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26-OCT-2-NOV-2025
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(copd OR "Pulmonary Disease, Chronic Obstructive"[Mesh])

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Respir Med

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. 2025 Oct 30:108467.

doi: 10.1016/j.rmed.2025.108467. Online ahead of print.

Effect of eosinophilia on duration of hospital stay in patients admitted with acute exacerbation of chronic obstructive pulmonary disease

Nitesh Gupta [1], Sanchit Mohan [2], Adithya Cattamanchi [3], Bharti Prasad [4], Barney Isaac [5], Devasahayam J Christopher [6], Kapil Goel [7], Sanjib Basu [8], William Vollmer [9], Akhil Goel [10], Rohit Kumar [11]

Affiliations Expand

- **PMID: 41176094**

- **DOI: 10.1016/j.rmed.2025.108467**

Abstract

Background: Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD) is a major cause of hospitalization and mortality. A subset of AECOPD patients has eosinophilic inflammation, but its impact on clinical outcomes like

length of hospital stay (LOS) remains unclear. Unlike DRG-based systems, discharge decisions in our setting are primarily driven by clinical criteria rather than economic constraints RESEARCH QUESTION: Does blood eosinophilia affect the duration of hospital stay and clinical outcomes in patients admitted with AECOPD?

Study design and methods: This prospective cohort study enrolled adults (≥40 years) admitted with AECOPD between May 2023 and September 2024. Blood eosinophil levels were measured before corticosteroid administration. Eosinophilia was defined as (1) absolute eosinophil count (AEC) ≥300/μL (primary) and (2) ≥2% eosinophils (secondary). The primary outcome was LOS; secondary outcomes included in-house mortality, ICU admission, and need for ventilation. Multivariable Cox and logistic regression models adjusted for confounders were used.

Results: Of 570 screened, 300 patients met inclusion criteria, with 36 (12%) classified as eosinophilic. LOS did not significantly differ between eosinophilic and non-eosinophilic groups (adjusted HR: 1.06, 95% CI 0.37-3.04, p=0.91). No significant associations were found with mortality (adjusted OR 2.81, 95% CI 0.99-7.94), ICU admission, or ventilation requirements. However, there was a trend for a positive association of eosinophilia and in-house mortality. Results were consistent across both eosinophilia definitions.

Conclusion: While eosinophilia was not a predictor for LOS, a predictive value of it for in-house and potentially overall mortality cannot be excluded. Future prospective, multi-center studies should examine post-discharge mortality at defined intervals (e.g., 30-day, 90-day, and 1-year mortality) to determine whether eosinophilia serves as a long-term prognostic marker in AECOPD.

Keywords: AECOPD; Clinical outcomes; Eosinophilia; Hospital length of stay; Inflammation.

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.

. 2025 Oct 30:104315.

doi: 10.1016/j.lpm.2025.104315. Online ahead of print.

Update on the pathogenetic hallmarks of chronic obstructive pulmonary disease

Ken R Bracke [1], Guy G Brusselle [2]

Affiliations Expand

- PMID: 41175928

- DOI: 10.1016/j.lpm.2025.104315

Abstract

Chronic Obstructive Pulmonary Disease (COPD) is a major cause of global morbidity and mortality, affecting over 300 million individuals worldwide. While traditionally linked to tobacco smoking, increasing evidence highlights the contributions of genetic predisposition, early-life events, and environmental exposures to the onset and progression of the disease. COPD pathogenesis is driven by complex mechanisms that lead to small airway obstruction and alveolar destruction. This review describes key hallmarks of COPD pathogenesis, including innate immune responses, adaptive immunity with lymphoid follicle formation, type 1 and 17 inflammation versus type 2 inflammation, oxidative stress, mitochondrial dysfunction, metabolic changes, dysregulated cell death, and epigenetic alterations. A comprehensive understanding of these pathophysiological processes is essential for the development of targeted, personalized therapeutic strategies aimed at arresting disease progression and improving patient outcomes.

Keywords: COPD pathogenesis; Inflammation; Personalized medicine.

Conflict of interest statement

Declaration of competing interest KR Bracke holds an AstraZeneca chair on Translational Research into the Pathogenesis of COPD. GG Brusselle has received fees for advisory boards and lectures from AstraZeneca, Boehringer-Ingelheim, Chiesi, GlaxoSmithKline, MerckSharp&Dohme, Novartis and Sanofi Regeneron.

Editorial

Presse Med

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. 2025 Oct 30:104313.

doi: 10.1016/j.lpm.2025.104313. Online ahead of print.

COPD in transformation: from early origins to precision medicine

Nicolas Roche [1]

Affiliations Expand

- PMID: 41175927

- DOI: 10.1016/j.lpm.2025.104313

No abstract available

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Presse Med

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. 2025 Oct 30:104320.

doi: 10.1016/j.lpm.2025.104320. Online ahead of print.

Integrated care in COPD

Jean Bourbeau [1], Claudia LeBlanc [2]

Affiliations Expand

- PMID: 41175926

- DOI: 10.1016/j.lpm.2025.104320

Abstract

COPD is a chronic condition that comes with a significant symptoms burden and healthcare utilization. It is the fourth leading cause of death worldwide and its prevalence is expected to rise in the years to come. We know that pharmacological treatment has a preponderant role to play in the management of this disease, but we also know that the non-pharmacological aspect of care is the cornerstone. In the last years, it has been increasingly recognized that education, self-management and integrated care are key components of COPD patients care trajectory. This review article presents the evolution of integrated care throughout the years and highlights the evidence of randomized clinical trials and on patient perspective behind this care model as well as the challenges healthcare professionals are still facing. This review also presents an illustrative example of integrated care in COPD which has been implemented over 2 decades, building on evidence from RCT to real-world evidence adoption in healthcare settings for broader reach and sustainability.

Keywords: COPD; Care coordination; Chronic disease; Integrated care; Multidisciplinary team; Self-management.

Conflict of interest statement

Declaration of competing interest None

Full text links

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Cite

5

BMC Pulm Med

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. 2025 Oct 31;25(1):502.

doi: 10.1186/s12890-025-03969-3.

Dose-response relationship of physical activity and sedentary time with mortality in people with chronic obstructive pulmonary disease: an analysis of UK biobank accelerometer cohort

Weijiao Zhou [1], Philip T Veliz [2], Junlan Pu [1], Wei Luo [1], Shaomei Shang [3], Janet L Larson [2]

Affiliations Expand

- PMID: 41174666

- DOI: 10.1186/s12890-025-03969-3

Free article

Abstract

Background: The COPD guidelines recommend engaging in regular physical activity and reducing sedentary time (ST), but little is known about the optimal or minimal dose of physical activity and ST. This study aimed to quantify the prospective dose-response relationships between daily time spent in moderate to vigorous physical activity (MVPA), light physical activity (LPA), ST and mortality, and examine the theoretical consequences of replacing ST with equal time of MVPA or LPA.

Methods: A population-based cohort study of 1,551 individuals with COPD enrolled in the UK Biobank. MVPA, LPA, ST were measured with the wrist-worn Axivity AX3 accelerometer. All-cause mortality was obtained through the linkage to death registries. Restricted cubic splines were used to assess the dose response associations of MVPA, LPA, ST and all-cause mortality. Isotemporal substitution models were used to estimate the theoretical effect of replacing ST with MVPA or LPA.

Results: 54% were male, and the mean (SD) age was 66.31 (6.52) years. Over a mean (SD) follow-up of 7.44 (1.67) years, 244 (15.7%) died. We observed a significant L-shaped association between MVPA and all-cause mortality, with an optimal amount at 60 min/day (HR = 0.27, 95% CI: 0.18-0.41). For LPA, we observed a significant U-shaped association, with an optimal amount at 5.2 h/day (HR = 0.15, 95% CI: 0.10-0.25). The threshold for ST was 12.43 h/day, above which a significant increase in mortality was observed. Replacing 30 min/day of ST was associated with 34% decreased risk in mortality for MVPA (HR = 0.66, 95%CI: 0.55-0.81, P < .001) and 10% lower mortality for LPA (HR = 0.90, 95% CI: 0.86-0.94, P < .001).

Conclusions: The findings of this study suggest non-linear associations of MVPA, LPA, ST and all-cause mortality. Replacing ST with either MVPA or LPA is associated with decreased risk of mortality.

Keywords: Accelerometer; Chronic obstructive pulmonary disease; Dose-response association; Mortality; Physical activity; Sedentary time.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: This study was approved by the UK's National Health Service National Research Ethics Service (Ethics Committee reference number: 11/NW/0382). All participants provided informed consent. This research complied with the Declaration of Helsinki. Consent for

publication: Not applicable. Competing interests: The authors declare no competing interests.

- 30 references

Supplementary info

MeSH terms, Grants and fundingExpand

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Cite

6

BMJ Open Respir Res

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

doi: 10.1136/bmjresp-2024-002992.

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

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

Collaborators, Affiliations Expand

- PMID: 41173502

- DOI: 10.1136/bmjresp-2024-002992

Abstract

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

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

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

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

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

Conflict of interest statement

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

Supplementary info

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Presse Med

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. 2025 Oct 29:104314.

doi: 10.1016/j.lpm.2025.104314. Online ahead of print.

The evolving epidemiology, disease trajectories and etiotypes of COPD

Dagmar Düsterhöft [1], Jaime Alvarado [1], Daiana Stolz [2]

Affiliations Expand

- PMID: 41173443

- DOI: 10.1016/j.lpm.2025.104314

Abstract

Chronic Obstructive Pulmonary Disease (COPD) remains a leading cause of morbidity and mortality worldwide. This review explores the evolving epidemiology of COPD with a focus on recent trends, disease trajectories, and emerging etiotypes. The key aspects discussed include the impact of smoking, early life events, and genetic predispositions, alongside non-traditional risk factors such as indoor and outdoor air pollution and infections. Additionally, this article highlights the contribution of global initiatives to control COPD risk factors and the potential for personalized approaches in prevention and treatment. By addressing these diverse dimensions, we aim to provide a comprehensive understanding of the current knowledge of the complexity and heterogeneity of COPD.

Keywords: COPD; disease trajectories; early life events; epidemiology; etiotypes; tobacco air pollution.

Conflict of interest statement

Declaration of competing interest Jaime Alvarado and Dagmar Düsterhöft have no conflicts of interests Daiana Stolz: lectures or presentations: AstraZeneca, Berline-Chemie/Menarini, Boehringer Ingelheim, Chiesi, CSL Behring, Curetis AG, GSK, Merck, MSD, Novartis, Sanofi, Vifor, Roche, OM-Pharma, Pfizer

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Presse Med

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. 2025 Oct 29:104318.

doi: 10.1016/j.lpm.2025.104318. Online ahead of print.

Personalizing COPD care: phenotypes, endotypes, GETomics, the the trajectome, syndemics and treatable traits

Alvar Agusti [1], Rosa Faner [2]

Affiliations Expand

- PMID: 41173442

- DOI: 10.1016/j.lpm.2025.104318

Abstract

Our understanding and management of chronic obstructive pulmonary disease (COPD) has changed significantly over the past few years. We now recognize that COPD is a complex and heterogeneous condition that requires personalized and precise management. Here we review these recent novel concepts, including those of Phenotypes (i.e., the observable characteristics of an individual), Endotypes (i.e., the biologic mechanism(s) underlying a given phenotype), GETomics (i.e., a new paradigm that incorporates of the time axis (age) into our understanding of different gene-environment interactions through the life time), the Trajectome (i.e., the range of potential lung function trajectories that exists in the general population, including normal, low and supra-normal trajectories with different clinical implications), Syndemics (i.e., a term that refers to the fact that most COPD patients suffer of other co-occurrent diseases (multimorbidity) that share mechanisms and risk

factors), and Treatable Traits (i.e., specific endo-phenotypes that contribute to the clinical presentation and prognosis of the patient that deserve specific and personalized treatment), and discuss how to best transfer them into clinical practice (e.g. lung tracker). Collectivelly, these concepts have radically changed our understanding of COPD and can facilitate a more personalized and precise clinical management of the patients that suffer such a frequent and impactful disease.

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

Conflict of interest statement

Disclosure of interest Both authors declare no conflicts of interest related to this manuscript.

Cite

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Presse Med

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. 2025 Oct 29:104319.

doi: 10.1016/j.lpm.2025.104319. Online ahead of print.

Pharmacological management of COPD

Augusta Beech [1], Dave Singh [2]

Affiliations Expand

- PMID: 41173441

- DOI: 10.1016/j.lpm.2025.104319

Abstract

The pharmacological management of chronic obstructive pulmonary disease (COPD) focuses on the alleviation of symptoms coupled with exacerbation prevention. Inhaled treatments are the mainstay of management, ensuring adequate lung delivery while minimising the potential for adverse systemic effects.

Combination inhalers with log acting bronchodilators with and without inhaled corticosteroids (ICS) are in widespread to treat COPD on the basis of clinical trial evidence alongside the practical advantages associated with using a single inhaler in the real life world. There is also a personalised approach to ICS use, as blood eosinophil counts can help identify individuals with a greater probability of responding to treatment. Biological treatments have demonstrated positive results in COPD clinical trials, and will also be used in a precision approach in future. The positive clinical trial results for dupilumab (a monoclonal antibody directed against the shared IL-4 and IL-13 receptor) and ensifentrine (an inhibitor of phosphodiesterase 3 and 4) represent significant advances in the pharmacological management of COPD. This review describes the recent progress in COPD pharmacology, covering novel molecules, new evidence and changes in clinical practice.

Keywords: Blood eosinophil counts; COPD pharmacological management; Precision medicine.

Conflict of interest statement

Declaration of competing interest A. Beech has no DOI. D. Singh has received sponsorship to attend and speak at international meetings, honoraria for lecturing or attending advisory boards from the following companies: Aerogen, AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, CSL Behring, Epiendo, Genentech, GlaxoSmithKline, Glenmark, Gossamerbio, Kinaset, Menarini, Novartis, Pulmatrix, Sanofi, Teva, Theravance and Verona.

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Presse Med

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. 2025 Oct 29:104317.

doi: 10.1016/j.lpm.2025.104317. Online ahead of print.

COPD exacerbations: major events in the course of the disease

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Affiliations Expand

- PMID: 41173440

- DOI: 10.1016/j.lpm.2025.104317

Abstract

Exacerbations of chronic obstructive pulmonary disease (COPD) lead to significant mortality, morbidity and healthcare expenditure globally. COPD exacerbations are heterogenous events; triggers and risk factors include respiratory infections, air pollution and co-morbidities. Exacerbations have an important effect on disease progression through their effect on lung function decline and functional impairment. In turn, these factors increase the susceptibility to the risk factors for exacerbations, thus leading to a cycle of exacerbations. Rigorous prevention and treatment of exacerbations is needed to break this cycle and achieve the goal of exacerbation-free COPD.

Keywords: Chronic obstructive pulmonary disease; exacerbation; infection; lung function; prevention.

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: Jadwiga A. Wedzicha reports a relationship with AstraZeneca Pharmaceuticals LP that includes: consulting or advisory, funding grants, and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Boehringer Ingelheim Ltd that includes: funding grants and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Chiesi Pharmaceuticals Inc that includes: funding grants. Jadwiga A. Wedzicha reports a relationship with GSK that includes: consulting or advisory, funding grants, and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Novartis that includes: funding grants and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Genentech Inc that includes: funding grants. Jadwiga A. Wedzicha reports a relationship with 37Clinical that includes: funding grants. Jadwiga A. Wedzicha reports a relationship with EpiEndo Pharmaceuticals that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Gilead Sciences Inc that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Pieris Pharmaceuticals Inc that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with PULMATRiX Inc that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Empiricio that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Sanofi SA that includes: consulting or advisory and speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Roche that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Pfizer that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with NEATstix that includes: consulting or advisory. Jadwiga A. Wedzicha reports a relationship with Recipharm Inc that includes: speaking and lecture fees. Jadwiga A. Wedzicha reports a relationship with Virtus 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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Lancet Respir Med

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. 2025 Oct 28:S2213-2600(25)00368-6.

doi: 10.1016/S2213-2600(25)00368-6. Online ahead of print.

FeNO or no FeNO in COPD?

Huib A M Kerstjens [1], Maarten van den Berge [2]

Affiliations Expand

- **PMID: 41173012**

- **DOI: 10.1016/S2213-2600(25)00368-6**

No abstract available

Conflict of interest statement

HAMK declares research grants from GSK, Novartis, and Boehringer Ingelheim; fees from Sanofi for making a podcast; and fees for an advisory board from Sanofi, Novartis, and AstraZeneca, all paid to his institution. MvdB has received funding from GSK, Novartis, Roche, Genentech, Chiesi, and Sanofi, all paid to his institution. HAMK and MvdB contributed equally to this correspondence: conceiving the reaction, drafting, and finalising the work.

