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

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Editorial

Thorax

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. 2026 Apr 24:thorax-2026-225029.

doi: 10.1136/thorax-2026-225029. Online ahead of print.

Is it time to re-evaluate the levels of evidence in medical research: commentary on inhaled corticosteroids in COPD

Anne E Ioannides [1], Jennifer K Quint [2]

Affiliations Expand

- **PMID: 42031561**

- **DOI: 10.1136/thorax-2026-225029**

No abstract available

Keywords: COPD epidemiology; Glucocorticoids; Inhaler devices; Mortality.

Conflict of interest statement

Competing interests: AEI declares grants from the British Heart Foundation (BHF) and National Institute for Health and Care Research (NIHR). JKQ has been supported by institutional research grants from the Medical Research Council, NIHR, Health Data Research, GSK, BI, AZ, Insmed, Sanofi and received personal fees for advisory board participation, consultancy or speaking fees from GlaxoSmithKline, Evidera, Chiesi, AstraZeneca.

Supplementary info

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Clin Rehabil

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A systematic review of physical activity guidelines for adults with cardio-respiratory diseases: Stepping towards evidence-based recommendations

Eda Tonga [1 2], Thomas Yates [1 2 3], Hannah Worboys [4], Sally J Singh [2 5 6], Pip Divall [7], G Andre Ng [2 3 8], Rachael A Evans [2 5 6]

Affiliations Expand

- **PMID: 42029388**

- **DOI: 10.1177/02692155261441158**

Abstract

ObjectivesPhysical activity benefits for adults with cardio-respiratory diseases are well established, and evidence-based recommendations are essential for healthcare professionals. This study systematically reviewed existing recommendations on physical activity for adults with cardio-respiratory diseases, specifically chronic obstructive pulmonary disease, asthma, and heart failure, focusing on the frequency, intensity, time and type (FITT).Data SourcesWe searched OVID MEDLINE, EMBASE, CINAHL, and grey literature for guidelines and related documents. The

comprehensive search was conducted in July 2025 and subsequently updated through March 2026. Two authors independently screened guidelines, extracted FITT components, and documented disease-specific precautions. Disagreements were resolved with a third author. The AGREE II instrument assessed methodological quality for identified CPGs. Recommendations were categorised based on the FITT framework.ResultsWe included 29 guidelines, of which 14 were classified as Clinical Practice Guideline and assessed with AGREE II. Among the 14 guidelines, 7 demonstrated high quality, 6 were moderate, and 1 was low quality. Most guidelines recommended at least 150 minutes of moderate aerobic activity per week. Adaptive recommendations primarily addressed exacerbations and symptom management.ConclusionWhile aerobic physical activity was consistently recommended, disease-specific guidance and adherence to FITT principles were limited. Significant gaps were noted in methodological quality, particularly in stakeholder involvement and applicability. To enhance usability, guidelines should standardise recommendations for type, duration, intensity, and frequency, incorporating evidence grading system.

Keywords: COPD; asthma; guidelines; heart failure; physical activity.

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Respir Res

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. 2026 Apr 23.

doi: 10.1186/s12931-026-03677-4. Online ahead of print.

Cardiovascular components of the COTE index predict acute exacerbations and healthcare costs in patients with chronic obstructive pulmonary disease: a nationwide linked cohort study

Eunjin Kwon [1], Won Seo Yoon [2], Ji-Yong Moon [2], Yong-Il Hwang [3], Kwang-Ha Yoo [2], Young-Youl Kim [4], Youlim Kim [5]

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- **PMID: 42026638**

- **DOI: 10.1186/s12931-026-03677-4**

Free article

No abstract available

Keywords: Acute exacerbation; COPD-specific CO-morbidity test; Cardiovascular comorbidities; Chronic obstructive pulmonary disease; Total Healthcare costs.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the Declaration of Helsinki and was approved by the relevant Institutional Review Boards of all participating hospitals, including KONKUK University Medical Center (IRB No. KHH1010338). Informed consent was obtained from all patients, and they provided written consent to participate in this study. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

Supplementary info

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BMC Pulm Med

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doi: 10.1186/s12890-026-04276-1. Online ahead of print.

The risk factors for future exacerbations in COPD patients without exacerbation history: an observational study

Ping Zhang [1 2 3 4], Qing Song [5], Ling Lin [1 2 3 4], Cong Liu [1 2 3 4], Yuqin Zeng [1 2 3 4], Ping Chen [6 7 8 9], Tao Li [10 11 12 13]

Affiliations Expand

- **PMID: 42026565**

- **DOI: 10.1186/s12890-026-04276-1**

Free article

No abstract available

Keywords: Chronic Obstructive Pulmonary Disease; Exacerbation; Gender; Inhalation Therapy; Risk factors.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by an institutional review board from the Second Xiangya Hospital of Central South University and conducted in accordance with the Declaration of Helsinki (2016076). All patients were offered informed consent. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

Supplementary info

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5

Chest

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. 2026 Apr 21:S0012-3692(26)00469-1.

doi: 10.1016/j.chest.2026.04.008. Online ahead of print.

Prognostic Significance of Mild Exacerbations or One Moderate Exacerbation in COPD: A Prospective Community-Based Cohort Study

Fan Wu [1], Qi Wan [2], Heshen Tian [3], Youlan Zheng [1], Ningning Zhao [1], Zhishan Deng [1], Kunning Zhou [1], Gaoying Tang [1], Lifei Lu [1], Cuiqiong Dai [1], Xiaohui Wu [1], Suyin Huang [2], Junfeng Lin [1], Fangyan Wu [1], Guannan Cai [1], Xianliang Zeng [1], Jincong Gan [4], Huixian Lin [4], Erkang Yi [2], Zhifeng Gao [5], Changli Yang [6], Shengtang Chen [6], Yongqing Huang [7], Shuqing Yu [8], Yumin Zhou [9], Pixin Ran [10]; ECOPD study investigators

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- **PMID: 42026000**

- DOI: 10.1016/j.chest.2026.04.008

Abstract

Background: The association between frequent chronic obstructive pulmonary disease (COPD) exacerbations and poor respiratory health outcomes is well established, but the associations of only mild exacerbations and only one moderate exacerbation with prognosis remain controversial, especially among community participants with COPD.

Research question: Are mild exacerbations and one moderate exacerbation associated with worse respiratory health outcomes in participants with COPD?

Study design and methods: We analyzed data from a multicenter, prospective, community-based cohort study. Moderate exacerbation was defined as new onset or worsening of respiratory symptoms requiring outpatient visit and antibiotic or oral corticosteroid treatment. Mild exacerbation was defined as new onset or worsening of respiratory symptoms requiring only home treatment with medications. The study outcomes included exacerbations and lung function decline over the 3-year follow-up.

Results: Of the 915 participants with COPD, 52 (6%) experienced frequent exacerbations, 45 (5%) experienced only one moderate exacerbation, 41 (4%) experienced only mild exacerbations, and 777 (85%) had no exacerbations in the previous year. Participants experiencing only mild exacerbations had severe emphysema, and participants experiencing only one moderate exacerbation had more severe air trapping than those without any exacerbations. Participants with mild exacerbations (rate ratio [RR]=1.67, 95% confidence interval [CI]: 1.11-2.51, P=0.014; RR=1.76, 95%CI: 1.13-2.73, P=0.012; respectively) or one moderate exacerbation (RR=1.89, 95%CI: 1.31-2.73, P<0.001; RR=2.29, 95%CI: 1.55-3.38, P<0.001; respectively) had higher incidence of total exacerbation and moderate-to-severe exacerbation than those without exacerbations. There was no significant difference in the annual rate of lung function decline among these participants.

Interpretation: Among community-based participants with COPD, even with a low exacerbation burden, mild exacerbations and a single moderate exacerbation in the year prior to enrollment were associated with more severe computed tomography-defined lung structural abnormalities and a higher incidence of subsequent exacerbations over 3 years of follow-up.

Keywords: chronic obstructive pulmonary disease; exacerbation; lung function decline.

Respir Med

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doi: 10.1016/j.rmed.2026.108829. Online ahead of print.

Breathing and speech patterns for predictive modelling of exacerbations of asthma and COPD

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Affiliations Expand

- **PMID: 42025816**

- **DOI: 10.1016/j.rmed.2026.108829**

Abstract

Background: COPD and asthma cause significant morbidity and mortality across the globe. The development of non-invasive telemonitoring solutions offers the potential to improve patient care.

Objective: To examine whether breathing and speech patterns extracted from audio recordings enhance model generalizability of distinguishing stable from exacerbation periods in COPD and asthma.

Methods: Patterns related to breathing and speech were extracted from a dataset that combined daily audio speech recordings with a patient-reported outcome measure (EXACT). Medical experts categorized patient health status as stable or exacerbation. A tree-based model was investigated for exacerbation prediction. The model was trained on signal-related features, breathing and speech patterns, and combination of both. Results were examined for variability among all people and feature importance.

Results: The study included 21 people (mean age 62.7 years; 66.7% female), 61.9% diagnosed with COPD and 38.1% with asthma. Minimum breath duration and speech duration differed between stable and exacerbation states ($p < 0.05$). The model, trained on combined features sets achieved Sensitivity of 0.78, 0.10 SD exceeding models trained on acoustic-only (0.70, 0.17 SD) and patterns-only sets (0.68, 0.13 SD). Inconsistencies were observed in patient-level results across exacerbation severity. Speech Duration, Spectral Contrast, Harmonic to Noise Ratio, Breath Group Duration and 26 Mel-Frequency Cepstral Coefficient were found to have the highest importance for the best performing model.

Conclusion: Combining signal derived features with breathing and speech patterns helps models to achieve higher results. Detected clusters within the study group

indicate patient-level variability. Presented results position breathing and speech patterns as valuable tool for remote patient screening.

Conflict of interest statement

Declaration of competing interest Sami O. Simons - SOS reports grants from Roche, Dutch Research Council (NWO) and Lung Foundation Netherlands (Longfonds); Honoraria for lectures and presentations from AstraZeneca and Chiesi; Support for attending meetings from AstraZeneca and Chiesi; Patent filed on 6 September 2024; Participation on a Advisory Board from AstraZeneca and Chiesi; all paid to his institution. Frits M.E. Franssen - Consulting fees from Pfizer, Sanofi and GSK; Honoraria for lectures and presentations from AstraZeneca, Chiesi, GSK, Sanofi and Pfizer; Support for attending meetings from AstraZeneca; Other authors declare no conflicts of competing interest.

Cite

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Eur Respir J

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Pharmacotherapy is indicated and beneficial in patients with symptomatic GOLD Stage I COPD

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Affiliations Expand

- PMID: 42025307

- DOI: 10.1183/13993003.00417-2026

No abstract available

8

Eur Respir J

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. 2026 Apr 23:2501948.

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GOLD Stage 1 COPD pharmacotherapy: big question, few answers

Helen O'Brien [1 2], Cormac McCarthy [1 2], Alessandro N Franciosi [3 2]

Affiliations Expand

- PMID: 42025305

- DOI: 10.1183/13993003.01948-2025

No abstract available

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Review

ERJ Open Res

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. 2026 Apr 20;12(2):00885-2025.

doi: 10.1183/23120541.00885-2025. eCollection 2026 Mar.

