LIBRA JOURNAL CLUB 5-12-JULY-2026

Our legal office confirmed that articles NOT OPEN ACCESS cannot be distributed to the members of the list. Thus, we will transmit only the titles of articles.
ABSTRACTS of almost all these articles are available from PubMed, and full papers can be obtained through your institutions' library.
OPEN ACCESS articles are available by accessing the articles from PubMed using just the PMID for the search (eg PMID: 35514131 without . at the end)

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

1

Respir Res

-
-
-

. 2026 Jul 11;27(1):279.

doi: 10.1186/s12931-026-03802-3.

Timely management of COPD exacerbations is associated with limited acute deterioration and early recovery: a prospective observational study

Rainer Gloeckl [1 2], Klaus Kenn [2], Daniela Kroll [1 2], Tessa Schneeberger [1 2], Inga Jarosch [1 2], Michael Wittenberg [3], Wolfgang Hitzl [4 5], Jing Claussen [6], Paul Jones [7], Claus F Vogelmeier [8], Rembert Koczulla [9 10 11]

Affiliations Expand

- **PMID: 42432679**

- **DOI: 10.1186/s12931-026-03802-3**

Abstract

Acute exacerbations of COPD (AECOPDs) are critical events often associated with prolonged and incomplete recovery. Early recognition and prompt treatment of AECOPDs, which is rarely achieved in routine outpatient care, may influence the acute course and recovery trajectory. This study aimed to characterize the clinical course and recovery trajectory of AECOPDs detected early and treated immediately.In this prospective, observational study, COPD patients were enrolled in a closely supervised, 4-week, inpatient pulmonary rehabilitation (PR) program. Patients who developed a pulmonologist-confirmed AECOPD during PR received

same-day guideline-based therapy with systemic corticosteroids and/or antibiotics. Clinical, inflammation (C-reactive protein [CRP]), lung function (forced expiratory volume in 1 s [FEV_1]), and patient-reported outcomes (COPD Assessment Test [CAT]) were assessed at PR admission (pre-AECOPD), AECOPD day 1, day 5, and post-AECOPD (PR discharge). Functional performance outcomes, including 6-minute walk distance (6MWD) and muscle strength (quadriceps and handgrip), were also assessed at baseline and post-AECOPD.Among 355 patients undergoing inpatient PR, 57 (16%) developed an AECOPD and were included in the analysis. At AECOPD onset (day 1), CRP increased significantly to 20.8 ± 41.8 mg/L ($p = 0.032$) and FEV_1 declined by 113 ± 220 mL ($p < 0.001$) compared to pre-AECOPD at baseline, while CAT scores showed no significant changes ($p = 0.41$). By day 5, CRP and FEV_1 were no longer significantly different from baseline. At PR discharge which occurred 13 ± 8 days after AECOPD onset, CAT scores were significantly better (23.6 ± 7.2 vs. 21.6 ± 7.8; $p < 0.01$), 6MWD increased (294 ± 105 m to 313 ± 126 m; $p < 0.001$), and quadriceps and handgrip strength improved (all $p < 0.05$) compared to pre-AECOPD baseline levels. No severe adverse events beyond the AECOPD occurred.In this observational cohort, episodes of AECOPD detected and treated on the day of onset during inpatient PR were characterized by short-term deterioration, normalization of inflammatory and lung function parameters within days, and subsequent improvements in patient-reported outcomes and functional performance. These findings suggest that early recognition, immediate treatment, and continued adapted physical activity may be associated with better short-term recovery trajectories following an AECOPD.Clinical trial registration ClinicalTrials.gov identifier: NCT04140097.

Keywords: Acute exacerbation (AECOPD); Chronic obstructive pulmonary disease; Clinical course; Disease management; Early recognition; Patient-reported outcomes (PROs); Prospective study; Pulmonary rehabilitation; Recovery trajectory; Symptom burden.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study was approved by the Ethics Committee of the Marburg University, Faculty of Medicine (Approval No. 61/19). All participants provided written informed consent prior to study inclusion. The study was conducted in accordance with the Declaration of Helsinki and was registered at ClinicalTrials.gov (NCT04140097). Consent for publication: Not applicable. Competing interests: RG reports receiving personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, Grifols, GSK, Insmed, Kaia Health, and Sanofi for consultancy work and/or lectures. PJ reports part-time contractor status and ownership of GSK stocks and shares. JC is an employee of GlaxoSmithKline and holds stocks and shares of GSK. CV reports that his institution has received grants or contracts from the German Ministry of Education and Science (BMBF), AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, GSK, and Grifols. He has received personal payments for consulting fees and honoraria for lectures/presentations from Aerogen, AstraZeneca, Boehringer Ingelheim, CSL Behring, Chiesi, GSK, Insmed, Menarini, Roche, and Sanofi. RK reports receiving personal payments for consultancy and/or lectures from Aerogen, AstraZeneca, Boehringer Ingelheim, CSL Behring, Chiesi, GSK, Insmed, Orion,

Pfizer, Resmed, Roche, and Sanofi. KK, DK, MW, WH, TS, and IJ declare that they have no competing interests.

- 30 references

Supplementary info

Associated dataExpand

Full text links

Proceed to details

Cite

2

BMC Pulm Med

-
-
-

. 2026 Jul 10.

doi: 10.1186/s12890-026-04488-5. Online ahead of print.

The efficacy-invasiveness trade-off: a retrospective cohort comparison of surgical operation and endobronchial valves for refractory lung bullae disease

Honghai Li [1 2], Zejin Zhang [2], Haoning Nan [1 2], Yanbin Pei [1], Ming Zhao [1], Yafei Sun [1 2], Siyu Chen [3], Qiu Yonghui [4], Yuqi Wang [5]

Affiliations Expand

- PMID: 42432625

- DOI: 10.1186/s12890-026-04488-5

Abstract

Background: The optimal intervention for refractory bullae lung disease remains debated, with a choice between invasive surgical operation (SO) and the minimally invasive endobronchial valve (EBV). A comprehensive comparison of their long-term efficacy, safety, and cost is crucial for clinical decision-making.

Objective: To compare perioperative outcomes, 1-year efficacy, long-term recurrence-free survival, and economic impact between surgical bullectomy (SO) and endobronchial valve (EBV) placement.

Methods: In this comparative study, 673 patients with refractory bullae disease from two Chinese centers were enrolled (SO: n = 436; EBV: n = 237). This study enrolled patients with refractory bullous disease, defined by HRCT-confirmed bullae > 10 cm in diameter or concomitant symptoms impacting daily life, and an inadequate clinical response to a minimum of 3 months of optimized medical management. After applying propensity score matching (PSM) to control for confounding factors, perioperative outcomes, 1-year efficacy, and long-term recurrence-free survival were compared between the two groups. Analyses employed analyses of covariance (ANCOVA), mixed-effects models, Kaplan-Meier estimates, Cox regression, and logistic regression.

Results: Following PSM, excellent balance in baseline characteristics was achieved between the surgical (SO, n = 237) and endobronchial valve (EBV, n = 237) groups. Regarding perioperative outcomes, EBV was associated with a lower risk of complications (OR = 0.33), shorter operation time (mean difference: -0.72 h), less blood loss (mean: -48.00 ml), and a reduced hospital stay (mean: -7.61d) compared to SO (all $p < 0.001$). However, total hospitalization costs were significantly higher for EBV (mean increase: ¥104,502). For secondary outcomes, EBV demonstrated lower rates of radiologic lung re-expansion based on the semi-quantitative imaging assessment used in this study (OR = 0.15, $p < 0.001$) and bulla volume reduction (mean difference: -29.02%, $p < 0.001$) at 1 year, and was associated with a higher 1-year readmission risk (OR = 3.21, $p < 0.001$). For the primary outcomes at 1 year, SO demonstrated superior improvement in both lung function (adjusted mean difference in forced expiratory volume in one second (FEV1)%: -9.71%, $p < 0.001$) and exercise capacity (adjusted mean difference in 6-minute walk distance (6MWD): -53.04 m, $p < 0.001$). Mixed-effects models confirmed that SO's advantages in FEV1% were significant at all time points, while its 6MWD benefit became fully apparent only by 1 year. Long-term recurrence-free survival was significantly higher in the SO group (2-year rate: 86.5% vs. 70.0%; HR for EBV: 2.48, $p < 0.001$). Subgroup analysis revealed this survival advantage was most pronounced for giant bullae (≥ 10 cm), where the recurrence risk with EBV was 3.49-fold higher (HR 3.49, $p < 0.001$), whereas for smaller bullae (< 10 cm) the risk was comparable between groups (HR 1.32, $p = 0.426$).

Conclusion: SO was associated with greater improvements in pulmonary function, exercise capacity, and recurrence-free survival in this matched retrospective cohort. However, given the non-randomized design and the potential for residual confounding, these findings should be interpreted cautiously and require further validation in prospective studies. EBV offers a safer, minimally invasive alternative with faster recovery, but is limited by higher costs and an increased recurrence risk. The treatment choice should be individualized, strongly considering the patient's chronic obstructive pulmonary disease (COPD) staging, tolerance for surgical risk, and valuation of long-term efficacy versus initial recovery and cost.

Keywords: Endobronchial valves; Refractory lung bullae disease; Retrospective cohort study; Surgical operation.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Ethical approval for this study was obtained from the Ethics Committee of the First Medical Center at the

General Hospital of the Chinese People's Liberation Army (Approval No. S2025-621-01) and the Ethics Committee of the 304 Hospital of the PLA General Hospital(Approval No. 2025KY179-KS001).This study is a retrospective cohort study, which will not have any negative impact on the patients' health and rights. Our ethics committees have waived the requirement for informed consent.All experiments were performed in accordance with relevant guidelines and regulations, as well as the ethical principles of the Declaration of Helsinki. This study is a retrospective cohort study that poses no negative impact on patients' health or legitimate rights. The requirement for written informed consent was waived by both ethics committees due to the retrospective study design. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

3

Respir Med

.

.

.

. 2026 Jul 10:109023.

doi: 10.1016/j.rmed.2026.109023. Online ahead of print.

Beta-blockers and mortality after myocardial infarction in patients with and without chronic obstructive pulmonary disease - A Danish nationwide cohort study of 96,567 patients

Daniel B Rasmussen [1], Howraman Meteran [2], Morten Lamberts [3], Christian Torp-Pedersen [4], Gunnar Gislason [5], Peter Lange [6], Magnus T Jensen [7], Uffe Bodtger [8]

Affiliations Expand

- PMID: 42431469

- DOI: 10.1016/j.rmed.2026.109023

Abstract

Aims: To investigate the association of beta-blocker use after first-time myocardial infarction (MI) with all-cause mortality and cardiovascular mortality in patients with and without chronic obstructive pulmonary disease (COPD), and whether it varies by type of MI, and COPD severity, and mMRC dyspnoea burden.

Methods: Danish nationwide cohort study of patients discharged after hospitalisation for MI from 2003-2015 using the National Prescription Registry and other individual level registers. Multivariable Cox regression models with time-dependent variables using continuously updated data on claimed prescriptions on beta-blockers to account for varying use during follow-up.

Result: Of 96,567 patients surviving MI, 10,884 (11.3%) had COPD. COPD patients had more often non-ST-elevation MI (NSTEMI) compared to non-COPD patients (88.5% vs. 79.5%), and were older (median age 75 vs. 68 years). Presence of COPD was associated with higher all-cause mortality both in STEMI (HR 1.60 [95% CI 1.46-1.77]) and NSTEMI (HR 1.47 [1.43-1.52]). For COPD patients, beta-blocker users had lower mortality independently of type of MI (HR 0.73 [0.61-0.88] in STEMI and HR 0.68 [0.65-0.72] in NSTEMI). Overall, estimates were similar in patients without COPD. Among high-risk COPD patients with severe COPD and frequent exacerbations (5-year mortality 63.5% and 62.6%, respectively) beta-blockers were also associated with lower mortality. Analyses of cardiovascular mortality showed similar results.

Conclusion: Beta-blocker use was associated with lower risk of mortality following MI independently of type of MI, presence or abscense of COPD, and COPD severity. This supports that beta-blocker treatment carries no increased mortality risk in COPD, regardless of COPD severity and dyspnoea score.

Conflict of interest statement

Declaration of Competing Interest Dr. Torp-Pedersen reports grants from Bayer, grants from Novo Nordisk, outside the submitted work. Dr. Meteran reports grants from ALK-Abelló and personal fees from Chiesi, GSK, Sanofi, ALK-Abelló, AstraZeneca within the past five years, outside the submitted work. The remaining authors have nothing to disclose.

Full text links

Cite

4

Am J Emerg Med

-
-
-

. 2026 Jul 6:109:126-132.

doi: 10.1016/j.ajem.2026.07.007. Online ahead of print.

Evaluating the Roth and Dyspnea severity score for emergency department discharge in exacerbations of chronic obstructive pulmonary disease

Mümin Murat Yazıcı [1], İsmail Ataş [2], Gülcan Nur Yılmaz [3], Senem Derya Tatar [4], Ahmet Nurhak Çakır [5], Enes Kılınç [5], Ensar Topaloğlu [2], Utku Sarp Cerit [2], Meryem Kaçan [2], Bünyamin Onur Harmancı [2], İbrahim Boğaçhan Solak [3], Ali Çelik [2], Özlem Bilir [2]

Affiliations Expand

- PMID: 42430863

- DOI: 10.1016/j.ajem.2026.07.007

Abstract

Background: Exacerbations of chronic obstructive pulmonary disease (ECOPD) are a common reason for emergency department (ED) visits. It is of the utmost importance to make the right decisions regarding hospital admission or discharge for patients with ECOPD who present to the ED. This can sometimes be a complex matter. This study aimed to evaluate the diagnostic accuracy of the Roth score and Dyspnea Severity Score (DSS) in the decision-making process for discharging ECOPD patients from the ED.

Methods: This prospective, multicenter diagnostic accuracy study was conducted in the EDs of three secondary-level state hospitals and one tertiary-level teaching and research hospital in Turkey. All patients who presented to the ED with ECOPD and did not meet the exclusion criteria were included in the study. A receiver operating characteristic (ROC) curve was created to determine the cutoff values for the Roth score and DSS in the discharge decision, and sensitivity and specificity were calculated.

Results: A total of 352 patients were enrolled, comprising 286 males (81.3%) and 66 females (18.7%), with a median age of 69 years (IQR: 61-76). The area under the curve (AUC) for the discharge decision was 0.894 for the Roth Score (seconds), corresponding to a sensitivity of 87.4% and a specificity of 86.8% at a cutoff value of 9.95 (>). AUC for the discharge decision was 0.917 for the DSS, corresponding to a sensitivity of 88.9% and a specificity of 79.5% at a cutoff value of 5 (<).

Conclusion: The Roth score and the DSS show high sensitivity in determining discharge decisions for patients with ECOPD presenting at the ED, thus offering a swift and pragmatic solution for discharge decisions. In daily practice, these tools provide reliable, non-invasive, and objective bedside cut-offs that can safely streamline patient disposition and reduce unnecessary resource utilization. Although the results are promising in terms of standardizing the use of the Roth score and the DSS in ECOPD, further research is required.

Keywords: Dyspnea; Dyspnea Severity Score; Emergency Medicine; Exacerbations of Chronic Obstructive Pulmonary Disease; Roth Score.

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. The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: None declared

Full text links

[Proceed to details]

Cite

5

Review

Sleep Breath

-
-
-

. 2026 Jul 10;30(4):214.

doi: 10.1007/s11325-026-03759-z.

Sleep-disordered breathing as a risk factor for sarcopenia in the elderly: a narrative review

Ahmad Jasem Abdulsalam [1], Mohammad Abdulsalam [2], Sulaiman Khadadah [2], Diaa Shehab [3 4], Ahmed S BaHammam [5]

Affiliations Expand

- **PMID: 42430074**
- **DOI: 10.1007/s11325-026-03759-z**

Abstract

Introduction: Obstructive sleep apnea (OSA) and sarcopenia are highly prevalent in aging adults, both contributing to morbidity and diminished quality of life. Despite plausible biological connections through sleep fragmentation, hormonal dysregulation, and chronic inflammation, their clinical relationship remains poorly understood.

Methods: This narrative review synthesizes current evidence on pathophysiological links between these conditions.

Results: Population studies consistently demonstrate increased sarcopenia risk in patients with OSA, with NHANES data showing 12% versus 5.5% prevalence. Recent Mendelian randomization studies provide genetic instrumental variable evidence supporting bidirectional causal relationships. Key mechanisms include sleep fragmentation disrupting growth hormone release, chronic inflammation promoting muscle catabolism, and respiratory muscle dysfunction creating vicious cycles. Population variability, comorbidities such as chronic obstructive pulmonary disease (COPD), and lifestyle factors including smoking further shape this relationship. Limited evidence suggests CPAP therapy may partially reverse these effects.

Conclusion: Clinical practice should consider routine sarcopenia screening in patients with OSA and sleep assessment in sarcopenic individuals.

Keywords: Aging; Inflammation; Muscle mass; Sarcopenia; Sleep apnea.

Conflict of interest statement

Declarations. Consent to participate: Not applicable. Consent for publication: Not applicable. Ethics approval: Not applicable. Conflicts of interest/Competing interests: The authors declare no conflicts of interest.

- **65 references**

Supplementary info

Publication types, MeSH termsExpand

Full text links

Proceed to details

Cite

6

Editorial

Eur Respir J

-
-
-

. 2026 Jul 9;68(1):2600569.

doi: 10.1183/13993003.00569-2026. Print 2026 Jul.

A new frontier for image markers in COPD

Chin Kook Rhee [1]

Affiliations Expand

- PMID: 42425747

- DOI: 10.1183/13993003.00569-2026

No abstract available

Conflict of interest statement

Conflict of interest: C.K. Rhee reports consultancy fees from Sanofi, AstraZeneca and GlaxoSmithKline, and payment or honoraria for lectures, presentations, manuscript writing or educational events from MSD, AstraZeneca, GlaxoSmithKline, Novartis, Takeda, Mundipharma, Boehringer Ingelheim, Teva, Sanofi and Bayer.

Comment on

- Persistent homology analysis of longitudinal computed tomography fibrotic features in COPD.

Shiraishi Y, Tanabe N, Kaji S, Sakamoto R, Maetani T, Seri Y, Terada S, Terada K, Oguma T, Fukui M, Muro S, Handa T, Sato S, Hirai T.Eur Respir J. 2026 Jul 9;68(1):2501630. doi: 10.1183/13993003.01630-2025. Print 2026 Jul.PMID: 41748284

Supplementary info

Publication typesExpand

Full text links

7

Eur Respir J

-
-
-

. 2026 Jul 9;68(1):2600448.

doi: 10.1183/13993003.00448-2026. Print 2026 Jul.

Fostering trust in digital respiratory medicine: the open access ERS CONNECT digital health technology repository

Isaac Cano [1], Amy Hai Yan Chan [2], Richard W Costello [3 4], Kjeld Hansen [5 6], Mark Hew [7 8], Vitalii Poberezhets [9], Hilary Pinnock [10], Tamara Vagg [11], Job F M van Boven [12]

Affiliations Expand

- PMID: 42425743
- PMCID: PMC13347709
- DOI: 10.1183/13993003.00448-2026

Abstract

Access to digital health tools is rapidly expanding, but adoption in respiratory care remains fragmented. The ERS CONNECT Repository provides a trusted, evidence-based resource to bridge innovation and practice and support meaningful implementation. https://bit.ly/3Pn2prp

Conflict of interest statement

Conflict of interest: I. Cano is a cofounder and shareholder of the spin-off company Health Circuit. A.H.Y. Chan reports grants or contracts from Health Research Council, Auckland Medical Research Foundation, World Health Organization, The University of Auckland, AstraZeneca and Trudell Medical International, paid to institution, and is a shareholder in the university spin-out company DIGIPREDICT. R.W. Costello reports grants paid to institution and consulting fees from AstraZeneca and GSK, has shares and patents licensed to Phyxiom, and is a member of the European Respiratory Journal editorial board. K. Hansen reports support for attending meetings and/or travel and leadership or fiduciary roles in European Respiratory Society, World Health Organization, European Lung Foundation and International Respiratory Coalition. M. Hew reports grants or contracts from GSK, AstraZeneca, Novartis and Sanofi, paid to institution. V. Poberezhets declares no potential conflicts of interest. H. Pinnock declares that the European Respiratory Society supports some of the costs of the Clinical Research Collaboration CONNECT; no personal payments were received. T. Vagg reports a grant from Vertex Pharmaceuticals, paid to institution. J.F.M. van Boven reports grants or contracts from Aardex, AstraZeneca, Chiesi, Novartis, Pfizer and Trudell Medical, paid to institution, and consulting fees from ALK-Abello, AstraZeneca, Chiesi, GSK, Novartis, Sanofi, Teva and Vertex, paid to institution, and is co-chair of the ERS CRC CONNECT.

- 10 references
- 1 figure

Supplementary info

Publication typesExpand

Full text links

8

Emerg Med J

.

.

.

. 2026 Jul 9:emermed-2026-215921.

doi: 10.1136/emermed-2026-215921. Online ahead of print.

National patterns in emergency department diagnoses and mortality: insights from the Nationwide Emergency Department Sample

Aman Goyal [1], Mohammed A Quazi [2], Humza Saeed [3], Sonia Hurjkaliani [4], Surabhi Maheshwari [5], Rudra Pratap Singh [6], Abdul Rafeh Awan [7], Muhammad Ahmad Nadeem [8], Amir Humza Sohail [9] [10], Abu Baker Sheikh [11]

Affiliations Expand

- PMID: 42425740

- DOI: 10.1136/emermed-2026-215921

Abstract

Background: Emergency departments (EDs) are the frontline of acute care in the USA, yet contemporary data on the most common presentations and causes of mortality remain limited. Understanding these patterns is critical for guiding triage, resource allocation and public health priorities. Therefore, using a nationally representative sample of US ED visits from 2016 to 2021, this study aimed to characterise the most common ED diagnoses and leading causes of ED mortality and to assess differences in these patterns across age, sex, race/ethnicity and urban-rural populations.

Methods: We conducted a retrospective cohort study of the Nationwide Emergency Department Sample from 2016 to 2021, encompassing more than 680 million weighted ED visits. Outcomes included the five most common presenting diagnoses and causes of ED mortality, stratified by age, sex, race/ethnicity and urban-rural status. Diagnoses were grouped into clinically relevant categories, including acute coronary syndromes (ACS), severe respiratory compromise, trauma and sepsis.

