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

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BMJ Open

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. 2025 Sep 18;15(9):e105405.

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Risk factors for dysphagia in elderly patients with COPD: a systematic review and meta-analysis protocol

Tieyan Zhu [1], Miao Yang [1], Lingling Weng [2], Fenggin Cheng [3]

Affiliations Expand

- **PMID: 40973369**

- **DOI: 10.1136/bmjopen-2025-105405**

Abstract

Introduction: Given the global trend toward population ageing, chronic obstructive pulmonary disease (COPD) has emerged as an increasingly common health concern. As a chronic pulmonary disorder frequently encountered in clinical settings, COPD typically involves multiple organ-system impairments. Among these impairments, dysphagia is a significant complication in elderly patients with COPD. Dysphagia profoundly compromises the patients' quality of life and increases risks such as malnutrition and aspiration pneumonia, thereby exacerbating the overall

disease burden. Although systematic reviews evaluating dysphagia prevalence in COPD populations, the quantitative synthesis of associated risk factors has been hindered by inadequate reporting in the original studies. At present, no systematic reviews or meta-analyses specifically address the risk factors associated with dysphagia among elderly patients with COPD. Therefore, this systematic review aims to identify and systematically analyse these risk factors, ultimately providing reliable evidence to facilitate early identification and improve clinical management strategies.

Methods and analysis: The literature will be meticulously searched through a variety of electronic databases, including Web of Science, PubMed, Embase, Cochrane Library, China Biomedical Literature Service System (CBM), Chinese Scientific Journal Database (VIP), Wan Fang Database and China National Knowledge Infrastructure (CNKI). We will conduct a thorough investigation of the literature focusing on risk factors associated with dysphagia in elderly individuals diagnosed with COPD, spanning from the inception of each database up to October 2025. Two investigators will independently review the literature, evaluate the quality of studies and extract data based on clearly defined inclusion and exclusion criteria to maintain rigour and consistency. The analysis will employ Stata V.14.0 software for the purposes of data merging and assessment of potential biases. OR along with 95% CI will serve as integrated statistical metrics. Statistical heterogeneity will be assessed using the I^2 statistic.

Ethics and dissemination: Since this study involves an analysis of previously published literature without direct patient participation, obtaining ethical approval is not required. The outcomes of the current investigation will be disseminated through academic journals following a stringent peer-review process.

Prospero registration number: CRD420251006411.

Keywords: Aged; Chronic airways disease; Meta-Analysis; Risk Factors; Systematic Review.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

MeSH termsExpand

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J Am Heart Assoc

. 2025 Sep 19:e039231.

doi: 10.1161/JAHA.124.039231. Online ahead of print.

Dynamic Increase of the C_2HEST Score in Relation to the Development of Incident Atrial Fibrillation: A Longitudinal Cohort Study

Yan-Guang Li [1], Yi-Jie Liu [1], Li-Li Wang [1], Qiao-Yuan Li [1], Tao Zhang [1], Xu Liu [1], Qin-Chao Wu [1], Yan Yin [1], Shao-Min Chen [2], Jin Bai [2], Daniele Pastori [3 4], Gregory Y H Lip [4 5], Yun-Long Wang [1]

Affiliations Expand

- PMID: 40970537

- DOI: 10.1161/JAHA.124.039231

Abstract

Background: The risk of incident atrial fibrillation (AF) increases with accumulating risk factors. Baseline-only risk assessment may not reflect the real risk of incident AF. We aimed to evaluate the performance of the dynamic change of the C_2HEST score (C2: coronary artery disease/chronic obstructive pulmonary disease (1 point each); H: hypertension (1 point); E: elderly (age ≥75 years, 2 points); S: systolic/diastolic heart failure (2 points); and T: thyroid disease (hyperthyroidism, 1 point) C_2HEST) score to assess the risk of incident AF during follow-up.

Methods: The present study data were retrieved from the Information Management and Big Data Center of Peking University Hospital Group. Patients without AF at baseline were enrolled. New-onset comorbidities were recorded during follow-up. The change in the C_2HEST score was analyzed. The baseline and the change in C_2HEST scores were compared for the prediction of incident AF.

Results: A total of 120 133 patients were included in the final analysis. During 346 400 patient-years of follow-up, 2304 developed incident AF (0.67 per 100 patient-years). The mean C_2HEST score increased significantly from 1.62 to 2.96 (P<0.05). A significant proportion of patients had newly diagnosed comorbidities (61.9% with ΔC_2HEST ≥1 in AF and 14.6% with C_2HEST ≥1 in non-AF). The change in C_2HEST scores showed better performance compared with the baseline score, as assessed by area under curve analyses (ΔC_2HEST 0.821 [0.811-0.830], baseline 0.758 [0.747-0.769]), decision curve analysis, and positive net reclassification index.

Conclusions: The risk for incident AF is not static and increases with the accumulation of new comorbidities. The change in C_2HEST score had better prediction in assessing individual risk of incident AF compared with the baseline score.

Keywords: C2HEST; atrial fibrillation; real world; risk factors.

3

Thorax

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. 2025 Sep 18:thorax-2025-223273.

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Pulmonary rehabilitation and quality of life in alpha-1 antitrypsin deficiency: findings from a retrospective cohort study

Fawaz Alwadani [1 2], Paul R Ellis [1], Michael Newnham [1], Joshua de Soyza [1], Aisha Butt [1], Anita Pye [1], Alice M Turner [3]

Affiliations Expand

- PMID: 40967906

- DOI: 10.1136/thorax-2025-223273

Abstract

Alpha-1 antitrypsin deficiency (AATD) is a rare genetic disorder associated with early-onset chronic obstructive pulmonary disease and impaired quality of life (QoL). This retrospective study evaluated the impact of pulmonary rehabilitation (PR) on QoL using repeated St George's Respiratory Questionnaire (SGRQ) scores. Among 274 patients, PR participants had more severe disease but showed no greater QoL improvement over time. Dyspnoea and exacerbation frequency were the strongest predictors of poorer outcomes. PR was not associated with significantly improved SGRQ trajectories. These findings highlight the need for personalised, disease-specific rehabilitation strategies in AATD to address limitations of conventional PR programmes in this population.

Keywords: Alpha1 Antitrypsin Deficiency; Pulmonary Rehabilitation.

Conflict of interest statement

Competing interests: None declared.

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Review

Annu Rev Physiol

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. 2025 Sep 18.

doi: 10.1146/annurev-physiol-042924-084007. Online ahead of print.

The Developmental Origins of Asthma and COPD

Francesca Polverino [1], Don D Sin [2]

Affiliations Expand

- PMID: 40967241

- DOI: 10.1146/annurev-physiol-042924-084007

Abstract

Approximately two-thirds of cases of chronic obstructive pulmonary disease (COPD) and adult asthma are in part driven by impaired lung development related to early-life events. Many children who suffer insults to their lungs during the first few years of life experience abnormal lung development, growth, and/or maturation, leading to impaired lung function, which may persist throughout their lifespan. This abnormal lung trajectory may be exacerbated by lung dysanapsis, genetic and epigenetic alterations, oxidative stress and/or inflammation in the airways related to environmental factors including exposure to active or secondhand smoke, air pollution, poor nutrition and social deprivation, and repeated childhood respiratory tract infections. Children with asthma may transition to COPD in adulthood if their asthma is poorly controlled or in the presence of other risk factors such as smoking. As many of these factors are modifiable, prompt diagnosis and implementation of preventive measures should be considered as early as possible in children at risk for abnormal lung development. This review provides an update on the interplay between genetic, environmental, and socioeconomic factors, their

cumulative impact on lung development, and its implication for the risk and burden of asthma and COPD in the global population.

Supplementary info

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Ann Phys Rehabil Med

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. 2025 Sep 17;68(7):102021.

doi: 10.1016/j.rehab.2025.102021. Online ahead of print.

Effect of different forms of upper limb muscle training on dyspnea in chronic obstructive pulmonary disease: a randomised controlled trial

Marc Beaumont [1], Loic Péran [2], Anne Cécile Berriet [2], Catherine Le Ber [2], Emmanuelle Courtois-Communier [3], Francis Couturaud [4]

Affiliations Expand

- PMID: 40966966

- DOI: 10.1016/j.rehab.2025.102021

Abstract

Introduction: Patients with chronic obstructive pulmonary disease (COPD) often report an increase in dyspnea during activities involving the upper limbs. For this reason, pulmonary rehabilitation guidelines recommend upper limb training for these patients. However, the most effective training methods are unclear.

Objective: This study aimed to assess the relative effectiveness of upper limb endurance training vs force training in patients with COPD during pulmonary rehabilitation.

Methods: In a randomised, open-label, monocentric controlled trial, the included patients were allocated to either upper limb force training (Force group) or endurance training (Endurance group). Evaluations were performed at baseline and

after 4 weeks. The primary outcome was dyspnea, measured using the London Chest Activity of Daily Living questionnaire. Secondary outcomes included dyspnea, assessed using the MMRC Dyspnea Scale and Dyspnea-12 questionnaire; upper limb exercise capacity, measured using the 6-min peg board and ring test; maximal voluntary strength of the deltoid, biceps, and triceps brachii; quality of life, anxiety, and depression. All analyses were performed on an intention-to-treat basis.

Results: 280 patients (FEV1[%]: force group: 45.9[19.2]; endurance group: 46.0[17.7]) were included. Dyspnea decreased in both groups. There was no difference in the improvement in dyspnea between both groups, and the minimum important difference of -3 points was not within the 95 % confidence interval (95% CI, -1.0 to 2.1). A significantly greater increase in biceps strength was found in the force group, N.m, 3.3 (6.3) vs 1.5 (6.2), (95% CI, 0.3 - 3.4), P < 0.017. A higher proportion of patients in the force group were unable to reach the required intensity because they found the program too difficult.

Conclusion: We found no significant difference between upper limb force training and upper limb endurance training in terms of changes in dyspnea, arm exercise capacity, quality of life, anxiety, or depression. We therefore suggest incorporating upper limb endurance training during pulmonary rehabilitation.

