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

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BMC Pulm Med

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. 2026 Jul 3;26(1):295.

doi: 10.1186/s12890-026-04398-6.

A study of excessive dynamic airway collapse in chronic obstructive pulmonary disease patients

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Affiliations Expand

- **PMID: 42399878**
- **PMCID: PMC13332589**
- **DOI: 10.1186/s12890-026-04398-6**

Abstract

Background: Excessive dynamic airway collapse (EDAC) is defined as a pathological expiratory reduction of ≥ 50% in the cross-sectional area of the

tracheobronchial lumen due to increased laxity of the posterior membranous wall while preserving the cartilaginous structure. EDAC frequently coexists with chronic obstructive pulmonary disease (COPD) and may contribute to persistent wheezing and dyspnea despite optimal medical therapy.

Methods: This cross-sectional study included 75 stable COPD patients recruited from the outpatient clinic of the Chest Department, Faculty of Medicine, Tanta University Hospitals, between August 2024 and August 2025. All patients underwent detailed history taking, general and local clinical examination, spirometry, dynamic multidetector computed tomography (MDCT) of the chest, and fiberoptic bronchoscopy. Multivariate logistic regression analysis was performed to identify predictors of EDAC.

Results: EDAC was identified in 29 (38.7%) out of 75 COPD patients based on bronchoscopic assessment. Among these 29 patients, dynamic chest CT successfully diagnosed EDAC in 27 cases, resulting in 93.1% (95% CI: 77.2-99.2) sensitivity, 100% (95% CI: 92.3-100.0) specificity, and 97.3% (95% CI: 90.1-100.0) diagnostic accuracy. COPD patients with EDAC showed significantly higher BMI, mMRC, CAT scores, and exacerbation frequency compared with those without EDAC. Conversely, patients with COPD and EDAC showed significantly lower FEV1% predicted and FVC% predicted compared with those without EDAC. BMI, mMRC, and CAT score were independent predictors of EDAC.

Conclusions: EDAC should be evaluated in all COPD patients who present with more symptoms despite optimal COPD management. Also, obesity in COPD patients represents a contributing factor for EDAC, which should be carefully evaluated and managed. Dynamic CT demonstrated good diagnostic performance in detecting EDAC when compared with bronchoscop.

Keywords: COPD; Dynamic CT; Excessive dynamic airway collapse.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study was done from August 2024 to August 2025 after approval from the Ethical Committee of Tanta University Hospitals, Tanta, Egypt (approval code: 36264MS666/8/2024). All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments. Everyone who needed it had their written approval before the trial began. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

- 35 references
- 5 figures

Supplementary info

MeSH termsExpand

Full text links

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Eur Radiol

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. 2026 Jul 3.

doi: 10.1007/s00330-026-12677-3. Online ahead of print.

Body composition's effect on the bone-vascular axis of osteoporosis discovered in AI-based CT analysis of COPD patients

Bettina K Budai [1 2], Andreas Wagner [1 2], Ondrej Havlicek [1 2], Philip Konietzke [1 2 3 4 5], Franziska C Trudzinski [2 6], Jürgen Biederer [1 2 7 8], Claus P Heußel [1 2 3], Hans-Ulrich Kauczor [1 2 3], Viktoria Palm [9 10 11]; COSYCONET study group

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- PMID: 42399449

- DOI: 10.1007/s00330-026-12677-3

Abstract

Objectives: This study aimed to investigate the effect of body composition on the inverse relationship between vertebral bone density (T12 BMD) and total thoracic vascular calcification (TTVC) in patients with chronic obstructive pulmonary disease (COPD). Moreover, we aimed to assess whether intermuscular adipose tissue (IMAT) affects the bone-vascular axis.

Materials and methods: Chest CT scans of 539 COPD patients from the multicentric prospective COSYCONET study were retrospectively analyzed using AI-based tools for T12 BMD, TTVC, and volumetric body composition. Multivariable linear regression models were built to investigate the effect of conventional body phenotypes (normal, sarcopenic, non-sarcopenic obesity, and sarcopenic obesity). Stepwise interaction model building included T12 BMD, IMAT, their interaction, adding BMI, clinical and metabolic covariates, lung function, physical performance, and age.

Results: The T12 BMD showed a consistent inverse association with TTVC in all phenotypes, with β = -0.38 ($p < 0.01$) in normal nutritional status, β = -0.36 ($p < 0.01$) in sarcopenia, and β = -0.24 ($p < 0.01$) in non-sarcopenic obesity. However, the phenotype's significant effect was not confirmed in the interaction model. Age and

pack-years were associated with calcification, but IMAT remained independently associated (β = 0.15, 95% CI 0.015-0.28, p = 0.029), while the interaction between T12 BMD and IMAT lost significance once age was included.

Conclusion: IMAT index was independently associated with TTVC in COPD. The modifying effect of IMAT on the bone-vascular axis was most evident in models without age adjustment, suggesting that the observed interaction may be influenced by age.

Key points: Question The interactions between body composition, sarcopenia, arteriosclerosis, and osteoporosis are not fully understood. AI-based CT analysis provides a more holistic picture of multimorbidity in COPD. Findings Intermuscular adipose tissue (IMAT) was independently associated with vascular calcification in stepwise-adjusted models. The interaction of IMAT and bone density is demonstrated but showed age-dependence. Clinical relevance Increased IMAT can capture a vulnerable COPD patient group with metabolic dysregulation and physical frailty, besides vascular aging. Muscle fat infiltration may indicate impaired musculoskeletal health and serve as a marker of arteriosclerosis beyond possible effects of age or BMI.

Keywords: Artificial intelligence; Body composition; Chronic obstructive pulmonary disease; Comorbidity; Vascular calcification.

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Bettina Katalin Budai. Conflict of interest: Software support for this study was provided by Siemens Healthineers and Coreline Soft. F.C.T. reports receiving honoraria for lectures and presentations from Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Grifols, Novartis, CSL Behring, Streamed Up, and RG Gesellschaft für Information und Organisation mbH, as well as research funding from the E&H Knorr Stiftung. C.P.H. reports stock ownership in GSK, receiving consultation fees from Voiant from 2025, research funding from Exscientia between 2023 and 2024, and honoraria for lectures from AstraZeneca, Pfizer, Chiesi, and Sanofi, as well as being a patent holder of Method and Device for Representing the Microstructure of the Lungs, IPC8 Class: AA61B5055FI, PAN: 20080208038. C.P.H. is a member of the European Radiology Editorial Board and, as such, has not participated in the review or selection processes for this article. H.U.K. reports receiving honoraria for lectures and presentations from Boehringer Ingelheim, Siemens, Philips, and Streamed Up, as well as research funding from Boehringer Ingelheim, Siemens, Philips, as well as serving on advisory boards for Contextflow and Median. H.U.K. is a member of the European Radiology Editorial Board and, as such, has not participated in the review or selection processes for this article. J.B. is a member of the European Radiology Editorial Board and, as such, has not participated in the review or selection processes for this article. The remaining authors declare no conflicts of interest. Statistics and biometry: One of the authors has significant statistical expertise. Informed consent: Written informed consent was obtained from all subjects (patients) in this study. Ethics approval: Institutional Review Board approval was obtained. The COSYCONET study was approved by the Ethical Committee of Philipps University Marburg (reference no. AZ 2010-28), as well as the ethics committees of each center. Study subjects or cohorts overlap: No

study subjects or cohorts have previously been reported. Methodology: Prospective Diagnostic or prognostic study Performed at multiple institutions (multicentric study)

- **55 references**

Full text links

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3

Am J Respir Crit Care Med

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. 2026 Jul 3:aamag351.

doi: 10.1093/ajrccm/aamag351. Online ahead of print.

Aim High-Stay Stable: Rethinking Treatment Success in COPD

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Affiliations Expand

- **PMID: 42398014**

- **DOI: 10.1093/ajrccm/aamag351**

No abstract available

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4

Respirology

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. 2026 Jul 3.

doi: 10.1002/resp.70277. Online ahead of print.

High-Flow Nasal Oxygen in Early Home Pulmonary Rehabilitation for Exertional Hypoxaemia: A Pilot Randomised Feasibility Trial

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- PMID: 42397015

- DOI: 10.1002/resp.70277

Abstract

Background: Patients with exertional hypoxaemia (EH) at hospital discharge face rapid deconditioning risks. However, early pulmonary rehabilitation (PR) is limited by exercise intolerance and access barriers. Optimal PR design for this group remains unclear. High-flow nasal oxygen (HFO) may alleviate EH, but its role in home-based PR is unexplored. We aimed to evaluate an early, intensive, home-based PR program and the integration of HFO during exercise training for EH patients post-hospitalisation.

Methods: In this pilot feasibility trial, EH patients across respiratory conditions were randomised to PR with HFO (HFO-PR) or PR alone (PR-only). Both groups commenced a three-week home-based PR program (two supervised, three self-directed sessions weekly) within 1 week of discharge. Feasibility was assessed using quantitative and qualitative measures.

Results: Fifty-two of 56 patients completed follow-up at 4 weeks. Overall PR program acceptance and uptake were 67% and 62%, respectively. Program completion was lower in the HFO-PR group (60%) compared to the PR-only group (89%), primarily due to reduced adherence to self-directed exercise sessions. Among COPD patients, the 1-min sit-to-stand test at 4 weeks improved by 4.6 repetitions in the HFO group and 5.3 in the PR-only group (adjusted difference in mean change -0.8, 95% CI -4.7 to 3.1). Qualitative findings revealed three themes: Transformations following the intervention, Receiving care and education at home, and Experiencing HFO system. Participants reported challenges with HFO during unsupervised exercise.

Conclusion: Early home-based PR for post-hospitalisation EH patients is feasible and safe. However, the addition of HFO was associated with lower adherence, highlighting implementation barriers to address before further evaluation.

Trial registration: NCT05752370.

Keywords: exertional hypoxaemia; high flow nasal oxygen; pulmonary rehabilitation.

- **28 references**

Supplementary info

Associated data, Grants and fundingExpand

Full text links

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Cite

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Crit Care

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. 2026 Jul 2;30(1):351.

doi: 10.1186/s13054-026-06179-3.

Coronary microvascular function in patients with sepsis and myocardial injury: an invasive coronary physiology study

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Affiliations Expand

- **PMID: 42393752**
- **PMCID: PMC13330245**
- **DOI: 10.1186/s13054-026-06179-3**

Abstract

Background: Myocardial injury is common in sepsis and associated with increased mortality, but its underlying mechanisms remain incompletely understood. Coronary microvascular dysfunction (CMD) has been proposed as a contributor,

although in vivo evidence is limited. We characterised coronary microvascular function in patients with sepsis and myocardial injury and its relationship with cardiac troponin release.

Methods: Consecutive adults with sepsis (Sepsis-3 criteria) and myocardial injury (hs-cTnT ≥ 15 ng/L) were prospectively enrolled between June 2019 and December 2024. Patients underwent coronary angiography, invasive thermodilution-based assessment of coronary microvascular function, and transthoracic echocardiography after clinical stabilisation. CMD was defined as an index of microcirculatory resistance (IMR) > 25 and/or microvascular resistance reserve (MRR) ≤ 3. Associations between hs-cTnT concentrations and coronary microvascular indices, obstructive coronary artery disease (CAD), and echocardiographic variables were assessed using regression analyses. Coronary microvascular indices were compared with those of age-, sex-, and CAD-matched patients with chronic coronary syndrome (CCS) using mixed-effects models.

Results: Fifty-five patients underwent coronary angiography and 49 completed invasive coronary microvascular assessment. Obstructive CAD was identified in 12/55 (22%). CMD was present in 30/49 (61%). Among these, 8/49 (16%) had elevated IMR only, 9/49 (18%) had functional CMD (MRR ≤ 3 and IMR ≤ 25), and 13/49 (27%) had structural CMD (MRR ≤ 3 and IMR > 25). Restricted cubic spline analyses demonstrated no evidence of associations between hs-cTnT and IMR (overall P = 0.899; non-linearity P = 0.687) or MRR (overall P = 0.987; non-linearity P = 0.954). CMD was associated with a higher prevalence of ventriculo-arterial uncoupling, right ventricular systolic dysfunction, and impaired right ventricular-pulmonary arterial coupling. Patients with sepsis demonstrated reduced coronary microvascular vasodilatory capacity compared with matched CCS controls (MRR 3.2 [IQR 2.4-4.5] vs. 4.0 [2.7-6.2]). IMR was similar between groups.

Conclusions: CMD was common and heterogeneous and exhibited distinct phenotypes in patients with sepsis and myocardial injury. Measures of coronary microvascular function were not associated with troponin release. Previously unrecognised obstructive CAD was identified in 22% of patients, supporting consideration of underlying CAD in patients with sepsis and myocardial injury.

Trial registration: ClinicalTrials.gov identifier NCT06294730.

Keywords: Coronary microcirculation; Coronary microvascular dysfunction.; Echocardiography; Myocardial injury; Sepsis; Troponin.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The study was approved by the Swedish Ethical Review Authority (approval number: 2018/1891-31, 2019–06181, 2025-00038-02). The study was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from all participants. Consent for publication: Not applicable. Competing interests: KS has received speaker honoraria from Pfizer and GE Healthcare.TJ has received an institutional research grant from MSD for an unrelated project.JP has received institutional research grants from Abbott Vascular Inc. and advisory board fees from Amgen.The other authors have no conflicts of interest to declare.

- 43 references
- 4 figures

Supplementary info

MeSH terms, Associated dataExpand

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Cite

6

Eur Respir J

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. 2026 Jul 2:2502380.

doi: 10.1183/13993003.02380-2025. Online ahead of print.

A Transcriptomic Atlas of Chronic Lung Allograft Dysfunction

Hanne Beeckmans [1], Pieterjan Kerckhof [2], Vincent Geudens [2], Cedric Van Luyten [2 3], Marta Zapata-Ortega [2], Lynn Willems [2], Anke Van Herck [2], Astrid Vermaut [2], Gitte Aerts [2], Charlotte Hooft [2], Xin Jin [2], Jan Van Slambrouck [2 3], Andrea Zajacova [2 4], Martina Mercurio [2], Emanuela Cortesi [2], Yousry Mohamady [2], Birger Tielemans [2], Christiane Knoop [5], Wim Janssens [2 4], Ghislaine Gayan-Ramirez [2], Wim A Wuyts [2 4], Laurent Godinas [2 4], Saskia Bos [2 4], Els Wauters [2 4], Lieven J Dupont [2 4], Dirk Van Raemdonck [2 3], Birgit Weynand [6], Berta Saez-Gimenez [7], Herbert B Schiller [8 9], Jonas C Schupp [10 11], Nikolaus Kneidinger [12 13], Laurens J De Sadeleer [2 4], Farida Ahangari [11], John E McDonough [14], Laurens J Ceulemans [2 3], Ali Ö Yildirim [10], Naftali Kaminski [11], Bart M Vanaudenaerde [2 15], Robin Vos [2 4 15]

Affiliations Expand

- PMID: 42392829

- DOI: 10.1183/13993003.02380-2025

Abstract

Background: Chronic lung allograft dysfunction (CLAD) is the leading cause of late mortality after lung transplantation. Bronchiolitis obliterans syndrome (BOS) and restrictive allograft syndrome (RAS) are the main underlying clinical entities. Their

molecular and cellular signatures are unclear and, therefore, we aimed to identify molecular programmes associated with morphological disease severity in CLAD.

Methods: We performed high-resolution imaging-based gene expression profiling of 128 lung samples from explanted CLAD and donor lungs, using weighted gene co-expression network analysis, cellular and pathway enrichment, and hub gene identification. Findings were validated across four datasets, including a murine transplant model, human BOS lungs, transbronchial biopsies, and bronchoalveolar lavage fluid of lung transplant recipients.

Results: Unsupervised clustering revealed two transcriptomic CLAD endotypes aligning with mild-fibrotic (BOS, mild RAS) and advanced-fibrotic disease (moderate/severe RAS). Samples from the same patient often diverged molecularly, underscoring intra-patient heterogeneity and limitations of current phenotypical classification. Five molecular programmes emerged: (1) epithelial stress and innate immunity in early-fibrotic CLAD, (2) progressive adaptive immunity and cytotoxicity in advanced CLAD, (3) transient extracellular matrix remodelling, (4) progressive endothelial loss/dysfunction, and (5) progressive loss of homeostasis, wherein multiple potential druggable targets were detected. Finally, we identified a 26 CLAD hub gene-panel, that showed robust diagnostic performance to discriminate CLAD.

Conclusion: CLAD is a spatially heterogeneous, yet molecularly continuous disease process, wherein BOS and RAS represent variable stages of a shared immunopathological continuum. Our findings support the development of lung-specific molecular classifiers to guide diagnostics and reveal novel targets for personalised therapies in transplantation.

Cite

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Respir Med

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. 2026 Jul 2:109021.

doi: 10.1016/j.rmed.2026.109021. Online ahead of print.

The longitudinal decrease in exercise tolerance and disease progression in mild-to-moderate COPD

Qi Wan [1], Zhishan Deng [1], Fan Wu [1], Kunning Zhou [1], Gaoying Tang [1], Suyin Huang [2], Cuiqiong Dai [1], Lifei Lu [1], Xiaohui Wu [2], Guannan Cai [1], Fangyan Wu [1], Xiaoyu Wang [2], Junfeng Lin [2], Bosi Xu [1], Si Li [1], Changli Yang [3], Shengtang Chen [4], Yongqing Huang [5], Shuqing Yu [6], Yumin Zhou [2], Pixin Ran [7]; ECOPD Study Investigators

Affiliations Expand

- PMID: 42392279

- DOI: 10.1016/j.rmed.2026.109021

Abstract

Introduction: Exercise intolerance serves as a prognostic marker for poor respiratory outcomes in mild-to-moderate COPD. However, the longitudinal change in exercise tolerance and its association with disease progression remains unknown. To explore the association of longitudinal change in exercise tolerance with disease progression in mild-to-moderate COPD.

Methods: This community-based, prospective cohort study was conducted in China from 2019 to 2024. The participants completed baseline questionnaires, spirometry, chest computed tomography, and cardiopulmonary exercise testing (CPET), and underwent annual acute exacerbation assessment and spirometry over 3 years. Participants were categorized by the longitudinal change in peak oxygen uptake from baseline to 3 years into groups with non-declined or declined exercise tolerance.

Results: Overall, 213 patients with mild-to-moderate COPD who completed baseline and 3-year CPET were analyzed, including 131 (61.5%) with exercise tolerance decline. For every 5% longitudinal decrease in exercise tolerance, there was greater progression of air trapping (adjusted difference=0.18%/year, 95% CI 0.01-0.34, P = 0.033) and a faster decline in postbronchodilator FEV_1 (adjusted difference=-4.2 mL/year, 95% CI -8.3 to -0.1, P = 0.044). Compared with the non-declined exercise tolerance group, the group with exercise tolerance decline demonstrated greater progression of emphysema (adjusted difference=0.40%/year, 95% CI 0.10-0.69, P = 0.008) and air trapping (adjusted difference=1.26%/year, 95% CI 0.41-1.84, P = 0.002).

Conclusions: The longitudinal decrease in exercise tolerance over 3 years was associated with accelerated lung function decline and air trapping progression, suggesting it may be a marker associated with disease progression in mild-to-moderate COPD.

Keywords: cardiopulmonary exercise testing; chest radiographic structure; exercise tolerance; longitudinal analysis; lung function decline.

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.

Cite

8

Br J Community Nurs

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. 2026 Jul 2;31(7):318-321.

doi: 10.12968/bjcn.2026.0097. Epub 2026 Jul 2.