Beyond spirometry: understanding COPD origins to support a new diagnostic approach

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- PMID: 42016221

- PMCID: PMC13093653

- DOI: 10.1183/23120541.00885-2025

Abstract

COPD remains a leading cause of morbidity and mortality, with outcomes stagnating relative to other long-term conditions. Current diagnostic pathways rely on spirometry, which detects airflow obstruction only after irreversible small airway and parenchymal damage has accrued, whereas pathogenic processes begin decades earlier. This review examines how understanding early pathogenic processes could inform alternative approaches to diagnosis and treatment. We highlight the contribution of developmental and environmental exposures, genetic susceptibility and epigenetic modification to disease initiation. We outline how these convergent mechanisms drive structural and functional abnormalities undetectable by conventional diagnostics but measurable with novel techniques. Advanced imaging-parametric response mapping, hyperpolarised gas magnetic resonance imaging and computed tomography-based vascular metrics-can detect emphysema, small airways disease and vascular pruning before spirometric thresholds are reached. Physiological tools including forced oscillation techniques and capnography show promise for early detection in primary care and may be scalable, affordable alternatives to spirometry. Biofluid-based platforms, including exhaled breath analysis, extracellular matrix neo-epitopes and blood-based inflammatory signatures, offer noninvasive phenotyping and risk stratification, though require validation and pathway integration. We argue for a shift from a spirometry-centric model to a multidimensional diagnostic framework integrating imaging, molecular, physiological and biomarker data. Recent longitudinal evidence, including diagnostic schemas combining imaging with symptom burden, indicates that such approaches identify high-risk individuals missed by spirometry alone. Proactive COPD detection in its earliest stages is therefore an essential step to altering disease trajectory and improving patient outcomes, and it is time our community looks beyond spirometry to deliver this.

Conflict of interest statement

Conflict of interest: Tom Wilkinson reports research grants from the National Institute for Health and Care Research, Medical Research Council, BerGenBio, AstraZeneca, UCB and Janssen, consultancy fees from AstraZeneca, Valneva, Olam Pharma, Janssen, My mHealth, and Synairgen, lecture fees from AstraZeneca, Boehringer Ingelheim and Roche, participation on a Data Safety Monitoring Board for Valneva, and that he holds stock in My mHealth. Karl Staples reports research grants from AstraZeneca and Epiendo and lecture fees from AstraZeneca. All other authors report no competing interests. Tommaso Morelli has received speaking fees and travel costs from BioMérieux.

- 149 references
- 2 figures

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BMC Pulm Med

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. 2026 Apr 22.

doi: 10.1186/s12890-026-04302-2. Online ahead of print.

Prevalence of COPD in other long-term conditions: a systematic meta review

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Affiliations Expand

- **PMID: 42015087**
- **DOI: 10.1186/s12890-026-04302-2**

Free article

No abstract available

Keywords: COPD; Long-term conditions; Prevalence; comorbidity.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Not applicable. This study is a systematic meta-review of published literature and did not involve human participants or individual patient data. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- **46 references**

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Thorax

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Association of blood eosinophils and exhaled nitric oxide with exacerbations in patients with asthma, COPD and asthma+COPD: the NOVELTY study

Susan Muiser [1 2], Hana Müllerová [3], Laura Belton [4], Nifasha Rusibamayila [4], Clement Erhard [4], Alvar Agusti [5], Rosa Faner [5], Ian Pavord [6], Simon Couillard [7], Hiromasa Inoue [8], David B Price [9 10], Jose Maria Olaguibel [11], Huib A M Kerstjens [12], Maarten van den Berge [12]; NOVELTY Scientific Community; NOVELTY study investigators

Collaborators, Affiliations Expand

- **PMID: 42014196**

- **DOI: 10.1136/thorax-2025-223646**

Free article

Abstract

Background: Blood eosinophils (EOS) and fractional exhaled nitric oxide (FeNO) are potential biomarkers for disease progression and treatment response in asthma and chronic obstructive pulmonary disease (COPD). We investigated their association with exacerbations in asthma, COPD and asthma+COPD.

Methods: NOVEL observational longiTudinal studY is a multicountry prospective study of patients with physician-assigned asthma, COPD and asthma+COPD. Negative binomial and logistic regression analyses were performed for baseline EOS/FeNO (separately and combined), by diagnosis, and for different exacerbation subtypes (all, antibiotics-only, oral corticosteroids (OCS)-only).

Results: Higher baseline EOS was significantly associated with increased risk of all exacerbations in asthma (incidence rate ratio (IRR) 1.09, 95% CI 1.01 to 1.18, p=0.033), with a trend increase with COPD (IRR 1.09, 95% CI 1.00 to 1.19, p=0.069) but not asthma+COPD. Higher baseline FeNO was significantly associated with decreased risk of all exacerbations in COPD (IRR 0.91, 95% CI 0.84 to 0.99, p=0.025) and increased risk of OCS-only exacerbations in asthma (OR 1.16, 95% CI 1.04 to 1.29, p=0.006) and asthma+COPD (OR 1.55, 95% CI 1.22 to 1.97, p<0.001). In exacerbation risk in asthma (IRR 1.14, 95% CI 1.05 to 1.24, p=0.003), while in COPD, both higher EOS (IRR 1.12, 95% CI 1.02 to 1.24, p=0.033) and lower FeNO (IRR 0.87, 95% CI 0.78 to 0.96, p=0.009) were independently associated with exacerbation risk.

Conclusions: Higher EOS predicted exacerbations in asthma and COPD, while FeNO showed heterogeneous associations, particularly for OCS-only treated exacerbations. Assessment of exacerbation subtype might improve personalised management. Interpretation is limited by physician-assigned diagnoses, potential ICS confounding and recall bias.

Keywords: Asthma; COPD Exacerbations; Eosinophil Biology; Exhaled Airway Markers.

Conflict of interest statement

Competing interests: SM has received a travel grant from GSK outside of the submitted work. HM and CE are employees and shareholders of AstraZeneca. LB and NR are employees of AstraZeneca. AA has received payments in his role as a member of the scientific committee of NOVELTY; received research grants from AstraZeneca, Chiesi, GSK, Menarini, MSD and Zambon; consulting fees from AstraZeneca, Chiesi, GSK, Menarini, MSD and Zambon; and payment or honoraria from AstraZeneca, Chiesi, GSK, Menarini, MSD and Zambon. RF received research grants from AstraZeneca, GSK, Chiesi, Menarini, Instituto de Salud Carlos III—Spanish National Health Service and Menarini; consulting fees from GSK; and payment or honoraria from AstraZeneca, Chiesi and Zambon. IP received research grants from Chiesi; consulting fees from Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Dey Pharma, Genentech, GSK, Knopp Biosciences, Merck, MSD, Napp Pharmaceuticals, Novartis, Regeneron Pharmaceuticals, Respivert, Schering-Plough and Teva; payment or honoraria from Aerocrine, Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Novartis, Regeneron Pharmaceuticals Inc., Sanofi and Teva; support for attending meetings from AstraZeneca, Chiesi, GSK, Napp Pharmaceuticals, Regeneron Pharmaceuticals, Sanofi and Teva; and other financial or non-financial interests from AstraZeneca, Boehringer Ingelheim, GSK, Regeneron Pharmaceuticals, Sanofi and Teva. SC reports the following: received non-restricted research grants from the Academy of Medical Sciences, the Association Pulmonaire du Québec, AstraZeneca, bioMérieux, Circassia Niox Group, the NIHR Oxford BRC, the Quebec Respiratory Health

Research Network and Sanofi-Genyme-Regeneron; he is the holder of the Association Pulmonaire du Québec's Research Chair in Respiratory Medicine and is a clinical research scholar of the Fonds de recherche du Québec; received speaker honoraria from AstraZeneca, GlaxoSmithKline, Sanofi-Regeneron and Valeo Pharma; received consultancy fees for Access Biotechnology, Access Industries, AstraZeneca, FirstThought, GlaxoSmithKline and Sanofi-Regeneron; received sponsorship to attend/speak at international scientific meetings by/for AstraZeneca and Sanofi-Regeneron. He is an advisory board member and detains stock options for Biometry–a company which is developing a FeNO device (myBiometry). He advised the Institut national d'excellence en santé et services sociaux (INESSS) for an update of the asthma general practice information booklet for general practitioners and is a member of the asthma steering committee of the Canadian Thoracic Society. HI reports research grants paid to his institution from Boehringer Ingelheim, GlaxoSmithKline and Omron, outside the submitted work, and honoraria for lectures/advisory committees from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Kyorin, Novartis and Sanofi. DBP is an employee of OPRI, which was funded by AstraZeneca to conduct this study; has advisory board membership with AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme and Thermofisher; consultancy agreements with Airway Vista Secretariat, AstraZeneca, Boehringer Ingelheim, Chiesi, EPG Communication Holdings, FIECON, Fieldwork International, GlaxoSmithKline, Mylan, Mundipharma, Novartis, OM Pharma SA, PeerVoice, Phadia AB, Spirosure, Strategic North, Synapse Research Management Partners S.L., Talos Health Solutions, Theravance and WebMD Global; grants and unrestricted funding for investigator-initiated studies (conducted through Observational and Pragmatic Research Institute) from AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Respiratory Effectiveness Group, Sanofi Genzyme, Theravance and UK National Health Service; payment for lectures/speaking engagements from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Kyorin, Mylan, Mundipharma, Novartis, Regeneron Pharmaceuticals and Sanofi Genzyme; payment for travel/accommodation/meeting expenses from AstraZeneca, Boehringer Ingelheim, Mundipharma, Mylan, Novartis and Thermofisher; stock/stock options from AKL Research and Development which produces phytopharmaceuticals; owns 74% of the social enterprise Optimum Patient Care (Australia and UK) and 92.61% of Observational and Pragmatic Research Institute (Singapore); 5% shareholding in Timestamp, which develops adherence monitoring technology; is a peer reviewer for grant committees of the UK Efficacy and Mechanism Evaluation Programme and Health Technology Assessment; and was an expert witness for GlaxoSmithKline. JMO reports consulting fees from ALK; honoraria from ALK, GSK and Mundipharma for independent medical educational presentations; independent research funding from AstraZeneca, Eversens and Sanofi-Genzyme; and a leadership role in FUNDACION SEAIC and the JIACI editorial board. HAMK reports that his institution has received fees per patient for recruitment in trials from GSK and Novartis; grants for investigator-initiated studies from Boehringer, GSK and Novartis; and consultancy fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Novartis and Sanofi. Additionally, he has received payment or honoraria for the development of educational materials from Sanofi. MvdB reports grants paid to the university from AstraZeneca, Chiesi, Genentech, GlaxoSmithKline and Teva, outside the submitted work.

Full text links

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BMJ Open

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doi: 10.1136/bmjopen-2025-109712.

Risk of severe cardiovascular events and incidence rate of cardiopulmonary events among patients with COPD in China: a retrospective cohort study

Zhike Liu [#1], Iokfai Cheang [#2], Yan Chen [3], Meng Zhang [1], Peng Shen [4], Wenhao Li [1], Dongni Hou [5], Hongbo Lin [4], Siyan Zhan [1], Feng Sun [1], Yuanlin Song [5 6 7 8], Xinli Li [9]

Affiliations Expand

- PMID: 42009394

- DOI: 10.1136/bmjopen-2025-109712

Free article

Abstract

Objectives: To examine the risk of severe cardiovascular (CV) events in patients with chronic obstructive pulmonary disease (COPD) across different time periods following COPD exacerbations and the incidence rate of cardiopulmonary events in a real-world setting in China.

Design: Retrospective cohort study.

Setting: Regional electronic health records database from Yinzhou District of Ningbo City, China.

Participants: A total of 14 713 patients aged ≥40 years with a first COPD diagnosis between 1 January 2014 and 1 March 2022.

Primary and secondary outcome measures: The risk of severe CV events (ie, hospitalisation and a primary or secondary discharge code for acute coronary syndrome, heart failure decompensation, cerebral ischaemia, arrhythmia and CV-related death) during different exposed time periods following a COPD exacerbation, the incidence rate of overall cardiopulmonary events (ie, severe

exacerbation of COPD, all-cause mortality, inpatient CV events, inpatient ischaemic stroke and inpatient tachyarrhythmia/atrial fibrillation) and the incidence rate stratified by COPD exacerbation history.

Results: We included a total of 14 713 patients. During a median (IQR) follow-up of 2.8 (4.0) years, 20.1% experienced severe CV events. Compared with the unexposed period, the risk of severe CV events was the highest in the first 10 days following a COPD exacerbation (adjusted HR 10.00, 95% CI 8.16 to 12.25). The risk of severe CV events decreased over time but remained significantly elevated up to 90 days post exacerbation. We found that 32.7% of COPD patients experienced cardiopulmonary events, with a crude incidence rate of 9.38 (95% CI 9.09 to 9.69) per 100 person-years.