Trial registration: ClinicalTrials.gov (NCT03611036).

Keywords: Activities of daily living; COPD; Dyspnea; Pulmonary rehabilitation; Strengthening; Upper limb.

Conflict of interest statement

Declaration of competing interest None.

Supplementary info

Associated dataExpand

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Monaldi Arch Chest Dis

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. 2025 Sep 16.

doi: 10.4081/monaldi.2025.3534. Online ahead of print.

Cross-sectional study of pulmonary hypertension among patients with chronic obstructive pulmonary disease

Carishma Sheela [1], Srishankar Bairy [1], Ajither P A [1], Suresh Koolwal [2], Eldhos Jacob [1]

Affiliations Expand

- PMID: 40964788

- DOI: 10.4081/monaldi.2025.3534

Free article

Abstract

The prevalence graph of chronic obstructive pulmonary disease (COPD) in India is escalating significantly. Pulmonary hypertension (PH) is one of the most important complications of COPD, leading to worsened clinical progression. Various studies have predicted the correlation of PH with the degree of airflow obstruction in COPD, but the association between PH and the ABCD stage of COPD, as per the recent Global Initiative for Chronic Lung Disease (GOLD) criteria, is still ambiguous and underexplored. Thus, we aim to correlate the association of PH with the updated staging of COPD. This prospective study followed 100 COPD patients diagnosed based on spirometry and clinical symptoms over a 1-year period. The severity and staging of COPD were determined according to GOLD classification criteria. Screening two-dimensional echocardiography was performed to assess PH. The association between PH and COPD staging was analyzed. Among the 100 subjects with COPD, the mean age was 60.6±7.8 years, and 70% were male. Based on disease staging, 23 patients (23%) were classified as stage A, 25 (25%) as stage B, 13 (13%) as stage C, and 39 (39%) as stage D. PH was present in 72 patients: 25 (25%) had mild PH, 26 (26%) had moderate PH, and 21 (21%) had severe PH. A significant association was observed between the stages of COPD and the severity of PH. PH is a major complication in COPD, leading to poor prognosis. Therefore, incorporating early cardiac screening in all COPD patients may assist in assessing prognosis, morbidity, and mortality.

. 2025 Sep 16;21(3):250099.

doi: 10.1183/20734735.0099-2025. eCollection 2025 Jul.

The current state of ultrasound training in pulmonary residency programmes in the Netherlands: an educational review

Wytze S de Boer [1 2], Carlijn Veldman [3], Krista L Parlevliet [2], Wouter H van Geffen [4], Mireille A Edens [5], Jos A Stigt [1], Dirk Jan Slebos [2 6], Marieke L Duiverman [2 6]

Affiliations Expand

- PMID: 40964180
- PMCID: PMC12439305
- DOI: 10.1183/20734735.0099-2025

Abstract

Thoracic ultrasound (TUS) is becoming a key diagnostic tool in pulmonary medicine. However, use of this tool may vary between older pulmonologists with less TUS experience and younger generations, including residents, who see the need for TUS training. This review explores nationwide differences in ultrasound training and seeks to improve education quality. We surveyed all Dutch pulmonary medicine programme directors and residents with four sections: baseline questions, applicability, skills and attitude, and future perspectives. Between March and June 2024, we distributed the questionnaire to 193 residents and 26 programme directors. 72 residents (37%) and 19 programme directors (78%) responded. While ultrasound was widely available (95%), the integration with electronic health records remained limited (53%). The majority of respondents considered TUS an essential skill: 92% of the residents and 78% of programme directors (p=0.279). However, several barriers hindered effective training, including a lack of supervisors (reported by 67% of residents), supervisor time constraints (35%), limited access to ultrasound equipment (28%) and resident time constraints (28%). Pulmonary education must move beyond the mentor-apprentice model for ultrasound training, due to a lack of experienced mentors. This review highlights the need for a structured, standardised TUS training programme with proper infrastructure, supervision and hands-on practice.

Conflict of interest statement

Conflict of interest: W.H. van Geffen is a Fiduciary Officer for the NVALT (Dutch Society of Respiratory Physicians) and has acted as a Local PI for trials run by his

department funded by Roche, Novocure and MSD. The remaining authors declare that there is no conflict of interest. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

- 27 references
- 3 figures

Supplementary info

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Multicenter Study

Respir Res

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doi: 10.1186/s12931-025-03342-2.

ECG-based identification of COPD patients at risk for atrial fibrillation and its impact on adverse clinical outcomes-a subgroup analysis of the prospective multicenter COSYCONET cohort

Martin Eichenlaub [1 2], Björn Christian Frye [3], Heiko Lehrmann [4], Frank Biertz [5], Amir Sherwan Jadidi [4 6], Klaus Kaier [7], Thomas Melzer [8], Peter Alter [9], Henrik Watz [10], Benjamin Waschki [10 11], Barbara Christine Weckler [12], Franziska Christina Trudzinski [13], Julia Dorothea Michels-Zetsche [13], Frederik Trinkmann [13], Felix Josef-Friedrich Herth [13], Hans-Ulrich Kauczor [14], Kathrin Kahnert [8], Rudolf Jörres [15], Robert Bals [16 17], Dirk Westermann [4], Thomas Arentz [4], Claus Franz Vogelmeier [9], Daiana Stolz [3], Sebastian Fähndrich [18]; German COSYCONET cohort

Collaborators, Affiliations Expand

- PMID: 40963108

- PMCID: PMC12442265

- DOI: 10.1186/s12931-025-03342-2

Abstract

Background: Atrial fibrillation (AF) frequently occurs in patients with chronic obstructive pulmonary disease (COPD) and is associated with adverse clinical outcomes. We aimed to identify patients at risk for AF using amplified p-wave duration (APWD) analysis on electrocardiogram (ECG) as non-invasive tool to diagnose an atrial cardiomyopathy (AtCM) which is an established risk factor for AF.

Methods: This subgroup analysis of the prospective COSYCONET cohort included 2,385 COPD patients from 31 study centers with baseline sinus rhythm ECG and at least one follow-up examination. Of these, 73 patients showed AF during follow-up and were propensity-score matched to controls. APWD was measured at baseline and future major adverse cardiac and cerebrovascular events (MACCE) and health related outcome were assessed.

Results: 219 COPD patients (70 [64-74] years, 79.5% male) were analyzed during a follow-up of 586 (210-1137) days. APWD was significantly longer in patients with AF occurrence compared to controls (132 [125-141] ms vs. 124 [117-133] ms, $p < 0.001$) and remained significant in multivariate regression analysis (OR: 1.05 [1.01-1.09], $p = 0.03$). An APWD ≥ 131 ms was identified as best cut-off for AF prediction (62% sensitivity, 70% specificity, OR: 3.91 [2.58 to 5.95], $p < 0.001$). Patients with AF had a significantly higher MACCE rate (24.7% versus 8.2%, $p = 0.001$) and a significantly lower physical activity score (1,074 [264-4,776] vs. 2,706 [975-7,339], $p = 0.008$).

Conclusions: This study demonstrates that ECG-based AtCM diagnosis identifies COPD patients at risk for AF, which was associated with a substantially elevated MACCE rate and a significantly reduced physical activity. This easy, cost-effective and widely available digital biomarker might enable early therapy initiation and prevention of adverse clinical outcomes.

Trial registration: NCT01245933 on Clinical-Trials.gov (Registration date: 22.11.2010).

Keywords: Atrial fibrillation; Biomarker; COPD; Electrocardiography; MACCE; Screening.

Conflict of interest statement

Declarations. Ethics approval statement and consent to participate: The study protocol was approved by the central ethical committee in Marburg (Ethikkommission FB Medizin Marburg, approval number 200/09) and the respective local ethical committees: Bad Reichenhall (Ethikkommission Bayerische Landesärztekammer); Berlin (Ethikkommission Ärztekammer Berlin); Bochum (Ethikkommission Medizinische Fakultät der RUB); Borstel (Ethikkommission Universität Lübeck); Coswig (Ethikkommission TU Dresden); Donaustauf (Ethikkommission Universitätsklinikum Regensburg); Essen (Ethikkommission Medizinische Fakultät Duisburg-Essen); Gießen (Ethikkommission Fachbereich Medizin); Greifswald (Ethikkommission Universitätsmedizin Greifswald);