Results: During 2016-2021, there were 680 207 479 ED visits and 1 189 848 ED deaths. Chest pain was the leading diagnosis from 2016 to 2019 (4.3-4.4%); in 2021,

COVID-19 became the most common presentation (4.8% vs 4.2% for chest pain). Urinary tract infections were more frequent in women (2.6%), whereas sepsis was more common in men (1.6%). Younger adults presented with respiratory infections, abdominal pain and headaches, while older adults had higher rates of sepsis, chronic obstructive pulmonary disease exacerbations and pneumonia. Racial differences were evident: COVID-19 was most frequent in Hispanic patients (3.4%), sepsis in Asian/Pacific Islanders (2.1%) and alcohol intoxication in Native Americans (2.0%). Cardiac arrest was the leading cause of ED death (58-77%). Trauma (7.9%) and self-harm (0.8%) disproportionately affected younger adults, whereas sepsis (up to 2.7%), respiratory compromise (up to 3.7%) and ACS (0.6-1.4%) contributed more to mortality among older adults, women and racial minorities.

Conclusion: This national analysis highlights evolving ED utilisation, COVID-19 impact and persistent age-based, sex-based and race-based disparities. Although cardiac arrest dominates ED mortality, the excess burden of sepsis, respiratory failure, ACS, trauma and self-harm in specific populations underscores opportunities to refine triage, target prevention and improve emergency care allocation.

Keywords: Emergency Medicine; Mortality; diagnosis; epidemiology.

Conflict of interest statement

Competing interests: None declared.

Full text links

Proceed to details

Cite

9

Ann Am Thorac Soc

-
-
-

. 2026 Jul 8:aaoag182.

doi: 10.1093/annalsats/aaoag182. Online ahead of print.

Pre-COPD, PRISm and COPD in Young Adults born Preterm

Elizabeth F Smith [1 2], Callan Lavery [1], Shannon J Simpson [1 2]

Affiliations Expand

- PMID: 42421199

- DOI: 10.1093/annalsats/aaoag182

No abstract available

Full text links

Proceed to details

Cite

10

Respir Res

-
-
-

. 2026 Jul 8.

doi: 10.1186/s12931-026-03803-2. Online ahead of print.

Airway wall thickness and PRISm are associated with cognitive impairment in individuals with cigarette smoking exposure

Karin F Hoth [1 2], Carinda Linkenmeyer [3], Gregory L Kinney [4], John D Newell Jr [5], Elizabeth A Regan [6], Barry Make [6], Katherine A Pratte [7], Alejandro P Comellas [8], Eric A Hoffman [5], Spyridon Fortis [8], Jess G Fiedorowicz [9], Dawn L DeMeo [10 11], Abebaw M Yohannes [12 13], Anand S Iyer [13], Marilyn G Foreman [14], Surya P Bhatt [13], Ken M Kunisaki [15], Sharon M Lutz [16 17], Edwin K Silverman [10 11], James D Crapo [6], Erin Austin [18]

Affiliations Expand

- PMID: 42420978

- DOI: 10.1186/s12931-026-03803-2

Free article

Abstract

Background: Individuals with chronic obstructive pulmonary disease (COPD) and cigarette smoking exposure are at increased risk of cognitive impairment; however, the clinical characteristics of those at risk are incompletely understood.

Methods: We conducted a secondary analysis of COPDGene cohort data to identify clinical characteristics, particularly pulmonary function and lung CT metrics, associated with cognitive impairment. Cognitive items available from Phase 3 included: self-report of a cognitive disorder diagnosis and cognitive difficulties, and probable cognitive impairment (pCI) defined by Mini-Cog ≤ 3. Thirty-seven variables were considered for inclusion in a mixed effects logistic regression with pCI as the dependent variable including demographics, smoking history, medical history, symptom severity, pulmonary function testing, and COPD-related lung CT variables.

Results: Among 2,079 participants (mean age = 68.7[SD ± 8.6] years, 51.2% female, 28.7% African American), the frequency of pCI differed by smoking/COPD severity group (9.4% never smokers, 18.7% smoking history-normal spirometry, 30.0% preserved ratio impaired spirometry [PRISm], 26.3% GOLD 1-4; p < 0.001). Older age, male sex, lower education, African American race, lower body mass index, higher anxiety symptoms, and CT metrics (higher Perc15 and Pi10) were associated with pCI in the final model.

Conclusions: Just under thirty percent of participants with smoking exposure and evidence of lung disease on spirometry (PRISm or GOLD 1-4) had pCI, with the highest frequency in PRISm and advanced COPD. Several demographic and clinical characteristics were associated with pCI including airway disease measured via Pi10 on lung CT pointing to a potential link between specific COPD-related physiology and cognitive impairment.

Keywords: Airway wall thickness; Cigarette smoking; Cognition; Mini-Cog.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study was conducted in accordance with the Declaration of Helsinki. The study was approved by each center's Institutional Review Board (see list of centers in Appendix A) and written documentation of the informed consent process was provided by all participants. Consent for publication: Not applicable. Competing interests: JDN is a paid consultant, Medical Advisor, holder of stock shares and stock options with VIDA Diagnostics. JDN shares patents with VIDA Diagnostics and the University of Iowa. JDN receives Royalties from Elsevier and is a paid advisor to Sanofi. BM reports royalties from Wolters Kluwer Health, consulting fees from AstraZeneca, honoraria from Regeneron, and participation on advisory boards for Sanofi, Verona, Regeneron, GSK, Mt. Sinai, Baystate Medical Center and AstraZeneca. EAH reports consulting fees from Sanofi and that he is a founder and shareholder for VIDA Diagnostics. SF owns stock in ROMTech. DLD reports grant support from Bayer and the Alpha-1 Foundation and reports funds from Astra Zeneca as a member of a Medical Advisory Board. AMY reports consulting fees from Cheisi Bio Pharma and travel fees from Theravance Bio Pharma Limited. AMY is Associate Editor of Respiratory Medicine; his participation on the project complies with Respiratory Medicine requirements for recusal from review and decisions for submitted manuscript. ASI reports consulting fees from consulting fees from Verona, AstraZeneca and Medscape. MGF reports grant support from Novartis Beacon of Hope Center of Excellence. SPB reports grant funding from AstraZeneca, Connect Biopharma, Apreo, Sanofi, Genentech, Nuyaira, and the COPD Foundation, royalties from Springer, consulting fees from Sanofi, Regeneron, Chiesi, GSK, Genentech,

Connect Biopharma, Apreo, Merck, AstraZeneca, Kymera, Verona, Boehringer Ingelheim, Uniquity, Polarean, and payments or honoraria from Medscape, Horizon CME, Integrity CE, Illuminate Health, and Integritas Communications. KMK reports payment from Nuvaira for participation on a data and safety monitoring board and travel support from Gilead Sciences. EKS reports grant support from Bayer and Northpond Laboratories. JC and DLD are on the COPD Foundation Board of Directors. KFH, BM, and DLD are members of the COPD Foundation Medical and Scientific Advisory Board. CL, APC, EAR, JGF, GLK, SML, KAP, and EA declare that they have no competing interests.

Supplementary info

Grants and fundingExpand

Full text links

Cite

11

Review

Eur Respir Rev

-
-
-

. 2026 Jul 8;35(181):250300.

doi: 10.1183/16000617.0300-2025. Print 2026 Jul.

COPD maintenance trials use heterogeneous outcomes and measurement instruments: a systematic literature review

Vi Truong [1], Sulaiman Bin Safar [1], Sachin Ananth [2 3], Markus Fally [4 5], Augusta Beech [1 6], Sara Souto-Miranda [7 8], Nawar Diar Bakerly [9 10], Sarah L Gorst [11], Dave Singh [1 6], Jørgen Vestbo [1 12], Lies Lahousse [13 14], Alexander G Mathioudakis [15 16]

Affiliations Expand

- PMID: 42419779

- PMCID: PMC13343203

- DOI: 10.1183/16000617.0300-2025

Abstract

Background: Randomised controlled trials (RCTs) of COPD management assess heterogeneous outcomes with diverse instruments and often omit those important to patients and healthcare professionals, limiting interpretability and comparability. This review aimed to identify the outcomes and instruments used in phase III/IV COPD maintenance management RCTs and assess their consistency.

Methods: We systematically reviewed all phase III/IV RCTs registered on ClinicalTrials.gov between 2010 and 2025 evaluating COPD maintenance management. Outcomes and measurement instruments were extracted from registry entries and categorised using the COMET (Core Outcome Measures in Effectiveness Trials) taxonomy. Registered outcomes from a random 10% sample were compared with the corresponding publications to assess concordance. Outcome frequencies were summarised across intervention types and sponsor categories.

Results: 43 unique outcomes were identified across 240 eligible RCTs. Physiological (89.5%), clinical (85.0%) and life impact outcomes (63.8%) were most frequently assessed, whereas resource use (39.6%), safety (36.7%) and mortality (16.7%) outcomes were less commonly reported. Only lung function (76.3%) and health-related quality of life (57.5%) appeared in over half of the trials. Exacerbations were reported in 40.4% of studies, while several patient-prioritised outcomes, particularly activities of daily living (5.4%) and exercise tolerance (18.3%), were infrequently assessed. Industry-sponsored RCTs more often reported lung function, resource use and adverse events; non-industry trials more frequently included biomarkers. Concordance between registered and published outcomes was acceptable (79.7%), although safety outcomes and instruments were sometimes under-reported.

Conclusion: COPD maintenance management RCTs show substantial heterogeneity and incomplete assessment of patient-prioritised outcomes. An internationally representative, multi-stakeholder core outcome set is urgently needed to improve consistency and patient-centred evaluation in future trials.

Conflict of interest statement

Conflict of interest: The authors declare no conflicts of interest directly related to this work. V. Truong, S. Bin Safar, S. Ananth, M. Fally, A. Beech, S. Souto-Miranda and S.L. Gorst report no conflicts of interest. N. Diar Bakerly reports honoraria from GlaxoSmithKline, AstraZeneca, Sanofi, Orion, Chiesi, Teva and Boehringer Ingelheim, and funding for attending educational meetings from Chiesi, GlaxoSmithKline, AstraZeneca and Sanofi, not related to this work. D. Singh reports grants from AstraZeneca, and personal consulting fees from Advocate, Aerogen, Almirall, Apogee, Arrowhead, AstraZeneca, Bial, Boehringer Ingelheim, Chiesi, Cipla, Connect Pharma, Covis, CSL Behring, DevPro Biopharma, Elpen, Empirico, EpiEndo, Genentech, Generate Biomedicines, GlaxoSmithKline, Glenmark, Gossamerbio, Kamada, Kinaset Therapeutics, Kymera, Menarini, MicroA, Novartis, OM Pharma, Orion, Pieris Pharmaceuticals, Pulmatrix, Revolo, Roivant Sciences,

Sanofi, Synairgen, Tetherex, Teva, Theravance Biopharm, Upstream and Verona, not related to this work. D. Singh is a member of the European Respiratory Review editorial board. J. Vestbo reports personal consulting fees from AstraZeneca and GlaxoSmithKline, not related to this work. L. Lahousse reports personal consulting fees from AstraZeneca, GlaxoSmithKline and Sanofi, honoraria for lectures paid to her institution from IPSA vzw, Domus Medica, Chiesi, Johnson & Johnson Services Inc., and support for attending meetings from AstraZeneca and Menarini, not related to this work. A.G. Mathioudakis reports consulting fees from Sanofi, honoraria from GlaxoSmithKline, and stock options in ChestPal, not related to the submitted work.

- 33 references
- 4 figures

Supplementary info

Publication types, MeSH termsExpand

Full text links

Proceed to details

Cite

12

Editorial

Respirology

-
-
-

. 2026 Jul 8.

doi: 10.1002/resp.70287. Online ahead of print.

Not All Flares Are Equal: Stratifying Risk During Asthma/COPD Overlap Exacerbations

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

Affiliations Expand

- PMID: 42419728

- DOI: 10.1002/resp.70287

No abstract available

Keywords: acute exacerbation; asthma/COPD overlap; eosinophil; inflammatory phenotyping; neutrophil-to-lymphocyte ratio.

- 7 references

Supplementary info

Publication typesExpand

Full text links

Proceed to details

Cite

13

Review

Mol Biol Rep

-
-
-

. 2026 Jul 8;53(1):1117.

doi: 10.1007/s11033-026-12303-x.

Corticosteroids in asthma and COPD: an inflammopharmacological perspective on molecular and genetic determinants

Subhajit Dutta [1], Shanmugam Ramaswamy [2 3], Aritra Dutta [4], K Yamuna [5], L Priyanka Dwarampudi [6], G Mirunalini [6], M V N L Chaitanya [7], M Laharipriya [1]

Affiliations Expand

- **PMID: 42418092**

- **PMCID: PMC13346130**

- **DOI: 10.1007/s11033-026-12303-x**

Abstract

Corticosteroids have broad anti-inflammatory effects to treat asthma and COPD. They do not alter the disease's progression, but they do improve the function of lung, symptoms, and quality of life. Additionally, they also reduce the exacerbation of both disorders. In asthma, they reduce mortality, but not in COPD. After penetrating the cytoplasm of the cell, the corticosteroid binds to an inactive glucocorticoid receptor complex. Thus, the activated glucocorticoid receptor attaches to DNA at the glucocorticoid response element sequence, promoting the development of anti-inflammatory proteins (transactivation) and suppressing the transcription and secretion of various proinflammatory cytokines (transrepression). The available corticosteroids differ regarding their therapeutic index and potency. All age groups utilize corticosteroids, but because younger and smaller children can get larger mg/kg doses of corticosteroids than older children, they may be more susceptible to adverse systemic effects. Corticosteroids are most beneficial when taken at low to medium doses. While greater doses may help certain patients, there is little additional improvement shown with them. The benefits of corticosteroids for COPD are more debatable, even though they are the recommended treatment for chronic asthma in people of all ages. When taken as instructed, at low to medium dosages, ICS adverse effects are rare however, the risk increases with greater dosages. Even though many kinds of novel treatments have been invented and analyzed, it is unclear that any of them will take the position of ICSs as the first, long-term controller medication for asthma. However, a better initial control treatment for COPD might be established. This chapter focuses on the role, mechanisms, including glucocorticoid receptor binding and modulation of pro-inflammatory gene expression, steroid resistance, clinical applications, challenges, and limitations of corticosteroids in the management of asthma and COPD.

Keywords: Asthma; Bronchodilators; COPD; Corticosteroids; Maintenance therapy; Pulmonology.

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. Conflict of interest: The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

- 109 references
- 4 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

14

Respirology

-
-
-

. 2026 Jul 8.

doi: 10.1002/resp.70285. Online ahead of print.

Clinical Outcomes and Acute Exacerbation Incidence in Combined Pulmonary Fibrosis and Emphysema

Kazuya Tsubouchi [1], Yasuaki Kotetsu [1], Tomotsugu Takano [1], Hiroaki Ogata [1], Fumiaki Kiyomi [2], Katsuyuki Ichiki [3], Shohei Takata [4], Yasuhiko Kitasato [5], Hiroshi Ishii [6], Kazuhiro Yatera [7], Kei Yamasaki [8], Masaki Okamoto [9], Makoto Yoshida [10], Masayuki Kawasaki [11], Masaki Fujita [12], Tomohiro Ogawa [13], Kazunori Tobino [14], Eiji Harada [15], Noriaki Nakagaki [16], Masashi Komori [17], Taishi Harada [18], Hiroshi Wataya [19], Yoichi Nakanishi [20], Isamu Okamoto [1]

Affiliations Expand

- PMID: 42417564

- DOI: 10.1002/resp.70285

Abstract

Background and objective: Combined pulmonary fibrosis and emphysema (CPFE) is characterized by coexisting upper-zone emphysema and lower-zone fibrosis, but standardized diagnostic criteria and clinical outcomes remain poorly defined. This study aimed to evaluate survival, acute exacerbation incidence, and disease progression in CPFE patients using international classification criteria with visual assessment of emphysema extent.

Methods: This multicentre prospective cohort study at 29 Japanese hospitals enrolled 1016 patients with idiopathic interstitial pneumonias (IIPs) or chronic obstructive pulmonary disease (COPD) between 2013 and 2016. CPFE was defined as ≥ 5% emphysema determined by visual assessment of CT scans for IIP patients, according to international classification criteria. Patients were followed for 5 years.

Results: Among 528 IIP patients, 92 (17.4%) had CPFE. CPFE patients showed a significantly worse 5-year survival compared with non-CPFE IIP patients (51.4% vs. 63.1%, p = 0.026) and COPD patients (51.4% vs. 84.0%, p < 0.001). After adjustment for covariates including IIP subtype, CPFE remained independently associated with increased mortality among IIP patients (HR of 1.85 [95% CI, 1.27-2.69], p < 0.001). CPFE patients also had a significantly higher acute exacerbation rate than did non-CPFE IIP patients (p < 0.001). The prognostic impact of CPFE was most pronounced in patients with idiopathic pulmonary fibrosis (IPF), with CPFE/IPF patients showing the worst outcomes.

Conclusion: Visual assessment with a ≥ 5% emphysema threshold effectively identified CPFE patients with a distinct clinical phenotype characterized by poor survival and an increased acute exacerbation incidence. These findings validate international classification criteria and emphasize the need for enhanced surveillance and tailored management strategies for this high-risk population.

Keywords: CPFE; acute exacerbation; emphysema; pulmonary fibrosis; visual assessment.

- **30 references**

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

15

Ann Am Thorac Soc

-
-
-

. 2026 Jul 8:aaoag184.

doi: 10.1093/annalsats/aaoag184. Online ahead of print.

Population Health Management in Chronic Obstructive Pulmonary Disease: An Official American Thoracic Society Workshop Report

Lucas M Donovan [1 2], Kathryn A Artis [3 4], Surya Bhatt [5], Laura C Feemster [1 2], Shawn D Aaron [6], Arianne K Baldomero [7], Kevin I Duan [8], Alex D Federman [9], Bhrandon A Harris [10], Kathleen Henderson [11], Jerry Krishnan [12 13], Stephanie Labedz [13], Peter K Lindenauer [14], Sarah N Miller [15], Laura C Myers [16], Edward C Portillo [17], Valerie G Press [18], J Daryl Thornton [19], W Claibe Yarbrough [20], Josephine C Young [21], Jenny Zhang [22], David H Au [1 2 23]; American Thoracic Society Assembly On Behavioral Science And Health Services Research

Collaborators, Affiliations Expand

- **PMID: 42417387**

- DOI: 10.1093/annalsats/aaoag184

Abstract

Despite decades of research and advocacy, the quality of care for chronic obstructive pulmonary disease (COPD) remains poor. Millions of patients fail to receive appropriate care, and fundamental changes are needed to improve care quality and patient outcomes. Guided by the Triple Aim of 1) improving population health, 2) improving individual patient experience, and 3) reducing per capita costs for care, population health management strategies aim to redesign healthcare. By adapting the delivery, coordination, and payment of high-quality services, population health management strategies hold promise to improve care for the large and heterogeneous COPD population. This workshop included a multidisciplinary panel of patients, payers, health system leaders, pulmonologists, primary care providers, pharmacists, nurses, and researchers to envision future models of care that achieve population health management for COPD. Past research demonstrates the effectiveness of population-based health system interventions to improve COPD case finding, primary and specialty care integration, inpatient management, and post-discharge services among patients with COPD. Sustaining these interventions will require value-based payment arrangements and adaptations to clinical care processes. The field will need to define meaningful outcomes and tailor appropriate team member roles and responsibilities. As part of healthcare redesign, workshop members recommended adopting effective strategies to encourage personalized high-quality decision-making (eg, nudges) and employ study designs that rigorously and quickly test interventions (eg, pragmatic and adaptive designs). To ensure patient centeredness, it will be essential to incorporate patient and caregiver perspectives and leadership into redesign efforts.

Keywords: chronic obstructive pulmonary disease; integrated practice units; population health management; quality of care.

-
-
-

. 2026 Jul 8:aamag256.

doi: 10.1093/ajrccm/aamag256. Online ahead of print.

Moving to better COPD care-changes to and challenges for GOLD

Claus F Vogelmeier [1], David M G Halpin [2], Gerard J Criner [3], Fernando J Martinez [4], Dave Singh [5 6], Antonio Anzueto [7], Alvar Agusti [8]; GOLD Science Committee

Collaborators, Affiliations Expand

- PMID: 42417382

- DOI: 10.1093/ajrccm/aamag256

No abstract available

Full text links

Proceed to details

Cite

17

Review

Curr Med Res Opin

-
-
-

. 2026 Jul 8:1-19.

doi: 10.1080/03007995.2026.2692171. Online ahead of print.

Therapeutic use of cardioselective beta-blockers for patients with chronic obstructive pulmonary disease: a review of current clinical evidence

Elisa Perger [1 2], Fabrizio Luppi [2 3], Paola Faverio [2 3], Laura Pini [4], Gianfranco Parati [1 2]

Affiliations Expand

- PMID: 42415561

- DOI: 10.1080/03007995.2026.2692171

Abstract

Cardiovascular diseases, such as hypertension, coronary artery diseases (CAD), arrhythmias, and chronic heart failure (CHF), often require treatment with beta-blockers. These conditions frequently coexist with chronic obstructive pulmonary disease (COPD), which can complicate therapeutic decisions. Indeed, patients with moderate-to-severe COPD are frequently not given these agents out of concern for possible bronchoconstriction arising from blockade of β_2-adrenoceptors in the airways. Observational studies, and meta-analyses support the cardiovascular benefits of β-blockade in people with COPD and cardiovascular diseases. Recent trials evaluating cardioselective β-blockade suggest that cardioselective beta-blockers such as bisoprolol, metoprolol and nebivolol are safe and likely beneficial in those patients that would benefit from their intake due to presence of cardiac comorbid diseases. The aim of this systematic review is to summarise the recent trials and indications for use of cardioselective β-blockers in patients with COPD.

Keywords: Beta-blockers; cardiovascular disease; chronic obstructive pulmonary disease, bisoprolol, metoprolol; heart failure; hypertension.

18

Review

Respir Res

-
-
-

. 2026 Jul 8.

doi: 10.1186/s12931-026-03808-x. Online ahead of print.

Precision treatment of COPD based on novel imaging phenotypes: a treatable traits approach

Xingbo Wang [1], Yuhan Peng [2], Dan Wang [3]

Affiliations Expand

- PMID: 42415092

- DOI: 10.1186/s12931-026-03808-x

Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is a heterogeneous syndrome. Spirometry, while diagnostic, inadequately characterizes disease complexity. This review explores how thoracic imaging, particularly computed tomography and magnetic resonance imaging, may help identify specific pulmonary "treatable traits" that could inform future precision management approaches. We detail four core imaging phenotypes: emphysema, small airway disease, airway mucus plugs, and airway wall thickening. For each, we discuss validated and emerging quantitative biomarkers-such as the Parametric Response Map, total airway count, mucus plug score, Pi10, and PiSlope-that facilitate phenotypic stratification and prognostication. We further describe two distinct disease trajectories ("Tissue-Airway" and "Airway-Tissue") revealed by progression modeling. Critically, we discuss potential links between these imaging-defined traits to targeted therapeutic strategies, including ultra-fine particle inhalers for small airway disease, mucus clearance strategies, and CT-guided lung volume reduction for emphysema. Despite significant progress, challenges remain in standardizing measurements, validating clinical utility, and integrating imaging biomarkers into routine care. Future integration of artificial intelligence and multimodal imaging holds promise for advancing COPD management towards true personalized medicine.