Supplementary info

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Published Erratum

Am J Respir Crit Care Med

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. 2025 Nov;211(11):2226.

doi: 10.1164/rccm.v211erratum6.

Erratum: Towards Precision Treatment of Chronic Obstructive Pulmonary Disease Exacerbations: The Role of Specialized Proresolving Mediators

No authors listed

- PMID: 41170934

- DOI: 10.1164/rccm.v211erratum6

No abstract available

Erratum for

- Towards Precision Treatment of COPD Exacerbations: The Role of Specialized Pro-Resolving Mediators.

Bon J, Bozinovski S.Am J Respir Crit Care Med. 2025 Mar 28;211(5):683-4. doi: 10.1164/rccm.202503-0658ED. Online ahead of print.PMID: 40153555 Free PMC article. No abstract available.

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Published Erratum

Am J Respir Crit Care Med

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-
-

. 2025 Nov;211(11):2226.

doi: 10.1164/rccm.v211erratum5.

Erratum: Airway Mucus Plugs on Chest Computed Tomography Are Associated with Exacerbations in Chronic Obstructive Pulmonary Disease

No authors listed

- PMID: 41170933

- DOI: 10.1164/rccm.v211erratum5

No abstract available

Erratum for

- Airway Mucus Plugs on Chest Computed Tomography Are Associated with Exacerbations in COPD.

Wan E, Yen A, Elalami R, Grumley S, Nath HP, Wang W, Brouha S, Manapragada PP, Abozeed M, Aziz MU, Zahid M, Ahmed AN, Terry NL, Nardelli P, Ross JC, Kim V, Sonavane S, Kligerman SJ, Vestbo J, Agusti A, Kim K, San José Estépar R, Silverman EK, Cho MH, Diaz AA.Am J Respir Crit Care Med. 2024 Oct 29;211(5):814-22. doi: 10.1164/rccm.202403-0632OC. Online ahead of print.PMID: 39470402

Supplementary info

Publication typesExpand

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. 2025 Dec;57(1):2579789.

doi: 10.1080/07853890.2025.2579789. Epub 2025 Oct 31.

Comparison of the predictive performance of Cumulative Illness Rating Scale, Charlson Comorbidity Index and COMCOLD Index for moderate-to-severe exacerbations in elderly subjects with chronic obstructive pulmonary disease

Edoardo Pirera [1], Domenico Di Raimondo [1], Lucio D'Anna [2], Riccardo De Rosa [1], Martina Profita [1], Sergio Ferrantelli [1], Davide Paolo Bernasconi [3], Antonino Tuttolomondo [1]

Affiliations Expand

- PMID: 41170896

- DOI: 10.1080/07853890.2025.2579789

Free article

Abstract

Background and objective: Chronic Obstructive Pulmonary Disease (COPD) is frequently associated with multiple comorbidities that influence clinical outcomes. This study aimed to compare the predictive performance of the Cumulative Illness Rating Scale (CIRS) with the Charlson Comorbidity Index (CCI) and COMCOLD Index for moderate-to-severe COPD exacerbations.

Materials and methods: We conducted a prospective observational study involving 200 COPD patients followed for 52 weeks. CIRS indices (Total Score, Severity Index, Comorbidity Index), CCI, and COMCOLD were calculated at baseline. The primary outcome was time-to-first moderate-to-severe exacerbation. Cox regression analyses and time-dependent receiver operating characteristic curves were used to assess prognostic performance at 12, 24, and 52 weeks.

Results: During follow-up, 66 patients (33%) experienced at least one moderate-to-severe exacerbation. All CIRS indices demonstrated significant correlations with respiratory parameters and symptom burden. In crude models, CIRS indices were significantly associated with exacerbation risk (CIRS-TS: HR 1.11, 95%CI 1.06-1.16; CIRS-SI: HR 1.16, 95%CI 1.09-1.23; CIRS-CI: HR 1.37, 95%CI 1.20-1.56; all $p < 0.001$), maintaining significance after adjustment for clinical covariates. CIRS indices demonstrated superior discriminative performance compared to CCI and COMCOLD, with CIRS-SI achieving the highest time-dependent AUC values across all timepoints (0.704, 0.679, and 0.778 at 12, 24, and 52 weeks, respectively).

Conclusion: CIRS provides superior prognostic accuracy compared to established comorbidity indices in identifying COPD patients at increased risk of exacerbations. These findings highlight the clinical relevance of incorporating a comprehensive,

severity-weighted comorbidity assessment in COPD management, supporting the concept of COPD as a complex, multisystem disorder requiring an integrated approach to care.

Keywords: CIRS; COMCOLD; COPD; Charlson Comorbidity Index; Comorbidity; Cumulative Illness Rating Scale; acute exacerbation of COPD.

Plain language summary

In elderly patients with COPD, CIRS provided superior prognostic accuracy for moderate-to-severe exacerbations compared with the Charlson Comorbidity Index and COMCOLD;The prognostic advantage of CIRS likely derives from its comprehensive, severity-weighted assessment of multimorbidity across multiple organ systems;Incorporating multidimensional comorbidity evaluation, such as CIRS, into clinical practice may improve risk stratification and support more personalized COPD management.

Supplementary info

Publication types, MeSH termsExpand

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15

Respirology

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. 2025 Oct 31.

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

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

Junyi Bai [1], Junchao Yang [2]

Affiliations Expand

- PMID: 41170561

- DOI: 10.1002/resp.70154

No abstract available

Keywords: AVR; COPD; airway markers.

Supplementary info

Publication typesExpand

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Editorial

Thorax

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. 2025 Oct 30:thorax-2025-224162.

doi: 10.1136/thorax-2025-224162. Online ahead of print.

Comparative efficacy in smokers with versus without COPD: a new addition of an old drug to approved pharmacotherapy for smoking cessation

Donald P Tashkin [1], Kathryn H Melamed [2]

Affiliations Expand

- **PMID: 41167618**

- **DOI: 10.1136/thorax-2025-224162**

No abstract available

Keywords: COPD Pharmacology; Smoking cessation.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication typesExpand

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17

Respiration

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. 2025 Oct 30:1-22.

doi: 10.1159/000548597. Online ahead of print.

Routine blood biomarkers and lung disease in patients with Alpha-1 Antitrypsin Deficiency from the EARCO Registry

Cristina Aljama, Alexa Núñez, Cristina Esquinas, Hanan Tanash, Eva Bartošovská, Maria Torres-Duran, Alice M Turner, Carlota Rodríguez-García, Angelo Corsico, Catarina Guimarães, José Luis López-Campos, Jens-Ulrik Stæhr Jensenn, José María Hernández-Pérez, Ane Lopez-Gonzalez, Galo Granados, Marc Miravitlles, Miriam Barrecheguren; EARCO group

- PMID: 41166536

- DOI: 10.1159/000548597

Abstract

Introduction: The aim of our study was to identify routine serum biomarkers that may be related to alpha-1 antitrypsin deficiency (AATD) lung disease phenotypes and severity.

Method: Observational, cross sectional, multicentre study conducted in patients with a Pi*ZZ genotype. Serum biomarkers, including neutrophil/lymphocyte ratio (NLR), eosinophil/lymphocyte ratio (ELR) and platelet/lymphocyte ratio (PLR), were calculated. Data were analysed to establish possible associations between biomarkers and lung function and lung phenotypes.

Results: Among the 897 patients included, 48.4% were men with a mean age of 53.9 (SD 14.7) years. Patients with COPD (n = 337) had higher haemoglobin levels (15.3 mg/dl vs. 13.9 mg/dl, p<0.001), gamma-glutamyl transferase (GGT) (50.1 IU/L vs. 35.7 IU/L, p<0.001), eosinophils (0.22 10^9/L vs. 0.19 10^9/L, p<0.001), NRL (2.55 vs. 1.86), PLR (132.6 vs. 119.8) and ELR 0.12 vs. 0.1) compared to those without COPD. In multivariate analysis, older age, male sex, higher haematocrit, elevated alanine transaminase (ALT) and GGT levels, and a higher NRL and PLR were associated with a worse FEV1(%). A higher Charlson score, elevated haematocrit and white cell count, as well as increased levels of AAT, aspartate aminotransferase (AST), GGT,

and PLR were associated with worse carbon monoxide transfer coefficient (KCO)(%). Exacerbations were associated with female sex, and a higher PLR.

Conclusion: Some blood biomarkers are increased in patients worse lung function. However, the correlations between these biomarkers and the different measures of lung function are weak, and thus, identifying a single routine biomarker that accurately predicts disease severity and progression is challenging.

S. Karger AG, Basel.

Full text links

Proceed to details

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Curr Opin Pulm Med

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. 2025 Oct 30.

doi: 10.1097/MCP.0000000000001231. Online ahead of print.

Strategies to decrease exacerbations of chronic obstructive pulmonary disease: can they impact disease progression?

Umur Hatipoğlu [1]

Affiliations Expand

- PMID: 41165487

- DOI: 10.1097/MCP.0000000000001231

Abstract

Purpose of review: Preventing disease progression is a key element of chronic obstructive pulmonary disease (COPD) management. COPD exacerbations are adverse events that can result in a decline of lung function that can persevere. Therefore, reducing exacerbation frequency has the potential to affect disease progression and improve health status of COPD patients. This narrative review explores monitoring for disease progression in COPD and its potential association with COPD exacerbations.

Recent findings: Pharmacotherapy can slow down disease progression, but the effect is mediated only in part by reducing exacerbations. While disease

progression is continuous, patients with established airflow obstruction in early stages appear more vulnerable to faster declines in lung function. Longitudinal monitoring of lung function and structure is necessary to identify patients with disease progression.

Summary: Pharmacotherapy is an effective option for preventing disease progression. A holistic approach including longitudinal pulmonary function testing, clinical symptoms and imaging may be necessary to detect disease progression for early intervention.

Keywords: COPD exacerbations; pharmacotherapy.

- 47 references

Full text links

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Cite

19

Review

Respir Care

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. 2025 Oct 29.

doi: 10.1177/19433654251377005. Online ahead of print.

Effects of Wildfire Smoke Inhalation on Respiratory Health

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

Affiliations Expand

- PMID: 41163291

- DOI: 10.1177/19433654251377005

Abstract

Wildfires have become increasingly frequent and severe, releasing large amounts of fine particulate matter ($PM_{2.5}$) and toxic gases that pose serious threats to

respiratory health. This review summarizes current clinical evidence on the respiratory effects of wildfire smoke exposure, focusing on both short-term effects-such as respiratory symptoms, infections, and increased emergency department visits-and long-term consequences, including declines in pulmonary function and elevated mortality. The review highlights vulnerable populations-including pregnant individuals, infants, children, older adults, individuals with asthma or COPD, and firefighters, who experience disproportionate risks. It also compares the toxicity of wildfire-derived $PM_{2.5}$ to other pollution sources and identifies differences in clinical impact. Evidence-based protective strategies are discussed, including respiratory protection, behavioral interventions, and health care provider preparedness. Finally, the review identifies gaps in the current literature and emphasizes the need for longitudinal studies to evaluate chronic outcomes and improve public health responses to future wildfire events.

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

20

Review

Respir Res

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

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

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

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

Affiliations Expand

- PMID: 41163220

- PMCID: PMC12574037

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

Abstract

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

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

Conflict of interest statement

Declarations. Ethics approval and consent to participate: The ZENYATTA, ZARNIE, and COVASTIL trials were conducted in conformance with the International Council for Harmonisation E6 guideline for Good Clinical Practice, the principles of the Declaration of Helsinki, or the laws/regulations of the country where the research occurred, whichever provided better protection to the individual, and the trials complied with requirements of the International Council for Harmonisation E2A guideline. Ethics Committees for each site approved the protocols in each study. The COPD-ST2OP trial was performed in accordance with the principles of the Declaration of Helsinki and ethics approval given by East Midlands – Leicester South Research Ethics Committee. In all trials, patients (or their legally authorized representatives) provided written, informed consent. Consent for publication: Not

applicable. Competing interests: SGK has received funding from Genentech Inc., Syneos, and Teva. MM was recently a speaker and/or advisor for and/or had received research funding from Alexion, Allakos, Almirall, Alvotech, Amgen, Aquestive Therapeutics, Arcensus, argenX, AstraZeneca, Astria Therapeutics, BioCryst Pharmaceuticals, Blueprint Medicines, Celldex Therapeutics, Celltrion, Clinuvel, Cogent Biosciences, CSL Behring, Escient Pharmaceuticals, Evommune, Excellergy Therapeutics, Genentech, Inc., GSK, Incyte, Jasper Therapeutics, KalVista Pharmaceuticals, Kashiv Biosciences, Kyowa Kirin, Leo Pharma, Lilly, Menarini, Mitsubishi Tanabe Pharma, Moxie, Noucor, Novartis, Orion Biotechnology, Pharvaris, Resonance Medicine, Sanofi/Regeneron, Santa Ana Bio, Septerna, Servier, Takeda, Teva, Third Harmonic Bio, ValenzaBio, Vitalli Bio, Yuhan Corporation, and Zura Bio. MW has no competing interests to declare. GA and WT are employees of F. Hoffmann-La Roche, Ltd. AD, AF, and XY are employees of Genentech, Inc. DM is an employee of Genentech, Inc. and a shareholder of F. Hoffmann-La Roche, Ltd./Genentech, Inc. CEB has received grants and consultancy fees from 4D Pharma, Areteia, AstraZeneca, Chiesi, F. Hoffmann-La Roche, Ltd., Genentech, Inc., GlaxoSmithKline, Mologic, Novartis, Regeneron Pharmaceuticals, and Sanofi paid to his institution.

- 55 references
- 1 figure

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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J Thromb Haemost

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. 2025 Oct 27:S1538-7836(25)00667-1.

doi: 10.1016/j.jtha.2025.10.004. Online ahead of print.

Safety and Efficiency of Diagnostic Strategies for Ruling Out Pulmonary Embolism in Patients with Chronic Lung Disease: An Individual-Patient Data Meta-Analysis

Vicky Mai [1], Toshihiko Takada [2], Noemie Kraaijpoel [3], Nick van Es [3], Ranjeeta Mallick [4], Milou A M Stals [5], Harry R Buller [3], D Mark Courtney [6], Yonathan Freund [7], Javier Galipienzo [8], Waleed Ghanima [9], Menno V Huisman [5], Jeffrey A

Kline [10], Karel G M Moons [11], Sameer Parpia [12], Arnaud Perrier [13], Marc Righini [13], Helia Robert-Ebadi [13], Pierre-Marie Roy [14], Maarten van Smeden [11], Phil S Wells [15], Kerstin de Wit [16], Dean A Fergusson [4], Frederikus A Klok [5], Geert-Jan Geersing [11], Grégoire Le Gal [17]

Affiliations Expand

- PMID: 41161416

- DOI: 10.1016/j.jtha.2025.10.004

Abstract

Introduction: The optimal diagnostic management of patients with chronic lung disease (CLD) and suspected pulmonary embolism (PE) is unclear. The aim of this study was to evaluate the performance of PE diagnostic strategies in patients with and without CLD.

Methods: This is a secondary analysis of an individual-patient data meta-analysis (PROSPERO CRD42018089366) of prospective or cross-sectional studies evaluating conventional (Wells or revised Geneva score with fixed or age-adjusted D-dimer) and newer (YEARS, PEGeD) diagnostic strategies. Main outcomes were safety and efficiency. Safety was defined by the failure rate (proportion of patients diagnosed with venous thromboembolism (VTE) during initial work-up or follow-up among those in whom PE was considered ruled out at baseline without imaging). Efficiency was defined as the proportion of patients in whom PE was considered excluded without the need for imaging among all patients.

Results: Twelve studies, representing 16,990 patients (2,201 patients with CLD) were included. The safety of each strategy was comparable in patients with and without CLD, whereas efficiency was lower in patients with CLD. In patients with CLD, the predicted failure rate varied between 0.58% (95% Confidence Interval (CI) 0.10%-3.20%) and 1.06% (95%CI 0.44%-2.53%), and between 2.54% (95%CI 1.45%-4.39%) and 3.12% (95%CI 2.04%-4.74%) for conventional and newer diagnostic strategies, respectively. The predicted efficiency was 19.0%-33.2% and 35.8%-43.9% for conventional and newer diagnostic strategies, respectively.

Conclusion: In patients with CLD, diagnostic failure rate seemed slightly lower with conventional diagnostic strategies, but more patients would need imaging to rule out PE compared to newer diagnostic strategies.

Keywords: chronic obstructive pulmonary disease; lung disease; pulmonary embolism.

Cite

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ERJ Open Res

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. 2025 Oct 27;11(5):01173-2024.

doi: 10.1183/23120541.01173-2024. eCollection 2025 Sep.