Großhansdorf (Ethikkommission Ärztekammer Schleswig–Holstein); Hamburg (Ethikkommission Ärztekammer Hamburg); MHH Hannover/Coppenbrügge (MHH Ethikkommission); Heidelberg Thorax/Uniklinik (Ethikkommission Universität Heidelberg); Homburg (Ethikkommission Saarbrücken); Immenhausen (Ethikkommission Landesärztekammer Hessen); Kiel (Ethikkommission Christian-Albrechts-Universität zu Kiel); Leipzig (Ethikkommission Universität Leipzig); Löwenstein (Ethikkommission Landesärztekammer Baden-Württemberg); Mainz (Ethikkommission Landesärztekammer Rheinland-Pfalz); München LMU/Gauting (Ethikkommission Klinikum Universität München); Nürnberg (Ethikkommission Friedrich-Alexander-Universität Erlangen Nürnberg); Rostock (Ethikkommission Universität Rostock); Berchtesgadener Land (Ethikkommission Land Salzburg); Schmallenberg (Ethikkommission Ärztekammer Westfalen-Lippe); Solingen (Ethikkommission Universität Witten-Herdecke); Ulm (Ethikkommission Universität Ulm); Würzburg (Ethikkommission Universität Würzburg). The study was performed in accordance with the declaration of Helsinki, and all patients provided written informed consent prior to study inclusion. Consent for publication: Not applicable. Competing interests: Martin Eichenlaub, Heiko Lehrmann, Frank Biertz, Amir S. Jadidi, Klaus Kaier, Henrik Watz, Benjamin Waschki and Thomas Arentz have no competing interests. Björn C. Frye received lecture and advisory fees from Advita Lifescience GmbH, Astra Zeneca, Boehringer Ingelheim and Vifor outside the submitted work. Björn C. Frye received research grants from Advita Lifescience GmbH and BMS outside the submitted work. Björn C. Frye is supported by the Berta-Ottenstein-Program for Advanced Clinician Scientists from the Faculty of Medicine, University of Freiburg. Thomas Melzer is co-founder and scientific consultant of the deep tech startup AICU GmbH, Heilbronn. The present results are not related to the company's activities. He continued to receive travel allowances and speaking fees from AstraZeneca outside the submitted work. He is currently a Fellow of the Collège des Ingénieurs, Munich. Peter Alter received unrestricted grants from GSK, Chiesi, AstraZeneca and Sanofi, consulting fees (advisory board) from Sanofi, honoraria for presentation from StreamedUp GmbH and travel support from Sanofi and Boehringer Ingelheim outside the submitted work. Barbara Christine Weckler performed unpaid contract work for AstraZeneca outside the submitted work. She is Chair of the Scientific Advisory Board of the German Lung Foundation and her research is supported by the German Federal Ministry of Education and Research (BMBF). Franziska C. Trudzinski received an innovation fund (funding code: 01NVF19023) of the Federal Joint Committee (G-BA) according to §92(1) Social Code Book V and personal fees from Boehringer Ingelheim, Chiesi, GSK, Grifols, Novartis, CSL Behring, Streamed up, RG Gesellschaft für Information und Organisation mbH, Knorr Stiftung, AstraZeneca and Apontis Pharma outside the submitted work. Advisory board: CSL Behring, GSK outside the submitted work. Julia D. Michels-Zetsche reports a relationship with the Federal Joint Committee of Doctors Hospitals and Health Insurers that includes: funding grants for the PRiVENT project as well as payment or honoraria for lectures from AstraZeneca and reimbursement of travel expenses from CSL Behring outside the submitted work. Frederik Trinkmann reports grants from AstraZeneca, Bayer, Boehringer Ingelheim, Chiesi, Novartis, Roche, BMBF, DZL, Markedsmodningsfonden and E + H Knorr Stiftung, as well as consulting fees and honoraria from AstraZeneca, Berlin Chemie, Boehringer Ingelheim, BMS, Chiesi, Fisher & Paykel, GSK, Janssen-Cilag, Merck Healthcare, Novartis, Omron, OM-Pharma, Roche, Sanofi, Aventis and Thorasys, and travel support from AstraZeneca, Actelion, Bayer, Berlin Chemie, Boehringer Ingelheim, Chiesi, Mundipharma, Novartis, Pfizer and TEVA outside the submitted

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- 36 references
- 3 figures

Supplementary info

Publication types, MeSH terms, Associated dataExpand

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. 2025 Sep 17:thorax-2025-223880.

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Cytisinicline for smoking cessation in individuals with self-reported COPD: a post hoc analysis of the ORCA-2 and ORCA-3 trials

Judith Prochaska [1], Mark Rubinstein [2], Renee Perdok [2], Brent Blumenstein [3], Cindy Jacobs [2]

Affiliations Expand

- PMID: 40962497

- DOI: 10.1136/thorax-2025-223880

Free article

Abstract

Importance: Quitting smoking is essential for stabilising and improving respiratory function in people with chronic obstructive pulmonary disease (COPD).

Objective: To evaluate the efficacy and safety of cytisinicline versus placebo for cessation among smokers with and without COPD.

Methods: This post hoc analysis used combined data from the phase 3 ORCA-2 (Ongoing Research of Cytisinicline for Addiction) and ORCA-3 double-blind, placebo-controlled trials. Participants received 6 or 12 weeks of cytisinicline or placebo. Of 1602 participants, 145 (9.3%) self-reported COPD.

Interventions: Participants received 3 mg of cytisinicline three times daily (6 weeks: n=532; 12 weeks: n=534) or placebo (12 weeks: n=536), plus behavioural support.

Outcome: Biochemically verified continuous smoking abstinence during the last 4 treatment weeks.

Results: COPD participants were older, smoked longer and had greater nicotine dependence. Cytisinicline was associated with significantly higher smoking abstinence compared with placebo in both COPD and non-COPD subgroups. There was no statistical evidence of heterogeneity in treatment effect between arms. In the 6-week arm, quit estimates were 17.3% versus 2.1% (OR 9.7, p=0.03) for COPD and 19.3% versus 5.5% (OR 4.1, p<0.0001) for non-COPD. In the 12-week arm, quit estimates were 19.1% versus 4.3% (OR 5.3, p=0.04) for COPD and 32.6% versus 8.6% (OR 5.2, p<0.0001) for non-COPD. Cytisinicline was well tolerated with no serious treatment-related events.

Conclusion: Cytisinicline significantly increased quitting for smokers with and without COPD and was well tolerated. The findings support cytisinicline as a viable treatment for smokers with COPD who want to quit.

Trial registration number: ORCA-2 (NCT04576949) and ORCA-3 (NCT05206370).

Keywords: COPD Pharmacology; Smoking cessation; Tobacco and the lung.

Conflict of interest statement

Competing interests: JP has provided consultation to Achieve Life Sciences and other pharmaceutical and technology companies that make medications and other treatments for quitting smoking and has served as an expert witness in litigation against tobacco companies. BB is a biostatistical consultant to Achieve Life Sciences. MR, CJ and RP are employees of Achieve Life Sciences.

Supplementary info

Associated dataExpand

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Ann Am Thorac Soc

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. 2025 Sep 17.

doi: 10.1513/AnnalsATS.202412-1273OC. Online ahead of print.

Prevalence and Clinical Characteristics of Persistent Airflow Limitation in the NOVELTY Cohort

Richard Beasley [1 2], Rod Hughes [3], Alvar Agusti [4], Peter Calverley [5], Bradley Chipps [6], Ricardo Del Olmo [7], Alberto Papi [8], David Price [9 10 11], Hiromasa Inoue [12], Christer Janson [13], Maarten van den Berge [14 15], Helen Reddel [16 17], Hana Müllerová [18], Anastasios Mangelis [19 20], Eleni Rapsomaniki [21]

Affiliations Expand

- PMID: 40961358

- DOI: 10.1513/AnnalsATS.202412-1273OC

Abstract

Rationale: The clinical characteristics of persistent airflow limitation (PAL) were explored in patients aged ≥12 years with physician-assigned diagnoses of asthma,

asthma plus chronic obstructive pulmonary disease (COPD), or COPD in the NOVEL Observational longiTudinal studY (NOVELTY) cohort. The NOVELTY study is a prospective study conducted in primary and secondary care in 18 countries.

Objectives: To determine the proportion of patients with PAL at baseline, their baseline characteristics, and the stability and prognostic utility of PAL during follow-up.

Methods: PAL was defined as post-bronchodilator forced expiratory volume in 1 second/forced vital capacity (FEV1/FVC) ratio less than the lower limit of the normal range (European Respiratory Society [ERS]/American Thoracic Society [ATS]) or as <0.7 (Global Initiative for Chronic Obstructive Lung Disease [GOLD] criteria).

Results: We studied 9,081 patients over 3 years (asthma: 4,754; asthma+COPD; 1,147; COPD: 3,180). Baseline prevalence of PAL was 24.2% and 29.2% (asthma), 63.3% and 74.1% (asthma+COPD), and 65.4% and 75.8% (COPD) using ERS/ATS and GOLD criteria, respectively. Patients with PAL had markedly worse symptom burden and a history of more frequent moderate and severe exacerbations. In patients with asthma PAL was associated with higher blood eosinophils and fractional exhaled nitric oxide (FeNO) values; 60% had never smoked. Of patients with PAL at baseline 84% continued to meet PAL criteria at Year 3. Irrespective of physician diagnosis, PAL was a marker of increased risk of moderate and severe exacerbations and poor symptom control during the 3-year follow-up.

Conclusions: PAL is a stable trait, associated with more severe disease and poor outcomes in adults with a physician-assigned diagnosis of asthma and/or COPD. Clinical Trial Registration (if any): NOVELTY: NCT02760329.

Supplementary info

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Am J Respir Crit Care Med

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. 2025 Sep 17.

doi: 10.1164/rccm.202503-0563RL. Online ahead of print.

A Simple Index for Predicting Mucus Plugs in Patients with COPD

Wei Wang [1], Ruchita Borgaonkar [2], Sophia K Mettler [2], Andrew Yen [3], Scott Grumley [4], Sushilkumar Sonavane [5], Carrie L Pistenmaa [2], Pietro Nardelli [6], Raul San José Estépar [6], Alejandro A Diaz [7]

Affiliations Expand

- PMID: 40961266

- DOI: 10.1164/rccm.202503-0563RL

No abstract available

Keywords: COPD; Mucus plug; Trial.

12

Review

Expert Rev Respir Med

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. 2025 Sep 17.

doi: 10.1080/17476348.2025.2562638. Online ahead of print.

Effects of strength training in patients with COPD: a systematic review

María Barreiro Blanco [1], Clara Rodríguez-Gude [1 2], Iria Da Cuña-Carrera [1 2], Eva Lantarón-Caeiro [1 2]

Affiliations Expand

- PMID: 40961005

- DOI: 10.1080/17476348.2025.2562638

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) is a heterogeneous lung condition characterized by chronic respiratory symptoms causing persistent, often progressive airflow obstruction. Strength training is a therapeutic option to prevent and/or reverse muscle dysfunction in COPD patients. Objective: to analyze the literature on the effects of strength training in COPD patients.

Methods: A systematic review from the last ten years was conducted in August 2024 across PubMed, Scopus, WOS, Medline and CINAHL databases. The search included studies examining resistance training for upper and lower limbs. Methodological quality was analyzed using the PEDro scale and the RoB2 was used for risk of bias.

Results: Six randomized controlled trials were eligible for inclusion, obtaining an excellent or good methodological quality. Most repeated variables were exercise capacity, quality of life and muscle strength, finding statistically significant positive results in all of them.

Conclusions: Strength training appears to be safe and effective for COPD treatment, with improvements in exercise capacity, activities of daily living, muscle strength, lung function, quality of life and inflammatory levels. However, scientific evidence on this topic is scarce, and future high-quality, long-term studies are necessary to establish standardized protocols and assess the sustained benefits of strength training in COPD patients.Protocol registration identifier is CRD42024572717.