Conclusion: This study is the largest retrospective cohort study investigating CV and cardiopulmonary events among patients with COPD in China. Our findings highlight an elevated risk of CV events closer to the time of COPD exacerbations and show that nearly one-third of COPD patients experience cardiopulmonary events.

Keywords: Cardiovascular Disease; China; Coronary heart disease; EPIDEMIOLOGIC STUDIES; Heart failure; Pulmonary Disease, Chronic Obstructive.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

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Review

Expert Rev Respir Med

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. 2026 Apr 23:1-19.

doi: 10.1080/17476348.2026.2659383. Online ahead of print.

Respiratory health in a changing environment: environment-adaptive therapies and revised dosing strategies

Mario Cazzola [1], Raffaella Pagliaro [2 3], Alfredo De Biase [1], Andrea Bianco [2 3], Maria Gabriella Matera [4], Vincenzo Patella [5 6]

Affiliations Expand

- PMID: 41982004

- DOI: 10.1080/17476348.2026.2659383

Abstract

Introduction: Chronic airway diseases, such as asthma and COPD, are major contributors to global morbidity and the healthcare burden. Due to their heterogeneity and sensitivity to environmental factors, including air pollution, tobacco smoke, and occupational exposures, they are critical models for examining how the environment shapes disease biology and treatment response.

Areas covered: This expert narrative review integrates mechanistic, clinical, and epidemiological evidence on the impact of environmental exposures on the biology of airway disease and therapeutic outcomes. A structured literature search was performed, prioritizing mechanistic studies, large cohorts, randomized trials, and high-quality reviews relevant to asthma and COPD endotypes, phenotypes, and environment-adaptive therapies. The evidence indicates that environmental exposures modulate inflammatory pathways, oxidative stress, and drug responsiveness. These exposures often account for variability in clinical outcomes and apparent treatment resistance.

Expert opinion: Environmental exposures should be recognized as core biological modifiers that directly impact therapeutic efficacy, dosing requirements, and safety. Incorporating a systematic approach to environmental assessment into precision respiratory medicine allows for environment-adaptive therapies, optimizes pharmacological interventions, and reduces the risk of overtreatment. Future research and clinical protocols should integrate exposure metrics to personalize therapy, improve symptom control, and enhance long-term outcomes for patients with asthma and COPD.

Keywords: Asthma; COPD; air pollution; endotypes; environment; precision medicine; smoking; treatable traits.

Supplementary info

Publication typesExpand

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J Am Heart Assoc

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Joint Associations of Sleep Patterns and Genetic Susceptibility With Dynamic Transitions of Chronic Obstructive Pulmonary Disease and Coronary Heart Disease and the Mediating Role of Inflammatory Biomarkers and Metabolites

Yanyu Zhang [#1,2,3], Pingxiu Zhu [#1,2,3], Darui Gao [1,2,3], Mengmeng Ji [1,2,3], Yang Pan [4], Yiwen Dai [4], Yuling Liu [4], Fanfan Zheng [4], Wuxiang Xie [1,2,3]

Affiliations Expand

- PMID: 41878867

- DOI: 10.1161/JAHA.125.046469

Free article

Abstract

Background: Sleep behaviors influence the development of chronic obstructive pulmonary disease (COPD) and coronary heart disease (CHD), but their role in the dynamic transitions of COPD and CHD and their interaction with genetic susceptibility on the comorbidity remain unclear.

Methods: Using UK Biobank data, Cox proportional hazard models and multistate survival models were used to examine the associations of sleep patterns with the risk of dynamic transitions of COPD and CHD, and their interaction with polygenic risk score for comorbidity of COPD and CHD. Four-way decomposition models were performed to explore the potential mediating roles of inflammatory biomarkers and metabolites.

Results: During a median follow-up of 13.8 years, 10 481 and 30 194 new-onset cases of CODP and CHD were recorded among 388 972 participants, respectively. A healthy sleep pattern was associated with a lower risk of transition from COPD to comorbid CHD (hazard ratio [HR], 0.72 [95% CI, 0.59-0.88]), and from CHD to comorbid COPD (HR, 0.81 [95% CI, 0.67-0.99]). Compared with participants having low genetic risk for comorbidity of COPD and CHD and a healthy sleep pattern, participants with high genetic risk and a poor sleep pattern had the highest risk of comorbidity of COPD and CHD (HR, 2.81 [95% CI, 1.50-5.30]). Additionally, C-reactive protein and glycoprotein acetyls were the strongest mediators, explaining

12.40% and 7.00% of the associations between sleep patterns and the incident comorbidity of COPD and CHD, respectively.

Conclusions: Our findings revealed that a healthy sleep pattern played an important role in the dynamic transitions of COPD and CHD, partially through inflammatory pathways.

Keywords: CHD; COPD; dynamic transitions; mediation analysis; sleep patterns.

Supplementary info

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

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J Med Internet Res

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. 2026 Apr 21:28:e87507.

doi: 10.2196/87507.

Exploring Patient Perspectives on the Use of Artificial Intelligence to Inform Joint Decision-Making for Patients With Multiple Conditions in Primary Care in the United Kingdom: Qualitative Study

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Affiliations Expand

- **PMID: 42013402**
- **PMCID: PMC13099014**
- **DOI: 10.2196/87507**

Abstract

Background: Multimorbidity, living with 2 or more long-term health conditions, is increasing globally and now affects over one-quarter of adults in England. People with multiple long-term conditions (MLTC) face complex health and treatment

challenges, often experiencing fragmented care within systems oriented toward single-disease management. Artificial intelligence (AI) has the potential to support clinicians and patients by analyzing complex health data, optimizing treatment strategies, and predicting disease trajectories.

Objective: The OPTIMAL (Optimizing Therapies, Disease Trajectories, and AI-Assisted Clinical Management for Patients Living with Complex Multimorbidity) project aims to develop AI-enabled tools to support shared decision-making in primary care. This study explored how patients with MLTC perceive the use of AI to inform joint decision-making in primary care.

Methods: Semistructured interviews were conducted via telephone or video call with 29 adults living with MLTC between July and November 2023. Participants were recruited through general practitioner practices via the Clinical Practice Research Datalink and community-based organizations across the West Midlands. Interviews were transcribed verbatim and analyzed thematically using an inductive approach. Members of a patient advisory group were involved in developing study materials, refining the interview guide, and reviewing emerging findings to ensure relevance and authenticity.

Results: Participants identified potential benefits of AI in enhancing consultation efficiency and accuracy, improving access to information for patients and clinicians, promoting early detection of health changes, and reducing health care inequalities. However, concerns were raised about the loss of human interaction, data privacy and security, transparency of algorithms, and the potential for bias and inequity in AI systems. Trust and acceptance varied by age and familiarity with technology. Some participants expressed uncertainty about what AI entails and how it could be used in primary care.

Conclusions: Patients with MLTC viewed AI-assisted decision-making in primary care with cautious optimism. While many recognized potential benefits for coordination and personalization of care, others expressed reservations about privacy, fairness, and the risk of diminished human connection.

Keywords: AI; artificial intelligence; multiple long-term conditions; primary care; qualitative research.

Conflict of interest statement

Conflicts of Interest: None declared.

- 41 references
- 1 figure

Supplementary info

MeSH termsExpand

Full text links

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Int J Clin Pharm

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. 2026 Apr 21.

doi: 10.1007/s11096-026-02143-x. Online ahead of print.

Perspectives on shared decision making related to medications from patients with multiple long-term conditions transitioning from hospital to home: a qualitative study

Mikas Glatkauskas [1], Malin Olsen Syversen [2], Liv Mathiesen [2], Michael Scott [3], Karin Svensberg [4], Berit Gallefoss Denstad [5], Marianne Lea [2 6]

Affiliations Expand

- PMID: 42012752

- DOI: 10.1007/s11096-026-02143-x

Abstract

Introduction: Shared decision making is particularly important for patients with multiple long-term conditions due to the nature of long-term treatments and frequent changes in medication regimens. However, the complexity of the medication regimens could exclude these vulnerable patients from shared decision making. There is little knowledge about how patients with multiple long-term conditions experience and perceive shared decision making.

Aim: The aim was to explore the perspectives and experiences of patients with multiple long-term conditions regarding shared decision making related to medications before, during and after a hospital stay.

Method: Semi-structured interviews with 21 patients and three next of kin were conducted. Patients ≥ 18 years, usually living at home, on at least four medications for at least two separate conditions were included. These patients were purposively sampled from two geriatric wards and one internal medicine ward at a university hospital in Norway and interviewed approximately 14 days post hospital discharge. The inclusion and interviews lasted from December 2022 to February 2024. A semi-structured interview guide was used, and the qualitative data were analyzed using

directed content analysis guided by the three-talk model developed by Elwyn et al. from 2017.

Results: Patients reported not being invited to be part of the shared decision-making process and perceived their limited medical knowledge as a barrier to being invited to participate. They reflected on themselves being primarily focused on single details regarding one medication option they had received. Furthermore, they were not encouraged by the healthcare professionals to discuss and compare different medication options. Both patients and next of kin described an expectation that decisions being made by healthcare professionals would be accepted although the patient did not necessarily understand the treatment plan adequately. Several patients reported that healthcare professional led decisions left little to no room for further discussion and that medication decisions and patient health goals were almost solely in the hands of the healthcare professional. Although most patients trusted the healthcare professional to act in their best interests, this reliance resulted in further disengagement from their own treatment.

Conclusion: Patients with multiple long-term conditions were in general unfamiliar with and uninvolved in shared decision making related to medications. Additionally, the patients reflected on a lack of invitation to team talk which resulted in limited patient involvement both in option and decision talk.

Keywords: Decision making; Medication therapy management; Multimorbidity; Patient-centered care; Shared.

Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests. Ethics approval: Written, informed consent from patients and next of kin was collected before inclusion in the study. De-identified data was immediately stored in a protected area for sensitive data (TSD) at the University of Oslo. The study was approved by the Regional Committee for Medical and Health Research Ethics (Ref.No 420920/REK south-eastern C), Sikt (Ref.No 919319), and by the data protection office at the university hospital. A small gift (value of 50 NOK – 4 EUR or 5 USD) was given to the patients after the interviews.

- **47 references**

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

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Allergy

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. 2026 Apr 25.

doi: 10.1111/all.70366. Online ahead of print.

The First Biosimilar for Biologics in Allergy: CT-P39 (Omlyclo-Omalizumab-Igec) Is Available for Asthma, Chronic Spontaneous Utricaria, and Chronic Rhinosinusitis With Nasal Polyps

L Klimek [1], J Mullol [2], S Reitsma [3], L van Gerven [4 5 6], J Maza-Solano [7 8 9 10], M Lundberg [11], S Becker [12], F Bärhold [1], R Gawlik [13], M Sokolowska [14], J Hagemann [1 15], C Akdis [14], V Hox [16], S Toppila-Salmi [17], I M Adcock [18], G M Escribese [19], O Palomares [20], A Moreira [21 22 23], P Bonadonna [24], M Ollert [25 26], J Bousquet [27 28 29 30], E de Corso [31], M Shamji [18 32], M J Torres Jaen [33 34], S Arasi [35]

Affiliations Expand

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Supplementary info

Publication typesExpand

Full text links

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Nat Immunol

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. 2026 Apr 24.

doi: 10.1038/s41590-026-02509-3. Online ahead of print.

