13993003.01327-2025. Online ahead of print.

Pregnancy, asthma and exacerbations: a population-based cohort

Bohee Lee [1], Ernie Wong [1], Tricia Tan [2], Hitasha Rupani [3], Chloe I Bloom [4]

Affiliations Expand

- PMID: 40876965

- DOI: 10.1183/13993003.01327-2025

Abstract

Background: Asthma exacerbations during pregnancy are associated with adverse maternal and perinatal outcomes. Identifying modifiable risk factors are essential for improving health outcomes. We aimed to describe exacerbation patterns during pregnancy and identify exacerbation risk factors, particularly modifiable risk factors such as inhaled corticosteroid (ICS) use.

Methods: A cohort study using UK primary care and hospital data (2004-2020) to identify pregnant women with asthma. Exacerbations were defined as a short course of oral corticosteroids, emergency department visit, or unscheduled hospital admission. Multivariable logistic regression was used to assess associations between maternal characteristics and exacerbations (primary outcome) and ICS use (secondary outcome).

Results: Among 40 196 pregnant women with asthma, total exacerbations declined by ~30% during pregnancy. However, exacerbations associated with hospital admission increased by 30-45% during the second and third trimesters, declining abruptly after delivery. ICS prescriptions were reduced in 31% of women during pregnancy. Decreased ICS use was associated with suboptimal asthma control pre-pregnancy, age, ethnicity and smoking. The strongest exacerbation risk factors were a history of exacerbations (adjusted-OR, 95% CI: 4.09, 3.81-4.39), reduced ICS during pregnancy (2.29, 2.12-2.47) and ≥4 prescriptions/year for ICS+another-

preventer before pregnancy (2.11, 1.87-2.37). Additional risk factors included blood eosinophilia, smoking and obesity.

Conclusions: Despite fewer total exacerbations, exacerbations associated with a hospital admission increased during pregnancy. One-third of women reduced ICS use during pregnancy, yet this was the second largest exacerbation risk factor, and completely modifiable. Other major risk factors were type-2 inflammation and another modifiable risk factor, suboptimal asthma control pre-pregnancy.

Cite

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J Asthma

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. 2025 Aug 28:1-7.

doi: 10.1080/02770903.2025.2552744. Online ahead of print.

Severe Asthma, Biologic Hypersensitivity and Inefficacy: Overcoming Treatment Barriers with Tezepelumab

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

Affiliations Expand

- PMID: 40874999

- DOI: 10.1080/02770903.2025.2552744

Abstract

Severe asthma is a heterogeneous disease involving multiple inflammatory pathways, with significant therapeutic challenges. Biologic therapies targeting T2 inflammation improve outcomes but may, in rare cases, trigger hypersensitivity reactions due to anti-drug antibodies, excipients, or protein structure. Additionally, some patients exhibit suboptimal or no response. Tezepelumab, a thymic stromal lymphopoietin inhibitor, offers a novel upstream approach, addressing diverse endotypes.We present a 30-year-old female with severe T2-high asthma, multiple allergies, and poor disease control despite optimal therapy. She experienced an

allergic reaction with omalizumab and dupilumab and had inadequate response to benralizumab. Enrolled in an early access program for tezepelumab, she showed remarkable clinical improvement, with significant FEV1 increase and FeNO reduction, allowing discontinuation of systemic corticosteroids and supplemental oxygen.

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

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Review

J Asthma

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. 2025 Aug 28:1-24.

doi: 10.1080/02770903.2025.2552749. Online ahead of print.

Prevalence and Risk Factors of Asthma in Children: A Systematic Review and Meta-analysis

Li Yin [1], Feifei Zhang [2], Xue Wang [1], Mimi Gao [1], Anna Liu [1], Fang Li [1]

Affiliations Expand

- PMID: 40874406

- DOI: 10.1080/02770903.2025.2552749

Abstract

Objective: The present study aims to evaluate the prevalence and risk factors of asthma in children through a meta-analysis.Data Sources: The PubMed, Embase, Cochrane, and Web of Science databases were comprehensively retrieved for studies on the prevalence and risk factors of childhood asthma (CA) published between January 1, 2015, and July 8, 2024. Studies were screened and selected based on predefined eligibility criteria, and pertinent data were extracted. The quality of eligible studies was evaluated through the Newcastle-Ottawa Scale (NOS).

Statistical analyses were undertaken via Stata 16 and R 4.4.1.Study selection:45 studies comprising 647,414 participants were included.

Results: The pooled prevalence of CA was 11.9% (95% CI: 8.8%-15.8%). The meta-analysis identified several risk factors for CA, including prenatal exposure to per- and polyfluoroalkyl substances (PFAS) (OR = 0.89, 95% CI: 0.80-0.98, P = 0.021), prenatal exposure to acid-suppressive medications (OR = 1.11, 95% CI: 1.04-1.19, P = 0.002), maternal folic acid supplementation during pregnancy (OR = 1.18, 95% CI: 1.10-1.27, P < 0.001), as well as Helicobacter pylori infection in childhood (OR = 2.07, 95% CI: 1.35-3.15, P = 0.001).Study selection.

Conclusions: The prevalence rate of asthma among children was approximately 11.9%. Prenatal exposure to PFAS and acid-suppressive medications, Helicobacter pylori infection in childhood were proved to be risk factors for asthma. Folic acid supplementation during pregnancy is positively associated with a reduced risk of asthma in children. Further large-scale prospective research is warranted to unveil the roles and significance of these factors.

Keywords: asthma; meta-analysis; prevalence; risk factors.

Supplementary info

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Review

Immunol Rev

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. 2025 Sep;334(1):e70057.

doi: 10.1111/imr.70057.

IgE in Allergic Diseases

Dana Greene [1], Jamie Moore Fried [1], Julie Wang [1]

Affiliations Expand

- **PMID: 40862531**

- DOI: 10.1111/imr.70057

Abstract

Immunoglobulin E (IgE) is key in the pathogenesis of allergic diseases, exerting both systemic and local effects through high-affinity binding to FcεRI on mast cells and basophils. Cross-linking of antigen-specific IgE leads to rapid degranulation and release of histamine, leukotrienes, and other mediators, resulting in classic allergic sequelae. IgE plays a key role in conditions including food allergy, atopic dermatitis, asthma, chronic spontaneous urticaria, and chronic rhinosinusitis. Clinical applications of anti-IgE targeted therapies have demonstrated effectiveness in improving outcomes in food allergy desensitization, reducing asthma exacerbations, and treating chronic urticaria. This review highlights the critical role of IgE as a therapeutic and diagnostic target in the management of allergic disease.

Keywords: allergy; asthma; atopic dermatitis; chronic rhinosinusitis; eczema; food allergy; immunoglobulin E (IgE); mast cell; oral immunotherapy; urticaria.

- 59 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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9

EClinicalMedicine

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. 2025 Aug 12:87:103402.

doi: 10.1016/j.eclinm.2025.103402. eCollection 2025 Sep.

Safety of budesonide/glycopyrronium/formoterol fumarate dihydrate delivered by HFO-1234ze versus HFA-134a in chronic obstructive pulmonary disease: a phase 3, multi-site, randomised, double-blind, parallel-group, active-comparator study

Omar S Usmani [1], Fernando J Martinez [2], Hitesh Pandya [3], Matthew Camiolo [4], Artur Bednarczyk [5], Kinga Kucz [5], Marek Kokot [5], Christer Gottfridsson [6], Magnus

Aurivillius [7], Lars Pettersson [7], Jie Mei [7], Karin Skansen [7], Jennifer L Bell [8], David Petullo [9], Kathryn Collison [10], Patrik Bondarov [11], Mandeep Jassal [12], Mehul Patel [3]

Affiliations Expand

- PMID: 40831469
- PMCID: PMC12359160
- DOI: 10.1016/j.eclinm.2025.103402

Abstract

Background: Pressurised metered dose inhalers (pMDIs) contain a hydrofluorocarbon propellant, such as hydrofluoroalkane-134a (HFA-134a), which is known to have global warming potential (GWP). Transitioning pMDIs to propellants with lower GWP will reduce the environmental impact of pMDIs. This study assessed the safety of a near-zero GWP propellant, hydrofluoroolefin-1234ze (HFO-1234ze), compared with HFA-134a when used in the delivery of budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF) in participants with chronic obstructive pulmonary disease (COPD). The results of this study advance our understanding of the safety of HFO-1234ze compared with HFA-134a.

Methods: This phase 3, double-blind, parallel-group study (ClinicalTrials.govNCT05573464) across 9 countries (Argentina, Bulgaria, Canada, Germany, Mexico, Poland, Turkey, the United Kingdom, the United States) included participants (aged 40-80 years) with physician-diagnosed COPD using dual or triple inhaled maintenance therapies, COPD Assessment Test score ≥10, ≥10 pack-years smoking history, and no comorbid diagnosis of asthma or other clinically significant diseases impacting study outcomes. Participants were randomised (1:1) to receive either BGF HFO-1234ze or BGF HFA-134a (two inhalations of 160/7·2/5·0 μg twice daily) for 12 weeks in the main safety analysis set (or 52 weeks [first 120 participants per treatment]). Safety endpoints included the incidence of adverse events (AEs), measures of vital signs, clinical laboratory tests, and electrocardiograms.

Findings: Participants were recruited between 27 September 2022 and 19 May 2023. A total of 874 participants were screened. Of 558 treated participants (mean [standard deviation] age, 67·0 [7·4] years; male, 315 [56·5%]) in the 12-week safety analysis set, 280 received BGF HFO-1234ze, and 278 received BGF HFA-134a. The AE incidence was balanced between formulations in the 12-week (HFO-1234ze, 124 [44·3%]; HFA-134a, 114 [41·0%]) and 52-week (HFO-1234ze, 80 [66·7%]; HFA-134a, 94 [78·3%]) safety analysis sets.

Interpretation: These findings support the potential for HFO-1234ze to replace HFA-134a in pMDIs containing BGF, which could be evaluated further in a real-world setting.

Funding: The study was supported by AstraZeneca.

Keywords: Budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF); Chronic obstructive pulmonary disease (COPD); Hydrofluoroalkane-134a (HFA-134a); Hydrofluoroolefin-1234ze (HFO-1234ze); Inhaled triple therapy; Safety.

Conflict of interest statement

Omar S. Usmani has received personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, Covis, Deva, GlaxoSmithKline, Kamada, Menarini, Mundipharma, Novartis, Orion, Sandoz, Takeda, Trudell Medical, and UCB; has received research grants from AstraZeneca, Boehringer Ingelheim, Chiesi, and GlaxoSmithKline; and has received consulting fees from AstraZeneca, Cipla, and Mereo Biopharma. He is also President of the International Society of Aerosols in Medicine, Chair of the UK Inhaler Group, the European Respiratory Society Council Chair elect 2024–2025, and was the Assembly 5 Head of the European Respiratory Society from 2020 to 2023. Fernando J. Martinez has consulted for AstraZeneca, Chiesi, DevPro, GlaxoSmithKline, Novartis, and Roche; has received honoraria from Sanofi/Regeneron, and UpToDate; and received payment or honoraria for lectures and presentations from AstraZeneca, GlaxoSmithKline, and Roche. Support for the study and for development of the current manuscript was provided by AstraZeneca. Jennifer L. Bell is contracted by AstraZeneca. Hitesh Pandya, Matthew Camiolo, Artur Bednarczyk, Christer Gottfridsson, Magnus Aurivillius, Lars Pettersson, Jie Mei, Karin Skansen, Kathryn Collison, Patrik Bondarov, Mandeep Jassal, and Mehul Patel are employees of AstraZeneca and hold stock and/or stock options in the company. Kinga Kucz, Marek Kokot, and David Petullo are employees of AstraZeneca.

- **22 references**
- **3 figures**

Supplementary info

Associated dataExpand

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Review

Clin Chest Med

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. 2025 Sep;46(3):499-508.

doi: 10.1016/j.ccm.2025.04.008. Epub 2025 Jul 3.

Oscillometry

Claude S Farah [1], Leigh M Seccombe [2]

Affiliations Expand

- PMID: 40769595

- DOI: 10.1016/j.ccm.2025.04.008

Abstract

Respiratory oscillometry measures impedance during tidal breathing and is a sensitive marker of smaller airway function. Recent consensus documents provide a framework for the clinician to incorporate this lung function test into routine clinical practice. Oscillometry has an established role in pediatric respiratory medicine. In adults, an abnormal oscillometry result relates to patient symptoms and clinically important outcomes especially in asthma and chronic obstructive pulmonary disease. There is increasing interest in the role of oscillometry when monitoring patients longitudinally including after lung transplantation, and a greater appreciation of intrabreath analysis and the detection of dynamic elastance.

Keywords: Airway resistance; Forced oscillation technique; Oscillometry; Pulmonary disease; Respiratory function testing.

Conflict of interest statement

Disclosures C.S. Farah reports receiving speaker fees from Chiesi, AstraZeneca, GlaxoSmithKline and Sanofi unrelated to the content of this study. L.M. Seccombe has nothing to disclose.

Supplementary info

Publication types, MeSH termsExpand

Full text links

11

Review

Clin Chest Med

. 2025 Sep;46(3):453-465.

doi: 10.1016/j.ccm.2025.04.005. Epub 2025 Jul 3.

Exercise and Mannitol Bronchial Challenge Testing

Ryan C Murphy [1]

Affiliations Expand

- PMID: 40769592

- DOI: 10.1016/j.ccm.2025.04.005

Abstract

Indirect airway hyperresponsiveness (AHR) is a physiologic feature that is highly specific for asthma and provides a unique insight into the mechanisms responsible for airway dysfunction. Individuals at risk for indirect AHR have distinct alterations in their airways that are further dysregulated following exposure to specific stimuli and promote bronchoconstriction. Dry air exercise challenge and inhaled mannitol challenge are tests for indirect AHR, which can be used by clinicians to characterize exercise-related symptoms concerning for exercise-induced bronchoconstriction, evaluate individuals presenting with asthma-like symptoms, and to titrate asthma-directed therapies.

Keywords: Asthma; Dry air exercise challenge; Exercise-induced bronchoconstriction; Indirect airway hyperresponsiveness; Mannitol challenge testing.

Conflict of interest statement

Disclosures Dr R.C. Murphy has no relevant financial disclosures or conflicts of interest. Dr R.C. Murphy receives research funding from the Parker B. Francis Family Foundation.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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12

Review

Clin Chest Med

. 2025 Sep;46(3):437-452.

doi: 10.1016/j.ccm.2025.04.004. Epub 2025 Jul 2.

Methacholine Challenge: Physiology, Methodology, and Clinical Interpretation

Imran Satia [1], Mark Inman [2], Beth E Davis [3]

Affiliations Expand

- PMID: 40769591

- DOI: 10.1016/j.ccm.2025.04.004

Abstract

This review article explores the methacholine challenge test (MCT), a bronchoprovocation technique used to assess airway hyperresponsiveness (AHR), a hallmark of asthma. The article begins by tracing the historical development of the MCT, including early studies that established its clinical relevance in diagnosing asthma. The physiological mechanisms underlying AHR are discussed, with emphasis on how these contribute to bronchoconstriction. The article also highlights advances in MCT methodology, clinical utility in ruling out asthma, factors that influence the interpretation of MCT results, and limitations of the test. Finally, the review suggests future directions for improving MCT.