Keywords: ‘COPD’; ‘chronic obstructive pulmonary disease’; ‘pulmonary function’; ‘quality of life’; ‘rehabilitation’; ‘strength training’.

13

Eur J Intern Med

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. 2025 Sep 15:106508.

doi: 10.1016/j.ejim.2025.106508. Online ahead of print.

Annual chest computed tomography in multimorbid COPD: Is universal screening clinically feasible? Author's reply

Bartolome R Celli [1], Leonardo M Fabbri [2]; all co-authors [3]

Affiliations Expand

- PMID: 40957752

- DOI: 10.1016/j.ejim.2025.106508

No abstract available

Keywords: Chronic obstructive pulmonary disease; Comorbidity; Disease management.

Conflict of interest statement

Declaration of competing interest Bartolome R. Celli received consulting fees from Chiesi for participation in this project. Outside the scope of this manuscript, he received fees from GlaxoSmithKline and AstraZeneca for consulting, speaking at meetings and participating in advisory boards, from Menarini for consulting and speaking at meetings, from Sanofi Aventis for consulting and participating in advisory boards, from Axios for consulting, and from Chiesi and Regeneron for lectures, presentations, speakers bureaus, manuscript writing or educational events, support for attending meetings and/or travel from GlaxoSmithKline and Sanofi Aventis, and participated in a Data Safety Monitoring Board or Advisory Board for AZ Therapeutics, Sanofi Aventis, and Vertex. Leonardo M. Fabbri received consulting fees from Chiesi, GlaxoSmithKline, AstraZeneca, Novartis, and Verona Pharma, payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Chiesi, GlaxoSmithKline, and Glemark, and participation in a Data Safety Monitoring Board or Advisory Board for Novartis, Chiesi and ICON.

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Semin Respir Crit Care Med

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. 2025 Sep 16.

doi: 10.1055/a-2693-0577. Online ahead of print.

Glucocorticoid Treatment in Severe COPD Exacerbations: Biological Rationale, Clinical Effects, and Practical Advice

Filippo Sartori [1], Giulia Sartori [1], Claudia Di Chiara [1], Alberto Fantin [1 2], Ernesto Crisafulli [1]

Affiliations Expand

- PMID: 40957597

- DOI: 10.1055/a-2693-0577

Abstract

Acute exacerbations of chronic obstructive pulmonary disease (AECOPD), particularly those requiring hospitalization or intensive care unit (ICU) admission, represent a significant clinical and prognostic burden. Systemic corticosteroids remain a cornerstone of AECOPD management, supporting their role in improving time to recovery, symptom relief, and hospital length of stay. These benefits are primarily attributed to corticosteroids' broad anti-inflammatory and immunomodulatory actions, including the downregulation of pro-inflammatory cytokines such as interleukin (IL)-6, IL-8, and tumor necrosis factor α, as well as the restoration of glucocorticoid receptor function impaired in severe disease. Randomized controlled trials and meta-analyses confirm that short-course, low-to-moderate corticosteroid regimens are as effective as prolonged or higher-dose treatments, minimizing adverse effects such as hyperglycemia and infections. Oral administration is equally effective as intravenous therapy in most hospitalized patients, streamlining care without compromising efficacy. In ICU settings, systemic corticosteroids have been shown to reduce the need for invasive ventilation and shorten ICU stay, although mortality benefits remain inconsistent. Emerging precision medicine approaches highlight the relevance of blood eosinophil counts in predicting corticosteroid responsiveness. Eosinophilic patients experience shorter hospital stays, faster clinical improvement, and fewer treatment failures, suggesting the utility of eosinophil-guided corticosteroid therapy. Conversely, patients with neutrophil-predominant or infectious exacerbations may derive less benefit and face a greater risk of steroid-related complications. This narrative review synthesizes current evidence on the pharmacological, clinical, and biomarker-guided use of corticosteroids in severe AECOPD, emphasizing individualized treatment strategies to optimize therapeutic outcomes. With limitations represented by heterogeneity in study populations, lack of standardized eosinophil thresholds, and sparse data in critically ill or comorbid patients, future directions should include defining optimal corticosteroid regimens, refining eosinophil thresholds, exploring adjunctive therapies, and expanding biomarker-based protocols in ICU populations. Corticosteroid stewardship, guided by inflammatory profiles, represents a critical step toward personalized care in high-risk patients with COPD.

Conflict of interest statement

The authors declare that they have no conflict of interest.

Full text links

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Cite

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Review

JMIR Med Inform

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. 2025 Sep 16:13:e66160.

doi: 10.2196/66160.

Evidence for the Use of Patient-Reported Outcome Measures in the Treatment of Patients With Noncommunicable Diseases: Systematic Review

Marie Villumsen [1], Benedikte Irene von Osmanski [1 2], Kirsten Elisabeth Lomborg [3 4], Kirstine Skov Benthien [4 5]

Affiliations Expand

- PMID: 40957012

- DOI: 10.2196/66160

Free article

Abstract

Background: The use of patient-reported outcome measures (PROMs) as a clinical tool for screening and decision-making has gained widespread interest, with numerous implementation activities across specialties, even though the evidence has not been clear until now.

Objective: The aim of this study was to assess the evidence for using PROMs in clinical practice for patients with diabetes, chronic obstructive pulmonary disease (COPD), heart disease, rheumatoid arthritis (RA), and inflammatory bowel disease (IBD). Additionally, we sought to determine the characteristics of the most effective PROM interventions.

Methods: We conducted a systematic review of published randomized controlled trials (RCTs) on the use of PROMs for clinical purposes, such as systematic PROM assessment alone or with a predefined PROM-based decision-making method. Eligible studies included adult patients (>18 years) with diabetes, COPD, heart disease, RA, or IBD. We excluded studies using PROMs as an outcome measure or otherwise not meeting the inclusion criteria. We searched the PubMed/MEDLINE, CINAHL, EMBASE, and Web of Science databases until February 2023. Two investigators independently screened titles, abstracts, and relevant full texts. Three investigators completed data extraction and risk-of-bias assessment using version 2 of the Cochrane risk-of-bias tool for randomized trials (RoB 2). The data were presented in a narrative synthesis and in summarized form.

Results: The search yielded 21,203 papers, 686 (3.2%) full-text papers were screened, and 56 (8.2%) original studies were included in the review. The studies included patients with heart disease (n=17, 30.4%), COPD (n=13, 23.2%), diabetes (n=10, 17.9%), IBD (n=9, 16.1%), and RA (n=6, 10.7%), as well as patients with mixed diagnoses (n=1, 1.8%). All interventions incorporated systematic PROM assessments. Some interventions additionally used a predefined method for PROM-based decision-making (n=19, 33.9%) or PROM-based dialogue (n=9, 16.1%), while 5 (8.9%) interventions aimed to substitute face-to-face consultations. The predominant mode of PROM administration was over the phone, followed by electronic devices and apps. Endpoints included disease activity, health care use, mortality, mental well-being, quality of life, self-efficacy, self-care, daily functioning, and other outcomes. Six studies with a low risk of bias demonstrated a positive effect or noninferiority of the PROM intervention.

Conclusions: The evidence base for clinical use of PROMs is sparse, with few studies evaluated to have a low or a medium risk of bias. The clinical use of PROMs does not appear superior to usual care in the five included chronic diseases on any endpoint. To guide further research, we highlighted 6 (10.7%) studies with a low risk of bias and PROM interventions with a positive effect. These were characterized by symptom assessment with predefined cutoffs used for decision and dialogue support.

Trial registration: PROSPERO CRD42021226896; https://www.crd.york.ac.uk/PROSPERO/view/CRD42021226896.

Keywords: chronic obstructive pulmonary disease; diabetes, heart disease; health care decision-making; inflammatory bowel disease; medical informatics; non-communicable; noncommunicable diseases; patient-reported outcome measures; review; rheumatoid arthritis; systematic reviews.

Proceed to details

Cite

16

PLoS One

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. 2025 Sep 16;20(9):e0331403.

doi: 10.1371/journal.pone.0331403. eCollection 2025.

"A good day is just being able to breathe": Aligning COPD research with patient needs, a qualitative study

Laurel O'Connor [1], Julia Ferranto [1], Anuska Ganesh Harne [1], Leah Dunkel [1], Peter Lindenauer [2], Bruce Miller [3], Christopher Mosher [4], Fernando Martinez [5], Apurv Soni [1]

Affiliations Expand

- PMID: 40956803

- PMCID: PMC12440184

- DOI: 10.1371/journal.pone.0331403

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a common and impactful disease that is the target of a large portfolio of clinical research. However, there is limited understanding of how individuals with COPD perceive trial designs, outcomes, and intervention acceptability. The objective of this project was to explore the perspectives and priorities of patients and their caregivers toward COPD-focused clinical research.

Methods: Semi-structured interviews were conducted with participants living with COPD and their caregivers using the Theoretical Framework of Acceptability (TFA) to guide data collection and analysis. Interviews were transcribed and coded using qualitative analysis software and analyzed using an inductive thematic approach.

Results: Fifteen interviews were performed. Key themes included participant preference for outcome measures that directly impact daily living, such as mental wellness and physical function. Participants highlighted the need for research data to be actionable, advocating for health insights to be shared with participants and their healthcare providers. Study engagement was influenced by the perceived burden and complexity of interventions as well as their direct relevance to patients.

Patients favored research designs that minimize physical and logistical challenges. Lastly, participants desired greater involvement in the research design process.

Conclusions: Aligning COPD research with patient priorities requires incorporating meaningful outcome measures, reducing participation burdens, and fostering ongoing engagement. Integrating patient-centered approaches in study design can enhance recruitment, adherence, and the real-world impact of COPD interventions.

Conflict of interest statement

The authors have declared that no competing interests exist.

- **37 references**

Supplementary info

MeSH termsExpand

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Cite

17

J Gen Intern Med

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. 2025 Sep 16.

doi: 10.1007/s11606-025-09786-y. Online ahead of print.