Keywords: COPD; Computed tomography (CT); Imaging phenotypes; Magnetic resonance imaging (MRI); Treatable traits.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The data and results used in this paper were from published studies, and there were no ethical issues, so the approval of the ethics committee was not required. Competing interests: The authors declare no competing interests.

Supplementary info

Publication types, Grants and fundingExpand

Full text links

Review

Respir Care

-
-
-

. 2026 Jul 7:19433654261453096.

doi: 10.1177/19433654261453096. Online ahead of print.

Work of Breathing by the Campbell Diagram: Physiology and Practice

Juan Martin Nuñez Silveira [1], Adrian Gallardo [2], Glasiele Alcala [3 4 5], Santiago Bramardi [1], Rutger Flink [6], Annemijn Jonkman [7]

Affiliations Expand

- **PMID: 42412522**

- **DOI: 10.1177/19433654261453096**

Abstract

The work of breathing (WOB) quantifies the energy cost of ventilation. This tutorial explores the fundamental physiology of WOB, its measurement via the Campbell diagram, and its bedside clinical application. The diagram visually partitions WOB into elastic (lung and chest wall) and resistive components, offering a physiological phenotype of respiratory failure. We describe how pathologies like ARDS and COPD alter the load-capacity balance: reduced compliance drastically increases elastic work (flattening the pressure-volume loop), while air flow obstruction increases resistive work (widening the loop). The tutorial further details the identification of intrinsic PEEP as a threshold load and the detection of specific patient-ventilator asynchronies. Practical considerations, including esophageal balloon positioning and signal validation via the Baydur maneuver, are addressed to ensure accuracy. Although its use requires invasive measurements, the Campbell diagram remains the accepted standard for assessing WOB. Mastering its interpretation allows clinicians to move beyond generic protocols, utilizing precise physiological data to tailor mechanical ventilation and optimize weaning strategies.

Keywords: Campbell diagram; esophageal pressure; mechanical ventilation; respiratory mechanics; work of breathing.

Supplementary info

Publication typesExpand

Full text links

20

BMC Pulm Med

.

.

.

. 2026 Jul 6.

doi: 10.1186/s12890-026-04472-z. Online ahead of print.

Characterization of mucus plugging in patients with chronic obstructive pulmonary disease: additional clinical significance of asthma-like features

Kaoruko Shimizu [1], Naoya Tanabe [2], Susumu Sato [2], Shotaro Chubachi [3], Kazuya Tanimura [4], Naoya Fujino [5], Hiroaki Iijima [6], Nobuyasu Wakazono [7], Isao Yokota [8], Yuki Abe [7], Keisuke Kamada [7], Sho Nakakubo [7], Hirokazu Kimura [7], Houman Goudarzi [7], Takeshi Hattori [9], Ichizo Tsujino [7], Hironi Makita [10], Masaharu Nishimura [10], Satoshi Konno [7]

Affiliations Expand

- PMID: 42410587

- DOI: 10.1186/s12890-026-04472-z

Free article

Abstract

Background: Asthma-like features, defined as a high blood eosinophil count (BEC), atopy, and bronchodilator reversibility, characterize patients with chronic obstructive pulmonary disease (COPD) under optimal treatment. However, whether these features contribute to the phenotype of mucus plugging has not been elucidated. In this study, we aimed to examine the functional and clinical outcomes related to mucus plugging in patients with and without asthma-like features.

Methods: Mucus plug score was assessed using inspiratory computed tomography (CT) scans in participants from the Hokkaido COPD cohort study who underwent CT examinations using the same protocol, were categorized based on asthma-like features, and completed the St. George's Respiratory Questionnaire (SGRQ). To evaluate the association between mucus plug score and pulmonary function indices, multivariate analyses were performed to examine the relationships between the mucus plug score and percent predicted forced expiratory volume in 1 s (%FEV_1) or residual volume (RV)/total lung capacity (TLC). These analyses were

adjusted for BEC or CT-derived airway indices (total airway wall volume, functional small airway disease, and emphysema index) based on asthma-like feature categorization, in addition to univariate analyses.

Results: The mucus plug score was negatively associated with %FEV_1 and FEV_1/forced vital capacity in patients with (N = 45) and without (N = 46) asthma-like features and was positively associated with RV/TLC in those without asthma-like features. As the mucus plug score increased, the SGRQ score worsened in both groups. Multivariate analysis revealed a correlation between mucus plug score and RV/TLC (estimate [95% confidence interval], 1.27 [0.30, 2.25]), but not %FEV_1, in patients without asthma-like features, and between mucus plug score and %FEV_1 (-1.26 [- 2.33, - 0.20]), but not RV/TLC, in patients with asthma-like features, after adjusting for proximal airway, small airway, and emphysema indices.

Conclusions: Asthma-like features may differentiate the functional role of mucus plugging observed on CT scans in patients with COPD. Further studies are needed to validate these findings and clarify the underlying pathophysiology for improved disease management.

Keywords: Asthma; Chronic obstructive pulmonary disease; Computed tomography; Eosinophil; Mucus plugging; Percent predicted forced expiratory volume in 1 s; Residual volume; Total lung capacity.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the principles of the Declaration of Helsinki. This study was approved by the Institutional Review Board of Hokkaido University Hospital (reference: med 02 − 001: December 2002, 018–0392:20th of February 2019, 025–0143:12th of August 2025). Written informed consent to participate was obtained from all of the patients in the original study including all the patients involved in the current study. The protocol of the current study was informed via the internet for the patients, based on the instructions of an Institutional Review Board. Consent for publication: Not applicable. Competing interests: The authors report the following: K.S. was supported by grants from Daiwa Health Development, Inc. and received honoria from AstraZeneca, outside the submitted work. N.T. was supported by grants from FUJIFILM Co., Ltd. and Daiichi Sankyo Co., Ltd., and received honoraria from GlaxoSmithKline K.K, outside the submitted work. K.T. received honoria from AstraZeneca.N.F. reveived honoria from AstraZeneca and Sanofy Co. Ltd. outside the submitted work I.T. was supported by grants from Mochida Pharmaceuticals K.K., Nippon Shinyaku Co., Ltd., Nippon Boehringer Ingelheim Co., Ltd., Medical System Network Co., Ltd., Kaneka Corp., and Takeyama Co., Ltd., and received honoraria from Nippon Shinyaku Co., Ltd. and Janssen Pharmaceutical K.K. outside the submitted work. S.M. was supported by grants from ROHTO Pharmaceutical Co., Ltd. and FUKUDA Life Tech Co., Ltd., and received honoraria from Nippon Boehringer Ingelheim Co., Ltd., AstraZeneca, and GlaxoSmithKline outside the submitted work.S.S. was supported by grants from Nippon Boehringer Ingelheim Co., Philips-Respironics, Fukuda Denshi, Fukuda Lifetec Keiji, and ResMed outside the submitted work. S.K. was supported by grants from Mochida Pharmaceuticals K.K., Nippon Shinyaku Co., Ltd., Nippon Boehringer Ingelheim Co., Ltd., Medical System Network Co., Ltd., Kaneka Corp., Takeyama Co., Ltd., and Novartis, and

received honoraria from AstraZeneca and KYORIN Pharmaceutical outside the submitted work. None of these companies played a role in the design or analysis of the study or in the writing of the manuscript. N.W.,S.C., H.I., ,I.Y., Y.A., K.K., S.N., H.M., and M.N. declare no conflict of interest.

Full text links

Cite

21

BMC Pulm Med

-
-
-

. 2026 Jul 6.

doi: 10.1186/s12890-026-04429-2. Online ahead of print.

A novel percutaneous aspiration sclerotherapy for staged volume reduction of giant single bulla in the treatment of COPD combined with pulmonary bullae

Wusheng Deng [#1], Chao Li [#1], Yun Jiang [2], Xiao Hu [1], Yufei Jiang [3], Gang Jiang [1], Yanjun Hu [1], Cheng Li [1], Hui Zhang [1], Jiazhou Yu [1], Yongliang Jiang [4]

Affiliations Expand

- **PMID: 42410545**

- **DOI: 10.1186/s12890-026-04429-2**

Free article

Abstract

Background: The efficacy of a novel technique-percutaneous aspiration sclerotherapy for staged volume reduction of giant single bulla-in patients with chronic obstructive pulmonary disease (COPD) combined with pulmonary bullae remains unclear.

Methods: A retrospective study was conducted on 40 COPD patients with pulmonary bullae who underwent the novel percutaneous aspiration sclerotherapy for staged volume reduction of giant single bulla technique. Pulmonary bullae size, pulmonary function, blood gas analysis, six-minute walk test (6MWT), modified Medical Research Council (mMRC) score and St. George 's Respiratory

Questionnaire (SGRQ) were assessed before and after the procedure. Related complications were also recorded.

Results: The average size of the giant bullae in the 40 patients was 12.67 ± 2.49 cm. Compared with preoperative data, PaO_2, forced expiratory volume in one second (FEV1), FEV1%, forced vital capacity (FVC), FVC%, 6MWT, mMRC score, and SGRQ score were all significantly improved in 40 patients after surgery ($p < 0.001$); The diameter of the pulmonary bullae was significantly smaller after surgery ($p < 0.001$); $PaCO_2$ decreased postoperatively, but no statistical significance ($p > 0.05$); Pneumothorax was detected in 14 patients. Twelve patients with hemoptysis had small amounts of hemoptysis; eight patients had a fever, and nine patients experienced chest pain.

Conclusion: Percutaneous aspiration sclerotherapy for staged volume reduction of giant single bulla is a feasible treatment for pulmonary bullae, involving a straightforward procedure. Nevertheless, its long-term clinical efficacy remains to be further validated in follow-up studies.

Keywords: COPD; Percutaneous; Pulmonary bulla; Volume reduction.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the principles of the Declaration of Helsinki. This study protocol was reviewed and approved by the Ethics Committees o Hunan Provincial People's Hospital (The First Affiliated Hospital of Hunan Normal University) (Approval No.: [2025]-305). Written informed consent was obtained from participants, and the study was approved by the Ethics Committee of Hunan Provincial People's Hospital (The First Affiliated Hospital of Hunan Normal University). Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

Supplementary info

Grants and fundingExpand

Full text links

Cite

22

Magn Reson Imaging

-
-
-

. 2026 Jul 6:110745.

doi: 10.1016/j.mri.2026.110745. Online ahead of print.

Association between CMR-derived pulmonary artery pulse wave velocity and pulmonary risk factors: the multi-ethnic study of atherosclerosis COPD study

Roy Huurman [1], Eric Xie [2], Yoshiaki Ohyama [2], Chikara Noda [3], So-Yeon Lim [2], Colin O Wu [4], Eliseo Guallar [2], Martin R Prince [5], R Graham Barr [6], David A Bluemke [7], Joao A C Lima [2], Bharath Ambale Venkatesh [8]

Affiliations Expand

- PMID: 42409341

- DOI: 10.1016/j.mri.2026.110745

Abstract

Purpose: Pulse wave velocity (PWV) is a quantitative marker of arterial stiffness which is widely validated in the systemic circulation. Pulmonary artery (PA) stiffness, as measured by PWV, and its associations with disease, risk factors, and outcomes are largely unestablished. We aimed to assess the association of PA PWV with smoking history.

Methods: This prospective cohort study was conducted among participants enrolled in the Multi-Ethnic Study of Atherosclerosis (MESA) COPD who received cardiac magnetic resonance (CMR). 2-D phase contrast images were acquired to assess flow. PA PWV was assessed using validated semi-automated software for the main, right, and left PA by a single reader. Non-parametric, skewed data were log-transformed as appropriate and univariable, and multivariable linear regression models were used to analyze association of PA PWV and to demographic factors and cardiopulmonary risk.

Results: A total of 166 participants were included in this study after excluding for artifacts or incomplete scans. Participants were 65% male, average age 68 ± 7 years, smoked an average of 34 ± 20 pack-years, and 36% had COPD. A unit increase in pack-year was associated with a higher log average PA PWV of 0.007 ($p < 0.01$). This association persisted after adjustment for demographics, vascular risk factors, COPD stage and ABI. PA PWV was not associated with COPD status.

Conclusions: We demonstrated that a severe smoking history was independently associated with a greater PA PWV. Our study advances the understanding of the mechanisms of cardiopulmonary risk factors and underscores the potential clinical applicability of PA PWV measurement for early disease detection.

Keywords: COPD; Pulse wave velocity; Smoking.

Cite

23

Respir Med

-
-
-

. 2026 Jul 6:261:109027.

doi: 10.1016/j.rmed.2026.109027. Online ahead of print.

Eight-week high-intensity inspiratory muscle training improves cardiac autonomic function in COPD: a randomized controlled trial

Pairoj Suraprapapich [1], Wattana B Watanapa [2], Sauwaluk Dacha [3], Wilawan Ketpan [4], Somruthai Yeunyong [4], Kanokwan Rattanasaengloet [4], Nontanat Sathaporn [5], Benjamas Chuaychoo [6]

Affiliations Expand

- PMID: 42409226

- DOI: 10.1016/j.rmed.2026.109027

Abstract

Background: Cardiovascular autonomic dysfunction and respiratory muscle weakness have been detected in patients with COPD. Although low-intensity inspiratory muscle training over 12 weeks increases cardiac parasympathetic (vagal) activity, eight-week programmes at the highest tolerable intensity and their effects on cardiovascular autonomic function remain untested.

Methods: Thirty-nine stable COPD patients were randomized to inspiratory muscle training or control. Both received standard care, excluding pulmonary rehabilitation; the training group additionally performed 30 breaths twice daily at the highest tolerable intensity for eight weeks using a tapered flow resistive loading device. Assessments comprised pulmonary and respiratory muscle function, heart rate variability (HRV), blood pressure variability, baroreflex sensitivity, dyspnoea, 6-min walk distance and health status. Thirty-seven participants (training n = 18, control n = 19) completed the protocol.

Results: Maximal inspiratory pressure increased by 22.46 ± 15.71 cmH_2O ($p < 0.001$), and cardiac parasympathetic activity rose (high-frequency component of HRV: 36.99 ± 17.51% to 46.84 ± 15.33%, $p < 0.01$). Sympathetic index decreased (low-frequency component of HRV: 54.13 ± 21.40% to 40.73 ± 17.01%, $p < 0.001$), as did the low-frequency/high-frequency ratio (2.30 ± 2.39 to 1.10 ± 0.83, $p < 0.01$). Systolic blood pressure variability decreased significantly. Baroreflex sensitivity increased from 5.36 ± 3.15 to 7.18 ± 4.58 ms/mmHg but was not significant ($p = 0.05$). Six-minute walk distance improved from 347.47 ± 82.72 to 378.71 ± 80.09 m ($p < 0.01$), and

health status improved (COPD Assessment Test 7.72 ± 3.36 to 3.61 ± 2.85; Clinical COPD Questionnaire 1.07 ± 0.52 to 0.48 ± 0.31; both $p < 0.001$). These training-group improvements significantly exceeded control; ANCOVA confirmed group effects after baseline adjustment.

Conclusion: Eight-week highest tolerable intensity inspiratory muscle training enhances cardiovascular autonomic function in COPD through increased parasympathetic and reduced sympathetic activity, and improves functional capacity and health status.

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. The authors declare that there are no conflicts of interest.

24

Respir Med

. 2026 Jul 6:261:109024.

doi: 10.1016/j.rmed.2026.109024. Online ahead of print.

Respiratory muscle strength, functional exercise capacity, and muscle oxygenation differences between COPD, PRISM, and healthy controls

Musa Güneş [1], Rabia Hande Avcı [2]

Affiliations Expand

- PMID: 42409225

- DOI: 10.1016/j.rmed.2026.109024

Abstract

Objective: Preserved ratio-impaired spirometry (PRISm) is seen as an early stage of chronic obstructive pulmonary disease (COPD) and is associated with worsening respiratory function. However, the extent of pulmonary and extrapulmonary involvement in patients with PRISm remains unclear. This study aims to compare respiratory muscle strength and endurance, functional exercise capacity, peripheral muscle strength, muscle oxygenation, pulmonary function, dyspnea, and symptoms between COPD, PRISm, and healthy controls.

Methods: 30 patients with COPD, 28 patients with PRISm, and 30 controls were compared. Respiratory (MIP, MEP) and peripheral muscle strength, inspiratory muscle endurance (IME), exercise capacity (6-min walk test (6MWT) and 6-min pegboard and ring test (6PBRT)), muscle oxygenation, pulmonary function, dyspnea (Modified Medical Research Council (MMRC) dyspnea scale), and symptoms (COPD Assessment Test (CAT)) were evaluated.

Results: The COPD and PRISm groups had significantly lower MIP, MEP, IME, 6MWT distance, 6PBRT score, muscle oxygenation (especially at rest and recovery), pulmonary function, quadriceps femoris, and shoulder abductor muscle strength, and higher MMRC and CAT scores than the control group ($p < 0.05$). Except for forced vital capacity, pulmonary function parameters ($p < 0.05$), and IME ($p = 0.022$) were lower in the COPD group than in the PRISm group.

Conclusion: In patients with COPD and PRISm, respiratory muscle strength and endurance, peripheral muscle strength, functional exercise capacity, muscle oxygenation, and lung function are impaired; dyspnea increases. Consequently, PRISm patients experience pulmonary and extrapulmonary symptoms and functional impairment. Therefore, PRISm should be assessed from an early stage, pulmonary rehabilitation programs initiated as early as possible, and their outcomes investigated.

Keywords: Chronic obstructive pulmonary disease; Exercise capacity; Muscle oxygenation; Muscle strength; Preserved ratio impaired spirometry.

Conflict of interest statement

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

COPD

-
-
-

. 2026 Dec;23(1):2689394.

doi: 10.1080/15412555.2026.2689394. Epub 2026 Jul 6.

Number Needed to Treat with Biologics in Type-2 Inflammation COPD: A Systematic Review and Meta-Analysis

Qinqin Wang [1], Qianli Ma [1]

Affiliations Expand

- PMID: 42405817

- DOI: 10.1080/15412555.2026.2689394

Free article

Abstract

In moderate-to-severe chronic obstructive pulmonary disease (COPD), the number needed to treat (NNT) quantifies therapeutic benefit but remains underused for type-2-targeted biologics. This meta-analysis quantified the NNT for type-2-targeted biologics in moderate-to-severe COPD and incorporated the recent evidence on exacerbations, lung function, symptoms, health status, and responder outcomes. We searched PubMed, Embase and Web of Science through July 2025 for phase 2 or 3 RCTs of type-2targeted biologics in adults with COPD. The primary outcome was NNT for moderate-to-severe exacerbations; secondary outcomes included pre-bronchodilator forced expiratory volume in 1 s (FEV_1), St. George's Respiratory Questionnaire (SGRQ), Evaluating Respiratory Symptoms in COPD (E-RS-COPD), and responder proportions. Pooled ratios and mean differences were synthesized using fixed- or random-effects models. Patient-based NNT was derived from cumulative incidence, event-based NNT was derived from annualized exacerbation rates. Pooled NNTs were estimated under selected baseline-risk scenarios. Under three baseline-risk scenarios, pooled patient-based NNTs for reducing moderate-to-severe COPD exacerbations were 12-17 for dupilumab and 11-16 for mepolizumab, benralizumab showed no clear reduction. Event-based NNTs at a baseline annual exacerbation rate of 1.055 per year were 3 for dupilumab and 5 for mepolizumab. Dupilumab was associated with improvements in pre-bronchodilator FEV_1, SGRQ, and E-RS-COPD. For mepolizumab, evidence across these non-exacerbation outcomes was not consistently observed. In conclusion, pooled patient-based and event-based analyses suggest that both dupilumab and mepolizumab consistently reduce moderate-to-severe exacerbations in eosinophilic or type 2 inflammatory COPD, while improvements in lung function and patient-reported outcomes remain less consistent across biologics and warrant further validation. These findings derive from separate placebo-controlled trials and should

not be interpreted as establishing a comparative efficacy hierarchy among biologics.

Keywords: Chronic obstructive pulmonary disease; biologics; moderate-to-severe exacerbations; number needed to treat.

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

26

Review

Expert Rev Respir Med

-
-
-

. 2026 Jul 6:1-9.

doi: 10.1080/17476348.2026.2699459. Online ahead of print.

Upper and lower airway crosstalk in acute exacerbations of COPD: a clinical and biological overview

Simone Ielo [1], Lorenzo Carriera [2 3], Pier-Valerio Mari [4], Roberto Barone [2], Francesca Cefaloni [2], Antonella Loperfido [5], Angelo Coppola [6 7], Stefano Baglioni [3], Eugenio De Corso [8], Raffaele Scala [1]

Affiliations Expand

- PMID: 42403302

- DOI: 10.1080/17476348.2026.2699459

Abstract

Introduction: Acute exacerbations of chronic obstructive pulmonary disease (AE-COPD) are acute worsening events characterized by increased dyspnea, cough, and sputum production. Although traditionally viewed as lower airway events, growing

evidence suggests that AE-COPD may reflect broader pan-airway dysfunction involving both upper and lower respiratory compartments.

Areas covered: This overview examines upper - lower airway crosstalk in AE-COPD across three domains: pan-airway inflammation, epithelial alarmin/cytokine networks, and the continuous airway microbiome. We discuss the coexistence of COPD with sinonasal inflammation, chronic rhinitis, and chronic rhinosinusitis, and their possible contribution to symptom burden, impaired quality of life, and exacerbation risk. We also review mechanisms linking upper and lower airways, including epithelial barrier dysfunction, impaired antiviral responses, innate immune activation, alarmin release, and microbiome-driven dysbiosis.

Expert opinion: Recognizing AE-COPD as a manifestation of pan-airway dysfunction may have relevant clinical implications. Systematic assessment of upper airway symptoms and comorbidities could improve phenotyping, risk stratification, and therapeutic targeting, particularly in frequent exacerbators. Future longitudinal and multi-omic studies are needed to validate upper airway biomarkers and determine whether targeted treatment of upper airway disease can modify COPD outcomes.

Keywords: Chronic obstructive pulmonary disease; acute exacerbation; airway microbiome; chronic rhinosinusitis; united airway disease.

27

Review

Br J Pharmacol

-
-
-

. 2026 Jul 5.

doi: 10.1111/bph.70562. Online ahead of print.