IL-9 and Blimp-1 protect the transcriptional identity of group 2 innate lymphocytes in allergic asthma

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Affiliations Expand

- **PMID: 42032301**

- **DOI: 10.1038/s41590-026-02509-3**

Abstract

Allergic asthma is driven by type 2 immune responses, including type 2 innate lymphoid cells (ILC2s). Although ILC2s are activated by the tissue alarmins interleukin (IL)-33 and IL-25, these signals do not intrinsically enforce type 2 identity and the mechanisms that maintain type 2 cytokine expression remain unclear. Here we show that allergen-induced IL-33 and IL-25 rapidly induce IL-9, which in turn upregulates the transcriptional repressor Blimp-1 in ILC2s. Blimp-1 sustains type 2 immunity by directly repressing type 1 inflammatory programs, including expression of interferon-γ and tumor necrosis factor. Deletion of Blimp-1 in ILC2s increased type 1 cytokine production and reduced IL-5 and IL-13 expression, eosinophil recruitment and mucus production in the lung. In contrast, IL-9 expression was enhanced in the absence of Blimp-1, leading to increased mast cell recruitment. Together, these findings identify Blimp-1 as a key regulator of ILC2 transcriptional fidelity that stabilizes type 2 inflammation while constraining divergent inflammatory programs during allergic responses.

Conflict of interest statement

Competing interests: D.M.S. consults for Sobi and received grants from Sobi and Eli Lilly. The other authors declare no competing interests.

- **63 references**

Supplementary info

Grants and fundingExpand

Full text links

Cite

3

Clin Rehabil

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. 2026 Apr 24:2692155261441158.

doi: 10.1177/02692155261441158. Online ahead of print.

A systematic review of physical activity guidelines for adults with cardio-respiratory diseases: Stepping towards evidence-based recommendations

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Affiliations Expand

- PMID: 42029388

- DOI: 10.1177/02692155261441158

Abstract

ObjectivesPhysical activity benefits for adults with cardio-respiratory diseases are well established, and evidence-based recommendations are essential for healthcare professionals. This study systematically reviewed existing recommendations on physical activity for adults with cardio-respiratory diseases, specifically chronic obstructive pulmonary disease, asthma, and heart failure, focusing on the frequency, intensity, time and type (FITT).Data SourcesWe searched OVID MEDLINE, EMBASE, CINAHL, and grey literature for guidelines and related documents. The comprehensive search was conducted in July 2025 and subsequently updated through March 2026. Two authors independently screened guidelines, extracted FITT components, and documented disease-specific precautions. Disagreements were resolved with a third author. The AGREE II instrument assessed methodological quality for identified CPGs. Recommendations were categorised based on the FITT framework.ResultsWe included 29 guidelines, of which 14 were classified as Clinical Practice Guideline and assessed with AGREE II. Among the 14 guidelines, 7 demonstrated high quality, 6 were moderate, and 1 was low quality. Most guidelines recommended at least 150 minutes of moderate aerobic activity per week. Adaptive recommendations primarily addressed exacerbations and symptom management.ConclusionWhile aerobic physical activity was consistently recommended, disease-specific guidance and adherence to FITT principles were limited. Significant gaps were noted in methodological quality, particularly in stakeholder involvement and applicability. To enhance usability, guidelines should standardise recommendations for type, duration, intensity, and frequency, incorporating evidence grading system.

Keywords: COPD; asthma; guidelines; heart failure; physical activity.

J Allergy Clin Immunol

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. 2026 Apr 23:S0091-6749(26)00220-4.

doi: 10.1016/j.jaci.2026.03.015. Online ahead of print.

Dynamics of nasal transcriptomics during step-up treatment in children with uncontrolled asthma

Yidan Sun [1], Elise M A Slob [2], Lieke C E Noij [3], Tatiana Karp [4], Djoke van Gosliga [1], Mahmoud I Abdel-Aziz [5], Judith M Vonk [6]; PUFFIN Investigators; Dmitry Khalenkow [1], Susanne J H Vijverberg [3], Mariëlle W Pijnenburg [7], Anke H Maitland-van der Zee [8], Gerard H Koppelman [1], Elin T G Kersten [9]

Affiliations Expand

- PMID: 42029385

- DOI: 10.1016/j.jaci.2026.03.015

No abstract available

Keywords: Asthma; inhaled corticosteroids; long-acting β(2)-agonist; transcriptome.

Conflict of interest statement

Disclosure statement The PUFFIN trial was funded by a consortium grant of the Lung Foundation Netherlands (project no. 5.1.16.094; ClinicalTrials.gov identifier NCT03654508). Disclosure of potential conflict of interest: Y. Sun is supported by a grant from the China Scholarship Council (CSC). E. T. G. Kersten reports institutional grants from the Lung Foundation Netherlands and Stichting vrienden Beatrix kinderziekenhuis. G. H. Koppelman reports grants from the Lung Foundation Netherlands (this article), and TEVA The Netherlands, ZON-MW, Ombion CPBT Growth Fund The Netherlands (Ministry of Agriculture), the European Union (H2020), and Vertex; in addition, his institution received consultancy fees from AstraZeneca and Pure IMS. A. H. Maitland-van der Zee reports grants from the Lung Foundation Netherlands (this article), institutional grants from Health Holland, Boehringer Ingelheim, and Vertex; consulting fees (honoraria paid to institution) from Boehringer Ingelheim and AstraZeneca; and participation on a data safety monitoring board. S. J. H. Vijverberg reports grants from the Lung Foundation Netherlands (this article), institutional grants from IMI, GlaxoSmithKline, AstraZeneca, and Sanofi; and a leadership role (officer) in the European Respiratory Society. The rest of the authors declare that they have no relevant conflicts of interest.

Supplementary info

5

Am J Ind Med

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doi: 10.1002/ajim.70083. Online ahead of print.

Civilian Occupational Exposure to Vapors, Gas, Dust, or Fumes and Respiratory Health Among United States Military Veterans

Sahra Mohazzab-Hosseinian [1,2], Carrie A Redlich [3], Anna M Korpak [1], Andrew K I Timmons [1], Nicholas L Smith [1,2], Karen S Nakayama [1], Farrah Kheradmand [4,5], Vincent S Fan [6,7], Michael Jerrett [8], Philippe R Montgrain [9,10], Christine H Wendt [11,12], Ware G Kuschner [13,14], Emily S Wan [11], Eric Garshick [15,16], Paul D Blanc [17,18]

Affiliations Expand

- PMID: 42028841

- DOI: 10.1002/ajim.70083

Abstract

Background: We investigated associations of self-reported and job exposure matrix (JEM) assigned civilian occupational exposure to vapors, gas, dust, or fumes (VGDF) with respiratory symptoms among previously deployed US Veterans.

Methods: An interviewer-administered questionnaire ascertained self-reported civilian occupational VGDF exposure. A JEM categorized occupational VGDF based on longest-held civilian occupation and industry of employment. Models tested associations of self-reported and JEM-assigned VGDF with dyspnea, chronic bronchitis (CB), or wheeze, adjusting for smoking and other covariates.

Results: Among 1868 participants (mean age 37.8 ± 13.1 years); 1654 (89%) males; the median occupational duration was 6 years. The prevalence of JEM-assigned VGDF exposure or self-reported civilian occupational VGDF exposure was 31% for

both, with modest agreement between them (kappa 0.48). Any JEM VGDF exposure was statistically significantly associated with increased odds of CB (odds ratio [OR]) 1.75; 95% Confidence Interval [CI] 1.05-2.20). Self-reported VGDF exposure was less strongly associated with increased CB odds (OR 1.18; 95% CI 0.85-1.86). JEM alone demonstrated a statistically significant association with CB (OR 1.77; 95% CI 1.31-2.68); combined JEM and self-reported VGDF demonstrated a similar but not statistically significant association with CB (OR 1.68; 95% CI 0.90-2.35). Self-reported VGDF alone was not positively associated with CB, dyspnea, or wheeze.

Conclusions: Civilian occupational VGDF exposures (assessed by self-report and JEM) were common. Exposure to VGDF was most consistently associated with increased odds of CB, underscoring the need to consider civilian occupational factors when assessing Veterans' health.

Keywords: Veterans; asthma; chronic bronchitis; job exposure matrix; military deployment; occupational exposure; shortness of breath; vapors, gas, dust or fumes (VGDF).

- 20 references

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

6

Meta-Analysis

Biomol Biomed

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. 2026 Apr 24.

doi: 10.17305/bb.2026.14164. Online ahead of print.

Asthma and increased carotid intima-media thickness: A systematic review and meta-analysis

Mohammed Haroun [1], Mohamed Ellebedy [2], Abduraheem F A Farah [3], Waleed K K Khalid [4], Mazin M A Abdelmutalab [5], Omer H T Mohmmed [6], Aymen Abdalla [7], Sagad O O Mohamed [7]

Affiliations Expand

- PMID: 42028627

- DOI: 10.17305/bb.2026.14164

Abstract

Asthma has been associated with early vascular changes that elevate the risk of atherosclerosis and cardiovascular diseases. Carotid intima-media thickness (CIMT) serves as a non-invasive marker for subclinical atherosclerosis and cardiovascular risk. However, existing literature presents conflicting results regarding CIMT measurements in asthmatic patients. This study aims to evaluate whether CIMT is elevated in asthma patients compared to healthy controls and to explore potential modifiers. We conducted a systematic review following PRISMA guidelines, performing a literature search across PubMed, Web of Science, ScienceDirect, and the WHO VHL. We calculated pooled standardized mean differences (SMD) with 95% confidence intervals (CI) to assess the differences in CIMT values. Heterogeneity was evaluated using the I^2 statistic, and subgroup analyses and meta-regression were utilized to identify sources of heterogeneity. Our review included a total of 10 studies. The analysis indicated significantly higher CIMT values in asthma patients compared to healthy controls, with a pooled SMD of 0.65 (95% CI: 0.19 to 1.12, p = 0.005). A limited number of studies addressed various factors, such as disease severity and the use of inhaled corticosteroids, which may influence CIMT measurements. Notably, asthmatic patients, particularly children and adolescents, exhibited higher CIMT values compared to healthy controls, suggesting a potential association with subclinical atherosclerosis in this demographic. However, these findings should be interpreted with caution due to the observational nature of the included studies and the risk of residual confounding. Further longitudinal research is necessary to elucidate the effects of disease characteristics and treatment on vascular health.

. 2026 Apr 21:S0012-3692(26)00465-4.

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Dupilumab Reduces Mucus Radiodensity and New Plug Formation in Asthma

Ekamdeep Sandhu [1], Nandhitha Ragunayakam [1], Anusha A Mappanasingam [1], Yonni Friedlander [2], Carmen Venegas Garrido [3], Melanie Kjarsgaard [2], Ashutosh Thakar [1], Nisarg Radadia [1], Manali Mukherjee [3], Parameswaran Nair [3], Sarah Svenningsen [4]

Affiliations Expand

- PMID: 42025998

- DOI: 10.1016/j.chest.2026.03.041

Abstract

Background: Dupilumab, an interleukin (IL)-4 and IL-13 antagonist, reduces the burden of mucus plugs visualized by computed tomography (CT) in asthma.

Research question: Does dupilumab modify the volume, radiodensity, and temporospatial behaviour of individual CT-visible mucus plugs in patients with moderate-to-severe asthma?

Study design and methods: Thirty-two adults with moderate-to-severe asthma were evaluated; 22 received dupilumab every 2-weeks for at-least 16-weeks, and 10 were in the control group. All mucus plugs visible on CT scans acquired at baseline and follow-up were annotated to evaluate plug count, volume, and radiodensity. Individual plugs were assessed longitudinally and classified as resolved, fixed-location persistent (FLP), or new-onset.

Results: Post-dupilumab reductions in mucus score, total mucus plug count, and total plug volume were greater than control and associated with improved FEV_1, FEV_1/FVC, and ^{129}Xe magnetic resonance imaging ventilation defect percent (VDP) (all $p<0.05$). 36% of dupilumab-treated participants had complete resolution (control: 10%) and 59% had incomplete resolution of mucus plugs (control: 80%). Compared to control, dupilumab-treated participants had more resolved (91% vs. 58%, $p<0.0001$), and fewer FLPs (9% vs. 42%, $p<0.0001$) and new-onset plugs (1[0-5] vs. 6[0-18], $p=0.0008$). Radiodensity of FLPs decreased post-dupilumab (-422HU [-759-(-5)] to -569HU [-738-(-258)], $p=0.009$), and new-onset plugs had lower radiodensity in dupilumab-treated participants compared to control (-573HU [-765-(-320)] vs. -387HU [-662-(-26)], $p=0.0006$). Participants with incomplete resolution had persistently higher VDP compared to those with complete resolution ($p<0.05$).