Chronic obstructive pulmonary disease: identifying and managing complications and multimorbidity

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- PMID: 42391254

- DOI: 10.12968/bjcn.2026.0097

Abstract

Chronic obstructive pulmonary disease is a progressive, multisystem condition associated with substantial morbidity, mortality and healthcare burden. In the UK, and worldwide, it remains a leading cause of death, with smoking and environmental exposures as primary risk factors. Community nurses play a pivotal role in coordinating integrated care, supporting self-management, addressing polypharmacy and acting as a key conduit between patients, families and multidisciplinary teams.

Conflict of interest statement

Declaration of interest: None

Supplementary info

MeSH termsExpand

Cite

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Review

Expert Opin Drug Deliv

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. 2026 Jul 2.

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

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- 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.

Supplementary info

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Expert Rev Respir Med

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. 2026 Jul 2.

doi: 10.1080/17476348.2026.2699460. Online ahead of print.

Improving the follow-up of children and adults with prematurity-associated lung disease

Christopher William Course [1], Sailesh Kotecha [1]

Affiliations Expand

- **PMID: 42391100**
- **DOI: 10.1080/17476348.2026.2699460**

Abstract

Introduction: With the advances in neonatal care over the last three decades leading to improved survival from preterm birth, it is becoming increasingly evident that preterm-born individuals experience respiratory morbidity and reduced lung function through the life course, now termed prematurity-associated lung disease (PLD), with increasing concern regarding the onset of chronic obstructive pulmonary disease in early adult life.

Areas covered: In this article, we will cover the current evidence for screening, monitoring and management of PLD. We shall discuss monitoring strategies utilizing lung function testing, lung imaging, and oximetry, amongst others. Although current data regarding optimal management and treatment are limited, we shall discuss pharmacological and non-pharmacological methods currently for PLD.

Expert opinion: It is now clear that long-term respiratory follow-up for high-risk preterm-born individuals is imperative to identify PLD early, monitor its progress and optimize respiratory outcomes. There must be increased recognition from pediatric and adult physicians of the impact of prematurity and low birth weight on respiratory health in later life, with services developed to transition individuals with PLD from pediatric to adult care. Future research should aim to improve understanding of PLD phenotypes and phenotype-targeted interventions to optimize respiratory health in PLD across the life course.

Keywords: Prematurity-associated lung disease; Preterm birth; bronchopulmonary dysplasia; chronic lung disease of prematurity; chronic obstructive pulmonary disease; inhaled therapies; spirometry.

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J Pharm Technol

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. 2026 Jun 29:87551225261454868.

doi: 10.1177/87551225261454868. Online ahead of print.

Evaluation of Inhaler Prescribing Trends in Hospitalized Patients With Suspected but Unconfirmed Chronic Obstructive Pulmonary Disease

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Affiliations Expand

- **PMID: 42388463**

- **PMCID: PMC13318829 (available on 2027-06-29)**

- DOI: 10.1177/87551225261454868

Abstract

Background: The Global Initiative for Chronic Obstructive Lung Disease (GOLD) report recommends initial bronchodilator therapy over inhaled corticosteroids (ICS) for most patients. However, real-world prescribing often diverges. Management is further complicated in hospitalized patients with suspected but unconfirmed chronic obstructive pulmonary disease (COPD), where providers must decide on therapy initiation and outpatient follow-up.

Objective: To describe inhaler prescribing in suspected but unconfirmed COPD upon hospital discharge.

Methods: This was an institutional review board-approved retrospective cohort study of patients of ages 40 years or older with a smoking history of at least 10-pack years, but without a prior COPD diagnosis, who presented with a suspected COPD exacerbation or acute respiratory failure secondary to suspected COPD. The primary outcome was inhaler prescribing at discharge. Secondary outcomes included confirmed COPD diagnosis, guideline concordance, hospital readmission for a COPD exacerbation, and ICS-related adverse events within 180 days.

Results: Of the 51 patients included in the study, 29 (56.9%) were prescribed new inhalers, with 15 (29.4%) prescribed ICS-containing regimens. Following discharge, 15 patients (29.4%) completed pulmonary function testing, with 8 (15.7%) receiving a COPD diagnosis. Guideline concordance could not be assessed due to absent documentation. Eight patients (15.7%) were readmitted with a COPD exacerbation, and 13 ICS-related adverse events were documented. Limitations include the sample size and retrospective study design.

Conclusion: This study found a high frequency of initial ICS prescribing for suspected but unconfirmed COPD, as well as limited follow-up and diagnostic reassessment. These findings highlight the need for system-level interventions to optimize discharge prescribing and ensure timely follow-up.

Keywords: GOLD report; chronic obstructive pulmonary disease (COPD); guideline concordance; inhaler prescribing patterns; transitions of care.

Conflict of interest statement

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

- 27 references

Full text links

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Cite

12

Monaldi Arch Chest Dis

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. 2026 Jul 1.

doi: 10.4081/monaldi.2026.3904. Online ahead of print.

Spirometry after treatment completion for pulmonary tuberculosis - a necessity?

Siddhartha Chakraborty [1], T Ajai Kumar [1], Rahul Tyagi [1], Manu Chopra [1], Praveen K Sharma [2], Kislay Kishore [1], Aseem Yadav [1], Ritwik Chakrabarti [3]

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- PMID: 42388067

- DOI: 10.4081/monaldi.2026.3904

Free article

Abstract

Pulmonary tuberculosis often results in permanent lung damage, such as fibrosis, bronchiectasis, and emphysema, despite a successful microbiological cure. These structural changes lead to post-tuberculosis lung disease (PTLD), which is characterized by chronic respiratory symptoms and impaired lung function. This study aimed to evaluate functional and radiological impairments in patients after completion of anti-tubercular therapy to understand the long-term impact of tuberculosis on respiratory health. This prospective study evaluated 175 adults within 1 year of completing anti-tubercular therapy to assess the prevalence of PTLD. Results revealed spirometric abnormalities in 57.1% of participants, predominantly restrictive patterns (30.3%), followed by obstructive defects (16.6%) and Preserved Ratio Impaired Spirometry or PRISm (10.3%). Sputum smear positive status at diagnosis strongly predicted obstructive disease and severe structural damage. Notably, this impairment affected a young, non-smoking cohort and was largely irreversible. The study concludes that microbiological cure does not equate to respiratory health, highlighting the necessity of integrating assessment of comprehensive respiratory system evaluation and routine spirometry at treatment completion to manage long-term morbidity.

Keywords: Pulmonary tuberculosis; airflow obstruction; post-tuberculosis lung disease; pulmonary rehabilitation; restrictive spirometry pattern; spirometry.

- 14 references

Full text links

13

Respir Res

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. 2026 Jul 1.

doi: 10.1186/s12931-026-03768-2. Online ahead of print.

Proteo-metabolomic insights into the progression of chronic obstructive pulmonary disease and lung function decline

Junling Pang [#1], Xiaoxia Ren [#2], Qiyang Hong [#1], Ke Huang [2], Jixin Wang [3], Dashu Li [3], Xinlei Huang [1], Ruoxi He [4], Junchao Jiang [2], Xiaopan Li [2], Yong Li [2], Zaiyong Wang [5], Yanyan Xu [6], Sheng Xie [6], Chaoyang Liang [7], Erping Long [8], Jing Wang [9], Ting Yang [10], Chen Wang [1 2 11]

Affiliations Expand

- PMID: 42387628

- DOI: 10.1186/s12931-026-03768-2

Free article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a progressive yet preventable respiratory disease, often remaining undiagnosed until significant lung function impairment has occurred. The early, asymptomatic stage, termed "pre-COPD", offers a critical window for intervention, yet its molecular characteristics remain poorly understood.

Methods: We performed integrated proteomic and metabolomic profiling of human lung tissues across the spectrum of COPD (n = 32), including non-diseased controls, individuals with pre-COPD, and patients at varying stages of established disease. Key molecules and pathways involving in the progression of COPD were revealed. The performance of candidate biomarkers for monitoring early-stage lung function decline was validated in serum samples from an independent cohort (n = 158), and a longitudinal cohort from the UK Biobank (n = 21,686).

Results: Pairwise comparisons revealed 751 proteins and 1,024 metabolites that were differentially abundant among groups. Pathways such as pyrimidine

metabolism and arginine biosynthesis were revealed associated with disease progression. Notably, we identified a core protein-protein interaction network modulated by zinc and copper, two clinically used, orally available trace elements, highlighting their potential as candidate therapeutic agents for COPD. Furthermore, integrative analysis with an independent blood-based cohort and longitudinal data from the UK Biobank uncovered choline as a circulating biomarker that predicts longitudinal lung function decline.

Conclusion: Our findings define a molecular atlas of pre-COPD, identify actionable therapeutic targets, and propose a readily measurable biomarker for early detection and risk stratification of COPD.

Keywords: Biomarker; COPD; Lung function decline; Metabolomics; Proteomics.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the Ethics review Committees of Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences (Reference number 065-2021). Written informed consent was obtained from all participants. UK Biobank has obtained ethics approval from the North West Multi-centre Research Ethics Committee, and all participants provided written informed consent. The present analyses were conducted under UK Biobank Application No. 150455. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

Supplementary info

Grants and fundingExpand

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14

Review

Eur Respir Rev

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. 2026 Jul 1;35(181):260032.

doi: 10.1183/16000617.0032-2026. Print 2026 Jul.

Implementing acute exacerbations of COPD care bundles: evidence, effectiveness and future directions

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Affiliations Expand

- PMID: 42386313
- PMCID: PMC13320623
- DOI: 10.1183/16000617.0032-2026

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) represent a major driver of disease progression, healthcare utilisation and mortality worldwide. Despite robust guideline recommendations, substantial variability persists in the real-world management of AECOPD, particularly during hospitalisation and the vulnerable post-discharge period. Care bundles, defined as a small set of evidence-based interventions delivered collectively and reliably, have emerged as a pragmatic strategy to bridge the evidence-practice gap. This narrative review synthesises contemporary evidence on the structure, implementation strategies and clinical impact of AECOPD care bundles across the continuum of care. We summarise core bundle components during the acute in-hospital phase and the transition-to-discharge phase, critically appraise their effects on readmission, length of stay and mortality, and explore the heterogeneity between efficacy under controlled conditions and effectiveness in real-world settings. Drawing on principles from implementation science, we analyse multilevel barriers at system, provider and patient levels, and highlight facilitators including multidisciplinary team models, digital health-enabled decision support and iterative quality-improvement cycles. We propose that AECOPD care bundles function not merely as collections of interventions, but as delivery frameworks that improve the reliability of evidence-based care across the admission-to-discharge pathway. Current evidence suggests potential benefit for selected short-term outcomes, particularly readmission-related measures, but overall effectiveness remains heterogeneous and highly dependent on implementation fidelity, service organisation and post-discharge support. Future progress will depend on clearer bundle specification, context-sensitive design, integration of digital tools and greater emphasis on patient-centred outcomes.

Conflict of interest statement

Conflict of interest: All authors report no conflicts of interest.

- 62 references
- 2 figures

Supplementary info

Publication types, MeSH termsExpand

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Cite

15

Randomized Controlled Trial

BMJ Open

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. 2026 Jul 1;16(7):e118720.

doi: 10.1136/bmjopen-2026-118720.

Remote person-centred care and long-term medication management in primary care: post hoc analysis of a randomised controlled trial

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- PMID: 42386302

- PMCID: PMC13331147

- DOI: 10.1136/bmjopen-2026-118720

Abstract

Objectives: To explore refill adherence to prescribed treatment for chronic heart failure (CHF) and/or chronic obstructive pulmonary disease (COPD), during and after a remote person-centred care (PCC) intervention.

Design: Post hoc analysis of a randomised controlled trial cohort.

Setting: We used data from the PROTECT (Person-Centred Care at Distance) randomised controlled trial in Swedish primary care, which were linked to data from the Swedish Prescribed Drug Register.

Participants: A total of 222 participants from nine primary care centres were enrolled in PROTECT. This study included participants with dispensed medications for CHF and/or COPD, excluding those with multidose dispensing (intervention n=50; control n=49, 42% women, mean age 69 years).

Interventions: PROTECT evaluated a PCC intervention using a digital platform and structured telephone support in addition to usual care versus usual care alone.

Outcome measures: Refill adherence was compared between groups, defining appropriate medication supply as ≥80% of days covered over 2 years. We also examined associations between refill adherence and number of long-term conditions and medications.

Results: Refill adherence did not differ significantly between groups. A higher number of long-term conditions was associated with lower odds of refill adherence (adjusted OR (aOR) per additional condition: 0.71; 95% CI 0.50 to 0.97; p=0.041), as were more long-term medications (aOR per additional medication class: 0.84; 95% CI 0.71 to 0.98; p=0.029).

Conclusions: The PROTECT intervention did not improve refill adherence, suggesting that future person-centred interventions may require more structured medication-management focus. Increasing numbers of long-term conditions and medications were both associated with lower refill adherence.

Trial registration number: NCT03183817.

Keywords: Multimorbidity; Person-Centered Care; Polypharmacy; Primary Care.

- **34 references**
- **3 figures**

Supplementary info

Publication types, MeSH terms, Associated dataExpand

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16

J Allergy Clin Immunol Pract

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. 2026 Jul 1:S2213-2198(26)00527-1.

doi: 10.1016/j.jaip.2026.06.029. Online ahead of print.

Effectiveness of treatment with tezepelumab in patients with severe asthma, smoking asthmatics and patients with severe Asthma and COPD: A real-world cohort study

Nora Drick [1], Christina Valtin [1], Jan Fuge [2]

Affiliations Expand

- PMID: 42386154

- DOI: 10.1016/j.jaip.2026.06.029

Abstract

Background: Severe asthma often coexists with chronic obstructive pulmonary disease (COPD), yet patients with overlapping conditions are frequently excluded from clinical trials. Consequently, evidence on the effectiveness of biologics such as tezepelumab in smokers or patients with concomitant COPD remains limited.

Objective: To evaluate the effectiveness of tezepelumab in patients with severe asthma with concomitant COPD/emphysema or a smoking-history compared with patients with asthma-only.

Methods: In this retrospective study, pulmonary function, exacerbations, oral corticosteroid (OCS) use, asthma control, and quality of life (QoL) were assessed at baseline and after at least 6 months of tezepelumab treatment in patients with different severe asthma phenotypes.

Results: Overall, 186 tezepelumab-treated patients (asthma-only n=68; asthma with smoking-history n=56; asthma with COPD/emphysema n=62) with a median treatment duration of 12 (IQR 7-13) months were included. Forced expiratory volume in 1 second (% predicted) improved significantly in all groups [asthma-only: 71% to 75% (p=0.014); asthma with smoking-history: 61% to 67% (p=0.036); asthma with COPD/emphysema: 44% to 45% (p=0.035)]. Asthma Control Test scores improved significantly [asthma-only: 13 to 16 (p=0.003); asthma with smoking-history: 13 to 17 (p=0.001); asthma with COPD/emphysema: 12 to 15 (p<0.001)]. Similar improvements across groups were observed for QoL, OCS dose reduction, and annualized exacerbation rates. Remission rates were comparable between groups.

Conclusion: Tezepelumab was associated with clinically meaningful improvements in lung function, asthma control, QoL, and reduction in exacerbation rates in patients with severe asthma, irrespective of smoking-history or comorbid COPD/emphysema, supporting its use in these underrepresented populations.

Keywords: Severe asthma; asthma-COPD overlap; biologic therapy; chronic obstructive pulmonary disease; exacerbations; lung function; real-world evidence; remission; smoking history; tezepelumab.

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Review

Pulm Pharmacol Ther

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. 2026 Jul 1:94:102435.

doi: 10.1016/j.pupt.2026.102435. Online ahead of print.

Brain-derived neurotrophic factor (BDNF) signaling in respiratory disease: Mechanisms, neuroimmune crosstalk, and therapeutic implications

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Affiliations Expand

- PMID: 42386036

- DOI: 10.1016/j.pupt.2026.102435

Abstract

Brain-derived neurotrophic factor (BDNF) is classically recognized for its role in neuronal survival and synaptic plasticity; however, increasing evidence highlights its important regulatory functions within the respiratory system. In the lung, BDNF and its receptors, particularly tropomyosin receptor kinase B (TrkB), are expressed by airway epithelial cells, airway smooth muscle, immune cells, fibroblasts, and neurons, positioning BDNF as a central mediator of neuroimmune-epithelial crosstalk. Activation of BDNF-TrkB signaling engages multiple intracellular pathways, including phosphoinositide 3-kinase/protein kinase B (PI3K/Akt), mitogen-activated protein kinase/extracellular signal-regulated kinase (MAPK/ERK), phospholipase C-γ (PLCγ), and small GTPase-dependent cascades, thereby regulating epithelial repair, airway contractility, inflammation, fibrosis, and neural plasticity. Dysregulation of this signaling axis has been implicated in the pathogenesis of major respiratory diseases. In asthma, excessive BDNF activity contributes to airway hyperresponsiveness and remodeling, whereas in chronic obstructive pulmonary disease reduced BDNF signaling is associated with impaired

epithelial regeneration. In idiopathic pulmonary fibrosis, BDNF promotes fibroblast activation and extracellular matrix deposition, while in acute lung injury and acute respiratory distress syndrome its effects appear context dependent, supporting epithelial survival during acute injury but exacerbating pathology when persistently elevated. Emerging evidence further implicates epigenetic mechanisms, microRNAs, and cellular heterogeneity revealed by single-cell transcriptomics in shaping disease-specific BDNF responses. Collectively, these findings identify BDNF as a context-dependent regulator of pulmonary homeostasis and disease. Targeted modulation of BDNF-TrkB signaling therefore represents a promising, yet complex, therapeutic avenue for chronic and acute respiratory disorders.

Keywords: Airway remodeling; Brain-derived neurotrophic factor; Neuroimmune–epithelial crosstalk; Respiratory diseases; TrkB signaling.

Conflict of interest statement

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

Supplementary info

Publication typesExpand

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18

J Crit Care

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. 2026 Jul 1:95:155670.

doi: 10.1016/j.jcrc.2026.155670. Online ahead of print.

High-dose corticosteroids are associated with higher mortality in patients with COVID-19 ARDS: Results from a nationwide observational study

Anders Boyd [1], Katrijn Daenen [2], Sarah Stoof [3], Hugo D G van Willigen [4], Diederik Gommers [3], Hazra S Moeniralam [5], Corstiaan A den Uil [6], Nicole P Juffermans [3], Merijn Kant [7], Abraham J Valkenburg [8], Janesh Pillay [9], Eric van Gorp [10], Janke Schinkel [11], David M P van Meenen [12], Robin Goossen [12], Frederique

Paulus [12], Virgil Dalm [13], Lieuwe D J Bos [12], Henrik Endeman [14], Jilske A Huijben [3]; PRoVENT- and PRoAcT-COVID Collaborative Group

Affiliations Expand

- PMID: 42385526

- DOI: 10.1016/j.jcrc.2026.155670

Abstract

Background: Optimal corticosteroid dosing strategies remain unclear for severe coronavirus disease 2019 (COVID-19) patients admitted to the intensive care unit (ICU). This study compared mortality among patients treated with high-dose versus standard-dose corticosteroids.

Methods: This prospective cohort study included adult patients with COVID-19 ARDS, defined according to Berlin criteria for ARDS, across 22 centers in the Netherlands between March 2020 and January 2021. Mortality hazards were compared between patients receiving high-dose (>6 mg dexamethasone or equivalent) and standard-dose (6 mg dexamethasone or equivalent) corticosteroids using marginal structural models to adjust for time-varying confounding related to initiation of high-dose therapy. Models were constructed using pooled logistic regression with stabilized inverse probability of treatment weights to emulate a per-protocol analysis.