Perceived Access, Perceived Need for Treatment, and the Decision to Seek Care for COPD Exacerbations

Vincent S Fan [1 2], Paul L Hebert [3 4], Emily R Locke [3], Tracy L Simpson [5 6], Erik R Swenson [7], Jeff D Edelman [8 9], Cathy Battaglia [10 11], Ranak B Trivedi [12 13], John C Fortney [3 6]

Affiliations Expand

- **PMID: 40956402**

- DOI: 10.1007/s11606-025-09786-y

Abstract

Background: Patients often delay care for COPD exacerbations, delaying recovery and increasing the risk of emergency visits.

Objective: This study examined the relative importance of access to care and perception of need for care in the decision to seek care for COPD exacerbations.

Design: A 1-year prospective cohort study.

Participants: A total of 410 patients with COPD in the Department of Veterans Affairs (VA).

Main measures: Participants completed baseline spirometry and questionnaires regarding social support, comorbidity, cognition, psychological symptoms, perceived access to care, and perceived need for care. Participants were contacted every 2 weeks to identify exacerbations, and information was collected regarding symptoms, care seeking, and health care utilization. For each exacerbation, participants completed the Response to Symptoms Questionnaire regarding emotional and cognitive responses to the exacerbations. A shared-frailty survival model was used to estimate the correlates of time to seeking care.

Key results: There were 1094 exacerbations among 356 participants; mean age of these patients was 69.4 (SD 7.4), 4.2% were women, and mean FEV_1% predicted was 44.2% (SD 18.7). In adjusted analyses, those who were very or extremely anxious in response to symptoms were more likely to seek care; those with very or extremely high perceived control over symptoms were less likely to seek care, and access to a VA pulmonary provider was associated with earlier care seeking.

Conclusions: In the VA, patients' perceived need for care was an important determinant of care seeking for COPD exacerbations. Understanding and addressing the emotional and cognitive responses to worsening breathing symptoms may help inform programs for prompt and appropriate treatment of COPD exacerbations.

Keywords: attitude to health; chronic obstructive; emergency room visits; health services accessibility; hospitalization; needs assessment; patient acceptance of healthcare; pulmonary disease.

Conflict of interest statement

Declarations:. Ethics Approval and Consent to Participate:: This study was conducted at two VA sites, VA Puget Sound in Seattle, WA, and VA Eastern Colorado in Denver, WA. The study was reviewed and approved by the institutional review boards at both institutions: (1) Veterans Affairs Puget Sound IRB ID# 1587665–22, (2) Colorado Multiple Institutional Review Board ID# 1579459–11. All participants provided written informed consent. Conflict of Interest:: Vincent Fan, Catherine Battaglia, Paul Hebert, and Ranak Trivedi report financial support was provided by the US Department of Veterans Affairs. 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.

- 37 references

Supplementary info

Grants and fundingExpand

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BMJ Open Respir Res

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. 2025 Sep 15;12(1):e003110.

doi: 10.1136/bmjresp-2024-003110.

Increased in-hospital mortality and readmission risk associated with cardiovascular and cerebrovascular comorbidities in acute exacerbation of COPD patients

Lin Feng [1], Jiachen Li [1], Jian Su [2], Zhaohui Tong [3], Lirong Liang [4]

Affiliations Expand

- PMID: 40954043

- PMCID: PMC12439156

- DOI: 10.1136/bmjresp-2024-003110

Abstract

Background: Cardiovascular and cerebrovascular comorbidities are prevalent in patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD), but their impact on in-hospital outcomes and the risk of readmission remains unclear. This study aimed to describe the proportions of these comorbidities and assess their influence on patient outcomes.

Methods: Hospital admission records from 2013 to 2020 with a primary discharge diagnosis of AECOPD were retrieved from Beijing Public Health Information Centre

database. Comorbidities were identified through discharge diagnoses, while in-hospital outcomes and subsequent readmissions were tracked. Logistic regression model, generalised linear model and subdistributional hazard model were used to evaluate the associations between comorbidities and adverse outcomes.

Results: Among 98 127 patients, cardiovascular comorbidities were present in 78.3% of cases and cerebrovascular comorbidities were present in 30.3% of cases. Patients with cardiovascular comorbidities or cerebrovascular comorbidities or both had prolonged length of stay (ORs: 1.29, 95% CI: 1.23 to 1.35; 1.20, 95% CI: 1.10 to 1.32; 1.52, 95% CI: 1.44 to 1.60) and higher in-hospital mortality (ORs: 1.39, 95% CI: 1.19 to 1.62; 1.34, 95% CI: 1.04 to 1.75; 1.25, 95% CI: 1.06 to 1.48) compared with those without these conditions. Patients with cardiovascular comorbidities and those with both cardiovascular and cerebrovascular comorbidities were at increased risk of readmission (HRs: 1.14, 95% CI: 1.10 to 1.19; 1.19, 95% CI: 1.14 to 1.25), whereas cerebrovascular comorbidities alone were not. The impact of individual comorbidity varied, with heart failure, ischaemic heart disease, arrhythmia, hypertension, ischaemic stroke and cerebrovascular sequelae showing positive associations with adverse outcomes, but the opposite was observed for peripheral arterial disease, arterial stenosis and other cerebrovascular diseases.

Conclusion: Most cardiovascular comorbidities and major cerebrovascular comorbidities are significant predictors of length of stay, in-hospital mortality and readmission in AECOPD patients. These findings highlight the need for targeted management strategies to improve outcomes in this high-risk population. Further research is needed to explore the mechanisms underlying these associations.

Keywords: COPD Exacerbations; Clinical Epidemiology.

Conflict of interest statement

Competing interests: None declared.

- 39 references
- 1 figure

Supplementary info

MeSH termsExpand

Full text links

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Cite

19

BMJ Open Respir Res

. 2025 Sep 14;12(1):e002825.

doi: 10.1136/bmjresp-2024-002825.

High BMI and smoking jointly cause COPD: a Mendelian randomisation study

Heidi Mikkelsen [1 2], Eskild Morten Landt [1], Sarah Caroline Weisenfeldt Marott [1], Marianne Benn [2 3], Børge Grønne Nordestgaard [2 4], Morten Dahl [5 2]

Affiliations Expand

- PMID: 40953920
- PMCID: PMC12434778
- DOI: 10.1136/bmjresp-2024-002825

Abstract

Background: We tested the hypothesis that genetically high body mass index (BMI) and genetically high tobacco smoking jointly are causally associated with a higher risk of chronic obstructive pulmonary disease (COPD) than each risk factor alone.

Methods: We used two large Danish population-based cohort studies, The Copenhagen City Heart Study and the Copenhagen General Population Study linked to national Danish patient discharge and death registries. For the genetic analysis, we included 112 943 adults genotyped for five BMI and one tobacco smoking increasing gene variant. Risk ratios with 95% CIs for COPD were estimated for the risk factors in combination and individually by use of allele scores for BMI and smoking.

Results: Separately, both high BMI and tobacco smoking increased the risk for COPD (Ps<0.001), yet the highest risk was observed in the group of individuals with a combination of high allele scores for both high BMI and tobacco smoking (Ps≤0.04). Observationally, the highest risk for COPD was observed in the groups of people having high cumulative use of tobacco smoking, irrespective of BMI.

Conclusions: The combination of causal, genetically high BMI and tobacco smoking resulted in a higher risk for COPD than the two risk factors alone.

Keywords: COPD epidemiology; Clinical Epidemiology; Pulmonary Disease, Chronic Obstructive; Tobacco and the lung.

Conflict of interest statement

Competing interests: MD reports consultancies or sponsored talks from Chiesi, Takeda and Grifols outside the submitted work. HM, EL, SCWM, MB and BGN have nothing to disclose.

- 47 references
- 3 figures

Supplementary info

MeSH termsExpand

Full text links

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20

J Am Heart Assoc

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. 2025 Sep 16;14(18):e042858.

doi: 10.1161/JAHA.125.042858. Epub 2025 Aug 31.

Identification of Clinical Phenotypes in Type 2 Myocardial Infarction: Insights Into Characteristics, Prognosis, and Management Strategies

Davide Bertolini [1 2], Matteo Armillotta [2 3], Francesco Angeli [2 3], Angelo Sansonetti [1 2], Francesca Bodega [1 2], Sara Amicone [2 3], Lisa Canton [2 3], Damiano Fedele [2 3], Nicole Suma [1 2], Andrea Impellizzeri [1 2], Francesco Pio Tattilo [1 2], Daniele Cavallo [1 2], Ornella Di Iuorio [1 2], Khrystyna Ryabenko [1 2], Virginia Marinelli [1 2], Claudio Asta [1 2], Mariachiara Ciarlantini [1 2], Andrea Rinaldi [1], Nevio Taglieri [1], Gianni Casella [4], Paola Rucci [5], Antonio Curcio [6], Luca Bergamaschi [2 3], Carmine Pizzi [2 3]

Affiliations Expand

- **PMID: 40886105**

- **DOI: 10.1161/JAHA.125.042858**

Free article

Abstract

Background: Type 2 myocardial infarction (T2MI) accounts for a substantial share of acute coronary syndromes but remains challenging to diagnose and manage due to its varied presentations and underlying profiles. This study aims to identify key differences and distinct clinical phenotypes in a large T2MI population.

Methods: All consecutive patients with non-ST-segment-elevation myocardial infarction undergoing coronary angiography with a confirmed T2MI diagnosis between January 1, 2017, and March 31, 2023, were analyzed. Precipitating factors of supply-demand mismatch were identified, and coronary burden was assessed using the Gensini score. Latent class analysis was used to identify clinical phenotypes, and multivariable analyses were performed to determine prognostic predictors. A composite of major adverse cardiovascular events was assessed during follow-up, along with additional outcomes including cardiovascular death and nonfatal type 2 reinfarction.