Interpretation: Dupilumab reduces mucus burden in asthma by resolving persistent plugs and decreasing the formation of new plugs. Despite complete resolution in a

subset of participants, residual low-radiodensity persistent and new-onset plugs are functionally relevant.

Keywords: asthma; biologic; computed tomography; mucus plug.

Cite

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Respir Med

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. 2026 Apr 21:257:108829.

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Breathing and speech patterns for predictive modelling of exacerbations of asthma and COPD

Mikołaj Najda [1], Yuyang Yan [2], Loes van Bemmel [3], Frits M E Franssen [3], Sami O Simons [3], Visara Urovi [2]

Affiliations Expand

- PMID: 42025816

- DOI: 10.1016/j.rmed.2026.108829

Abstract

Background: COPD and asthma cause significant morbidity and mortality across the globe. The development of non-invasive telemonitoring solutions offers the potential to improve patient care.

Objective: To examine whether breathing and speech patterns extracted from audio recordings enhance model generalizability of distinguishing stable from exacerbation periods in COPD and asthma.

Methods: Patterns related to breathing and speech were extracted from a dataset that combined daily audio speech recordings with a patient-reported outcome measure (EXACT). Medical experts categorized patient health status as stable or exacerbation. A tree-based model was investigated for exacerbation prediction. The

model was trained on signal-related features, breathing and speech patterns, and combination of both. Results were examined for variability among all people and feature importance.

Results: The study included 21 people (mean age 62.7 years; 66.7% female), 61.9% diagnosed with COPD and 38.1% with asthma. Minimum breath duration and speech duration differed between stable and exacerbation states ($p < 0.05$). The model, trained on combined features sets achieved Sensitivity of 0.78, 0.10 SD exceeding models trained on acoustic-only (0.70, 0.17 SD) and patterns-only sets (0.68, 0.13 SD). Inconsistencies were observed in patient-level results across exacerbation severity. Speech Duration, Spectral Contrast, Harmonic to Noise Ratio, Breath Group Duration and 26 Mel-Frequency Cepstral Coefficient were found to have the highest importance for the best performing model.

Conclusion: Combining signal derived features with breathing and speech patterns helps models to achieve higher results. Detected clusters within the study group indicate patient-level variability. Presented results position breathing and speech patterns as valuable tool for remote patient screening.

Conflict of interest statement

Declaration of competing interest Sami O. Simons - SOS reports grants from Roche, Dutch Research Council (NWO) and Lung Foundation Netherlands (Longfonds); Honoraria for lectures and presentations from AstraZeneca and Chiesi; Support for attending meetings from AstraZeneca and Chiesi; Patent filed on 6 September 2024; Participation on a Advisory Board from AstraZeneca and Chiesi; all paid to his institution. Frits M.E. Franssen - Consulting fees from Pfizer, Sanofi and GSK; Honoraria for lectures and presentations from AstraZeneca, Chiesi, GSK, Sanofi and Pfizer; Support for attending meetings from AstraZeneca; Other authors declare no conflicts of competing interest.

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Respir Med

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. 2026 Apr 21:108849.

doi: 10.1016/j.rmed.2026.108849. Online ahead of print.

Temporal Trends in Baseline Severity and 12-Month Response to Mepolizumab in Severe Asthma: The TYREX Multicentre Real-World Study in Spain (2017-2024)

Javier Domínguez-Ortega [1], Carlos Almonacid [2], Francisco Javier Alvarez-Gutiérrez [3], Carolina Cisneros [4], Ignacio Dávila [5], David Bañas-Conejero [6], Esteban Antelo-Cea [6], Luis Pérez de Llano [7]; TYREX study group; Hemily Katerine Izaguirre Flores [8], Mariana Muñoz-Esquerre [9], Ebymar Arismendi [10], Gemma López-Sainz [10], Ana Pueyo Bastida [11], J Gregorio Soto Campos [12], Karima Khouadri [12], Ma Angeles Zambonino [12], Daniel Del Castillo Otero [13], Álvaro Cabeza Serrano [13], Cleofé Fernández-Aracil [14], María Del Mar García-Ródenas [14], Eusebi Chiner [15], Ignacio Boira [15], Brian Vila Auli [16], Juan Luis García-Rivero [17], Adil Hannaoui Anaaoui [17], Beatriz Abascal-Bolado [17], Rocío Magdalena Díaz Campos [18], Ismael García Moguel [18], Marina Blanco-Aparicio [19], Tamara Hermida Valverde [20], Nuria Marina Malanda [21], Heleia Gonzalez Cuervo [22], Pilar Cuesta Apausa [22], Paula Rodriguez Siverio [22], Eva Martinez-Moragon [23], Ismael Ali-García [24], Jorge Rábago Castro [24], Daniel Laorden Escudero [25], Ketherine Pose Silveira [25], Jorge Correa Borit [25], Andrea Tristán [26], David Espejo-Castellanos [27], Xavier Muñoz Gall [27], Ana Gómez-Bastero Fernández [28], Belén Muñoz Sánchez [29], Antonio León Lloreda [29], María Luisa Polonio González [29], David Carlos Echevarría Kashmiri [29]

Affiliations Expand

- **PMID: 42025815**

- **DOI: 10.1016/j.rmed.2026.108849**

Abstract

Background and objective: Although mepolizumab has demonstrated efficacy and effectiveness in the treatment of severe asthma, it is unknown whether the characteristics of patients starting this biologic have changed over the years and whether this impacts their response to mepolizumab.

Methods: TYREX was a multicenter, retrospective, observational study conducted in 24 asthma units across Spain to compare baseline clinical and demographic characteristics, and 12-month response to mepolizumab in two cohorts defined by the date of biologic initiation (cohort 1: 2017-2019 vs cohort 2: 2022-2024).

Results: Among the 446 patients included in the TYREX study, 191 were classified in cohort 1 and 108 in cohort 2. Cohort 1 had higher baseline exacerbation rates (3.45 vs. 2.40/year; p=0.0002) and higher blood eosinophils (806 vs. 607 cells/μL; p=0.0175). Twelve months after mepolizumab initiation, annual exacerbation rate were reduced to 0.46 in cohort 1 and to 0.51 in cohort 2, ACT scores increased from 14.23 to 21.84 vs. from 15.43 to 21.06; daily oral corticosteroid dependent patients dropped from 33.51% to 9.04% vs. from 12.96% to 2.78%; and clinical remission was achieved in 37.5% vs. 38.5% of patients after 12 months with mepolizumab. In multivariable analysis for 4-domain clinical remission (n=108), higher baseline ppFEV1 increased the odds of remission while maintenance OCS use decreased them (Figure. 3). In the 3-domain remission model (n=198), CRSwNP and higher baseline blood eosinophil count increased the odds of remission, whereas maintenance OCS use decreased them (Figure. 3).

Conclusion: The decrease over time in severity and blood eosinophilia in asthma patients starting mepolizumab has not shown any impact on the clinical response to the drug.

Keywords: Severe asthma; Spain; biologic therapy; clinical remission; mepolizumab; real-world study.

Conflict of interest statement

Declaration of Competing Interest LPdLL reports grants, personal fees and non-financial support from AstraZeneca, personal fees and non-financial support from GSK, grants and personal fees from Chiesi, grants, personal fees and non-financial support from Sanofi, personal fees and non-financial support from Menarini, grants and non-financial support from FAES, personal fees from GEBRO.

Cite

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Ital J Pediatr

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. 2026 Apr 22.

doi: 10.1186/s13052-026-02261-2. Online ahead of print.

Mapping of pediatric allergy structures in Italy: a nationwide survey

Giulio Dinardo [# 1], Mattia Giovannini [# 2 3], Francesca Galletta [4], Angela Klain [1], Maria de Filippo [5 6], Cristiana Indolfi [1], Gian Luigi Marseglia [7 8], Michele Miraglia Del Giudice [1], Sara Manti [9]; Regional Representatives of the Italian Society of Pediatric Allergy, Immunology (SIAIP)

Affiliations Expand

- **PMID: 42021396**

- **DOI: 10.1186/s13052-026-02261-2**

Free article

No abstract available

Keywords: Asthma; Atopic diseases; Delivery of health care; Health care disparities; Health services accessibility; Immunology; Italy; Pediatric allergy; Surveys and questionnaires; Telemedicine.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted as a nationwide mapping survey of healthcare structures and did not involve patients or the collection of individual clinical data. According to Italian regulations, formal ethics committee approval was not required. The study was conducted in accordance with the principles of the Declaration of Helsinki. Consent for publication: Not applicable. Competing interests: MG reports personal fees from Sanofi and Thermo Fisher Scientific. All other authors declare no competing interests.

- **10 references**

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J Allergy Clin Immunol

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Stability and Age-Specific Patterns of Rhinovirus Circulation in Children Over Three Decades

YingYu Gao [1], Yury A Bochkov [1], Kristine E Lee [1], Ronald Gangnon [1], Leonard B Bacharier [2], William W Busse [1], Carlos A Camargo Jr [3], Robyn Cohen [4], Gregory P Demuri [1], Anne M Fitzpatrick [5], Peter J Gergen [6], Kristine Grindle [1], Rebecca Gruchalla [7], Tina Hartert [8], Gurjit K Khurana Hershey [9], Patrick Holt [10], Kiara Homil [11], Daniel J Jackson [1], Tuomas Jartti [12], Meyer Kattan [13], Carolyn Kercsmar [9], Haejin Kim [14], Ingrid A Laing [15], Robert F Lemanske Jr [1], Peter N Le Souëf [15], Andrew H Liu [16], David T Mauger [17], Tressa Pappas [1], Shilpa J Patel [18], Wanda Phipatanakul [19], Jacqueline Pongracic [20], Christine Seroogy [1], Peter D Sly [21], Christopher Tisler [1], Ellen R Wald [1], Robert Wood [22], Edward Zoratti [14], James E Gern [1], Jo L Wilson [23]; ECHO Consortium

Affiliations Expand

- **PMID: 42019635**

- DOI: 10.1016/j.jaci.2026.03.027

Abstract

Background: Rhinoviruses (RV) are the most common respiratory viruses globally and a major cause of airway symptoms in children and individuals with asthma. Although more than 170 RV types exist across three species (RV-A, RV-B, RV-C), type-specific circulation patterns and age-related prevalence remain poorly defined.

Objective: To characterize long-term circulation patterns, age-specific prevalence, and host genetic associations of RV types using a large pediatric dataset.

Methods: We retrospectively analyzed 12,697 RV infections identified by PCR and partial sequencing from 11,960 nasal samples collected between 1997 and 2025 across 20 pediatric populations in Finland, Australia, and the United States, including 10 NIH ECHO cohort sites. RV types were classified by species, and host CDHR3 rs6967330 genotype, which impacts RV-C receptor binding, was available for a subset. Temporal stability, phylogenetic clustering, and detection frequency by age were assessed using streamgraph visualization, slope modeling, and Spearman correlation.

Results: RV type circulation was remarkably stable over three decades; 97% of types had slope estimates whose 95% confidence intervals included zero, indicating no significant temporal change. Commonly detected types did not consistently cluster phylogenetically, suggesting that capsid sequence similarity does not fully explain fitness. Certain types (e.g., A36, A101, C15) were prevalent across all pediatric age groups, whereas others (e.g., C2, C40, A78, A12) were more frequent in younger children. The CDHR3 rs6967330-A risk allele was associated with increased overall RV-C infection but it did not alter the distribution of common versus rare RV-C types.