Keywords: Airways disease; Asthma; Bronchial challenge; Methacholine.

Conflict of interest statement

Disclosure I. Satia reports research grants from Merck, MITACS, GSK, Bellus, Trevi Therapeutics, Bayer, Genentech; personal speaker fees from Merck, GSK, AstraZeneca, Sanofi-Regeneron; consulting fees from Merck, GSK, Bellus, Sanofi-Regeneron, Methapharm outside the submitted work. M. Inman and B.E. Davis have no disclosures.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Pulm Ther

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. 2025 Sep;11(3):475-489.

doi: 10.1007/s41030-025-00310-5. Epub 2025 Aug 4.

Real-World Use of MART in Moderate-Severe Asthma: Results from the Italian WAMP Survey among Healthcare Professionals and Patients

Fulvio Braido [1 2], Matteo Bonini [3 4], Walter Castellani [5], Andrea Claudio Comel [6], Francesco Paolo Lombardo [7], Antonio Spanevello [8 9], Alessandro Vatrella [10], Marco Contoli [11 12]

Affiliations Expand

- PMID: 40760303

- PMCID: PMC12373597

- DOI: 10.1007/s41030-025-00310-5

Abstract

Introduction: Moderate-severe asthma affects a significant proportion of patients and poses challenges in symptom control and exacerbation prevention. The preferred track 1 endorsed by the Global Initiative for Asthma (GINA) recommendations offers a single-inhaler approach combining inhaled corticosteroids and formoterol for both maintenance and symptom relief (maintenance and reliever therapy; MART). However, MART's real-world adoption remains suboptimal and concerns regarding its correct implementation persist. "What About MART Posology" (WAMP) survey assessed the knowledge and clinical application of MART among Italian healthcare professionals (HCPs) and patients.

Methods: WAMP was a cross-sectional, web-based survey conducted among 1000 Italian HCPs and 400 patients with moderate-severe asthma. HCPs answered questions regarding treatment preferences, adherence to GINA recommendations and MART implementation. Patients reported on their therapeutic regimens, inhaler use, and adherence behaviors.

Results: Most HCPs demonstrated awareness of GINA recommendations. Pulmonologists (73.6%) and allergists (62.0%) reported favoring track 1, while general practitioners (GPs) showed greater variability (55.1%). Most of HCPs reported the use of inhaled corticosteroids (ICS)-formoterol, according to the MART approach, to manage moderate-severe asthma. GPs reported that approximately 45.5% of moderate-severe patients with asthma treated with ICS-formoterol inhaled therapy were also prescribed short-acting β2-agonists (SABA). Among patients, ICS-formoterol was the most reported regimen (59.7%), despite only 21.6% adhered to the MART approach correctly. Triple therapy was preferred for patients with recurrent exacerbations, yet its adoption was lower than expected.

Conclusions: The WAMP survey suggests a strong awareness of GINA track 1 among Italian HCPs. MART was widely implemented, particularly by specialists; patient data supported these findings. Gaps in education on MART's dual function persist though. Targeted training for HCPs and improved patient education are essential to optimize asthma management and adherence to evidence-based strategies.

Keywords: Asthma; Healthcare professional; Inhaled therapy; Italy; Maintenance and reliever therapy (MART); Moderate; Patient; Severe; Survey.

Conflict of interest statement

Declarations. Conflict of Interest: Matteo Bonini has received research grants, advisory board honoraria, consultancy fees, and lecture fees from AstraZeneca, Chiesi Farmaceutici, Grifols, GlaxoSmithKline, Lallemand Health Solutions, Lusofarmaco, Menarini Group, Omron Healthcare, and Sanofi. Francesco Paolo Lombardo has received consultancy and lecture fees from Chiesi Farmaceutici, GlaxoSmithKline, and AstraZeneca. Walter Castellani, Marco Contoli, Andrea Claudio Comel, Fulvio Braido, Antonio Spanevello, and Alessandro Vatrella have nothing to disclose. Ethics Approval: The survey was conducted in accordance with the principles outlined in the Declaration of Helsinki, and informed consent was obtained from patients prior to their involvement. Ethics approval was not required for this study as it was based on a voluntary, anonymous survey of healthcare professionals and patients, without the collection of sensitive personal data or interventions affecting patient care, in accordance with applicable ethical guidelines and regulations.

- **32 references**
- **6 figures**

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Cite

14

Review

Respir Investig

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. 2025 Sep;63(5):918-927.

doi: 10.1016/j.resinv.2025.07.007. Epub 2025 Jul 26.

Multifaceted roles of group 2 innate lymphoid cells in respiratory diseases

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Affiliations Expand

- PMID: 40716197

- DOI: 10.1016/j.resinv.2025.07.007

Free article

Abstract

Group 2 innate lymphoid cells (ILC2s) play a canonical role in the induction of type 2 inflammation by producing type 2 cytokines, including interleukin (IL)-5 and IL-13, in response to stimuli such as IL-33. However, their functions are modulated by tissue- and disease-specific microenvironments, including cytokines, lipid mediators, neuropeptides, and hormones. These influences give rise to diverse ILC2 phenotypes that contribute to non-canonical roles, such as the production of type 1 and type 3 cytokines, thereby expanding their traditional functions. This review examines the multifaceted roles of ILC2s in various respiratory diseases, including asthma, chronic obstructive pulmonary disease, pulmonary fibrosis, lung cancer, and viral infections, and highlights their significant impact on disease pathophysiology. However, the mechanisms underlying ILC2 diversity remain poorly understood. A deeper understanding of this diversity is critical for the development of targeted therapeutic strategies to modulate ILC2 function. By examining the roles of ILC2s in respiratory diseases, this review offers valuable insights into their contribution to disease pathophysiology and potential as targets for innovative therapeutic strategies.

Keywords: Asthma; COPD; Cancer; ILC2; Interstitial pneumonitis.

Conflict of interest statement

Declaration of competing interest H. K. received honoraria from AstraZeneca. R. S. received compensation for employment, a leadership position, and an advisory role from Areteia Therapeutics. In addition, R. S. received honoraria from AstraZeneca and GlaxoSmithKline, as well as research funding from AstraZeneca, Third Harmonics Bio, and Jasper Therapeutics. K. F. received honoraria from Boehringer Ingelheim, Novartis, Sanofi, GlaxoSmithKline, AstraZeneca, and Kyorin Pharmaceutical. K.F. received research funding from Boehringer Ingelheim and Chugai Pharmaceuticals. Other authors declare no conflicts of interest.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Editorial

Am J Respir Crit Care Med

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. 2025 Sep;211(9):1537-1539.

doi: 10.1164/rccm.202506-1403ED.

Treatment of Severe Asthma Is Not "Cookie-Cutter" Medicine

William W Busse [1], Ravi Viswanathan [1]

Affiliations Expand

- PMID: 40700732

- DOI: 10.1164/rccm.202506-1403ED

No abstract available

Comment on

- Clinical Remission by a Comprehensive Severe Asthma Management Strategy Guided by Airway Inflammometry and Bioimaging.

Nolasco S, Kjarsgaard M, Lauks S, Treleaven O, Ho T, Huang C, Radford K, Swindall T, Venegas Garrido C, Bhalla A, Thawanaphong S, Friedlander Y, Dyment L, Surette M, Trus M, Sehmi R, Haider E, Khalidi N, Sommer DD, Waserman S, Mukherjee M, Svenningsen S, Cox G, Nair P.Am J Respir Crit Care Med. 2025 Sep;211(9):1622-1635. doi: 10.1164/rccm.202412-2438OC.PMID: 40540629

Supplementary info

Publication typesExpand

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Editorial

Am J Respir Crit Care Med

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. 2025 Sep;211(9):1539-1540.

doi: 10.1164/rccm.202506-1327ED.

Beyond Single Pollutants: Mixture Analysis Methods in Air Pollution and Asthma Research

Wenxin Lu [1], John R Balmes [1 2]

Affiliations Expand

- PMID: 40700728

- DOI: 10.1164/rccm.202506-1327ED

No abstract available

Comment on

- Association of Annual Exposure to Air Pollution Mixture on Asthma Hospitalizations in the United States.

Vu BN, Amini H, Qiu X, Feng Y, Wei Y, Schwartz J.Am J Respir Crit Care Med. 2025 Sep;211(9):1636-1643. doi: 10.1164/rccm.202409-1853OC.PMID: 40548919

Supplementary info

Publication typesExpand

Full text links

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Cite

17

Respir Med

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. 2025 Sep:246:108255.

doi: 10.1016/j.rmed.2025.108255. Epub 2025 Jul 12.

Spirometry and impulse oscillometry in the diagnosis of cough variant asthma in children

Chunyu Tian [1], Shiqiu Xiong [2], Xin Song [3], Shuo Li [4], Yantao Zhang [5], Xinmei Jiang [6], Xinyue Hou [7], Yifan Zhang [8], Chuanhe Liu [9]

Affiliations Expand

- PMID: 40659253

- DOI: 10.1016/j.rmed.2025.108255

Abstract

Objective: This study aimed to assess the diagnostic utility of spirometry and impulse oscillometry, focusing on their correlation and diagnostic advantages, in children with cough variant asthma (CVA).

Methods: This study included children aged 5-12 years with a diagnosis of CVA who underwent sequential IOS and spirometry pulmonary function with bronchodilation (BD) tests. A control group of healthy children was matched. Receiver operating characteristic (ROC) curves were plotted, and the area under the curve (AUC) was calculated to assess the discriminatory potential of these spirometry and IOS parameters for CVA. The correlation and diagnostic consistency between spirometry and IOS parameters were compared.

Results: A total of 177 patients with CVA and 45 control subjects were included. The ROC curve results for pre-BD parameters and the improvement rate showed that the combinations of "pre-MMEF(%pred) and $_{\triangle}$MMEF" and "pre-Z5 (%pred) and -$_{\triangle}$Z5 (%)" achieved the highest AUC value of 0.892 and 0.836, with threshold probabilities of 0.868, 0.786, respectively. The AUC values of these combined parameters surpassed those of individual ones. The correlation between spirometry and IOS parameters showed that pre-FEF_{25} (%pred) has a moderately negative correlation with pre-Z5 (%pred) and pre-R5 (%pred) (r = -0.415, -0.404; P < 0.001), $_{\triangle}FEF_{75}$ % has a weak positive correlation with -$_{\triangle}$Z5 %, -$_{\triangle}$R5 %(r = 0.154, 0.155; P < 0.05). The comparison of diagnostic consistency between pre-BD spirometry and pre-BD IOS parameters showed a weak correlation(kappa = 0.150, P = 0.007).

Conclusions: The changes in spirometry and IOS parameters during the BD test provided valuable diagnostic information for CVA and can help pediatricians accurately identify CVA in children.

Keywords: Children; Cough variant asthma; Diagnosis; Impulse oscillometry; spirometry.

Conflict of interest statement

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

Supplementary info

MeSH termsExpand

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Multicenter Study

Lancet Respir Med

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. 2025 Sep;13(9):821-832.

doi: 10.1016/S2213-2600(25)00135-3. Epub 2025 Jul 8.

Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts

Ramesh J Kurukulaaratchy [1], Anna Freeman [2], Aruna T Bansal [3], Latha Kadalayil [4], Eve Denton [5], Vanessa Clark [6], Peter G Gibson [7], Judit Varkonyi-Sepp [8], Ben Ainsworth [9], J J Hudson-Colby [10], Adam Lewis [11], Chellan Eames [12], Liuyu Wei [13], Wei Chern Gavin Fong [14], Ratko Djukanovic [2], Sanja Hromis [15], Tunn Ren Tay [16], Njira Lugogo [17], Vanessa M McDonald [6], Mark Hew [5], Hans Michael Haitchi [18]

Affiliations Expand

- PMID: 40645203

- DOI: 10.1016/S2213-2600(25)00135-3

Free article

Abstract

Background: Multimorbidity (ie, co-existence of two or more health conditions) is highly prevalent in patients with difficult-to-treat asthma. However, it remains unclear how multimorbidity correlates with disease severity and adverse health outcomes in these patients and which comorbidities are most important. We aimed to address this knowledge gap by developing a patient-centred, clinically descriptive multimorbidity score for difficult-to-treat asthma.

Methods: We used data from the UK-based Wessex Asthma Cohort of Difficult Asthma (WATCH; n=500, data collected between April 22, 2015, and April 1, 2020) to develop the Multimorbidity in Difficult Asthma Score (MiDAS). Initially, we created a modified Asthma Severity Scoring System (m-ASSESS) in WATCH. We then conducted univariate association analysis to test the association between the 13 commonest comorbidities and m-ASSESS in WATCH and used a branch-and-bound approach to select the most relevant comorbidities for inclusion in MiDAS. We calculated MiDAS values for all patients with complete information in WATCH (n=319) and assessed them for correlation with components of m-ASSESS, proinflammatory biomarkers, and St George's Respiratory Questionnaire (SGRQ) score, a quality-of-life measure. We also assessed the association of MiDAS with multiple clinical outcomes in four international cohorts: two from Australia (n=236, data collected between June 14, 2014, and April 1, 2022; and n=140, Aug 6, 2012, to Oct 18, 2016), one from southeast Asia (n=151, March 21, 2017, to Jan 16, 2024), and one from the USA (n=100, July 9, 2021, to Dec 14, 2023).

Findings: We selected seven common comorbidities (ie, rhinitis, gastro-oesophageal reflux disease, breathing pattern disorder, obesity, bronchiectasis, non-steroidal anti-inflammatory drug-exacerbated respiratory disease, and obstructive sleep apnoea) for inclusion in MiDAS on the basis of the branch-and-bound analysis and combined them using multivariate linear regression to derive a MiDAS model associated with m-ASSESS in WATCH. The range of MiDAS scores was 9·6-16·2. In WATCH members, mean MiDAS value was 11·97 (SD 1·21) and MiDAS was nominally correlated with m-ASSESS components of poor asthma control (τ=0·31 [95% CI 0·24-0·38]) and exacerbations (τ=0·16 [0·08-0·24]). MiDAS

was also correlated with worse total SGRQ score (r=0·39 [95% 0·28-0·49], p<0·0001) and with the proinflammatory plasma cytokines interleukin (IL)-4 (r=0·19 [95% CI 0·06-0·31], p=0·0036), IL-5 (r=0·35 [0·24-0·46], p<0·0001), and leptin (r=0·29 [0·17-0·40], p<0·0001) in WATCH. MiDAS values across the four international cohorts were similar to those of WATCH (UK cohort), with mean values of 12·33 (SD 1·47) and 12·31 (1·37) in the Australian cohorts, 11·80 (1·20) in the USA cohort, and 11·55 (1·23) in the Singapore cohort. In these cohorts, MiDAS correlated with worse asthma control, worse quality of life, anxiety, depression, and increased inflammation.