The discovery and development of ensifentrine: A novel inhaled dual PDE3/4 inhibitor having 'bifunctional' bronchodilator and anti-inflammatory activity

Clive Page [1]

Affiliations Expand

- **PMID: 42402420**

- **DOI: 10.1111/bph.70562**

Abstract

Ensifentrine (formerly called RPL 554) is a novel, first in class, inhaled bifunctional dual PDE3/4 inhibitor for the treatment of chronic respiratory diseases. Ensifentrine exhibits both bronchodilation via PDE3 inhibition and anti-inflammatory activity via PDE4 inhibition. Following extensive preclinical and clinical investigations, ensifentrine was recently approved by the FDA as a treatment for patients with chronic obstructive pulmonary disease (COPD). It is anticipated that this novel drug will provide a useful addition to the available treatments for pulmonary diseases.

Keywords: COPD; RPL554; airways inflammation; asthma; ensifentrine; phosphodiesterase inhibitor; respiratory disease.

- **45 references**

Supplementary info

Publication types, Grants and fundingExpand

Full text links

BJP > UNIMORE

Proceed to details

Cite

28

Review

Expert Opin Drug Deliv

-
-
-

. 2026 Jul 6:1-15.

doi: 10.1080/17425247.2026.2699327. Online ahead of print.

Dry powder inhaler selection in COPD: integrating device design, formulation performance, and patient inspiratory capability

Michał Pirożyński [1]

Affiliations Expand

- PMID: 42391132

- DOI: 10.1080/17425247.2026.2699327

Abstract

Introduction: Appropriate dry powder inhaler (DPI) selection is essential for effective COPD management because pulmonary drug delivery depends on interactions between formulation properties, device design, and patient capability. This review proposes a Formulation-Device-Patient (FDP) matching framework to support individualized DPI selection.

Areas covered: A structured search of PubMed and Google Scholar identified publications on COPD, DPI selection, inspiratory flow, device resistance, aerosol performance, inhaler technique, usability, and formulation-device interactions. Evidence shows that DPIs differ substantially in internal resistance, inspiratory-flow requirements, dose-preparation mechanisms, aerosolization characteristics, handling complexity, and feedback systems, and therefore should not be considered interchangeable. Appropriate device selection requires assessment of inspiratory capability alongside manual dexterity, cognitive function, comorbidities, prior inhaler experience, patient preference, and inhaler technique. The review also highlights the limitations of direct cross-device comparisons and cautions against interpreting *in vitro* aerosol-performance metrics as indicators of clinical superiority.

Expert opinion: DPI selection should move beyond device-centered prescribing toward individualized formulation-device-patient matching. The proposed FDP framework provides a practical model for individualized DPI selection by integrating formulation characteristics, device engineering, and patient capability rather than relying on inspiratory flow or device characteristics alone.

Keywords: COPD; aerosol drug delivery; device resistance; dry powder inhaler; formulation–device–patient matching; inhaler selection; peak inspiratory flow.

29

Clin Infect Dis

-
-
-

. 2026 Jul 8;82(6):e1375-e1383.

doi: 10.1093/cid/ciag095.

Age-Specific Risk of Herpes Zoster in Adults Aged ≥18 Years With Comorbid Conditions-A Retrospective Cohort Study in the United States

Rachel A Cohen [1], Driss Oraichi [1], Agnes Mwakingwe-Omari [1], Bruno Anspach [1], Desmond Curran [2], Huifeng Yun [1]

Affiliations Expand

- PMID: 41888022

- PMCID: PMC13341258

- DOI: 10.1093/cid/ciag095

Abstract

Background: Older (≥50 years of age [YoA]) and immunocompromised adults are at higher risk of herpes zoster (HZ). Those with comorbidities are also at increased risk, however, recent US evidence is lacking, especially among 18-49 YoA.

Methods: This US retrospective cohort study (2015-2022, Merative MarketScan Commercial and Medicare Supplemental) compared HZ incidence rates (IRs) in younger immunocompetent adults (18-49 YoA) with comorbidities (asthma, chronic kidney disease [CKD], chronic obstructive pulmonary disease [COPD], depression, diabetes, stress, and trauma) versus immunocompetent adults 50-59 YoA without comorbidities. Adjusted HZ IR ratios (aIRRs) versus 50-59 YoA adults were compared using a predetermined 0.62 non-inferiority margin for the aIRR 95% confidence interval lower limit (95% CI LL). aIRRs were classified as comparable (aIRR 95% CI LL > 0.62 and ≤1.0), significantly higher (aIRR 95% CI LL > 1.0), or inconclusive (any other result). HZ case: diagnostic code B02.2x plus oral antiviral ±7 days. Sensitivity analyses investigated HZ IRs by number of comorbid conditions (1, 2, or ≥3).

Results: HZ IRs were significantly higher (aIRR 95% CI LL > 1.0) from 30 to 39 YoA (aIRR; 95% CI) in asthma (1.19; 1.10-1.29), COPD (1.31; 1.22-1.40), depression (1.31; 1.22-1.40), diabetes (1.18; 1.06-1.32), stress (1.28; 1.11-1.47), and trauma (1.25; 1.17-1.34) populations than immunocompetent 50-59 YoA and from 50 to 59 YoA in CKD

(1.50; 1.28-1.77). In sensitivity analyses, HZ IR appeared to increase with more comorbid conditions and age.

Conclusions: The study found that younger adults (30+ YoA) with certain comorbidities have a higher HZ risk than immunocompetent 50-59 YoA adults.

Keywords: United States; adult; comorbidity; herpes zoster; incidence.

Conflict of interest statement

Potential conflicts of interest . R. A. C., D. O., A. M.- O., B. A., and H. Y. are employed by GSK. R. A. C., D. O., A. M.- O., B. A., D. C., and H. Y. hold financial equities in GSK. R. A. C. declared support for business travel as a GSK employee. D. C. was employed by GSK at the time of the study. The authors declare no other financial and nonfinancial relationships and activities.

- 25 references
- 6 figures

Supplementary info

MeSH terms, Grants and fundingExpand

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

1

Review

Expert Opin Drug Saf

-
-
-

. 2026 Jul 10.

doi: 10.1080/14740338.2026.2701663. Online ahead of print.

Exploring the safety and efficacy of DOACs in clinically complex phenotypes of patients with atrial fibrillation: focus on frailty, multimorbidity and polypharmacy

Panteleimon E Papakonstantinou [1], Gregory Y H Lip [2 3 4]

Affiliations Expand

- PMID: 42433070

- DOI: 10.1080/14740338.2026.2701663

Abstract

Introduction: Direct oral anticoagulants (DOACs) are widely used for stroke prevention in atrial fibrillation (AF); however, patients encountered in real-world practice frequently exhibit frailty, multimorbidity, and polypharmacy, phenotypes underrepresented in randomized clinical trials.

Areas covered: This narrative review addresses the safety and efficacy of DOACs in clinically complex AF populations. Targeted searches of PubMed/MEDLINE, Embase, and major cardiology society documents (ESC/EHRA) were performed from inception to May 2025, prioritizing randomized trials and complemented by large observational studies and registries. Available evidence indicates that DOACs demonstrate similar or superior efficacy and safety compared with vitamin K antagonists in frail and multimorbid patients. Although polypharmacy increases the risk of drug - drug interactions, DOACs are associated with fewer interactions and simplified dosing strategies. Observational data support the real-world effectiveness of DOACs when treatment is individualized according to frailty status, comorbidity burden, renal function, and medication review.

Expert opinion: DOACs can be used safely and effectively in complex AF patients when care is individualized. Integration of frailty screening, structured polypharmacy review, and holistic management approaches, such as the ABC pathway, may improve outcomes. Future research should focus on prospective studies and implementation strategies in underrepresented high-risk populations.

Keywords: Atrial fibrillation; DOACs; frailty; multimorbidity; polypharmacy, stroke.

Supplementary info

Publication typesExpand

Full text links

UNIMORE

Proceed to details

Cite

2

J Am Med Dir Assoc

-
-
-

. 2026 Jul 7;27(9):106365.

doi: 10.1016/j.jamda.2026.106365. Online ahead of print.

Potential Drug-Drug Interactions With Nirmatrelvir/Ritonavir Among Long-Term Care Facility Residents

Marzan A Khan [1], Lori A Daiello [2], Sarah D Berry [3], Daniel A Harris [4], Hemalkumar B Mehta [5], Yu-Chia Sam Hsu [6], Charles E Leonard [7], Kevin W McConeghy [8], Andrew R Zullo [9]

Affiliations Expand

- PMID: 42413156

- DOI: 10.1016/j.jamda.2026.106365

Abstract

Objectives: Nirmatrelvir/ritonavir (Paxlovid) is an oral antiviral for COVID-19. Although effective, its use is complicated by clinically important potential drug-drug interactions (DDIs). Long-term care facility (LTCF) residents are especially vulnerable to both COVID-19 and the adverse effects of potential DDIs because of advanced age, multimorbidity, and polypharmacy. The objective of this study was to quantify the prevalence and duration of potential DDIs among US LTCF residents administered nirmatrelvir/ritonavir.

Design: We conducted a cohort study of LTCF residents using electronic medication administration record data from the Long-Term Care Data Cooperative linked to Medicare claims (January 2022-January 2025).

Methods: Days of nirmatrelvir/ritonavir administration were identified, and concurrent exposure to 236 potentially interacting medications was assessed. A potential DDI was defined as same-day coadministration, reflecting concurrent exposure rather than clinical adverse effects. We estimated the prevalence of potential DDIs and the median duration of overlapping exposure.

Results: Among 48,260 LTCF residents treated with nirmatrelvir/ritonavir, the mean age was 78.8 years (SD, 10.9), 58% were female, and 76% were non-Hispanic White. Overall, 86% were exposed to at least 1 potential DDI. The most common potentially interacting medications were atorvastatin (28.1%; 95% confidence limits [CLs], 27.7-28.50), amlodipine (21.6%; 95% CLs, 21.2-21.9), and apixaban (15.9%; 95% CLs, 15.6-16.3). Median days of overlapping exposure ranged from 5 to 6 days.

Discussion: Potential DDIs most frequently involve medications requiring temporary withholding or dose adjustment rather than contraindication. The high prevalence of potential DDIs likely reflects the complexity of medication management in LTCFs, where antiviral use must be weighed against comorbidities and polypharmacy.

Conclusions and implications: Potential DDIs with nirmatrelvir/ritonavir were common among LTCF residents, though contraindicated ones were uncommon. These findings underscore the need for ongoing medication reviews and clinician and pharmacist oversight to ensure safe antiviral use in LTCFs.

Keywords: COVID-19; drug-drug interaction; long-term care facility residents; nirmatrelvir/ritonavir.

Conflict of interest statement

Disclosure A.R.Z. previously received grant funding from Sanofi, paid directly to Brown University for collaborative research on the epidemiology of infections and vaccine use among LTCF residents. He is a US government employee; the views expressed in this article are those of the author and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the US government. C.E.L. consults for Biohaven, Moderna (via TriNetX), and Shine Lawyers. He recently received honoraria from the NIH Center for Scientific Review, the University of North Carolina, the University of Florida, and the American College of Clinical Pharmacy Foundation. His spouse is employed by Merck; neither he nor his spouse owns stock in the company. D.A.H. reports investigator-initiated research from GlaxoSmithKline paid directly to the University of Delaware and consulting fees from Sanofi and Insight Therapeutics for work unrelated to the current study. H.B.M. is supported by the National Institute on Aging (grant no.: K01 AG070329).

Cite

3

BMC Geriatr

-
-
-

. 2026 Jul 6.

doi: 10.1186/s12877-026-07893-x. Online ahead of print.

Prevalence and determinants of multimorbidity in older Chinese adults: a nationwide cross-sectional study using CLASS data

Yi Li [#1], Chenxi Zhao [#2,3], Xinhao Zhuang [#1], Songbo Jia [1], Xuelin Zhang [1], Liming Yan [4], Huaguang Zheng [5], Yiqun Pang [6], Bing Zhan [1], Xiaotian Li [1], Jinxi Zhang [1], John S Ji [7], Yanjun Guo [8], Bingxiang Xu [9], Zhixiong Zhou [10], Qingzhu Yang [11]

Affiliations Expand

- **PMID: 42410375**

- DOI: 10.1186/s12877-026-07893-x

Free article

Abstract

Background: Multimorbidity, the coexistence of two or more chronic conditions, is rising in China's aging population, with limited data on prevalence and regional drivers.

Methods: Using 2020 China Longitudinal Aging Social Survey data for adults aged ≥ 60, supplemented by official regional statistics, we defined multimorbidity from 22 self-reported conditions. A Generalized Linear Mixed Model (GLMM) with village/community-level random effects was used to identify individual-level correlates of multimorbidity, while Random Forests (RF) evaluated county-level determinants.

Results: Among 11,372 participants (mean [Standard Deviation, SD] 71.6 [6.6] years), 46.03% had multimorbidity. Higher odds of multimorbidity were associated with older age (Odds Ratio [OR] = 2.24; 95% Confidence Interval [CI] 1.81-2.76), female (OR = 1.32; 95% CI 1.20-1.45), receiving ≥ 3 social security benefits (OR = 1.64; 95% CI 1.09-2.48), and obesity (OR = 1.90; 95% CI 1.48-2.44). Lower odds were associated with higher educational level (OR = 0.55; 95% CI 0.39-0.75), being physically active (OR = 0.66; 95% CI 0.56-0.77), better access to medical institutions (OR = 0.67; 95% CI 0.45-0.99) and beds (OR = 0.55; 95% CI 0.37-0.80). Random Forests prioritized physical activity, disposable income, sleep duration, social security benefits, and Body Mass Index (BMI) as top county-level associated factors.

Conclusions: These insights advocate optimizing medical resources, bolstering primary care, and fostering healthy lifestyles to reduce the burden of multimorbidity among older Chinese adults.

Keywords: Associated factors; Chinese older adults; Medical resources; Multimorbidity; Prevalence.

Conflict of interest statement

Declarations. Ethical approval and consent to participate: The study was conducted in accordance with the principles of the Declaration of Helsinki and received approval from the Ethics Committee of Capital University of Physical Education and Sport (ChiCTR-IOR-ChiCTR2200063177). Written informed consent was obtained from all participants or their legal representatives. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

Supplementary info

Grants and fundingExpand

Full text links

4

Review

Lancet Respir Med

. 2026 Jul 6:S2213-2600(26)00143-8.

doi: 10.1016/S2213-2600(26)00143-8. Online ahead of print.

Asthma diagnosis in adults and children: challenges, future directions, and a call to action

Wafa Hassan [1], Ran Wang [2], Ahmed Mohammedalhadi [3], Huda Badri [2], Luke Daines [4], Shawn D Aaron [5], Erol A Gaillard [6], Stephen J Fowler [2], Imran Satia [7]

Affiliations Expand

- PMID: 42409035

- DOI: 10.1016/S2213-2600(26)00143-8

Abstract

Asthma is the most common chronic airway disease worldwide, imposing substantial clinical, societal, and economic burden. Asthma is generally defined as a heterogeneous clinical syndrome characterised by fluctuating respiratory symptoms and variable expiratory airflow limitation. Despite this definition, asthma misdiagnosis remains high; 20-70% of individuals with asthma remain undiagnosed and untreated, and approximately 30% of those labelled as having asthma do not have the disease. Objective evidence, alongside variability of symptoms, is essential to support a diagnosis of asthma. However, international guidelines vary in the selection, sequencing, and interpretation of diagnostic tests, reflecting differences in methodology, health-care infrastructure, test availability, and health-economic considerations. Demonstration of variable expiratory airflow remains central to most pathways, whereas guidance on type 2 inflammatory biomarkers is inconsistent. No single test reliably confirms or excludes asthma, necessitating multi-test diagnostic approaches. Implementing guideline recommendations in routine practice is challenging. Barriers include temporal variability of symptoms and physiology, insufficient patient symptom recognition, restricted access to objective testing, and the presence of multimorbidity. This Personal View summarises the similarities and differences in diagnostic pathways across major

guidelines, examines the challenges of applying these recommendations, and looks to future developments and potential solutions. We call for a coordinated international effort to advance diagnostic innovation and generate the high-quality evidence needed to transform asthma diagnosis.

Conflict of interest statement

Declaration of interests WH reports consultation fees from GSK. EAG reports research collaboration with Astra Zeneca, Helicon Health, and Adherium; speaker fees Circassia Group, Sanofi, and Thorasys; institutional research funding from the Wellcome Trust, National Institute for Health and Care Research, UK Research and Innotivation (formally SBRI), European Respiratory Society, University of Leicester, Midlands Asthma and Allergy Research Association, and Leicestershire and Rutland integrated Care Board; and has received personal honoraria from Circassia and Sanofi and institutional honoraria from Thorasys. EAG is an unpaid Chair of the Paediatric Asthma and Allergy Assembly of the European Respiratory Society. SJF received research grant funding from National Institute for Health and Care Research, North-West Lung Centre Charity, and Asthma + Lung UK. SJF was the adult topic advisor to National Institute for Health and Care Excellence for the British Thoracic Society–National Institute for Health and Care Excellence–Scottish Intercollegiate Guidelines Network 2024 asthma guidelines. RW receives grants from Asthma + Lung UK and National Institute for Health and Care Research. LD reports travel reimbursement from the European Respiratory Society for chairing Congress sessions (2025) and an unpaid role as Secretary of the European Respiratory Society Primary Care Group. SDA reports advisory board participation for AstraZeneca, GSK, Sanofi/Regeneron, and Methapharm. IS reports grants from Merck, MITACS, GSK, Bellus, Trevi Therapeutics, Bayer, Genentech, Nocion; personal speaker fees from Merck, GSK, AstraZeneca, Sanofi-Regeneron, Vitalograph, and Boehringher Ingelheim; and consulting fees from Merck, Genentech, Respiplus, GSK, Bellus, Sanofi-Regeneron, Methapharm, and Nocion, outside the submitted work. IS was also a member of the European Respiratory Society taskforce for the Diagnosis of Asthma in Adults 2022. RW, SJF, and HB are supported by the Manchester National Institute for Health and Care Research Biomedical Research Centre (BRC-1215-20007 and NIHR203308). RW's salary is supported by National Institute for Health and Care Research Clinical Lectureship (CL-2023-06-003). IS is supported by the Canada Research Chair programme. AM declares no competing interests.

Supplementary info

Publication typesExpand

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

1

Respir Res

. 2026 Jul 10.

doi: 10.1186/s12931-026-03790-4. Online ahead of print.

Lower plasma resolvin D1 level and greater sputum eosinophilia characterize a cluster of severe asthma patients

Melody G Duvall [1 2], Yuan Sun [3], Hooman Mirzakhani [3 4], Stephanie Pons [3], Madison H Dorazio [3], Tania Chiha [3], Zheng Lu [3 4], Brenda R Phillips [5], Mark A Aronica [6], Eugene R Bleecker [7], Mario Castro [8], Suzy A Comhair [6], Loren C Denlinger [9], Serpil C Erzurum [6], John V Fahy [10], Annette T Hastie [11], Nizar N Jarjour [9], Purvesh K Khatri [12], Deborah A Meyers [7], Wendy C Moore [11], Victor E Ortega [13], Wanda Phipatanakul [14], Max A Seibold [15], Kaharu Sumino [16], Sally E Wenzel [17 18], Prescott G Woodruff [10], David T Mauger [5], Elliot Israel [3], Bruce D Levy [19]

Affiliations Expand

- PMID: 42432742

- DOI: 10.1186/s12931-026-03790-4

Abstract

Background: Severe asthma is a chronic disease of airway inflammation with substantial morbidity. Deficient specialized pro-resolving mediators (SPMs) are associated with persistent airway inflammation and impaired lung function in some patients with severe asthma. Resolvin D1 (RvD1) is an SPM agonist for inflammation resolution.

Methods: Plasma RvD1 was measured longitudinally over 5 years in 23 severe asthma patients in the Severe Asthma Research Program (SARP) to identify relationships between clinical parameters, type 2 inflammation, and sputum gene expression.

Results: The majority of severe asthma patients had persistently low plasma RvD1; a smaller subgroup had higher RvD1 that fluctuated over time. Correlation analysis indicated a relationship between plasma RvD1 and sputum eosinophilia. A subgroup of severe asthma patients had low plasma RvD1 and high sputum eosinophils ($RvD1^{Lo}SpEos^{Hi}$); a separate subgroup had high plasma RvD1 and low sputum eosinophils ($RvD1^{Hi}SpEos^{Lo}$). The $RvD1^{Lo}SpEos^{Hi}$ patient cluster had increased T2 inflammation, lower lung function, and more asthma exacerbations. 42 genes were differentially expressed in $RvD1^{Lo}SpEos^{Hi}$ severe asthma sputum, including hypoxia-inducible factor 1-alpha (HIF1A). RvD1 significantly downregulated eosinophil HIF-1α expression in vitro.

Conclusions: These findings identify a subset of severe asthma patients with low RvD1 and increased sputum eosinophilia, and RvD1 regulation of eosinophil

activation ex vivo, suggesting a counter-regulatory role for this SPM in modulating eosinophilic T2 inflammation in asthma.

Keywords: Asthma; Eosinophils; Resolvins; Specialized pro-resolving mediators; Sputum; Type 2 inflammation.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained after Institutional Review Board approval prior to patient participation. Consent for publication: Not applicable. Competing interests: The following companies provided financial support for study activities at the Coordinating and Clinical Centers beyond the NHLBI support: Amgen, AstraZeneca, Boehringer-Ingelheim, Genentech, GlaxoSmithKline, Sanofi–Genzyme–Regeneron, and TEVA. The authors declare that they have no additional competing interests.

Supplementary info

Grants and fundingExpand

Full text links

2

JAMA

-
-
-

. 2026 Jul 10.

doi: 10.1001/jama.2026.9473. Online ahead of print.

Approval of Respiratory Biologics Linked to Decline in Asthma Exacerbations

Samantha Anderer

- PMID: 42430145

- DOI: 10.1001/jama.2026.9473

No abstract available

Full text links

Proceed to details

Cite

3

Comment

Eur Respir J

-
-
-

. 2026 Jul 9;68(1):2501565.

doi: 10.1183/13993003.01565-2025. Print 2026 Jul.