Results: Among 774 patients with T2MI, latent class analysis identified 2 phenotypes. Phenotype 1 (31.5%) was younger with a higher prevalence of nonatherosclerotic coronary causes and unknown pathogeneses. Phenotype 2 (68.5%) exhibited greater comorbidity and a higher atherosclerotic burden, reflected by elevated Gensini scores (median, 11 versus 1.5; *P*<0.001). Over a median follow-up of 53 months, major adverse cardiovascular events occurred in 49.1% of patients, with a higher rate in phenotype 2 (60.8% versus 23.8%, *P*<0.001). Predictors of major adverse cardiovascular events included peak cardiac troponin levels for phenotype 1 and age, known cardiovascular disease, chronic obstructive pulmonary disease, peak cardiac troponin levels, and Gensini score for phenotype 2.

Conclusions: This study identified 2 clinical phenotypes in T2MI, highlighting differences in characteristics, precipitating factors, outcomes, and prognostic predictors, emphasizing the potential for phenotype-driven approaches in diagnosis and management.

Keywords: cardiovascular outcomes; non–ST-segment–elevation myocardial infarction; type 2 myocardial infarction.

. 2025 Sep 15;80(10):679-680.

doi: 10.1136/thorax-2025-223348.

Telemedicine in home mechanical ventilation: promise, pitfalls and path forward

Marieke L Duiverman[#1,2], Claudia Crimi[#3,4]

Affiliations Expand

- PMID: 40744534

- DOI: 10.1136/thorax-2025-223348

No abstract available

Keywords: Health Economist; Non invasive ventilation; Pulmonary Disease, Chronic Obstructive; Sleep apnoea.

Conflict of interest statement

Competing interests: MLD reports research grants from Resmed, Löwenstein, Vivisol, Sencure and Fisher & Paykel, and speaking fees from Chiesi, Breas and AstraZeneca. CC reports speaking fees from Fisher & Paykel, VitalAire, Philips, Resmed, Sanofi, GSK, Aerogen and AstraZeneca; occasional Advisory Committee participation for VitalAire and Aerogen; and a patent pending (No 102023000013077) not discussed in the present work.

. 2025 Sep 15:682:125892.

doi: 10.1016/j.ijpharm.2025.125892. Epub 2025 Jun 25.

Preparation and in vitro characterization of inhalable cannabidiol dry powder for treating chronic obstructive pulmonary disease

Komal Komal [1], Shuli Chen [2], Lyall R Hanton [3], Michelle Glass [2], Shyamal C Das [4]

Affiliations Expand

- PMID: 40578460

- DOI: 10.1016/j.ijpharm.2025.125892

Abstract

Cannabidiol (CBD), a non-psychoactive cannabinoid, has shown therapeutic potential for treating inflammatory respiratory diseases such as chronic obstructive pulmonary disease and asthma. However, the therapeutic efficacy of CBD is limited by extensive hepatic metabolism and low oral bioavailability (approximately 20 %). These problems can be overcome by choosing an appropriate targeted drug delivery system. Delivering CBD to the lungs via a dry powder formulation could be an effective method to achieve adequate concentration and therapeutic efficacy. This study aims to develop a dry powder formulation of CBD with Inulin (INU) and L-leucine (LEC) using spray drying and to characterize its physicochemical and aerodynamic properties. A design of experiments (DOE) approach was used to optimize the formulation by varying feed concentration (0.2 % w/v to 0.8 % w/v), LEC concentration (5 % w/w to 20 % w/w), and CBD concentration (5 % w/w to 20 % w/w). The resulting CBD dry powder formulations exhibited a wrinkled morphology with particle sizes ranging from 1 to 5 μm and displayed a crystalline structure, as determined by powder X-ray diffraction. The response surface method (RSM) showed that increasing the feed concentration correlated with higher yields of the CBD formulations. Specifically, the formulation with a feed concentration of 0.8 % w/v achieved a yield of 61 %. The aerosolization data demonstrated a direct relationship between the Fine Particle Fraction (FPF) and LEC concentration, indicating that FPF increases as the LEC concentration increases. The highest FPF of 62 % was achieved with a 20 % w/w LEC concentration and a feed concentration of 0.2 % w/v. Based on this, LEC plays a crucial role in enhancing aerosolization efficiency. While feed concentration negatively affects FPF, lower feed concentrations lead to an increase in FPF. The Fine Particle Dose (FPD) varied with the concentration of CBD, with higher concentrations resulting in a higher FPD. A 28 days stability study under different humidity conditions (<15 % and 53 %) confirmed the stability of the CBD formulations. INU and LEC exhibited minimal cytotoxicity on A549 cells, while the raw CBD and CBD formulations showed comparable levels of cytotoxicity, pIC_{50} 4.5 ± 0.3 and 4.2 ± 0.2. Interestingly, the CBD dry powder formulations significantly reduced inflammation (pEC_{50} = 4.9) induced by lipopolysaccharide (LPS). These findings suggest that an inhalable formulation of CBD, incorporating LEC and INU, has been successfully developed. The formulations demonstrated improved aerosolization properties, stability, and promising anti-inflammatory effects, potentially making them a viable therapeutic option for inflammatory lung diseases.

Keywords: COPD; Cannabidiol; Dry powder; Inulin; L-leucine; Spray-drying.

Conflict of interest statement

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

Supplementary info

MeSH terms, SubstancesExpand

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Intern Med

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. 2025 Sep 15;64(18):2708-2715.

doi: 10.2169/internalmedicine.5012-24. Epub 2025 Mar 8.

Stationary Oxygen Concentrator with Built-in Respiratory Rate Monitor: Clinical Validation of Its Efficacy in Patients with Interstitial Lung Disease and Chronic Obstructive Pulmonary Disease

Satoshi Hamada [1], Tomohiro Handa [1], Kimihiko Murase [1], Naoya Tanabe [2], Yoshinari Nakatsuka [3], Kohei Ikezoe [3], Hironobu Sunadome [4], Susumu Sato [4], Atsuyasu Sato [3], Toyohiro Hirai [3]

Affiliations Expand

- PMID: 40058858

- DOI: 10.2169/internalmedicine.5012-24

Free article

Abstract

Objective The respiratory rate (RR) can be monitored continuously using a HiSanso®i, a stationary oxygen concentrator with a built-in respiratory sensor. To

examine the efficacy of this device, we compared its performance with that of polysomnography in inpatient settings and the home sleep apnea test (HSAT) in residential settings for patients with interstitial lung disease (ILD) and chronic obstructive pulmonary disease (COPD). Methods The oxygen flow rate was set at 1, 3, and 5 L/min in inpatient settings and 1-3 L/min (conditions similar to the home surroundings) in residential settings. Intraclass correlation coefficients (ICCs) (2,1) were calculated to determine the agreement between the RR measured with the HiSanso®i and that measured with polysomnography or the HSAT. The minimum acceptable reliability level is 0.7. Results In total, 14 (10 with ILD and 4 with COPD) and 5 (all with ILD) patients were assessed in inpatient and residential settings, respectively. In inpatient settings, the detection rate of patients' respiration measured with the HiSanso®i was 77.0% and 73.3% in patients with ILD and COPD, respectively. At oxygen flow rates of 1, 3, and 5 L/min, the ICCs (2,1) were 0.91, 0.85, and 0.91, respectively, for patients with ILD and 0.96, 0.90, and 0.74, respectively, for patients with COPD. In residential settings, the detection rate of patients' respiration measured with the HiSanso®i was 86.6%, and the ICC (2,1) was 0.97. Conclusion The HiSanso®i accurately monitored the RR without any additional devices, independent of oxygen flow rates or disease status.

Keywords: chronic obstructive pulmonary disease; home oxygen therapy; interstitial lung disease; respiratory rate.

Supplementary info

Publication types, MeSH terms, Substances

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

Evidence for the Use of Patient-Reported Outcome Measures in the Treatment of Patients With Noncommunicable Diseases: Systematic Review

Marie Villumsen [1], Benedikte Irene von Osmanski [1 2], Kirsten Elisabeth Lomborg [3 4], Kirstine Skov Benthien [4 5]

Affiliations Expand

- PMID: 40957012

- DOI: 10.2196/66160

Free article

Abstract

Background: The use of patient-reported outcome measures (PROMs) as a clinical tool for screening and decision-making has gained widespread interest, with

numerous implementation activities across specialties, even though the evidence has not been clear until now.

Objective: The aim of this study was to assess the evidence for using PROMs in clinical practice for patients with diabetes, chronic obstructive pulmonary disease (COPD), heart disease, rheumatoid arthritis (RA), and inflammatory bowel disease (IBD). Additionally, we sought to determine the characteristics of the most effective PROM interventions.

Methods: We conducted a systematic review of published randomized controlled trials (RCTs) on the use of PROMs for clinical purposes, such as systematic PROM assessment alone or with a predefined PROM-based decision-making method. Eligible studies included adult patients (>18 years) with diabetes, COPD, heart disease, RA, or IBD. We excluded studies using PROMs as an outcome measure or otherwise not meeting the inclusion criteria. We searched the PubMed/MEDLINE, CINAHL, EMBASE, and Web of Science databases until February 2023. Two investigators independently screened titles, abstracts, and relevant full texts. Three investigators completed data extraction and risk-of-bias assessment using version 2 of the Cochrane risk-of-bias tool for randomized trials (RoB 2). The data were presented in a narrative synthesis and in summarized form.

Results: The search yielded 21,203 papers, 686 (3.2%) full-text papers were screened, and 56 (8.2%) original studies were included in the review. The studies included patients with heart disease (n=17, 30.4%), COPD (n=13, 23.2%), diabetes (n=10, 17.9%), IBD (n=9, 16.1%), and RA (n=6, 10.7%), as well as patients with mixed diagnoses (n=1, 1.8%). All interventions incorporated systematic PROM assessments. Some interventions additionally used a predefined method for PROM-based decision-making (n=19, 33.9%) or PROM-based dialogue (n=9, 16.1%), while 5 (8.9%) interventions aimed to substitute face-to-face consultations. The predominant mode of PROM administration was over the phone, followed by electronic devices and apps. Endpoints included disease activity, health care use, mortality, mental well-being, quality of life, self-efficacy, self-care, daily functioning, and other outcomes. Six studies with a low risk of bias demonstrated a positive effect or noninferiority of the PROM intervention.