Chronic noninvasive ventilation in COPD: towards the identification of a responder phenotype

Tim Raveling [1 2], Jorine E Hartman [1 2], Renzo Boersma [1 2], Peter J Wijkstra [1 2], Marieke L Duiverman [1 2]

Affiliations Expand

- PMID: 41158499

- PMCID: PMC12557403

- DOI: 10.1183/23120541.01173-2024

Abstract

Purpose: Chronic noninvasive ventilation (NIV) is an effective treatment for patients with chronic hypercapnia due to COPD, but the improvement in health-related quality of life (HRQoL) varies significantly among individuals. We conducted a cluster analysis to identify clusters of patients based on their HRQoL response to chronic NIV.

Patients and methods: Patients with COPD and an indication for chronic NIV were prospectively followed. Gas exchange, lung function, exercise capacity and HRQoL were measured at baseline and at 6 months. HRQoL was measured with the Severe Respiratory Insufficiency questionnaire (SRI). The cluster analysis was performed using the self-organising map-Ward's method. In addition, we compared patient and disease characteristics, changes in outcomes and survival differences between the clusters.

Results: A total of 301 participants were included in the analysis and 214 patients completed the 6-month follow-up. We identified three distinct clusters of patients with equal NIV use but different HRQoL response: a "good responder" phenotype of patients, characterised by a clinically relevant improvement on the SRI, a high number of exacerbations, poor baseline HRQoL and high rates of mood disorders; a "moderate responder" phenotype, characterised by milder gas exchange and lung

function impairment, and relatively preserved baseline HRQoL; and a "poor responder" phenotype of patients in whom HRQoL worsened and survival was greatly impaired. This cluster included patients with the most severe lung function and gas exchange impairment and low rates of systemic comorbidities.

Conclusion: Our cluster analysis suggests that chronic NIV is most likely beneficial in patients with frequent exacerbations, severely impaired HRQoL and a high incidence of mood disorders. Future randomised controlled trials should investigate whether the different HRQoL responses between the clusters are caused by NIV.

Conflict of interest statement

Conflict of interest: T. Raveling, J.E. Hartman and R. Boersma have nothing to disclose. P.J. Wijkstra reports grants from Philips and ResMed; consultancy fees from Philips; and a leadership role with the European Respiratory Society. M.L. Duiverman reports grants from ResMed, Philips, Löwenstein, Vivisol, Sencure and Fisher & Paykel, and payment or honoraria for lectures, presentations, manuscript writing or educational events from Chiesi and Breas.

- 44 references
- 3 figures

23

Respir Res

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. 2025 Oct 28;26(1):296.

doi: 10.1186/s12931-025-03358-8.

Modeled reductions in COPD exacerbation rates, mortality, and related medical costs due to increased SITT adoption: PROMETHEUS Italy

Pierachille Santus [1], Bianca Oresta [2], Davide Finocchiaro [3], Piergiuseppe De Rosa [2], John Bell [4], Melissa Caplen [5], Jennifer Carioto [6], Prachi Bhatt [5], Bruce Pyenson [5], Alberto Papi [7]

Affiliations Expand

- PMID: 41152872
- PMCID: PMC12570637
- DOI: 10.1186/s12931-025-03358-8

Abstract

Introduction: COPD is a leading cause of death and significant healthcare burden in Italy. The ETHOS (NCT02465567||5/2015) and IMPACT (NCT02164513||6/2014) randomized controlled trials (RCTs) have evaluated single-inhaler triple therapy (SITT) and have shown SITT efficacy and safety in reducing exacerbations and all-cause mortality in COPD patients. Despite benefits seen in RCTs, there are currently no studies that evaluate the long-term implications of broader and appropriate SITT use in Italy. We therefore evaluated the potential impact of broader SITT adoption on mortality, exacerbations, and related medical costs in Italy.

Methods: We developed a 10-year (2025-2034) microsimulation model using literature-based patient demographic and clinical characteristics, incidence, therapy distribution and changes, COPD severity changes, mortality, and exacerbations to simulate the Italian COPD population. We modeled two scenarios: "status quo" and "increased SITT," and used patients' airflow limitation and exacerbation history (per GOLD guidelines) to choose patients for SITT. The model simulated annual changes in patient characteristics and related changes in medication therapy over 10-years. Patients' progression reflected reductions in % of FEV1 predicted and annual clinical characteristics. Flagged patients were those that qualified for SITT.

Results: A starting population of approximately 1,550,000 diagnosed prevalent and incident COPD patients were included in the analysis. Based on our modeled "increased SITT" simulation and medication transition algorithm, at the end of the 10-year projection, the prevalent and incident COPD population in Italy increased to 1,881,000 patients, of which 45.4% received SITT. Over 10 years, modeled increased SITT treatment reduced severe and moderate Exacerbations by 12% and 13%, respectively, and all-cause mortality by 14%, avoiding 40,000 deaths, compared to status quo treatment for flagged COPD patients. Consequently, higher than current SITT adoption could reduce associated medical costs by €646 million for flagged COPD patients.

Conclusion: Assuming RCTs effects and adherence translate to clinical practice, our model shows that higher than current SITT use in the Italian COPD population may lead to lower mortality rates and exacerbations, ensuring a substantial savings in associated medical costs. The results of this modeling study could provide rationale to modify existing practices on SITT prescribing with the aim of alleviating the burden of COPD.

Keywords: COPD; Population model; Single-inhaler triple therapy.

Conflict of interest statement

Declarations. Ethics approval and consent to participate: Not applicable. Consent for publication: Not applicable. Competing interests: Pierachille Santus and Alberto Papi have been remunerated for validating assumptions, sources, and interpreting results of the present work. Bianca Oresta, Davide Finocchiaro, Piergiuseppe De Rosa, and John Bell are employees of AstraZeneca and may hold stock and/or stock options in the company. Melissa Caplen, Jennifer Carioto, Prachi Bhatt, and Bruce Pyenson are employees of Milliman, which was contracted by AstraZeneca to conduct this study. The American Academy of Actuaries requires its members to identify their credentials in their work product. Bruce Pyenson, Jennifer Carioto, and Melissa Caplen are members of the American Academy of Actuaries and meet its relevant qualification requirements.

- **17 references**
- **7 figures**

Supplementary info

MeSH terms, SubstancesExpand

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Review

Expert Rev Respir Med

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. 2025 Oct 30:1-9.

doi: 10.1080/17476348.2025.2581347. Online ahead of print.

Safety and efficacy of mepolizumab in eosinophilic chronic obstructive pulmonary disease: a systematic review and meta-analysis

Jorge Sinclair De Frías [1], Agostina Velo [1], Lorenzo Olivero [2], Abdul Rehman [3], Avinash Singh [1], David J Steiger [1]

Affiliations Expand

- **PMID: 41148003**

- DOI: 10.1080/17476348.2025.2581347

Abstract

Introduction: Up to 40% of patients with COPD have an eosinophilic phenotype, which increases the risk of acute exacerbations. Mepolizumab, an anti - IL-5 monoclonal antibody, has shown mixed results. We conducted a systematic review and meta-analysis to evaluate the efficacy and safety of mepolizumab 100 mg in eosinophilic COPD.

Methods: Following PRISMA and Cochrane guidelines, we searched PubMed, Embase, and Cochrane Central through 18 May 2025. Randomized controlled trials comparing mepolizumab 100 mg versus placebo in eosinophilic COPD were included. The primary outcome was the annualized rate of moderate or severe exacerbations. Data were pooled using random-effects models.

Results: Four RCTs (1,953 patients) were included. Mepolizumab reduced annualized rate of moderate or severe exacerbations (Rate Ratio 0.80; 95% CI: 0.73-0.89; $p < 0.00001$) and prolonged time to first exacerbation (HR 0.78; 95% CI: 0.69-0.88; $p < 0.0001$). Sensitivity analysis excluding METREX showed fewer exacerbations requiring ED visits or hospitalization (Rate Ratio 0.63; 95% CI: 0.46-0.86; $p = 0.004$). Patient-reported outcomes did not improve. Safety was favorable, with reduced serious adverse events, including deaths (RR 0.84; 95% CI: 0.73-0.98; $p = 0.03$).

Conclusions: Mepolizumab reduces exacerbations with good safety in eosinophilic COPD, though without improvement in quality-of-life outcomes.

Keywords: Chronic obstructive pulmonary disease; anti-interleukin-5 antibodies; mepolizumab; meta-analysis; randomized controlled trials.

Supplementary info

Publication typesExpand

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Am J Respir Crit Care Med

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. 2025 Oct 27.

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

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

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

Affiliations Expand

- PMID: 41145399

- DOI: 10.1164/rccm.202410-1894OC

Abstract

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

Objectives: Assess dupilumab efficacy by baseline mucus plug score.

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

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

Conclusions: Dupilumab reduced mucus plug scores and improved lung function in patients with moderate-to-severe asthma with high baseline mucus plug score, and increased the likelihood of achieving FeNO <25 ppb regardless of baseline mucus plug score. **Clinical trial registration available at www.**

Clinicaltrials: gov, ID: NCT04400318.

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

Supplementary info

Associated dataExpand

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Respiration

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. 2025 Oct 27:1-14.

doi: 10.1159/000549156. Online ahead of print.

Italian Translation and Cross-Cultural Adaptation of S-3-NIV Questionnaire for Patients on Long-Term Home Noninvasive Mechanical Ventilation

Paola Pierucci, Claudia Crimi, Maria Luisa de Candia, Gualtiero Ermando Romano, Alessandro Pilon, Nicola Bartolomeo, Letizia Lorusso, Anna Annunziata, Paolo Banfi, Antonietta Coppola, Giuseppe Fiorentino, Teresa Renda, Raffaele Scala, Giovanna Elisiana Carpagnano, Annalisa Carlucci

- PMID: 41144609

- DOI: 10.1159/000549156

Abstract

Background: Long Term Home NonInvasive ventilation (LTH-NIV) supports patients with chronic respiratory failure.The S-3-NIV questionnaire is an easy and quick tool to evaluate outpatients initiated to home mechanical ventilation. The aim of our study was to translate and validate the Italian version of the S3-NIV questionnaire and test its internal consistency and factorial structure, providing with Italian cultural adaptation of the original S-3-NIV questionnaire.

Methods: This is a prospective, national, observational, multicenter study enrolling consecutive out-patients accessing between December 2023 and June 2024 to a dedicated ambulatory for chronic respiratory failure requiring LTH-NIV for different underlying diseases (i.e. chronic obstructive pulmonary disease Chronic Obstructive Pulmonary Disease (COPD), neuromuscular disorders (NMD), obesity hypoventilation syndrome (OHS)) . Construct reliability was tested.

Results: The Translation and back-translation process from the English version was performed. A total of 228 out of 340 screened patients were enrolled Internal consistency of the total score was good (Cronbach's α coefficient of 0.84) as well as for the 'respiratory symptoms' and the 'sleep and side effects' subdomains (0.82 and 0.74, respectively). Kaiser exploratory analysis confirmed good homogeneity: 0,85. Patients with NMD showed a significantly S3-NIV total and respiratory lower score compared to the group of patients with OHS.

Conclusion: The S3-NIV questionnaire Italian translation and cultural adaptation has good global reliability and internal consistency. This tool has been confirmed to be a simple, quickly available and easy-to-use tool for the outpatients clinical assessment of stable patients with chronic respiratory failure initiated on LTH-NIV.

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Review

Physiol Int

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. 2025 Oct 27.

doi: 10.1556/2060.2025.00704. Online ahead of print.

Cardiopulmonary exercise testing in chronic obstructive pulmonary disease

Diana Poparcea [1], Alexandru Corlateanu [1], Alexandr Ceasovschih [2 3], Janos T Varga [4]

Affiliations Expand

- **PMID: 41143924**

- **DOI: 10.1556/2060.2025.00704**

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a common lung disease causing airflow obstruction and breathing problems. Despite the current

advances in the treatment of COPD, exercise intolerance remains a challenge, impacting quality of life and increased morbidity. Cardiopulmonary exercise testing (CPET) is a non-invasive test with concomitant gas exchange analysis that provides a thorough assessment of exercise physiology, involving the integrative respiratory, cardiovascular, muscle and metabolic responses to exercise, and, thus providing insights into exercise limitation mechanisms. This review hypothesizes that CPET offers prognostic value in COPD and can be used to evaluate the response to several therapeutic interventions.

Aim: To investigate the clinical usefulness of CPET in assessing exercise tolerance, disease progression and therapeutic outcomes in COPD patients.

Methods: This this systematic literature review was conducted to analyse studies published between 2020 and 2024 on the role of CPET in COPD management. Studies were reviewed focusing on CPET's prognostic value, its correlation with disease severity, and its impact on therapeutic strategies. The quality of the selected studies was assessed by using PRISMA guidelines.

Results: As a result, CPET-integrated monitoring supports as a valuable tool for evaluating exercise intolerance in COPD, with parameters such as peak oxygen uptake (V̇O2 peak), ventilatory efficiency (V̇E/V̇CO2 slope), and dynamic hyperinflation correlating with disease severity and prognosis. According to studies a V̇O2 peak value below 15 mL kg-1 min-1 is associated with increased mortality risk and hospitalizations. Undoubtedly, CPET-derived thresholds for ventilatory and cardiovascular limitations remain an invaluable tool for COPD diagnosis and management, and contribute to optimizing rehabilitation strategies and pharmacological interventions.

Conclusion: CPET provides important information about the pathophysiology of exercise intolerance in COPD, helping with personalized treatment planning and risk stratification. CPET should be integrated into COPD management guidelines.

Keywords: cardiopulmonary exercise testing; chronic obstructive pulmonary disease; oxygen uptake; pulmonary rehabilitation.

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

doi: 10.1164/rccm.202509-2272ED.

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

Jerry A Krishnan [1]

Affiliations Expand

- PMID: 41086412

- DOI: 10.1164/rccm.202509-2272ED

No abstract available

Comment on

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

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

Supplementary info

Publication typesExpand

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Respir Med

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. 2025 Nov:248:108416.

doi: 10.1016/j.rmed.2025.108416. Epub 2025 Oct 9.

Childhood body size and risk of chronic obstructive pulmonary disease in adulthood: a prospective cohort study

Frida R Hansen [1], Dorthe C Pedersen [2], Flemming Madsen [2], Helena Backman [3], Jens-Ulrik S Jensen [4], Allan Linneberg [1], Katja B Leth-Møller [2], Jennifer L Baker [5]

Affiliations Expand

- PMID: 41076135

- DOI: 10.1016/j.rmed.2025.108416

Free article

Abstract

Introduction: Although previous studies have suggested links between childhood body size and lung function and asthma in adolescence and adulthood, the association with COPD is unclear. Therefore, we investigated whether trajectories of body mass index (BMI) in childhood were associated with COPD in adulthood.

Methods: In this prospective cohort study, we included 276,747 children born from 1930 to 1982, with weight and height measurements available at ages 6-15 years from the Copenhagen School Health Records Register. We followed individuals from 1977 to 2022 in national health registers and identified those with a COPD diagnosis from age 40 years onwards. Hazard ratios (HR) and 95 % confidence intervals (CI) for the associations between five childhood BMI trajectories and COPD were estimated separately for females and males using Cox proportional hazard regression analyses.

Results: During follow-up, 18,227 females and 15,789 males had a COPD diagnosis. Compared to females with an average childhood BMI trajectory, a higher hazard of COPD was observed for females who had an above-average (HR = 1.10; 95 % CI: 1.06-1.15), overweight (HR = 1.26; 95 % CI: 1.20-1.33) or obesity BMI trajectory (HR = 1.65; 95 % CI: 1.50-1.83). Results were largely similar for males. Among females, a below average childhood BMI trajectory was associated with a lower hazard of COPD (HR = 0.91; 95 % CI: 0.87-0.95).

Conclusion: We found that a BMI trajectory above average throughout childhood was positively associated with COPD in adulthood. Thus, our results suggest that having overweight or obesity during this early period of life is an indicator of risk for the later development of COPD.

Keywords: Birth weight; Body mass index; Child; Chronic obstructive pulmonary disease; Obesity.

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:Katja Biering Leth-Moeller reports financial support was provided by Karen Elise Jensen Foundation. Katja Biering Leth-Moeller reports financial support was provided by Skibsreder Per Henriksen, R & Hustrus Fond. Katja Biering Leth Moeller reports financial support was provided by The Capital Region of Denmark Research Foundation. Allan Linneberg reports a relationship with ALK-Abelló that includes: speaking and lecture fees. Helena Backman reports a relationship with Chiesi that includes: consulting or advisory. Jennifer Lyn Baker reports a relationship with Novo Nordisk that includes: consulting or advisory. Helena Backman - Given her role as associate editor, she has no involvement in the peer review of this article and had no access to information regarding its peer review. Full responsibility for the editorial process for this article was delegated to another journal. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary info

MeSH termsExpand

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Review

Respir Med

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. 2025 Nov:248:108409.

doi: 10.1016/j.rmed.2025.108409. Epub 2025 Oct 8.