Results: Data from 848 patients were analyzed: 378(44.6%) received high-dose and 470 (55.4%) standard-dose corticosteroids. Among those treated with high-dose corticosteroids, 63 (16.7%) started therapy within the first day after ICU admission, and 315(83.3%) started at a median of 9 days(IQR = 4-14) after admission. During a median 28 days of follow-up, 183 patients in the high-dose and 154 in the standard-dose group died [incident rate = 2.12 per 100 person-days, 95% confidence interval (CI) = 1.81-2.43 and 1.41 per 100 person-days, 95%CI = 1.13-1.63, respectively]. In the marginal structural model, high-dose corticosteroids were associated with increased mortality (hazard ratio = 2.45, 95%CI = 1.97-3.05). Risk was higher in male patients or those with late initiation (>1 day) of therapy.

Conclusion: In patients with COVID-19 ARDS, high-dose corticosteroids were associated with higher mortality during the first 28 days after ICU admission.

Trial registration: ClinicalTrials.govNCT05403359; https://clinicaltrials.gov/ct2/show/NCT05403359.

Keywords: COVID-19; Corticosteroids; Dose; Intensive care unit; Treatment optimization.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:(Henrik Endeman reports financial support was provided by ZonMw. 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

Associated dataExpand

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Cite

19

Am J Respir Crit Care Med

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. 2026 Jul 1:aamag310.

doi: 10.1093/ajrccm/aamag310. Online ahead of print.

Diagnostic criteria for invasive pulmonary aspergillosis in COPD patients

David W Denning [1], Thomas R Rogers [2], Takahiro Takazono [3], Xin Su [4], Katrien Lagrou [5], P Lewis White [6], Darius Armstrong James [7], Mona Bafadhel [8], Jose Barbaran Lopez [9], Pierre Bulpa [10], Sanjay H Chotirmall [11 12], Sara Gago [1], Jesus Guinea Ortega [13], David M G Halpin [14], MeiLan K Han [15], John R Hurst [16], Sebastien Imbert [17], Wim Janssens [18], Chris Kosmidis [1 19], Alexander G Mathioudakis [20 21], Animesh Ray [22], Nicolas Roche [23], Yongchang Sun [24], Pei Yee Tiew [11 25], Claus F Vogelmeier [26], Thomas M Wilkinson [27], Jørgen Vestbo [21]

Affiliations Expand

- PMID: 42384914

- DOI: 10.1093/ajrccm/aamag310

Abstract

Over 400 million people have chronic obstructive pulmonary disease (COPD), with exacerbations representing a major health burden. Although the overall incidence of invasive pulmonary aspergillosis (IPA) in patients with COPD with hospitalised exacerbation is only 1 to 4%, certain factors substantially increase this frequency. Risk factors compromising defences against Aspergillus spp in COPD patients include systemic or high-dose inhaled corticosteroids, comorbidities including

bronchiectasis, diabetes, and cardiovascular disease, and prolonged courses of antibiotics. An international group of experts met to develop criteria for diagnosing IPA based on existing literature and consensus in non-ventilated COPD patients. The preliminary diagnostic recommendations were further evaluated by additional experts using the Delphi methodology. A hospitalized exacerbation of COPD with two or more of the above clinical risk factors should prompt 1) a CT scan of the chest, 2) sending a respiratory sample (sputum, induced sputum or bronchoscopy sample) for direct microscopy for fungi, high volume fungal culture and preferably Aspergillus PCR, and if a bronchoscopy sample is obtained then also Aspergillus antigen (galactomannan), 3) a serum sample for galactomannan and Aspergillus IgG. The combination of a high-risk COPD patient, with compatible imaging abnormalities and any two positive tests (two samples or different tests on the same respiratory sample) for Aspergillus is sufficient to establish the diagnosis of IPA with enough confidence to initiate antifungal therapy and/or enroll the patient in a clinical or epidemiological study of IPA in COPD. Additional studies are required to augment performance data for most assays in COPD and validate the proposed diagnostic criteria.

20

Review

Lung

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. 2026 Jul 1;204(1):44.

doi: 10.1007/s00408-026-00905-y.

Nebulised heparin as a treatment for lung diseases: formulation challenges and pulmonary drug delivery strategies

Margarida Miranda [1 2 3], Marc Brown [1], Frank M P van Haren [4 5], Beth Brown [1], Clive P Page [6]

Affiliations Expand

- PMID: 42384225
- PMCID: PMC13323334
- DOI: 10.1007/s00408-026-00905-y

Abstract

The COVID-19 pandemic further emphasized the global demand for heparin and its expanding clinical relevance, indicating that even one of the oldest drugs in medicine continues to reveal new therapeutic horizons. Traditionally recognized for its anticoagulant and antithrombotic activities, heparin is increasingly being explored for its versatile therapeutic potential in the treatment of a range of pulmonary diseases, including respiratory infections (e.g. COVID-19), Acute Respiratory Distress Syndrome (ARDS), asthma, chronic obstructive pulmonary disease (COPD) and cystic fibrosis. In all of these diseases, inhaled unfractionated heparin (UFH) therapy has been investigated in a number of clinical trials that have demonstrated promise for this drug when administered directly to the lungs. However, using heparin by this "off label" route of administration, poses a number of technical challenges: the physicochemical properties of heparin at therapeutic doses often results in highly viscous formulations, causing device blockage and drug sorption during nebulization. These limitations underscore the need for innovative formulation strategies to improve aerosol flow, reduce dosing inefficiencies, and enable reliable pulmonary administration. Advancing heparin formulations for delivery to the lung could therefore unlock significant benefits for a wide spectrum of respiratory disorders, marking a new chapter in the long medical history of this drug as discussed below.

Keywords: Anti-infective; Anti-inflammatory; Drug delivery; Formulation development.; Heparin; Pulmonary.

Conflict of interest statement

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

- 148 references
- 2 figures

Supplementary info

Publication types, MeSH terms, SubstancesExpand

Full text links

Cite

21

J Korean Med Sci

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. 2026 Jun 29;41(25):e173.

doi: 10.3346/jkms.2026.41.e173.

Tuberculosis Development in Chronic Obstructive Pulmonary Disease: A Nationwide Population-Based Study

Haebeen Jeong [# 1], Eunyoung Lee [# 2], Ju Hyun Oh [3], Won-Il Choi [4], Bumhee Park [5 6], Joo Hun Park [7]

Affiliations Expand

- PMID: 42381523
- PMCID: PMC13320467
- DOI: 10.3346/jkms.2026.41.e173

Abstract

Background: Pulmonary tuberculosis is a major comorbidity of chronic obstructive pulmonary disease (COPD). However, the risk factors for tuberculosis development in patients with COPD have not been thoroughly studied. Thus, this study investigated the development of tuberculosis according to comorbidities and inhaler prescriptions for COPD.

Methods: A retrospective cohort study was conducted using data from the Korean Health Insurance Review and Assessment Service database from January 1, 2015 to December 31, 2020. This cohort included 139,589 COPD patients (≥ 40 years) with a new prescription of inhalers. Cox proportional hazards regression models were used to identify significant risk factors for predicting the development of tuberculosis.

Results: Multivariate analysis demonstrated that a history of tuberculosis (hazard ratio [HR], 18.14; 95% confidence interval [CI], 16.44-20.02) and hospitalization during the screening period (HR for one hospitalization, 1.30; 95% CI, 1.17-1.44; HR

for two or more hospitalizations, 1.54; 95% CI, 1.39-1.70), along with older age and male sex, were associated with the development of pulmonary tuberculosis.

Conclusion: Our data indicate that a history of tuberculosis and hospitalization during the screening period, along with old age and male sex, are independent risk factors for the development of pulmonary tuberculosis in patients with COPD.

Keywords: Chronic Obstructive Pulmonary Disease (COPD); Comorbidity; Tuberculosis.

Conflict of interest statement

The authors have no potential conflicts of interest to disclose.

- 35 references
- 2 figures

Supplementary info

MeSH termsExpand

Full text links

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Cite

22

Am J Respir Crit Care Med

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. 2026 Jun 30:aamag343.

doi: 10.1093/ajrccm/aamag343. Online ahead of print.

Astegolimab in COPD: success or failure?

Dave Singh [1 2], Mark Dransfield [3 4]

Affiliations Expand

- PMID: 42381344

- DOI: 10.1093/ajrccm/aamag343

No abstract available

Full text links

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Cite

23

Hum Vaccin Immunother

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. 2026 Dec;22(1):2695556.

doi: 10.1080/21645515.2026.2695556. Epub 2026 Jun 30.

Pneumococcal vaccination awareness and uptake among high-risk patients attending internal medicine outpatient clinics: A cross-sectional study

Nazlı Pelin Kırkayak [1], Bora Vergül [1], Fatma Bürde Ulukaya [1], Merve Feyza Demir Gürdal [1], Betul Erismis [1], Enes Seyda Şahiner [1]

Affiliations Expand

- **PMID: 42381159**

- **DOI: 10.1080/21645515.2026.2695556**

Free article

Abstract

Pneumococcal diseases are a significant cause of morbidity and mortality, particularly in high-risk patient groups. Despite national and international guideline recommendations for pneumococcal vaccination in all adults aged ≥ 65 y and in younger adults with established risk conditions, uptake remains critically low in Turkey. This study aimed to evaluate the association of factors such as age, education level, comorbid risk conditions, disease awareness, frequency of physician counseling, and free-of-charge vaccine availability with pneumococcal vaccination uptake among high-risk patients attending internal medicine outpatient clinics. This cross-sectional survey study was conducted between January and June 2024. Data were collected from 116 participants aged 65 and above or aged 18 and above with risk factors attending internal medicine outpatient clinics. The survey consisted of 16 questions Among participants, 45.7% were aged ≥65 y, 34.5% had diabetes, 6.9% had COPD/asthma, and 4.3% had heart failure. Only 20 participants (17.2%) had received pneumococcal vaccination, of whom 85.0% were

vaccinated following physician recommendation. Among non-vaccinated individuals (n = 96), 61.5% reported not being informed about their risk status by a physician. Pneumococcal vaccination was significantly associated with awareness of risk group status ($p < .01$), knowledge of free vaccination ($p < .01$), and prior physician recommendation ($p < .01$). After receiving information, 65 of 96 (67.7%) previously non-vaccinated participants expressed vaccination intention; this reflects short-term receptiveness and should not be interpreted as confirmed behavioral change. These findings suggest that physician counseling and recommendations may be important determinants pneumococcal vaccination uptake among high-risk groups.

Keywords: High-risk populations; Turkey; adult immunization; cross-sectional study; physician recommendation; pneumococcal vaccines; vaccine awareness; vaccine hesitancy.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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Cite

24

J Allergy Clin Immunol

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. 2026 Jun 30:S0091-6749(26)00447-1.

doi: 10.1016/j.jaci.2026.06.013. Online ahead of print.

Clinical and transcriptomic characterization of mixed granulocytic COPD phenotype

Clarus Leung [1], Jung-Wan Yoo [2], Hye Yun Park [3], Haad Bhutta [4], Puneet Sidhu [5], Elizabeth Guinto [4], Graeme J Koelwyn [5], Milad Vahedi [5], Xuan Li [4], Rachel L Eddy [6], Jonathon A Leipsic [6], Fernando Sergio Leitao Filho [7], Julia S Yang [4], Stephen Milne [8], Hiroto Takiguchi [9], Kentaro Akata [10], Seung Won Ra [11], Ji-Yong Moon [12], Hyun Kuk Kim [13], Yuji Cho [14], Kei Yamasaki [15], Stephan F van Eeden [1], Tawimas Shaipanich [1], Stephen Lam [16], Janice M Leung [1], Don D Sin [17]

Affiliations Expand

- PMID: 42379526

- DOI: 10.1016/j.jaci.2026.06.013

Abstract

Background: In chronic obstructive pulmonary disease (COPD), patients with peripheral airways infiltrated by eosinophils and neutrophils ("mixed granulocytic COPD") show worse outcomes than those without.

Objectives: To examine the expression of immune response and lung tissue remodelling pathways in patients with mixed granulocytic COPD.

Methods: In this post hoc study of the DISARM randomized controlled trial, mixed granulocytic COPD was defined by eosinophils > 1% and neutrophils > 3% of the total leukocyte count in bronchoalveolar lavage (BAL). We compared clinical outcomes of mixed granulocytic COPD with two other phenotypes (neutrophilic, pauci-granulocytic). We then examined canonical pathways using gene set enrichment analysis and expression of immune cell and tissue remodelling gene signatures in BAL across phenotypes.

Results: Among 54 patients, 33% had mixed granulocytic COPD. Patients with mixed granulocytic COPD had the lowest forced expiratory volume in 1 second (FEV_1), the most radiographic emphysema, and the highest annualized exacerbation rates. Cell pellets of BAL in mixed granulocytic COPD showed upregulated gene expression of type 1 (tumour necrosis factor (TNF)-alpha, interleukin (IL)-6, and interferon (IFN)-gamma signaling) and type 2 (IL-4/13 signaling) immune responses relative to the neutrophilic and pauci-granulocytic phenotypes. Mixed granulocytic COPD was marked by increased expression of gene signatures for NK cells, B cells, and CD4 and CD8 naïve and memory/effector T cells. Mixed granulocytic COPD showed the highest expression of tissue remodelling processes, which significantly associated with lower FEV_1.

Conclusions: Mixed granulocytic COPD is marked by complex immune responses in the peripheral airways and is associated with increased tissue remodelling that associates with more severe airflow limitation.

Keywords: BAL; COPD; emphysema; eosinophilic; immune response; neutrophilic; tissue remodelling.

. 2026 Jun 30:S1081-1206(26)00292-9.

doi: 10.1016/j.anai.2026.06.022. Online ahead of print.

Overlapping Mechanisms and Novel Biomarkers Define Asthma and COPD as a Spectrum of Airway Disease

Stephen A Schworer [1], Ji-Ho Lee [2], Wanda K O'Neal [3]

Affiliations Expand

- PMID: 42379419

- DOI: 10.1016/j.anai.2026.06.022

Abstract

COPD and asthma are prevalent obstructive airway diseases with shared symptoms (cough, wheezing, dyspnea) and treatments (inhaled corticosteroids and bronchodilators). The prototypical clinical phenotypes are well-recognized; with asthma as a childhood-onset, episodic, bronchodilator responsive condition related to atopy and responsive to treatment with inhaled steroids, and COPD as an adult-onset, progressive disorder that develops after years of exposure to cigarette smoke or inhaled biomass smoke leading to fixed airway obstruction. However, there is well-recognized heterogeneity in the molecular pathophysiology within both diseases as well as substantial overlap in proposed pathophysiological mechanisms. Furthermore, overlapping inflammatory responses occur in endotypes of both asthma and COPD. This overlap includes T2-high asthma and eosinophilic COPD, and a T3 (Th17)-inflammation driven T2-low asthma and neutrophilic inflammation in COPD. Recent advances in cross-sectional imaging that permit quantitative evaluation of mucus plugging have demonstrated a high burden of mucus obstruction in both conditions. A portion of individuals who have features of asthma and COPD have been categorized as asthma-COPD overlap (ACO). However, a universally accepted definition of ACO has yet to be established, and COPD and asthma are widely considered as distinct disease entities. Because specific endotypes often dictate the choice and likelihood of response to targeted therapeutics, identifying biomarkers that cross the spectrum of asthma and COPD will be important to successful precision medicine. In this review, we discuss shared features between asthma and COPD and highlight current and emerging molecular and imaging biomarkers that may guide personalized treatment for obstructive airway disease.

Supplementary info

Publication typesExpand

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Cite

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Am J Respir Crit Care Med

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. 2026 Jun 30:aamag337.

doi: 10.1093/ajrccm/aamag337. Online ahead of print.

How artificial intelligence could improve the diagnosis and management of COPD: a perspective from GOLD

Alvar Agusti [1 2 3 4], Marc Vila [1 5 6], Rosa Faner [1 2 4 7], Frederik Trinkmann [8 9], Wim Janssens [10 11], David M G Halpin [12], Bartolom R Celli [13], Jinping Zheng [14], Gerard Criner [15], Shawn D Aaron [16], Nicolas Roche [17], Leo Fabbri [18], MeiLan Han [19], Don D Sin [20], Fernando J Martínez [21], Alberto Papi [22], Thierry Troosters [23], Antonio Anzueto [24], Obianuju B Ozoh [25], Jadwiga Wedzicha [26], Sundeep Salvi [27], Dave Singh [28], Maria Montes de Oca [29], Ian Pavord [30], Jean Bourbeau [31], Claus F Vogelmeier [32]

Affiliations Expand

- PMID: 42377276

- DOI: 10.1093/ajrccm/aamag337

Free article

No abstract available

Keywords: Chronic Obstructive Pulmonary Disease; Chronic bronchitis; Emphysema; Smoking; Treatment.

Full text links

Proceed to details

Cite

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Lung India

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. 2026 Jul 1;43(4):481-482.

doi: 10.4103/lungindia.lungindia_230_26. Epub 2026 Jun 24.

Perfect diagnostic accuracy in a small derivation cohort and outdated classification criteria: Methodological concerns regarding miR-21 as a biomarker for chronic obstructive pulmonary disease-associated pulmonary hypertension

Madhulika L Mahashabde [1], Sai Karthik Guniganti, Brugumalla V Nitendra Saketh

Affiliations Expand

- PMID: 42377176

- DOI: 10.4103/lungindia.lungindia_230_26

Free article

No abstract available

- 5 references

28

EClinicalMedicine

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. 2026 Jun 19:97:104026.

doi: 10.1016/j.eclinm.2026.104026. eCollection 2026 Jul.

Reassessing the risk-modifying effects of novel antidiabetic agents on asthma-COPD overlap syndrome: a dose-stratified network meta-analysis of 316,832 adults from 128 randomised trials

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Affiliations Expand

- PMID: 42376494
- PMCID: PMC13311999
- DOI: 10.1016/j.eclinm.2026.104026

Abstract

Background: Asthma-chronic obstructive pulmonary disease (COPD) overlap syndrome (ACOS) accounts for 15-25% of chronic obstructive airway disease and is linked to frequent exacerbations and excess mortality. Newer glucose-lowering drugs may affect respiratory outcomes, but agent-level and dose-specific effects on ACOS are uncertain.

Methods: We searched PubMed, Embase, Cochrane CENTRAL, Web of Science, ClinicalTrials.gov, ClinicalKey, ScienceDirect, and ProQuest from inception to April 03, 2026, with an initial search on Dec 12, 2024. Eligible studies were randomised controlled trials in adult participants receiving eligible glucose-lowering therapies and systematically recording ACOS-related, asthma, or COPD events during follow-up. Trials compared dipeptidyl peptidase-4 (DPP-4) inhibitors, glucagon-like peptide-1 (GLP-1) receptor agonists, sodium-glucose cotransporter 2 (SGLT2) inhibitors, and other eligible antidiabetic regimens against standard care and/or placebo control. Risk ratios (RRs) with 95% CIs were estimated relative to this control group for ACOS, asthma, and COPD outcomes. Heterogeneity was assessed using tau-squared and I^2 statistics, and small-study effects/publication bias were assessed using comparison-adjusted funnel plots and Egger's regression. Outcome was trial-reported ACOS-related respiratory events. This study is registered with PROSPERO, CRD42024626613.

Findings: Canagliflozin (RR 0.62, 95% CI 0.40-0.97), empagliflozin (0.70, 0.51-0.95), dapagliflozin (0.76, 0.63-0.92), and injectable semaglutide (0.64, 0.49-0.84) were associated with lower ACOS risk than control. Dose-stratified analyses suggested stronger associations for selected regimens, with signals more evident in participants with diabetes. Dapagliflozin was associated with lower asthma risk, whereas canagliflozin, empagliflozin, and injectable semaglutide were associated with lower COPD risk. Saxagliptin was associated with higher asthma risk (2.09, 1.01-4.33). No major heterogeneity, inconsistency, or small-study effects were detected.