Interpretation: MiDAS highlights the co-occurrence of multimorbidity with the worst outcomes in difficult-to-treat asthma. These findings strongly indicate that an airway-centric approach is inadequate and that holistic and multidisciplinary care is imperative. This clinical score could help clinicians to identify patients most at risk from their multimorbidity.

Funding: UK National Institute for Health and Care Research, Australian National Health and Medical Research Council, Hunter Medical Research Institute, University of Newcastle (Australia), and John Hunter Hospital Charitable Trust.

Conflict of interest statement

Declaration of interests RJK co-holds a methods patent outside the submitted work on the cellular profiles of tissue resident memory T-cells and their use in asthma. BA is a member of the UK Taskforce for Lung Health, has received honoraria for educational talks from AstraZeneca, and sits on advisory boards for the Medito Foundation and earGym (all unrelated to this work). PGG reports personal fees from AstraZeneca, GSK, and Novartis and grants from AstraZeneca and GSK, outside the submitted work. VMM reports grants from GSK outside the submitted work, and advisory board and speaker fees from GSK, Menarini, and Boehringer-Ingelheim outside the submitted work. VC reports speakers fees from AstraZeneca, unrelated to the conduct of this study. MH has received grants and personal fees outside the submitted work from GSK, AstraZeneca, Sanofi, Novartis, Teva, and Chiesi, all paid to his employer Alfred Health. CE reports travel support from Chiesi and speaker fees from AstraZeneca outside the submitted work. RD is a co-founder of and consultant to Synairgen, has received funding for lectures from GSK, and has been on advisory boards of GSK, Celltrion, ALK Abello, and ZenasBio, all unrelated to this work. Unrelated to this work, NL has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speakers bureau presentations from GSK, Teva, and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva, Regeneron, and GSK; her institution received research support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Niox, Regeneron, Sanofi, Novartis, and Teva. NL is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. SH reports speakers fees from AstraZeneca, Berlin-Chemie Menarini, Takeda, Providens, and Amicus Therapeutics; support for attending meetings from AstraZeneca, Chiesi (Providens), and Hemofarm; and payment for advisory boards from AstraZeneca, Berlin-Chemie Menarini, and Providens, all unrelated to this work. WCGF declares stock ownership in relation to Sanofi, GSK, and AstraZeneca,

unrelated to this work. HMH co-holds a method patent on anti-ADAM33 oligonucleotides and related methods, which is unrelated to the current work. All other authors declare no competing interests.

Supplementary info

Publication types, MeSH termsExpand

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Lancet Respir Med

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. 2025 Sep;13(9):775-776.

doi: 10.1016/S2213-2600(25)00170-5. Epub 2025 Jul 8.

Beyond the airways in difficult-to-treat asthma: multimorbidity as the rule, not the exception

Hannu Kankaanranta [1], Bright I Nwaru [2]

Affiliations Expand

- PMID: 40645202

- DOI: 10.1016/S2213-2600(25)00170-5

No abstract available

Conflict of interest statement

HK reports personal fees for lectures and consulting from AstraZeneca, Boehringer-Ingelheim, Chiesi Pharma, Covis Pharma, GSK, MSD, Orion Pharma, and Sanofi, outside the submitted work. BIN declares no competing interests.

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Respir Med

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. 2025 Sep:246:108240.

doi: 10.1016/j.rmed.2025.108240. Epub 2025 Jul 1.

Physical activity levels in Danish adults with and without asthma - A national recurrent cross-sectional case-control study from 2010 to 2021

Henrik Hansen [1], Nina Godtfredsen [2], Charlotte Suppli Ulrik [3], Jeanette Hansen [4], Peter Elsborg [5], Christina Bjork Petersen [6], Stig Molsted [7]

Affiliations Expand

- PMID: 40609703

- DOI: 10.1016/j.rmed.2025.108240

Free article

Abstract

Background: A few decades ago, individuals with asthma were recommended to avoid strenuous physical activity (PA) to prevent bronchoconstriction. Today, PA and exercise are key components in asthma management, as studies have shown positive effects on asthma control and exacerbation rates.

Objective: To investigate if PA levels (PAL) changed among individuals with and without asthma from 2010 to 2021. Secondly, to investigate the association between asthma status and PALs in 2021.

Methods: Data were derived from the National Danish Health Surveys in 2010 (n = 172,226) and 2021 (n = 178,875). Individuals with self-reported asthma, no COPD and complete PA data were matched 1:1 with individuals without asthma on survey year, age, sex, and educational level. The regression analyses were adjusted for mental health, pain inference, comorbidities, demographic, and behavioral factors.

Results: The analyses comprised 11,842 asthma cases and controls in 2010 and 16,152 in 2021 (60 % females, mean ± SD age 49 ± 17 yrs). Individuals with asthma engaging in moderate/vigorous PA (MVPA) declined from 2010 to 2021 (27 % vs 21 %, respectively, p < 0.001). In 2010 and 2021, a lower proportion of asthma cases engaged in MVPA compared to controls (27 % vs 29 %, p < 0.001, and 20 % vs 21 %, p < 0.001, respectively). In 2021, having asthma was associated with reduced odds of MVPA (OR 0.84 [95 % CI 0.73; 0.97]). Pain inference, self-perceived poor mental

health, and being a current smoker (all p < 0.001) were negatively associated with PAL.

Conclusion: Physical activity level declined over the past decade for individuals with and without asthma. In 2021, asthma was associated with lower odds of engaging in MVPA.

Keywords: Asthma; Physical activity; Public health; Recurrent cross-sectional study; Time trends.

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: Henrik reports was provided by Copenhagen University Hospital Hvidovre. Henrik Hansen reports a relationship with Copenhagen University Hospital Hvidovre that includes: employment. None to declare in relation to the submitted manuscript If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

MeSH termsExpand

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Am J Respir Crit Care Med

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. 2025 Sep;211(9):1723-1724.

doi: 10.1164/rccm.202505-1106LE.

Baseline Membrane Thickness in Asthma: Where Type-2 Inflammation Meets Remodeling?

James Melhorn [1], Simon Couillard [2]

Affiliations Expand

- PMID: 40587943

- DOI: 10.1164/rccm.202505-1106LE

No abstract available

Supplementary info

Publication types, Grants and fundingExpand

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22

Am J Respir Crit Care Med

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. 2025 Sep;211(9):1724-1725.

doi: 10.1164/rccm.202505-1245LE.

Reply to Melhorn and Couillard: Baseline Membrane Thickness in Asthma: Where Type-2 Inflammation Meets Remodeling?

Clarus Leung [1], John V Fahy [1 2]

Affiliations Expand

- PMID: 40587942

- DOI: 10.1164/rccm.202505-1245LE

No abstract available

Supplementary info

Publication typesExpand

Full text links

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Cite

23

Respir Med

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. 2025 Sep:246:108223.

doi: 10.1016/j.rmed.2025.108223. Epub 2025 Jun 26.

Real-world respiratory effectiveness of mepolizumab in severe eosinophilic asthma and eosinophilic granulomatosis with polyangiitis

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Affiliations Expand

- PMID: 40581257

- DOI: 10.1016/j.rmed.2025.108223

Abstract

Background: Severe eosinophilic asthma (SEA) and eosinophilic granulomatosis with polyangiitis (EGPA) share a common type 2 inflammatory pathway but differ in systemic involvement and corticosteroid dependence. Real-world data on mepolizumab's effectiveness in Chinese SEA and EGPA populations are limited, and no study has jointly evaluated both cohorts.

Methods: We conducted a single-center, retrospective cohort study of 38 consecutive SEA or EGPA patients treated with mepolizumab between July 2022 and February 2025 in China. Key outcomes included asthma exacerbation frequency, oral corticosteroid (OCS) use, lung function (FEV_1 % predicted), and symptom control (ACQ-5, mini-AQLQ, SNOT-22) at baseline, 6 months, and 12 months. Safety and tolerability were also assessed.

Results: After 12 months, the proportion of patients with ≥1 exacerbation decreased from 66 % to 14 % (P < 0.001), and median annual exacerbation rate fell from 2.0 (IQR 2.0-4.0) to 0.0 (IQR 0.0-0.8; P < 0.001). OCS use declined from 63 % to 23 %, with median daily prednisone dose reduced from 10.0 mg to 5.0 mg (P < 0.001). Mean FEV_1 % predicted increased from 69.3 % to 81.4 % at 12 months (P = 0.004); the SEA subgroup, characterized by more severe baseline obstruction, achieved a statistically significant FEV_1 % predicted gain, whereas improvements in EGPA did not reach significance. Symptom scores (ACQ-5, mini-AQLQ, SNOT-22) improved significantly in both cohorts (all P < 0.001). Two patients reported mild arthromyalgia.

Conclusion: In this real-world Chinese cohort, mepolizumab was well tolerated and associated with substantial reductions in exacerbations and OCS requirement,

significant lung function gains, particularly in SEA, and marked symptom improvement in both SEA and EGPA.

Keywords: Eosinophilic airway inflammation; Eosinophilic granulomatosis with polyangiitis; Mepolizumab; Severe eosinophilic asthma.

Conflict of interest statement

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

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Cite

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Am J Respir Crit Care Med

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. 2025 Sep;211(9):1636-1643.

doi: 10.1164/rccm.202409-1853OC.

Association of Annual Exposure to Air Pollution Mixture on Asthma Hospitalizations in the United States

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Affiliations Expand

- PMID: 40548919

- DOI: 10.1164/rccm.202409-1853OC

Abstract

Rationale: Air pollutants have adverse effects on asthma exacerbation in people of all ages. However, fewer studies have examined long-term exposure to particle

components in conjunction with nitrogen dioxide (NO_2) and ozone (O_3) to assess their mixture effects. Objectives: We used weighted quantile sum regression to assess the cumulative effects of 15 particle components, including organic compounds and metals, together with NO_2 and O_3, on counts of inpatient asthma hospitalizations for children 0-18 years of age and adults 19-64 years of age. Methods: We conducted two separate weighted quantile sum models for each age group, with weights constrained between 0 and 1 while summing up to 1, $q = 10$ deciles, and 100 bootstrap samples. Measurements and Main Results: Inpatient records for asthma hospitalizations from 2002 to 2016 were collected from 11 U.S. state inpatient databases. We also included temperature and variables from the U.S. census to control for socioeconomic status. All variables were aggregated to the annual ZIP code level. We observed an increase of 10.6% (95% confidence interval, 10.0-11.2%) and 8.0% (95% confidence interval, 7.7-8.4%) in the number of asthma inpatient hospitalizations each year for each decile increase of the pollutant mixture in children 0-18 years of age and adults 19-64 years of age, respectively. Nickel, vanadium, sulfate, nitrate, bromine, and ammonium contributed the most weight to the association found. Conclusions: Our results indicate that long-term exposure to pollutant mixtures is associated with increased risk of asthma hospitalization in both children and adults, and daily measurements of particle components data are needed to assess short-term exposure.

Keywords: NO2; asthma; ozone; particulate matter components; weighted quantile sum.

Comment in

- Beyond Single Pollutants: Mixture Analysis Methods in Air Pollution and Asthma Research.

Lu W, Balmes JR.Am J Respir Crit Care Med. 2025 Sep;211(9):1539-1540. doi: 10.1164/rccm.202506-1327ED.PMID: 40700728 No abstract available.

doi: 10.1016/j.ijcrp.2025.200451. eCollection 2025 Sep.

Association between asthma and cardiovascular disease among a United States representative population

Humza Naqvi [1], Charles D Searles [2 3]

Affiliations Expand

- PMID: 40546977
- PMCID: PMC12180956
- DOI: 10.1016/j.ijcrp.2025.200451

No abstract available

- 5 references

Full text links

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Cite

26

Am J Respir Crit Care Med

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. 2025 Sep;211(9):1622-1635.

doi: 10.1164/rccm.202412-2438OC.

Clinical Remission by a Comprehensive Severe Asthma Management Strategy Guided by Airway Inflammometry and Bioimaging

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Affiliations Expand

- PMID: 40540629

- DOI: 10.1164/rccm.202412-2438OC

Abstract

Rationale: Clinical remission is a multicomponent treatment goal in severe asthma. However, only about 30% of patients achieve clinical remission when treatment decisions are guided using blood eosinophil counts and fractional exhaled nitric oxide concentrations. Objectives: To assess the effectiveness of a comprehensive, individualized treatment strategy in achieving clinical remission over 24 months in patients with severe asthma. Methods: Treatment strategies-including antiinflammatory therapies, biologics, antibiotics, immunomodulators, and bronchial thermoplasty-were guided by clinical assessment, airway physiology, airway inflammometry, and bioimaging. Clinical remission was defined as no exacerbations for 24 months, no oral corticosteroid use, and partly/well-controlled symptoms, with or without lung function criteria. Measurements and Main Results: A total of 178 patients with severe asthma were evaluated. Of these, 88.2% were treated with biologics alone or in combination with other strategies; 20.2% were treated with antibiotics, hypertonic saline, and/or immunoglobulins; and 9% underwent bronchial thermoplasty after controlling the inflammatory component. After 24 months, 89.9% of patients were exacerbation-free, 83.1% were oral corticosteroid-free, 78.1% had partly/well-controlled symptoms, and 85.4% had preserved lung function. Clinical remission was achieved in 66.3% of patients based on the three primary criteria and in 61.6% when including FEV_1% decline $\leqslant$5% from baseline. However, when the most stringent criteria were applied (five-point Asthma Control Questionnaire $\leqslant$0.75 and FEV_1 $\geqslant$80%), the clinical remission rate was 29.1%. Residual disease activity was driven primarily by airway infections and airway hyperresponsiveness rather than type 2 inflammation. Conclusions: By using a comprehensive set of biomarkers and a management strategy tailored to individual pathobiology, a high proportion of patients with severe asthma can achieve clinical remission, depending on the definitions used. Nonetheless, recurrent airway infections, mucus, and airway hyperresponsiveness remain key unmet needs in severe asthma.

Keywords: imaging; inflammometry; remission; severe asthma; sputum.

Comment in

- Treatment of Severe Asthma Is Not "Cookie-Cutter" Medicine.

Busse WW, Viswanathan R.Am J Respir Crit Care Med. 2025 Sep;211(9):1537-1539. doi: 10.1164/rccm.202506-1403ED.PMID: 40700732 No abstract available.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

27

Observational Study

Respir Investig

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. 2025 Sep;63(5):726-733.

doi: 10.1016/j.resinv.2025.05.007. Epub 2025 Jun 11.

Real-world effectiveness of budesonide/glycopyrronium/formoterol fumarate metered dose inhaler on symptoms and quality of life in patients with COPD: EBISU study

Shigeo Muro [1], Soichiro Hozawa [2], Hisatoshi Sugiura [3], Yuri Yoshida [4], Naoyuki Makita [4], Yuki Kato [4], Takehiro Hirai [4], Kenichiro Nishida [4], Tomotaka Kawayama [5]

Affiliations Expand

- PMID: 40513294

- DOI: 10.1016/j.resinv.2025.05.007

Free article

Abstract

Background: There are limited real-world data regarding triple therapy with inhaled corticosteroid/long-acting muscarinic antagonist/long-acting β_2-agonist on symptoms and patient-reported outcomes (PROs) in patients with chronic obstructive pulmonary disease (COPD), without current/history of asthma. We investigated the effects of budesonide/glycopyrronium/formoterol fumarate (BGF) metered dose inhaler (MDI) triple therapy on health status and PROs in patients with COPD in daily clinical practice.