Non-pharmacological interventions for fatigue in patients with chronic obstructive pulmonary disease: a systematic review and network meta-analysis

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Affiliations Expand

- PMID: 41072774

- DOI: 10.1016/j.rmed.2025.108409

Abstract

Background: Fatigue is a common and debilitating symptom in patients with chronic obstructive pulmonary disease (COPD). It limits daily activities, lowers perceived health, and diminishes the overall quality of life. Although several interventions have been demonstrated to alleviate fatigue, the relative effectiveness of these interventions remains unclear.

Objective: To assess and compare the efficacy of various non-pharmacological interventions for managing fatigue in patients with COPD, and to provide evidence-based recommendations for the design of intervention programs.

Methods: A comprehensive literature search was conducted across MEDLINE, Cochrane Library, Web of Science, Embase, CINAHL, CNKI, Wanfang Database, CBM, and the VIP Chinese journal full-text database to identify randomized controlled trials and quasi-experimental studies evaluating non-pharmacological interventions for COPD-related fatigue. The search covered all records from the inception of each database up to August, 2025. The network meta-analysis was conducted using Stata 16.0 and Addis 1.16.8 software.

Results: The analysis included 35 studies involving 2565 patients with COPD and examined 12 distinct non-pharmacological interventions. Results from the network meta-analysis demonstrated that acupressure [standardized mean difference (SMD) = -20.58, 95 %CI (-36.35, -5.19), P < 0.05], aerobic exercise [SMD = -12.80, 95 %CI (-22.96, -2.57), P < 0.05], pulmonary rehabilitation [SMD = -20.07, 95 %CI (-32.61, -6.98), P < 0.05], and progressive muscle relaxation [SMD = -16.99, 95 %CI (-28.83, -5.57), P < 0.05] were significantly effective in alleviating COPD-related fatigue. Ranking probability analysis further suggested that acupressure (0.25) was the most effective intervention, followed by pulmonary rehabilitation (0.19) and progressive muscle relaxation (0.15). The sensitivity analysis indicated that the ranking probability of acupressure was influenced by the quasi-experimental studies.

Conclusion: Pulmonary rehabilitation and progressive muscle relaxation therapy provide significant therapeutic advantages and should be prioritized as key non-pharmacological strategies for managing fatigue in patients with COPD.

Trial registration: INPLASY registration number: 202290072.

Keywords: Advanced care planning; Chronic obstructive pulmonary disease; Fatigue; Network meta-analysis; Non-pharmacological intervention; Palliative 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

Respir Med

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. 2025 Nov:248:108401.

doi: 10.1016/j.rmed.2025.108401. Epub 2025 Oct 5.

Sarcopenia as a treatable trait in COPD: From mechanisms to management

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Affiliations Expand

- PMID: 41057104

- DOI: 10.1016/j.rmed.2025.108401

Free article

Abstract

Sarcopenia is common in COPD, with prevalence ranging from 14 % to 67 % depending on setting, age, disease severity, and nutritional status, highlighting its clinical relevance and the need for standardized diagnostic criteria and routine screening, especially in older or more severe cases. It results from a complex interplay of systemic inflammation, oxidative stress, mitochondrial dysfunction, physical inactivity, hypoxia, malnutrition, hormonal imbalances, and structural muscle remodeling, all contributing to muscle catabolism and impaired regeneration. These factors form a vicious cycle that worsens functional decline, highlighting the need for multifaceted, integrated therapeutic approaches. Sarcopenia in COPD is a measurable, modifiable, and treatable trait linked to worse lung function, physical performance, and outcomes. Early detection using the EWGSOP2 algorithm, starting with SARC-F screening, muscle strength testing, and confirmation via imaging and targeted interventions, can enable timely, effective interventions to improve outcomes. Targeted sarcopenia treatment in COPD

includes pulmonary rehabilitation, nutritional support, and behavioral strategies. Exercise and high-protein, vitamin D-rich diets improve muscle strength and function. Pharmacological options remain experimental. Multidisciplinary care involving pulmonologists, physiotherapists, dietitians, and primary care providers ensures early detection, individualized treatment, and better outcomes through integrated interventions that address both respiratory impairment and muscle loss. Despite promising advances, key research gaps remain in sarcopenia as a treatable trait in COPD, including the need for standardized diagnostic criteria, longitudinal studies, optimal intervention strategies, and integration of functional outcomes. Future research should prioritize equity, mechanistic insights, and implementation science to refine personalized care and improve clinical outcomes in COPD.

Keywords: Chronic obstructive pulmonary disease; Sarcopenia; Treatable traits.

Conflict of interest statement

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

Supplementary info

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Randomized Controlled Trial

Am J Respir Crit Care Med

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

doi: 10.1164/rccm.202505-1260OC.

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

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Affiliations Expand

- PMID: 41056133

- DOI: 10.1164/rccm.202505-1260OC

Abstract

Rationale: The Undiagnosed COPD and Asthma Population trial showed that early diagnosis and treatment of asthma and chronic obstructive pulmonary disease (COPD) by pulmonologists improved healthcare use, respiratory symptoms, and quality of life. Objectives: To determine if the benefits of early diagnosis and treatment were greater in individuals with more advanced disease or in individuals with asthma as opposed to COPD. We also assessed whether pulmonologist-directed care benefited asthma and COPD subgroups equally. Methods: Case finding was used to identify adults with undiagnosed chronic respiratory symptoms in the community. A total of 508 newly diagnosed participants with COPD or asthma were randomized to receive pulmonologist-care intervention or usual care. Low and high disease burden categories for the St. George's Respiratory Questionnaire (SGRQ) and COPD Assessment Test were defined using a median-split of baseline scores, and minimal clinically important difference thresholds were used to define significant responses. Benefits of pulmonologist care were assessed by evaluating treatment effects within subgroups and by assessing treatment-by-subgroup interactions. Measurements and Main Results: Patients with higher disease burden at diagnosis were more likely to benefit from early diagnosis and treatment compared with those with lower disease burden. A total of 71% of those with high disease burden showed an improvement in COPD Assessment Test score by $\geqslant$2 points over 12 months compared with 47% with low disease burden (odds ratio, 2.78; 95% confidence interval, 1.90-4.07; $P < 0.001$). Similar results were seen for SGRQ and FEV_1 improvements. In contrast, responses to early diagnosis and treatment were similar for those with asthma versus COPD. Individuals with asthma randomized to undergo pulmonologist-directed care showed greater 1-year improvements in COPD Assessment Test score, SGRQ score, 36-item Short Form score, and FEV_1 compared with individuals randomized to receive primary care. However, individuals with COPD experienced similar improvements regardless of whether their treatment was managed by a pulmonologist or primary care provider. Treatment-by-disease interaction terms were not statistically significant. Conclusions: Patients with greater disease burden who exhibited more

advanced and symptomatic asthma and COPD at the time of diagnosis benefited more from earlier diagnosis and treatment. Patients with asthma tended to derive greater benefit from pulmonologist-directed care than patients with COPD.

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

Comment in

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

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

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

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33

Review

BioDrugs

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. 2025 Nov;39(6):827-839.

doi: 10.1007/s40259-025-00744-y. Epub 2025 Oct 4.

Biological Therapies in Chronic Obstructive Pulmonary Disease: New Directions in Personalised Respiratory Medicine

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Affiliations Expand

- PMID: 41046311

- DOI: 10.1007/s40259-025-00744-y

Abstract

Chronic obstructive pulmonary disease (COPD), a leading cause of global morbidity and mortality, is a complex and heterogeneous respiratory condition characterised by incompletely reversible airflow obstruction on spirometry. The aetiologies and pathological patterns of COPD are varied, which has long been viewed as a hindrance to targeted treatment. Yet inflammation is central to the diverse mechanisms of COPD pathogenesis, and type 2 inflammation has emerged as a measurable, modifiable and clinically meaningful therapeutic target in those patients in whom it is identified. The approval of first biological therapy against type 2 inflammation in COPD builds on our understanding of immunological mechanisms in airways diseases, is informed by a decade of randomised trials and makes possible a fundamental shift in our approach to this common condition. This review will (1) assess aspects of pathological inflammation in COPD, namely type 1, 2 and 3 inflammation, and the role of epithelial alarmins; (2) examine data from randomised trials on the efficacy and safety of monoclonal antibodies against inflammatory mediators in COPD; and (3) discuss future directions for biological therapies in COPD, including new patient populations, new agents and new approaches that focus on high-risk disease and open the door to prevention.

Conflict of interest statement

Declarations. Conflicts of interest: B.M.K. reports no conflicts of interest. I.D.P. has received speaker's honoraria for speaking at sponsored meetings from Astra Zeneca, Aerocrine, Almirall, Sanofi/Regeneron, Menarini and GSK; and payments for organising educational events from AZ, GSK and Sanofi/Regeneron. He has received honoraria for attending advisory panels with Sanofi/Regeneron, Astra Zeneca, GSK, Merck, Circassia, Chiesi, Upstream Bio and Areteia. He has received sponsorship to attend international scientific meetings from GSK, Astra Zeneca and Sanofi/Regeneron. Availability of data and materials: No datasets were generated for this review article. Data discussed in this article can be found in the referenced original studies. Ethics approval: Not applicable. Consent to participate: Not applicable. Consent for publication: Not applicable. Code availability: Not applicable. Author contributions: Conceptualisation and planning of the review: B.M.K and I.D.P; writing of the first draft: B.M.K.; critical revision of the manuscript: B.M.K and I.D.P; figures and table: B.M.K and I.D.P. All authors read and approved the final manuscript.

- 105 references

Supplementary info

Publication types, MeSH terms, SubstancesExpand

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Respir Med

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. 2025 Nov:248:108356.

doi: 10.1016/j.rmed.2025.108356. Epub 2025 Sep 30.

Efficacy and safety of mepolizumab for eosinophilic chronic obstructive pulmonary disease: A systematic review and meta-analysis

Milene Vitória Sampaio Sobral [1], Wellgner Fernandes Oliveira Amador [2], Altair Pereira de Melo Neto [3], Rafaela da Cunha Pirolla [4], Rodrigo Bettanim Menechini [4]

Affiliations Expand

- **PMID: 41038395**

- **DOI: 10.1016/j.rmed.2025.108356**

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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Cite

35

Comparative Study

Respir Med

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. 2025 Nov:248:108389.

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

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

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

Affiliations Expand

- PMID: 41033585

- DOI: 10.1016/j.rmed.2025.108389

Abstract

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

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

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

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

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

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Chin Kook Rhee reports financial support was provided by Korea National Institute of Health. Joon Young Choi reports financial support was provided by

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

Supplementary info

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Lancet Respir Med

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. 2025 Nov;13(11):952-953.

doi: 10.1016/S2213-2600(25)00237-1. Epub 2025 Sep 28.

Morphine for chronic breathlessness: time to say goodbye

Marlies van Dijk [1], Huib A M Kerstjens [2]

Affiliations Expand

- PMID: 41033336

- DOI: 10.1016/S2213-2600(25)00237-1

No abstract available

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37

Observational Study

Respir Med

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. 2025 Nov:248:108381.

doi: 10.1016/j.rmed.2025.108381. Epub 2025 Sep 25.

Clinical and economic impact of concomitant heart failure in patients with exacerbated COPD

Carlos J Alvarez-Martinez [1], Miguel Hernández [2], Jorge Vélez [2], Joaquín Sánchez-Covisa [3], Juan Moreno-González [3], Luciano Escudero [3], Nicolás Rosillo [2], Diego Alvaredo [2], Guillermo Moreno [2], Manuel Del Oro [4], Carmen Ortega [4], José L Bernal [2], Héctor Bueno [5]

Affiliations Expand

- PMID: 41015398

- DOI: 10.1016/j.rmed.2025.108381

Abstract

Background and objectives: Co-occurrence of chronic obstructive pulmonary disease (COPD) and heart failure (HF) is frequent, worsens prognosis and increases healthcare resources use and costs. This research aims to quantify the impacts of HF as a concomitant diagnosis with COPD.

Methods: Retrospective, observational study of consecutive patients aged 40 years or older who visited the emergency department (ED) during 2018 for COPD exacerbation. One-year clinical outcomes, resource utilization and costs were compared between those with and without HF, using the Clinical Outcomes, HEalthcare REsource utilizatioN, and relaTed costs (COHERENT) model.

Results: Among 2384 COPD patients, mean age was 75.7 years, 40.1 % women. Of these 35.1 % had concomitant diagnosis of HF. Patients with COPD and HF exhibited higher 1-year rates of mortality (31.2 % vs 19.2 %, p < 0.001), hospitalization (95.6 % vs 78.9 %, p < 0.001), readmission and return to ED. Adjusted for age, sex and comorbidity, HF was an independent predictor of mortality (HR, 1.25; 95 %CI, 1.03-1.50; p = 0.02). Also, HF coexistence was independently associated with a 42 % excess in mean 1-year healthcare cost (ratio of means, 1.42; 95 %CI, 1.24-1.63; p < 0.001), adjusted for age and comorbidities.

Conclusions: The concomitant diagnosis of HF in patients with COPD exacerbation is associated with increased 1-year risk of all outcomes, increased use of healthcare resources and almost a doubling in total costs. Specific multidisciplinary strategies

targeting these patients may be needed to improve their outcomes and reduce costs.

Keywords: Chronic obstructive pulmonary disease; Cost analysis; Healthcare resource utilization; Heart failure; Outcomes.

Conflict of interest statement

Declaration of competing interest Dr. Bueno receives research funding from the European Union (EU4H-2022-JA-03), Instituto de Salud Carlos III, Spain (FORTALECE program, PI21/01572), Sociedad Española de Cardiología, AstraZeneca, Boehringer Ingelheim, Janssen, and Novartis; and has received consulting/speaking fees from Astra-Zeneca, Novartis, Novo Nordisk and Organon. NR is funded by the Instituto de Salud Carlos III, Spain (CM22/00049) and reports funding for conferences from AstraZeneca Spain. JS-C, JM-G and LE are employees of AstraZeneca Spain. CJA-M, MH, JV and JLB reports grants from AstraZeneca Spain, during the conduct of the study. DA, GM, MO and CO have nothing to declare.

Supplementary info

Publication types, MeSH termsExpand

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Am J Respir Crit Care Med

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. 2025 Nov;211(11):1996-1998.

doi: 10.1164/rccm.202505-1157VP.

Targeting Treatable Traits across the Lifespan in Preterm-Born Individuals with Chronic Lung Disease of Prematurity

Lorenzo Zanetto [1], Luca Bonadies [1], Chiara Pertoldi [1], Alberto Papi [2 3], Eugenio Baraldi [1]

Affiliations Expand

- PMID: 40929522

- DOI: 10.1164/rccm.202505-1157VP

No abstract available

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39

Observational Study

Respir Med

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. 2025 Nov:248:108337.

doi: 10.1016/j.rmed.2025.108337. Epub 2025 Sep 2.

Disease burden and health-related outcomes of patients discharged from hospital following a COPD exacerbation in the United States

Mohit Bhutani [1], Hana Müllerová [2], Deven Patel [3], Igor Barjaktarevic [4], Wei Jie Loke [5], Michael Pollack [6], Melissa Roberts [7], Diana Tamondong-Lachica [8], Fei Tang [9], Bartolome Celli [10]

Affiliations Expand

- PMID: 40907834

- DOI: 10.1016/j.rmed.2025.108337

Free article

Abstract

Background: Evidence on trajectory of readmission rates post-hospitalization for COPD exacerbations and combined cardiopulmonary risk in the U.S. is sparse.

Objective: To describe incidence of outcomes and treatment patterns post-hospitalization for a COPD exacerbation.

Methods: This was an observational study of patients discharged from hospital post-COPD exacerbation in the U.S. (01.01.18-09.30.21) using data from the Optum® Clinformatics® Data Mart database. Index date was the discharge date of first recorded hospitalization for a COPD exacerbation during the study period. Primary outcomes were frequency and time to post-discharge events (hospital readmissions, all-cause mortality, and severe cardiopulmonary events). Post-discharge COPD medication prescription patterns, frequency and time-to-triple-therapy escalation were assessed secondarily.