Conclusions: The evidence base for clinical use of PROMs is sparse, with few studies evaluated to have a low or a medium risk of bias. The clinical use of PROMs does not appear superior to usual care in the five included chronic diseases on any endpoint. To guide further research, we highlighted 6 (10.7%) studies with a low risk of bias and PROM interventions with a positive effect. These were characterized by symptom assessment with predefined cutoffs used for decision and dialogue support.

Trial registration: PROSPERO CRD42021226896; https://www.crd.york.ac.uk/PROSPERO/view/CRD42021226896.

Keywords: chronic obstructive pulmonary disease; diabetes, heart disease; health care decision-making; inflammatory bowel disease; medical informatics; non-communicable; noncommunicable diseases; patient-reported outcome measures; review; rheumatoid arthritis; systematic reviews.

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Intern Emerg Med

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. 2025 Sep 19.

doi: 10.1007/s11739-025-04109-9. Online ahead of print.

Usefulness of point-of-care ultrasound for rapid assessment of sarcopenia risk in inpatient frail older people: a cross-sectional study

Laisa Socorro Briongos Figuero [1 2 3], Miriam Gabella Martín [4], Fernando Gil Díez [5], Graciela López Muñiz [5], Julia Pérez Nieto [6], Victoria Olivet de la Fuente [6], Jesús Franco Rodríguez [6], Ainhoa Martín Galán [6], Luis Corral Gudino [7 4], José Pablo Miramontes González [7 4]

Affiliations Expand

- PMID: 40971021

- DOI: 10.1007/s11739-025-04109-9

Abstract

Bedside ultrasound (POCUS) has emerged as a non-invasive, reliable, and practical tool for evaluating muscle mass since sarcopenia poses a significant threat to multimorbidity older people. The aim of the study was to evaluate sarcopenia risk among frail older inpatients using POCUS on rectus femoris muscle (RFM) and explore the relationship between these condition and clinical outcomes. An observational study was conducted including inpatients over 80 years old, admitted due to dyspnea during the winter-spring of 2024. POCUS was done with a 5-MHz convex probe device in RFM (middle point). We determined sarcopenia risk (SARC-F tool), FRAIL scale, handgrip strength, calf circumference (CC), body mass index (BMI), Charlson index (CI), nutritional status (MNA-SF), serum albumin, dependency degree (Barthel index), and quality of life with EQ5D5L questionnaire. Data were analyzed using SPSS v.25.0. The study was approved by the ethics committee. Ultrasound sarcopenia was found in 33% of all participants. POCUS RFM muscle thickness showed moderate positive significant correlation with BMI (r = 0.32; p = 0.01), arm circumference (r = 0.38; p = 0.003), CC (r = 0.5; p < 0.001), and handgrip strength (r = 0.25; p = 0.04). Otherwise, POCUS RFM muscle thickness showed moderate or weak negative significant correlation with age (r = - 0.22; p = 0.05), CI (r = - 0.24; p = 0.01), dependence Barthel index (r = - 0.12; p = 0.05), nutritional status (r

= - 0.18; p = 0.01), and frailty scale (r = - 0.19; p = 0.05). Integration of POCUS in comprehensive assessment of quality of life, sarcopenia, nutritional status, and frailty in the oldest old represents a promising approach. This study provides a foundation for implementation of routine sarcopenia screening and intervention programs in the clinical management of multimorbidity in older patients.

Keywords: Active aging; Frailty; Multimorbidity; Nutrition; Point-of-care ultrasound; Q quality of life; Sarcopenia; Screening.

Conflict of interest statement

Declarations. Conflict of interest: There are no known conflicts of interest associated with this publication and there has been no financial support for this work. Ethical approval and Research involving human participants and informed consent: This research was approved by the Ethics Committee for Research with Medicines (CEIm) of the Valladolid West Health Area (Ref. CEIm: 23-PI052) and written medical consent form to participate and to publish according to the principles of the Declaration of Helsinki was obtained from each participant or their legal representatives/guardians. The manuscript has been read and approved by all named authors and no other persons satisfied the criteria for authorship.

- 47 references

2

Randomized Controlled Trial

BMJ Open

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. 2025 Sep 17;15(9):e100199.

doi: 10.1136/bmjopen-2025-100199.

Personalised Exercise Rehabilitation FOR people with Multiple long-term conditions (PERFORM): findings from a process evaluation of a randomised feasibility study

Sophie Eleanor Brown [1], Sharon Anne Anne Simpson [2], Colin Greaves [3], Paulina Daw [3], Sarah Gerard Dean [4], Rachael A Evans [5 6], Tom M Withers [3], Zahira

Ahmed [5 6], Shaun Barber [7], Gwen Barwell [7], Patrick Joseph Doherty [8], Nikki Gardiner [9], Tracy Ibbotson [1], Bhautesh Jani [10], Kate Jolly [11], Frances Mair [10], James R Manifield [5 6], Emma McIntosh [12], Daniel Miller [13], Paula Ormandy [14], Susan Smith [15], Ioannis Vogiatzis [16], Ghazala Waheed [7], Rod Taylor [1 17], Sally J Singh [5 6 9]; PERFORM research team

Collaborators, Affiliations Expand

- PMID: 40967642

- DOI: 10.1136/bmjopen-2025-100199

Free article

Abstract

Objective: The number of people living with multiple long-term conditions (MLTCs or 'multimorbidity') is growing. Evidence indicates that exercise-based rehabilitation can improve health-related quality of life and reduce hospital admissions for a number of single long-term conditions. However, it is increasingly recognised that such condition-focused rehabilitation programmes do not meet the needs of people living with MLTCs. The aims for this study were to (1) evaluate the acceptability and feasibility of the newly developed Personalised Exercise Rehabilitation FOR people with Multiple long-term conditions (PERFORM) intervention; (2) assess the feasibility of study methods to inform progression to a definitive randomised controlled trial (RCT) and (3) refine our intervention programme theory.

Design: Semi-structured qualitative interviews were conducted with patients receiving and healthcare practitioners delivering the PERFORM intervention, to seek their experiences of the intervention and taking part in the study. Interviews were analysed thematically, informed by Normalisation Process Theory and the programme theory.

Setting: Three UK sites (two acute hospital settings, one community-based healthcare setting).

Participants: 18 of the 60 PERFORM participants and 6 healthcare professionals were interviewed.

Intervention: The intervention consisted of 8 weeks of supervised group-based exercise rehabilitation and structured self-care symptom-based support.

Results: All participants and staff interviewed found PERFORM useful for physical and mental well-being and noted positive impacts of participation, although some specific modifications to the intervention delivery and training and study methods were identified. Scheduling, staffing and space limitations were barriers that must be considered for future evaluation and implementation. Key intervention mechanisms identified were social support, patient education, building routines and habits, as well as support from healthcare professionals.

Conclusions: We found the PERFORM intervention to be acceptable and feasible, with the potential to improve the health and well-being of people with MLTCs. The findings of the process evaluation inform the future delivery of the PERFORM

intervention and the design of our planned full RCT. A definitive trial is needed to assess the clinical and cost-effectiveness.

Trial registration number: ISRCTN68786622.

Keywords: Exercise; Multimorbidity; REHABILITATION MEDICINE; Self-Management.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Comparative Study

PLoS One

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. 2025 Sep 17;20(9):e0332304.

doi: 10.1371/journal.pone.0332304. eCollection 2025.

Triage and hospitalization outcomes in the geriatric population of an emergency department: A retrospective cohort study comparing the manchester triage system and the emergency severity index

Anna Ingielewicz [1 2], Marzena Szarafińska [1 2], Maciej Zając [2], Zuzanna Brunka [1 2], Mariusz Grażewicz [3], Mateusz Szczupak [2 4], Mariusz Siemiński [1]

Affiliations Expand

- **PMID: 40961061**

- PMCID: PMC12443246

- DOI: 10.1371/journal.pone.0332304

Abstract

Introduction: Elderly patients in emergency departments (EDs) are at increased risk due to nonspecific symptoms, multimorbidity, and elevated mortality. This study compared the predictive performance of the Manchester Triage System (MTS) and the Emergency Severity Index (ESI) for hospitalization and critical outcomes in geriatric patients and analyzed symptom patterns by age and clinical course.

Methods: This retrospective study included all patients aged ≥18 years admitted to a tertiary ED in northern Poland between January and June 2021. Each patient was concurrently assessed using both MTS and ESI. Data collected included triage level, age group (18-64, 65-79, ≥ 80), sex, mode of arrival, presenting symptoms, and outcomes including hospitalization and ten predefined critical events (e.g., sepsis, admission, urgent surgery). Logistic regression was used to assess associations.

Results: Among 1,063 patients, 475 (44.7%) were aged ≥65. Patients aged 18-64 most commonly presented with abdominal pain or polytrauma, while geriatric patients more frequently reported dyspnea, weakness, and altered mental status. Dyspnea was nearly twice as common in patients ≥80. Weakness (OR = 1.67) and abdominal pain (OR = 1.64) were significantly associated with hospitalization. Hospitalization and critical events were more likely in older adults (OR = 2.03 for ages 65-79; OR = 3.74 for ≥80). In both systems, higher triage urgency was independently associated with greater risk (MTS: OR = 0.51; ESI: OR = 0.43). ESI showed stronger alignment with physiological deterioration and predicted complications such as ICU admission and sepsis more consistently than MTS.

Conclusions: MTS and ESI show limited sensitivity in older patients, particularly with nonspecific presentations. ESI provided better discrimination of clinical urgency. Findings support revising triage systems to account for age, atypical symptoms, and geriatric vulnerability.

Conflict of interest statement

The authors have declared that no competing interests exist.

- 30 references

- 5 figures

Supplementary info

Publication types, MeSH termsExpand

Full text links

Cite

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Eur J Heart Fail

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. 2025 Sep 16.

doi: 10.1002/ejhf.70017. Online ahead of print.