Critical flaws in: "Dupilumab and lymphoma risk among patients with asthma: a population-based cohort study"

Leonard B Bacharier [1], William W Busse [2], Daniel J Jackson [2], Rohit K Katial [3]

Affiliations Expand

- PMID: 42425748

- PMCID: PMC13347704

- DOI: 10.1183/13993003.01565-2025

Abstract

There are three major areas of concern identified in the article on dupilumab treatment and lymphoma risk in patients with asthma by Ma and co-workers – crucial methodological flaws, biological implausibility, and incident risk of disease focus https://bit.ly/4a3nT2R

Conflict of interest statement

Conflict of interest: L.B. Bacharier reports support for the present study from Sanofi and Regeneron Pharmaceuticals Inc., grants from NIH and Sanofi, payment or honoraria for lectures, presentations, manuscript writing or educational events from Regeneron Pharmaceuticals Inc. and Sanofi, participation on a data safety monitoring board or advisory board with AstraZeneca, Cystic Fibrosis Foundation,

DBV Technologies Horizon and Vertex, and personal fees from Apogee, AstraZeneca, Greer/Stallergenes and OM Pharma. W.W. Busse reports support for the present study from Sanofi and Regeneron Pharmaceuticals Inc., and consultancy fees from GSK, Regeneron Pharmaceuticals Inc. and Sanofi. D.J. Jackson reports support for the present study from Sanofi and Regeneron Pharmaceuticals Inc., grants from Regeneron Pharmaceuticals Inc., consultancy fees from Areteia Therapeutics, Apogee, GSK, Regeneron Pharmaceuticals Inc. and Sanofi, and participation on a data safety monitoring board or advisory board with AstraZeneca and Upstream Bio. R.K. Katial reports support for the present study from Sanofi and Regeneron Pharmaceuticals Inc., consultancy fees from AstraZeneca, GSK, Regeneron Pharmaceuticals Inc. and Sanofi, and payment or honoraria for lectures, presentations, manuscript writing or educational events from AstraZeneca and Pharming.

Comment on

- Dupilumab and lymphoma risk among patients with asthma: a population-based cohort study.

Ma KS, Brumbaugh B, Saff RR, Phipatanakul W, Tsai SY, Westmeijer M, Holt A, Ebriani J, Camargo CA Jr, Chen ST.Eur Respir J. 2025 Sep 25;66(3):2500139. doi: 10.1183/13993003.00139-2025. Print 2025 Sep.PMID: 40537179

- 8 references

Supplementary info

Publication typesExpand

Full text links

Cite

4

Review

J Allergy Clin Immunol

-
-
-

. 2026 Jul 9:S0091-6749(26)00483-5.

doi: 10.1016/j.jaci.2026.06.017. Online ahead of print.

Post-GWAS Variant-to-Function Challenges in Asthma Research

Xiaoyuan Zhong [1], Isabella M Salamone [1], Marcelo A Nóbrega [1], Xin He [1], Carole Ober [2]

Affiliations Expand

- PMID: 42425470

- DOI: 10.1016/j.jaci.2026.06.017

Abstract

Genome-wide association studies (GWAS) of asthma have identified nearly 200 independent loci, yet the mechanisms through which individual loci influence asthma risk remain largely unknown. A growing array of computational and experimental tools has begun to fill these gaps by identifying causal variants and effector genes and characterizing their functions. In parallel, emerging studies are exploring the translational applications of genetic and multi-omics data in asthma, including defining molecular endotypes and predicting disease risk. In this manuscript, we review the strengths and limitations of current approaches for addressing the post-GWAS challenges and discuss the next tier of questions and directions for the field.

Keywords: Asthma; Causal variants; Effector genes; GWAS; Multi-omics.

Supplementary info

Publication typesExpand

Full text links

Proceed to details

Cite

5

Review

Respir Med

-
-
-

. 2026 Jul 9:109033.

doi: 10.1016/j.rmed.2026.109033. Online ahead of print.

ASTHMA AT THE CROSSROADS: FROM ANTI-TNF-α SETBACKS TO NEXT-GENERATION BIOLOGICS TARGETING TYPE 1 AND TYPE 2 INFLAMMATION

Vaibhavkumar Patel [1], Nikita Khera [2], Gurvir Singh [3], Md Asif Khalid Ansari [4]

Affiliations Expand

- PMID: 42425314

- DOI: 10.1016/j.rmed.2026.109033

Abstract

Severe asthma remains a major unmet clinical challenge due to its marked immunological heterogeneity and the limited efficacy of current therapies in non-Type 2 inflammatory endotypes. Although biologics targeting IL-4, IL-5, and IL-13 have significantly improved outcomes in eosinophilic asthma, therapeutic options for Type 1 and mixed inflammatory phenotypes remain inadequate. The failure of anti-TNF-α therapies highlighted critical translational barriers including cytokine redundancy, insufficient endotype stratification, and systemic safety concerns, thereby reshaping the direction of respiratory immunopharmacology toward precision-guided intervention strategies. This review critically examines the immunobiology of Type 1 and Type 2 inflammation, evaluates the mechanistic and clinical lessons derived from anti-TNF-α trials, and discusses emerging therapeutic platforms including nanobodies, RNA-based therapeutics, gene-editing technologies, cell-based immunotherapies, and advanced pulmonary delivery systems. Furthermore, the review highlights the growing role of multi-omics biomarkers, microbiome profiling, and artificial intelligence in enabling adaptive and personalized asthma management. Collectively, these advances support a transition from generalized cytokine blockade toward integrated immune-network modulation for severe asthma across diverse inflammatory endotypes.

Keywords: Asthma; Biologics; Nanobodies; Precision medicine; Type 1 inflammation.

Conflict of interest statement

Declaration of Competing Interest ☒ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Vaibhavkumar Patel reports was provided by Saraswati Institute of Pharmaceutical Sciences. Vaibhavkumar B. Patel reports a relationship with Saraswati Institute of Pharmaceutical Sciences that includes: employment. Patel Vaibhavkumar Baldevbhai has patent NA pending to NA. NA If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

Publication typesExpand

Full text links

[Proceed to details]

Cite

6

Am J Respir Crit Care Med

-
-
-

. 2026 Jul 8:aamag329.

doi: 10.1093/ajrccm/aamag329. Online ahead of print.

Eosinophil-derived breath biomarkers and response to anti-IL-5/5R biologics in severe asthma

Thibault Massenet [1], Pierre-Hugues Stefanuto [1], ΩRosa Peltrini [2], ΩRebecca Cordell [3], Hnin Aung [2], Eleanor Quek [4], Shahd Abuhelal [4], ΩMatthew Richardson [2], ΩChristopher Brightling [2], ΩPaul Monks [3], ΩNeil Greening [2], ΩMichael Wilde [5], Agnieszka Smolinska [6], Florence Schleich [7], ΩSalman Siddiqui [4]

Affiliations Expand

- **PMID: 42421225**

- **DOI: 10.1093/ajrccm/aamag329**

No abstract available

Full text links

[Proceed to details]

Cite

7

Review

Eur Respir Rev

-

. 2026 Jul 8;35(181):250326.

doi: 10.1183/16000617.0326-2025. Print 2026 Jul.

Genetic susceptibility to respiratory health effects from outdoor air pollution: a structured narrative review

Yidan Meng [1], Ji Soo Lim [1], Christine Chen [1], Christopher F Rider [2], Min Hyung Ryu [1], Christopher Carlsten [1]

Affiliations Expand

- PMID: 42419777

- PMCID: PMC13343214

- DOI: 10.1183/16000617.0326-2025

Abstract

Outdoor air pollution exposure is a well-established driver of respiratory disease, while growing evidence highlights an important role for genetic susceptibility. Building on this expanding body of work, our review synthesises findings across studies and provides an integrated overview. Here, we present a structured literature review summarising study characteristics and statistically significant single nucleotide polymorphisms (SNPs) reported in gene-environment interaction studies of air pollution related respiratory outcomes. By consolidating this evidence, the review clarifies current findings and supports more rigorous, evidence-based risk stratification in future observational and intervention studies. We included 48 peer-reviewed studies in humans published between 2014 and 2024 that examined gene-environment interactions involving SNPs, outdoor air pollution exposure and respiratory outcomes. Studies primarily evaluating particulate matter with aerodynamic diameter <2.5 µm and <10 µm, and nitrogen dioxide included respiratory end-points, such as asthma, COPD and lung-function measures. The majority of analyses used regression-based methods, supplemented by mixed-effects and generalised estimating equation models. Candidate gene studies (particularly in the glutathione S-transferase (GST) family) along with polygenic risk scores and genome-wide interaction approaches identified 89 SNPs across 53 genes. Replicated variants involved pathways in oxidative stress detoxification (*e.g.* rs1695 (*GSTP1*) and rs2266637 (*GSTT1*)) and inflammatory responses (*e.g.* rs1800629 (*TNF*), rs3804099 (*TLR2*) and rs848 (*IL13*)), consistently modifying pollution-related lung function decline and airway inflammation. By consolidating key genes, study designs and analytic methods, this review provides a curated SNP list to inform future genetic risk stratification. We highlight the need for studies in ancestrally diverse populations, controlled human exposure designs, and multi-omics approaches to strengthen mechanistic understanding of gene-environment interactions in respiratory health.

Conflict of interest statement

Conflict of 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.

- 87 references
- 4 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

8

Editorial

Respirology

-
-
-

. 2026 Jul 8.

doi: 10.1002/resp.70287. Online ahead of print.

Not All Flares Are Equal: Stratifying Risk During Asthma/COPD Overlap Exacerbations

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

Affiliations Expand

- PMID: 42419728

- DOI: 10.1002/resp.70287

No abstract available

Keywords: acute exacerbation; asthma/COPD overlap; eosinophil; inflammatory phenotyping; neutrophil-to-lymphocyte ratio.

- **7 references**

Supplementary info

Publication typesExpand

Full text links

Proceed to details

Cite

9

Lancet Respir Med

-
-
-

. 2026 Jul 8:S2213-2600(26)00194-3.

doi: 10.1016/S2213-2600(26)00194-3. Online ahead of print.

Beyond eosinophils: redefining asthma exacerbations in the biologic era

Claudia Crimi [1], Fabio Vignera [2]

Affiliations Expand

- **PMID: 42419330**

- **DOI: 10.1016/S2213-2600(26)00194-3**

No abstract available

Conflict of interest statement

CC has received personal fees for advisory board participation from Sanofi, GlaxoSmithKline, and Philips, and has received speaking fees from Astra Zeneca, Sanofi, GlaxoSmithKline, Fisher & Paykel, ResMed, and Vitalaire, outside the submitted work. FV reports no competing interests.

Full text links

Proceed to details

Cite

10

Review

Mol Biol Rep

-
-
-

. 2026 Jul 8;53(1):1117.

doi: 10.1007/s11033-026-12303-x.

Corticosteroids in asthma and COPD: an inflammopharmacological perspective on molecular and genetic determinants

Subhajit Dutta [1], Shanmugam Ramaswamy [2 3], Aritra Dutta [4], K Yamuna [5], L Priyanka Dwarampudi [6], G Mirunalini [6], M V N L Chaitanya [7], M Lahariprya [1]

Affiliations Expand

- PMID: 42418092

- PMCID: PMC13346130

- DOI: 10.1007/s11033-026-12303-x

Abstract

Corticosteroids have broad anti-inflammatory effects to treat asthma and COPD. They do not alter the disease's progression, but they do improve the function of lung, symptoms, and quality of life. Additionally, they also reduce the exacerbation of both disorders. In asthma, they reduce mortality, but not in COPD. After penetrating the cytoplasm of the cell, the corticosteroid binds to an inactive glucocorticoid receptor complex. Thus, the activated glucocorticoid receptor attaches to DNA at the glucocorticoid response element sequence, promoting the development of anti-inflammatory proteins (transactivation) and suppressing the transcription and secretion of various proinflammatory cytokines (transrepression). The available corticosteroids differ regarding their therapeutic index and potency. All age groups utilize corticosteroids, but because younger and smaller children can get larger mg/kg doses of corticosteroids than older children, they may be more susceptible to adverse systemic effects. Corticosteroids are most beneficial when taken at low to medium doses. While greater doses may help certain patients, there is little additional improvement shown with them. The benefits of corticosteroids for COPD are more debatable, even though they are the recommended treatment for

chronic asthma in people of all ages. When taken as instructed, at low to medium dosages, ICS adverse effects are rare however, the risk increases with greater dosages. Even though many kinds of novel treatments have been invented and analyzed, it is unclear that any of them will take the position of ICSs as the first, long-term controller medication for asthma. However, a better initial control treatment for COPD might be established. This chapter focuses on the role, mechanisms, including glucocorticoid receptor binding and modulation of pro-inflammatory gene expression, steroid resistance, clinical applications, challenges, and limitations of corticosteroids in the management of asthma and COPD.

Keywords: Asthma; Bronchodilators; COPD; Corticosteroids; Maintenance therapy; Pulmonology.

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. Conflict of interest: The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

- 109 references
- 4 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

11

Review

Biomark Res

-
-
-

. 2026 Jul 7.

doi: 10.1186/s40364-026-00958-4. Online ahead of print.

The JAK-STAT pathway in allergic diseases: from pathogenesis to targeted therapy

Yu Chen [1], Junying Hu [1], Xingchen Liu [1], Wenqiao Zhou [1], Bing Zhong [2], Feng Liu [3]

Affiliations Expand

- PMID: 42415197

- DOI: 10.1186/s40364-026-00958-4

Free article

Abstract

The JAK-STAT signaling pathway serves as a central hub in the pathogenesis of various allergic diseases, including atopic dermatitis, allergic rhinitis, and asthma. It mediates signal transduction of key inflammatory cytokines, such as IL-4, IL-5, and IL-13, and directly regulate regulating Th2 cell differentiation, IgE production, and eosinophil function. Moreover, the dysregulation of its intrinsic negative feedback mechanisms also serves as a significant driver of disease progression. Targeting this pathway has yielded significant progress in drug development, including JAK/STAT inhibitors and immunomodulatory natural products. However, challenges persist in regarding long-term safety, efficacy differences across disease subtypes, and combination therapy approaches. This review systematically outlines the central role of the JAK-STAT pathway in allergic diseases and comprehensively evaluates recent advances and clinical prospects of related targeted therapies, aims to provide a comprehensive reference for future basic research and precise clinical management.

Keywords: Allergic diseases; Cytokines; JAK inhibitors; JAK-STAT pathway; Targeted therapy; Th2 immune response.

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.

Supplementary info

Publication typesExpand

Full text links

Respir Res

-
-
-

. 2026 Jul 8;27(1):276.

doi: 10.1186/s12931-026-03801-4.

Depemokimab: toward biannual biologic therapy for severe eosinophilic asthma

Kostas A Papavassiliou [1], Vassiliki A Gogou [2], Athanasios G Papavassiliou [3]

Affiliations Expand

- **PMID: 42415112**
- **PMCID: PMC13343995**
- **DOI: 10.1186/s12931-026-03801-4**

Abstract

Severe eosinophilic asthma remains a major therapeutic challenge despite advances in biologic therapies targeting type 2 inflammation. Depemokimab (Exdensur®), a novel ultra-long-acting anti-interleukin-5 (IL-5) monoclonal antibody, introduces a new treatment paradigm through sustained eosinophil suppression and twice-yearly administration. Engineered with enhanced IL-5 binding affinity and fragment crystallizable (Fc) modifications that prolong systemic persistence, depemokimab achieves durable pharmacodynamic activity and extended dosing intervals. Phase III SWIFT-1 and SWIFT-2 trials demonstrated significant reductions in annualized asthma exacerbations, with efficacy comparable to established anti-IL-5 agents and a favorable safety profile. However, benefits in lung function, symptom control, and quality of life have been less consistent, underscoring the complex relationship between eosinophilic inflammation and broader disease manifestations. The principal advantage of depemokimab lies in its potential to reduce treatment burden, improve adherence, and decrease healthcare utilization. As severe asthma management evolves, depemokimab represents a promising patient-centered option, although optimal patient selection and long-term outcomes require further investigation.

Keywords: Depemokimab; Interleukin-5; Long-acting biologic therapy; Severe eosinophilic asthma; Sustained eosinophil suppression.

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.

- 14 references
- 1 figure

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Cite

13

BMC Pulm Med

-
-
-

. 2026 Jul 7.

doi: 10.1186/s12890-026-04454-1. Online ahead of print.

Study protocol: a 52-week, multicentre, observational, prospective study on the use of a smart platform connected to a single-inhaler triple therapy (ICS/LABA/LAMA) to evaluate effectiveness on treatment adherence and inhaler technique in patients with poorly controlled asthma

Jonas Aggerholm Baekdal [1], Nicolai Krogh [2], Gajanan Sakhare [3], Elisabeth Bendstrup [4 5], Charlotte Suppli Ulrik [6 7], Johannes Martin Schmid [8 9]

Affiliations Expand

- **PMID: 42414967**
- **DOI: 10.1186/s12890-026-04454-1**

Free article

Abstract

Background: Good adherence to controller medication and correct inhaler technique is essential for effective asthma management. However, many patients struggle with these aspects, leading to poor symptom control and a higher risk of

exacerbations. This study (SiASMARTer) aims to evaluate the impact of the SiA®SMARTer platform - a digital smart platform consisting of an app and an add-on module connected to a pressurized metered-dose inhaler delivering triple therapy (ICS/LABA/LAMA) - on improving adherence and inhaler technique in patients with poorly managed inflammation in asthma (defined as fractional exhaled nitric oxide [FeNO] > 25 ppb).

Methods: This observational study will enrol 60 patients from two sites in Denmark. At baseline, participants will begin using the SiA®SMARTer platform, which includes, on the patient side a smart inhaler cap, a patient app and on the physician side a dashboard. The primary endpoint, with follow-up at 12 and 52 weeks, is the platform's effect on FeNO levels. Secondary endpoints will include changes from baseline in treatment adherence and inhaler technique scores, Asthma Control Test scores, Mini Asthma Quality of Life Questionnaire scores, lung function parameters, FeNO category distribution, exacerbation rates, short-acting β2-agonist use, and patient-reported satisfaction with the SiA®SMARTer platform. Data on adherence and inhaler technique will be continuously collected through the SiA®SMARTer platform, and adverse events will be monitored.

Discussion: This study may offer valuable insights into whether a digital platform can enhance adherence and inhaler technique, and by that improve asthma control. Additionally, it may help discriminate patients requiring therapy escalation from those with poor control due to non-adherence or incorrect inhaler technique.

Trial registration: ClinicalTrials.gov identifier: NCT06908421, Registration date: 2025-03-26.

Keywords: Asthma control; Asthma management; Digital health; Inhaler technique; Smart inhaler; Smart platform; Treatment adherence; single-inhaler triple therapy (ICS/LABA/LAMA).

Conflict of interest statement

Declarations. Ethics approval and consent to participate: A pre-assessment was conducted to determine whether the SiA®SMARTer platform was classified as a medical or non-medical device by the Danish Medicines Agency (DMA). As it was classified as a non-medical device, ethical approval for the present observational study was obtained from The Regional Committees on Health Research Ethics for Central Denmark Region (approval number: 1-10-72-193-23). Individual written informed consent will be obtained from each study participant before enrolment. The study will be conducted in accordance with Good Clinical Practice (GCP) guidelines, the Declaration of Helsinki, and the regulatory requirements of Denmark. Permission to use the ACT (Asthma Control Test) was granted by IQVIA Inc., and all licensing and permission requests should be directed to IQVIA Inc. at COAsolutions@iqvia.com. Consent for publication: Not applicable. Competing interests: JAB has received fees for lectures from Novo Nordisk and travel/conference grant from Chiesi Pharma outside the submitted work. NK is employed by Chiesi Pharma AB Nordics, the sponsor of the study. GS is cofounder of Briota ApS, providing the SiA®SMARTer platform for the study. EB declare no competing interest regarding this project. CSU has received fees for lectures, participation in advisory boards etc. from Chiesi, AstraZeneca, GSK, TEVA, Pfizer,

Sanofi, IQVIA, Takeda, Roche, Novo Nordisk, Hikma Pharmaceuticals, Berlin Chemie, Boehringer Ingelheim, TFF Pharmaceuticals and Novartis outside the submitted work. JMS has no conflicts of interest regarding this project.

Supplementary info

Associated data, Grants and fundingExpand

Full text links

Cite

14

J Allergy Clin Immunol Pract

.

.

.

. 2026 Jul 7:S2213-2198(26)00540-4.

doi: 10.1016/j.jaip.2026.06.041. Online ahead of print.

Combined large and small airway obstruction is associated with increased exacerbation frequency and poorer symptom control in persistent asthma

Samruddhi Lele [1], Anu Pillai [1], Musab Quayum [1], Michael E Wechsler [2], Praveen Akuthota [3], Ronald J Dandurand [4], Richard Hammond [1], Atanu Bhattacharjee [1], Francesco Menzella [5], Remo Poto [6], Pasquale Comberiati [7], Alvise Berti [8], Carlo Lombardi [9], Stanley P Galant [10], Ophir Freund [11], Laura Ventura [12], Andrea Portacci [13], Giovanna Elisiana Carpagnano [13], Valeria Ortolani [14], Brian Lipworth [1], Salman Siddiqui [15], Marcello Cottini [16], Rory Chan [17]

Affiliations Expand

- PMID: 42413614

- DOI: 10.1016/j.jaip.2026.06.041

Abstract

Background: Spirometry remains central to the assessment of asthma but may fail to detect small airways dysfunction (SAD), which contributes to considerable symptoms and exacerbation risk.

Objective: We investigated whether integrating oscillometry with spirometry improves physiological phenotyping and risk stratification in asthma.

Methods: In this retrospective multicentre study, data from 1,497 adults with asthma were analysed from the Oscillometry Asthma Registry (OAR). SAD was defined using the (Rrs5-20)/Rrs5 ratio ≥19%, and airflow obstruction as FEV_1/FVC <70%. Participants were categorised into four mutually exclusive groups: (a) Group 1 - normal oscillometry and normal spirometry; (b) Group 2 - abnormal oscillometry with normal spirometry; (c) Group 3 - normal oscillometry with abnormal spirometry; and (d) Group 4 - abnormal oscillometry and abnormal spirometry. Associations with symptom control, exacerbations, and type 2 inflammatory biomarkers were assessed using multivariable logistic regression.

Results: For ≥1 exacerbation, the adjusted odds ratio (aORs) (95%CI) for Group 4 were: versus Group 1 3.19 (2.31,4.42); versus Group 2 1.99 (1.46,2.74); and versus Group 3 1.59 (1.07;2.37). Corresponding aOR values for Group 3 were: versus Group 2 1.26 (0.85,1.86); and versus Group 1 2.01 (1.37;2.94). The aOR for ≥1 exacerbation for Group 2 versus Group 1 was 1.60 (1.18,2.16). Results were similar when using FEV_1/FVC <LLN instead of traditional predicted values.

Conclusion: The combined use of oscillometry and spirometry identifies distinct physiological phenotypes of asthma with clinically meaningful differences in symptom burden and exacerbation risk.

Keywords: asthma; exacerbations; oscillometry; spirometry; symptoms.

15

J Asthma

-
-
-

. 2026 Jul 7:1-8.

doi: 10.1080/02770903.2026.2696582. Online ahead of print.