Results: Overall, 38,483 patients were included. One-year post-discharge, 34.6 % of patients (incidence rate [IR] 42.2/100 patient years [PY], 95% CI: 41.5, 42.9) experienced ≥1 severe cardiopulmonary event, 16.7 % (IR 20.4/100 PY; 95 % CI: 19.8, 20.9) had a COPD readmission and 18.2 % (IR 22.2/100 PY; 95 % CI: 21.7, 22.7) died. Upon discharge, 27.4 % and 17.5 % of patients were prescribed reliver only/no COPD treatment and triple-therapy, respectively. Of 17,991 not prescribed triple maintenance COPD therapy 6-months pre-hospitalization or within 14-days post-discharge, 29.5 % eventually escalated to triple-therapy (mean (SD) time-to-escalation: 337.6 (340.2) days).

Conclusion: Treatment patterns post-hospitalization for a COPD exacerbation in the U.S. don't align with recognized standards (e.g. GOLD recommendations). Patients discharged from hospital post-COPD exacerbation have a high risk of severe cardiopulmonary events, hospital readmission and death. Opportunities exist to improve post-hospitalization COPD management practices, including timely intervention with triple-therapy as appropriate.

Keywords: COPD; Cardiopulmonary risk; Hospital readmission; Mortality; Triple therapy.

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: Mohit Bhutani: speaking and consulting fees from AstraZeneca, BI, GSK, Sanofi, Takeda, Valeo and Covis. Leadership role in the Canadian Thoracic Society. Hana Müllerová and Michael Pollack, are employees of AstraZeneca and own shares or have share options in AstraZeneca. Deven Patel was an employee of AstraZeneca during this study and may own shares or have share options in AstraZeneca. He is currently an employee of Vertex Pharmaceuticals, Boston, MA, USA. Igor Barjaktarevic: grants or contracts from Aerogen, Alpha-1 Foundation, Amgen, Johnny Carson's Foundation, Takeda, Theravance and Viatris and consulting fees from Aerogen, AstraZeneca, Genentech, Grifois, Inhibrx, Sanofi/Regeneron, Takeda, Therevance, Verona Pharma and Viatris. Wei Jie Loke: consulting and research funding for this study from AstraZeneca. Melissa Roberts: consulting and/or research funding from AstraZeneca, GSK, and Sunovion Pharmaceuticals. Diana Tamondong-Lachica: consulting and received funding for this study from AstraZeneca. Fei Tang is an employee of Cytel Inc., and Cytel inc. received funding from AstraZeneca for this study. Bartolome Celli reports receiving fees for his participation in advisory boards and as a consultant with GlaxoSmithKline, AstraZeneca, Sanofi-Avnetis, Roche Pharmaceutical, Menarini, Chiesi, Gala Therapeutics, Regeneron, MedImmune. No fees from Tobacco companies.

Supplementary info

Publication types, MeSH termsExpand

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Review

Respir Med

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. 2025 Nov:248:108333.

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

Comorbidities as treatable traits of chronic airway diseases

Mario Cazzola [1], Nicola A Hanania [2], Paola Rogliani [3]

Affiliations Expand

- PMID: 40886804

- DOI: 10.1016/j.rmed.2025.108333

Free article

Abstract

Chronic airway diseases, including asthma, chronic obstructive pulmonary disease, and bronchiectasis, are increasingly recognized as heterogeneous conditions influenced not only by airway pathology but also by a wide range of extrapulmonary and behavioral comorbidities. The treatable traits (TT) model, as it has emerged in recent medical literature, offers a precision medicine framework that redefines comorbidities as clinically relevant, identifiable, and modifiable traits. This paradigm shifts the focus from conventional disease labels to a multidimensional approach that considers the individual's unique constellation of pulmonary, extrapulmonary, and psychosocial features. A growing body of research has identified critical targets for intervention. The efficacy of this approach is supported by evidence from clinical trials and real-world studies. These studies demonstrate that trait-based

management, especially when incorporating comorbidities, results in improved disease control, reduced symptom burden, enhanced quality of life, and decreased frequency of exacerbations. The implementation of multidimensional assessment tools and multidisciplinary care models is imperative for operationalizing this strategy within both primary and secondary care settings. Future directions for this field include leveraging artificial intelligence and machine learning to refine trait identification and predict individualized treatment responses. Longitudinal studies and adaptive trial designs are also necessary to evaluate the long-term effectiveness, cost-efficiency, and scalability of trait-based interventions across diverse healthcare systems. The recognition of comorbidities as TTs signifies a substantial advancement in the delivery of holistic, patient-centered care for individuals with chronic airway diseases.

Conflict of interest statement

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

Supplementary info

Publication types, MeSH termsExpand

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Eur J Radiol

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. 2025 Nov:192:112373.

doi: 10.1016/j.ejrad.2025.112373. Epub 2025 Aug 20.

Sarcopenia diagnosed by chest CT predicts long-term mortality in critically ill patients with exacerbation of chronic obstructive pulmonary disease

Xinyu Dai [1], Qiqiang Zhou [2], Qizheng Wang [1], Meng Wang [2], Weili Zhao [1], Qingtao Zhou [2], Ke Liu [1], Ning Lang [3], Ying Liang [4]

Affiliations Expand

- PMID: 40849991

- DOI: 10.1016/j.ejrad.2025.112373

Abstract

Background: Sarcopenia is a prevalent comorbidity in patients with chronic obstructive pulmonary disease (COPD). We aimed to investigate the impact of sarcopenia diagnosed by chest CT on mortality in critically ill patients with exacerbation of COPD (ECOPD).

Methods: This retrospective study enrolled 148 patients hospitalized in the intensive care unit due to ECOPD from 2018 to 2023. Sarcopenia was defined by the skeletal muscle index measured at the 12th thoracic vertebra (T12) level on chest CT. Patients were categorized into the sarcopenia and non-sarcopenia groups. Hospitalization duration, short-term (30 and 90-day) and long-term (1-year and overall) COPD-related mortality and all-cause mortality were compared between the two groups. Cox regression analyses were conducted to recognize the risk factors for mortality, and a sarcopenia-based nomogram was developed.

Results: Eighty-four patients (56.76 %) with sarcopenia were identified through chest CT measurements. The 1-year COPD-related and all-cause mortality, as well as overall COPD-related and all-cause mortality, were significantly higher in the sarcopenia group than the non-sarcopenia group (19.05 % vs. 4.69 %, p = 0.010; 28.57 % vs. 6.25 %, p = 0.001; 33.33 % vs. 15.63 %, p = 0.015; 47.62 % vs. 29.69 %, p = 0.027, respectively). Multivariate Cox regression analyses revealed sarcopenia as a risk factor for 1-year (HR = 3.981 [1.137-13.938], p = 0.031) and overall (HR = 2.308 [1.310-4.065], p = 0.004) mortality. The sarcopenia-based nomogram demonstrated favorable prognostic performance.

Conclusions: Sarcopenia evaluated at the T12 level on chest CT may serve as a prognostic factor for predicting long-term mortality among critically ill patients with ECOPD.

Keywords: Chronic obstructive pulmonary disease; Computed tomography; Mortality; Sarcopenia.

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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Comparative Study

Ann Thorac Surg

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. 2025 Nov;120(5):917-925.

doi: 10.1016/j.athoracsur.2025.06.053. Epub 2025 Jul 19.

Endobronchial Valve Therapy vs Lung Volume Reduction Surgery in the United States

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Affiliations Expand

- **PMID: 40691922**

- **PMCID: PMC12542816 (available on 2026-07-19)**

- **DOI: 10.1016/j.athoracsur.2025.06.053**

Abstract

Background: Lung volume reduction surgery (LVRS) and endobronchial valve (EBV) placement are therapeutic options in patients with advanced emphysema. This study sought to compare the 2 approaches by using a national data set.

Methods: Using the US Centers for Medicare & Medicaid Services Inpatient Claims Database, the study evaluated beneficiaries with severe emphysema who were undergoing either LVRS or an EBV procedure in accordance with Medicare reimbursement criteria. Doubly robust risk adjustment was performed using inverse probability weighting and multilevel regression models and competing-risk time-to-event analysis.

Results: Lung volume reduction therapy was performed in 3219 patients: LVRS was performed in 2378 patients, and an EBV procedure was performed in 841. Before risk adjustment, patients undergoing an EBV procedure had lower Elixhauser comorbidity scores (3.37 vs 3.86; P < .001), shorter length of stay (4 days vs 7 days; P < .0001), and lower hospital charges ($124,540 vs $146,221; P < .0001) compared with patients who underwent LVRS. Most surgical procedures were minimally invasive (1897 video-assisted thoracoscopic surgery or robotic vs 481 open). After doubly-robust risk adjustment, the EBV procedure was associated with higher 30-day mortality (odds ratio [OR], 2.68, 95% CI, 1.88-3.87; P < .001), higher 30-day readmission rate (adjusted OR, 1.4; 95% CI, 1.21-1.63; P < .001), higher reintervention rate (adjusted OR, 17.2; 95% CI, 8.42-42.2; P < .001), and higher all-cause mortality at 1 year (adjusted OR, 1.75; 95% CI, 1.49-2.07; P < .001).

Conclusions: Medicare beneficiaries who undergo EBV procedures have higher risk-adjusted mortality and procedure-related morbidity despite fewer comorbidities than patients undergoing LVRS. These results suggest the need to revisit multidisciplinary decision making regarding the role of surgery in the management of advanced emphysema.

Conflict of interest statement

Disclosures The authors have no conflicts of interest to disclose.

- 20 references

Supplementary info

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43

Am J Respir Crit Care Med

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. 2025 Nov;211(11):2223-2224.

doi: 10.1164/rccm.202504-0891LE.

Current Smoking and Pharmacological Treatment Responses in Chronic Obstructive Pulmonary Disease: Not Clear-Cut

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Affiliations Expand

- PMID: 40680218

- DOI: 10.1164/rccm.202504-0891LE

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- Cited by 1 article

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Am J Respir Crit Care Med

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. 2025 Nov;211(11):2225-2226.

doi: 10.1164/rccm.202505-1076LE.

Reply to Bardsley *et al.*: Current Smoking and Pharmacological Treatment Responses in Chronic Obstructive Pulmonary Disease: Not Clear-Cut

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Affiliations Expand

- PMID: 40680215

- DOI: 10.1164/rccm.202505-1076LE

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45

Am J Respir Crit Care Med

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. 2025 Nov;211(11):2219-2222.

doi: 10.1164/rccm.202505-1107LE.

CAPTURE Stands Alone: Phenotypic and Endotypic Markers Add Little Value for Identification of Patients with Chronic Obstructive Pulmonary Disease

Yun Li [1], Rui Li [2], Zhenyu Liang [1], Feifei Huang [1], Tao Ye [3], Yi Gao [1], Rongchang Chen [1], Nanshan Zhong [1], Paul Jones [4], Jinping Zheng [1]

Affiliations Expand

- PMID: 40668871

- DOI: 10.1164/rccm.202505-1107LE

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46

Heart Lung

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. 2025 Nov-Dec:74:129-135.

doi: 10.1016/j.hrtlng.2025.06.013. Epub 2025 Jul 11.

Serum homocysteine levels in stable chronic obstructive pulmonary disease: Clinical value in severity assessment, diagnosis, and prognostic prediction

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Affiliations Expand

- PMID: 40651309

- DOI: 10.1016/j.hrtlng.2025.06.013

Abstract

Background: Chronic Obstructive Pulmonary Disease (COPD) is a critical public health problem globally.

Objective: This study examines the role of serum Homocysteine (Hcy) in assessing severity and diagnosing stable COPD.

Methods: A total of 230 stable COPD patients were divided into mild (n=77), moderate (n=89), and severe (n=64) subgroups. We collected baseline and one-year follow-up data to evaluate prognosis. Serum Hcy levels were measured by ELISA. Correlations between serum Hcy levels and CAT scores, mMRC dyspnea index, and lung function were analyzed using Pearson/Spearman correlation analysis. ROC curves assessed the predictive value of serum Hcy for COPD and disease severity, while Kaplan-Meier analysis evaluated its impact on survival prognosis. A multivariate Cox regression model was employed for identification of risk factors for stable COPD.

Results: Participants among three groups showed marked differences in smoking index, FEV1, FEV1/FVC ratio, WBC, NLR, RDW, fibrinogen (FIB), and D-dimer (D-D) levels. Serum Hcy levels correlated positively with CAT and mMRC scores and negatively with FEV1 (%, pred.) and FEV1/FVC ratio. Hcy served as a biomarker for COPD severity and differentiating moderate (AUC=0.756, sensitivity 75.28%, specificity 72.73%) and severe (AUC=0.873, sensitivity 78.12%, specificity 89.16%) cases. Higher serum Hcy was determined to be independent risk factors for worse prognosis of stable COPD.

Conclusion: Elevated serum Hcy levels serve as a biomarker for disease severity and an independent risk factor for unfavorable prognosis of stable COPD.

Keywords: Chronic obstructive pulmonary disease; Clinical value; Cox regression; Diagnosis; Disease grading; Disease severity; Homocysteine; Prognosis.

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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47

Multicenter Study

Heart Lung

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. 2025 Nov-Dec:74:57-64.

doi: 10.1016/j.hrtlng.2025.06.004. Epub 2025 Jun 27.

The interplay between symptom deterioration of chronic obstructive pulmonary disease and chronic heart failure

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Affiliations Expand

- **PMID: 40580911**

- **DOI: 10.1016/j.hrtlng.2025.06.004**

Free article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) and chronic heart failure (CHF) commonly co-exist and share symptoms, which complicates disease management. It is unclear how COPD and CHF deterioration inter(re)act.

Objective: This study aimed to assess the interplay between COPD and CHF deterioration on group and individual level.

Methods: Total daily COPD- and CHF-symptom intensity scores (SIS) were calculated based on increased symptoms of COPD (dyspnea, sputum purulence and color, coughing, wheezing, fever) and CHF (sudden weight increase, swelling, nocturnal dyspnea), as reported by patients in one-year daily symptom diaries. The COPD-CHF interplay was assessed visually and statistically (on group and individual level) by mixed models.

Results: From a multicenter trial (N = 201), 33 patients with COPD and CHF (72.4 ± 7.8 years, 24 men (72.7 %)) were included. On group level, increased CHF-SIS positively predicted next day's COPD-SIS ($p = 0.02$). However, on individual level, the direction and strength of the associations between CHF-SIS and subsequent COPD-SIS varied substantially. Vice versa, increased COPD-SIS also predicted next day's CHF-SIS on group level ($p < 0.001$). On individual level, the direction of the associations varied less, although strength differed from negligible to strongly positive.

Conclusions: On group level, CHF deterioration predicts an increase in next day's COPD symptom score, as well as vice versa. Individual-level associations reinforce the group-level results for COPD provoking CHF symptoms, but not for CHF provoking COPD symptoms. The COPD-CHF interplay should be monitored and, if present, acted upon to optimize patient disease management.

Keywords: COPD; Chronic heart failure; Comorbidity; Exacerbation; Intensive longitudinal data; Interplay; Symptoms.

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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48

Ann Am Thorac Soc

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. 2025 Nov;22(11):1764-1773.

doi: 10.1513/AnnalsATS.202409-990OC.

Chronic Obstructive Pulmonary Disease and Inhaled Treatment Effects on Mortality in Patients with Lung Cancer

Jinwoo Lee [1], Jiyu Sun [1], Hyun Woo Lee [2]

Affiliations Expand

- PMID: 40569182

- PMCID: PMC12548749 (available on 2026-11-01)

- DOI: 10.1513/AnnalsATS.202409-990OC

Abstract

Rationale: In patients with lung cancer, the impact of chronic obstructive pulmonary disease (COPD) diagnosis and subsequent management on mortality remains uncertain, because evidence supporting the efficacy of inhaled therapies in improving clinical outcomes in this population is limited. Objectives: This aim of this study was to assess whether COPD worsens outcomes in patients with lung cancer and to investigate whether inhaled treatments for COPD can improve these outcomes. Methods: This retrospective cohort study used the Korea Central Cancer Registry database from 2012 to 2019. Patients with lung cancer aged 40 years and older with health screening records were included. Patients were classified into COPD and non-COPD groups, and within the COPD group, they were further classified on the basis of inhaled therapy status. The primary outcome was all-cause mortality, and secondary outcomes included healthcare resource use. Subgroup analyses were conducted on the basis of lung cancer stage, histologic subtypes, and treatment modalities. Results: Among 113,071 patients with lung cancer, 38,145 (33.7%) had COPD. COPD was associated with higher all-cause mortality (adjusted hazard ratio, 1.327; 95% confidence interval, 1.305-1.350; $P < 0.001$), increased use of steroids and antibiotics, higher rates of hospital admissions, and more frequent emergency department visits. Patients with COPD receiving inhaled treatment had lower mortality rates at the 3-month landmark (adjusted hazard ratio, 0.934; 95% confidence interval, 0.895-0.975; $P = 0.002$). Notably, the dual bronchodilator combination (long-acting β-agonist/long-acting muscarinic antagonist) was associated with a significant mortality reduction, as observed across multiple landmark time points. Conclusions: COPD is linked to

worse clinical outcomes in patients with lung cancer. Among the inhaled treatments, the long-acting β-agonist/long-acting muscarinic antagonist dual therapy showed a beneficial effect on mortality, whereas adding inhaled corticosteroids as part of triple therapy did not provide an additional survival benefit. This study suggests the importance of early COPD detection and timely initiation of inhaled therapy in patients with lung cancer.