Conclusion: RV type prevalence and age-specific patterns have remained stable for decades, supporting targeted interventions focused on consistently circulating types and those most common in young children.

Keywords: Age-specific prevalence; Antiviral targets; CDHR3 genotype; NIH ECHO cohort; Pediatric respiratory infections; Respiratory virus stability; Rhinovirus epidemiology; Vaccine development; Viral circulation patterns; Viral phylogenetics.

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J Allergy Clin Immunol

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AZD8630/AMG 104, an inhaled Anti-TSLP antibody fragment, for moderate-to-severe asthma: a phase 1 randomized controlled trial

Sarah R Doffman [1], Davinder P S Dosanjh [2], Muhammad Waqas Sadiq [3], Yuko Matsunaga [4], Jason D Cooper [5], Geoff Edwards [5], Sara Asimus [3], Lubna Abuqayyas [6], Xiao-Hong Zhou [7], Ian C Scott [8], Mathias Cardner [9], Jane R Parnes [10], Kristina Kovacina [11], Nicholas White [12], Michael G Cushion [13], Maria G Belvisi [14], Dinesh Saralaya [15], Thomas Brown [16], Jutta Beier [17], Nestor A Molfino [4]

Affiliations Expand

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- DOI: 10.1016/j.jaci.2026.03.026

Abstract

Background: AZD8630/AMG 104 is an inhaled anti-thymic stromal lymphopoietin (TSLP) antibody fragment in development for the treatment of patients with moderate-to-severe asthma.

Objective: To evaluate the safety, tolerability, immunogenicity, pharmacokinetics, pharmacodynamics, and target engagement of AZD8630/AMG 104 in healthy adults and adults with moderate-to-severe asthma.

Methods: First-in-human, two-part, Phase 1 study of AZD8630/AMG 104. Part A: single-blind study in healthy adults evaluating single and multiple ascending doses (0.2-16mg) inhaled once-daily for up to 14 days; Part B: double-blind, randomized, placebo-controlled study in adults with moderate-to-severe asthma and elevated fractional exhaled nitric oxide (FeNO; ≥30ppb), randomized to AZD8630/AMG 104 (0.4, 2, and 8mg), or placebo, once-daily for 28 days. The primary objective was safety and tolerability. Secondary and exploratory objectives included pharmacokinetics, immunogenicity, pharmacodynamics (change from baseline in FeNO), and target engagement.

Results: In total, 181 participants (Part A, n=104; Part B, n=77) were randomized. AZD8630/AMG 104 showed an acceptable safety profile, with low incidence of treatment-induced anti-drug antibodies (Part A, n=1; Part B, n=2), and dose-dependent pharmacokinetics. In Part B, there was a statistically significant reduction in FeNO in AZD8630/AMG 104 8mg recipients versus placebo (day 28, 23%; P=0.037). AZD8630/AMG 104 dosing led to a dose-dependent decrease of free-TSLP levels and increased TSLP-AZD8630/AMG 104 levels in serum in all participants.

Conclusion: AZD8630/AMG 104 was well tolerated, with pharmacokinetics suitable for once-daily dosing. Results demonstrate proof-of-mechanism: clinically meaningful reductions in FeNO levels and evidence of target engagement. Further development of AZD8630/AMG 104 in adults with moderate-to-severe asthma is warranted. CLINICAL IMPLICATION (30/30): AZD8630/AMG 104, an inhaled anti-TSLP biologic, was well tolerated, suitable for once-daily dosing, and demonstrated clinically meaningful, significant FeNO reduction supporting pharmacodynamic activity and justifying progression to dose response optimization. CAPSULE SUMMARY (34/35): In this first-in-human Phase 1 study, AZD8630/AMG 104, a novel inhaled anti-TSLP antibody fragment, was well tolerated. Results demonstrated proof-of-mechanism as shown by clinically meaningful reductions in FeNO levels in participants with moderate-to-severe asthma.

Keywords: Asthma; fractional exhaled nitric oxide (FeNO); inhaled biologics first-in-human; safety; thymic stromal lymphopoietin (TSLP).

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Editorial

J Med Econ

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. 2026 Dec;29(1):1304-1309.

doi: 10.1080/13696998.2026.2660599. Epub 2026 Apr 22.

Integrating single-inhaler triple therapy into global asthma management: clinical breakthroughs and economic realities

Francesco Menzella [1]

Affiliations Expand

- **PMID: 42018474**

- **DOI: 10.1080/13696998.2026.2660599**

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Thorax

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. 2026 Apr 21:thorax-2025-223646.

doi: 10.1136/thorax-2025-223646. Online ahead of print.

Association of blood eosinophils and exhaled nitric oxide with exacerbations in patients with asthma, COPD and asthma+COPD: the NOVELTY study

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Collaborators, Affiliations Expand

- PMID: 42014196

- DOI: 10.1136/thorax-2025-223646

Free article

Abstract

Background: Blood eosinophils (EOS) and fractional exhaled nitric oxide (FeNO) are potential biomarkers for disease progression and treatment response in asthma and chronic obstructive pulmonary disease (COPD). We investigated their association with exacerbations in asthma, COPD and asthma+COPD.

Methods: NOVEL observational longiTudinal studY is a multicountry prospective study of patients with physician-assigned asthma, COPD and asthma+COPD.

Negative binomial and logistic regression analyses were performed for baseline EOS/FeNO (separately and combined), by diagnosis, and for different exacerbation subtypes (all, antibiotics-only, oral corticosteroids (OCS)-only).

Results: Higher baseline EOS was significantly associated with increased risk of all exacerbations in asthma (incidence rate ratio (IRR) 1.09, 95% CI 1.01 to 1.18, p=0.033), with a trend increase with COPD (IRR 1.09, 95% CI 1.00 to 1.19, p=0.069) but not asthma+COPD. Higher baseline FeNO was significantly associated with decreased risk of all exacerbations in COPD (IRR 0.91, 95% CI 0.84 to 0.99, p=0.025) and increased risk of OCS-only exacerbations in asthma (OR 1.16, 95% CI 1.04 to 1.29, p=0.006) and asthma+COPD (OR 1.55, 95% CI 1.22 to 1.97, p<0.001). In exacerbation risk in asthma (IRR 1.14, 95% CI 1.05 to 1.24, p=0.003), while in COPD, both higher EOS (IRR 1.12, 95% CI 1.02 to 1.24, p=0.033) and lower FeNO (IRR 0.87, 95% CI 0.78 to 0.96, p=0.009) were independently associated with exacerbation risk.

Conclusions: Higher EOS predicted exacerbations in asthma and COPD, while FeNO showed heterogeneous associations, particularly for OCS-only treated exacerbations. Assessment of exacerbation subtype might improve personalised management. Interpretation is limited by physician-assigned diagnoses, potential ICS confounding and recall bias.

Keywords: Asthma; COPD Exacerbations; Eosinophil Biology; Exhaled Airway Markers.

Conflict of interest statement

Competing interests: SM has received a travel grant from GSK outside of the submitted work. HM and CE are employees and shareholders of AstraZeneca. LB and NR are employees of AstraZeneca. AA has received payments in his role as a member of the scientific committee of NOVELTY; received research grants from AstraZeneca, Chiesi, GSK, Menarini, MSD and Zambon; consulting fees from AstraZeneca, Chiesi, GSK, Menarini, MSD and Zambon; and payment or honoraria from AstraZeneca, Chiesi, GSK, Menarini, MSD and Zambon. RF received research grants from AstraZeneca, GSK, Chiesi, Menarini, Instituto de Salud Carlos III—Spanish National Health Service and Menarini; consulting fees from GSK; and payment or honoraria from AstraZeneca, Chiesi and Zambon. IP received research grants from Chiesi; consulting fees from Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, Circassia, Dey Pharma, Genentech, GSK, Knopp Biosciences, Merck, MSD, Napp Pharmaceuticals, Novartis, Regeneron Pharmaceuticals, Respivert, Schering-Plough and Teva; payment or honoraria from Aerocrine, Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Novartis, Regeneron Pharmaceuticals Inc., Sanofi and Teva; support for attending meetings from AstraZeneca, Chiesi, GSK, Napp Pharmaceuticals, Regeneron Pharmaceuticals, Sanofi and Teva; and other financial or non-financial interests from AstraZeneca, Boehringer Ingelheim, GSK, Regeneron Pharmaceuticals, Sanofi and Teva. SC reports the following: received non-restricted research grants from the Academy of Medical Sciences, the Association Pulmonaire du Québec, AstraZeneca, bioMérieux, Circassia Niox Group, the NIHR Oxford BRC, the Quebec Respiratory Health Research Network and Sanofi-Genyme-Regeneron; he is the holder of the Association Pulmonaire du Québec's Research Chair in Respiratory Medicine and is

a clinical research scholar of the Fonds de recherche du Québec; received speaker honoraria from AstraZeneca, GlaxoSmithKline, Sanofi-Regeneron and Valeo Pharma; received consultancy fees for Access Biotechnology, Access Industries, AstraZeneca, FirstThought, GlaxoSmithKline and Sanofi-Regeneron; received sponsorship to attend/speak at international scientific meetings by/for AstraZeneca and Sanofi-Regeneron. He is an advisory board member and detains stock options for Biometry–a company which is developing a FeNO device (myBiometry). He advised the Institut national d'excellence en santé et services sociaux (INESSS) for an update of the asthma general practice information booklet for general practitioners and is a member of the asthma steering committee of the Canadian Thoracic Society. HI reports research grants paid to his institution from Boehringer Ingelheim, GlaxoSmithKline and Omron, outside the submitted work, and honoraria for lectures/advisory committees from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Kyorin, Novartis and Sanofi. DBP is an employee of OPRI, which was funded by AstraZeneca to conduct this study; has advisory board membership with AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme and Thermofisher; consultancy agreements with Airway Vista Secretariat, AstraZeneca, Boehringer Ingelheim, Chiesi, EPG Communication Holdings, FIECON, Fieldwork International, GlaxoSmithKline, Mylan, Mundipharma, Novartis, OM Pharma SA, PeerVoice, Phadia AB, Spirosure, Strategic North, Synapse Research Management Partners S.L., Talos Health Solutions, Theravance and WebMD Global; grants and unrestricted funding for investigator-initiated studies (conducted through Observational and Pragmatic Research Institute) from AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Respiratory Effectiveness Group, Sanofi Genzyme, Theravance and UK National Health Service; payment for lectures/speaking engagements from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Kyorin, Mylan, Mundipharma, Novartis, Regeneron Pharmaceuticals and Sanofi Genzyme; payment for travel/accommodation/meeting expenses from AstraZeneca, Boehringer Ingelheim, Mundipharma, Mylan, Novartis and Thermofisher; stock/stock options from AKL Research and Development which produces phytopharmaceuticals; owns 74% of the social enterprise Optimum Patient Care (Australia and UK) and 92.61% of Observational and Pragmatic Research Institute (Singapore); 5% shareholding in Timestamp, which develops adherence monitoring technology; is a peer reviewer for grant committees of the UK Efficacy and Mechanism Evaluation Programme and Health Technology Assessment; and was an expert witness for GlaxoSmithKline. JMO reports consulting fees from ALK; honoraria from ALK, GSK and Mundipharma for independent medical educational presentations; independent research funding from AstraZeneca, Eversens and Sanofi-Genzyme; and a leadership role in FUNDACION SEAIC and the JIACI editorial board. HAMK reports that his institution has received fees per patient for recruitment in trials from GSK and Novartis; grants for investigator-initiated studies from Boehringer, GSK and Novartis; and consultancy fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Novartis and Sanofi. Additionally, he has received payment or honoraria for the development of educational materials from Sanofi. MvdB reports grants paid to the university from AstraZeneca, Chiesi, Genentech, GlaxoSmithKline and Teva, outside the submitted work.

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Allergy

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. 2026 Apr 21.

doi: 10.1111/all.70332. Online ahead of print.