Interpretation: Respiratory associations of newer glucose-lowering therapies were heterogeneous and agent specific. Selected SGLT2 inhibitors and injectable semaglutide were associated with lower ACOS-related risk, whereas saxagliptin

may warrant caution in people prone to asthma. These findings support further prospective evaluation.

Funding: Taiwan National Science and Technology Council.

Keywords: Asthma; Asthma-COPD overlap syndrome; COPD; DPP4 inhibitor; GLP-1 receptor agonist; Network meta-analysis; SGLT2 inhibitor.

Conflict of interest statement

C-WH reports support from the Taiwan National Science and Technology Council for the present manuscript. All other authors declare no competing interests. This study was supported by the Taiwan National Science and Technology Council (112-2314-B-182-070-MY3) to Chih-Wei Hsu. Brendon Stubbs receives support from the NIHR, the NIHR Biomedical Research Centre at South London and Maudsley NHS Foundation Trust, and the Maudsley Charity, King's College London.

- 157 references
- 3 figures

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Biopsychosoc Med

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. 2026 Jun 29.

doi: 10.1186/s13030-026-00364-0. Online ahead of print.

Depressive and anxiety symptoms in COPD: associations with diffusion impairment and echocardiographic pulmonary hemodynamic burden

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Affiliations Expand

- PMID: 42374586

- DOI: 10.1186/s13030-026-00364-0

Free article

Abstract

Background: Psychological distress is common yet often underrecognized in chronic obstructive pulmonary disease (COPD). Physiological correlates beyond spirometry may support biopsychosocial assessment in routine care, but their relation to depressive and anxiety symptoms remain insufficiently characterized.

Methods: In this single-center cross-sectional study, 56 clinically stable Japanese COPD outpatients (mean age 73 years; 87.5% men) completed the Self-Rating Depression Scale (SDS) and the State-Trait Anxiety Inventory (STAI). Clinical assessments included spirometry, %DLCO/VA, echocardiographic tricuspid regurgitation pressure gradient (TRPG), body mass index (BMI), and blood biomarkers. Associations were examined using Spearman's rank correlation and multivariable linear regression adjusted for age, sex, and BMI; Model 1 included %DLCO/VA and Model 2 included TRPG. Bootstrap resampling was used to assess the stability of key regression coefficients.

Results: Depressive symptoms (SDS ≥ 40) were present in 46.5% of the patients (severe 5.4%), and elevated state anxiety in 41.1% (severe 12.5%). SDS scores were correlated with lower %DLCO/VA, higher TRPG, and lower BMI. STAI-state scores were correlated with higher TRPG. In adjusted analyses, lower %DLCO/VA was independently associated with higher SDS scores, whereas higher TRPG was independently associated with higher SDS and STAI-state scores. %FEV1 was not associated with SDS or STAI scores.

Conclusions: In this Japanese outpatient COPD cohort, depressive and anxiety symptoms were common. Elevated TRPG showed a more consistent association with psychological symptoms in bootstrap analyses, whereas lower %DLCO/VA was associated with depressive symptoms but showed less stable bootstrap support than the TRPG findings. These findings support an integrated biopsychosocial assessment approach to routine COPD care, incorporating physiological information beyond spirometric airflow measures.

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. The study protocol was reviewed and approved by the Ethics Committee of the National Hospital Organization Fukuoka National Hospital, Fukuoka, Japan (approval No. 26 − 11). All participants provided written informed consent prior to participation. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

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BMC Geriatr

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. 2026 Jun 29.

doi: 10.1186/s12877-026-07863-3. Online ahead of print.

Immune-inflammatory vulnerability index for risk stratification in older adults with acute exacerbations of COPD: a prospective cohort study

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Affiliations Expand

- PMID: 42374311

- DOI: 10.1186/s12877-026-07863-3

Free article

Abstract

Background: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) are a major cause of morbidity, hospitalization, and short-term mortality in older adults. Growing evidence suggests that aging-related immune remodeling and immune-inflammatory vulnerability (IMV) substantially contribute to biological heterogeneity, susceptibility, and adverse outcomes in this population. However, clinically applicable tools that quantitatively capture this multidimensional biological vulnerability remain limited. This study aimed to develop and externally validate an Immune-Inflammatory Vulnerability Index, hereafter referred to as IAS, conceptualized as a biologically informed index of IMV, to support immune phenotype stratification and short-term risk assessment in older adults hospitalized with AECOPD.

Methods: In this prospective observational cohort study, 219 patients aged ≥ 60 years hospitalized for AECOPD were enrolled in the derivation cohort, and 136 independent patients from an external center were included for validation. Immune phenotyping was performed within 48 h of admission, including $PD\text{-}1^{+}CD4^{+}$ T cells, $CD28^{-}CD8^{+}$ T cells, and serum interleukin-6 (IL-6). IAS was constructed using biologically prespecified immune biomarkers with LASSO-based coefficient weighting, using infection-related versus non-infection-related AECOPD as a supervised biological contrast to enhance immune phenotype differentiation rather than as a direct predictive endpoint. Primary objectives were to evaluate IAS for immune phenotype stratification and to assess its associations with predefined

short-term clinical outcomes, specifically 30-day readmission and 90-day all-cause mortality.

Results: IAS demonstrated strong immune phenotype stratification performance for distinguishing infection-related from non-infection-related AECOPD, with an area under the curve (AUC) of 0.842 (95% CI: 0.771-0.901) in the derivation cohort and 0.826 (95% CI: 0.754-0.885) in the external validation cohort. For prediction of 90-day all-cause mortality, IAS achieved an AUC of 0.824 (95% CI: 0.750-0.890). Higher IAS was independently associated with increased 30-day readmission, prolonged hospitalization, and elevated 90-day mortality risk after adjustment for age, disease severity, and established clinical risk scores (adjusted HR = 3.42, 95% CI: 2.01-5.82). Sensitivity analyses showed that IAS outperformed IL-6 alone and retained discriminatory capacity even after exclusion of IL-6, supporting its broader immune-inflammatory relevance beyond acute inflammatory burden. Longitudinal analyses demonstrated partial remission-associated declines in IAS, consistent with state-responsive biological vulnerability rather than a fixed immune-aging trait.

Conclusions: IAS is a biologically informed, geriatric-oriented index of IMV that integrates aging-related immune remodeling with dynamic inflammatory responses in older adults with AECOPD. Rather than serving as a definitive measure of fixed immune-aging burden or as a dedicated infection classification tool, IAS provides a quantitative framework for biologically relevant immune-inflammatory vulnerability stratification and short-term prognostic assessment. Further prospective multicenter studies are warranted to refine clinical applicability, evaluate implementation feasibility, and improve translational potential before routine clinical adoption can be recommended.

Keywords: AECOPD; Acute exacerbation of chronic obstructive pulmonary disease; IL-6; Immune–Inflammatory Vulnerability Index; Immune–inflammatory vulnerability; PD-1; Risk stratification; T-cell exhaustion.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was conducted in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of Donghai County People's Hospital (Approval No. DHXRMYYLL2023029). This was a prospective observational study. Written informed consent was obtained from all participants or their legal representatives prior to enrollment, including consent for blood sample collection within 48 hours of hospital admission. All data were anonymized prior to analysis to ensure patient confidentiality. No identifiable personal information was disclosed. The external validation cohort was conducted under the same ethical framework, with approval obtained from the corresponding institutional review board and written informed consent obtained from all participants. Consent for publication: Not applicable. Competing interests: The authors declare no competing interests.

Full text links

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Review

Pulm Ther

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. 2026 Jun 29.

doi: 10.1007/s41030-026-00370-1. Online ahead of print.

COPD Biologics: Right Patient, Right Pathway, Right Time

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Affiliations Expand

- PMID: 42374013

- DOI: 10.1007/s41030-026-00370-1

Free article

Abstract

Chronic obstructive pulmonary disease (COPD) is a heterogeneous disease that is entering a new era in precision medicine. Advances in disease endotyping have challenged the traditional view of COPD as a uniformly neutrophilic disorder and revealed biologically distinct subgroups in whom targeted immunomodulation may be effective. Reproducible signatures of type 2 (T2) inflammation and epithelial-derived alarmin activation have emerged as actionable pathways, reshaping therapeutic development in COPD. This narrative review synthesises mechanistic insights and clinical trial evidence for biologic therapies targeting key T2 cytokines such as interleukin-5 (IL-5) IL-4/IL-13 and upstream epithelial alarmins, including interleukin-33 (IL-33) and thymic stromal lymphopoietin (TSLP). We examine why earlier approaches targeting neutrophilic inflammation failed, and how biomarker-driven trial design has enabled success in selected populations. Across these programmes, therapeutic efficacy has depended not only on the pathway targeted but also on patient selection, disease stage and timing of intervention. We propose that the future of biologics in COPD lies in integrating biomarkers, treatable traits and longitudinal phenotyping to align the right patient with the right pathway at the right time, closing persistent treatment gaps in this common, overlooked and burdensome disease.

Keywords: Alarmins; Biologics; Chronic obstructive pulmonary disease; Eosinophils; IL-33; T2 inflammation; TSLP.

Conflict of interest statement

Declarations. Conflict of interest: Lydia. J. Finney Reports Honoraria for educational events or travel to meetings from GSK, AstraZeneca, Sanofi and Roche. Francesca Conway has no conflicts of interest to report. Dheeraj Sethi has no conflicts of interest to report. Ethical Approval: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

- **109 references**

Supplementary info

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Zhonghua Yi Xue Za Zhi

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. 2026 Jun 30;106(24):2455-2468.

doi: 10.3760/cma.j.cn112137-20260111-00121.

[Expert consensus on the implementation and management of multidisciplinary team care for chronic obstructive pulmonary disease(2026 edition)]

[Article in Chinese]

Consensus Expert Group for the Implementation and Management of Multidisciplinary Team Care for Chronic Obstructive Pulmonary Disease; Chronic Obstructive Pulmonary Disease Assembly, Chinese Thoracic Society

- **PMID: 42373466**

- **DOI: 10.3760/cma.j.cn112137-20260111-00121**

Abstract

in English, Chinese

Chronic Obstructive Pulmonary Disease (COPD) is a highly heterogeneous airway disease, and often coexists with other pulmonary and extra-pulmonary diseases. The traditional single-disciplinary approach cannot meet the medical needs of patients with COPD. A multidisciplinary team (MDT) approach, led by respiratory physicians, has been advocated for the care of patients with COPD, but standardized practice guidelines are still lacking. Therefore, the Chronic Obstructive Pulmonary Disease Assembly of the Chinese Thoracic Society convened experts from relevant fields to reach a consensus based on evidence-based medicine and clinical experience, and formulated 11 recommendations regarding the implementation process, target population, indications, and management of MDT care for COPD. This consensus aims to propose a standardized framework for the implementation and management of MDT, thereby improving the quality of multidisciplinary care for COPD in China.

Conflict of interest statement

所有作者声明不存在利益冲突

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

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33

Review

Respir Med

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. 2026 Jun 29:261:109006.

doi: 10.1016/j.rmed.2026.109006. Online ahead of print.

Targeting the neutrophil-DPP-1-protease axis in airway disease: current evidence and future indications

Luigi Pastorino [1], Melissa Ferraris [2], Michela Robbiano [1], Chiara Staffiere [1], Anna Maria Riccio [1], Fulvio Braido [1]

Affiliations Expand

- PMID: 42372954

- DOI: 10.1016/j.rmed.2026.109006

Abstract

Neutrophils contribute to chronic airway diseases with variable pathogenic relevance across conditions. In bronchiectasis, persistent airway neutrophilia and sustained activity of neutrophil serine proteases (NSPs) - neutrophil elastase (NE), proteinase 3 (PR3), and cathepsin G (CatG) - directly drive structural damage and exacerbations. In Chronic Obstructive Pulmonary Disease (COPD), neutrophils participate in parenchymal destruction and systemic inflammation within a broader network of oxidative and immune dysregulation. In T2-low asthma, neutrophilic inflammation is heterogeneous and context-dependent, suggesting a less uniform contribution of NSP-mediated injury. Therapeutic strategies targeting neutrophils downstream have yielded limited clinical success: selective NE inhibitors and C-X-C motif chemokine receptor 2 (CXCR2) antagonists reduced protease activity or neutrophil recruitment but failed to produce consistent improvements in lung function or exacerbation rates. These evidences reflect redundancy among NSPs, compensatory inflammatory pathways, and the presence of pre-activated circulating neutrophils whose proteolytic potential is already established before tissue recruitment. This has shifted attention upstream to the neutrophil-DPP-1-protease axis. Dipeptidyl peptidase-1 (DPP-1) activates NSPs during neutrophil maturation in the bone marrow; its inhibition reduces the protease load of circulating neutrophils without broadly suppressing innate immunity. In bronchiectasis, DPP-1 inhibitors have demonstrated clinically meaningful reductions in exacerbations and airway NSP activity, providing proof of concept for disease modification. In COPD, this strategy is biologically compelling, particularly in neutrophil-predominant phenotypes, but requires dedicated clinical validation. In asthma, any therapeutic role is likely restricted to highly selected T2-low, neutrophil-driven subsets. Future progress will depend on biomarker-guided stratification to define where modulation of the neutrophil-NSP axis can meaningfully alter disease trajectory.

Keywords: Bronchiectasis; Chronic obstructive airway diseases; DPP1-Inhibitors; Neutrophils.

Conflict of interest statement

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

Supplementary info

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Expert Rev Pharmacoecon Outcomes Res

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. 2026 Jun 29:1-9.

doi: 10.1080/14737167.2026.2693168. Online ahead of print.

Single versus multiple inhaler triple therapy in COPD using data from the pragmatic INTREPID trial: cost-effectiveness analysis from the Chilean public healthcare system perspective

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Affiliations Expand

- PMID: 42343705

- DOI: 10.1080/14737167.2026.2693168

Abstract

Background: Chronic obstructive pulmonary disease (COPD) imposes a substantial economic burden in Chile. This study assessed the cost-effectiveness of fluticasone furoate, umeclidinium, and vilanterol (FF/UMEC/VI) once daily via single inhaler compared to multiple inhaler triple therapy (MITT) for moderate to severe COPD, from the Chilean public healthcare system perspective.

Research design and methods: The Galaxy COPD disease progression model was adapted to the Chilean setting, incorporating Chilean healthcare resource use and unit costs, along with patient data, comparators, and treatment effects from INTREPID trial. Costs and healthcare benefits were aggregated over 25 years and reported as incremental cost-effectiveness ratios (ICERs-cost/quality-adjusted life year [QALY] gained). Sensitivity analysis included probabilistic assessment.

Results: Single inhaler FF/UMEC/VI provided an additional 0.261 QALYs at an incremental cost of 114.21 United States Dollars (USD) per patient, leading to an ICER of 438.41 USD/QALY in the base case. FF/UMEC/VI reduced severe

exacerbations per patient per year by 4.38% compared to MITT. FF/UMEC/VI was dominant over MITT in 5- and 10-year time horizons.

Conclusions: Despite higher total costs due to increased drug acquisition, FF/UMEC/VI reduces healthcare resource utilization associated with COPD events, representing a cost-effective option compared to MITT for moderate to severe COPD in Chile.

Keywords: Chile; chronic obstructive; cost-effectiveness analysis; dry powder inhalers; pulmonary disease; quality-adjusted life years.

Plain language summary

Patients with chronic obstructive pulmonary disease (COPD) must deal with several symptoms that include dyspnea, cough, and sputum production. In Chile, about 40% of the patients experience episodes of disease exacerbation per year, while at least one of these leads to a hospitalization. Individuals with higher risk of exacerbations demand the use of several treatments that can be used on single or multiple inhalers. The single-inhaler therapy may be more convenient and effective than multiple inhalers in terms of treatment adherence. However, nowadays there are several therapeutic options in the market and limited financial resources. The present analysis assessed the balance between costs and clinical benefits of the treatment with a single inhaler versus multiple inhalers among patients with moderate to severe COPD. Considering the Chilean healthcare system perspective, treatment with single-inhaler promotes greater clinical benefits, while the cost is under a predefined willingness-to-pay threshold, when compared to multiple inhalers. Thus, it represents an important option for enhancing COPD management in Chile.

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Physiother Res Int

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. 2026 Jul;31(3):e70254.

doi: 10.1002/pri.70254.

Exploratory Associations Between Deep Core Muscle Function and Pulmonary Function Across GOLD Stages in Individuals With COPD

Nahid Khan [1 2], Suresh Mani [3], Iqbal Alam [4], Abhinav Jain [5]

Affiliations Expand

- **PMID: 42339648**

- **DOI: 10.1002/pri.70254**

Abstract

Background: Chronic Obstructive Pulmonary Disease (COPD) is associated with diaphragm dysfunction and reduced functional capacity. Altered deep core muscle function, particularly of deep abdominal muscles may further compromise postural stability and functional performance. However, objective clinical assessment of deep core muscle activation across COPD severity remains underexplored.

Purpose: To explore potential associations between deep core muscle function using a pressure biofeedback unit (PBU) and Pulmonary Function parameters (PFT) across Global Initiative for Chronic Obstructive Lung Disease (GOLD) stages in individuals with COPD.

Methods: In this cross-sectional exploratory study, 84 individuals with COPD were assessed. Pulmonary function (FEV_1, FVC and FEV_1/FVC) was measured using spirometry. Deep core muscle function was evaluated using a Pressure Biofeedback Unit (PBU) during the Abdominal Drawing-In Maneuver (ADIM) in prone position. Associations between PBU measures and pulmonary function parameters were examined using Spearman's correlation including exploratory analysis across GOLD stages.

Results: Deep core muscle function demonstrated statistically significant negative correlations with pulmonary function parameters, including FEV_1/FVC ($\rho = -0.55$; $p < 0.001$), FEV_1 ($\rho = -0.72$; $p < 0.001$) and FVC ($\rho = -0.59$; $p < 0.001$). Mean PBU pressure values progressively increased across GOLD stages (Kruskal-Wallis H (3) = 50.053; $p < 0.001$; $\varepsilon^2 = 0.59$). Stage-wise exploratory analyses demonstrated variable correlations across GOLD stages, however findings should be interpreted cautiously due to small subgroup sample sizes.

Discussion: Deep core muscle function assessed via pressure biofeedback demonstrated exploratory association with pulmonary function and varied across COPD severity categories. Participants with greater airflow limitation generally exhibited poorer deep abdominal muscle activation. These findings indicate a possible association between COPD severity and altered deep core muscle activation patterns. However, due to the exploratory cross-sectional design and methodological limitations, the findings should be considered hypothesis-generating rather than confirmatory. Longitudinal and interventional studies are required to further investigate these associations.

Trial registration: The data for the present study were collected as part of a PhD thesis and the study was registered with the Clinical Trials Registry of India (CTRI/2022/12/048039).

Keywords: chronic obstructive pulmonary disease; deep core muscle function; pressure biofeedback unit; pulmonary function.

- 18 references

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Review

JAAPA

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. 2026 Jul 1;39(7):20-27.

doi: 10.1097/01.JAA.0000000000000377. Epub 2026 Jun 23.