Keywords: COPD; inhalation; lung neoplasms; mortality; quality of life.

- 49 references

Supplementary info

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49

Eur J Prev Cardiol

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. 2025 Oct 28;32(15):1528-1530.

doi: 10.1093/eurjpc/zwaf338.

Risk of cardiovascular events and all-cause death in patients with chronic obstructive pulmonary disease

Mickael Guglieri [1], Jean Baptiste De Freminville [1], Fabrice Ivanes [1], Arnaud Bisson [1], Laurent Fauchier [1]

Affiliations Expand

- PMID: 40504885

- DOI: 10.1093/eurjpc/zwaf338

No abstract available

Conflict of interest statement

Conflict of interest: A.B.: consultant or speaker for Astra-Zeneca, Bayer, BMS/Pfizer, Medtronic, Vifor Pharma, and Alnylam. L.F.: consultant or speaker fees of small

amounts for AstraZeneca, Bayer, BMS/Pfizer, Boehringer Ingelheim, Boston Scientific, Medtronic, Novo Nordisk, and Zoll outside of this work. Other authors—no conflicts of interest.

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50

Review

Med Sci Sports Exerc

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. 2025 Nov 1;57(11):2437-2446.

doi: 10.1249/MSS.0000000000003782. Epub 2025 Jun 12.

Supplemental Oxygen during Exercise Training in Chronic Obstructive Pulmonary Disease

Sara Faggian [1], Francesca Battista [1], Marco Vecchiato [1], Richard Casaburi [2], Margareta Emtner [3], Nicola Borasio [1], Michael Studnicka [4], Andrea Ermolao [1], Josef Niebauer [5], Daniel Neunhaeuserer [1]

Affiliations Expand

- PMID: 40500905

- PMCID: PMC12520020

- DOI: 10.1249/MSS.0000000000003782

Abstract

Introduction: Chronic obstructive pulmonary disease is a leading cause of mortality worldwide and a debilitating condition that leads to years of poor quality of life. Physical exercise training is an evidence-based treatment well documented to improve these outcomes as well as morbidity, dyspnea, and functional capacity. Moreover, scientific evidence from pooled analyses currently provides equivocal evidence for oxygen supplementation to overcome ventilatory limitations during

exercise training, with several studies reporting no additional benefits when compared with training in room air. However, when individually analyzing the underlying studies from an exercise physiology perspective, some critical aspects arise.

Purpose: This review aims to systematically investigate and highlight the impact of patients' characteristics, exercise-induced desaturation, oxygen delivery, influence of breathing conditions during exercise testing and prescription, outcome-training specificity, exercise intensity and modality, and progressive work rate adjustments over the course of the training intervention.

Methods: The research methodology is based on a literature search of the available evidence starting from the published systematic reviews and meta-analyses, and integrating available original articles from the respective reference lists.

Results: Although evidence is still limited, supplemental oxygen might be specifically useful for certain responding patients and in specific clinical conditions, when high-intensity training is performed, thereby increasing exercise tolerance in order to improve training adaptations and thus peak exercise capacity/endurance.

Conclusions: Future well-designed clinical trials may better implement these methodological training principles in their study design and investigate if advantages from normoxic and hyperoxic exercise training can be weighed, showing how, when, and in which patients supplemental oxygen could be best used in order to reach predefined training goals in pulmonary rehabilitation.

Keywords: CARDIORESPIRATORY FITNESS; CHRONIC OBSTRUCTIVE PULMONARY DISEASE; EXERCISE CAPACITY; PULMONARY REHABILITATION; VENTILATORY LIMITATION.

- **44 references**
- **1 figure**

Supplementary info

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51

Am J Respir Crit Care Med

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

doi: 10.1164/rccm.202503-0576RL.

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

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

Affiliations Expand

- PMID: 40460341

- DOI: 10.1164/rccm.202503-0576RL

No abstract available

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52

Eur J Prev Cardiol

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

doi: 10.1093/eurjpc/zwaf119.

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

Chris P Gale [1 2 3], John R Hurst [4], Nathaniel M Hawkins [5], Jean Bourbeau [6], MeiLan K Han [7], Carolyn S P Lam [8], Darcy D Marciniuk [9], David Price [10 11], Daiana Stolz [12 13 14], Ty Gluckman [15], Shelley Zieroth [16], Ramesh Nadarajah [1 2 3], Robert P Young [17], Dave Singh [18], Fernando J Martinez [19], David D Berg [20], Mohit Bhutani [21]; Global Working Group on Cardiopulmonary Risk

Collaborators, Affiliations Expand

- PMID: 40037333

- DOI: 10.1093/eurjpc/zwaf119

Free article

Abstract

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

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

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

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

Plain language summary

This paper, produced by the Global Working Group of experts in chronic obstructive pulmonary disease and cardiovascular disease, is about the identification and management of cardiopulmonary risk in patients with chronic obstructive pulmonary disease.Individuals with cardiovascular risk factors or disease who have a regular cough or expectoration, recurrent ‘chest infections’, a significant smoking

history, or breathlessness should complete spirometry to confirm the presence of chronic obstructive pulmonary disease.Cardiovascular disease and risk in individuals with chronic obstructive pulmonary disease, including heart failure, dyslipidaemia, hypertension, ischaemic heart disease, and atrial fibrillation, should be managed according to clinical guidelines.Identifying cardiopulmonary risk to prevent exacerbations of chronic obstructive pulmonary disease, treat established cardiovascular disease, and reduce cardiovascular risk in patients with chronic obstructive pulmonary disease offers the prospect to improve cardiopulmonary outcomes.

Conflict of interest statement

Conflict of interest: There are no declarations with respect to this manuscript. Outside this work: A. Abdin reports payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from Boston Scientific and Bayer GmbH. A.B.A. reports honoraria for lectures from AstraZeneca, GlaxoSmithKline, and Pfizer; leadership or fiduciary role in other board, society, committee, or advocacy group, paid or unpaid as a member of the Board of Trustees for the Philippine College of Chest Physicians. B.A.N. reports grants or contracts from AstraZeneca and GlaxoSmithKline; consulting fees from AstraZeneca, GlaxoSmithKline, and Sanofi; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Zambon, and MSD; support for attending meetings and/or travel from Menarini, Sanofi, and AstraZeneca. L.A. reports consulting fees from AstraZeneca, Merck Sharp & Dohme, and GlaxoSmithKline; support for attending meetings and/or travel from Boehringer Ingelheim, Mylan LDA, and BIAL. S.A. reports research grants from the Australian Government Department of Health Medical Research Future Fund and Royal Australian College of General Practitioners; consulting fees from WHO Western Pacific Regional Office (WPRO), Division of Pacific Technical Support (DPS); honoraria from Asthma Australia, National Health and Medical Research Council, and Macquarie University Faculty of Medicine; sponsorship for travel and accommodation from Asthma Australia; secretariat role for the Pacific Health Information Health Network; other financial or non-financial interests as their academic appointment at UNSW Sydney are salaried through two Australian Government Medical Research Future Fund grants. A. Anzueto reports consulting fees from GlaxoSmithKline, AstraZeneca, and Sanofi/Regeneron; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from GlaxoSmithKline, AstraZeneca, and Viatrix Pharmaceutical. D.D.B. reports grants or contracts from Pfizer and AstraZeneca; consulting fees from AstraZeneca, Pfizer, Mobility Bio, Inc., and Youngene Therapeutics; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from Medical Education Speakers Network (MESN) and USV Private Limited; participation on a data safety monitoring board or advisory board for AstraZeneca, Beckman Coulter (CEC), Kowa Pharmaceuticals (CEC), and Tosoh Biosciences (CEC). M.B. reports grants or contracts from AstraZeneca, GlaxoSmithKline, Sanofi, Mereo Pharma, Takeda, Covis Pharma, and Valeo; consulting fees from AstraZeneca, GlaxoSmithKline, Sanofi, Mereo Pharma, Takeda, Covis Pharma, and Valeo; support for attending meetings and/or travel from

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iRhythm, Organon, and The Phoenix Group; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from AstraZeneca, Boston Scientific, Menarini, Novartis, Raisio Group, Wondr Medical, and Zydus; support for attending meetings and/or travel from AstraZeneca; participation on a data safety monitoring board or advisory board with DANBLOCK trial and TARGET CTCA trial; leadership or fiduciary role in other board, society, committee, or advocacy group, paid or unpaid as Deputy Editor of EHJ Quality of Care and Clinical Outcomes, member of NICE Indicator Advisory Committee and Chair of ESC Quality Indicator Committee; stock or stock options with CardioMatics; receipt of equipment, materials, drugs, medical writing, gifts, or other services from Kosmos. O.M.G.M. reports payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from AstraZeneca and GlaxoSmithKline; payment for expert testimony from AstraZeneca; support for attending meetings and/or travel from AstraZeneca and Pint Pharma. T.G. reports leadership or fiduciary role in other board, society, committee, or advocacy group, paid or unpaid as Board Member of the American Society for Preventive Cardiology. M.G. reports consulting fees from Novartis and Esperion; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from Medtronic; participation on a data safety monitoring board or advisory board from Merck; leadership or fiduciary role in other board, society, committee, or advocacy group, paid or unpaid as President of the American Society for Preventive Cardiology. M.H. reports grants or contacts from NIH, Sanofi, Novartis, Nuvaira, Sunovion, Gala Therapeutics, COPD Foundation, AstraZeneca, American Lung Association, Boehringer Ingelheim, and Biodesix; royalties or licenses from Uptodate, Norton Publishing, and Penguin Random House; consulting fees from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Novartis, Pulmonx, Teva, Verona, Merck, Mylan, Sanofi, DevPro, Aerogen, Polarian, Regeneron, Altesa BioPharma, Amgen, Roche, RS Biotherapeutics, Apreo Health, and Genentech; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from Cipla, Chiesi, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Medscape, Integrity, NACE, and Medwiz; participation on a data safety monitoring board or advisory board with Novartis and Medtronic; leadership or fiduciary role in other board, society, committee, or advocacy group, paid or unpaid COPD Foundation Board, COPD Foundation Scientific Advisory Committee, ALA advisory committee, American Thoracic Society journal editor, ALA volunteer spokesperson, GOLD scientific committee, Emerson School Board, Ann Arbor, MI; stock or stock options with Meissa Vaccines and Altesa BioPharma; receipt of equipment, materials, drugs, medical writing, gifts, or other services from GlaxoSmithKline, Boehringer Ingelheim, AstraZeneca, and Novartis. N.M.H. reports consulting fees from AstraZeneca; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from AstraZeneca, Boehringer Ingelheim, and Novo-Nordisk. J.R.H. reports grants or contacts from AstraZeneca; consulting fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Sanofi, and Takeda; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Sanofi, and Takeda; support for attending meetings and/or travel from AstraZeneca. M.I. reports speaking/presentation honoraria from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Sanofi, Bayer, Hikma, Sudair, Ferrer, Novartis, Merk, and Janssen; support for attending meetings and/or travel from Ferrer, Janssen, Hickma, AstraZeneca, and GlaxoSmithKline; participation on a data safety monitoring board

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events AstraZeneca, Berlin Chemie, Boehringer Ingelheim, Bristol-Myers Squibb, Fisher & Paykel, GlaxoSmithKline, Janssen-Cilag, Merck Healthcare, Novartis, Omron, OM-Pharma, Roche, Sanofi-Aventis, Thorasys, Pfizer, TEVA, Actelion, and Mundipharma. L.E.G.W.V. reports grants or contracts from The Family Kamprad Foundation, the Swedish government and country council ALF grant, The Swedish Heart and Lung Foundation, and Svensk Lungmedicinsk Förening; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events GlaxoSmithKline, AstraZeneca, Boehringer, Novartis, Chiesi, Resmed, Pulmonx, and Grifols. T.W. reports consulting fees from AZ, Chiesi, GlaxoSmithKline, Novartis, MSD, Roche, and Sanofi Regeneron; payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from AZ, Chiesi, GlaxoSmithKline, Novartis, MSD, Roche, and Sanofi Regeneron. R.P.Y. reports payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing, or educational events from AstraZeneca and GlaxoSmithKline; support for attending meetings and/or travel from GlaxoSmithKline; patents planned, issued or pending with Synergenz BioScience Ltd; leadership or fiduciary role in other board, society, committee, or advocacy group, paid or unpaid with Asthma and Respiratory Foundation of New Zealand (NZ); stock or stock options with Synergenz BioScience Ltd. J.Z. reports consulting fees from AstraZeneca; honoraria for presentations from AstraZeneca; participation on a Data Safety Monitoring Board or Advisory Board with AstraZeneca. S.Z. served on advisory boards for, or speaker engagements with Abbott, AstraZeneca, Bayer, BMS, Boehringer Ingelheim, Cytokinetics, Eli Lilly, GSK, Medtronic, Merck, Novartis, Novo-Nordisk, Pfizer, and Vifor Pharma; and serves on a clinical trial committee or as a national lead for studies sponsored by AstraZeneca, Boehringer Ingelheim, Merck, Novartis, Pfizer, and Salubris Bio; and participation on a Data Safety Monitoring Board or Advisory Board with Pfizer. D.A.; F.B.; A.B.; N.F.; S.F.; M.C.G.; B.G.; G.E.G.M.; K.H.G.; J.M.H.; A.T.H.D.; N.K.; B.K.; M.K.; A. Massouh; A. Mohan; M.M.; R.N.; T.N.N.P.; D. Panagiotakos; B.A.P.; H.I.R.; K.R.; C.M.R.; C.R.; A.L.P.R.; L.S.; J.S.S.; R.J.S.; Y. Song; A.S.; Y. Sun; I.U.; V.V.; R.V.; J.W.; M.Z. have nothing to declare.

. 2025 Oct 28;32(15):1436-1444.

doi: 10.1093/eurjpc/zwaf086.

Risk of cardiovascular events according to the severity of an exacerbation of chronic obstructive pulmonary disease

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- PMID: 39977232

- DOI: 10.1093/eurjpc/zwaf086

Abstract

Aims: Risk estimation of different types of cardiovascular events (CVEs) following a hospitalization for exacerbated chronic obstructive pulmonary disease (exCOPD) is warranted to consider prevention.

Methods and results: A case-crossover study was conducted using the French exhaustive hospital discharge database (2013-19). Case-patients had a diagnosis of chronic obstructive pulmonary disease, were hospitalized for a CVE in France in 2018-19 (admission date was index date) with no other CVE in ≤12 months, and had ≥1 hospitalization for exCOPD ≤24 weeks before index CVE. The key exposure was hospitalization for exCOPD (overall and according to levels of care intensity) ≤1-4 weeks vs. 9-24 weeks preceding the CVE. Conditional logistic regression models estimated odds ratios (ORs) for the association between hospitalization for exCOPD and different types of CVE. Among 9840 case-patients, the most frequent CVE was decompensated heart failure (5888 case-patients, 59.8%). The CVE risk was greater ≤4 weeks after a hospitalization for any exCOPD [OR, 3.03; 95% confidence interval (CI), 2.90-3.16] and seven times greater if mechanical ventilation was necessary (OR, 6.99; 95% CI, 6.09-8.03). The risk of non-ST-elevation myocardial infarction (OR, 5.33; 95% CI, 4.47-6.34) was the highest among CVE. The risk was also significantly increased (P <0.05) for many other CVEs: ST-elevation myocardial infarction (OR, 4.24), resuscitated cardiac arrest (OR, 4.33), pulmonary embolism (OR, 4.02), atrial fibrillation/flutter (OR, 3.03), ischaemic stroke (OR, 1.93), and limb events (OR, 1.34). Ten percent of CVEs were fatal.

Conclusion: Following hospitalization for exCOPD, the risk of cardiovascular complications is increased. These patients require close and sustained monitoring to mitigate CVE risk.

Keywords: Cardiovascular events; Case-crossover study; Chronic obstructive pulmonary disorder.

Plain language summary

This study used records from the French hospital discharge database, to determine whether the risk of a severe cardiovascular event increased after patients were hospitalized for an exacerbation of chronic obstructive pulmonary disease.