Meta-Analysis on the Harm of Systemic Glucocorticosteroids in Inflammatory Upper Airway Disease and Asthma: An EAACI Task Force

Sophie Scheire [1,2], Evelijn Lourijsen [3], Manon Blauwblomme [2], Maria Dib [4], Ioana Agache [5], Claus Bachert [6,7], Koen Boussery [1], Adam Chaker [8], Roos Colman [9], Stefano Del Giacco [10], Ibon Eguiluz-Gracia [11], Wytske Fokkens [3], Simon Gane [12], Peter Hellings [13], Claire Hopkins [14], Ludger Klimek [15], Miguel Maldonado [16], Juan Maza-Solano [17,18], Ralph Mösges [19,20], Joaquim Mullol [21], Charles Pilette [22], Oliver Pfaar [23], Sietze Reitsma [3], Michael Rudenko [24], Mohamed H Shamji [25,26], Peter Valentin Tomazic [27], Sanna Toppila-Salmi [28,29,30], Philippe Gevaert [2], Valerie Hox [31]

Affiliations Expand

- PMID: 42011838

- DOI: 10.1111/all.70332

Abstract

Systemic glucocorticosteroids (sGCS) are widely used in the treatment of chronic inflammatory airway diseases such as rhinitis, rhinosinusitis and asthma. It is well-known that systemic use is linked to multiple adverse effects (AEs) both in the short- and the long-term. However, less is known about the safety of multiple short courses of sGCS. Currently there is no established agreement on the acceptable cumulative exposure to sGCS, considering the potential for various AEs. This systematic review and meta-analysis evaluated sGCS-related AEs in both upper and lower inflammatory airway disease, with a particular focus on short- and long-term risks. We further evaluated whether a dose-response relationship existed between the daily and cumulative dosages of sGCS and the occurrence of those AEs. Our meta-analysis confirmed that cumulative dosages between 500 mg and 1 g prednisolone-equivalent significantly increase the risk of most AEs, with risks increasing with incremental dose. These findings underscore the importance of: (a)

judicious sGCS prescription and need for steroid stewardship, due to their potential for short- and long-term complications, occurring even with repeated short courses, and (b) prioritization of steroid-sparing approaches (e.g., biologicals) to avoid reaching a cumulative dose of 500 mg.

Keywords: adverse events; asthma; chronic rhinosinusitis; rhinitis; systemic glucocorticosteroids.

- 68 references

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J Asthma

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. 2026 Apr 22:1-9.

doi: 10.1080/02770903.2026.2654585. Online ahead of print.

Treating Respiratory Emergencies in Children Study (T-RECS): a pilot trial of prehospital treatment for life-threatening pediatric asthma

Matt Hansen [1], Kammy Jacobsen [2], Spencer Freeman [2], John Studnek [3], Doug Swanson [4], Christine Ranjit [5], Rachel Crady [2], Susan J Burnett [6], Brian Clemency [6], Sarah Becker [7], Graham Brant-Zawadzki [8], Jessica Jung [7], Bradley J Barney [2 7]

Affiliations Expand

- PMID: 41943480

- DOI: 10.1080/02770903.2026.2654585

Abstract

Objectives: The Treating Respiratory Emergencies in Children Study (T-RECS) pilot study evaluated the feasibility of a prehospital treatment protocol for life-threatening pediatric asthma, including combined albuterol/ipratropium (DuoNeb) and dexamethasone with a checklist, to inform a future trial.

Methods: Prospective, before-and-after study across three US EMS agencies (January 2024-February 2025). We enrolled patients aged 2-17 with severe asthma exacerbations who met specific criteria. The intervention phase introduced the new protocol and checklist. The primary outcome was the hospital admission status collection rate. Secondary outcomes included NIH PROMIS asthma impact score collection, hospital-free days, and ICU-free days. Implementation outcomes were assessed using the RE-AIM framework, including reach, paramedic adoption, and protocol implementation. Paramedic surveys assessed protocol and checklist acceptability. The study was registered on clinicaltrials.gov on 8/10/23 (NCT06074185).

Results: The study screened 302 patients and enrolled 43. Hospital admission status was collected for 58% of enrolled patients. There was an observed increase in the use of albuterol/ipratropium (50% to 78.1%) and dexamethasone (41.7% to 65.6%) in the post-intervention phase, with an increase in the combined use of both (16.7% to 53.1%). Paramedic surveys (28% response rate) indicated the protocol was generally easy to follow, and the checklist was helpful. Challenges included time constraints and specific eligibility criteria.

Conclusions: This pilot trial evaluated the feasibility and acceptability of implementing a prehospital protocol for severe pediatric asthma. While hospital data collection needs to be improved, these findings provide important considerations for a larger trial to evaluate the impact of this intervention on patient outcomes.

Keywords: Asthma; EMS for children; pediatric emergency care; status asthmaticus.

. 2026 Apr 21;335(15):1291.

doi: 10.1001/jama.2026.1024.

FDA Approves New Generic Inhaler for Asthma Treatment

Samantha Anderer

- PMID: 41893734

- DOI: 10.1001/jama.2026.1024

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JCI Insight

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. 2026 Mar 10;11(8):e198712.

doi: 10.1172/jci.insight.198712. eCollection 2026 Apr 22.

Early-life viral infection generates pathological tissue-resident memory cells that contribute to asthma-like disease

Emma E Brown [1], Jie Lan [1], Olivia B Parks [2], Li Fan [3], Deguan Lou [3], Alysia McCray [1], Lisa Mathews [4], Alexander J Wardropper [5], Anna Shull [6], Michelle L Manni [7], Heth R Turnquist [4], Kong Chen [3], Taylor Eddens [1 8]

Affiliations Expand

- PMID: 41805545

- DOI: 10.1172/jci.insight.198712

Free article

Abstract

Viral lower respiratory tract infections are common early in life and are associated with long-term development of asthma, a chronic condition defined by reversible airflow obstruction secondary to inflammation. Understanding the immunological mechanism connecting these two pathologies observed early in life becomes imperative to guide therapeutic measures. To investigate this connection, neonatal (days 4-6) or adult mice were infected with human metapneumovirus (HMPV) followed by a secondary HMPV infection 6 weeks later. Mice initially infected as neonates demonstrated increased mucus production, eosinophil recruitment, airway hyperresponsiveness, and Th2 T cell differentiation after rechallenge compared with adult mice rechallenged with HMPV. Neonatal HMPV infection led to formation of Th2 clonally expanded tissue-resident memory (TRM) T cells that were absent after adult HMPV. FTY720-mediated disruption of lymphocyte circulation demonstrated that TRMs contributed to pathology. Local depletion of lung CD4+ T cells and JAK2 inhibition mitigated pathology. These findings suggest TRMs uniquely generated after early-life viral infection can contribute to Th2-driven asthma pathology.

Keywords: Asthma; Immunology; Infectious disease; Pulmonology; T cells.

Supplementary info

MeSH terms, SubstancesExpand

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

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. 2026 Apr 24:1455613261445018.

doi: 10.1177/01455613261445018. Online ahead of print.

Morning Versus Evening Administration of Intranasal Mometasone Furoate in Seasonal Allergic Rhinitis: A Baseline-Adjusted Comparative Study

Ceren Ersoz Unlu [1], F Ceyda Akin Ocal [1], Fevzi Demirel [2], Sait Yesillik [2], Ozgur Kartal [2], Yavuz Fuat Yilmaz [1]

Affiliations Expand

- **PMID: 42032837**

- **DOI: 10.1177/01455613261445018**

Abstract

Objective: To compare the effects of morning versus evening once-daily administration of intranasal mometasone furoate on nasal symptoms, sleep quality, daytime sleepiness, and quality of life in patients with moderate-to-severe seasonal allergic rhinitis (SAR).

Methods: This prospective, randomized, single-blind study included 120 adults with SAR who received intranasal mometasone furoate (200 µg once daily) either in the morning or in the evening for 15 days. Outcomes were assessed using the Total Nasal Symptom Score, Rhinitis Quality of Life Scale, Pittsburgh Sleep Quality Index, and Epworth Sleepiness Scale. Baseline-adjusted comparisons between treatment groups were performed using analysis of covariance.

Results: Both treatment groups showed significant posttreatment improvements in nasal symptoms, sleep quality, daytime sleepiness, and rhinitis-related quality of life. After adjustment for baseline values, no statistically significant differences were observed between morning and evening dosing for any outcome measure (all $P > .05$). Baseline disease severity emerged as the primary determinant of posttreatment outcomes, accounting for a substantial proportion of outcome variability, whereas dosing time showed no clinically meaningful effect.

Conclusion: Once-daily intranasal mometasone furoate provides comparable clinical benefits regardless of whether it is administered in the morning or in the evening in patients with moderate-to-severe SAR. These findings suggest that dosing time has limited clinical relevance for long-acting intranasal corticosteroids, allowing treatment to be guided by patient preference without compromising efficacy.

Keywords: allergic rhinitis; chronotherapy; dosing time; intranasal corticosteroids; mometasone furoate; sleep quality.

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Eur Arch Otorhinolaryngol

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. 2026 Apr 24.

doi: 10.1007/s00405-026-10184-1. Online ahead of print.

Evaluating the efficacy and safety of Stapokibart (CM310) in the treatment of uncontrolled seasonal allergic rhinitis based on real-world research

Jia Chen [1], Kaifu Lu [1], Ping Tang [1], Yi Liu [1], Dingqiang Huang [2]

Affiliations Expand

- PMID: 42026301

- DOI: 10.1007/s00405-026-10184-1

No abstract available

Keywords: Efficacy and Safety.; IL-4Rα; Real-World Research; Seasonal Allergic Rhinitis; Stapokibart (CM310).

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study received ethical approval from the independent medical ethics committee at Sichuan University affiliated Chengdu Second People's Hospital (Approval number: No. [KY] PJ2025415), and all participants provided written informed consent before enrollment. 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.

- 36 references

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Allergy

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. 2026 Apr 21.

doi: 10.1111/all.70332. Online ahead of print.

Meta-Analysis on the Harm of Systemic Glucocorticosteroids in Inflammatory Upper Airway Disease and Asthma: An EAACI Task Force

Sophie Scheire [1 2], Evelijn Lourijsen [3], Manon Blauwblomme [2], Maria Dib [4], Ioana Agache [5], Claus Bachert [6 7], Koen Boussery [1], Adam Chaker [8], Roos Colman [9], Stefano Del Giacco [10], Ibon Eguiluz-Gracia [11], Wytske Fokkens [3], Simon Gane [12], Peter Hellings [13], Claire Hopkins [14], Ludger Klimek [15], Miguel Maldonado [16], Juan Maza-Solano [17 18], Ralph Mösges [19 20], Joaquim Mullol [21], Charles

Pilette [22], Oliver Pfaar [23], Sietze Reitsma [3], Michael Rudenko [24], Mohamed H Shamji [25 26], Peter Valentin Tomazic [27], Sanna Toppila-Salmi [28 29 30], Philippe Gevaert [2], Valerie Hox [31]

Affiliations Expand

- PMID: 42011838

- DOI: 10.1111/all.70332

Abstract

Systemic glucocorticosteroids (sGCS) are widely used in the treatment of chronic inflammatory airway diseases such as rhinitis, rhinosinusitis and asthma. It is well-known that systemic use is linked to multiple adverse effects (AEs) both in the short- and the long-term. However, less is known about the safety of multiple short courses of sGCS. Currently there is no established agreement on the acceptable cumulative exposure to sGCS, considering the potential for various AEs. This systematic review and meta-analysis evaluated sGCS-related AEs in both upper and lower inflammatory airway disease, with a particular focus on short- and long-term risks. We further evaluated whether a dose-response relationship existed between the daily and cumulative dosages of sGCS and the occurrence of those AEs. Our meta-analysis confirmed that cumulative dosages between 500 mg and 1 g prednisolone-equivalent significantly increase the risk of most AEs, with risks increasing with incremental dose. These findings underscore the importance of: (a) judicious sGCS prescription and need for steroid stewardship, due to their potential for short- and long-term complications, occurring even with repeated short courses, and (b) prioritization of steroid-sparing approaches (e.g., biologicals) to avoid reaching a cumulative dose of 500 mg.