Impact of biologic therapy on ICS/LABA adherence in severe asthma: assessment of inhaler therapy adherence remains imperative

L Bult [1 2], S van Deelen [1 2 3], M S van Daalen [4], B W A van Deurzen [1 5 6 7], G J Braunstahl [1 2], E C Vasbinder [8], J C C M In 't Veen [1 2]

Affiliations Expand

- **PMID: 42411281**

- DOI: 10.1080/02770903.2026.2696582

Abstract

Rationale: Poor adherence to inhaled corticosteroids (ICSs) is often overlooked in severe asthma (SA), yet remains critical for treatment success. This study assesses electronically measured ICS/long-acting-beta-agonist (LABA) adherence and inhalation technique after biologic initiation in SA patients.

Methods: This study is a sub-study derived from the EXACT@home study, a prospective, single-center randomized control trial. ICS/LABA treatments for SA patients initiating biologic therapy were switched to BF-Digihaler (Teva®), a digital inhaler containing budesonide/formoterol, to monitor adherence and technique over a 6-month period. Adequate adherence was defined as using the correct dosage and achieving adequate inhalation flow on ≥80% of days, excluding underuse and overuse.

Results: Fourteen patients were included (mean age 54 ± 11 years; 35.7% female). Median weekly adherence was 100% [43-100%] at baseline (week 2) and decreased to 73% [40-100%] at follow-up (week 27) (p = 0.153). Four patients had a weekly adherence rate below 80% at baseline, and seven had a rate below 80% at follow-up. A decrease in adherence of ≥10% was observed in six patients. There was a significant positive correlation between adherence and ACQ at follow-up (Spearman's ρ = 0.698, p = 0.006). Decrease in adherence was primarily due to reduced medication use, rather than worsened inhalation technique.

Conclusions: Even among patients with SA who have started biologic therapy, adherence to ICS/LABA is crucial in treatment optimization and may decrease over time. This highlights the importance of ongoing adherence monitoring and support following biologics initiation to ensure optimal asthma control in SA patients.

Keywords: Asthma; E-Health; ICS/LABA; adherence; biologics; digital inhaler; treatment optimization.

16

Allergy

-
-
-

. 2026 Jul 6.

doi: 10.1111/all.70439. Online ahead of print.

Route of Allergen Immunotherapy: A Global Look Into Physicians' Motivations

Carmen Vidal [1], Davide P Caimmi [2], Pablo Rodriguez Del Rio [3], Óscar Lado-Baleato [4], Francisco Gude [5], Pilar Rico-Nieto [6], Thomas B Casale [7], Jorge A Aguilar [8], Maryam Ali Al-Nesf [9], Fatima Ashkanani [9], Adeeb Bulkhi [10], Juan C Cardet [11], Claudia Almendarez [12], Silvia Caimmi [13], Iván Cherrez [14 15 16], Enza D'Auria [17], Stephanie Dramburg [18], Motohiro Ebisawa [19], Naoko Fusayasu [19], Maximiliano Gomez [20], Sandra Gonzalez-Diaz [21], Carla Irani [22], Andrey Kamaev [23], Connie Katelaris [24], Narinder Kaur [25], Oksana KurBacheva [26], José I Larco [27], Désirée Larenas-Linnemann [28], Margaret Li [29], Olga Patricia Monge-Ortega [30], Pablo Moreno [31], Oliver Pfaar [32], Cesar F Pozo-Beltrán [33], Marta E Rubio [34], Jorge Sanchez [35], Giovanni Sedo [36], Silvia Uriarte [37], Lin Yang [38], Hao Chen [38], Rongfei Zhu [38], Pascal Demoly [39], Moises A Calderon [40]; CHOICE-Global Survey Team

Affiliations Expand

- PMID: 42410948

- DOI: 10.1111/all.70439

Abstract

Background: Current Allergen Immunotherapy (AIT) guidelines provide no definitive guidance on route selection, whether subcutaneous (SCIT) or sublingual (SLIT). The primary objective of this study was to characterize real-world AIT prescription patterns, with emphasis on route selection, using a factor analysis approach in a large international cohort.

Methods: The CHOICE study is a real-life, multicentre, international, observational, cross-sectional web-based survey conducted across 20 countries between November 2019 and April 2024. Participating doctors completed standardized questionnaires for each consecutive AIT prescription. Thirteen patient-related and product-related parameters were analyzed using exploratory and confirmatory factor analysis. Latent factors identified were subsequently incorporated into multivariate mixed logistic regression models with country and physician nested within country as random intercepts.

Results: Data from 467 physicians and 11550 patients were analyzed; 60.0% of prescriptions were SCIT and 40.0% were SLIT. Three latent factors were identified: (F1) Scientific and clinical evidence-Based; (F2) Resource and access optimisation; and (F3) Tailored for the patient and their lifestyle. When country was modeled as a random intercept, all three factors were significantly associated with SLIT prescription. After adjustment for both country and physician, F2 was associated with reduced probability of SLIT prescription (OR 0.42; 95% CI 0.31, 0.59), while F3 was strongly associated with an increased probability of SLIT prescription (OR 10.90; 95% CI 7.20, 16.57). Variability attributable to country (ICC 0.86) and physician (ICC 0.74) was high.

Conclusions: Patient-centred considerations increase the likelihood of SLIT use while considering the cost of the treatment increases the likelihood of SCIT use. Substantial variability in AIT route selection is attributable to country- and physician-level factors.

Keywords: SCIT (subcutaneous immunotherapy); SLIT (sublingual immunotherapy); allergen immunotherapy; asthma; factor analysis; preferences; rhinitis.

- **50 references**

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

17

Allergy Asthma Clin Immunol

-
-
-

. 2026 Jul 6.

doi: 10.1186/s13223-026-01045-x. Online ahead of print.

The acuity of paediatric asthma in the emergency department worsened after the COVID-19 pandemic in Alberta, Canada

Behzad Heibati [1], Amanpreet Gill [2], Jalal Moolji [# 1], Adil Adatia [# 3]

Affiliations Expand

- **PMID: 42410629**

- **DOI: 10.1186/s13223-026-01045-x**

Free article

Abstract

Background: Asthma affects about 13% of Canadian children and is a common reason for emergency department (ED) visits or hospitalization. The COVID-19

pandemic significantly impacted the health care utilisation of children with asthma. The aim of this study was to investigate how paediatric ED visits were influenced by the pandemic.

Methods: We conducted a retrospective study examining asthma ED visits, admission rates, and presentation acuity for children 2 to 17-years-old from 2011 to 2024. Presentation acuity was determined using Canadian Triage and Acuity Scale (CTAS). Data were collected from the Government of Alberta Interactive Health Data Application and the Alberta Health Services aggregated administrative database. Data were analysed graphically. Interrupted time series (ITS) analysis of monthly ED visits and admissions, with March 2020 as the intervention point.

Results: The mean daily incidence of ED visits remained at 5-10 per million per year for ages 2-12 years, and under 5 per million per year for ages 13-17 years, except for a transient interruption in the early pandemic, in 2020. Following this interruption, the pre-existing trend to worsening acuity and greater rates of hospitalization accelerated in the late pandemic. The acuity and hospitalization rates have remained elevated in the post-pandemic years. Emergency medical services (EMS) visits increased substantially across paediatric subgroups in 2024, ranging from 1.53× to 2.26× higher among children aged 2-12 years compared with pre-pandemic levels. ITS analysis showed a significant immediate decrease in ED visits and admissions, followed by a positive post-intervention slope, indicating gradual recovery over time.

Conclusion: Pre-existing trends in paediatric asthma exacerbations worsened in the years following 2020. Although the incidence of ED visits did not substantially increase, children were more likely to have severe exacerbations and require hospitalization in the late pandemic and post-pandemic years relative to pre-pandemic years.

Keywords: Asthma; COVID-19; Emergency department; Healthcare utilisation; Paediatrics.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The data were publicly available and research ethics approval was not required. Consent for publication: Not applicable. Competing interests: AA reports conference travel support and/or honoraria from AstraZeneca, Covis Pharma, and GSK, and clinical trial support from AstraZeneca, outside of the submitted work. JM declares honoraria from the Canadian Society of Allergy and Clinical Immunology and Catalytic Health, outside of the submitted work.

Full text links

BMC Pulm Med

-
-
-

. 2026 Jul 6.

doi: 10.1186/s12890-026-04472-z. Online ahead of print.

Characterization of mucus plugging in patients with chronic obstructive pulmonary disease: additional clinical significance of asthma-like features

Kaoruko Shimizu [1], Naoya Tanabe [2], Susumu Sato [2], Shotaro Chubachi [3], Kazuya Tanimura [4], Naoya Fujino [5], Hiroaki Iijima [6], Nobuyasu Wakazono [7], Isao Yokota [8], Yuki Abe [7], Keisuke Kamada [7], Sho Nakakubo [7], Hirokazu Kimura [7], Houman Goudarzi [7], Takeshi Hattori [9], Ichizo Tsujino [7], Hironi Makita [10], Masaharu Nishimura [10], Satoshi Konno [7]

Affiliations Expand

- PMID: 42410587

- DOI: 10.1186/s12890-026-04472-z

Free article

Abstract

Background: Asthma-like features, defined as a high blood eosinophil count (BEC), atopy, and bronchodilator reversibility, characterize patients with chronic obstructive pulmonary disease (COPD) under optimal treatment. However, whether these features contribute to the phenotype of mucus plugging has not been elucidated. In this study, we aimed to examine the functional and clinical outcomes related to mucus plugging in patients with and without asthma-like features.

Methods: Mucus plug score was assessed using inspiratory computed tomography (CT) scans in participants from the Hokkaido COPD cohort study who underwent CT examinations using the same protocol, were categorized based on asthma-like features, and completed the St. George's Respiratory Questionnaire (SGRQ). To evaluate the association between mucus plug score and pulmonary function indices, multivariate analyses were performed to examine the relationships between the mucus plug score and percent predicted forced expiratory volume in 1 s (%FEV_1) or residual volume (RV)/total lung capacity (TLC). These analyses were adjusted for BEC or CT-derived airway indices (total airway wall volume, functional small airway disease, and emphysema index) based on asthma-like feature categorization, in addition to univariate analyses.

Results: The mucus plug score was negatively associated with %FEV_1 and FEV_1/forced vital capacity in patients with (N = 45) and without (N = 46) asthma-like features and was positively associated with RV/TLC in those without asthma-like features. As the mucus plug score increased, the SGRQ score worsened in both

groups. Multivariate analysis revealed a correlation between mucus plug score and RV/TLC (estimate [95% confidence interval], 1.27 [0.30, 2.25]), but not %FEV_1, in patients without asthma-like features, and between mucus plug score and %FEV_1 (-1.26 [- 2.33, - 0.20]), but not RV/TLC, in patients with asthma-like features, after adjusting for proximal airway, small airway, and emphysema indices.

Conclusions: Asthma-like features may differentiate the functional role of mucus plugging observed on CT scans in patients with COPD. Further studies are needed to validate these findings and clarify the underlying pathophysiology for improved disease management.

Keywords: Asthma; Chronic obstructive pulmonary disease; Computed tomography; Eosinophil; Mucus plugging; Percent predicted forced expiratory volume in 1 s; Residual volume; Total lung capacity.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the principles of the Declaration of Helsinki. This study was approved by the Institutional Review Board of Hokkaido University Hospital (reference: med 02 − 001: December 2002, 018–0392:20th of February 2019, 025–0143:12th of August 2025). Written informed consent to participate was obtained from all of the patients in the original study including all the patients involved in the current study. The protocol of the current study was informed via the internet for the patients, based on the instructions of an Institutional Review Board. Consent for publication: Not applicable. Competing interests: The authors report the following: K.S. was supported by grants from Daiwa Health Development, Inc. and received honoria from AstraZeneca, outside the submitted work. N.T. was supported by grants from FUJIFILM Co., Ltd. and Daiichi Sankyo Co., Ltd., and received honoraria from GlaxoSmithKline K.K, outside the submitted work. K.T. received honoria from AstraZeneca.N.F. reveived honoria from AstraZeneca and Sanofy Co. Ltd. outside the submitted work I.T. was supported by grants from Mochida Pharmaceuticals K.K., Nippon Shinyaku Co., Ltd., Nippon Boehringer Ingelheim Co., Ltd., Medical System Network Co., Ltd., Kaneka Corp., and Takeyama Co., Ltd., and received honoraria from Nippon Shinyaku Co., Ltd. and Janssen Pharmaceutical K.K. outside the submitted work. S.M. was supported by grants from ROHTO Pharmaceutical Co., Ltd. and FUKUDA Life Tech Co., Ltd., and received honoraria from Nippon Boehringer Ingelheim Co., Ltd., AstraZeneca, and GlaxoSmithKline outside the submitted work.S.S. was supported by grants from Nippon Boehringer Ingelheim Co., Philips-Respironics, Fukuda Denshi, Fukuda Lifetec Keiji, and ResMed outside the submitted work. S.K. was supported by grants from Mochida Pharmaceuticals K.K., Nippon Shinyaku Co., Ltd., Nippon Boehringer Ingelheim Co., Ltd., Medical System Network Co., Ltd., Kaneka Corp., Takeyama Co., Ltd., and Novartis, and received honoraria from AstraZeneca and KYORIN Pharmaceutical outside the submitted work. None of these companies played a role in the design or analysis of the study or in the writing of the manuscript. N.W.,S.C., H.I., ,I.Y., Y.A., K.K., S.N., H.M., and M.N. declare no conflict of interest.

Full text links

Proceed to details

Cite

19

Br J Clin Pharmacol

-
-
-

. 2026 Jul 6.

doi: 10.1002/bcp.70666. Online ahead of print.

Pharmacokinetics and safety of tezepelumab in children with mild, moderate or severe asthma and adolescents with mild-to-moderate asthma

Anna Lundahl [1], Jonathan Grigg [2], Lubna Abuqayyas [3], Piotr Kuna [4], Gillian Hunter [5], Beata Pawlikowska [6], Jacob Leander [1], Michael Levin [7], Atul Gupta [8 9], James Paton [10], Katharine C Pike [11], Jane R Parnes [12], Gun Almqvist [13], Stephanie L Roseti [14]; study investigators

Affiliations Expand

- PMID: 42409576

- DOI: 10.1002/bcp.70666

Abstract

Aim: Tezepelumab is a human monoclonal antibody that blocks the activity of thymic stromal lymphopoietin and is approved for adolescents and adults with severe asthma. This analysis assessed pharmacokinetics (PK), pharmacodynamics and safety of tezepelumab up to 85 days postdose in adolescents and children.

Methods: The adolescent PK study (NCT02512900), in adolescents aged 12-17 years with mild-to-moderate asthma, and TRAILHEAD (NCT04673630), in children aged 5-11 years with mild, moderate or severe asthma, were both open-label, single-dose, Phase 1 studies.

Results: In the adolescent PK study, 21 adolescents (median age: 14 years) received a single 140-mg subcutaneous tezepelumab dose. The mean maximum concentration (C_{max}; 24.0 [SD: 6.6] µg/mL) was observed at a median time of 6 (range: 1-20) days postdose, with a mean terminal half-life of 25.3 (SD: 4.7) days. The mean area under the concentration-time curve ($AUC_{0\text{-infinity}}$) was 952 (SD: 289) µg*day/mL. In TRAILHEAD, 18 children (median age: 8 years) received a single 70-mg subcutaneous tezepelumab dose. The C_{max} (27.1 µg/mL [SD: 11.9]) was observed at a median time of 3.5 (range: 2-10) days postdose, with a mean terminal half-life of 25.7 (SD: 5.9) days. The mean $AUC_{0\text{-infinity}}$ was 974 (SD: 320) µg*day/mL. Changes from baseline in blood eosinophil count, fractional exhaled nitric oxide and serum

immunoglobulin E (IgE) reflected expected pharmacodynamic effects of tezepelumab. No new safety signals were identified.

Conclusions: These results were consistent with previous studies of tezepelumab in other groups, supporting development of tezepelumab for asthma in the paediatric population.

Keywords: adolescents; asthma; paediatric population; pharmacodynamics; pharmacokinetics; tezepelumab.

- 32 references

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

20

Review

Lancet Respir Med

-
-
-

. 2026 Jul 6:S2213-2600(26)00143-8.

doi: 10.1016/S2213-2600(26)00143-8. Online ahead of print.

Asthma diagnosis in adults and children: challenges, future directions, and a call to action

Wafa Hassan [1], Ran Wang [2], Ahmed Mohammedalhadi [3], Huda Badri [2], Luke Daines [4], Shawn D Aaron [5], Erol A Gaillard [6], Stephen J Fowler [2], Imran Satia [7]

Affiliations Expand

- PMID: 42409035

- DOI: 10.1016/S2213-2600(26)00143-8

Abstract

Asthma is the most common chronic airway disease worldwide, imposing substantial clinical, societal, and economic burden. Asthma is generally defined as a heterogeneous clinical syndrome characterised by fluctuating respiratory symptoms and variable expiratory airflow limitation. Despite this definition, asthma misdiagnosis remains high; 20-70% of individuals with asthma remain undiagnosed and untreated, and approximately 30% of those labelled as having asthma do not have the disease. Objective evidence, alongside variability of symptoms, is essential to support a diagnosis of asthma. However, international guidelines vary in the selection, sequencing, and interpretation of diagnostic tests, reflecting differences in methodology, health-care infrastructure, test availability, and health-economic considerations. Demonstration of variable expiratory airflow remains central to most pathways, whereas guidance on type 2 inflammatory biomarkers is inconsistent. No single test reliably confirms or excludes asthma, necessitating multi-test diagnostic approaches. Implementing guideline recommendations in routine practice is challenging. Barriers include temporal variability of symptoms and physiology, insufficient patient symptom recognition, restricted access to objective testing, and the presence of multimorbidity. This Personal View summarises the similarities and differences in diagnostic pathways across major guidelines, examines the challenges of applying these recommendations, and looks to future developments and potential solutions. We call for a coordinated international effort to advance diagnostic innovation and generate the high-quality evidence needed to transform asthma diagnosis.

Conflict of interest statement

Declaration of interests WH reports consultation fees from GSK. EAG reports research collaboration with Astra Zeneca, Helicon Health, and Adherium; speaker fees Circassia Group, Sanofi, and Thorasys; institutional research funding from the Wellcome Trust, National Institute for Health and Care Research, UK Research and Innotivation (formally SBRI), European Respiratory Society, University of Leicester, Midlands Asthma and Allergy Research Association, and Leicestershire and Rutland integrated Care Board; and has received personal honoraria from Circassia and Sanofi and institutional honoraria from Thorasys. EAG is an unpaid Chair of the Paediatric Asthma and Allergy Assembly of the European Respiratory Society. SJF received research grant funding from National Institute for Health and Care Research, North-West Lung Centre Charity, and Asthma + Lung UK. SJF was the adult topic advisor to National Institute for Health and Care Excellence for the British Thoracic Society–National Institute for Health and Care Excellence–Scottish Intercollegiate Guidelines Network 2024 asthma guidelines. RW receives grants from Asthma + Lung UK and National Institute for Health and Care Research. LD reports travel reimbursement from the European Respiratory Society for chairing Congress sessions (2025) and an unpaid role as Secretary of the European Respiratory Society Primary Care Group. SDA reports advisory board participation for AstraZeneca, GSK, Sanofi/Regeneron, and Methapharm. IS reports grants from Merck, MITACS, GSK, Bellus, Trevi Therapeutics, Bayer, Genentech, Nocion; personal speaker fees from Merck, GSK, AstraZeneca, Sanofi-Regeneron, Vitalograph, and Boehringher Ingelheim; and consulting fees from Merck,

Genentech, Respiplus, GSK, Bellus, Sanofi-Regeneron, Methapharm, and Nocion, outside the submitted work. IS was also a member of the European Respiratory Society taskforce for the Diagnosis of Asthma in Adults 2022. RW, SJF, and HB are supported by the Manchester National Institute for Health and Care Research Biomedical Research Centre (BRC-1215-20007 and NIHR203308). RW's salary is supported by National Institute for Health and Care Research Clinical Lectureship (CL-2023-06-003). IS is supported by the Canada Research Chair programme. AM declares no competing interests.

Supplementary info

Publication typesExpand

Full text links

Proceed to details

Cite

21

Ann Intern Med

-
-
-

. 2026 Jul 7.

doi: 10.7326/ANNALS-26-02405-JC. Online ahead of print.

In patients with asthma, macrolides vs. placebo or standard care reduce severe exacerbations and improve symptom control at ≤48 wk

Guy W Soo Hoo [1]; ACP Journal Club Editorial Team at McMaster University

Affiliations Expand

- PMID: 42407070

- DOI: 10.7326/ANNALS-26-02405-JC

Abstract

GIM/FP/GP: [Formula: see text] Allerg & Immunol: [Formula: see text] Pulmonology: [Formula: see text].

Conflict of interest statement

Disclosures: Disclosure form is available with the article online.

Cite

22

J Exp Med

.

.

.

. 2026 Aug 3;223(8):e20252201.

doi: 10.1084/jem.20252201. Epub 2026 Jul 6.

Chimeric allergen receptor regulatory T cells suppress birch pollen allergic airway inflammation

Ana Alcaraz-Serna [1], Noémie Chillier [#1], Aurélien Trompette [#2], Laura Ermellino [1], Raphaël Porret [1], Erica Lana [1], Rebecca Cecchin [1], Apiha Shanmuganathan [2], Seher Guney [2], Oscar Alfageme-Abello [1], Eleonora Pace [1], Antonio Mancarella [1], Jeremy Campos [1], Mathilde Foglierini [1], Christophe von Garnier [2], Craig Fenwick [1], Laurent Perez [1 3], Niki Ubags [2], Yannick D Muller [1 3]

Affiliations Expand

- PMID: 42405950
- PMCID: PMC13335422
- DOI: 10.1084/jem.20252201

Abstract

Asthma is a deadly chronic respiratory disease affecting over 300 million people. While allergen immunotherapy remains the only disease-modifying treatment, it is poorly applicable for patients with severe asthma. Here, we explored the therapeutic potential of regulatory T cells (Tregs) armed with chimeric allergen receptors-named CAlleR-redirected against the major allergen of birch pollen Bet v1. Four novel anti-Bet v1 antibodies were identified and used to engineer and functionally validate CAlleR. CAlleR Tregs showed specific in vitro activation and suppression and significantly reduced the airway hyperresponsiveness in birch pollen-sensitized mice. Mechanistically, CAlleR Tregs migrated to the lungs and mediastinal lymph nodes, interacted with CD11c+ dendritic cells, and were activated in a FcγR-dependent manner by cross-presenting Bet v1 stabilized with noncompetitive anti-

Bet v1 antibodies. These findings unveil a novel mechanism for targeting soluble antigens and highlight the potential of CAlleR Tregs to prevent and treat severe allergies.