Conflict of interest statement

Conflict of interest: M.Z. has received fees from AstraZeneca, Chiesi, CSL Behring, GlaxoSmithKline, and Menarini. V.A. has received fees from Amarin, AstraZeneca, Boehringer-Ingelheim, NovoNordisk, and Organon. C.N., C.F.-V., K.R., and N.P. are employees of AstraZeneca and may hold stock and/or stock options in AstraZeneca. O.B., A.R., and C.C. are employees of IQVIA, which was contracted by AstraZeneca to provide research support.

- **Cited by 1 article**

Supplementary info

Publication types, MeSH terms, Grants and funding

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

1

Presse Med

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. 2025 Oct 29:104318.

doi: 10.1016/j.lpm.2025.104318. Online ahead of print.

Personalizing COPD care: phenotypes, endotypes, GETomics, the the trajectome, syndemics and treatable traits

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Affiliations Expand

- **PMID: 41173442**

- DOI: 10.1016/j.lpm.2025.104318

Abstract

Our understanding and management of chronic obstructive pulmonary disease (COPD) has changed significantly over the past few years. We now recognize that COPD is a complex and heterogeneous condition that requires personalized and precise management. Here we review these recent novel concepts, including those of Phenotypes (i.e., the observable characteristics of an individual), Endotypes (i.e., the biologic mechanism(s) underlying a given phenotype), GETomics (i.e., a new paradigm that incorporates of the time axis (age) into our understanding of different gene-environment interactions through the life time), the Trajectome (i.e., the range of potential lung function trajectories that exists in the general population, including normal, low and supra-normal trajectories with different clinical implications), Syndemics (i.e., a term that refers to the fact that most COPD patients suffer of other co-occurrent diseases (multimorbidity) that share mechanisms and risk factors), and Treatable Traits (i.e., specific endo-phenotypes that contribute to the clinical presentation and prognosis of the patient that deserve specific and personalized treatment), and discuss how to best transfer them into clinical practice (e.g. lung tracker). Collectivelly, these concepts have radically changed our understanding of COPD and can facilitate a more personalized and precise clinical management of the patients that suffer such a frequent and impactful disease.

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

Conflict of interest statement

Disclosure of interest Both authors declare no conflicts of interest related to this manuscript.

Eur Heart J Open

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. 2025 Oct 27;5(5):oeaf120.

doi: 10.1093/ehjopen/oeaf120. eCollection 2025 Sep.

Development of three-step holistic care pathways to detect and manage comorbidities in patients with atrial fibrillation: the Horizon 2020 EHRA-PATHS consortium

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Affiliations Expand

- PMID: 41171752

- PMCID: PMC12555002

- DOI: 10.1093/ehjopen/oeaf120

Abstract

Aims: Older patients with AF (≥65 years) have on average four additional comorbidities. Comorbidity management requires a systematic approach for identification, and interdisciplinary care, often lacking in clinical practice. The EHRA-PATHS project's overall aim is to create an approach to systematically address multimorbidity in older patients with AF.

Methods and results: This project involves a consortium of 14 partners from 11 European countries. The comorbidity care pathways were developed using a stepwise approach. (i) A literature study. (ii) Online meetings/discussions to create structured care pathways. (iii) A two-round Delphi study for consensus on the final pathways (agreement ≥80%) and to rank the comorbidities for priority. (iv) Selection of comorbidities for evaluation in the planned randomized controlled trial (RCT). Development of care pathways for 23 comorbidities or special clinical settings was obtained and agreed upon. The Delphi surveys were sent to 37 consortium experts. After round 1 (28 responses), 13 pathways reached an agreement ≥80%. Twelve adjusted pathways were presented in round 2 (27 responses), of which 8 received an agreement ≥80%. The last four pathways were finalized after expert consensus. Hypertension, heart failure, and overweight were ranked as the most important comorbidities.

Conclusion: A structured process of expert meetings and two Delphi rounds led to the development and ranking of 23 concise care pathways to identify and manage comorbidities in patients with AF. All pathways will be combined into a software tool, providing clinicians with a systematic approach to comorbidity management, which will be tested in the RCT of EHRA-PATHS.

Keywords: Atrial fibrillation; Care pathways; Multimorbidity.

Conflict of interest statement

Conflict of interest: R.Ö. no conflicts of interest. L.D. no conflicts of interest. J.V. no conflicts of interest. R.C. has received honoraria for speaking at educational events sponsored by Bayer, Boehringer Ingelheim, Daiichi Sankyo, Pfizer, Menarini, and Medtronic. Unrestricted research grants from the Meath Foundation, Daiichi Sankyo, Medtronic and Irish Heart Foundation outside the scope of this work. R.D. did not receive any personal honoraria. M.M.F. received consultancy and speaker fees from Abbott, Biosense Webster, and Pfizer. M.J.O.F. no conflicts of interest. M.H. no conflicts of interest. D.H. reports educational grants, consultant or speaker fees, and fellowship support from Abbott, Medtronic, Biotronik, Boston Scientific, Biosense Webster, Novartis, Bayer, Pfizer, and Spectranetics. C.P.L. no conflicts of interest. G.L. did not receive any personal honoraria. M.L. no conflicts of interest. T.L. speaker fees and advisory honoraria from Philips, Myocardial Solutions, Janssen-Cilag, AstraZeneca, Roche, and EISAI not related with this work. C.M.A. no conflicts of interest. J.L.M. has received speaker fees and honoraria for lectures and scientific advice from Biotronik, Medtronic, MicroPort, Milestone Pharmaceuticals, Sanofi, and Zoll. P.S. is supported by Investigator Grants from the National Health and Medical Research Council of Australia. P.S. reports serving on the medical advisory board for Abbott, Medtronic, Boston Scientific, CathRx, and PaceMate. The University of Adelaide has received on behalf of P.S. research funds from Boston Scientific, Medtronic, Abbott, and Becton Dickenson. A.S.S. no conflicts of interest. M.S. received investigational, lecture, proctoring or consultancy fees from: Abbott, Biotronik, Boehringer Ingelheim, HAMMERmed, Pfizer, Medtronic, Novartis, Polpharma, Zoll—all out of scope of this work. E.S. is supported by the Stockholm County Council (Clinical researcher appointment), the Swedish Research Council (DNR 2022–01466), the Swedish Heart and Lung foundation, and CIMED and has received lecture fees from Abbott, AstraZeneca, Bristol-Myers Squibb-Pfizer, Johnson & Johnson, all outside the scope of the submitted work. C.v.D. no conflicts of interest. M.R. Unrestricted research grant from the Dutch Heart Foundation and is conducted in collaboration with and supported by the Dutch CardioVascular Alliance, 01-002-2022-0118 EmbRACE. Unrestricted research grant from ZonMW and the Dutch Heart Foundation; DECISION project 848090001. Unrestricted research grants from the Netherlands Cardiovascular Research Initiative: an initiative with support of the Dutch Heart Foundation; RACE V (CVON 2014–9), RED-CVD (CVON2017-11). Unrestricted research grant from Top Sector Life Sciences & Health to the Dutch Heart Foundation [PPP Allowance; CVON-AI (2018B017)]. Unrestricted research grant from the European Union's Horizon 2020 research and innovation programme under grant agreement; EHRA-PATHS (945260). Consultancy fees from Bayer (OCEANIC-AF national PI) and InCarda Therapeutics (RESTORE-SR national PI) to the institution, all outside of present work. H.H. received personal lecture and consultancy fees from Biotronik, Centrix Healthcare Ltd, Downtown Europe, Pfizer-BMS, European Society of Cardiology, Medscape, Springer Healthcare Ltd, and Viatris Pharmaceuticals Inc. He received unconditional research grants through the University of Antwerp and/or the University of Hasselt from Abbott, Bayer, Biosense Webster, Boston Scientific, Daiichi Sankyo, FibriCheck/Qompium, Medtronic, and Pfizer-BMS, all outside the scope of this work.

Comment on

- The complexity of tackling multimorbidity in atrial fibrillation: how European projects are reshaping our approach to comorbidities.

Romiti GF, Chao TF, Lip GYH.Eur Heart J Open. 2025 Oct 27;5(5):oeaf132. doi: 10.1093/ehjopen/oeaf132. eCollection 2025 Sep.PMID: 41158805 Free PMC article. No abstract available.

- 50 references
- 5 figures

Supplementary info

Publication typesExpand

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Cite

3

Intern Med J

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. 2025 Oct 31.

doi: 10.1111/imj.70235. Online ahead of print.

Metabolic benefits of therapeutic exercise in older adults with type 2 diabetes mellitus and multimorbidity: a retrospective cohort study

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Affiliations Expand

- PMID: 41171211

- DOI: 10.1111/imj.70235

Abstract

Background: Exercise is a key component in the management of type 2 diabetes mellitus (T2DM), but its benefits in older adults with comorbidities remain unclear.

Aims: To evaluate the metabolic effects of therapeutic exercise on older patients with T2DM and comorbidities and identify clinical characteristics associated with glycaemic improvement.

Methods: We retrospectively analysed patients with T2DM and at least one comorbidity (e.g. chronic kidney disease, cardiovascular disease, osteoporosis, cancer, stroke and dementia) who received therapeutic exercise guidance from physical therapists between November 2022 and October 2023. Biochemical data were collected at baseline and 3 and 6 months. Patients were considered to be glycated haemoglobin (HbA1c) responders if their HbA1c levels decreased after the intervention.

Results: Among 43 patients (mean age: 74.1 ± 12.5 years; 44% men), 21 were HbA1c responders at 3 months. Responders had higher baseline HbA1c levels (7.88% vs 6.87%, P < 0.05), and a greater proportion had HbA1c ≥ 7% (71.4% vs 40.9%, P < 0.05). At 6 months, triglyceride levels significantly decreased in responders (123.3 to 108.7 mg/dL, P < 0.005) and significantly increased in non-responders (113.6 to 149.7 mg/dL, P < 0.01). HbA1c declined significantly in patients with baseline HbA1c ≥ 7% compared to those with HbA1c < 7% (-0.62% vs +0.34%, P < 0.05).

Conclusions: Therapeutic exercise improves glycaemic control and triglyceride levels in older patients with T2DM and comorbidities, particularly among those with poorly controlled baseline HbA1c. Baseline HbA1c can be a useful indicator for identifying patients who are likely to benefit from exercise.

Keywords: aged; comorbidity; diabetes mellitus; dyslipidaemia; exercise.

- **31 references**

Supplementary info

Grants and fundingExpand

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Cite

4

Observational Study

Ann Med

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. 2025 Dec;57(1):2579789.

doi: 10.1080/07853890.2025.2579789. Epub 2025 Oct 31.

Comparison of the predictive performance of Cumulative Illness Rating Scale, Charlson Comorbidity Index and COMCOLD Index for moderate-to-severe exacerbations in elderly subjects with chronic obstructive pulmonary disease

Edoardo Pirera [1], Domenico Di Raimondo [1], Lucio D'Anna [2], Riccardo De Rosa [1], Martina Profita [1], Sergio Ferrantelli [1], Davide Paolo Bernasconi [3], Antonino Tuttolomondo [1]

Affiliations Expand

- PMID: 41170896

- DOI: 10.1080/07853890.2025.2579789

Free article

Abstract

Background and objective: Chronic Obstructive Pulmonary Disease (COPD) is frequently associated with multiple comorbidities that influence clinical outcomes. This study aimed to compare the predictive performance of the Cumulative Illness Rating Scale (CIRS) with the Charlson Comorbidity Index (CCI) and COMCOLD Index for moderate-to-severe COPD exacerbations.

Materials and methods: We conducted a prospective observational study involving 200 COPD patients followed for 52 weeks. CIRS indices (Total Score, Severity Index, Comorbidity Index), CCI, and COMCOLD were calculated at baseline. The primary outcome was time-to-first moderate-to-severe exacerbation. Cox regression analyses and time-dependent receiver operating characteristic curves were used to assess prognostic performance at 12, 24, and 52 weeks.

Results: During follow-up, 66 patients (33%) experienced at least one moderate-to-severe exacerbation. All CIRS indices demonstrated significant correlations with respiratory parameters and symptom burden. In crude models, CIRS indices were significantly associated with exacerbation risk (CIRS-TS: HR 1.11, 95%CI 1.06-1.16; CIRS-SI: HR 1.16, 95%CI 1.09-1.23; CIRS-CI: HR 1.37, 95%CI 1.20-1.56; all $p < 0.001$), maintaining significance after adjustment for clinical covariates. CIRS indices demonstrated superior discriminative performance compared to CCI and COMCOLD, with CIRS-SI achieving the highest time-dependent AUC values across all timepoints (0.704, 0.679, and 0.778 at 12, 24, and 52 weeks, respectively).

Conclusion: CIRS provides superior prognostic accuracy compared to established comorbidity indices in identifying COPD patients at increased risk of exacerbations. These findings highlight the clinical relevance of incorporating a comprehensive, severity-weighted comorbidity assessment in COPD management, supporting the concept of COPD as a complex, multisystem disorder requiring an integrated approach to care.

Keywords: CIRS; COMCOLD; COPD; Charlson Comorbidity Index; Comorbidity; Cumulative Illness Rating Scale; acute exacerbation of COPD.

Plain language summary

In elderly patients with COPD, CIRS provided superior prognostic accuracy for moderate-to-severe exacerbations compared with the Charlson Comorbidity Index and COMCOLD;The prognostic advantage of CIRS likely derives from its comprehensive, severity-weighted assessment of multimorbidity across multiple organ systems;Incorporating multidimensional comorbidity evaluation, such as CIRS, into clinical practice may improve risk stratification and support more personalized COPD management.

Supplementary info

Publication types, MeSH termsExpand

Full text links

Cite

5

Public Health

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. 2025 Oct 28:249:106020.

doi: 10.1016/j.puhe.2025.106020. Online ahead of print.

Association between metabolic multimorbidity and the risk of cardiovascular disease, kidney disease, and mortality: longitudinal evidence from CHARLS (2011-2020)

Weihao Wang [1], Yuxiang Liu [1], Defu Yuan [1], Lifeng Wang [1], Ying Yang [1], Dakang Ji [2], Yuchen Pan [1], Yi Zhang [1], Jinshui Xu [2], Haijian Guo [3], Bei Wang [4]

Affiliations Expand

- **PMID: 41161217**

- **DOI: 10.1016/j.puhe.2025.106020**

Abstract

Objectives: Metabolic diseases, including hypertension, diabetes, and dyslipidemia, frequently coexist, and their multimorbidity is associated with more severe complications. However, the impact of these multimorbidity on cardiovascular disease, kidney disease, and mortality among Chinese middle-aged and older adults remains unclear.

Study design: Cohort study.

Methods: This study included 9735 participants aged 45 years and older from the China Health and Retirement Longitudinal Study (CHARLS) 2011 to 2020. Participants were categorized into eight groups based on baseline combinations of hypertension, diabetes, and dyslipidemia. The primary outcomes were incident CVD, kidney disease, and mortality. Risks associated with different multimorbidity patterns were assessed using Cox regression models.

Results: During 72294 person-years of follow-up (mean age 59 ± 9 years), 1888 CVD events (23.0 %), 902 kidney disease cases (10.0 %), and 1001 deaths (10.3 %) occurred. Compared with participants without metabolic disease, the risk of CVD was elevated by 152 % for hypertension + diabetes + dyslipidemia (HR = 2.52, 95 % CI: 2.05-3.11), 121 % for hypertension + diabetes (HR = 2.21, 95 % CI: 1.45-3.35), and 65 % for hypertension alone (HR = 1.65, 95 % CI: 1.39-1.95). Risks of kidney disease increased by 85 % with diabetes (HR = 1.85, 95 % CI: 1.05-3.26), 88 % with hypertension + diabetes (HR = 1.88, 95 % CI: 1.12-3.17), and 52 % with hypertension + diabetes + dyslipidemia (HR = 1.52, 95 % CI: 1.14-2.04). Mortality risk was higher among participants with hypertension + diabetes (HR = 2.00, 95 % CI: 1.21-3.30), hypertension + diabetes + dyslipidemia (HR = 1.98, 95 % CI: 1.50-2.60), diabetes + dyslipidemia (HR = 1.49, 95 % CI: 1.01-2.20), and hypertension + dyslipidemia (HR = 1.25, 95 % CI: 1.03-1.51).

Conclusions: Metabolic multimorbidity was strongly associated with increased risks of CVD and mortality. The coexistence of diabetes with other metabolic diseases substantially elevated the risk of kidney disease.

Keywords: Cardiovascular disease; Diabetes; Dyslipidemia; Hypertension; Kidney disease; Mortality; Multimorbidity.

Eur Heart J Open

. 2025 Oct 27;5(5):oeaf132.

doi: 10.1093/ehjopen/oeaf132. eCollection 2025 Sep.