COPD: A Comprehensive Overview of a Prevalent Disease

Zhi Peng Li [1]

Affiliations Expand

- PMID: 42332389

- DOI: 10.1097/01.JAA.0000000000000377

Abstract

Chronic obstructive pulmonary disease (COPD) is a progressive disease characterized by airflow limitation. Despite the availability of comprehensive, evidence-based guidelines from the Global Initiative for Chronic Obstructive Lung Disease (GOLD), utilization of these recommendations remains limited in clinical practice. COPD contributes substantially to global morbidity, mortality, and economic burden and is projected by the World Health Organization to become the third leading cause of death worldwide by 2030. Early recognition and diagnosis, adherence to guideline-based pharmacologic management, smoking cessation, vaccination, and pulmonary rehabilitation are mainstay strategies to slow disease progression and prevent exacerbations. Understanding the pathophysiology and

systemic complications is essential for improving outcomes and enhancing quality of life in patients with COPD.

Keywords: COPD; GOLD guidelines; acute exacerbation; chronic bronchitis; emphysema; pulmonary hypertension.

- 32 references

Supplementary info

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Proc (Bayl Univ Med Cent)

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. 2026 Jul;39(4):592-597.

doi: 10.1080/08998280.2026.2657659. Epub 2026 Apr 21.

Impact of cirrhosis on patients admitted with an exacerbation of acute chronic obstructive pulmonary disease: a nationwide analysis

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Affiliations Expand

- PMID: 42269045
- PMCID: PMC13271308
- DOI: 10.1080/08998280.2026.2657659

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality globally. The co-occurrence of COPD exacerbation and

cirrhosis may compound clinical complexity and elevate adverse outcome risks. This study aimed to evaluate the impact of cirrhosis on outcomes among patients admitted with acute exacerbations of COPD.

Methods: Data were extracted from the Nationwide Inpatient Sample database for the period of 2019 to 2021. Patients hospitalized with acute exacerbations of COPD were identified using ICD-10 codes. The study population was stratified into patients with cirrhosis and those without. The primary outcome was in-hospital mortality. Secondary outcomes included sepsis, hepatic encephalopathy, respiratory failure, cardiac arrest, cardiac arrhythmias, pneumothorax, pulmonary embolism, acute kidney injury, and hospital length of stay.

Results: Among 914,498 patients hospitalized with COPD exacerbations, 4.2% had cirrhosis. Cirrhotic patients were younger and had higher in-hospital mortality, longer length of stay, and higher hospital charges compared to noncirrhotics. Cirrhosis was independently associated with increased mortality and a higher risk of sepsis, acute kidney injury, encephalopathy, shock, and prolonged hospitalization. Associations with arrhythmia and cardiac arrest were not statistically significant.

Conclusion: Cirrhosis is associated with higher in-hospital mortality and increased risk of complications in patients admitted for COPD exacerbations, contributing to longer hospital stays and higher healthcare costs. Clinical monitoring and tailored management are warranted in this group.

Keywords: Chronic obstructive pulmonary disease; cirrhosis; exacerbation; liver; mortality.

Conflict of interest statement

The authors report no funding or conflicts of interest. The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

- **23 references**

Supplementary info

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Proc (Bayl Univ Med Cent)

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. 2026 Jul;39(4):598-599.

doi: 10.1080/08998280.2026.2669422. Epub 2026 May 8.

Acute exacerbations of chronic obstructive pulmonary disease in the setting of cirrhosis: a high-risk combination

Thomas A Di Vitantonio [1]

Affiliations Expand

- PMID: 42269041

- PMCID: PMC13271350

- DOI: 10.1080/08998280.2026.2669422

No abstract available

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Full text links

Editorial

Open Respir Arch

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. 2026 May 7;8(3):100630.

doi: 10.1016/j.opresp.2026.100630. eCollection 2026 Jul-Sep.

The Future of New Inhaled Phosphodiesterase Inhibitors in Chronic Obstructive Pulmonary Disease

Antonio Anzueto [1]

Affiliations Expand

- PMID: 42257233

- PMCID: PMC13234227

- DOI: 10.1016/j.opresp.2026.100630

No abstract available

- 15 references
- 1 figure

Supplementary info

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Observational Study

J Electrocardiol

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. 2026 Jul-Aug:97:154377.

doi: 10.1016/j.jelectrocard.2026.154377. Epub 2026 Jun 1.

Electrocardiographic markers of right heart strain and their association with arrhythmias in patients with COPD

Nenad Kocikj [1]

Affiliations Expand

- PMID: 42229002

- DOI: 10.1016/j.jelectrocard.2026.154377

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is frequently associated with cardiovascular complications, including right heart dysfunction and cardiac arrhythmias. Chronic hypoxia and pulmonary vascular remodeling may lead to structural and electrical cardiac changes. Electrocardiography (ECG) may provide simple markers of right heart strain that could help identify COPD patients at increased arrhythmic risk.

Objective: To evaluate the association between ECG markers of right heart strain and arrhythmias and to identify independent predictors using multivariable analysis.

Methods: This cross-sectional observational study included 80 consecutive patients with confirmed COPD treated in a secondary healthcare center. All patients underwent standard 12-lead ECG and 24-h Holter monitoring. COPD diagnosis and severity were defined according to GOLD criteria. Arrhythmias included atrial fibrillation, supraventricular tachycardia, premature ventricular contractions, and other clinically relevant rhythm disturbances. Patients were divided into two groups: with arrhythmias (n = 40) and without arrhythmias (n = 40). ECG parameters included P pulmonale, right axis deviation (RAD), right ventricular hypertrophy (RVH), T-wave inversion in V1-V3, low QRS voltage and right bundle branch block (RBBB). Multivariable logistic regression analysis was performed adjusting for age, sex, FEV_1, hypertension, diabetes, and cardiovascular risk factors.

Results: ECG abnormalities were significantly more prevalent in patients with arrhythmias. P pulmonale was more frequent in the arrhythmia group (55% vs. 20%, p = 0.002), although analysis was restricted to patients in sinus rhythm. RAD (62.5% vs. 20%, p < 0.001), RVH (45% vs. 15%, p = 0.007), T-wave inversion (65% vs. 30%, p = 0.003), and RBBB (60% vs. 20%, p < 0.001) were significantly more common in patients with arrhythmias. Low QRS voltage did not differ significantly between groups (70% vs. 55%, p = 0.20). On multivariable analysis, P pulmonale (OR 3.2, 95% CI 1.3-7.8, p = 0.01) and RVH (OR 2.9, 95% CI 1.1-7.2, p = 0.03) were independent predictors of arrhythmias.

Conclusion: ECG markers of right heart strain, particularly P pulmonale and RVH, are independent predictors of arrhythmias in COPD patients. ECG may serve as a simple, non-invasive tool for early risk stratification and identification of patients who may benefit from closer rhythm monitoring. The relatively small sample size and single-centre design may limit the generalizability of the findings.

Keywords: Arrhythmias; Chronic obstructive pulmonary disease; Electrocardiography; P pulmonale; Right ventricular hypertrophy.

Conflict of interest statement

Declaration of competing interest The author declares no conflict of interest.

Supplementary info

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Randomized Controlled Trial

Acta Anaesthesiol Scand

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. 2026 Jul;70(6):e70269.

doi: 10.1111/aas.70269.

Prehospital Use of Non-Invasive Ventilation for Acute Respiratory Failure due to Acute Exacerbation of Chronic Obstructive Pulmonary Disease. A Randomised Trial

Jesper H Brendel [1], Lars W Andersen [1 2 3], Søren H Skaarup [3 4], Thomas Dissing [1 2], Anders Gunnar Nielsen [1 5], Nikolaj F Milandt [1 6], Ulrick S Espelund [1 3 7], Lisa F Irion [1 7], Lone R Mortensen [1 8], Kim M Larsen [1 9], Jens Aage K Petersen [2 3]

Affiliations Expand

- PMID: 42219224

- DOI: 10.1111/aas.70269

Abstract

Background: In-hospital use of non-invasive ventilation improves outcomes in patients with acute respiratory failure caused by acute exacerbation of chronic obstructive pulmonary disease. Prehospital use of non-invasive ventilation is uncommon due to diagnostic uncertainty and logistical constraints. We hypothesised that prehospital non-invasive ventilation guided by arterial blood gas analysis would improve early physiological outcomes compared with standard medical treatment alone.

Methods: This investigator-initiated, multicentre trial randomised patients with suspected acute respiratory failure due to acute exacerbation of chronic obstructive pulmonary disease with respiratory acidosis defined as pH < 7.30 and $PaCO_2$ > 6.0 kPa to standard medical treatment alone or standard medical treatment plus non-

invasive ventilation. Patients were attended by prehospital physician-manned emergency care units and enrolled without prior consent under emergency trial approval. The primary outcome was the change in arterial pH from enrolment to hospital arrival.

Results: The trial was terminated early due to low recruitment. Out of 111 screened patients, 16 were randomised and 14 were included in the analysis. The median prehospital pH change was 0.09 (interquartile range 0.02-0.12) in the non-invasive ventilation + standard medical treatment group and 0.02 (0.01-0.03) in the standard medical treatment alone group. Median on-scene time was 32 min in the non-invasive ventilation + standard medical treatment group versus 28 min in the standard medical treatment alone group. Recruitment was limited by strict inclusion criteria, procedural complexity and challenges related to the implementation of prehospital arterial blood gas analysis and trial procedures. Missing data further limited the assessment of in-hospital outcomes.

Conclusion: The clinical effect of prehospital non-invasive ventilation could not be determined due to early termination. This trial highlights important challenges relevant to future clinical trials in the prehospital setting, including patient selection, diagnostic requirements and implementation of complex interventions.

Trial registration: NCT06211920.

- 25 references

Supplementary info

Publication types, MeSH terms, Associated data, Grants and fundingExpand

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42

Eur J Intern Med

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. 2026 Jul:149:106965.

doi: 10.1016/j.ejim.2026.106965. Epub 2026 May 26.

Heart failure and COPD - guideline adherence, diagnostic characterisation and treatment quality

Delphine Vauterin [1], Nathaniel M Hawkins [2], Leonardo M Fabbri [3], Lies Lahousse [4]

Affiliations Expand

- PMID: 42185148

- DOI: 10.1016/j.ejim.2026.106965

No abstract available

Conflict of interest statement

Declaration of competing interest Outside this manuscript, LL has been consulted as expert for AstraZeneca, GlaxoSmithKline and Sanofi, has received support for travel by AstraZeneca and Menarini, and has given lectures sponsored by Chiesi, Johnson and Johnson services INC, IPSA vzw and Domus Medica vzw (non-profit organizations facilitating lifelong learning for health care providers), all paid to her institution and outside the scope of this manuscript. LMF declares consulting fees from Chiesi, GlaxoSmithKline, AstraZeneca, Menarini Foundation, Novartis, Pfizer and Verona Pharma, payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Chiesi, GlaxoSmithKline, Glenmark, Lusofarmaco and Sanofi and participation in a Data Safety Monitoring Board or Advisory Board for Chiesi, Novartis and ICON. LMF declares to have received support for attending meetings and/or travel from Menarini Foundation and European Respiratory Society. NMH declares clinical trial funding, consulting fees and payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from AstraZeneca. All are outside the scope of the current manuscript. All other authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

. 2026 Jul 1;331(1):H142-H152.

doi: 10.1152/ajpheart.00182.2026. Epub 2026 May 22.

Aging and cardiopulmonary interactions: physiologic and pathophysiologic consequences

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Affiliations Expand

- PMID: 42173513

- DOI: 10.1152/ajpheart.00182.2026

Free article

Abstract

Monitoring hemodynamics and its response to fluid challenges is important for in-hospital patients to maintain adequate tissue perfusion without leading to organ edema or dysfunction. The physiologic background of bedside hemodynamic indexes depends on the cardiopulmonary interactions. However, monitoring fluid responsiveness in older adults may be particularly challenging because age-related physiologic changes and prevalent comorbidities can alter cardiopulmonary interactions. Those alterations are often neglected in clinical studies and even in the classic formulas used to estimate basic variables for hemodynamics. This issue becomes even more important because many studies on fluid responsiveness include cohorts composed of older adults, but few directly address the unique physiologic and pathophysiologic features of aging as the central variable of interest. This narrative review aims to highlight the physiologic consequences of aging and the difficulty in assessing fluid responsiveness in an aging population. Conditions such as heart failure with preserved ejection fraction may shift the Frank-Starling relationship, thereby reducing preload dependence in older adults and narrowing the therapeutic window between the beneficial and deleterious effects of intravenous fluid administration. Additional conditions, including aortic stenosis, may further confound the interpretation of dynamic indices used to assess fluid responsiveness. Future experimental and clinical research agendas should adopt a phenotype-oriented approach, investigating the impacts on hemodynamic assessment from age-related physiologic adaptations and the most prevalent cardiopulmonary conditions, such as heart failure with preserved ejection fraction, chronic obstructive pulmonary disease, and aortic stenosis. The stratification of older adults and data analysis from clinical studies could be of great value.

Keywords: critical care; elderly; emergency department; fluid responsiveness; hemodynamic parameters.

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44

Lancet Respir Med

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. 2026 Jul;14(7):620-632.

doi: 10.1016/S2213-2600(26)00057-3. Epub 2026 May 19.

Comorbid diabetes disease severity and microbial changes in patients with bronchiectasis: a combined analysis of data from the EMBARC, EMBARC-India, Australian, and BE-China registries

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Affiliations Expand

- PMID: 42155496

- DOI: 10.1016/S2213-2600(26)00057-3

Free article

Abstract

Background: Bronchiectasis and diabetes commonly coexist and are associated with immune dysfunction and increased susceptibility to infection. Although diabetes is associated with worse prognosis in cystic fibrosis-related bronchiectasis, data are scarce for its impact on non-cystic fibrosis bronchiectasis. This study aimed to characterise the impact of diabetes on clinical outcomes and microbial and inflammatory profiles in patients with bronchiectasis.

Methods: This analysis comprised data from the European Bronchiectasis Registry (EMBARC), Respiratory Research Network of India (EMBARC-India), Chinese Bronchiectasis Registry (BE-China), and Australian Bronchiectasis Registry (ABR); 30 263 patients with CT-confirmed bronchiectasis in 33 countries were included in the analysis: 16 963 from EMBARC (Jan 12, 2015, to April 12, 2022), 2361 from EMBARC-India plus additional Asian countries (June 1, 2015, to Sept 1, 2017), 10 324 from BE-China (Jan 10, 2020, to March 31, 2024), and 615 from the ABR (March 7, 2016, to Sept 11, 2018). Clinical data were compared between patients with and without diabetes. Long-term outcome data were available in EMBARC and EMBARC-India. Microbiome and inflammatory profiles were characterised in a sub-cohort of EMBARC patients by sputum 16S rRNA sequencing (n=433) and serum Olink (n=479).

Findings: 2487 (8·2%) of 30 263 patients with bronchiectasis had diabetes. Patients with diabetes had a higher prevalence of comorbidities than those without diabetes, including cardiovascular disorders (53·5% vs 21·8%, p<0·0001), asthma (27·5% vs 21·0%, p<0·0001), and chronic obstructive pulmonary disease (34·3% vs 19·0%, p<0·0001). Patients with diabetes had more severe disease than those without diabetes, with higher Bronchiectasis Severity Index scores (8 [IQR 5-12] vs 7 [4-10], p<0·0001) and UK Medical Research Council (MRC) dyspnoea scores (p<0·0001) and more hospital admissions in the previous year (p<0·0001). After adjustment for confounders, outcomes were significantly worse in patients with diabetes than in those without diabetes, including more frequent exacerbations (incidence rate ratio [IRR] 1·18 [95% CI 1·09-1·28], p<0·0001), hospital admissions (IRR 1·57 [1·40-1·76], p<0·0001), and higher 5-year mortality (hazard ratio 1·80 [1·53-2·12], p<0·0001). The sputum microbiome was significantly altered in patients with diabetes compared to those without diabetes, with increased isolation of Enterobacteriaceae (p<0·0001), Moraxella catarrhalis (p=0·0035), and Haemophilus influenzae (p=0·046). In serum, Gal-4 and GDF-15, established biomarkers of disease severity and cardiovascular risk in diabetes, were significantly increased in patients with diabetes (Gal-4, p<0·0001; GDF-15, p=0·0019).

Interpretation: Patients with diabetes and bronchiectasis are a high-risk population with more severe disease, worse outcomes, increased comorbidities, and increased risk of infections compared with patients without diabetes. These findings support inclusion of diabetes as a risk factor in individualised risk assessments for bronchiectasis.

Funding: European Respiratory Society, Armata, AstraZeneca, Boehringer Ingelheim, Chiesi, CSL Behring, GSK, Grifols, Insmed, Janssen, Lifearc, Roche, Verona Pharma, Zambon, National Natural Science Foundation of China, Innovation Program of the Shanghai Municipal Education Commission, Program of the Shanghai Municipal Science and Technology Commission, Program of the Shanghai Shenkang Development Center, EU/European Federation of Pharmaceutical

Industries and Associations, Innovative Medicines Initiative, and Inhaled Antibiotics in Bronchiectasis and Cystic Fibrosis Consortium.