Keywords: adverse events; asthma; chronic rhinosinusitis; rhinitis; systemic glucocorticosteroids.

- 68 references

Supplementary info

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chronic cough

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Heart Lung

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. 2026 Apr 21:79:102801.

doi: 10.1016/j.hrtlng.2026.102801. Online ahead of print.

Defining and validating the minimal clinically important difference for the cough severity visual analogue scale in adults with subacute cough

Wang-Sheng Yu [1], Bing Mao [1], Hong-Li Jiang [1], Wei Liu [2]

Affiliations Expand

- PMID: 42019442

- DOI: 10.1016/j.hrtlng.2026.102801

Abstract

Background: Subacute cough imposes a significant burden, yet determining meaningful symptom relief remains challenging. While the cough severity visual analogue scale (VAS) is widely used, its minimal clinically important difference (MCID) is undefined for this population, limiting its utility in symptom management and clinical decision-making.

Objectives: To establish the VAS MCID in adults with subacute cough, confirm its psychometric validity, and validate its utility in predicting clinical outcomes.

Methods: Individual patient data were analyzed from two randomized trials (N = 335) involving adults with subacute, specifically post-infectious cough (PIC). Improvement was assessed using distribution-based and anchor-based methods (anchors: cough symptom score [CSS], cough quality of life questionnaire [CQLQ], and Traditional Chinese Medicine [TCM] symptom score [TCMSS]). The derived threshold was validated against the risk of progression to chronic cough to ensure clinical relevance.

Results: The VAS demonstrated high convergent validity (baseline Spearman's ρ=0.70-0.84; change score ρ=0.55-0.63) and responsiveness (Standardized Response Means >1.00). ROC analyses converged on a primary MCID of ≥ 40 mm reduction. Not achieving this threshold was associated with a significantly increased risk of progression to chronic cough (RR=2.78, 95% CI 1.75-4.41; P < 0.001). Subgroup analyses indicated that MCID estimates varied by baseline severity.

Conclusions: A ≥ 40 mm reduction serves as a clinically meaningful benchmark for symptom relief in adults with subacute cough (particularly PIC). This threshold is validated by its ability to predict a lower risk of chronicity, supporting its use in evaluating therapeutic efficacy and improving patient outcomes.

Keywords: Anchor-based methods; Minimal clinically important difference; Patient-reported outcomes; Subacute cough; Visual analogue scale.

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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PLoS Biol

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Structure of the human P2X3 receptor reveals the basis for subtype-selective inhibition by sivopixant

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Free article

Abstract

P2X receptors are ATP-gated cation channels, and the P2X3 subtype plays crucial roles in peripheral sensory neurons, including in chronic pain and chronic cough. Accordingly, P2X3 receptors have attracted substantial interest as a therapeutic target. Gefapixant, a negative allosteric modulator (NAM) of P2X3 receptors, has been approved in some countries for the treatment of chronic cough; however, its limited selectivity for P2X3 homomers over P2X2/P2X3 heteromers is associated with taste disturbance as a prominent adverse effect. These limitations have motivated the development of next-generation NAMs with improved subtype selectivity, but their subtype-specific allosteric inhibition mechanisms are unclear.

Here, we report the cryo-EM structure of the human P2X3 receptor in complex with ATP and the P2X3-selective next-generation NAM sivopixant, an investigational drug. Sivopixant binds to an allosteric site at the portal of the central pocket in the extracellular domain, and structure-based mutational analysis by electrophysiology identifies key residues required for sivopixant-dependent inhibition of human P2X3 receptors. Structural comparisons across P2X subtypes, together with patch-clamp analyses of gain-of-function mutants that confer sensitivity to two investigational drugs, sivopixant and camlipixant, provided a broadly applicable structural framework for subtype selectivity. Furthermore, structural comparisons with apo and ATP-bound open states of P2X3 receptors, together with molecular dynamics simulations, revealed that sivopixant expands the upper-body domain to suppress the lower-body movements required for channel activation, thereby preventing channel opening even in the presence of ATP.

Conflict of interest statement

The authors have declared that no competing interests exist.

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Eur Ann Otorhinolaryngol Head Neck Dis

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When the wall pulses: Submucosal retropharyngeal internal carotid artery as an unexpected driver of chronic cough

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- DOI: 10.1016/j.anorl.2026.03.004

Abstract

Introduction: Anatomical variations of the cervical internal carotid artery (ICA), including a retropharyngeal submucosal trajectory, may mimic submucosal pharyngeal lesions and produce atypical upper aerodigestive symptoms. Failure to recognize these variants carries significant risk, as inadvertent injury during pharyngeal surgery, endoscopy, or intubation can result in catastrophic hemorrhage.

Case summary: We report the case of a 73-year-old woman with several years of persistent cough and progressive dysphagia. Flexible fiber-optic nasopharyngolaryngoscopy revealed a smooth, pulsatile submucosal bulge of the posterior pharyngeal wall with associated salivary stasis. Contrast-enhanced CT confirmed a retropharyngeal course of the right cervical ICA of normal caliber. Given the absence of alarming features, conservative management with annual endoscopic follow-up was recommended.

Discussion: This case represents a rare presentation in which a submucosal retropharyngeal ICA manifested predominantly as chronic cough, likely due to repetitive mechanical stimulation of supraglottic sensory pathways. Only two similar cases have been reported. The case expands the recognized symptomatic spectrum of ICA medialization and highlights the importance of targeted endoscopic examination and selective imaging when encountering unexplained chronic cough or atypical pharyngeal anatomy. Awareness of this vascular variant is essential to avoid misdiagnosis and prevent life-threatening iatrogenic injury.

Keywords: Chronic cough; Medialized carotid artery; Pharyngeal mass; Retropharyngeal internal carotid artery; Vascular anomaly.

Conflict of interest statement

Disclosure of interest The authors declare that they have no competing interest.

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High prevalence of persistent tuberculosis-related symptoms 6 months after treatment in pulmonary tuberculosis

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Free article

Abstract

Background: The frequency and determinants of persistent symptoms after microbiological cure remain incompletely defined in pulmonary tuberculosis. We aimed to determine the prevalence of persistent tuberculosis-related symptoms 6 months after treatment initiation and identify associated predisposing factors.

Methods: We analysed data from the prospective observational cohort study, enrolling adults treated for pulmonary tuberculosis at three tertiary hospitals in Korea between 2016 and 2018. Demographic, clinical and radiographic data, and symptoms were assessed using a standardised symptom checklist at baseline and at 2-month and 6-month follow-up visits. Symptom persistence was defined as the presence of any tuberculosis-related symptom at the 6-month visit. Multivariable logistic regression analysis was conducted to identify factors associated with persistent symptoms.

Results: Among 354 participants (61% men, mean age of 58.5±19.4 years), symptom prevalence decreased from 80.2% at baseline to 25.1% at 6 months. Cough (14.4 %) and dyspnoea (7.6 %) were the most common persistent symptoms. Independent predictors of persistent symptoms included foreign nationality (adjusted OR (aOR) 5.586; 95% CI 1.618 to 19.28), chronic lung disease (aOR 5.034; 95% CI 1.995 to 13.26), presence of tuberculosis-related symptoms at 2 months (aOR 3.195; 95% CI 1.833 to 5.685) and bilateral infiltration on chest X-ray (aOR 1.933; 95% CI 1.018 to 3.650) in the multivariate analysis.

Conclusions: A significant proportion of patients experience persistent tuberculosis-related symptoms even 6 months after treatment initiation. These findings highlight the need for ongoing clinical assessment and post-treatment care to address residual symptom burden following pulmonary tuberculosis.

Keywords: Tuberculosis.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

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

1

BMC Pulm Med

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Inhaled tobramycin for chronic pseudomonas aeruginosa infection in non-cystic fibrosis bronchiectasis: an updated systematic review and meta-analysis

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Keywords: Bronchiectasis; Inhaled antibiotics; Meta-analysis; Pseudomonas aeruginosa; Systematic review; Tobramycin.

Conflict of interest statement

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

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Respir Care

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Airway Secretion Volume and Physiological Effects of High-Flow Nasal Cannula in Acute Respiratory Failure Because of Bronchiectasis

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- **DOI: 10.1177/19433654261437778**

Abstract

Background: Acute respiratory failure (ARF) in bronchiectasis is frequently accompanied by excessive airway secretions. High-flow nasal cannula (HFNC) delivers heated, humidified gas and may improve respiratory mechanics, but quantitatively measured secretion burden during HFNC in bronchiectasis-related ARF is poorly described.

Methods: We conducted a prospective, single-center pilot cohort study in a respiratory intermediate care unit including adults with computed tomography-confirmed bronchiectasis admitted with ARF and treated with HFNC as first-line therapy. The primary outcome was cumulative secretion volume (operationally defined as supervised collection of expectorated sputum, with measures to

minimize saliva contamination) during the first 3 days of HFNC exposure. Physiologic variables, gas exchange, dyspnea, and clinical outcomes were assessed descriptively.

Results: Twenty-six subjects were enrolled (median age 67 years, 54% female), predominantly with moderate-to-severe bronchiectasis. Median cumulative secretion volume over 72 h was 510 mL (436-743), and daily secretion volume increased from Day 1 to Day 3 ($P < .001$). Breathing frequency, oxygenation, dyspnea (Borg scale), and selected gas-exchange variables changed significantly over time. No subject required escalation to noninvasive ventilation or endotracheal intubation. In-hospital mortality was 11.5% (3/26), occurring exclusively in subjects with preestablished do-not-intubate directives.

Conclusions: In this pilot cohort of bronchiectasis-related ARF, structured quantification of secretion volume during HFNC was feasible and documented a large early secretion burden over 72 h. Given the uncontrolled design, these findings are descriptive and should not be interpreted as evidence of treatment effect.

Keywords: acute respiratory failure; bronchiectasis; exacerbation; high-flow nasal cannula; humidification; secretion volume.

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Respir Investig

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Impact of erythromycin discontinuation owing to supply disruption on exacerbations in non-cystic fibrosis bronchiectasis: A retrospective cohort study

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Abstract

Background: Long-term macrolide therapy reduces exacerbations in bronchiectasis; however, evidence regarding the outcomes after treatment discontinuation is limited. This study aimed to evaluate the effect of erythromycin discontinuation caused by nationwide supply disruption on exacerbations of bronchiectasis.

Methods: This retrospective observational cohort study enrolled adults with non-cystic fibrosis bronchiectasis who had received long-term erythromycin therapy (≥3 months) and discontinued treatment between August 2024 and September 2025 because of supply disruption. Exacerbations during the 12 months before and after discontinuation were compared. Patients were classified according to post-discontinuation management: without replacement (No-macrolide group) or switching to alternative macrolide therapy (Alternative macrolide group). The primary outcome was the time to first exacerbation, and secondary outcomes included the annual exacerbation frequency and factors associated with post-discontinuation exacerbations.

Results: Among 135 patients, erythromycin discontinuation was associated with a significantly shorter time to first exacerbation than the pre-discontinuation period (log-rank P = 0.001). Discontinuation was independently associated with earlier exacerbation (hazard ratio 1.90, 95% confidence interval 1.12-3.23). This association was evident in the No-macrolide group but not in the Alternative macrolide group. The exacerbation frequency increased after discontinuation in the No-macrolide group. Higher baseline C-reactive protein levels, using biologics, and a prior history of exacerbations were independently associated with subsequent exacerbations.

Conclusions: Discontinuation of long-term erythromycin therapy was associated with more frequent and earlier exacerbations over the subsequent year, particularly without alternative macrolide therapy. These findings highlight the clinical consequences of macrolide interruption and the importance of appropriate substitution and monitoring in high-risk patients.

Keywords: Bronchiectasis; Clarithromycin; Drug supply; Erythromycin; Exacerbation.

Conflict of interest statement

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