Conflict of interest statement

Disclosures: A. Alcaraz-Serna reported personal fees from Novartis AG outside the submitted work. An international patent application entitled “CHIMERIC ALLERGEN RECEPTOR (CAlleR) REGULATORY T CELLS” has been filed and is currently pending. The authors declare that the research was conducted in the absence of any other commercial or financial relationships that could be construed as a potential conflict of interest.

- **54 references**
- **14 figures**

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

Full text links

Proceed to details

Cite

23

Review

Br J Pharmacol

-
-
-

. 2026 Jul 5.

doi: 10.1111/bph.70562. Online ahead of print.

The discovery and development of ensifentrine: A novel inhaled dual PDE3/4 inhibitor having 'bifunctional' bronchodilator and anti-inflammatory activity

Clive Page[1]

Affiliations Expand

- **PMID: 42402420**

- DOI: 10.1111/bph.70562

Abstract

Ensifentrine (formerly called RPL 554) is a novel, first in class, inhaled bifunctional dual PDE3/4 inhibitor for the treatment of chronic respiratory diseases. Ensifentrine exhibits both bronchodilation via PDE3 inhibition and anti-inflammatory activity via PDE4 inhibition. Following extensive preclinical and clinical investigations, ensifentrine was recently approved by the FDA as a treatment for patients with chronic obstructive pulmonary disease (COPD). It is anticipated that this novel drug will provide a useful addition to the available treatments for pulmonary diseases.

Keywords: COPD; RPL554; airways inflammation; asthma; ensifentrine; phosphodiesterase inhibitor; respiratory disease.

- 45 references

Supplementary info

Publication types, Grants and fundingExpand

Full text links

Proceed to details

Cite

24

Med Lett Drugs Ther

-
-
-

. 2026 Jul 6;68(1758):108-109.

doi: 10.58347/tml.2026.1758c.

Breztri Aerosphere for asthma

No authors listed

- PMID: 42348772

- DOI: 10.58347/tml.2026.1758c

No abstract available

Keywords: Breztri Aerosphere; Dupixent; Trelegy Ellipta; adverse effects; asthma; budesonide; dosage; drug interactions; dupilumab; efficacy; fluticasone; formoterol; glycopyrrolate; lactation; pregnancy; safety; umeclidinium; vilanterol.

25

Clin Infect Dis

-
-
-

. 2026 Jul 8;82(6):e1375-e1383.

doi: 10.1093/cid/ciag095.

Age-Specific Risk of Herpes Zoster in Adults Aged ≥18 Years With Comorbid Conditions-A Retrospective Cohort Study in the United States

Rachel A Cohen [1], Driss Oraichi [1], Agnes Mwakingwe-Omari [1], Bruno Anspach [1], Desmond Curran [2], Huifeng Yun [1]

Affiliations Expand

- **PMID: 41888022**
- **PMCID: PMC13341258**
- **DOI: 10.1093/cid/ciag095**

Abstract

Background: Older (≥50 years of age [YoA]) and immunocompromised adults are at higher risk of herpes zoster (HZ). Those with comorbidities are also at increased risk, however, recent US evidence is lacking, especially among 18-49 YoA.

Methods: This US retrospective cohort study (2015-2022, Merative MarketScan Commercial and Medicare Supplemental) compared HZ incidence rates (IRs) in younger immunocompetent adults (18-49 YoA) with comorbidities (asthma, chronic kidney disease [CKD], chronic obstructive pulmonary disease [COPD], depression, diabetes, stress, and trauma) versus immunocompetent adults 50-59 YoA without

comorbidities. Adjusted HZ IR ratios (aIRRs) versus 50-59 YoA adults were compared using a predetermined 0.62 non-inferiority margin for the aIRR 95% confidence interval lower limit (95% CI LL). aIRRs were classified as comparable (aIRR 95% CI LL > 0.62 and ≤1.0), significantly higher (aIRR 95% CI LL > 1.0), or inconclusive (any other result). HZ case: diagnostic code B02.2x plus oral antiviral ±7 days. Sensitivity analyses investigated HZ IRs by number of comorbid conditions (1, 2, or ≥3).

Results: HZ IRs were significantly higher (aIRR 95% CI LL > 1.0) from 30 to 39 YoA (aIRR; 95% CI) in asthma (1.19; 1.10-1.29), COPD (1.31; 1.22-1.40), depression (1.31; 1.22-1.40), diabetes (1.18; 1.06-1.32), stress (1.28; 1.11-1.47), and trauma (1.25; 1.17-1.34) populations than immunocompetent 50-59 YoA and from 50 to 59 YoA in CKD (1.50; 1.28-1.77). In sensitivity analyses, HZ IR appeared to increase with more comorbid conditions and age.

Conclusions: The study found that younger adults (30+ YoA) with certain comorbidities have a higher HZ risk than immunocompetent 50-59 YoA adults.

Keywords: United States; adult; comorbidity; herpes zoster; incidence.

Conflict of interest statement

Potential conflicts of interest . R. A. C., D. O., A. M.- O., B. A., and H. Y. are employed by GSK. R. A. C., D. O., A. M.- O., B. A., D. C., and H. Y. hold financial equities in GSK. R. A. C. declared support for business travel as a GSK employee. D. C. was employed by GSK at the time of the study. The authors declare no other financial and nonfinancial relationships and activities.

- 25 references
- 6 figures

Supplementary info

MeSH terms, Grants and fundingExpand

Full text links

OXFORD ACADEMIC UNIMORE

Proceed to details

Cite

26

Clin Infect Dis

. 2026 Jul 8;82(6):e1333-e1344.

doi: 10.1093/cid/ciaf710.

Long-term Clinical Outcomes After Hospitalization for Acute Respiratory Illness Due to Respiratory Syncytial Virus

David Singer [1], Yan Wang [2], Elizabeth M La [1], Susan I Gerber [1], Aozhou Wu [2], Keith A Betts [2]

Affiliations Expand

- PMID: 41432364
- PMCID: PMC13341240
- DOI: 10.1093/cid/ciaf710

Abstract

Background: Acute respiratory illnesses (ARIs) can be severe in older adults and adults with chronic conditions. We compared long-term outcomes of United States patients aged ≥50 years with ≥1 hospitalized ARI due to respiratory syncytial virus (RSV-ARI cohort) versus controls without ARI (control cohort) and patients with ≥1 hospitalized influenza-ARI (influenza-ARI cohort).

Methods: This retrospective study used 1 October 2015-30 June 2023 claims data to evaluate clinical outcomes across the three cohorts. The index date was defined as the start of an ARI episode. Cumulative incidence functions assessed risks of readmission, all-cause mortality, myocardial infarction (MI), asthma and chronic obstructive pulmonary disease (COPD) exacerbation, and hospitalization due to heart failure (HHF); adjusted risks were compared using multivariable regression models.

Results: A total of 14 759, 77 468, and 73 795 patients were selected into the RSV-ARI, influenza-ARI, and control cohorts, respectively. The RSV-ARI cohort had a substantially higher adjusted risk of all-cause mortality than controls, with the highest adjusted hazard ratio (95% confidence interval) 0-30 days post-index (10.772 [9.190, 12.627]). MI risk followed a pattern similar to all-cause mortality. Adjusted risks of asthma exacerbation, COPD exacerbation, and HHF were significantly higher in the RSV-ARI cohort than controls, and similar between RSV-ARI and influenza-ARI cohorts.

Conclusions: RSV-ARI had considerable long-term impact on clinical outcomes, with measurable increases in outcomes associated with RSV-ARI when compared with controls, and similar outcomes compared to influenza-ARI. These findings can inform RSV prevention efforts and support future research on the long-term impact of RSV.

Keywords: acute respiratory illness; clinical outcomes; hospitalization; older adults; respiratory syncytial virus.

Conflict of interest statement

Potential conflicts of interest. D. S. and E. M. L. are employed by GSK and hold financial equities in GSK. Y. W., A. W., and K. A. B. are employees of Analysis Group, which was paid by GSK to conduct this study. S. I. G. is employed by GSK.

- 29 references
- 8 figures

Supplementary info

MeSH termsExpand

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

1

Allergy Asthma Clin Immunol

-
-
-

. 2026 Jul 11.

doi: 10.1186/s13223-026-01054-w. Online ahead of print.

Efficacy and safety of the tree sublingual immunotherapy tablet in the subpopulation of Canadian children with allergic rhinitis and/or conjunctivitis: phase III trial results

Rémi Gagnon [1], Terrie Dalgaard [2], Gry Schermann Ortving [2], Monika Gappa [3], Hendrik Nolte [4]

Affiliations Expand

- PMID: 42432760

- DOI: 10.1186/s13223-026-01054-w

Abstract

Background: Pollen from birch and other trees in the birch homologous group (e.g., oak) is a common trigger of allergic rhinitis and/or conjunctivitis (AR/C) in Canada. The efficacy and safety of the tree sublingual immunotherapy (SLIT)-tablet in children with AR/C was evaluated post hoc in the Canadian subpopulation of a phase III, double-blind trial (EudraCT2020-004372-17).

Methods: Children and adolescents aged 5-17 years with moderate-to-severe tree AR/C were randomized to either daily tree SLIT-tablet or placebo for up to 52 weeks. Participants had free access to symptom-relieving medication. The primary endpoint was the average total combined score (TCS; sum of rhinoconjunctivitis daily symptom score [DSS] and daily medication score [DMS]) during birch pollen season (BPS). Average TCS during tree pollen season (TPS, consisting of birch, alder, hazel, and oak pollen seasons), oak pollen season (OPS), and pure OPS (excluding days from birch, alder, or hazel pollen seasons) were also analyzed.

Results: In the Canadian subpopulation (n = 87), treatment with the tree SLIT-tablet reduced the average TCS by 26.8% versus placebo during BPS (absolute difference [95% CI] = 1.89 [-0.71, 4.49], p = 0.138), 32.0% during TPS (absolute difference = 2.14 [-0.03, 4.32], p = 0.042), 46.6% during OPS (absolute difference = 3.70 [0.98, 6.42], p = 0.004), and 50.6% during pure OPS (absolute difference = 4.20 [1.12, 7.27], p = 0.005). Reductions in DSS and DMS with tree SLIT-tablet versus placebo were also observed. In the total trial population (N = 952), tree SLIT-tablet treatment reduced the average TCS by 19.2% versus placebo during BPS (absolute difference = 1.13 [0.42, 1.84], p = 0.002), 16.8% during TPS (absolute difference = 0.76 [0.26, 1.26], p = 0.003), 23.4% during OPS (absolute difference = 1.32 [0.60, 2.05], p < 0.001), and 19.9% during pure OPS (absolute difference = 1.03 [0.27, 1.80], p = 0.009). The tree SLIT-tablet was well tolerated in the total trial and Canadian subgroup populations.

Conclusions: The tree SLIT-tablet demonstrated favorable efficacy and was well tolerated in Canadian children and adolescents with AR/C.

Clinical trial registration: EudraCT 2020-004372-17 and NCT04878354.

Keywords: Allergic rhinitis; Birch; Oak; Pollen; Sublingual immunotherapy; Tablet; Tree.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Written informed consent was obtained from each participant's legal guardian, and the trial was conducted in accordance with the Declaration of Helsinki and Good Clinical Practice. The trial protocol was reviewed and approved by an institutional review board. **Consent for publication:** N/A. **Competing interests:** Rémi Gagnon has conducted research for ALK-Abelló, AstraZeneca, GSK, DBV, Regeneron, Moderna, Novartis, Sanofi, received consultancy fees from ALK, Regeneron, Bausch Lomb, Sanofi-Genzyme, and received lecture fees from Bausch Lomb and Novartis. Monika Gappa has received lecture fees and honoraria from Aimmune, ALK, BerlinChemie, GSK, HAL, Nestle, and Regeneron-Sanofi. Terrie Dalgaard, Gry Schermann Ortving, and Hendrik Nolte are employees of ALK.

Supplementary info

Associated dataExpand

Full text links

Proceed to details

Cite

2

Eur J Pediatr

-
-
-

. 2026 Jul 10;185(8):567.

doi: 10.1007/s00431-026-07225-6.

Prediction of future onset of allergic rhinitis and analysis of risk factors in children with food allergy during infancy

Xiaoxiao Jia [1], Qihong Tao [1], Hao Hu [1], Zhanqing Fu [1], Yuxuan Wu [1], Lu Wang [1], Qiman Xu [1], Weixi Zhang [1], Lei Wang [2]

Affiliations Expand

- PMID: 42429983

- DOI: 10.1007/s00431-026-07225-6

Abstract

The atopic march describes the progression from infantile food allergy (FA) to allergic rhinitis (AR) in later childhood. However, not all children with FA follow this trajectory, and predictors for AR development in this particular cohort remain poorly characterized. This study aims to identify factors influencing AR development in infants with FA and construct a predictive model for clinical application. A prospective cohort included 447 infants (0-2 years) with positive food allergens, followed up to 6 years with questionnaire/clinical data. After preprocessing, feature selection was performed using variance inflation factor (VIF) and Lasso regression. Five machine learning models (logistic regression, SVC, random forest, XGBoost, and KNN) were trained and validated using stratified fivefold cross-validation and an independent test set. In cross-validation, logistic regression achieved the highest mean AUC of 0.9403 (95% CI 0.9040-0.9766), and SVC obtained the best F1 score (0.9341). On the test set (n = 90), logistic regression maintained the highest AUC (0.8466), while random forest achieved a recall of 1.0. The top predictive features identified were parental allergy history, frequency of antibiotic use, cephalosporin use, and daily duration of tobacco smoke exposure.

Conclusion: The machine learning prediction model, particularly logistic regression, shows good practical value for early identification of FA infants at high risk of developing AR. Early avoidance of the identified modifiable risk factors may aid primary and secondary prevention.

What is known: • The atopic march from food allergy (FA) to allergic rhinitis (AR) is well-recognized, yet outcomes are heterogeneous and pediatricians lack validated risk tools for infants with FA.

What is new: • This study identifies three easily assessable predictors (parental AR history, tobacco exposure duration, and antibiotic use frequency) and validates a Multinomial Naive Bayes model (AUC=0.915) that accurately stratifies AR risk in FA children, significantly outperforming traditional regression.

Keywords: Allergic march; Allergic rhinitis; Food allergy; Machine learning; Prospective cohort.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This prospective cohort study was performed in strict accordance with the Declaration of Helsinki and approved by the Ethics Committee of the Second Affiliated Hospital of Wenzhou Medical University and Yuying Children's Hospital (Approval No. 2019-K-339–01). Written informed consent was obtained from the legal guardians of all participants without independent consent capacity before enrollment. Written consent for publication was also obtained from all guardians, and all data were fully anonymized to ensure privacy and confidentiality. Competing interests: The authors declare no competing interests.

- **37 references**

Supplementary info

MeSH termsExpand

Full text links

Cite

3

Review

Otolaryngol Clin North Am

-
-
-

. 2026 Jul 9:S0030-6665(26)00101-5.

doi: 10.1016/j.otc.2026.06.001. Online ahead of print.

Obesity, Weight Loss, and Rhinology and Allergy

Chase Kahn [1], Christopher Roxbury [2], Mohamad R Chaaban [2]

Affiliations Expand

- PMID: 42425811

- DOI: 10.1016/j.otc.2026.06.001

Abstract

Obesity is a common comorbidity in patients with rhinologic and allergic disease. Through adipokine mediated inflammation, emerging evidence has linked obesity with an increased risk and severity of chronic rhinosinusitis, particularly the nasal polyp phenotype. Reduction of body mass through bariatric surgery and pharmacologic interventions, including glucagon-like peptide-1 receptor agonists, have the potential to reduce sinonasal disease burden and improve surgical outcomes. This review synthesizes current evidence surrounding obesity, weight loss, and rhinology and allergy, with an emphasis on clinically actionable implications for the practicing otolaryngologist.

Keywords: Allergic rhinitis; Bariatric surgery; Chronic rhinosinusitis; GLP-1 receptor agonists; Leptin; Nasal polyps; Obesity; Weight loss.

Conflict of interest statement

Disclosure The authors have nothing to disclose.

Supplementary info

Publication typesExpand

Full text links

Cite

4

Review

. 2026 Jul 8:1-15.

doi: 10.1159/000552981. Online ahead of print.

Beyond the Neutrophil Count: Functional Profiling and Targeted Modulation of Neutrophils in Paediatric Care

James Trayer, Lynne A Kelly, Eoghan Dunlea, Dearbhla Byrne, Nicoleta Barbu, Eleanor J Molloy

- PMID: 42418362

- DOI: 10.1159/000552981

Free article

Abstract

Background Neutrophils are the most abundant leukocyte in childhood and form a critical component of innate immunity, particularly in early life when adaptive responses are still maturing. In paediatrics, both quantitative and qualitative disturbances in neutrophil number or function shape susceptibility to infection and inflammatory tissue injury. Emerging data from neonatal, sepsis and allergic cohorts show that paediatric neutrophils exhibit distinct effector profiles and regulatory roles compared with adults, positioning them as central mediators of child health and disease. Summary This review synthesises current understanding of neutrophil biology across key paediatric settings, spanning sepsis, benign transient neutropenia, severe congenital neutropenia, neonatal brain injury and allergic disease. In paediatric sepsis, quantitative and functional neutrophil abnormalities, including impaired trafficking, excess immature forms, dysregulated pattern-recognition signalling and excessive NETosis, contribute both to failure of pathogen control and to organ injury. In childhood neutropenia, transient post-viral marrow suppression contrasts sharply with congenital defects of granulopoiesis, in which G-CSF therapy has transformed survival. Experimental and clinical data in hypoxic-ischaemic neonatal brain injury highlight biphasic neutrophil recruitment, with the initial phase responsible for tissue damage while the later reparative phase is beneficial. Beyond infection, neutrophils emerge as key players in asthma, allergic rhinitis, anaphylaxis and food allergy, where neutrophilic endotypes, IgG-neutrophil pathways and degranulation signatures link environmental exposures, disease severity and treatment response.

Supplementary info

Publication typesExpand

Full text links

Cite

5

Review

Biomark Res

-
-
-

. 2026 Jul 7.

doi: 10.1186/s40364-026-00958-4. Online ahead of print.

The JAK-STAT pathway in allergic diseases: from pathogenesis to targeted therapy

Yu Chen [1], Junying Hu [1], Xingchen Liu [1], Wenqiao Zhou [1], Bing Zhong [2], Feng Liu [3]

Affiliations Expand

- PMID: 42415197

- DOI: 10.1186/s40364-026-00958-4

Free article

Abstract

The JAK-STAT signaling pathway serves as a central hub in the pathogenesis of various allergic diseases, including atopic dermatitis, allergic rhinitis, and asthma. It mediates signal transduction of key inflammatory cytokines, such as IL-4, IL-5, and IL-13, and directly regulate regulating Th2 cell differentiation, IgE production, and eosinophil function. Moreover, the dysregulation of its intrinsic negative feedback mechanisms also serves as a significant driver of disease progression. Targeting this pathway has yielded significant progress in drug development, including JAK/STAT inhibitors and immunomodulatory natural products. However, challenges persist in regarding long-term safety, efficacy differences across disease subtypes, and combination therapy approaches. This review systematically outlines the central role of the JAK-STAT pathway in allergic diseases and comprehensively evaluates recent advances and clinical prospects of related targeted therapies, aims to provide a comprehensive reference for future basic research and precise clinical management.

Keywords: Allergic diseases; Cytokines; JAK inhibitors; JAK-STAT pathway; Targeted therapy; Th2 immune response.

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.

Supplementary info

Publication typesExpand

Full text links

Cite

6

Allergy

-
-
-

. 2026 Jul 6.

doi: 10.1111/all.70439. Online ahead of print.

Route of Allergen Immunotherapy: A Global Look Into Physicians' Motivations

Carmen Vidal [1], Davide P Caimmi [2], Pablo Rodriguez Del Rio [3], Óscar Lado-Baleato [4], Francisco Gude [5], Pilar Rico-Nieto [6], Thomas B Casale [7], Jorge A Aguilar [8], Maryam Ali Al-Nesf [9], Fatima Ashkanani [9], Adeeb Bulkhi [10], Juan C Cardet [11], Claudia Almendarez [12], Silvia Caimmi [13], Iván Cherrez [14 15 16], Enza D'Auria [17], Stephanie Dramburg [18], Motohiro Ebisawa [19], Naoko Fusayasu [19], Maximiliano Gomez [20], Sandra Gonzalez-Diaz [21], Carla Irani [22], Andrey Kamaev [23], Connie Katelaris [24], Narinder Kaur [25], Oksana KurBacheva [26], José I Larco [27], Désirée Larenas-Linnemann [28], Margaret Li [29], Olga Patricia Monge-Ortega [30], Pablo Moreno [31], Oliver Pfaar [32], Cesar F Pozo-Beltrán [33], Marta E Rubio [34], Jorge Sanchez [35], Giovanni Sedo [36], Silvia Uriarte [37], Lin Yang [38], Hao Chen [38], Rongfei Zhu [38], Pascal Demoly [39], Moises A Calderon [40]; CHOICE-Global Survey Team

Affiliations Expand

- **PMID: 42410948**

- DOI: 10.1111/all.70439

Abstract

Background: Current Allergen Immunotherapy (AIT) guidelines provide no definitive guidance on route selection, whether subcutaneous (SCIT) or sublingual (SLIT). The primary objective of this study was to characterize real-world AIT prescription patterns, with emphasis on route selection, using a factor analysis approach in a large international cohort.

Methods: The CHOICE study is a real-life, multicentre, international, observational, cross-sectional web-based survey conducted across 20 countries between November 2019 and April 2024. Participating doctors completed standardized questionnaires for each consecutive AIT prescription. Thirteen patient-related and product-related parameters were analyzed using exploratory and confirmatory factor analysis. Latent factors identified were subsequently incorporated into multivariate mixed logistic regression models with country and physician nested within country as random intercepts.

Results: Data from 467 physicians and 11550 patients were analyzed; 60.0% of prescriptions were SCIT and 40.0% were SLIT. Three latent factors were identified: (F1) Scientific and clinical evidence-Based; (F2) Resource and access optimisation; and (F3) Tailored for the patient and their lifestyle. When country was modeled as a random intercept, all three factors were significantly associated with SLIT prescription. After adjustment for both country and physician, F2 was associated with reduced probability of SLIT prescription (OR 0.42; 95% CI 0.31, 0.59), while F3 was strongly associated with an increased probability of SLIT prescription (OR 10.90; 95% CI 7.20, 16.57). Variability attributable to country (ICC 0.86) and physician (ICC 0.74) was high.