Methods: This was a 12-week, prospective, multicenter, observational study (NCT05219630). The primary endpoint was mean change from baseline in the COPD Assessment Test (CAT) over 12 weeks. Secondary and exploratory endpoints included mean change from baseline in the St George's Respiratory Questionnaire (SGRQ) over 12 weeks and CAT score subgroup analyses.

Results: In total, 102 patients were analyzed; mean age at baseline was 73.8 years, mean forced expiratory volume in 1 s was 57.7 %, CAT total score was 15.6, and SGRQ score was 33.3. The adjusted mean change from baseline over 12 weeks in CAT was -2.9 (standard error [SE] 0.5) (P < 0.001), and in SGRQ was -2.7 (SE 0.9) (P

= 0.004). As early as Week 4, these scores were significantly improved from baseline. In subgroup analyses, CAT scores were improved, regardless of blood eosinophil counts at baseline and exacerbation history in the previous year.

Conclusions: Triple therapy with a BGF MDI significantly improved CAT and SGRQ scores over 12 weeks. BGF MDI could be a suitable option for patients living with COPD who have persistent symptoms without current asthma or a history of asthma.

Trial registration: ClinicalTrials.gov (NCT05219630).

Keywords: Budesonide/glycopyrronium/formoterol fumarate drug combination; COPD Assessment Test; Chronic obstructive pulmonary disease; Patient-reported outcome; Quality of life.

Conflict of interest statement

Declaration of competing interest Shigeo Muro has received honoraria from AstraZeneca K.K., Boehringer Ingelheim, and GlaxoSmithKline. Soichiro Hozawa has received honoraria from AstraZeneca K.K., GlaxoSmithKline, Novartis, and Kyorin Pharmaceutical. Hisatoshi Sugiura has received honoraria from AstraZeneca K.K., GlaxoSmithKline, Boehringer Ingelheim, Novartis, and Sanofi. Yuri Yoshida, Naoyuki Makita, Yuki Kato, Takehiro Hirai, and Kenichiro Nishida are employees of AstraZeneca K.K. Tomotaka Kawayama has received honoraria from AstraZeneca K.K., GlaxoSmithKline, Boehringer Ingelheim, and Sanofi.

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Respir Investig

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. 2025 Sep;63(5):711-717.

doi: 10.1016/j.resinv.2025.06.002. Epub 2025 Jun 6.

Clinical and complete remission in patients with severe asthma with 24-month dupilumab treatment

Tomoko Tajiri [1], Motohiko Suzuki [2], Hirono Nishiyama [3], Tatsuro Suzuki [3], Yuki Amakusa [3], Keima Ito [3], Yuta Mori [3], Kensuke Fukumitsu [3], Satoshi Fukuda [3], Yoshihiro Kanemitsu [3], Takehiro Uemura [3], Hirotsugu Ohkubo [3], Masaya Takemura [3], Yutaka Ito [3], Tetsuya Oguri [3], Akio Niimi [3]

Affiliations Expand

- PMID: 40482373

- DOI: 10.1016/j.resinv.2025.06.002

Abstract

Background: A few studies have reported asthma clinical remission with 24-month dupilumab therapy; however, complete remission remains unknown. In this post hoc analysis of our previous study, the achievement rates of clinical and complete remissions, and the factors associated with clinical remission with 24-month dupilumab therapy were assessed in adult patients with severe asthma.

Methods: Twenty-eight patients who had participated in our previous study were included. The primary outcome was the achievement rates of three-component clinical remission, four-component clinical remission, and complete remission at 24 months. The secondary outcome was the factors associated with achievement of four-component clinical remission at 24 months. Three-component or four-component clinical remission was defined as: 1) no significant asthma symptoms; 2) oral corticosteroid-free; 3) exacerbation-free; with or without 4) normalized pulmonary function. Complete remission was defined as four-component clinical remission plus 5) the resolution of asthma-related inflammation and 6) negative airway hyperresponsiveness.

Results: At 24 months, 19 (68 %), 16 (57 %), and 2 patients (7 %) achieved three-component, four-component clinical remission, and complete remission, respectively. At 24 months, patients with a higher incidence of comorbid chronic rhinosinusitis with nasal polyps, lower incidence of comorbid depression/anxiety, higher type 2 biomarkers, lower inhaled corticosteroid dose, better asthma control at baseline, and fewer exacerbations, unscheduled physicians' visit or hospitalization in the previous year more frequently achieved four-component clinical remission than those without (all $P < 0.05$).

Conclusions: The achievement rates of clinical or complete remission were maintained for up to 24 months in patients with severe asthma receiving dupilumab therapy.

Trial registration: This study was registered in the UMIN Clinical Trial Registry (UMIN000038669).

Keywords: Airway hyperresponsiveness; Asthma; Clinical remission; Complete remission; Dupilumab.

Conflict of interest statement

Declaration of competing interest The authors have no conflicts of interest.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

29

Epidemiology

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. 2025 Sep 1;36(5):606-615.

doi: 10.1097/EDE.0000000000001881. Epub 2025 May 28.

Medium-term Exposure to Wildfire Smoke PM 2.5 and Cardiorespiratory Hospitalization Risks

Yaguang Wei [1 2], Edgar Castro [2], Kanhua Yin [3], Alexandra Shtein [2], Bryan N Vu [2], Mahdieh Danesh Yazdi [4], Longxiang Li [5], Yuxi Liu [6 7], Adjani A Peralta [2], Joel D Schwartz [2 7]

Affiliations Expand

- **PMID: 40433992**

- **PMCID: PMC12234148 (available on 2026-05-28)**

- **DOI: 10.1097/EDE.0000000000001881**

Abstract

Background: Wildfire activity in the United States has increased substantially in recent decades. Smoke fine particulate matter (PM 2.5), a primary wildfire emission, can remain in the air for months after a wildfire begins, yet large-scale evidence of its health effects remains limited.

Methods: We obtained hospitalization records for the residents of 15 states between 2006 and 2016 from the State Inpatient Databases. We used existing daily smoke PM 2.5 estimations at 10-km 2 grid cells across the contiguous United States and

aggregated them to ZIP codes to match the spatial resolution of hospitalization records. We extended the traditional case-crossover design, a self-controlled design originally developed for studying acute effects, to examine associations between 3-month average exposure to smoke PM 2.5 and hospitalization risks for a comprehensive range of cardiovascular (ischemic heart disease, cerebrovascular disease, heart failure, arrhythmia, hypertension, and other cardiovascular diseases) and respiratory diseases (acute respiratory infections, pneumonia, chronic obstructive pulmonary disease, asthma, and other respiratory diseases).

Results: We found that 3-month exposure to smoke PM 2.5 was associated or marginally associated with increased hospitalization risks for most cardiorespiratory diseases. Hypertension showed the greatest susceptibility, with the highest hospitalization risk associated with 0.1 μg/m 3 increase in 3-month smoke PM 2.5 exposure (relative risk: 1.0051; 95% confidence interval = 1.0035, 1.0067). Results for single-month lagged exposures suggested that estimated effects persisted up to 3 months after exposure. Subgroup analyses estimated larger effects in neighborhoods with higher deprivation level or more vegetation, as well as among ever-smokers.

Conclusions: Our findings provided unique insights into medium-term cardiorespiratory effects of smoke PM 2.5 , which can persist for months, even after a wildfire has ended.

Keywords: Cardiorespiratory diseases; Medium-term effect; Self-controlled design; Wildfire.

Conflict of interest statement

Disclosure: The authors report no conflicts of interest.

- Cited by 1 article
- 50 references

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

Full text links

Cite

30

Toxicol Appl Pharmacol

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. 2025 Sep:502:117412.

doi: 10.1016/j.taap.2025.117412. Epub 2025 May 25.

Preclinical evaluation of N-acetyl-cysteine in association with liposomes of lung surfactant's lipids for the treatment of pulmonary fibrosis and asthma

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Affiliations Expand

- PMID: 40425069

- DOI: 10.1016/j.taap.2025.117412

Abstract

Purpose: There is a need to generate new treatments against pulmonary diseases such as idiopathic fibrosis and asthma. N-acetylcysteine (NAC) has multiple clinical applications, but its unstable nature and route of administration limits its effectiveness. New pulmonary delivery strategies, such as liposomes made of lung surfactant lipids, could overcome NAC's limitations. This work aims to evaluate the efficacy of NAC combined with liposomes as a treatment for asthma and in preventing fibrotic development.

Methods: Unilamellar vesicles were obtained through the dehydration-rehydration method followed by multiple membrane extrusion and characterized by Dynamic Light Scattering and Transmission electron microscopy. Lung fibrosis was induced by bleomycin administration, and liposomal formulation of NAC (LipoNAC) was evaluated as a preventive treatment. LipoNAC formulation was also evaluated in a therapeutic regimen for asthma using the classic ovalbumin model. For both models, the administration of the treatment was via the intranasal route.

Results: NAC treatments (free NAC and LipoNAC) improved lung histopathology and decreased collagen deposition when tested in the lung fibrosis model. Only LipoNAC decreased serum levels of lactate dehydrogenase, myeloperoxidase activity in lung fluid and lung TGF-β. Although both treatments decreased Th2 cytokine and histopathological inflammation in the asthma model, only LipoNAC treatment significantly decreased mucus in asthmatic mice.

Conclusions: These results indicate that surfactant liposomal delivery of NAC potentiates its anti-inflammatory, mucolytic, and antioxidant activity, rendering it a promising therapy for respiratory diseases.

Keywords: Asthma; Idiopathic pulmonary fibrosis; Liposomes; Lung surfactants; N-acetylcysteine; Respiratory diseases.

Conflict of interest statement

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

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

31

Am J Med Sci

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. 2025 Sep;370(3):245-250.

doi: 10.1016/j.amjms.2025.05.005. Epub 2025 May 18.

Diagnostic value of FeNO, periostin, IL-4, and ECP in patients with acute exacerbation of bronchial asthma

Menglong Feng [1], Linggin Meng [2], Yaben Yao [3]

Affiliations Expand

- **PMID: 40393571**

- **DOI: 10.1016/j.amjms.2025.05.005**

Abstract

Objective: This study aimed to analyze the diagnostic value of fractional exhaled nitric oxide (FeNO), periostin, interleukin (IL)-4, and eosinophil cationic protein (ECP) in patients with acute exacerbation of bronchial asthma (AEBA) and their relationship with lung function.

Methods: Ninety-six bronchial asthma patients admitted to our hospital from January 2020 to January 2021 were collected and divided into two groups: acute exacerbation group (n = 55) and non-acute-exacerbation group (n = 41). Pulmonary function indices and serum levels of FeNO, IL-4, periostin, ECP, and EOS % were determined. Pearson correlation analysis was used to analyze the relationships between these biomarkers and pulmonary function indices. A receiver operating characteristic (ROC) curve was applied to assess the diagnostic value of these biomarkers for AEBA.

Results: The acute-exacerbation group showed lower percentage of predicted values of peak expiratory flow (PEF %pred), forced expiratory volume in 1 s (FEV1 %pred), and forced vital capacity (FVC %pred) while higher levels of FeNO, IL-4, periostin, ECP, and EOS compared to the non-acute-exacerbation group. Pearson correlation analysis indicated that FeNO, IL-4, periostin, and ECP levels were negatively correlated with PEF %pred, FEV1 %pred, and FVC %pred, and positively correlated with EOS %. ROC curve analysis revealed that these biomarkers had high predictive value for AEBA.

Conclusions: FeNO, IL-4, periostin, and ECP levels are negatively correlated with pulmonary function indices (PEF %pred, FEV1 %pred, and FVC %pred) and positively correlated with EOS %. These biomarkers have high predictive value for AEBA.

Keywords: Acute exacerbation of bronchial asthma; Diagnostic value; ECP; FeNO; IL-4; Lung function; Periostin.

Conflict of interest statement

Declaration of competing interest Menglong Feng, Lingqin Meng and Yaben Yao declare that they have no conflicts of interest.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

32

Review

J Asthma

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. 2025 Sep;62(9):1472-1482.

doi: 10.1080/02770903.2025.2505464. Epub 2025 May 19.

Obesity-driven airway eosinophilia and neutrophilia in asthma

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Affiliations Expand

- **PMID: 40372017**

- **PMCID: PMC12353983 (available on 2026-05-19)**

- **DOI: 10.1080/02770903.2025.2505464**

Abstract

Objective: Asthma patients with comorbid obesity tend to have more severe, difficult-to-control asthma than lean asthma patients. This increase in asthma severity may be due, in part, to obesity-related adipokines, such as leptin, which contribute to airway hyperresponsiveness, sustained subclinical chronic inflammation, and treatment resistance. This narrative literature review aims to elucidate the differences in airway eosinophilia and neutrophilia profiles between asthma patients with and without obesity.

Methods: A PubMed search of full journal articles published between 1992 and 2024 was performed in April 2024 using the terms "asthma", "tissue eosinophilia" and "obesity" combined with the Boolean operator "AND". Articles detailing airway tissue eosinophilia and neutrophilia in asthma patients or mice were included. Only articles in English were included.

Results: To date, several studies have reported increased airway tissue eosinophilia in obese mouse asthma models (four studies) and in asthma patients with obesity (three studies). Airway tissue eosinophilia in asthma patients with obesity is driven by altered and elevated levels of adipokines, pro-inflammatory cytokines, and eosinophil-stimulating chemokines such as eotaxin. Leptin and eotaxin levels are increased in asthma with obesity and contribute to enhanced eosinophil recruitment, migration, adhesion to airway smooth muscles and fibroblasts, and reduced apoptosis.

Conclusions: Airway tissue eosinophilia is an important feature of obesity-associated asthma. Airway tissue eosinophilia is mainly driven by obesity-related homeostatic changes. These increased airway tissue eosinophils contribute to a more severe disease.

Keywords: Asthma; airway eosinophilia; cytokines; obesity.

Conflict of interest statement

Conflicts of Interest

JLI and LGQ have received NIH funding. JLI and LGQ have grant funding from Sanofi/Regeneron.

- **79 references**

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

33

J Asthma

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. 2025 Sep;62(9):1584-1590.

doi: 10.1080/02770903.2025.2499823. Epub 2025 May 8.