Conflict of interest statement

Declaration of interests HC reports grants or contracts from the Korean Ministry of Education (numbers RS-2025-25423084 and 2021R1I1A3052416) and AstraZeneca, consulting fees from Gilead, Boehringer Ingelheim, and Abbott, and lecture fees from Kolong, Boryung, Abbott, Otsuka, and Handok. SHC reports grants or contracts from the Singapore Ministry of Education and Singapore Ministry of Health's National Medical Research Council, with payments made to the institution; consulting fees from Boehringer Ingelheim, CSL Behring, Pneumagen, Sanofi, GSK and Zaccha Pte; lecture fees from AstraZeneca, CSL Behring, Boehringer Ingelheim, and Chiesi Farmaceutici; and participation on a data safety monitoring board or advisory board for Inovio Pharmaceuticals and Imam Abdulrahman Bin Faisal University. AS reports grants or contracts from Astrazeneca, Lifearc, and Insmed; fees for consulting or educational talks from Spirovant, Translate Bio, ReCode Therapeutics, Ethris, and Insmed; and leadership or fiduciary roles as Chair of the BEAT-PCD (Better Experimental Approaches to Treat Primary Ciliary Dyskinesia) European Respiratory Society clinical research consortium and involvement in European Respiratory Society Clinical Research Collaborations (EMBARC and AMR Lung). P-RB reports fees for consultancy work from AstraZeneca, Chiesi, GSK, Insmed, MSD, Pfizer, Vertex, and Viatris. MV reports payment for educational talks from Teva, Chiesi, and Insmed; support for attending meetings or travel, or both, from Pari, Chiesi, Zambon, Behring, Gebro, and Grifols and participated on a data safety monitoring board or advisory board for Insmed. W-JG reports support for this work as part of a Major Project of Guangzhou National Laboratory (grant number GZNL2024A02003) and Non-communicable Chronic Diseases-National Science and Technology Major Project (number 2024ZD0529600). PCG reports fees for educational talks from Insmed, RMEI, AstraZeneca, and GSK; support for attending meetings or travel, or both, from GSK and AstraZeneca; and participated on a data safety monitoring board or advisory board for Boehringer Ingelheim, MSD, and Pfizer. MS reports grants from Tel Aviv League for Lung Diseases and George K Baum Family Foundation; fees for consultancy work or educational talks from AstraZeneca, Boehringer Ingelheim, Dexcel, Kamada, Synchrony medical, Trumed, Zambon, CSL Behring, GSK, Sanofi, and Insmed; support for attending meetings or travel, or both, from Boehringer Ingelheim Israel, AstraZeneca Israel, Kamada, Rafa, and GSK Israel; has participated on a data safety monitoring board or advisory board for Bonus Biotherapeutics, Boehringer Ingelheim, AstraZeneca, and Insmed; and has a leadership or fiduciary role for the American Journal of Respiratory and Critical Care Medicine as Associate Editor, Treasurer of the Israeli Society for Tuberculosis and Mycobacterial Diseases, Management board member of EMBARC, Editorial board member of the European Respiratory Journal, European Respiratory Society (ERS) taskforce member of bronchiectasis guidelines, and ERS taskforce member of transitioning in bronchiectasis. ADS has received grants from Bayer, Gilead, GSK, Pfizer, AstraZeneca, Insmed, and Novartis; fees for consultancy or educational talks from Boehringer Ingelheim, Bayer, Gilead, Pfizer, GSK, Insmed, Astrazeneca, Novartis, Sanofi, 30T, Innogen, and Fisher&Paykel; support for attending meetings or travel, or both, from AstraZeneca, Chiesi, GSK, and Insmed;

and participated on a data safety monitoring board or advisory board for Bayer. CSH has received fees for consultancy work or educational talks from 30 Technology, AstraZeneca, BiomX, Boehringer Ingelheim, Chiesi, Clarametyx, Infex, Insmed, LifeArc, Pneumagen, Sanofi, Vertex, and Zambon; and has received research funding from AstraZeneca. OS has received fees for consultancy work from Insmed and Boehringer Ingelheim. EP reports grants from Grifols and has received fees for consulting or educational talks from Pfizer, Insmed, Omakase, GSK, Chiesi, Boehringer Ingelheim, AN2 therapeutics, Moderna, Grifols, CSL Boehring, and Gilead. MRL has received fees for consulting or educational talks from 30T, AstraZeneca, Insmed, Chiesi, Recode, Boehringer Ingelheim, Ethris, Mannkind, AN2 Therapeutics, MucPharm, and Galapagos. FCR has received grants from the German Center for Lung Research (DZL), German Center for Infection Research (DZIF), Mukoviszidose Institute, Novartis, and Insmed Germany; fees for consultancy or educational talks from Parion Sciences, Boehringer Ingelheim, Insmed, Chiesi, AstraZeneca, I!DE Werbeagentur, Sanofi, Cliniqo, and medupdate; has participated on a data safety monitoring board or advisory board for Parion Sciences, Boehringer Ingelheim, Insmed, Chiesi, and AstraZeneca; has a leadership or fiduciary role as co-chair of the German Bronchiectasis Registry PROGNOSIS, is a member of the steering committee of the European Bronchiectasis Registry EMBARC, principal investigator of DZL and has received fees for clinical trial participation paid to their institution from AstraZeneca, Boehringer Ingelheim, Insmed, Parion, Ruhr University-Bochum, the University of Dundee, and Vertex. KD reports fees from educational talks from Novartis, Boehringer Ingelheim, GSK, NORMA Hellas, Chiesi, AstraZeneca, and Zambon; support for attending meetings or travel, or both, from Novartis, Boehringer Ingelheim, GSK, NORMA Hellas, Chiesi, AstraZeneca, and Menarini; and participated on a data safety monitoring board or advisory board for Novartis, GSK, and Chiesi. RL has received an award from Vertex Pharmaceutical; investigator-initiated studies provided funding for this work. FB has received grants from AstraZeneca, Chiesi, and Insmed, plus fees for consultancy or educational work from Menarini, AstraZeneca, Chiesi, Boehringer Ingelheim, GSK, Grifols, Insmed, MSD, OM Pharma, Pfizer, Sanofi, Vertex, and Zambon. MC has received grants from Insmed, Boehringer Ingelheim, GlaxoSmithKline, Zambon, and AstraZeneca. PM has received grants from the National Health and Medical Research Council of Australia (NHMRC; the Medical Research Future Fund [MRFF] Ideas grant) and Canadian Institutes of Health; and fees for consultancy work or educational talks from Vertex Pharma, AstraZeneca, Limbic, and MedEd; payment for expert testimony from Experts Direct; support for attending meetings or travel, or both, from NSW Health; has participated on a data safety monitoring board or advisory board for CF Foundation and Boehringer Ingelheim; has a leadership or fiduciary role with the Australian Bronchiectasis Registry, Australian Cystic Fibrosis Data Registry, Cystic Fibrosis Australia Standards of Care committee, European Cystic Fibrosis Society Standards of Care committee, and ERS; and their family have shareholdings in ResMed and Sanofi Pharma. MBL has received fees for educational talks from Grifols; received grants from GlaxoSmithKline, and fees for consultancy or educational talks from Insmed Ireland, Insmed Italy, Moderna TX, Moderna Italy, An2 Therapeutics, Physioassist, Zambon Italia, Zambon, Chiesi Farmaceutici, Insmed Germany, Insmed Netherlands, Boehringer Ingelheim Italia, Insmed, Boehringer Ingelheim International, Sanofi, Glaxosmithkline, Vertex Pharmaceuticals (Europe), Brahms, and Fondazione Internazionale Menarini. RD has received payments for educational talks from Cipla, Glenmark, Zuventus, Lupin, GSK, AstraZeneca, and Sanofi; and has participated on

a data safety monitoring board or advisory board for Glenmark, Lupin, Sun Pharma, and Cipla. JDC has received grants from AstraZeneca, Boehringer Ingelheim, Chiesi, Grifols, Genentech, Gilead, Insmed, and Trudell; and received fees for consultancy from AstraZeneca, Glaxosmithkline, Grifols, Boehringer Ingelheim, Janssen, Zambon, Chiesi, Insmed, Novartis, Pfizer, and Antabio. All other authors declare no competing interests.

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Lancet Respir Med

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. 2026 Jul;14(7):e41-e42.

doi: 10.1016/S2213-2600(26)00145-1. Epub 2026 May 13.

Where fresh air fails: COPD and the hidden burden of coastal living

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Affiliations Expand

- PMID: 42127956

- DOI: 10.1016/S2213-2600(26)00145-1

No abstract available

Conflict of interest statement

We declare no competing interests. CEB is supported by the NIHR Nottingham Biomedical Research Centre by a grant to their institution.

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Respir Med

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. 2026 Jul:258:108888.

doi: 10.1016/j.rmed.2026.108888. Epub 2026 May 11.

Exploring the bone-vascular axis: AI-augmented chest CT analysis in COPD highlights association between vertebral bone density and arterial calcifications

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Affiliations Expand

- PMID: 42119926

- DOI: 10.1016/j.rmed.2026.108888

Free article

Abstract

Objectives: Artificial intelligence (AI) tools enable automated assessment of vertebral bone mineral density (BMD), coronary artery calcification (CAC), and aortic calcification on CT scans, offering multimorbidity analysis in chronic obstructive pulmonary disease (COPD) patients. We aimed to investigate the bone-vascular axis with a focus on COPD severity and inhaled corticosteroid (ICS) use.

Methods: Low-dose chest CTs of 540 patients from the COSYCONET study were analyzed using AI-based tools. Total thoracic calcification (TTC) was defined as the sum of CAC and aortic calcification volumes. The BMD was measured for T12 in Hounsfield units. Group comparisons and correlation analyses were stratified by COPD severity (GOLD 0-2 vs. GOLD 3-4) and ICS treatment. The modification effect was assessed with multivariable and interaction models.

Results: Higher CAC and TTC were significantly associated with increased age, smoking, BMI, and impaired physical function, while gait speed, female sex, and BMD were inversely associated. With no significant difference between GOLD

stages, BMD showed a consistent negative correlation with both CAC (ρ = -0.247 and -0.243) and TTC (ρ = -0.286 and -0.304). Interaction analyses revealed no significant modification effect for COPD severity; a marginally significant trend toward a stronger association among ICS users for CAC (β = -0.175, p = 0.042), but no significant effect for TTC.

Conclusion: The decreased vertebral BMD was associated with increased vascular calcification, independent of COPD severity and marginally dependent on ICS therapy. These findings support the concept of "bone-vascular axis", likely driven by shared degenerative mechanisms.

Keywords: Artificial intelligence; Bone density; Chronic obstructive pulmonary disease; Multimorbidity; Vascular calcification.

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: Hans-Ulrich Kauczor reports financial support was provided by Project DEAL. Hans-Ulrich Kauczor reports financial support was provided by PERMED-COPD. Franziska C. Trudzinski reports a relationship with Boehringer Ingelheim that includes: speaking and lecture fees. Franziska C. Trudzinski reports a relationship with GlaxoSmithKline that includes: speaking and lecture fees. Franziska C. Trudzinski reports a relationship with GrifolsNovartis that includes: speaking and lecture fees. Franziska C. Trudzinski reports a relationship with CSL Behring that includes: speaking and lecture fees. Franziska C. Trudzinski reports a relationship with Streamed up that includes: speaking and lecture fees. Franziska C. Trudzinski reports a relationship with RG Gesellschaft für Information and Organisation mbH that includes: speaking and lecture fees. Franziska C. Trudzinski reports a relationship with E&H Knorr Stiftung that includes: funding grants. Hans-Ulrich Kauczor reports a relationship with Boehringer Ingelheim that includes: speaking and lecture fees. Hans-Ulrich Kauczor reports a relationship with Siemens that includes: speaking and lecture fees. Hans-Ulrich Kauczor reports a relationship with Philips that includes: speaking and lecture fees. Hans-Ulrich Kauczor reports a relationship with Streamed Up that includes: speaking and lecture fees. Hans-Ulrich Kauczor reports a relationship with Boehringer Ingelheim that includes: funding grants. Hans-Ulrich Kauczor reports a relationship with Siemens that includes: funding grants. Hans-Ulrich Kauczor reports a relationship with Philips that includes: funding grants. Hans-Ulrich Kauczor reports a relationship with Contextflow GmbH that includes: board membership. Hans-Ulrich Kauczor reports a relationship with Median that includes: board membership. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Open Respir Arch

. 2026 Apr 14;8(3):100626.

doi: 10.1016/j.opresp.2026.100626. eCollection 2026 Jul-Sep.

The EXACERBANTES Study (*Exacerbation of Chronic Obstructive Pulmonary Disease According to the ANTES Proposal*): Rationale, Goals and Design

Juan José Soler-Cataluña [1 2], Alberto Fernández-Villar [3], José Luis Izquierdo [4 5], Juan Luis García-Rivero [6], Borja G Cosio [2 7], José Luis López-Campos [2 8], Marc Miravitlles [2 9], Alvar Agustí [2 10]; EXACERBANTES study group

Affiliations Expand

- PMID: 42110578
- PMCID: PMC13156727
- DOI: 10.1016/j.opresp.2026.100626

Abstract

in English, Spanish

Introduction: COPD exacerbations (ECOPD) are complex events that demand a personalized approach. A novel patient-centered approach focuses on the identification of treatable traits (TTs) has recently been proposed.

Objectives: The primary goal of the EXACERBANTES study is to systematically describe the distribution of TTs in patients with ECOPD attending primary care (PC) and hospital-based emergency care (HC). Secondary goals include: (1) assessing the relationship between individual TTs and relevant clinical outcomes; (2) developing a predictive risk score based on TTs; (3) comparing the performance of different severity classifications; (4) validating these scores against the DECAF (Dyspnea, Eosinopenia, Consolidation, Acidosis, Atrial Fibrillation) index in hospitalized patients; (5) evaluating the feasibility of measuring FEV_1 during

exacerbations using handheld microspirometers; and (6) comparing lung function during the acute phase with measurements taken 90 days later.

Material and methods: Prospective, multicenter, observational study involving patients diagnosed with ECOPD in PC and HC. The PC cohort will undergo routine and advanced testing including ECG, microspirometry, and capillary C-reactive protein (CRP). The HC cohort will undergo additional assessments such as blood tests, arterial blood gases, chest-X-test, and biomarkers (CRP, troponin T, NT-proBNP, D-dimer). Patients will be re-evaluated 90 days after the index event. The estimated sample size for the primary objective is 397 patients. The first patient was recruited on December 13, 2024; results are expected in the first quarter of 2026.

Conclusions: The EXACERBANTES study offers a framework to explore TTs in ECOPD and to develop a personalized, outcome-oriented treatment strategy.

Keywords: COPD; Exacerbation; Personalized medicine; Treatable traits.

- 37 references
- 2 figures

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Observational Study

Respir Med

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. 2026 Jul:258:108864.

doi: 10.1016/j.rmed.2026.108864. Epub 2026 May 6.

The effect of inhaler prescription and comorbidities on the prognosis of COPD in never-smokers: A nationwide population-based study

Seung Soo Sheen [1], Ju Hyun Oh [2], Won-Il Choi [3], Kyungjoo Kim [4], Chin Kook Rhee [5], Joo Hun Park [6]

Affiliations Expand

- PMID: 42103169

- DOI: 10.1016/j.rmed.2026.108864

Erratum in

- Corrigendum to "The effect of inhaler prescription and comorbidities on the prognosis of COPD in never-smokers: A nationwide population-based study" [Respirat. Med. 258 (2026) 108864.

Sheen SS, Oh JH, Choi WI, Kim K, Rhee CK, Park JH.Respir Med. 2026 Aug-Sep;260:108918. doi: 10.1016/j.rmed.2026.108918. Epub 2026 Jun 6.PMID: 42248736 No abstract available.

Abstract

Background: Most clinical trials evaluating inhaler therapy in COPD have been conducted predominantly in smoking populations, and prognostic factors and therapeutic outcomes in COPD without any history of smoking were not well investigated. Therefore, this study was conducted to investigate the effect of inhaler prescription and comorbidities on the prognosis of COPD in never-smokers.

Methods: A retrospective observational study was undertaken using data from the Korean National Health Insurance Service-National Sample Cohort (NHIS-NSC) Survival analyses were performed according to inhaler prescriptions and comorbidities from index date to December 31, 2019.

Results: Among 2432 eligible patients, 382 (15.7%) received long-acting muscarinic antagonist(LAMA)/long-acting β_2-agonist(LABA) therapy, 1780 (73.2%) received inhaled corticosteroid(ICS)/LABA, 187 (7.7%) received LAMA monotherapy, and 83 (3.4%) received LABA monotherapy. In multivariate Cox regression analysis, compared with the LAMA/LABA group, the ICS/LABA group had significantly higher all-cause (HR 1.65; 95% CI 1.22-2.24) and respiratory mortality (HR 1.72; 95% CI 1.07-2.77). Coexisting heart failure, frequent hospitalizations (≥2 times/year vs. none), and emergency room visits along with older age, male sex, and lower body mass index (BMI) were also independently associated with higher respiratory and all-cause mortality ($p < 0.05$).

Conclusion: Our data in the cohort of non-smoking COPD suggest that LAMA/LABA therapy was associated with better survival rate compared with ICS/LABA therapy. Moreover, comorbid heart failure, frequent hospitalizations, emergency room visits, older age, male sex, and lower BMI were also independently linked to higher risks of respiratory and all-cause mortality.

Conflict of interest statement

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

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Editorial

Ann Am Thorac Soc

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. 2026 Jul 1;23(7):1016-1018.

doi: 10.1093/annalsats/aaoag117.

A journey of 1000 miles begins with a single step-proteomics, hyperinflation, and chronic obstructive pulmonary disease

Peter M A Calverley [1]

Affiliations Expand

- PMID: 42090466

- DOI: 10.1093/annalsats/aaoag117

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No abstract available

Comment on

- Plasma proteomic profiles of lung volume-based phenotypes in tobacco-exposed individuals without spirometric chronic obstructive pulmonary disease.

Zeng S, Guo C, Pratte KA, Luo G, Bowler RP, Arjomandi M.Ann Am Thorac Soc. 2026 Jul 1;23(7):1033-1045. doi: 10.1093/annalsats/aaoag051.PMID: 41776818 Free PMC article.

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. 2026 Jul:149:106871.

doi: 10.1016/j.ejim.2026.106871. Epub 2026 Apr 15.

Heart failure and COPD - Disentangling undertreatment from the impact of severe comorbidities

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- PMID: 41991385

- DOI: 10.1016/j.ejim.2026.106871

No abstract available

Conflict of interest statement

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

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51

Ann Am Thorac Soc

. 2026 Jul 1;23(7):1113-1116.

doi: 10.1093/annalsats/aaoag030.

Respiratory mortality per STAR, GOLD, and ERS/ATS COPD severity classification

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- PMID: 41973989

- PMCID: PMC13315773 (available on 2027-02-05)

- DOI: 10.1093/annalsats/aaoag030

No abstract available

Conflict of interest statement

Please see the ICMJE disclosure forms, which have been provided as supplementary material.

- 8 references

Supplementary info

Grants and fundingExpand

. 2026 Jul:168:108695.

doi: 10.1016/j.ijid.2026.108695. Epub 2026 Apr 9.

Investigating prognostic classifications of preexisting multiple long-term conditions for health outcomes 1 year after COVID-19 hospitalization: A UK prospective observational study

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- PMID: 41966515

- DOI: 10.1016/j.ijid.2026.108695

Free article

Abstract

Background: Preexisting multiple (two or more) long-term conditions (MLTCs) may negatively affect recovery after COVID-19. We investigated how preexisting MLTCs, including different categorization and patterns of MLTCs, affect 1-year health outcomes after severe COVID-19.

Methods: Adults post-hospitalization after COVID-19 were recruited during 2020-2021. We compared recovery at 1 year after discharge using adjusted multivariable logistic regression in 1:1 propensity-matched adults (for age, sex, ethnicity, social deprivation, obesity, and smoking history) with and without preexisting MLTCs. In adults with MLTCs, different categorization such as number of conditions, number and types of body systems involved (e.g. respiratory, cardiovascular), and latent class analysis-derived patterns of condition co-occurrence were assessed for their association with recovery at 1 year.

Results: A total of 647 adults with MLTCs were matched with 647 adults without MLTCs (n = 1294; 61.9% male, 79.6% of White ethnicity, median age 59 [interquartile range 52-67] years). The presence of MLTCs was associated with lower odds of feeling fully recovered (odds ratio 0.66 [95% confidence interval 0.51-0.85], P = 0.001). In those with MLTCs, recovery was negatively affected by number and type of body systems involved (e.g. respiratory [odds ratio 0.49 (95% confidence interval 0.34-0.69), P <0.001]) but not by the number of conditions (P >0.1). Four latent classes of MLTC co-occurrence were estimated with different risks of recovery (P <0.01).

Conclusion: Adults with preexisting MLTCs were 34% less likely to feel fully recovered at 1 year after COVID-19 hospitalization than adults without MLTCs. We describe prognostic classifications of MLTCs, with future work needed to understand whether they have prognostication in broader post-acute infection sequalae.

Keywords: COVID-19; Long COVID; Multimorbidity; Multiple long-term conditions.

Conflict of interest statement

Declaration of competing interest L.E. Gardiner declares that they were awarded funding from a Wellcome Trust doctoral fellowship (Leicestershire Health Inequalities Improvement Programme [grant number UNS144807]) to complete this work. R. Aul declares lecture fees and support for attending a meeting from Boehringer Ingelheim. N.D. Bakerly declares they have received nonrestrictive educational grants from Chiesi, AZ, and Teva for attending conferences; honoraria from Teva, AZ, and GSK; support for attending meetings and/or travel from Chiesi and AZ; participation on a Data Safety Monitoring Board or Advisory Board for Teva; and receipt of equipment from Global Access Diagnostics (previously Mologic Inc). C.E. Bolton declares that their institute received grant funding from NIHR/UKRI and NIHR to complete this work; and their institute received grant funding from Nottingham Hospitals Charity, NIHR, and University of Nottingham. G. Choudhury declares funding from GlaxoSmithKline and AstraZeneca; received honoraria for delivering talks from GSK, AZ, Chiesi, and BI; participation on a Data Safety Monitoring Board or Advisory Board as Chair on the Act on COPD Programme for AZ in Scotland; and a leadership or fiduciary role as Chair for the Lothian Respiratory Managed Clinical Network. C.E. Brightling declares that their institute received grant funding from MRC/NIHR and NIHR to complete this work; their institute received grant funding from Areteia, AstraZeneca, Chiesi, Genentech, GSK, Regeneron Pharmaceuticals, Roche, and Sanofi; and consulting fees from Areteia, AstraZeneca, Chiesi, Genentech, GSK, Regeneron Pharmaceuticals, Roche, and Sanofi. A. Briggs declares consulting fees from Roche, Merck, Sanofi and GSK. J.D.