The complexity of tackling multimorbidity in atrial fibrillation: how European projects are reshaping our approach to comorbidities

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Affiliations Expand

- PMID: 41158805
- PMCID: PMC12555000
- DOI: 10.1093/ehjopen/oeaf132

No abstract available

Conflict of interest statement

Conflict of interest: G.F.R. reports consultancy for Boehringer Ingelheim and an educational grant from Anthos. G.Y.H.L. has been consultant and speaker for BMS/Pfizer, Boehringer Ingelheim, Anthos, and Daiichi Sankyo. No fees are directly received personally. All the disclosures happened outside the submitted work. He is a National Institute for Health and Care Research (NIHR) Senior Investigator and co-PI of the AFFIRMO project on multimorbidity in AF (grant agreement no. 899871), TARGET project on digital twins for personalized management of atrial fibrillation and stroke (grant agreement no. 101136244), and ARISTOTELES project on artificial intelligence for management of chronic long-term conditions (grant agreement no. 101080189), which are all funded by the EU's Horizon Europe Research & Innovation programme.

Comment in

- Development of three-step holistic care pathways to detect and manage comorbidities in patients with atrial fibrillation: the Horizon 2020 EHRA-PATHS consortium.

Önder R, Desteghe L, Vijgen J, Collins R, Dabrowski R, Farkowski MM, de Oliveira Figueiredo MJ, Hereijgers MJM, Hofer D, Lau CP, Lee G, Linz D, Lobeek M, Lopez T, McAuliffe C, Merino JL, Potpara T, Sanders P, Shamloo AS, Sterliński M, Svennberg E, van Deutekom C, Van Gelder I, Rienstra M, Heidbuchel H.Eur Heart J Open. 2025 Oct 27;5(5):oeaf120. doi: 10.1093/ehjopen/oeaf120. eCollection 2025 Sep.PMID: 41171752 Free PMC article.

- 20 references

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7

AIDS Care

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. 2025 Nov;37(11):1894-1904.

doi: 10.1080/09540121.2025.2570402. Epub 2025 Oct 13.

Aging with HIV: multimorbidity and polypharmacy burden

Nazife Duygu Demirbas [1], Husrev Diktas [2], Ozlem Gul [1], Okan Derin [1], Umut Ozgur [1], Saliha Busra Aksu [3], Ceren Atasoy Tahtasakal [1], Ahsen Oncul [1], Dilek Yildiz Sevgi [1], Ilyas Dokmetas [1]

Affiliations Expand

- PMID: 41082730

- DOI: 10.1080/09540121.2025.2570402

Abstract

Background: Aging people living with HIV (PLWH) are at higher risk of multimorbidity and polypharmacy, complicating care.

Objective: To assess the prevalence and risk factors of multimorbidity and polypharmacy in elderly PLWH on antiretroviral therapy (ART).

Method: In this cross-sectional study, PLWH aged ≥50 were compared with age- and sex-matched people without HIV. Logistic regression was used to identify predictors of polypharmacy.

Results: Multimorbidity (≥2 chronic conditions) was seen in 29% of PLWH and 22% of controls. Osteoporosis (9.5% vs. 2.3%) and psychiatric disorders (9.5% vs. 2.8%) were significantly more common in PLWH ($p < 0.001$). Polypharmacy (≥5 non-ART

medications) was more frequent in PLWH (20.4% vs. 11.8%, *p* = 0.014). In multivariable analysis, being in the PLWH group (aOR 2.41), increasing age (aOR per 1-year 1.05), and having no formal education (aOR 4.59) were independent predictors of polypharmacy. Potential drug-drug interactions were present in 19.4% of PLWH and were present in those with polypharmacy (33% vs. 16%, *p* < 0.001).

Conclusion: Older PLWH experience greater multimorbidity and polypharmacy than people without HIV. Tailored strategies - such as medication review, drug interaction monitoring, and preventive care - are essential to optimize outcomes in this growing and vulnerable population.

Keywords: Drug–drug interactions; HIV and aging; Multimorbidity; Non-communicable diseases; Older adults living with HIV; Polypharmacy; SDG 3: good health and well-Being.

8

Review

Br J Clin Pharmacol

. 2025 Nov;91(11):3054-3069.

doi: 10.1002/bcp.70242. Epub 2025 Aug 18.

Quality indicators for safe and effective use of medications in long-term care settings: A systematic review

Daria S Gutteridge [1], Annabel H Calder [1], Jacquelina Stasinopoulos [1], Sara Javanparast [1], Gillian E Caughey [2 3], Jodie B Hillen [4], Andrew C Stafford [5], Gregory M Peterson [6], Maria C Inacio [2 3], Jyoti Khadka [2 3 7], Lisa M Kalisch Ellett [8], Shane L Jackson [6], Peter D Hibbert [1 9], Monica L Cations [10], Megan E Corlis [11], Solomon C Yu [12 13], Malcom J Clark [14], Natalie R Soulsby [15], Elizabeth Manias [16], Grace H-Y Yoo [1], Janet K Sluggett [1 2]

Affiliations Expand

- PMID: 40825531

- PMCID: PMC12569564

- DOI: 10.1002/bcp.70242

Abstract

People accessing aged care services are increasingly older and often experience multimorbidity and polypharmacy, which puts them at risk of medication-related harm. Quality indicators (QIs) can assist with monitoring, benchmarking and informing initiatives to reduce medication-related harm. This systematic review aimed to identify and summarize QIs that assess the safe and effective use of medications in long-term care services. Bibliographic databases and grey literature were searched to identify relevant QIs. Eligible publications were in English and described the development, application and/or validation of QIs in long-term care facilities or in-home aged care services. QI information, including their development and settings, were extracted. All QIs were classified according to 3 validated classification systems and grouped by themes constructed from the review. From the 62 academic articles and 16 grey literature documents included, 53 QI sets were extracted, which comprised 442 individual QIs and 18 potentially inappropriate medication lists were identified. Most (80%, n = 354) QIs were process indicators. About 1/4 (26%, n = 115) were medication-specific QIs focusing mainly on prevalence of use and dosing, with similar numbers for infection prevention and control (25%, n = 112). A smaller proportion (7%, n = 32) of QIs encompassed person-centred measures such as resident involvement in medication-related decisions. This comprehensive overview of contemporary QIs to monitor medication safety and effectiveness across long-term care services can help clinicians, aged care providers and policy makers to identify important measures to employ in aged care settings to monitor and influence care improvements.

Keywords: health care; health services for the aged; home care; medicines; monitoring; nursing homes; patient safety.

Conflict of interest statement

J.K.S. is a nonexecutive director of Southern Cross Care SA, NT, VIC (aged care provider organization). The other authors declare no perceived or actual conflict of interest.

- 104 references

- 2 figures

Supplementary info

Publication types, MeSH terms, Grants and fundingExpand

9

Eur J Clin Pharmacol

. 2025 Nov;81(11):1609-1622.

doi: 10.1007/s00228-025-03896-6. Epub 2025 Aug 5.

Association between socioeconomic status and dispensing of higher-risk drug classes and polypharmacy in older community-based populations: a nationwide cohort study

Juliane Frydenlund [1], Nicole Cosgrave [2 3], David J Williams [3], Frank Moriarty [4 5], Emma Wallace [6], Ciara Kirke [7], Kathleen Bennett [2 5], Caitriona Cahir [2]

Affiliations Expand

- PMID: 40762795
- PMCID: PMC12511149
- DOI: 10.1007/s00228-025-03896-6

Abstract

Background: Higher-risk medications are associated with increased risk of medication-related harm in older populations.

Aim: To investigate the association between socioeconomic status (SES) and the prescribing of higher-risk drug classes and polypharmacy in older community-dwelling adults.

Methods: This prospective, population-based cohort study used linked data from the Irish Longitudinal Study on Ageing (TILDA, 2018), the Health Service Executive-Primary Care Reimbursement Service (HSE-PCRS), and the General Medical Services (GMS) scheme over a 2-year follow-up. SES was measured by education, income, and private health insurance. Higher-risk drugs included antithrombotic agents, beta-blockers, calcium channel blockers, diuretics, renin-angiotensin-aldosterone system (RAAS) inhibitors, psychoanaleptics, and NSAIDs.

Polypharmacy was categorised as 0-4, 5-9, and 10 + drug classes. Multivariable logistic and ordinal regression models adjusted for age, sex, and multimorbidity were used.

Results: The study included 1,401 individuals aged ≥ 70 years (median age 79; 43% male); 53% had ≥ 3 chronic conditions. 43% had primary/no education, 46% had below-median income, and 55% lacked private health insurance. Antithrombotics were the most prescribed higher-risk drug (38%), and 41% had 10 + different drug classes. Higher-risk prescribing and polypharmacy were more prevalent in those with lower SES. Participants with low SES were significantly more likely to be prescribed higher-risk drugs and experience polypharmacy. The greatest association was for psychoanaleptics: adjusted OR 1.97 [95% CI: 1.32;2.95] for primary/no formal education vs. third-level education, and 1.73 [95% CI: 1.30;2.30] for no vs. private health insurance.

Conclusion: SES-related disparities in higher-risk prescribing highlight the need for targeted interventions addressing social determinants of health in older populations.

Keywords: Adverse drug reaction; Deprivation; Dispensing; Drug classes; Polypharmacy; Prescribing; Socioeconomic status.

Conflict of interest statement

Declarations. Competing interests: The authors declare no competing interests. Ethics: Ethical approval for TILDA was granted by the Faculty of Health Sciences Research Ethics Committee at Trinity College Dublin. All participants provided written informed consent, including consent for data linkage with administrative health records. Ethical approval to conduct this study was granted by RCSI Research Ethics Committee (REC202209011).

- 66 references
- 3 figures

Supplementary info

MeSH terms, Grants and fundingExpand

Full text links

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Cite

10

Heart Lung

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. 2025 Nov-Dec:74:238-246.

doi: 10.1016/j.hrtlng.2025.07.016. Epub 2025 Jul 29.

Associations and mediating mechanisms between lung cancer and chronic comorbidities: a matched case-control study

Yuan Sheng [1], Kai Di [1], Yuzhao Liu [2], Deshan Liu [3], Baogeng Huai [3], Yan Wang [1], Lunping Pan [1], Mengmeng Zhang [1], Changling Li [4]

Affiliations Expand

- PMID: 40737784

- DOI: 10.1016/j.hrtlng.2025.07.016

Abstract

Background: Respiratory and cardio-cerebrovascular comorbidities are common in patients with lung cancer (LC), yet their clinical correlates and potential mediating mechanisms remain poorly understood.

Objectives: This study investigates the associations between respiratory and cardio-cerebrovascular comorbidities and LC and explores subtype-specific tumor biomarkers.

Methods: A 1:1 matched case-control study was conducted at Qilu Hospital of Shandong University from April 2023 to March 2024. Conditional logistic regression models, adjusted for potential confounders, and causal mediation analysis were used to assess the associations and mediating pathways between chronic comorbidities and LC, including subtype-specific tumor biomarkers. Comorbidity data and blood biomarkers were extracted from electronic medical records.

Results: Respiratory and cardio-cerebrovascular comorbidities were significantly associated with LC (model 4: $p = 0.029$ and $p = 0.045$). After adjustment for the total number of chronic comorbidities, these associations were no longer significant (model 5: $p = 0.507$ and $p = 0.875$). Lymphocyte percentage (Lym %) and d-dimer (DDi) partially mediated both associations (single-mediator models: all $p < 0.05$). CYFRA21-1 was linked to respiratory comorbidities ($p = 0.001$), whereas PRO-GRP was associated with cardio-cerebrovascular comorbidities ($p = 0.031$), indicating subtype-specific patterns related to non-small-cell lung cancer (NSCLC) and small-cell lung cancer (SCLC).

Conclusions: LC is associated with both respiratory and cardio-cerebrovascular comorbidities, and immune- and coagulation-related biomarkers may partially mediate these associations. Total comorbidity burden shows a stronger association with LC risk than any individual comorbidity, underscoring the value of incorporating comorbidity assessment into LC risk evaluation.

Keywords: Case-control study; Lung cancer; Mediation analysis; Multimorbidity; Tumor biomarkers.

Conflict of interest statement

Declaration of competing interest All authors declare that they have no conflicts of interest related to this study. The research was conducted independently, without any financial or personal relationships that could inappropriately influence the work reported in this manuscript. Additionally, there are no competing financial interests or personal connections with organizations that could potentially benefit from the publication of this study. All authors have read and approved this declaration.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

Proceed to details

Cite

11

Observational Study

Nutr Metab Cardiovasc Dis

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. 2025 Nov;35(11):104159.

doi: 10.1016/j.numecd.2025.104159. Epub 2025 May 19.

Frailty increases the risk of hospitalization for atrial fibrillation in older adults: a population-based cohort study

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- PMID: 40500636

- DOI: 10.1016/j.numecd.2025.104159

Free article

Abstract

Background and aims: Atrial fibrillation (AF) is more common with increasing age and older adults have greater prevalence of frailty, multimorbidity and polypharmacy, which may impact clinical outcomes. The present study aims to investigate the relationship between frailty and the risk of hospitalization for AF in older adults, and second, the possible interaction of multimorbidity in this association.

Methods and results: Data from the Progetto Veneto Anziani (Pro.V.A.), an observational cohort study in north-eastern Italy, were utilised. The analyses included 2909 individuals aged ≥65 years without AF at baseline, assessed between 1995 and 1997, with follow-ups at 4.4 and 7 years. Frailty was defined according to Fried's criteria, and multimorbidity as the number of chronic diseases. AF-related hospitalizations and deaths were recorded up to December 31, 2018. Multi-adjusted mixed-effects Cox regressions were performed to test associations. Over the follow-up period, 318 (10.9 %) participants experienced AF-related hospitalizations. Compared to robust participants, the hazard ratio (HR) of hospitalizations due to AF was 1.42 (95 % Confidence Interval (95 %CI): 1.04-1.95) in pre-frail and 1.98 (95 %CI: 1.21-3.26) in frail individuals, even after adjusting for multimorbidity. The number of chronic diseases was only marginally and not significantly associated with AF-related hospitalizations (HR 1.07, 95 %CI: 0.99-1.15), but did not significantly interact with frailty in the association with AF-related hospitalizations.

Conclusion: Older adults with frailty present with higher hazards of AF-related hospitalizations, irrespective of the presence of multimorbidity. Further studies are needed to evaluate whether reducing frailty may prevent AF development and improve health outcomes in older adults.

Keywords: AFFIRMO project; Atrial fibrillation; Frailty; Hospitalization; Multimorbidity.

Conflict of interest statement

Declaration of competing interest None.

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. 2025 Nov 1:388:119598.

doi: 10.1016/j.jad.2025.119598. Epub 2025 Jun 4.

Childhood multimorbidity and depressive symptoms and functional limitations among mid-to-old adults from 31 countries

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- PMID: 40480382

- DOI: 10.1016/j.jad.2025.119598

Abstract

Background: Large numbers of children with chronic diseases can now live into adulthood and older age. Poor childhood health is linked to adverse health events in later life, but the associations of childhood multimorbidity with depressive symptoms and functional limitations remain underexplored.

Methods: Data were from the Survey of Health, Ageing and Retirement in Europe, English Longitudinal Study of Ageing and Health and Retirement Study, which included samples from 31 countries (N = 138,540, aged 50 and older). Eight childhood chronic diseases diagnosed before age 15/16 were retrospectively reported, with 2 or more indicating childhood multimorbidity. Depressive symptoms (assessed by the Europe-depression Scale or the Centre for Epidemiologic Studies Depression Scale) and limitations in (instrumental) activities of daily living ([I]ADLs) and mobility-related limitations were recorded at multiple time points. Generalized

estimating equations were used to estimate associations and weighted random-effect meta-analysis was performed to pool associations across countries.

Results: Childhood multimorbidity was associated with depressive symptoms, ADL, IADL and mobility limitations, with odds ratios and 95 % confidence intervals of 1.74 (1.60-1.90), 1.75 (1.61-1.90), 1.73 (1.58-1.90), and 1.68 (1.50-1.89), respectively. The associations were similar for participants with and without adulthood multimorbidity (P for difference > 0.05). For ADL and IADL limitations, associations were more pronounced in adults aged<65y (P for difference = 0.008 and 0.014).

Limitations: Misclassification bias of childhood diseases; scale-based outcomes; potential covariates were not adjusted; no data from low- and middle-income regions.

Conclusions: Childhood multimorbidity was associated with depressive symptoms and functional limitations in later life, which were more pronounced in the younger elderly.

Keywords: Childhood; Chronic diseases; Depressive symptoms; Functional limitations; Multi-cohort; Multimorbidity.

Conflict of interest statement

Declaration of competing interest None of the authors have any financial interest, patents, company holdings, or stock to disclose related to this paper.

Supplementary info

MeSH termsExpand

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

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

chronic cough

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