Efficacy of tiotropium bromide on spirometric measurements and control of asthma in real life: data from a 1-year clinical follow-up

Fatma Dindar Çelik [1], Kurtuluş Aksu [1], Enes Çelik [2], Hatice Çelik Tuğlu [1], Melis Yağdıran [1], Özgür Akkale [1], Onur Telli [1], Gözde Köycü Buhari [1], Sakine Nazik Bahçecioğlu [1], Funda Aksu [3]

Affiliations Expand

- PMID: 40304436

- DOI: 10.1080/02770903.2025.2499823

Abstract

Objective: Real-life studies are needed to evaluate the clinical outcomes of add-on tiotropium therapy in patients with asthma. The effects of adding tiotropium bromide to the treatment of asthmatic patients on pulmonary functions and asthma control using real-life data.

Methods: In a retrospective study, spirometric measures and asthma control states were compared before and one year after of tiotropium treatment in asthmatic adults whose disease was not adequately controlled with a combination of inhaled corticosteroids and long-acting β2-agonists.

Results: One year after tiotropium treatment, mean FEV1, FEV1%, and FEV1/FVC ratio increased significantly compared to pretreatment values. Among 32 patients added tiotropium due to symptomatic asthma, 28 (87.5%) patients achieved well-controlled (ACT ≥ 20) end of the year and GINA treatment step-down in 4 (12.5%) patients. Monoclonal antibody therapies (mepolizumab or omalizumab) were initiated in 9 patients (28.1%). FEV1 values and FEV1/FVC ratios showed a statistically significant improvement from baseline measurements obtained prior to

the initiation of tiotropium therapy, independent of monoclonal antibody use (p < .001 for each). The mean age of these patients was 48.78 ± 11.64 (range: 28-81) years, and 25 (78.1%) of them were female.

Conclusions: Tiotropium bromide is an effective and reliable add-on therapy for symptomatic asthma when combined with ICS plus LABA, also leads to improvements in respiratory function and asthma control.

Keywords: Asthma; asthma control test; forced expiratory volume in one second (FEV1); forced vital capacity (FVC); respiratory volumes; tiotropium.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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34

Observational Study

J Asthma

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. 2025 Sep;62(9):1567-1574.

doi: 10.1080/02770903.2025.2495725. Epub 2025 Apr 26.

The impact of tezepelumab therapy on perceived asthma triggers: a multicenter real-life study

Andrea Portacci [1], Giulia Scioscia [2], Silvano Dragonieri [1], Maria Aliani [3], Ernesto Lulaj [1], Francesca Montagnolo [1], Pietro Magaletti [2], Piera Soccio [2], Luciana Salerno [3], Donato Lacedonia [2], Giovanna Elisiana Carpagnano [1]

Affiliations Expand

- PMID: 40257396

- DOI: 10.1080/02770903.2025.2495725

Abstract

Objective: Asthma exacerbations are often triggered by factors such as respiratory infections, allergens, exercise, and airway irritants, significantly affecting patients' respiratory symptoms and quality of life. Effective management of triggers is crucial in severe asthma care. Tezepelumab, an anti-thymic stromal lymphopoietin (TSLP) monoclonal antibody, can effectively reduce severe asthma exacerbations and symptoms burden. However, its impact on patients' perception of trigger-related symptoms remains underexplored.

Methods: We conducted an observational, multicenter study involving 30 severe asthma patients starting tezepelumab 210 mg every 4 wk. Asthma triggers were assessed with the Asthma Triggers Inventory (ATI), while respiratory symptoms and HRQoL were evaluated using the Asthma Control Test (ACT), Asthma Control Questionnaire (ACQ), and Asthma Quality of Life Questionnaire (AQLQ). Data were collected at baseline (T0) and after 3 months of treatment (T3).

Results: At T3, patients demonstrated a significant reduction in the impact of asthma triggers as well as improvements in the perception of triggers effects on HRQoL. Specific improvements were observed in the "air pollution/irritants" and "infection" domains of the ATI. Correlation analysis revealed a significant association between ATI and AQLQ changes over time.

Conclusion: Tezepelumab positively impacts patients' perception of asthma triggers and their HRQoL, supporting its role in managing triggers hypersensitivity as a treatable trait in severe asthma. Further research is warranted to investigate underlying mechanisms and long-term effects.

Keywords: Severe asthma; anti-TSLP; control; quality of life; tezepelumab; trigger.

. 2025 Sep;62(9):1560-1566.

doi: 10.1080/02770903.2025.2495729. Epub 2025 Apr 26.

Artificial intelligence in asthma health literacy: a comparative analysis of ChatGPT versus Gemini

Simon Høj [1], Vibeke Backer [1 2], Charlotte Suppli Ulrik [2 3], Torben Sigsgaard [4], Howraman Meteran [3 4 5]

Affiliations Expand

- PMID: 40257390

- DOI: 10.1080/02770903.2025.2495729

Abstract

Background: Asthma is a complex and heterogeneous chronic disease affecting over 300 million individuals worldwide. Despite advances in pharmacotherapy, poor disease control remains a major challenge, necessitating innovative approaches to patient education and self-management. Artificial intelligence driven chatbots, such as ChatGPT and Gemini, have the potential to enhance asthma care by providing real-time, evidence-based information. As asthma management moves toward personalized medicine, AI could support individualized education and treatment guidance. However, concerns remain regarding the accuracy and reliability of AI-generated medical content.

Objective: This study evaluated the accuracy of ChatGPT (version 4.0) and Gemini (version 1.2) in providing asthma-related health information using the Patient-completed Asthma Knowledge Questionnaire, a validated asthma literacy tool.

Methods: A cross-sectional study was conducted in which both AI models answered 54 standardized asthma-related items. Responses were classified as correct or incorrect based on alignment with validated clinical knowledge. Accuracy was assessed using descriptive statistics, Cohen's kappa for inter-model agreement, and chi-square tests for comparative performance.

Results: ChatGPT achieved an accuracy of 96.3% (52/54 correct; 95% CI: 87.5%-99.0%), while Gemini scored 92.6% (50/54 correct; 95% CI: 82.5%-97.1%), with no statistically significant difference ($p = 0.67$). Cohen's kappa demonstrated near-perfect agreement for ChatGPT ($\kappa = 0.91$) and strong agreement for Gemini ($\kappa = 0.82$).

Conclusion: ChatGPT and Gemini demonstrated high accuracy in delivering asthma-related health information, supporting their potential as adjunct tools for patient education. AI models could potentially play a role in personalized asthma management by providing tailored treatment guidance and improving patient engagement.

Keywords: AI accuracy; Asthma; ChatGPT; Gemini; artificial intelligence; asthma management; clinical frameworks; health information; large language models; patient education.

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

36

J Asthma

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Addressing gaps in asthma management during childbearing age and pregnancy: insights from a survey of Italian physicians and patients

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Affiliations Expand

- PMID: 40257168

- DOI: 10.1080/02770903.2025.2494222

Free article

Abstract

Background: Asthma is a common condition among women of childbearing age, requiring careful management, particularly during pregnancy. Despite existing guidelines, significant gaps remain in asthma management during pregnancy, notably for women with moderate-to-severe asthma.

Aim: This study aimed to explore the awareness, limitations, and challenges of asthma management during childbearing age and pregnancy from both asthmatic women (AW) and physician perspectives in Italy. Additionally, it sought to identify unmet needs and collect real-life experiences from Italian centers specialized in severe asthma care.

Methods: An anonymous online survey was disseminated through scientific networks and patient associations. Separate questionnaires were developed for doctors and AW by a task force of specialists.

Results: 76 doctors and 54 AW completed the survey, with 70% of AW reporting moderate-to-severe asthma. While most physicians had experience managing asthma in pregnancy, 40% lacked systematic collaboration with gynecologists recognizing the need for integrated care. Despite guidelines supporting asthma medication continuity, 60% of doctors reported discontinuing treatments due to perceived risks. However, surveyed AW generally expressed greater confidence in medication safety. Physicians and AW highlighted the lack of pre-pregnancy counseling, with 55% of AW reporting they had never discussed pregnancy plans when starting asthma treatment. Both groups emphasized the need for improved interdisciplinary collaboration and structured asthma care pathways during pregnancy.

Conclusions: This study reveals significant gaps in asthma management for women of childbearing age and during pregnancy, especially those with moderate-to-severe asthma. Improving outcomes requires better education for patients and healthcare providers, along with a structured multidisciplinary network.

Keywords: Severe/moderate asthma; asthma control; awareness; biologics; limits; real-life experience; unmet needs.

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J Asthma

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Distinct characteristics of asthma overlap phenotypes: Insights from the Turkish adult asthma registry

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Affiliations Expand

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Abstract

Introduction: Considerable overlaps exist between asthma phenotypes and the clinical significance of these overlaps remains undetermined. The objective of this study is to analyze the characteristics of asthma overlap phenotypes using data from the Turkish Adult Asthma Registry (TAAR).

Methods: This cross-sectional registry study included 2053 adult patients (74.8% female) with asthma.

Results: Overall, 39.3% (*n* = 697) had allergic-eosinophilic (AE), 26.0% (*n* = 461) had allergic-non-eosinophilic (ANE), 21.3% (*n* = 377) had non-allergic-eosinophilic (NAE), and 13.4% (*n* = 237) had non-allergic-non-eosinophilic (NANE) asthma. Severe asthma exacerbations and emergency department (ED) visits were more frequent in the AE (28.3%, 31.2%, respectively) and NAE groups (36.0%, 34.0%, respectively) than in the ANE (14.3%, 20.6%, respectively) and NANE groups (12.6%, 16.7%, respectively) ($p < 0.001$). FEV1 values were significantly lower in the AE group than in the ANE and NANE groups ($p < 0.001$, $p = 0.048$, respectively) and in the NAE group than in the ANE group ($p < 0.001$). Risk factors for poor asthma control included living in rural areas, asthma-related ED visits, FEV1 < 60% in the NAE; being overweight, chronic rhinosinusitis, oral corticosteroids use, age < 40 years in the NANE; FEV1 < 80% in the AE; and severe asthma exacerbations, ED visits for AE and ANE groups.

Conclusion: The considerable overlap between allergic and eosinophilic asthma phenotypes has clinical implications as increased rates of asthma exacerbations and healthcare utilization. The clinical heterogeneity among asthma phenotypes based on a single biomarker highlights the importance of multidimensional asthma phenotyping.

Keywords: Allergic asthma; eosinophilic asthma; non-allergic asthma; non-eosinophilic asthma; overlap; uncontrolled asthma.

Supplementary info

MeSH termsExpand

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. 2025 Sep;64(8):1152-1159.

doi: 10.1177/00099228251321597. Epub 2025 Mar 24.

The Link Between Respiratory Syncytial Virus-Induced Lower Respiratory Tract Infection and Type 2 Inflammation in Asthma

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Affiliations Expand

- **PMID: 40126358**

- **DOI: 10.1177/00099228251321597**

Abstract

Objective: To investigate the relationship between the type 2 inflammatory response associated with asthma and lower respiratory tract infection (LRTI) caused by respiratory syncytial virus (RSV).

Methods: Sixty-seven children with RSV infection hospitalized in our hospital from October 2023 to December 2023 and 27 healthy children undergoing medical examination were included. The study population was divided into the RSV LRTI

group (*n* = 67) and the control group (*n* = 27). Interleukin-13 (IL-13), serum total immunoglobulin E (IgE), mucin 5AC (MUC5AC), and blood eosinophil count (EOS) were tested and compared between the two groups. The presence or absence of specificity between the two groups was analyzed using the rank sum test and subject operating characteristic curves (Receiver Operating Characteristic curves, ROC curves).

Results: The levels of IL-13, IgE, MUC5AC, and EOS were higher in children with RSV LRTI compared to healthy children. These differences were statistically significant (*P* < .05). The ROC curve analysis results showed that IL-13, IgE, MUC5AC, and EOS predicted type 2 inflammation with areas under the curve of 0.687, 0.762, 0.764, and 0.646, respectively.

Conclusion: A type 2 inflammatory response associated with asthma may be observed after RSV-induced LRTIs.

Keywords: IL-13; IgE; MUC5AC; eosinophils (EOS); respiratory syncytial virus (RSV); type 2 asthma (T2 asthma).

Conflict of interest statement

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

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Clinical Trial

Ear Nose Throat J

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. 2025 Sep;104(9):NP613-NP617.

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Asthma control in normal weight and overweight/obese asthmatic children following adenotonsillectomy

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Affiliations Expand

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- DOI: 10.1177/01455613221101085

Free article

Abstract

ObjectivesChildhood adenotonsillar hypertrophy (ATH) with sleep-disordered breathing (SDB) frequently occurs concomitant with asthma. Adenotonsillectomy and reduction in asthma severity association has been reported. We describe changes in asthma control in nonobese or normal weight and obese/overweight children undergoing adenotonsillectomy for SDB.MethodsThis prospective, nonrandomized cohort trial with 6-month follow-up at a tertiary children's hospital enrolled 41 children with persistent asthma undergoing adenotonsillectomy for SDB. Children with significant chronic medical conditions, premature birth (< 28 weeks), or recent respiratory infection were excluded. Patients were stratified by baseline BMI into nonobese or normal weight (BMI < 85 percentile) and obese/overweight (BMI > 85%). The primary outcome was change in Childhood Asthma Control Test (cACT) scores 3 and 6 months following adenotonsillectomy. Secondary outcome examined improvement in Pediatric Asthma Caregiver's Quality of Life Questionnaire (PACQLQ) 3 and 6 months following adenotonsillectomy.ResultsBaseline characteristics were similar except for anthropometric measures and mean PACQLQ (P = .03). Children with nonobese or normal weight (n = 26) had statistically significant improvement in change in cACT at 3 (22.80 ± 2.33 vs. 17.86 ± 3.53, P < .001) and 6 (20.71±3.29 vs. 18.24 ± 4.16, P = .044) months compared with baseline. PACQLQ scores also improved at 3 (6.20 ± 0.87 vs. 4.56 ± 1.12, P < .001) and 6 (6.36 ± 0.72 vs. 4.93 ± 0.96, P < .001) months. Obese/overweight children (n = 10) had significant improvement in cACT scores at 6 months (20.00 ± 3.90 vs. 15.00 ± 6.90, P = .048). Change of cACT scores at 3 months (17.86 ± 3.53 vs. 14.86 ± 6.31, P = .272) was not significantly different. PACQLQ scores improved at 3 (5.47 ± 1.09 vs. 3.70 ± 0.85, P < .001) and 6 (5.75 ± 2.19 vs. 3.67 ± 1.04, P = .016) months.ConclusionNonobese or normal-weight children undergoing adenotonsillectomy demonstrated significant improvement in asthma control scores at 3 and 6 and obese/overweight children at 6 months. Using the PACQLQ, caregiver quality of life improved for all children at 3 and 6 months. Surgical management of ATH in children with comorbid SBD and asthma is a good treatment option.

Keywords: adenotonsillar hypertrophy; adenotonsillectomy; asthma; children; sleep-disordered breathing.

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: Dr. Lang receives funding from NHLBI, Regeneron Pharmaceuticals, the

Thrasher Foundation, and the American Lung Association. The remaining authors declare that they have no conflict of interest.