Conclusions: Patient-centred considerations increase the likelihood of SLIT use while considering the cost of the treatment increases the likelihood of SCIT use. Substantial variability in AIT route selection is attributable to country- and physician-level factors.

Keywords: SCIT (subcutaneous immunotherapy); SLIT (sublingual immunotherapy); allergen immunotherapy; asthma; factor analysis; preferences; rhinitis.

- 50 references

Supplementary info

Grants and fundingExpand

Full text links

WILEY Full Text Article UNIMORE

Proceed to details

Cite

7

BMC Med Genomics

.

.

. 2026 Jul 6.

doi: 10.1186/s12920-026-02423-5. Online ahead of print.

Construction and validation of a lncRNA/circRNA-miRNA-mRNA ceRNA network in allergic rhinitis pathogenesis

Shaojie Zhang [#1], Molu Ban [#1], Rong Wang [2], Min Li [1], Min Shi [1], Jingjin Weng [1], Shenhong Qu [3]

Affiliations Expand

- PMID: 42410433

- DOI: 10.1186/s12920-026-02423-5

Free article

Abstract

Background: The lncRNA/circRNA-miRNA-mRNA interaction constructs a competing endogenous RNAs (ceRNAs) network, which is closely related to inflammation. However, their roles in allergic rhinitis (AR) remain unclear. In this study, we investigated the regulatory role of ceRNA networks in AR pathogenesis by analyzing long non-coding RNAs (lncRNAs) and circular RNAs (circRNAs), then constructing a lncRNA/circRNA-miRNA-mRNA interaction network.

Methods: An AR mouse model was established using ovalbumin (OVA). Pathological examination was performed on the nasal mucosa of the mice, and ELISA was conducted on the mouse serum. High-throughput sequencing was used to analyze the expression profiles of lncRNAs, circRNAs, miRNAs, and mRNAs in the nasal mucosa of AR mice. A fold change > 2 and a q-value < 0.05 were used to identify the significantly differentially expressed (DE) lncRNAs, circRNAs, miRNAs, and mRNAs in AR. Then, bioinformatics and statistical methods were used to construct ceRNA networks, while RT-PCR was employed to validate RNA seq results.

Results: A total of 216 mRNAs, 241 lncRNAs, 659 circRNAs, and 19 miRNAs were identified as significantly differentially expressed. Among them, 145 mRNAs were up-regulated and 71 were down-regulated; 138 lncRNAs were up-regulated and 103 were down-regulated; 304 circRNAs were up-regulated and 355 were down-regulated; 16 miRNAs were up-regulated and 3 were down-regulated. Additionally,

223 miRNA -mRNA pairs, 50 miRNA-lncRNA pairs, and 17 circRNA-miRNA pairs were obtained, and a network diagram of lncRNA/circRNA-miRNA-mRNA pairs was drawn. Functional enrichment analysis based on the ceRNA network confirmed that lncRNAs are involved in the regulation of the Wnt signaling pathway, ECM-receptor interaction, and the PI3K-Akt signaling pathway. In contrast, circRNAs are implicated in the modulation of adipocyte lipolysis, as well as ECM-receptor interactions and protein digestion and absorption. Some DE-lncRNAs and DE-mRNAs determined by RNA sequencing were verified by RT-PCR, and their trends were similar to those observed in RNA seq.

Conclusion: We established a ceRNA network based on lncRNA/circRNA-miRNA-mRNA interactions for AR, providing a solid foundation for future investigations into its underlying molecular mechanisms and the identification of novel drug targets.

Keywords: Allergic rhinitis; Circular RNA; Long non-coding RNA; Nasal mucosa; Wnt signaling pathway.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: All animal experimental procedures were approved by the Institutional Animal Care and Use Committee of Guangxi Medical University (approval No.: 202306003). Consent for publication: Not applicable. No individual person's data (including images or identifiable information) are included in this manuscript. Competing interests: The authors declare no competing interests.

Supplementary info

Grants and fundingExpand

Full text links

8

Review

Expert Rev Respir Med

-
-
-

. 2026 Jul 6:1-9.

doi: 10.1080/17476348.2026.2699459. Online ahead of print.

Upper and lower airway crosstalk in acute exacerbations of COPD: a clinical and biological overview

Simone Ielo [1], Lorenzo Carriera [2 3], Pier-Valerio Mari [4], Roberto Barone [2], Francesca Cefaloni [2], Antonella Loperfido [5], Angelo Coppola [6 7], Stefano Baglioni [3], Eugenio De Corso [8], Raffaele Scala [1]

Affiliations Expand

- PMID: 42403302

- DOI: 10.1080/17476348.2026.2699459

Abstract

Introduction: Acute exacerbations of chronic obstructive pulmonary disease (AE-COPD) are acute worsening events characterized by increased dyspnea, cough, and sputum production. Although traditionally viewed as lower airway events, growing evidence suggests that AE-COPD may reflect broader pan-airway dysfunction involving both upper and lower respiratory compartments.

Areas covered: This overview examines upper - lower airway crosstalk in AE-COPD across three domains: pan-airway inflammation, epithelial alarmin/cytokine networks, and the continuous airway microbiome. We discuss the coexistence of COPD with sinonasal inflammation, chronic rhinitis, and chronic rhinosinusitis, and their possible contribution to symptom burden, impaired quality of life, and exacerbation risk. We also review mechanisms linking upper and lower airways, including epithelial barrier dysfunction, impaired antiviral responses, innate immune activation, alarmin release, and microbiome-driven dysbiosis.

Expert opinion: Recognizing AE-COPD as a manifestation of pan-airway dysfunction may have relevant clinical implications. Systematic assessment of upper airway symptoms and comorbidities could improve phenotyping, risk stratification, and therapeutic targeting, particularly in frequent exacerbators. Future longitudinal and multi-omic studies are needed to validate upper airway biomarkers and determine whether targeted treatment of upper airway disease can modify COPD outcomes.

Keywords: Chronic obstructive pulmonary disease; acute exacerbation; airway microbiome; chronic rhinosinusitis; united airway disease.

Supplementary info

Publication typesExpand

chronic cough

1

Review

Chest

-
-
-

. 2026 Jul 9:S0012-3692(26)00957-8.

doi: 10.1016/j.chest.2026.04.064. Online ahead of print.

Aspiration and GERD in Bronchiectasis: Bridging Pulmonology, Gastroenterology, and Otolaryngology in an At-Risk Population

B Shoshana Zha [1], Vyvy Young [2], Priya Kathpalia [3], Cyril Varghese [4], Timothy R Aksamit [5]

Affiliations Expand

- **PMID: 42425405**

- **DOI: 10.1016/j.chest.2026.04.064**

Abstract

Bronchiectasis is a heterogeneous chronic lung disease marked by irreversible airway dilation and damage, instigating symptoms of chronic cough, dyspnea, and excessive mucus production. Recurrent exacerbations or infections with ongoing inflammation can lead to impaired quality of life, reduced ability to clear mucus, and even respiratory failure. Dozens of distinct conditions can contribute or coexist with bronchiectasis, often fueling a self-perpetuating vortex of inflammation, infection, and airway remodeling. Aspiration results in foreign particles into the airway can cause chemical pneumonitis from gastric contents, airway inflammation, and/or infection, with repeated exposures producing chronic injury. As clinical expertise has grown, aspiration-related pathology has acquired attention as a potential contributor to bronchiectasis and chronic lung infections, including nontuberculous mycobacteria (NTM), extrapolating from characterized relationships in other chronic lung diseases. Nonspecific symptoms, diagnostic challenges, and incomplete data characterizing the relationship have hindered the development of clear guidelines. Additionally, the necessity for multidisciplinary care can delay timely management. Here, we assembled a multidisciplinary team of experts to evaluate retrograde and anterograde aspiration as modifiable comorbidities to bronchiectasis through case-based formatting. Using this scaffold and a narrative literature review, we provide clinical perspective on who, when, and how to test for aspiration from swallowing dysfunction and reflux disease. Our purpose is to raise awareness of aspiration, enhance evaluation by improving the pulmonologist's knowledge of test selection and interpretation, highlight the value of cross-disciplinary discussion, outline basic management strategies, and inspire further studies within bronchiectasis and chronic lung infection populations.

Keywords: Bronchiectasis; Pulmonary nontuberculous mycobacteria; aspiration; dysphagia; gastroesophageal reflux; multidisciplinary care.

Supplementary info

Publication typesExpand

Full text links

Proceed to details

Cite

2

Laryngoscope

-
-
-

. 2026 Jul 9.

doi: 10.1002/lary.70723. Online ahead of print.

Laryngeal Cryotherapy for Neurogenic Cough: Safety, Feasibility, and Prospective Outcomes

Shumon I Dhar [1], Eric Allen [1], Yun-Lun Liu [2], Alexandra D D'Oto [3], Rishi Suresh [1], Adrianna Shembel [1 4], Ted Mau [5]

Affiliations Expand

- **PMID: 42423253**

- **DOI: 10.1002/lary.70723**

Abstract

Objectives: Despite the prevalence of neurogenic chronic cough (NCC), treatment options remain limited. This study investigates selective laryngeal cryotherapy (SLC) as a potential sensory neurolytic therapy. The primary objective was to explore the feasibility and safety of SLC, while the secondary objectives assessed efficacy in the reduction of laryngeal hypersensation and cough symptoms.

Methods: Patients with refractory NCC were prospectively recruited. Patients underwent laryngeal laser sensory testing (LST), immediately followed by awake SLC treatment. Cough measures including the cough severity index (CSI) and urge to cough visual analog scale (UTC-VAS) were collected at baseline and regular

intervals. At 1-month postprocedure, additional LST was performed. Safety, tolerability, and adverse events were recorded.

Results: Thirty patients with NCC were enrolled. All patients successfully completed awake SLC. There were no serious adverse events or unanticipated adverse device effects. 21% of patients experienced at least one treatment-emergent adverse event, all of which self-resolved within 2 days. Post-SLC patients had a higher mean laser power threshold, 7.5 W (SD 2.42) to trigger a cough response compared to their baseline threshold of 2.8 W (SD 2.76) ($p < 0.001$). By 6 months, patients demonstrated sustained improvement compared to their baseline, with a reduction in CSI of -8.25 (95% CI 11.60, -4.91) ($p < 0.001$) and UTC-VAS -18.07 (95% CI -29.71, -6.43) ($p = 0.003$).

Conclusions: The data suggest that awake laryngeal cryotherapy is feasible, tolerable, and safe. SLC reduced laryngeal hypersensitivity, and while it is a promising treatment option for neurogenic cough, further research is required to confirm its long-term effectiveness.

Keywords: chronic cough; cryotherapy; neurogenic cough; refractory cough; sensory neuropathy.

- 60 references

Supplementary info

Grants and fundingExpand

Full text links

Proceed to details

Cite

3

Review

Expert Rev Respir Med

-
-
-

. 2026 Jul 6:1-9.

doi: 10.1080/17476348.2026.2699459. Online ahead of print.

Upper and lower airway crosstalk in acute exacerbations of COPD: a clinical and biological overview

Simone Ielo [1], Lorenzo Carriera [2 3], Pier-Valerio Mari [4], Roberto Barone [2], Francesca Cefaloni [2], Antonella Loperfido [5], Angelo Coppola [6 7], Stefano Baglioni [3], Eugenio De Corso [8], Raffaele Scala [1]

Affiliations Expand

- PMID: 42403302

- DOI: 10.1080/17476348.2026.2699459

Abstract

Introduction: Acute exacerbations of chronic obstructive pulmonary disease (AE-COPD) are acute worsening events characterized by increased dyspnea, cough, and sputum production. Although traditionally viewed as lower airway events, growing evidence suggests that AE-COPD may reflect broader pan-airway dysfunction involving both upper and lower respiratory compartments.

Areas covered: This overview examines upper - lower airway crosstalk in AE-COPD across three domains: pan-airway inflammation, epithelial alarmin/cytokine networks, and the continuous airway microbiome. We discuss the coexistence of COPD with sinonasal inflammation, chronic rhinitis, and chronic rhinosinusitis, and their possible contribution to symptom burden, impaired quality of life, and exacerbation risk. We also review mechanisms linking upper and lower airways, including epithelial barrier dysfunction, impaired antiviral responses, innate immune activation, alarmin release, and microbiome-driven dysbiosis.

Expert opinion: Recognizing AE-COPD as a manifestation of pan-airway dysfunction may have relevant clinical implications. Systematic assessment of upper airway symptoms and comorbidities could improve phenotyping, risk stratification, and therapeutic targeting, particularly in frequent exacerbators. Future longitudinal and multi-omic studies are needed to validate upper airway biomarkers and determine whether targeted treatment of upper airway disease can modify COPD outcomes.

Keywords: Chronic obstructive pulmonary disease; acute exacerbation; airway microbiome; chronic rhinosinusitis; united airway disease.

Supplementary info

Publication typesExpand

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

1

Review

Chest

-
-
-

. 2026 Jul 9:S0012-3692(26)00957-8.

doi: 10.1016/j.chest.2026.04.064. Online ahead of print.

Aspiration and GERD in Bronchiectasis: Bridging Pulmonology, Gastroenterology, and Otolaryngology in an At-Risk Population

B Shoshana Zha [1], Vyvy Young [2], Priya Kathpalia [3], Cyril Varghese [4], Timothy R Aksamit [5]

Affiliations Expand

- **PMID: 42425405**

- **DOI: 10.1016/j.chest.2026.04.064**

Abstract

Bronchiectasis is a heterogeneous chronic lung disease marked by irreversible airway dilation and damage, instigating symptoms of chronic cough, dyspnea, and excessive mucus production. Recurrent exacerbations or infections with ongoing inflammation can lead to impaired quality of life, reduced ability to clear mucus, and even respiratory failure. Dozens of distinct conditions can contribute or coexist with bronchiectasis, often fueling a self-perpetuating vortex of inflammation, infection, and airway remodeling. Aspiration results in foreign particles into the airway can cause chemical pneumonitis from gastric contents, airway inflammation, and/or infection, with repeated exposures producing chronic injury. As clinical expertise has grown, aspiration-related pathology has acquired attention as a potential contributor to bronchiectasis and chronic lung infections, including nontuberculous mycobacteria (NTM), extrapolating from characterized relationships in other chronic lung diseases. Nonspecific symptoms, diagnostic challenges, and incomplete data characterizing the relationship have hindered the development of clear guidelines. Additionally, the necessity for multidisciplinary care can delay timely management. Here, we assembled a multidisciplinary team of experts to evaluate retrograde and anterograde aspiration as modifiable comorbidities to bronchiectasis through case-based formatting. Using this scaffold and a narrative literature review, we provide clinical perspective on who, when, and how to test for aspiration from swallowing dysfunction and reflux disease. Our purpose is to raise awareness of aspiration, enhance evaluation by improving the pulmonologist's knowledge of test selection and interpretation, highlight the value of cross-disciplinary discussion, outline basic management strategies, and inspire further studies within bronchiectasis and chronic lung infection populations.

Keywords: Bronchiectasis; Pulmonary nontuberculous mycobacteria; aspiration; dysphagia; gastroesophageal reflux; multidisciplinary care.

Supplementary info

Publication typesExpand

Full text links

[Proceed to details]

Cite

2

JCI Insight

-
-
-

. 2026 Jul 8;11(13):e199983.

doi: 10.1172/jci.insight.199983.

Pulmonary fibrosis after COVID-19 is characterized by airway abnormalities and elevated club cell secretory protein-16

Matthew R Baldwin [1 2], Ansley E Jones [1], David Zhang [1], Chandan Gurung [1], Zain Khan [3], Anjali Saqi [4], Xuehan Yang [3], Ying Wei [3], Renu Nandakumar [2], Scarlett O Murphy [1], Claire F McGroder [1], Faisal Shaikh [1], Selim Arcasoy [1], Luke Benvenuto [1], Harpreet Grewal [1], Benjamin M Smith [1 5], Eric A Hoffman [6], Agnes Cy Yuen [7], Parteek Johal [7], Christopher Carlsten [7], Christopher J Ryerson [7], J Brent Richards [8 9], Alyson W Wong [7], Tomoko Nakanishi [10 11 12 13], Aditi S Shah [7], Christine Kim Garcia [1 14]

Affiliations Expand

- **PMID: 42417165**

- **DOI: 10.1172/jci.insight.199983**

Free article

Abstract

BACKGROUNDThere are no known serum biomarkers that provide mechanistic insight or prognostic enrichment for post-COVID-19 pulmonary fibrosis.METHODSWe tested associations of serum biomarkers with radiographic

fibrosis-like abnormalities (reticulation, traction bronchiectasis, or honeycombing) on thoracic computed tomography (CT) scans 4 months, 15 months, and 3 years after hospitalization in an American discovery cohort of severe-to-critical COVID-19 survivors, and externally validated findings in 2 Canadian cohorts of moderate-to-critical COVID-19 survivors. In the discovery cohort, we investigated the dose-response relationship of the biomarker with CT-derived airway-to-lung ratio. We performed single-cell RNA sequencing (scRNA-seq) of transbronchial lung biopsies from COVID-19 survivors obtained 3 years after COVID-19 hospitalization and conducted immunofluorescence analysis of COVID-19 lung explants.RESULTSAmong 150 discovery cohort participants, only higher levels of circulating club cell secretory protein-16 (CC16, encoded by the SCGB1A1 gene) at hospital discharge, 4 months, 15 months, and 3 years were associated with thoracic CT fibrosis-like abnormalities in cross-sectional and longitudinal analyses. Higher CC16 levels were associated with thoracic CT fibrosis-like abnormalities in 2 validation cohorts (n = 56 and n = 37). CC16 levels were linearly associated with increased airway-to-lung ratio. scRNA-seq revealed increased proportions of epithelial cells expressing SCGB1A1 and SCGB1A1/MUC5B in COVID-19 survivors with fibrosis. Immunofluorescence analysis of COVID-19 lung explants demonstrated increased numbers of SCGB1A1-expressing epithelial cells only in small (<100 μm) airways, with 3-fold more CC16/MUC5B-coexpressing cells in respiratory bronchioles..CONCLUSION. Higher CC16 levels are associated with CT fibrosis-like abnormalities for up to 3 years following moderate-to-critical COVID-19. Increased CC16 reflects dysregulated small airway epithelial progenitor cell remodeling and increased expansion of CC16+MUC5B+ epithelial cells in respiratory bronchioles after COVID-19.TRIAL REGISTRATIONNot applicable.FUNDINGDepartment of Defense, NIH, and Japan Society for the Promotion of Science for Young Scientists.

Keywords: Biomarkers; COVID-19; Fibrosis; Infectious disease; Pulmonology.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Cite

3

J Clin Immunol

.

.

.

. 2026 Jul 8.

doi: 10.1007/s10875-026-02044-8. Online ahead of print.

Bronchiectasis in Inborn Errors of Immunity: Prevalence, Predictors, and Cardiopulmonary Complications in a Genetically Characterized Cohort

Diana Marangu-Boore [1 2], Katherine Myint-Hpu [3], Esther Kang [3], Luigi D Notarangelo [3], Ottavia M Delmonte [4]

Affiliations Expand

- PMID: 42414785

- DOI: 10.1007/s10875-026-02044-8

Abstract

Purpose: Bronchiectasis poses a serious but incompletely defined burden in patients with inborn errors of immunity (IEI). We determined its prevalence, independent predictors, and cardiopulmonary complications in a genetically characterized IEI cohort to inform care in this vulnerable population.

Methods: We conducted a cross-sectional analysis of patients enrolled in a National Institutes of Health prospective IEI protocol (2018-2024) who had undergone whole exome or genome sequencing and chest computed tomography (CT). Bronchiectasis was radiologically confirmed, excluding traction bronchiectasis. Predictors were identified by multivariable logistic regression. Cardiopulmonary outcomes included spirometry, lung volumes, diffusing capacity, six-minute walk distance, pulmonary hypertension by echocardiography, and mortality.

Results: Of 229 enrolled patients, 131 were eligible, representing 31 distinct IEIs. Median age at first chest CT was 20 years (IQR 10-33). The most common CT finding was pulmonary nodules (55%). Bronchiectasis prevalence was 27% (95% CI 20-35%). Independent predictors were older age at first CT (aOR 1.04, 95% CI 1.01-1.08), combined immunodeficiency affecting cellular and humoral immunity (aOR 4.30, 95% CI 1.42-14.54), predominantly antibody deficiencies (aOR 5.83, 95% CI 1.66-22.26), and diseases of immune dysregulation (aOR 7.56, 95% CI 1.07-52.72). Patients with bronchiectasis had greater cardiopulmonary impairment across all measured domains and higher mortality (15% vs. 3%; P = 0.046).

Conclusions: Bronchiectasis is common across IEI diagnostic classes and carries substantial cardiopulmonary morbidity and excess mortality. Older age at first chest CT and specific IUIS classes, particularly predominantly antibody deficiencies and diseases of immune dysregulation, independently predict bronchiectasis, identifying patients who would benefit most from early pulmonary surveillance.

Trial protocol: NCT03394053.

Keywords: Adults; Bronchiectasis; Cardiopulmonary Outcomes; Children; Chronic Lung Disease; Hematopoietic Stem Cell Transplantation; Primary Immunodeficiency Disorders; Pulmonary Hypertension.

Conflict of interest statement

Declarations. This study was approved by the National Institutes of Health Institutional Review Board. All study participants, or their parents provided written informed consent and age-appropriate assent according to the Declaration of Helsinki. Competing interests: The authors declare no competing interests.

Supplementary info

Associated dataExpand

Full text links

Cite

4

Clin Infect Dis

-
-
-

. 2026 Jul 8;82(6):e1322-e1325.

doi: 10.1093/cid/ciag015.

Documenting Environmentally Acquired Mycobacterium intracellulare subsp. chimaera Pulmonary Disease Soon After Bronchiectasis Onset

Jennifer R Honda [1], Rachel N Wilsey [1], Chelsea K Raulerson [1], Liang-Hao Ding [1], Christian L Castaneda [2], James L Joyner [3]

Affiliations Expand

- **PMID: 41518593**
- **PMCID: PMC13341260**
- **DOI: 10.1093/cid/ciag015**

Abstract

It's difficult to prove exactly when and how people with bronchiectasis acquire nontuberculous mycobacteria (NTM) from the environment. We present data showing long-term household exposures of a homeowner and development of NTM

pulmonary disease following the onset of bronchiectasis and correlating disease onset with longitudinal environmental sampling in an NTM geographic hotspot.

Keywords: mycobacterium intracellulare subsp. chimaera; Hawai'i; bronchiectasis; environment; whole genome sequencing.

Conflict of interest statement

Potential conflicts of interest . The authors report no conflict of interest. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

- **13 references**
- **1 figure**

Supplementary info

MeSH terms, Supplementary conceptsExpand