Chalmers declares funding from AstraZeneca, Boehringer Ingelheim, Chiesi, Grifols, Genentech, Gilead, Insmed, and Trudell; consulting fees from AstraZeneca, Chiesi, Glaxosmithkline, Insmed, Grifols, Novartis, Boehringer Ingelheim, Pfizer, Janssen, Antabio, and Zambon. G. Choudhury declares funding from GlaxoSmithKline and AstraZeneca; received honoraria for delivering talks from GSK, AZ, Chiesi, and BI; participation on a Data Safety Monitoring Board or Advisory Board as Chair on the Act on COPD Programme for AZ in Scotland; and a leadership or fiduciary role as Chair for the Lothian Respiratory Managed Clinical Network. M.J. Davies declares grant funding from AstraZeneca, Boehringer Ingelheim, and Novo Nordisk; consulting fees from Boehringer Ingelheim, Lilly, and Novo Nordisk; payment for speaking for AstraZeneca, Boehringer Ingelheim, Lilly, Novo Nordisk, and Sanofi; support for attending meetings and/or travel from Boehringer Infelheim, Lilly, Novo Nordisk, Amgen, AstraZeneca, Biomea Fusion, Regneron, and Zealand Pharma; and participation on a Data Safety Monitoring Board or Advisory Board for Amgen, AstraZeneca, Biomea Fusion, Sanofi, Zealand Pharma, Carmot/Roche, Regeneron, EktaH, AbbVie, GSK, and Daewoong Pharmaceutical. A. De Soyza declares grant funding from Bayer, Gilead, Pfizer, AstraZeneca, Insmed, and Novartis, unrelated to the submitted manuscript; consulting fees from Boehringer, Bayer, Gilead, Pfizer, GSK, Insmed, AstraZeneca, and Novartis in work unrelated to the submitted manuscript; speaker fees from Bayer, Gilead, Pfizer, GSK, Insmed, AstraZeneca, Innogen, and Fischer&Paykel; support for attending meetings and/or travel from AstraZeneca, Chiesi, GSK, and Insmed; and participation on a Data Safety Monitoring Board or Advisory Board for Bayer. A.B. Docherty declares that they were awarded funding from the Wellcome Trust (227856/Z/23/Z). A.F. Goemans declares that they were awarded funding from a Wellcome Trust fellowship. B. Guillen-Guio declares that they were awarded funding from a Sir Henry Wellcome Postdoctoral Fellowship (grant number 221680/Z/20/Z). L.G. Heaney declares that their institute received funding from GSK, AstraZeneca and Roche/Genentech; payment for lectures received from AstraZeneca, Novartis, Roche/Genentech, Sanofi, Circassia, GlaxoSmithKline, Chiesi, and Teva; support to travel to meetings from AstraZeneca and GSK; participation on a Data Safety Monitoring Board or Advisory Board for Novartis, Roche/Genentech, GSK, Teva, and Celltrion; and funding from the NIHR (RfPB grant PB-PG-0317-20032). S. Heller declares consulting fees from NovoNordisk; and participation on a Data Safety Monitoring Board or Advisory Board for Eli Lilly with payments made to their institution. A. Horsley declares that their institute was awarded funding from UK Research and Innovation (MR/V027859/1) and NIHR Manchester BRC; and is Chair for the NIHR Respiratory Translational Research Collaboration. J.R. Hurst declares funding from AstraZeneca; consulting fees from AstraZeneca and GSK; payment for lectures and presentations from AstraZeneca, Boehringer Ingelheim, Chiesi, Sanofi, and Takeda; support for attending meetings and/or travel from AstraZeneca; participation on a Data Safety Monitoring Board or Advisory Board for AstraZeneca; and receipt of equipment from Nonin. J. Jacob declares funding from the Wellcome Trust, Microsoft Research GlaxoSmithKline, Gilead Sciences, Cancer Research UK, Rosetrees Trust, Cystic Fibrosis Trust, and Chan Zuckerberg Initiative; consulting fees from Boehringer Ingelheim, Roche, GlaxoSmithKline, and NHSX; payment for lectures and presentations received from Boehringer Ingelheim, Roche, GlaxoSmithKline, and Takeda; support for attending meetings and/or travel from Boehringer Ingelheim and Takeda; patents planned, issued or pending (UK patent application number 2113765.8 and UK patent application number GB2211487.0); and participation on a Data Safety Monitoring Board or Advisory Board for Boehringer

Ingelheim and Roche. R.G. Jenkins declares that their institute received funding from AstraZeneca, Biogen, Galecto, GlaxoSmithKline, Nordic Biosciences, RedX, and Pliant; consulting fees from AstraZeneca, Brainomix, Bristol Myers Squibb, Chiesi, Cohbar, Daewoong, GlaxoSmithKline, Veracyte, Resolution Therapeutics, and Pliant; payment for lectures and presentations received from Boehringer Ingelheim, Chiesi, Roche, PatientMPower, and AstraZeneca; payment for expert testimony from Pinsent Masons LLP; participation on a Data Safety Monitoring Board or Advisory Board for Boehringer Ingelheim, Galapagos and Vicore; and a leadership or fiduciary role for NuMedii and is president for Action for Pulmonary Fibrosis. M. Jones declares funding from the MRC to complete this work; funding from the MRC, British Lung Foundation, and Boehringer Ingelheim; consulting fees from Skyhawk Therapeutics; and a leadership or fiduciary role in the AAIR Charity Scientific Committee. K. Khunti declares funding from AstraZeneca, Boehringer Ingelheim, Lilly, MSD, Novo Nordisk, Sanofi, Servier, Oramed Pharmaceuticals, Roche, Daiichi-Sankyo, and Applied Therapeutics; consulting fees from Amgen, AstraZeneca, Bristol Myers Squibb, Boehringer Ingelheim, Lilly, Novo Nordisk, Sanofi, Servier, Pfizer, Roche, Daiichi-Sankyo, Embecta, and Nestle Health Science; and payment for lectures and presentations from Amgen, AstraZeneca, Bristol Myers Squibb, Boehringer Ingelheim, Lilly, Novo Nordisk, Sanofi, Servier, Pfizer, Roche, Daiichi-Sankyo, Embecta, and Nestle Health Science. O.C. Leavy declares that their institute received joint funding from UKRI and NIHR (MR/ V027859/1 and COV0319) to complete this work. N.I. Lone declares leadership or fiduciary roles as director of research for the Intensive Care Society UK, and Chair of the Scottish Intensive Care Society Audit Group, Public Health Scotland. W.D.-C. Man declares that their institute received funding from National Institute for Health Research and NHS Accelerated Access Collaborative; and is Honorary President of the Association for Respiratory Technology and Physiology, and an associate editor of ERJ Open Research. G.P. McCann declares funding from NIHR (RP-2017-ST2-007) to complete this work; funding from the British Heart Foundation, Wellcome Trust and NIHR; and research support from Resonance Health, Circle CVi and Perspectum. M. Marks declares being a recipient of the PHOSP grant. G.P. McCann declares funding from the British Heart Foundation and NIHR; and royalties or licenses from Circle and Perspectum. P.J.M. Openshaw declares funding from UKRI-MRC/DHSC NIHR and UKRI-BEIS. D. Parekh declares funding from NIHR and MRC; and a leadership or fiduciary role for the Faculty of Intensive Care Medicine Board. P. Pfeffer declares funding from NIHR. K. Poinasamy declares funding from UKRI and NIHR to complete this work. A. Briggs declares consulting fees from Roche, Merck, Sanofi and GSK. J.C. Porter declares funding from a Boehinger Ingelheim studentship; and a leadership or fiduciary role as medical director of Breathing Matters. J.K. Quint declares that their institute received funding from UKRI, NIHR, Health Data Research UK, BI, AZ, and Insmed; and consulting fees from GlaxoSmithKline and BI. S.D.M. Rowland-Jones declares that their institute received funding from UKRI to complete this work; and their institute received funding from NIHR Sheffield Biomedical Research Centre, Bill and Melinda Gates Foundation, UKRI (MRC), and EDCTP. M. J. Rowland declares support for attending meetings and/or travel from Novartis Pharmaceuticals; stock or stock options from Novartis Pharmaceuticals and Roche Pharmaceuticals; and is employed full time as a Senior Clinical Development Medical Director at Novartis Pharmaceuticals. M.G. Semple declares grant funding from National Institute of Health Research UK, Medical Research Council UK and Health Protection Research Unit in Emerging and Zoonotic Infections, University of Liverpool to complete this work; participation on a Data Safety Monitoring Board or

Advisory Board for Pfizer and GSK; leadership or fiduciary roles as Chair of Infectious Disease Scientific Advisory Board for Integrum Scientific LLC and Director of MedEx Solutions Ltd; stock or stock options as minority owner of Integrum Scientific LLC and majority owner of MedEx Solutions Ltd; receipt of equipment, materials, drugs, medical writing, gifts, or other services from Chiesi Farmaceutici SpA; and is a nonremunerated independent member of HMG UK Scientific Advisory Group for Emergencies (SAGE), COVID-19 Response (March 2020 to March 2022), nonremunerated independent member of HMG UK New Emerging Respiratory Virus Threats Advisory Group (NERVTAG) (2014 to July 2023), and has been seconded to the Scottish Government (from August 2025). M. Sereno declares that their institute received grant funding from NIHR/UKRI and NIHR to complete this work. A. Sheikh declares that their institute was awarded grant funding from NIHR and UKRI to complete this work; participation on a Data Safety Monitoring Board or Advisory Board for AstraZeneca's Thrombotic Thrombocytopenic Taskforce; and leadership or fiduciary roles for UK and Scottish Government COVID-19 advisory groups. A. Shikotra declares that their institute was awarded joint funding from UKRI and NIHR to complete this work. A.A.R. Thompson declares grant funding to their institution Heart Research UK and Janssen-Cilag Ltd and fellowship funding to their institution from British Heart Foundation; payment for lectures and presentations from Janssen-Cilag Ltd; and support for attending meetings from Janssen-Cilag Ltd. M. Toshner declares grant funding from the NIHR Cambridge BRC and NIHR HTA to complete this work; consulting fees from Janssen; support for attending meetings and/or travel from GSK and Janssen; and participation on a Data Safety Monitoring Board or Advisory Board for ComCov and FluCov. L.V. Wain declares funding from UK Research and Innovation (MR/V027859/1), GSK/Asthma+Lung UK (Professorship [C17-1]) and National Institute of Health Research (COV0319) to complete this work; funding from Orion Pharma, GSK, Genentech, and AstraZeneca; consulting fees to their institution from Galapagos, Boehringer Ingelheim, and GSK; support for attending meetings and/or travel from Genentech; participation on Advisory Board for Galapagos; and leadership or fiduciary role as an associate editor for the European Respiratory Journal. S. J. Singh declares grants or contracts from NIHR (programme grant [NIHR 202020], Wellcome Doctoral Training Programme, HTA Project Grant [NIHR 131015], NIHR DHSC/UKRI COVID-19 Rapid Response Initiative, NIHR Global Research Group [NIHR 17/63/20]), Actegy Limited, and NIHR Senior Investigator; payment for presentations for Ministry of Justice; participation on NICE Expert Adviser Panel (Long COVID), Wales Long COVID Advisory Board, and NHS-E Long COVID Your COVID Recovery working group; and leadership or fiduciary roles as ATS Pulmonary Rehabilitation Assembly Chair, Clinical Lead RCP Pulmonary Rehabilitation Accreditation Scheme, and Clinical Lead NACAP Audit for Pulmonary Rehabilitation. R.A. Evans declares funding from UKRI/MRC/NIHR to complete this work; funding from NIHR, UKRI, Wolfson Foundation, Genentech/Roche, and Synairgen; consulting fees from AstraZeneca/Evidera for long COVID; speaking fees from Boehringer and Moderna; support for attending meetings from Chiesi; and leadership or fiduciary roles as ERS Group 01.02 Pulmonary Rehabilitation and Chronic Care Secretary and ATS Pulmonary Rehabilitation Assembly Chair. The remaining authors declare no conflicts of interest.

Supplementary info

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Comparative Study

Int J Med Inform

. 2026 Jul 1:214:106421.

doi: 10.1016/j.ijmedinf.2026.106421. Epub 2026 Apr 3.

Evaluating the quality of online health information: A comparative study of COPD patient information in Facebook forums versus ChatGPT

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- PMID: 41934770

- DOI: 10.1016/j.ijmedinf.2026.106421

Free article

Abstract

Background: Patients with chronic obstructive pulmonary disease (COPD) increasingly turn to online platforms for health information. However, the quality of information shared in social media forums remains uncertain. This study compared the accuracy of user-generated Facebook responses to AI-generated replies from ChatGPT.

Methods: Posts and comments were extracted from two COPD-related Facebook groups in October 2024. A total of 48 posts from each group were selected, yielding 2,761 comments. Each post was also submitted to ChatGPT. Responses were categorized as 'useful', 'misleading', or 'neither' and rated on a 5-point Likert scale by three independent reviewers. Interrater reliability was assessed using Fleiss' kappa. Differences in quality scores were analyzed using the Wilcoxon signed-rank test and Hodges-Lehmann 95% CI.

Results: In the Danish group, 47% (667/1,433) of comments were relevant, with 34% deemed useful and 9% misleading. Results were similar in the English group (734/1,315 relevant; 38% useful, 9% misleading). Critically, 16% and 15% of comments encouraging behavioral changes contained misleading information in the Danish and English group, respectively. Likert ratings showed significantly higher accuracy for ChatGPT compared to Facebook. For the Danish group, the median score for Facebook was 4.0 (IQR 3.0-4.5) versus 5.0 (IQR 4.0-5.0) for ChatGPT ($p < 0.001$; Hodges-Lehmann difference: -0.75, 95% CI -1.0 to -0.5). For the English group, Facebook scored a median of 4.0 (IQR 3.0-4.0) versus 5.0 (IQR 5.0-5.0) for ChatGPT ($p < 0.001$; Hodges-Lehmann difference: -1.0, 95% CI -1.25 to -0.75). No significant performance differences were found between the Danish and English groups for either platform.

Conclusion: ChatGPT delivered more accurate responses than Facebook users, highlighting its potential as a reliable educational tool. However, Facebook remains valuable for peer support, suggesting that combining AI and social platforms may enhance digital care strategies for COPD.

Keywords: Artificial intelligence; COPD; Patient education; Public health; Social media.

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: Vibeke Backer has received personal fees from AstraZeneca, GSK, TEVA, Sanofi Genzyme, MSD, Chiesi, Boehringer-Ingelheim, Novartis, ALK-Abello, Mundipharma, BIRK NPC and Pharmaxis. Howraman Meteran reports receiving honoraria for lectures or advisory board meetings from GSK, Teva, Novartis, Sanofi-Aventis, Airsonett AB, and ALK-Abelló Nordic A/S not related to this study within the past 5 years. Dr. Howraman Meteran has received research grants from ALK-Abelló A/S outside this study. The remaining authors have no conflicts to report.

Supplementary info

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Comparative Study

Eur Radiol

. 2026 Jul;36(7):5454-5468.

doi: 10.1007/s00330-026-12429-3. Epub 2026 Mar 28.

Comparison of phase-resolved functional lung (PREFUL) MRI and CT parametric response mapping (PRM) in COSYCONET COPD

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- PMID: 41902924
- PMCID: PMC13282224
- DOI: 10.1007/s00330-026-12429-3

Abstract

Objectives: To compare regional ventilation assessed by non-contrast enhanced ventilation-weighted phase-resolved functional lung (PREFUL) MRI with parametric response mapping (PRM) and with pulmonary function test (PFT) parameters in patients with chronic obstructive pulmonary disease (COPD).

Materials and methods: This study was a retrospective analysis of a single-center subset of the prospective COPD cohort COSYCONET. PREFUL MRI coronal sections were obtained during free breathing at 1.5 T using a spoiled gradient echo sequence. PRM was derived from paired low-dose inspiratory and expiratory CT scans. Matched coronal slices of PREFUL and PRM were co-registered. PREFUL ventilation defect percentage (PREFUL-VDP), as well as functional small airway disease (PRM^{fSAD}), emphysema (PRM^{emph}), and their combined metric ($PRM^{fSAD+emph}$), were calculated. Global comparisons employed Spearman's correlation coefficient (r) and Wilcoxon signed-rank tests. Spatial agreement was assessed using spatial overlap and the Dice coefficient.

Results: Fifty-one patients (median age 65 [58-70]) were included in this study. PREFUL-VDP strongly correlated with combined $PRM^{fSAD+emph}$ ($r = 0.86$. $p < 0.001$) and with PFT parameters (PREFUL-VDP vs FEV1, $r = -0.75$, $p < 0.001$). Correlations between PREFUL-VDP with PRM^{fSAD} and PRM^{emph} separately were weaker ($r = 0.57$ and $r = 0.82$, $p < 0.001$ for both). In concordance, the highest spatial congruence was observed between PREFUL-VDP and $PRM^{fSAD+emph}$ (spatial overlap: 0.60 [0.55-0.66], Dice coefficient for defects: 0.53 [0.28-0.62]), indicating that PREFUL-VDP does not distinguish between small airway disease and emphysema.

Conclusion: PREFUL-VDP correlates most strongly with the PRM measurement of emphysema and functional small airways disease combined and is a promising noninvasive, radiation-free tool for quantifying regional ventilation in COPD.

Key points: QuestionHow does regional ventilation in COPD, measured by PREFUL MRI, correspond to CT-based PRM metrics? FindingsPREFUL MRI's VDP showed strong correlation and the highest spatial agreement with the combined CT PRM metric representing emphysema and functional small airways disease. Clinical relevancePREFUL MRI offers a non-invasive, radiation-free method for assessing regional ventilation in COPD. Although PREFUL cannot distinguish emphysema from small airways disease, its strong correlation with CT PRM highlights its value for disease characterization and functional monitoring.

Keywords: COPD; COSYCONET; CT parametric response mapping; Lung; Phase-resolved functional lung MRI.

Conflict of interest statement

Compliance with ethical standards. Guarantor: The scientific guarantor of this publication is Andreas Voskrebenzev. Conflict of interest: F.K., A.V., and J.V.-C. are shareholders of BioVisioneers GmbH, a company, that has an interest in pulmonary magnetic resonance imaging methods. Statistics and biometry: One of the authors has significant statistical expertise. Informed consent: Written informed consent was obtained from all subjects (patients) in this study. Ethical approval: All examinations were approved by the central ethics committee in Marburg (Ethics Committee of the Faculty of Medicine, Marburg), as well as by the respective local ethics committees, including the Ethics Committee of Hannover Medical School. Study subjects or cohorts overlap: This study analyzed a subset of 51 participants from the COSYCONET cohort who underwent phase-resolved functional lung (PREFUL) MRI as an additional examination at the Hannover study site. Details of the COSYCONET cohort, including its aims, methodology, and baseline characteristics, are described elsewhere [5]. Methodology: Retrospective Cross-sectional study Single center

- **41 references**
- **5 figures**

Supplementary info

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Heart Lung

. 2026 Jul-Aug:78:102758.

doi: 10.1016/j.hrtlng.2026.102758. Epub 2026 Mar 26.