Supplementary info

Publication types, MeSH termsExpand

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

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J Allergy Clin Immunol Pract

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Idiopathic Anaphylaxis Grand Rounds

Moshe Ben-Shoshan [1], Cem Akin [2], Victoria E Cook [3], Roy Khalaf [4], George Freigeh [2]

Affiliations Expand

- PMID: 40882893

- DOI: 10.1016/j.jaip.2025.08.019

Abstract

Idiopathic anaphylaxis (IA) refers to recurrent, life-threatening hypersensitivity reactions without identifiable triggers, representing a diagnostic and therapeutic challenge. We describe a 17-year-old girl presenting with recurrent episodes of flushing, pruritus, and respiratory symptoms, without consistent allergen exposure or cofactor involvement. Evaluation revealed elevated acute tryptase levels with a normal baseline, negative skin testing, and negative alpha-gal and KIT mutation analysis. The patient improved on daily cetirizine with no further reactions. IA remains a diagnosis of exclusion, requiring careful consideration of IgE-mediated allergies, cofactor-dependent anaphylaxis, clonal mast cell disorders, and systemic mimics such as neuroendocrine tumors or vasovagal syncope. We summarize current evidence on IA pathogenesis, epidemiology, differential diagnosis, and management. While antihistamines and corticosteroids are commonly used prophylactically, emerging data suggest anti-IgE therapy with omalizumab may offer benefit in refractory cases. Diagnostic workup should include serum tryptase measurement, trigger identification, and consideration of underlying mast cell disorders. Future research is needed to clarify the natural history, standardize diagnostic pathways, and evaluate long-term treatment strategies for this

heterogeneous condition. CASE DESCRIPTION: A 17-year-old girl presented to the emergency department (ED) with a two-hour history of flushing, pruritus, and wheezing. The symptoms began after eating dinner, which included shepherd's pie and macadamia nuts, foods she had previously tolerated. There were no preceding exposures to medications, alcohol, or insect stings, and she did not engage in exercise prior to symptom onset. She reported three additional similar episodes. These were not consistently associated with eating, and there were no common foods or additives identified between episodes. There was no history of tick bite. There was no correlation between reactions and stage of her menstrual cycle. She did not have a personal or family history of atopy (atopic dermatitis, allergic rhinitis, asthma, IgE-mediated food allergy) or anaphylaxis. There was no history of spontaneous or inducible urticaria. She did not have a history of spontaneous flushing, pruritus, abdominal pain, diarrhea, presyncopal or syncopal episodes. She did not have a history of bony pain or fractures. At the time of the medical assessment in the ED, the patient's examination was notable for facial erythema and diffuse hives. Respiratory symptoms had resolved by the time of assessment. There were no cutaneous lesions suggestive of cutaneous mastocytosis. (Figure 1) The examination was otherwise unremarkable. She was given 2nd generation antihistamines, and symptoms gradually resolved over several hours. The serum tryptase drawn two hours following symptom initiation was 17.2 mcg/L. A repeat level five days later was 3.2 mcg/L. During a follow up visit three months after ED presentation, skin prick testing (SPT) was negative to a variety of food and inhalant allergens including macadamia nut, wheat and beef. Serum IgE testing to galactose-alpha-1,3-galactose (alpha-gal) was negative, and qPCR analysis for the KIT D816V mutation in peripheral blood was negative. The patient was prescribed prophylactic cetirizine (20 mg daily) for three months, during which she experienced no further reactions. Given the clinical presentation, absence of identifiable triggers and the tryptase levels obtained at the ED and five days later, the patient was diagnosed with idiopathic anaphylaxis (IA).

Keywords: “Anaphylaxis”; “idiopathic anaphylaxis”; “mast cell activation syndrome”; “mast cell”; “tryptase”.

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Int J Pediatr Otorhinolaryngol

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. 2025 Sep:196:112508.

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Impact of age and allergen type on sensitization changes in children with chronic rhinitis

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- PMID: 40782731

- DOI: 10.1016/j.ijporl.2025.112508

Abstract

Background: Aeroallergen sensitization evaluation aids in diagnosing and managing chronic rhinitis.

Objective: To investigate changes in allergen sensitization over time in children with rhinitis.

Methods: Children with chronic rhinitis who underwent aeroallergen skin prick tests (SPT) between 2009 and 2019 were re-evaluated with a second SPT between 2022 and 2024. Sensitization changes were assessed by comparing initial and re-evaluation SPT results. A negative converter was defined as a previously positive test that became negative.

Results: Among 300 children (mean age 11.5 years), positive SPT rates increased from 71.3 % to 83.7 % ($p < 0.001$). House dust mites (HDM) were the most common sensitization (77 %), followed by cockroaches (24 %). Sensitization patterns changed in 56.7 % of children. HDM sensitization increased across all age groups, while cat sensitization rose significantly in those initially tested before age 5. Negative conversion rates varied by allergen, highest for Careless Weed (85.7 %) and lowest for HDM (1.52 %). Children who became negative converters for Bermuda grass had smaller initial wheal sizes than those who remained positive (3 mm vs. 5.8 mm, $p = 0.003$).

Conclusion: Allergen sensitization patterns evolve over time, influenced by allergen type and patient age. Repeat testing may be necessary, especially for children with uncontrolled rhinitis.

Keywords: Aeroallergen sensitization change; Allergic rhinitis; Children; Desensitization; Developed sensitization; New sensitization; Skin prick test.

Conflict of interest statement

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

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Multicenter Study

Lancet Respir Med

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doi: 10.1016/S2213-2600(25)00135-3. Epub 2025 Jul 8.

Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts

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Free article

Abstract

Background: Multimorbidity (ie, co-existence of two or more health conditions) is highly prevalent in patients with difficult-to-treat asthma. However, it remains unclear how multimorbidity correlates with disease severity and adverse health outcomes in these patients and which comorbidities are most important. We aimed to address this knowledge gap by developing a patient-centred, clinically descriptive multimorbidity score for difficult-to-treat asthma.

Methods: We used data from the UK-based Wessex Asthma Cohort of Difficult Asthma (WATCH; n=500, data collected between April 22, 2015, and April 1, 2020) to develop the Multimorbidity in Difficult Asthma Score (MiDAS). Initially, we created a modified Asthma Severity Scoring System (m-ASSESS) in WATCH. We then conducted univariate association analysis to test the association between the 13 commonest comorbidities and m-ASSESS in WATCH and used a branch-and-bound approach to select the most relevant comorbidities for inclusion in MiDAS. We calculated MiDAS values for all patients with complete information in WATCH (n=319) and assessed them for correlation with components of m-ASSESS, proinflammatory biomarkers, and St George's Respiratory Questionnaire (SGRQ) score, a quality-of-life measure. We also assessed the association of MiDAS with multiple clinical outcomes in four international cohorts: two from Australia (n=236, data collected between June 14, 2014, and April 1, 2022; and n=140, Aug 6, 2012, to Oct 18, 2016), one from southeast Asia (n=151, March 21, 2017, to Jan 16, 2024), and one from the USA (n=100, July 9, 2021, to Dec 14, 2023).

Findings: We selected seven common comorbidities (ie, rhinitis, gastro-oesophageal reflux disease, breathing pattern disorder, obesity, bronchiectasis, non-steroidal anti-inflammatory drug-exacerbated respiratory disease, and obstructive sleep apnoea) for inclusion in MiDAS on the basis of the branch-and-bound analysis and combined them using multivariate linear regression to derive a MiDAS model associated with m-ASSESS in WATCH. The range of MiDAS scores was 9·6-16·2. In WATCH members, mean MiDAS value was 11·97 (SD 1·21) and MiDAS was nominally correlated with m-ASSESS components of poor asthma control (τ=0·31 [95% CI 0·24-0·38]) and exacerbations (τ=0·16 [0·08-0·24]). MiDAS was also correlated with worse total SGRQ score (r=0·39 [95% 0·28-0·49], p<0·0001) and with the proinflammatory plasma cytokines interleukin (IL)-4 (r=0·19 [95% CI 0·06-0·31], p=0·0036), IL-5 (r=0·35 [0·24-0·46], p<0·0001), and leptin (r=0·29 [0·17-0·40], p<0·0001) in WATCH. MiDAS values across the four international cohorts were similar to those of WATCH (UK cohort), with mean values of 12·33 (SD 1·47) and 12·31 (1·37) in the Australian cohorts, 11·80 (1·20) in the USA cohort, and 11·55 (1·23) in the Singapore cohort. In these cohorts, MiDAS correlated with worse asthma control, worse quality of life, anxiety, depression, and increased inflammation.

Interpretation: MiDAS highlights the co-occurrence of multimorbidity with the worst outcomes in difficult-to-treat asthma. These findings strongly indicate that an airway-centric approach is inadequate and that holistic and multidisciplinary care is imperative. This clinical score could help clinicians to identify patients most at risk from their multimorbidity.

Funding: UK National Institute for Health and Care Research, Australian National Health and Medical Research Council, Hunter Medical Research Institute, University of Newcastle (Australia), and John Hunter Hospital Charitable Trust.

Conflict of interest statement

Declaration of interests RJK co-holds a methods patent outside the submitted work on the cellular profiles of tissue resident memory T-cells and their use in asthma. BA is a member of the UK Taskforce for Lung Health, has received honoraria for

educational talks from AstraZeneca, and sits on advisory boards for the Medito Foundation and earGym (all unrelated to this work). PGG reports personal fees from AstraZeneca, GSK, and Novartis and grants from AstraZeneca and GSK, outside the submitted work. VMM reports grants from GSK outside the submitted work, and advisory board and speaker fees from GSK, Menarini, and Boehringer-Ingelheim outside the submitted work. VC reports speakers fees from AstraZeneca, unrelated to the conduct of this study. MH has received grants and personal fees outside the submitted work from GSK, AstraZeneca, Sanofi, Novartis, Teva, and Chiesi, all paid to his employer Alfred Health. CE reports travel support from Chiesi and speaker fees from AstraZeneca outside the submitted work. RD is a co-founder of and consultant to Synairgen, has received funding for lectures from GSK, and has been on advisory boards of GSK, Celltrion, ALK Abello, and ZenasBio, all unrelated to this work. Unrelated to this work, NL has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speakers bureau presentations from GSK, Teva, and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva, Regeneron, and GSK; her institution received research support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Niox, Regeneron, Sanofi, Novartis, and Teva. NL is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. SH reports speakers fees from AstraZeneca, Berlin-Chemie Menarini, Takeda, Providens, and Amicus Therapeutics; support for attending meetings from AstraZeneca, Chiesi (Providens), and Hemofarm; and payment for advisory boards from AstraZeneca, Berlin-Chemie Menarini, and Providens, all unrelated to this work. WCGF declares stock ownership in relation to Sanofi, GSK, and AstraZeneca, unrelated to this work. HMH co-holds a method patent on anti-ADAM33 oligonucleotides and related methods, which is unrelated to the current work. All other authors declare no competing interests.

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Surgical Treatment Outcomes in the Management of Rhinitis: A Systematic Review and Meta-Analysis

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Affiliations Expand

- PMID: 40417957

- DOI: 10.1177/00034894251341110

Abstract

Background: Rhinitis can present with symptoms including severe nasal obstruction, rhinorrhea, nasal itching, and sneezing. Surgical treatment options include inferior turbinate procedures, thought to target nasal congestion, and posterior nasal nerve (PNN) procedures, for relief of rhinorrhea. This review intends to quantify the degree of resolution of symptoms related to rhinitis from various procedures and guide clinical decision making.

Methods: A literature search identified studies reporting rhinitis symptoms at baseline and following surgical treatment. Outcomes of interest were the 4-item Total Nasal Symptom Score (TNSS) and VAS equivalents for "rhinorrhea," "nasal obstruction," "nasal itching," and "sneezing." Postnasal drip (PND) scores were additionally collected when available.

Results: A total of 20 studies (N = 1408) were analyzed. The TNSS fell by 50% (mean difference 3.86 points [95% CI 3.03-4.69]), with all 4 symptoms undergoing significant amelioration across all procedure types. Nasal congestion, rhinorrhea, and PND saw the largest improvement, with reductions ranging from 1.2 to 1.5 points. VAS scoring followed a similar pattern, with nasal obstruction and runny nose undergoing the largest changes. Turbinate and PNN procedures led to similar improvements in congestion and rhinorrhea, with average score reductions of 56.8% and 57.6% ($P = 0.7168$), respectively. Nasal itching and PND underwent differential improvement, with greatest improvements from PNN procedures (mean differences of 14.2% [95% CI: 4.7-23.4%] and 31.6% [95% CI: 21.2-40.6%], $P < .0001$).

Conclusion: All surgical treatments for rhinitis improve patient symptom burden, having the most drastic effect on nasal congestion and rhinorrhea. PNN procedures result in greater improvements in nasal itching and PND but otherwise perform similarly to inferior turbinate surgeries.

Keywords: adults rhinology; allergy/rhinology; quality of life.

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: Zachary M. Soler: OptiNose (consultant), Sinusonic (consultant), Regeneron (consultant), Sanofi (consultant). Rodney J. Schlosser: OptiNose (consultant), Sinusonic (consultant), Stryker (consultant).

Supplementary info

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Randomized Controlled Trial

Ann Otol Rhinol Laryngol

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. 2025 Sep;134(9):653-662.

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The Influences of Nasal Saline Irrigation on Chinese Children with Allergic Rhinitis Plus Asthma

Xiaofang Ji [1]

Affiliations Expand

- PMID: 40411220

- DOI: 10.1177/00034894251340877

Abstract

Objective: To determine the influence of nasal saline irrigation on Chinese pediatric patients with allergic rhinitis plus asthma.

Methods: An attempt was made to randomly categorize 60 pediatric patients with allergic rhinitis plus asthma, who were admitted to our hospital (June 2022-March 2023), into 2 groups (n = 30). Participants in the 2 groups were given routine treatment for allergic rhinitis plus asthma, while those in the observation group were additionally administered nasal saline irrigation. Thereafter, the overall

effective rate, total adverse reaction rate, nasal sign scores, childhood asthma control test (C-ACT) scores, total nasal symptom scores (TNSS), airway inflammation index (fractional exhaled nitric oxide, FENO), and allergy indices (Total serum IgE, TIgE; eosinophils, EOS) underwent comparative analysis before and after the treatment between the 2 principal groups.

Results: A significantly escalated overall effective rate was noted in the observation group relative to the control group (*P* = .023). The lack of a significant difference, particularly in the total adverse reaction rate, was noteworthy between the 2 principal groups (*P* = 0.640). A comparable analysis of nasal sign scores, C-ACT score, TNSS score, FENO, and allergy indices was conducted between the 2 groups before treatment, which showed a lack of significant differences. Significantly attenuated nasal sign scores, TNSS score, FENO, and allergy indices were observed in the observation group following treatment, relative to both the control group and pre-treatment levels. Significantly elevated C-ACT scores were also noted compared to both the control group and pre-treatment levels (*P* = .019).

Conclusion: Nasal saline irrigation proved remarkably effective, particularly in Chinese pediatric patients with allergic rhinitis plus asthma, showing advantages in alleviating disease-related symptoms and signs, reducing airway inflammation, and diminishing the severity of allergic reactions.

Keywords: allergic rhinitis; asthma; children; nasal irrigation; normal saline.

Conflict of interest statement

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

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Cite

6

Laryngoscope

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. 2025 Sep;135(9):3064-3070.

doi: 10.1002/lary.32207. Epub 2025 Apr 23.

Sinonasal Intervention Reduces the Need for Pressure Equalization Tube Placement in Atopic Adults

Lawrance Lee [1], Mihai A Bentan [1], Elizabeth Mastoloni [2], Theodore A Schuman [1]

Affiliations Expand

- PMID: 40265713
- PMCID: PMC12371816
- DOI: 10.1002/lary.32207

Abstract

Objectives: To determine the impact of management of upper airway atopic disease on middle ear and eustachian tube function in adults.

Methods: The TriNetX Research Network was queried to construct cohorts of adult patients with atopic disorders of the upper airway (defined by ICD-10 codes for asthma, allergic rhinitis, and chronic rhinosinusitis with nasal polyposis) with concurrent eustachian tube dysfunction (ETD) undergoing medical or surgical intervention for their atopic disease, including monoclonal antibody (mAb) therapy (e.g., dupilumab, mepolizumab, omalizumab), topical nasal steroid spray (fluticasone propionate), functional endoscopic sinus surgery (FESS), septoplasty with inferior turbinate submucosal resection (BITSMR), and allergy immunotherapy. The primary measured outcome was the difference in the rate of pressure equalization tube (PET) placement before and after each intervention.

Results: FESS demonstrated an absolute risk reduction (ARR) of 10.0% ($p < 0.05$, 95% confidence interval [CI] 8.9%-11.1%), septoplasty/BITSMR 7.5% ($p < 0.05$, 95% CI 6.3%-8.7%), mAb 5.5% ($p < 0.05$, 95% CI 4.1%-6.8%), nasal steroid spray (fluticasone proprionate) 0.9% ($p < 0.05$, 95% CI 0.8%-1.0%), and allergy immunotherapy 2.4% ($p < 0.05$, 95% CI 1.5%-3.2%). Individually, the three mAb-dupilumab, mepolizumab, and omalizumab-exhibited ARR of 6.5% ($p < 0.05$%, 95% CI 4.8%-8.3%), 6.8% ($p < 0.05$, 95% CI 2.6%-11.0%), and 3.4% ($p < 0.05$, 95% CI 1.4%-5.4%), respectively, without significant differences in rates of PET placement among the three ($p = 0.18$).

Conclusion: Management of upper airway atopic disorders via both medical and surgical intervention is associated with improvement in middle function as measured by the need for PET placement.

Keywords: allergy; atopy; eustachian tube dysfunction; monoclonal antibody; otitis media; tympanostomy.

Conflict of interest statement

The authors declare no conflicts of interest.

- 34 references
- 1 figure

Supplementary info

MeSH termsExpand

Full text links

Proceed to details

Cite

7

Review

Ear Nose Throat J

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. 2025 Sep;104(9):582-590.

doi: 10.1177/01455613221141214. Epub 2022 Nov 15.

Drug-Induced Rhinitis: Narrative Review

Saud Alromaih [1], Lamya Alsagaf [2], Nouf Aloraini [1], Abdulaziz Alrasheed [1], Ahmad Alroqi [1], Mohammad Aloulah [1], Saad Alsaleh [1], Tariq Alhawassi [3]

Affiliations Expand

- PMID: 36377650

- DOI: 10.1177/01455613221141214

Free article

Abstract

ObjectivesRhinitis, one of the most common inflammatory conditions of the nasal mucosa, is known to affect a large proportion of people worldwide. It is generally classified into allergic and non-allergic types and both are associated with several unpleasant symptoms. Several medications prescribed for different medical conditions can cause unpleasant rhinitis as an adverse effect, which is known as drug-induced non-allergic rhinitis. The aims of this article were to review the literature to identify drugs that could induce rhinitis, prevalence of drug-induced

rhinitis, and the associated pathogenic mechanisms if known.MethodsLiterature search screening for eligible papers published up to December 31st, 2021, in Medline (via PubMed) and Embase was conducted. The search included the following combination of keywords and terms: rhinitis, sneezing, congestion, allergic, non-allergic, rhinorrhea, vasomotor, medication, drug-induced.ResultsThe review findings suggest that 12 subtypes of drugs potentially could induce rhinitis. Based on their mechanisms of action, the pathogenic causes for the induction of rhinitis have been recognized for some drugs, while others remain unknown.ConclusionAwareness of the list of drugs that reportedly induce non-allergic nasal symptoms, along with taking the patient's medication history, is important in the diagnosis of rhinitis.

Keywords: adverse effect; drug related; drug-induced rhinitis; non-allergic; rhinitis.

Conflict of interest statement

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

- **Cited by 2 articles**

Supplementary info

Publication types, MeSH termsExpand

chronic cough

Deng Z, Song T, Ding W, Luo W, Xie J, Wu H, Zhong N, Lai K. Activated Interferon-γ-Positive T Lymphocytes and Cytokine Signatures in Patients With Postinfectious Cough. MedComm (2020). 2025 Aug 24;6(9):e70340. doi: 10.1002/mco2.70340. PMID: 40859955; PMCID: PMC12375690.

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

1

Eur Respir J

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. 2025 Aug 28:2500909.

doi: 10.1183/13993003.00909-2025. Online ahead of print.

The increasing burden of bronchiectasis in the United Kingdom

Eleni Bacopanos [1 2], Douglas L Forrester [1 2 3], Ella Girdler [3], Francesca Gonnelli [4], Jennifer K Quint [5], Vidya Navaratnam [6 2 5 7]

Affiliations Expand

- **PMID: 40876964**

- **DOI: 10.1183/13993003.00909-2025**

No abstract available

Supplementary info

Publication typesExpand

Full text links

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2

Eur Respir J

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. 2025 Aug 28:2500894.

doi: 10.1183/13993003.00894-2025. Online ahead of print.

Characterizing research trends in bronchiectasis through AI-powered analytics

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Affiliations Expand

- **PMID: 40876962**

- **DOI: 10.1183/13993003.00894-2025**

Abstract

Background: Interest in bronchiectasis is increasing and no prior study has used Artificial Intelligence (AI) to interrogate its rich, multidimensional literature to characterize research trends, themes and knowledge gaps.

Methods: We reviewed original bronchiectasis research between 1949-2024 (75-year period) to identify, characterize and assess research trends and trajectories using two AI-powered approaches: (1) ATLAS, an AI-topic modelling tool and (2) a custom model, leveraging ChatGPT embedding and text-generation models.

Results: AI-powered analytics reveal a nine-fold increase in bronchiectasis research speed since 2000, typified by enhanced richness with four new research topics emerging every five years. Publication trends mirror clinical and technological advances, exemplified by significant rises in computed tomography (CT), microbiome and clinical studies following adoption of HRCT (1970s), next-generation sequencing (2005) and the first clinical guidelines (2008-2010). Topics with sustained growth (*i.e.* popular) include bronchiectasis-COPD overlap, microbiome-infection, cardiovascular health and exacerbations while those with sudden, short-term increased interest (*i.e.* trending) focused on microbial pathogens and primary ciliary dyskinesia (PCD) genetics. Mortality represents a nascent topic demonstrating highest year-on-year interest. Growth of research within the "vicious vortex" demonstrates thematic imbalance with few studies overlapping with non-vortex components. Evolving research focus toward inflammation is evident, with increased work on comorbidities and quality of life demonstrating a shift from disease- to patient-centric research.

Conclusion: AI captures bronchiectasis as a dynamic and interdisciplinary field in continuing growth. Emerging research topics extend beyond the "vicious-vortex" framework indicating transition from disease- to patient-centric approaches to optimize clinical care.

Full text links

Proceed to details

Cite

3

Editorial

Eur Radiol

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. 2025 Aug 28.

doi: 10.1007/s00330-025-11970-x. Online ahead of print.

Bronchiectasis in COPD patients: AI-based CT extent assessment

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Affiliations Expand

- PMID: 40875019

- DOI: 10.1007/s00330-025-11970-x

No abstract available

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Philippe A. Grenier. Conflict of interest: The author of this manuscript declares relationships with the following companies: Speaking fees from Siemens Healthineers, advisory boards of Median Technology and Sophia Genetics. Statistics and biometry: No complex statistical methods were necessary for this paper. Informed consent: n/a. Ethical approval: n/a. Study subjects or cohorts overlap: n/a. Methodology: Commentary

Comment on

- Bronchiectasis in patients with chronic obstructive pulmonary disease: AI-based CT quantification using the bronchial tapering ratio.

Park H, Choe J, Lee SM, Lim S, Lee JS, Oh YM, Lee JB, Hwang HJ, Yun J, Bae S, Yu D, Loh LC, Ong CK, Seo JB.Eur Radiol. 2025 Aug 26. doi: 10.1007/s00330-025-11969-4. Online ahead of print.PMID: 40858775

- 10 references

Supplementary info

Publication typesExpand

Full text links

Observational Study

Respir Investig

. 2025 Sep;63(5):942-948.

doi: 10.1016/j.resinv.2025.07.016. Epub 2025 Jul 30.

Bronchiectasis in Japanese patients with chronic obstructive pulmonary disease: A prospective cohort study

Seiichi Kobayashi [1], Mitsuhiro Yamada [2], Masatsugu Ishida [3], Manabu Ono [3], Hikari Satoh [3], Masakazu Hanagama [3], Masaru Yanai [3]

Affiliations Expand

- PMID: 40743857

- DOI: 10.1016/j.resinv.2025.07.016

Abstract

Background: Bronchiectasis often coexists with chronic obstructive pulmonary disease (COPD) and is associated with worse clinical outcomes than COPD alone. However, there is limited evidence on Japanese patients with COPD. This study aimed to investigate the prevalence, clinical characteristics, and outcomes of bronchiectasis in Japanese patients with COPD.

Methods: This prospective observational study included a cohort of Japanese patients with COPD between April 2018 and January 2025. Patient characteristics, exacerbation frequency, and mortality were assessed over a 5-year follow-up period. The Cox proportional hazards model was used to evaluate the association between bronchiectasis and mortality.

Results: In total, 302 patients (287 males, 15 females; median age, 76 years) with stable COPD were enrolled, 15 % of whom had radiological bronchiectasis, and 3.3 % had ≥3 lobes involved or cystic bronchiectasis. Patients with COPD and bronchiectasis were older and had higher staging. No significant differences were observed in exacerbations or mortality rates between patients with and without bronchiectasis. Among patients with COPD and bronchiectasis, all-cause mortality was associated with airflow obstruction (hazard ratio [HR], 0.96; 95 % confidence interval [CI], 0.92-0.99), dyspnea (HR, 2.2; 95 %CI, 1.3-3.6), health status (HR 1.1; 95 %CI, 1.0-1.3), bronchiectasis severity index (HR, 1.3; 95 %CI, 1.1-1.6), and positive Pseudomonas aeruginosa culture (HR 6.7; 95 %CI, 1.3-33).

Conclusions: These findings demonstrated that radiological bronchiectasis was not associated with poor clinical outcomes within 5 years of follow-up. Among patients with COPD and bronchiectasis, mortality was associated with symptoms, disease severity, and positive Pseudomonas aeruginosa cultures.

Trial registration: This study was registered in the UMIN Clinical Trials Registry (UMIN000032112).

Keywords: Bronchiectasis; Chronic obstructive pulmonary disease (COPD); Exacerbations; Mortality.

Supplementary info

Publication types, MeSH terms, Supplementary conceptsExpand

Full text links

Cite

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Multicenter Study

Lancet Respir Med

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. 2025 Sep;13(9):821-832.

doi: 10.1016/S2213-2600(25)00135-3. Epub 2025 Jul 8.

Evaluation of the effect of multimorbidity on difficult-to-treat asthma using a novel score (MiDAS): a multinational study of asthma cohorts

Ramesh J Kurukulaaratchy [1], Anna Freeman [2], Aruna T Bansal [3], Latha Kadalayil [4], Eve Denton [5], Vanessa Clark [6], Peter G Gibson [7], Judit Varkonyi-Sepp [8], Ben Ainsworth [9], J J Hudson-Colby [10], Adam Lewis [11], Chellan Eames [12], Liuyu Wei [13], Wei Chern Gavin Fong [14], Ratko Djukanovic [2], Sanja Hromis [15], Tunn Ren Tay [16], Njira Lugogo [17], Vanessa M McDonald [6], Mark Hew [5], Hans Michael Haitchi [18]

Affiliations Expand

- **PMID: 40645203**

- **DOI: 10.1016/S2213-2600(25)00135-3**

Free article

Abstract

Background: Multimorbidity (ie, co-existence of two or more health conditions) is highly prevalent in patients with difficult-to-treat asthma. However, it remains unclear how multimorbidity correlates with disease severity and adverse health outcomes in these patients and which comorbidities are most important. We aimed to address this knowledge gap by developing a patient-centred, clinically descriptive multimorbidity score for difficult-to-treat asthma.

Methods: We used data from the UK-based Wessex Asthma Cohort of Difficult Asthma (WATCH; n=500, data collected between April 22, 2015, and April 1, 2020) to develop the Multimorbidity in Difficult Asthma Score (MiDAS). Initially, we created a modified Asthma Severity Scoring System (m-ASSESS) in WATCH. We then conducted univariate association analysis to test the association between the 13 commonest comorbidities and m-ASSESS in WATCH and used a branch-and-bound approach to select the most relevant comorbidities for inclusion in MiDAS. We calculated MiDAS values for all patients with complete information in WATCH (n=319) and assessed them for correlation with components of m-ASSESS, proinflammatory biomarkers, and St George's Respiratory Questionnaire (SGRQ) score, a quality-of-life measure. We also assessed the association of MiDAS with multiple clinical outcomes in four international cohorts: two from Australia (n=236, data collected between June 14, 2014, and April 1, 2022; and n=140, Aug 6, 2012, to Oct 18, 2016), one from southeast Asia (n=151, March 21, 2017, to Jan 16, 2024), and one from the USA (n=100, July 9, 2021, to Dec 14, 2023).

Findings: We selected seven common comorbidities (ie, rhinitis, gastro-oesophageal reflux disease, breathing pattern disorder, obesity, bronchiectasis, non-steroidal anti-inflammatory drug-exacerbated respiratory disease, and obstructive sleep apnoea) for inclusion in MiDAS on the basis of the branch-and-bound analysis and combined them using multivariate linear regression to derive a MiDAS model associated with m-ASSESS in WATCH. The range of MiDAS scores was 9·6-16·2. In WATCH members, mean MiDAS value was 11·97 (SD 1·21) and MiDAS was nominally correlated with m-ASSESS components of poor asthma control (τ=0·31 [95% CI 0·24-0·38]) and exacerbations (τ=0·16 [0·08-0·24]). MiDAS was also correlated with worse total SGRQ score (r=0·39 [95% 0·28-0·49], p<0·0001) and with the proinflammatory plasma cytokines interleukin (IL)-4 (r=0·19 [95% CI 0·06-0·31], p=0·0036), IL-5 (r=0·35 [0·24-0·46], p<0·0001), and leptin (r=0·29 [0·17-0·40], p<0·0001) in WATCH. MiDAS values across the four international cohorts were similar to those of WATCH (UK cohort), with mean values of 12·33 (SD 1·47) and 12·31 (1·37) in the Australian cohorts, 11·80 (1·20) in the USA cohort, and 11·55 (1·23) in the Singapore cohort. In these cohorts, MiDAS correlated with worse asthma control, worse quality of life, anxiety, depression, and increased inflammation.