The impact of pulmonary hypertension and comorbidities on in-hospital mortality in hypertrophic obstructive cardiomyopathy: A nationwide analysis from 2016 to 2021

Kevin Chiu [1], Trishna Parikh [2], J Pierce Reitnauer [3], Saad Afzal Khan [4], Thomas Etheridge [1], Adishwar Rao [5], Akriti Agrawal [5], Arnav Garyali [6], Lori Varma [7], Aarohi Parikh [8], Farah Kazzaz [9], Maulin Patel [9], Kha Dinh [9], Carlos R Manrique Neira [10], Maria M Patarroyo Aponte [10], Bela Patel [9], Bindu Akkanti [9]

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- PMID: 41895240

- DOI: 10.1016/j.hrtlng.2026.102758

Abstract

Background: Hypertrophic obstructive cardiomyopathy (HOCM) may be complicated by pulmonary hypertension (PH).

Objectives: We aimed to evaluate the impact of PH and associated comorbidities on in-hospital mortality in patients with HOCM.

Methods: We used the National Inpatient Sample from 2016 to 2021 to conduct this retrospective cross-sectional study. Patients with HOCM were stratified according to the presence of PH. Baseline demographics, comorbidities, and hospital-related characteristics were compared. Multivariate logistic regression was employed to identify predictors of in-hospital mortality in the entire cohort.

Results: Out of 333,505 weighted patients with HOCM, 44,375 (13.3%) had PH. Patients with HOCM and PH were more likely to be female, older, and suffer from multiple comorbidities. The in-hospital mortality rate was higher in the HOCM and PH group (5.1% versus 3.3%, p < 0.001). PH was associated with in-hospital mortality in patients with HOCM (adjusted odds ratio [OR]: 1.20 [1.07-1.36], p = 0.003). The strongest positive predictors of in-hospital mortality included liver disease (OR: 3.44 [3.06-3.85]), age ≥65 years (OR: 2.91 [2.36-3.61]), and pneumonia (OR: 2.86 [2.57-3.19]) (all p < 0.001). Chronic heart failure was associated with an increased odds of in-hospital mortality (OR: 1.47 [1.33-1.63], p < 0.001). Prior percutaneous coronary intervention (OR: 0.68 [0.54-0.85], p < 0.001) or pacemaker/defibrillator (OR: 0.67 [0.59-0.77], p < 0.001) were associated with in-hospital survival.

Conclusions: PH in patients with HOCM was associated with increased in-hospital mortality. Prospective and longitudinal studies are needed to define the temporal relationship between PH and mortality. Vigilant management and tailored

therapeutic strategies may mitigate adverse outcomes in patients with these cardiopulmonary conditions.

Keywords: Hypertrophic obstructive cardiomyopathy; In-hospital mortality; National Inpatient Sample; Pulmonary hypertension; comorbidities.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Dr. Bindu Akkanti reports a relationship with Johnson and Johnson Ltd that includes: consulting or advisory and speaking and lecture fees. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

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56

Randomized Controlled Trial

Br J Clin Pharmacol

-
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-

. 2026 Jul;92(7):2349-2363.

doi: 10.1002/bcp.70509. Epub 2026 Mar 17.

Early clinical pharmacology evaluation of the novel anti-inflammatory macrolide, glasmacinal (EP395): tolerability, pharmacokinetics and drug interactions

Dave Singh [1 2], Kate Hanrott [3], Olof Breuer [3], Johan Bylund [4], Björn Schultze [4], Virginia Norris [3]

Affiliations Expand

- **PMID: 41845869**

- PMCID: PMC13304240

- DOI: 10.1002/bcp.70509

Abstract

Aims: This work assessed the pharmacokinetics (PK), safety and tolerability of glasmacinal (EP395, an oral anti-inflammatory macrolide with negligible antimicrobial activity in development for COPD treatment) in two healthy participant trials: 'first-in-human' (FIH) and 'drug-drug-interaction' (DDI).

Methods: The FIH trial was a randomized, double-blind, placebo-controlled trial of single (20-750 mg) and multiple (120-375 mg daily for 28 days) doses of glasmacinal. The DDI trial was an open-label assessment of the effect of verapamil (moderate CYP3A4 inhibitor and P-gp inhibitor) on the PK of glasmacinal, and the effect of glasmacinal on the PK of midazolam (CYP3A4 substrate) and digoxin (P-gp substrate).

Results: No SAEs or severe AEs occurred, and no AEs considered related to glasmacinal led to withdrawal. Glasmacinal was rapidly absorbed, reaching peak plasma concentrations at ~4 h post-dose and a terminal half-life ~70 h. Glasmacinal systemic exposure (C_{max} and $AUC_{0\text{-}inf}$) was reduced by one third when administered after food (300-mg single dose, parallel group comparison). Co-administration of glasmacinal with verapamil increased glasmacinal exposure (C_{max} 1.70-fold [90% CI: 1.52, 2.39], $AUC_{0\text{-}inf}$ 2.41-fold [90% CI: 2.18, 2.82]). Glasmacinal modestly increased exposure to midazolam (C_{max} 1.26-fold [90% CI: 1.12, 1.49], $AUC_{0\text{-}inf}$ 1.54-fold [90% CI: 1.33, 1.89]) and digoxin (C_{max} 1.38-fold [90% CI: 1.22, 1.81] and $AUC_{0\text{-}inf}$ 1.37-fold [90% CI: 1.26, 1.52]).

Conclusions: Glasmacinal was well tolerated in single doses up to 750 mg and repeat doses up to 375 mg. Glasmacinal may be a victim of selected drugs that impact CYP3A4 and/or P-gp but is unlikely to be a perpetrator of clinically relevant DDIs.

Keywords: digoxin; drug–drug-interaction; macrolide; midazolam; pharmacokinetics; verapamil.

Conflict of interest statement

D.S. and B.S. were investigators in the trials. D.S. has received personal fees from Adovate, Aerogen, Almirall, Apogee, Arrowhead, AstraZeneca, Bial, Boehringer Ingelheim, Chiesi, Cipla, CONNECT Biopharm, Covis, CSL Behring, DevPro Biopharma LCC, Elpen, Empirico, EpiEndo, Genentech, Generate Biomedicines, GlaxoSmithKline, Glenmark, Kamada, Kinaset Therapeutics, Kymera, Menarini, MicroA, OM Pharma, Orion, Pieris Pharmaceuticals, Pulmatrix, Revolo, Roivant Sciences, Sanofi, Synairgen, Tetherex, Teva, Theravance Biopharma, Upstream and Verona Pharma. O.B. reports a relationship with EpiEndo Pharmaceuticals that includes consulting and advisory. J.B. and B.S. are employees of CTC Clinical Trial

Consultants AB, the contract research organization that conducted the clinical DDI trial described in this manuscript. V.N. and K.H. are employees of EpiEndo Pharmaceuticals and are included in the company's Employee Stock Option Plan.

- 28 references
- 4 figures

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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Review

Physiol Rev

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. 2026 Jul 1;106(3):1535-1591.

doi: 10.1152/physrev.00024.2025. Epub 2026 Mar 6.

Fueling the fire: metabolic dysfunction and senescence as drivers of lung aging and disease

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- PMID: 41789983
- PMCID: PMC13091605
- DOI: 10.1152/physrev.00024.2025

Abstract

With a rapidly expanding human population at advanced ages and age as the main driver for chronic diseases, we face the challenge of understanding tissue aging and devising new therapeutic interventions. Cellular senescence is an important hallmark of all aging tissues and has emerged as a potential key driver of chronic lung diseases, including pulmonary fibrosis, chronic obstructive pulmonary disease (COPD), and asthma. This comprehensive review recapitulates current knowledge of pathways and processes involved in cellular senescence with emphasis on the role of mitochondrial dysfunction and the "4 Ms" (morphology, mitophagy, metabolism, and metabolites). We review our current knowledge of healthy lung aging, discuss which pathomechanisms in chronic lung disease are characterized by senescence, and summarize current target therapeutics and their impact on lung disease. Within this exponentially growing field, we propose emerging concepts and current gaps in knowledge that need to be addressed to develop better opportunities for therapeutic strategies and future investigations.

Keywords: aging; lung; metabolism; mitochondria; senescence.

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- PMID: 41702869
- PMCID: PMC12916339
- DOI: 10.1177/00333549251403349

Abstract

Objective: Electronic cigarettes (e-cigarettes) are often presented as a less harmful alternative to combustible cigarettes (hereinafter, cigarettes). This study updates an earlier meta-analysis of 107 population studies of e-cigarette disease risks.

Methods: We pooled data from studies in PubMed, EMBASE, Web of Science, and PsychINFO from January 1, 2005, through January 1, 2025, in a random-effects meta-analysis if we identified ≥5 studies for a disease outcome.

Results: We identified 142 odds ratios (ORs) (107 [75%] from cross-sectional studies and 35 [25%] from longitudinal studies) from 124 articles, including 18 new articles. Comparing e-cigarette use with cigarette use, the ORs (95% CIs) for metabolic dysfunction (1.00 [0.91-1.09]) and oral disease (0.89 [0.78-1.02]) were not different from 1.0. The ORs (95% CIs) for cardiovascular disease (0.76 [0.58-0.99]), stroke (0.62 [0.47-0.82]), asthma (0.84 [0.74-0.95]), chronic obstructive pulmonary disease (0.55 [0.40-0.76]), and fetal growth (0.64 [0.44-0.92]) were ≤1.0. Pooled ORs for dual use versus cigarette use were increased for all outcomes (range, 1.22-1.42) except fetal growth (0.99). Pooled ORs for e-cigarette use, compared with nonuse of e-cigarettes, were increased for all outcomes (e-cigarette range, 1.24-1.53) except fetal growth (1.20). Dual use was associated with increased ORs for all outcomes (1.49-3.17). Studies had a low risk of bias. Results were generally not sensitive to study characteristics. Confidence in conclusions was mostly moderate to high except for stroke, where confidence was low for some outcomes, and fetal growth, for which confidence was very low for all outcomes.

Conclusion: The growing literature increases confidence that e-cigarette use is associated with disease outcomes indistinguishable from or approaching cigarette use, with dual use associated with higher ORs. E-cigarettes should not be promoted as a safer alternative to cigarettes.

Keywords: cardiovascular disease; metabolic syndrome; oral health; respiratory disease; systematic review; tobacco.

Conflict of interest statement

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

- 183 references
- 3 figures

Supplementary info

Publication types, MeSH termsExpand

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Practice Guideline

Arch Bronconeumol

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. 2026 Jul;62(7):481-498.

doi: 10.1016/j.arbres.2026.01.014. Epub 2026 Jan 30.

Consensus Document on the Multidisciplinary Management of Advanced-Stage Respiratory Diseases

[Article in English, Spanish]

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- PMID: 41692675

- DOI: 10.1016/j.arbres.2026.01.014

Abstract

Advanced respiratory diseases, particularly chronic obstructive pulmonary disease (COPD) and interstitial lung diseases (ILD), constitute an increasing challenge for healthcare systems due to their high prevalence, substantial symptom burden, and significant resource use. This consensus document, developed jointly by the Spanish Society of Pulmonology and Thoracic Surgery (SEPAR) and the Spanish

Society of Palliative Care (SECPAL), provides recommendations for a multidisciplinary, integrated model of care. Using the SIGN methodology and a systematic literature review, a multidisciplinary panel developed 70 evidence-based recommendations addressing key domains: identification of patients with palliative care needs; management of respiratory symptoms; strategies to improve quality of life; communication and shared decision-making; caregiver support; and coordination across care settings. A needs-based approach, rather than reliance on prognosis alone, is recommended to facilitate earlier recognition of patients with advanced COPD and ILD and to enable the timely integration of palliative care alongside disease-directed therapies. Adoption of these recommendations is expected to improve quality of life, reduce symptom burden and suffering, and optimize care for patients with advanced respiratory diseases.

Keywords: Breathlessness; COPD; Dyspnoea; Interstitial lung diseases; Palliative care; Symptom management; Terminal care.

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Heart Lung

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. 2026 Jul-Aug:78:102740.

doi: 10.1016/j.hrtlng.2026.102740. Epub 2026 Feb 12.

Mindfulness knowledge and practice in patients with cardiopulmonary conditions: A qualitative thematic analysis of adults living with pulmonary hypertension and chronic obstructive pulmonary disease☆

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- PMID: 41687248

- DOI: 10.1016/j.hrtlng.2026.102740

Abstract

Background: Mindfulness practice has shown therapeutic benefits in symptom reduction and improved quality of life for adults with pulmonary hypertension (PH) and chronic obstructive pulmonary disease (COPD). Some studies testing mindfulness-based interventions often include patients' perspectives about their engagement and acceptability of the tested intervention. Yet, a knowledge gap remains about those who have not participated in mindfulness clinical trials.

Objective: The purpose of this study is to explore the experiential insights of community-dwelling adults with PH and COPD regarding learning and practicing mindfulness. They were asked to reflect on their understanding of mindfulness, how they acquired the knowledge, and how they practice it, as well as its relationship to disease management.

Methods: Twenty adults (n = 10 PH and n = 10 COPD) provided their perspectives via one-on-one focused interviews after participating in a parent survey study. A qualitative thematic analysis of 20 transcripts was conducted to summarize the main themes relevant to their perspectives.

Results: Qualitative analysis revealed six main contextual themes related to mindfulness and disease management: (1) acceptability and accessibility, (2) benefits of mindfulness, (3) barriers to engagement, (4) understanding of mindfulness, (5) symptom management, and (6) introduction and promotion of mindfulness.

Conclusion: Understanding non-research participants' mindfulness knowledge and practice through their experiences provides considerations for future research. Perspectives from these individuals, who were not self-selected for the research, are valuable because they inform the clinical implementation of creating appropriate mindfulness-based interventions that are likely to be successful in the real world.

Keywords: Chronic obstructive pulmonary disease (COPD); Mindfulness knowledge; Mindfulness practice; Pulmonary hypertension (PH); Qualitative interviews; Symptom management.

Conflict of interest statement

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

Supplementary info

MeSH termsExpand

Full text links

Cite

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Review

Heart Lung

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. 2026 Jul-Aug:78:102733.

doi: 10.1016/j.hrtlng.2026.102733. Epub 2026 Feb 5.

How usual is usual care in Chronic Obstructive Pulmonary Disease trials? A systematic review on quality of reporting and validity of comparator interventions

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- PMID: 41650887

- DOI: 10.1016/j.hrtlng.2026.102733

Abstract

Background: 'Usual care' is a term that can refer to a variety of control conditions in randomized controlled trials (RCTs). The lack of standardization of usual care groups can lead to problems for clinical decision-making.

Objectives: 1) Systematically describe the types and characterizations of "usual care" interventions in COPD RCTs. 2) Determine how well RCTs report usual care interventions and the extent to which COPD guideline-recommended treatment components are a part of usual care interventions.

Methods: Systematic review design. Two investigators screened studies and independently extracted data. We extracted type of usual care described, quality of reporting, and classification of usual care components as validated (i.e., aligned with guidelines) or unvalidated comparators.

Results: We included 233 studies. The most frequently described usual care intervention included patient education (n = 72, 31%) and continued care with the general practitioner (n = 67, 29%). Only 7% of the studies provided a complete description of the usual care intervention. Almost half of usual care interventions

(49%) were deemed unvalidated. Higher PEDro scores were associated with greater odds of the intervention being validated (Exp(B) = 1.32; 95% CI: 1.04 to 1.66).

Conclusion: There is significant variability and frequent lack of reporting in the characterization of 'usual care' comparators in RCTs involving patients with COPD. Usual care is often poorly described, inconsistently delivered, and commonly not aligned with clinical guidelines. Higher quality trials had better odds of providing valid usual care.

Keywords: COPD; Randomized clinical trials; Standard of care; Usual care.

Conflict of interest statement

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

Supplementary info

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Review

Expert Rev Respir Med

. 2026 Jul;20(7):859-871.

doi: 10.1080/17476348.2026.2620144. Epub 2026 Jan 21.

Glucocorticoid-induced muscle weakness in ECOPD: a perspective on mechanisms and emerging pharmacological interventions

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- PMID: 41560398

- DOI: 10.1080/17476348.2026.2620144

Abstract

Introduction: Muscle weakness represents a significant clinical problem in chronic obstructive pulmonary disease (COPD). During exacerbations of COPD (ECOPD), inflammation, oxidative stress, malnutrition, disuse, hypoxia, and glucocorticoid (GC) levels increase and converge, further aggravating skeletal muscle impairment with GC signaling as a common denominator. No intervention currently exists that specifically prevents or counteracts GC-induced muscle weakness during ECOPD.

Areas covered: This review summarizes clinical and pre-clinical evidence on the role of GC signaling in muscle dysfunction during ECOPD. We discuss the underlying molecular mechanisms by which GCs drive muscle weakness, and critically evaluate emerging pharmacological strategies aimed at mitigating these effects. PubMed and Scopus were searched for peer-reviewed papers published before April 2025.

Expert opinion: GC-induced muscle weakness is an under-recognized but potentially modifiable contributor to muscle weakness in ECOPD. Particular promise lies in pharmacological interventions such as myostatin pathway inhibitors, selective androgen receptor modulators, and those inducing IGF-1-related protein synthesis. Dedicated translational and clinical research is urgently needed to evaluate these novel interventions in the setting of ECOPD. Effective countermeasures could preserve muscle mass and function, improve exercise capacity and recovery, shorten hospital stay, and lower the risk of recurrence, offering a new therapeutic opportunity in ECOPD management.

Keywords: Glucocorticoids; chronic obstructive pulmonary disease; exacerbation of COPD; muscle weakness; muscular atrophy.

. 2026 Jul-Aug;40(4):219-233.

doi: 10.1097/HNP.0000000000000755. Epub 2025 Sep 29.

Unveiling the Healing Potential of Energy Therapies in Chronic Obstructive Pulmonary Disease: A Systematic Review and Meta-Analysis With Implications for Nursing Practice

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- PMID: 41020360

- DOI: 10.1097/HNP.0000000000000755

Abstract

This systematic review and meta-analysis evaluate the effects of energy therapies on pulmonary function (forced expiratory volume in 1 second [FEV1], forced vital capacity [FVC], and FEV1/FVC), exercise capacity (6-Minute Walking Test [6MWT]), and quality of life (St George's Respiratory Questionnaire [SGRQ]) in chronic obstructive pulmonary disease (COPD) patients. Conducted per PRISMA guidelines and registered in PROSPERO, this meta-analysis included 8 randomized controlled trials (RCTs) identified through systematic searches of Web of Science, PubMed, Google Scholar, EBSCO, Embase, and Cochrane Library (June 2024-January 2025). Data were analyzed using Comprehensive Meta-Analysis Version 3 software, with heterogeneity and publication bias assessments. Energy therapies significantly improved 6MWT scores (95% CI, $P < .05$) and SGRQ scores, enhancing quality of life. Patients receiving energy therapy showed increased walking distance, particularly when combined with pulmonary rehabilitation. SGRQ results indicated better quality of life, mainly due to reduced stress and anxiety. However, no significant improvement was found in FEV1, FVC, or FEV1/FVC values ($P > 0.05$), suggesting limited direct effects on pulmonary function. Methodological variations and sample size differences contributed to result inconsistencies. Energy therapies may complement COPD treatment by improving exercise capacity and quality of life. However, large-scale, long-term RCTs are needed to clarify their impact on pulmonary function.

Keywords: COPD; energy therapies; exercise capacity; meta-analysis; quality of life; respiratory functions.

- 35 references

Supplementary info

Publication types, MeSH termsExpand

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

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

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

chronic cough

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