Interpretation: MiDAS highlights the co-occurrence of multimorbidity with the worst outcomes in difficult-to-treat asthma. These findings strongly indicate that an airway-centric approach is inadequate and that holistic and multidisciplinary care is imperative. This clinical score could help clinicians to identify patients most at risk from their multimorbidity.

Funding: UK National Institute for Health and Care Research, Australian National Health and Medical Research Council, Hunter Medical Research Institute, University of Newcastle (Australia), and John Hunter Hospital Charitable Trust.

Conflict of interest statement

Declaration of interests RJK co-holds a methods patent outside the submitted work on the cellular profiles of tissue resident memory T-cells and their use in asthma. BA is a member of the UK Taskforce for Lung Health, has received honoraria for educational talks from AstraZeneca, and sits on advisory boards for the Medito Foundation and earGym (all unrelated to this work). PGG reports personal fees from AstraZeneca, GSK, and Novartis and grants from AstraZeneca and GSK, outside the submitted work. VMM reports grants from GSK outside the submitted work, and advisory board and speaker fees from GSK, Menarini, and Boehringer-Ingelheim outside the submitted work. VC reports speakers fees from AstraZeneca, unrelated to the conduct of this study. MH has received grants and personal fees outside the submitted work from GSK, AstraZeneca, Sanofi, Novartis, Teva, and Chiesi, all paid to his employer Alfred Health. CE reports travel support from Chiesi and speaker fees from AstraZeneca outside the submitted work. RD is a co-founder of and consultant to Synairgen, has received funding for lectures from GSK, and has been on advisory boards of GSK, Celltrion, ALK Abello, and ZenasBio, all unrelated to this work. Unrelated to this work, NL has received consulting fees from Amgen, AstraZeneca, Avillion, Genentech, GSK, Niox, Novartis, Regeneron, Sanofi, and Teva; honoraria for non-speakers bureau presentations from GSK, Teva, and AstraZeneca; and travel support from AstraZeneca, Sanofi, Teva, Regeneron, and GSK; her institution received research support from Amgen, AstraZeneca, Avillion, Bellus, Evidera, Gossamer Bio, Genentech, GSK, Janssen, Niox, Regeneron, Sanofi, Novartis, and Teva. NL is an honorary faculty member of the Observational and Pragmatic Research Institute but does not receive compensation for this role. SH reports speakers fees from AstraZeneca, Berlin-Chemie Menarini, Takeda, Providens, and Amicus Therapeutics; support for attending meetings from AstraZeneca, Chiesi (Providens), and Hemofarm; and payment for advisory boards from AstraZeneca, Berlin-Chemie Menarini, and Providens, all unrelated to this work. WCGF declares stock ownership in relation to Sanofi, GSK, and AstraZeneca, unrelated to this work. HMH co-holds a method patent on anti-ADAM33 oligonucleotides and related methods, which is unrelated to the current work. All other authors declare no competing interests.

Supplementary info

Publication types, MeSH termsExpand

Full text links

Respir Med

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. 2025 Sep:246:108243.

doi: 10.1016/j.rmed.2025.108243. Epub 2025 Jul 3.

Targeting neutrophilic inflammation in obstructive airway disease - A narrative review of brensocatib therapy

Jyoti Bajpai [1], Surya Kant [1], Maria Gabriella Matera [2], Mario Cazzola [3]

Affiliations Expand

- PMID: 40614835

- DOI: 10.1016/j.rmed.2025.108243

Abstract

Brensocatib is an oral inhibitor of dipeptidyl peptidase 1, an enzyme that activates neutrophil serine proteases. Its potential to reduce neutrophil-driven inflammation has generated interest across a range of chronic inflammatory and respiratory conditions, particularly non-cystic fibrosis (CF) bronchiectasis. As the body of evidence supporting brensocatib continues to expand, there is a clear need for a comprehensive, rigorous, and practical narrative review to consolidate current knowledge and highlight gaps for future research. The aim of this narrative review was to systematically examine and synthesize the existing literature on brensocatib, including its pharmacology, therapeutic applications, clinical trial outcomes, safety profile, and ongoing research efforts. A systematic search was performed across major databases, EMBASE, MEDLINE, Scopus, Web of Science, Google Scholar, and ClinicalTrials.gov, through April 2025. Studies involving brensocatib in preclinical or clinical contexts were thoroughly reviewed to evaluate its efficacy and safety. Data were extracted on study design, population, dosage, outcomes, adverse events (AEs), and key findings. The most extensively studied indication was non-CF bronchiectasis, where brensocatib demonstrated a reduction in exacerbation rates and neutrophil protease activity. Preliminary evidence also suggests potential applications in CF, chronic obstructive pulmonary disease, and other neutrophilic conditions. An evaluation of the safety data indicates that the AEs reported are generally mild to moderate in severity. Brensocatib demonstrates potential as a novel anti-inflammatory therapy targeting neutrophil-mediated disease mechanisms. Further research is needed to evaluate its long-term efficacy, safety across a broader population, and its role in combination therapies.

Keywords: Brensocatib; Bronchiectasis; Dipeptidyl peptidase 1; Inflammation; Neutrophil elastase; Neutrophils.

Conflict of interest statement

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

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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Cite

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Respir Med

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. 2025 Sep:246:108220.

doi: 10.1016/j.rmed.2025.108220. Epub 2025 Jul 2.

Natural history and burden of refractory Mycobacterium avium complex pulmonary disease: Insights from the US Bronchiectasis and Nontuberculous Mycobacterial Research Registry

Timothy R Aksamit [1], Radmila Choate [2], David M Mannino [3], Amanda E Brunton [4], Ping Wang [5], Mariam Hassan [6]

Affiliations Expand

- **PMID: 40614831**

- **DOI: 10.1016/j.rmed.2025.108220**

Free article

Abstract

Background: Managing Mycobacterium avium complex pulmonary disease (MACPD) is challenging for refractory disease. This study used real-world data to describe natural history and burden of refractory MACPD.

Methods: US Bronchiectasis and Nontuberculous Mycobacteria Research Registry data were analyzed retrospectively. Patients treated for MACPD were categorized as refractory (defined as receiving oral clofazimine, bedaquiline, inhaled amikacin, or amikacin liposome inhalation suspension, or remaining culture positive ≥6 months during treatment) or nonrefractory. Patient characteristics and healthcare resource utilization were compared. Longitudinal assessment over adjacent visits (pre-refractory and refractory) focused on hospitalizations and exacerbations among incident refractory cases.

Results: Of 1064 patients treated for MACPD, 43.4 % were refractory and 56.6 % nonrefractory. At MACPD treatment initiation, refractory patients had lower mean BMI (21.3 vs 22.2; $p < 0.001$) and FVC% predicted (78.4 vs 84.8; $p < 0.001$), more prevalent fibrocavitary/cavitary disease (33.5 % vs 16.3 %; $p < 0.001$) and bronchiectasis (96.2 % vs 89.7 %; $p < 0.001$). Exacerbations (54.1 % and 50.5 %), hospitalizations (18.8 % and 17.3 %), chronic cough (78.0 % and 77.7 %), and baseline lung severity were common in both groups. The natural history of the disease among 197 incident refractory cases showed that exacerbations (45.6 % and 39.4 %) and hospitalizations (13.3 % and 12.8 %) were common at pre-refractory and refractory visits.

Conclusions: MACPD imposes substantial burden on patients in terms of symptoms, exacerbations, and hospitalizations. Disease burden was present among refractory patients, at pre-refractory and refractory visits ≥1 year later, and non-refractory patients. Understanding patient characteristics at time of treatment may help timely identification and management of refractory MACPD.

Keywords: Burden of illness; Natural history; Refractory MAC lung disease; United States Bronchiectasis and Nontuberculous Mycobacteria Research Registry.

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: Timothy R. Aksamit reports article publishing charges and writing assistance were provided by Insmed Incorporated. Timothy R. Aksamit reports a relationship with AstraZeneca Pharmaceuticals LP that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Johnson & Johnson that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Insmed Incorporated that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with RedHill Biopharma that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Spero Therapeutics that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Zambon that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with Hillrom that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with RespirTech that includes: consulting or advisory. Timothy R. Aksamit reports a relationship with COPD Foundation that includes: board membership. David M. Mannino reports a relationship with AstraZeneca that

includes: consulting or advisory. David M. Mannino reports a relationship with GlaxoSmithKline that includes: consulting or advisory. David M. Mannino reports a relationship with UpToDate that includes: consulting or advisory. Ping Wang reports a relationship with Insmed Incorporated that includes: employment and equity or stocks. Mariam Hassan reports a relationship with Insmed Incorporated that includes: employment and equity or stocks. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

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Comparative Study

Radiol Phys Technol

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. 2025 Sep;18(3):707-716.

doi: 10.1007/s12194-025-00920-3. Epub 2025 Jun 5.

Bronchiectasis and airspace enlargement surrounding the lung nodule in dual-energy CT pulmonary angiography: comparison between iodine map and monochromatic image

Koichiro Yasaka [1], Jun Kanzawa [2], Shohei Inui [2], Takatoshi Kubo [2], Osamu Abe [2]

Affiliations Expand

- PMID: 40471409
- PMCID: PMC12339637
- DOI: 10.1007/s12194-025-00920-3

Abstract

The purpose of the study is to investigate the degree and performance in the differential diagnosis of bronchiectasis/airspace enlargement in an iodine map obtainable from CT pulmonary angiography compared with monochromatic images. This retrospective study included 62 patients with a lung nodule who underwent CT pulmonary angiography. The iodine map and monochromatic image (70 keV) were reconstructed. Three readers evaluated the degree of bronchiectasis/airspace enlargement with a 4-point scale. A reference standard was established in 39 patients, and the performance of bronchiectasis/airspace enlargement in the differential diagnosis was evaluated in them. The degree of bronchiectasis/airspace enlargement in the iodine map (median score = 1/2/1 for reader 1/2/3) was significantly more prominent than that in the monochromatic image (median score = 0/1/0 for reader 1/2/3) ($p < 0.001$ for all readers). Using bronchiectasis/airspace enlargement, primary lung carcinoma and malignant lymphoma could be differentiated from other diseases, excluding lung infarct, with an area under the receiver operating characteristic curve (AUC) (reader 1/2/3) of 0.718/0.867/0.803 in the combinations of iodine map plus monochromatic image and 0.496/0.828/0.450 in the monochromatic image ($p \leq 0.047$ for two readers). Lung metastasis from colorectal carcinoma could be differentiated from other diseases with an AUC of 0.851/0.976/0.838 in the combinations of iodine map plus monochromatic image, which was significantly superior to the monochromatic image (0.378/0.780/0.459) ($p \leq 0.012$ for all readers). Bronchiectasis/airspace enlargement was more prominently observed in the iodine map than in the monochromatic image. This image finding in the iodine map provided added value in the differential diagnosis of malignant lung nodules compared with monochromatic images alone.

Keywords: Bronchiectasis; Lung cancer; Lung nodule; Multidetector computed tomography.

Conflict of interest statement

Declarations. Conflict of interest: The authors have no relevant financial or non-financial interests to disclose. Ethics approval: The Research Ethics Committee of the Faculty of Medicine of the University of Tokyo approved this retrospective study. This study adhered to the Declaration of Helsinki. Informed consent: The requirement for obtaining written informed consent was waived.

- **28 references**
- **6 figures**

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

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9

Comparative Study

Eur Radiol

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CT features of pathologically proven smoking-related interstitial fibrosis: compared with emphysema and usual interstitial pneumonia

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Abstract

Objectives: To differentiate smoking-related interstitial fibrosis (SRIF) from emphysema and usual interstitial pneumonia (UIP) using CT.

Materials and methods: From January 2016 to October 2023, a total of 123 patients who underwent lung surgery with pathologically proven SRIF (n = 23), emphysema (n = 50), and UIP (n = 50) were included. Three radiologists retrospectively reviewed preoperative chest CTs for imaging features of centrilobular/paraseptal emphysema, multiple thin-walled cysts (MTWC), honeycombing, traction bronchiectasis, subpleural ground-glass opacity (GGO)/reticulation, and presence of smoking-related disease (SRD) and compared the CT features by subgroup.

Results: A total of 123 patients (23 SRIF, 50 emphysema, 50 UIP; mean age, 64.9 ± 8.96 years; 99 males) were involved. Centrilobular emphysema, paraseptal emphysema, MTWC, honeycombing, traction bronchiectasis, subpleural GGO/reticulation, and SRD were identified in SRIF (100%, 100%, 73.9%, 8.7%, 100%, 100%, 47.8%), emphysema (94%, 60%, 2%, 2%, 4%, 8%, 10%), and UIP (48%, 40%, 0%, 42%, 100%, 100%, 6%) cases, respectively. In the univariable analysis of SRIF and emphysema, MTWC, traction bronchiectasis, subpleural GGO/reticulation, and the presence of SRD were predictive features of SRIF (all $p < 0.05$). In the multivariable analysis of SRIF and emphysema, MTWC and subpleural

GGO/reticulation were predictive of SRIF (all p < 0.05). In both univariable and multivariable analyses of SRIF and UIP, MTWC and the presence of SRD were predictive features of SRIF (all p < 0.05), whereas honeycombing was significant only in univariable analysis (p = 0.01).

Conclusion: Imaging features of MTWC, subpleural GGO/reticulation, and the presence of SRD on CT may help differentiate SRIF from emphysema and UIP.

Key points: Question SRIF is recognized as a separate entity; however, insufficient radiological studies have been conducted. Findings CT imaging features of MTWC, subpleural GGO/reticulation, and the presence of SRD are predictive factors for SRIF. Clinical relevance SRIF, emphysema, and UIP have overlapping imaging/clinical features but different treatments and prognoses. As treatment for UIP slows the disease progression, accurate differentiation based on imaging findings is essential for improving prognosis.

Keywords: Computed tomography; Emphysema; Smoking-related interstitial fibrosis; Usual interstitial pneumonia.

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Prof. Yoon Ki Cha. Conflict of interest: The authors of this manuscript declare no relationships with any companies, whose products or services may be related to the subject matter of the article. Statistics and biometry: One of the authors (Taein An) has significant statistical expertise. Informed consent: Written informed consent was waived by the Institutional Review Board. Ethical approval: Institutional Review Board approval was obtained. Study subjects or cohorts overlap: Some study subjects or cohorts have not been previously reported in any other journal. Methodology: Retrospective Observational Performed at one institution

- **22 references**

Supplementary info

Publication types, MeSH termsExpand