Impact of comorbidity burden on outcome in patients with cardiogenic shock: A Cardiogenic Shock Working Group analysis

Jonas Sundermeyer [1 2], Song Li [3], Van-Khue Ton [4], Rachna Kataria [5], Elric Zweck [6], Kevin John [1], Manreet K Kanwar [7], Jaime Hernandez-Montfort [8], Shashank S Sinha [9], A Reshad Garan [10], Jacob Abraham [11], Vanessa Blumer [12], Ajar Kochar [13], Karthikeyan Ranganathan [14], Gavin W Hickey [15], Mohit Pahuja [16], Scott Lundgren [17], Sandeep Nathan [7], Esther Vorovich [18], Shelley Hall [19], Wissam Khalife [20], Andrew Schwartzman [21], Ju Kim [22], Oleg Alec Vishnevsky [23], Justin Fried [24], Maryjane Farr [25], Joseph Mishkin [26], I-Hui Chang [27], Onyedika Ilonze [28], Alexandra Arias [29], Jun Nakata [30], Jeffrey Marbach [31], Hiram Bezerra [32], Ann Gage [33], Joyce Wald [34], Sunu Thomas [35], Faisal Rahman [36], Amirali Masoumi [37], Aasim Afsal [38], Salman Gohar [39], Rachel Goodman [1], Karol D Walec [1], Peter Natov [1], Borui Li [1], Paavni Sangal [1], Qiuyue Kong [1], Peter Zazzali [1], Neil M Harwani [1], Saraschandra Vallabhajosyula [5], Arvind Bhimaraj [40], Claudius Mahr [3], Daniel Burkhoff [41], Navin K Kapur [1]

Affiliations Expand

- PMID: 40956069

- DOI: 10.1002/ejhf.70017

Abstract

Aims: Comorbidity burden is a major determinant of outcomes. Its prognostic impact on cardiogenic shock (CS) across CS subtypes remains insufficiently characterized. We aimed to characterize the prevalence and distribution of comorbidities in CS, assess their impacts on outcomes, and identify high-risk comorbidity patterns in all-cause, acute myocardial infarction-related (AMI-CS) and heart failure-related CS (HF-CS).

Methods and results: Cardiogenic shock patients from the multicentre Cardiogenic Shock Working Group (CSWG) registry (2020-2024) were analysed. We used

adjusted logistic regression models to assess the impact of comorbidities individually, in combination, and as a cumulative burden on in-hospital mortality. We developed the Comorbidity Risk Index for Cardiogenic Shock (COMRI-CS) to capture the association between comorbidities and CS mortality. Among 6815 patients (26.5% AMI-CS, 53.6% HF-CS), 6087 (89.3%) presented with ≥1 comorbidity, and 4390 (64.4%) with ≥3 comorbidities. In-hospital mortality increased with comorbidity burden (AMI-CS: 35.4%, 39.6%, 47.1% with 1-3, 4-6, ≥7 comorbidities, respectively; HF-CS: 19.6%, 24.9%, 27.5%, respectively). A high comorbidity burden was independently associated with a 51% higher relative mortality risk in AMI-CS (odds ratio [OR] 1.51, 95% confidence interval [CI] 1.02-2.23, p = 0.037), and a more pronounced increase of 122% in HF-CS (OR 2.22, 95% CI 1.49-3.37, p < 0.001). Distinct high-risk comorbidities and combinations were identified, varying across CS subtypes. With each COMRI-CS point, in-hospital mortality increased by ~5.5%.

Conclusions: In this large real-world CS cohort, comorbidity burden was highly prevalent, varied across subtypes, and was independently associated with mortality. Integrating chronic conditions into early CS risk stratification may enhance clinical decision-making in CS management.

Keywords: Acute myocardial infarction-related cardiogenic shock; Cardiogenic shock; Comorbidities; Comorbidity burden; Heart failure-related cardiogenic shock; Multimorbidity; Risk stratification.

- 36 references

Full text links

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Cite

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J Am Heart Assoc

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. 2025 Sep 16;14(18):e041978.

doi: 10.1161/JAHA.125.041978. Epub 2025 Sep 4.

Associations Between Hematologic Parameters and All-Cause Death in Individuals With Cardio-Renal-Metabolic Multimorbidity: A National Cohort Study

Song Wen [1], Shuheng Zhou [2], Wei Wang [3], Xueting Qiu [1 4], Yingqing Feng [1 4]

Affiliations Expand

- **PMID: 40908505**

- **DOI: 10.1161/JAHA.125.041978**

Free article

Abstract

Background: Cardio-renal-metabolic multimorbidity is common and a major cause of death. This study investigates the associations between hematologic parameters and all-cause death, aiming to redefine complete blood count reference intervals for individuals with cardio-renal-metabolic multimorbidity.

Methods: The study cohort consisted of 4482 adults drawn from the National Health and Nutrition Examination Survey conducted between 1999 and 2018. To assess the associations of hemoglobin concentration, platelet count, white blood cell count, and systemic inflammatory response index with the risk of all-cause death, multivariable Cox regression and restricted cubic spline regression analyses were used. Subgroup and sensitivity analyses were performed to ensure the robustness of the findings.

Results: Over a median follow-up of 71 (36-121) months, 2025 deaths (42%) occurred. After adjusting for potential confounding variables, participants with hemoglobin of ≥13.7 g/dL, platelet count of 228-356×10^3cells/μL, and white blood cell count of ≤10.1×10^3cells/μL exhibited a 28% (hazard ratio [HR], 0.72 [95% CI, 0.63-0.81]; *P*<0.001), 15% (HR, 0.85 [95% CI, 0.74-0.98]; *P*=0.023), and 19% (HR, 0.81 [95% CI, 0.69-0.96]; *P*=0.013) reduction in the risk of all-cause death, respectively. Conversely, participants in the highest systemic inflammatory response index tertile experienced a 52% increased risk of all-cause death compared with those in the lowest tertile (HR, 1.52 [95% CI, 1.29-1.78]; *P*<0.001).

Conclusions: Alterations in hematologic parameters are significantly correlated with all-cause death in patients with cardio-renal-metabolic multimorbidity. Keeping these parameters within optimal ranges greatly reduces the mortality rate, highlighting the importance for clinicians managing patients with cardio-renal-metabolic multimorbidity to closely monitor hematologic changes and implement appropriate interventions.

Keywords: all-cause death; cardio-renal–metabolic multimorbidity; hematological parameter; prevalence.

Supplementary info

MeSH terms, SubstancesExpand

Full text links

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

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Mucosal Immunol

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. 2025 Sep 18:S1933-0219(25)00092-3.

doi: 10.1016/j.mucimm.2025.09.002. Online ahead of print.

Rhinovirus C15 infection induces airway epithelial cell remodeling and robust inflammatory responses: Potential implications for airway obstruction in children

Yiran Li [1], Shilpi Singh [1], Hannah L Briggs [1], Jordan E Kreger [1], Alex L Sliwicki [1], Emily L Eberhardt [1], Shiuhyang Kuo [1], Jessica A Czapla [1], J Kelley Bentley [1], Heidi R Flori [1], Amjad Horani [2], Steven L Brody [3], Marc B Hershenson [4]

Affiliations Expand

- **PMID: 40975321**

- **DOI: 10.1016/j.mucimm.2025.09.002**

Abstract

Despite recognition of rhinovirus-C (RV-C) as a cause of severe respiratory exacerbations, little is known about the pathogenesis of RV-C infections. We infected mucociliary-differentiated primary tracheobronchial epithelial cells with RV-C15 or RV-A16. Initial RNASeq data showed that, compared to RV-A16, RV-C15 decreased expression of genes related to ciliary function while increasing expression of genes associated with mucus secretion and inflammation. Using different airway epithelial cell isolates, we confirmed greater reduction in DNAI2 and FOXJ1 (regulates production of motile cilia) and increased FOXA3 (regulates mucin -related gene expression) after RV-C15 infection compared to RV-A16. Similarly, nasal swab samples from children with RV-C but not RV-A infections showed significantly decreased DNAI2 and FOXJ1 mRNA compared to controls. While both RV-C15 and RV-A16 infection of airway epithelial cells increased mRNA expression and secretion of MUC5AC, RV-C15 induced greater airway surface liquid thickness, as measured by FITC-dextran staining. DAPT, a Notch inhibitor, reversed the effects of RV-C15 on DNAI2, FOXJ1 and FOXA3 expression. RV-C15 induced loss of α-acetyl tubulin, extrusion of airway epithelial cells, dissociation of ZO-1 from tight junctions, reduced ciliary beat frequency and decreased epithelial cell transepithelial electrical resistance. Finally, protein abundance of pro-inflammatory cytokines in cell supernatants and nasal samples also tended to be higher after RV-C infection. We conclude that RV-C causes significant disruptions in airway epithelial cell ciliary function which may lead to airway obstruction. Such disruptions may play a role in the severity of RV-C respiratory tract infections.

Keywords: Asthma; Bronchiolitis; CDHR3; Cilia; Mucus; Notch signaling.

Conflict of interest statement

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

2

Ann Work Expo Health

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. 2025 Sep 16:wxaf045.

doi: 10.1093/annweh/wxaf045. Online ahead of print.

Respiratory symptoms among epoxy-exposed workers in the wind turbine industry: a cross-sectional study

Christine Marie Eggertsen [1 2], Annett Dalbøge [1 3], Per Axel Clausen [4], Jakob Bønløkke [5], Henrik Albert Kolstad [1], Marléne Isaksson [6], Ole Carstensen [7], Vivi Schlünssen [8], Alexandra Golabek Christiansen [1]

Affiliations Expand

- **PMID: 40971920**

- **DOI: 10.1093/annweh/wxaf045**

Abstract

Objectives: The aim was to estimate the prevalence and risk of respiratory symptoms among workers exposed to epoxy resin systems in the wind turbine industry.

Methods: We conducted a cross-sectional study including 180 epoxy-exposed production workers from two Danish wind turbine blade factories and 41 non-exposed office workers. Respiratory symptoms were defined as having two or more symptoms (i.e. wheezing in chest, waking up with chest tightness, shortness of

breath, attack of coughing, or asthma attack) within the last 12 mo. Epoxy exposure was defined as exposure status (epoxy-exposed production worker or non-exposed office worker) and years of epoxy-exposure (years of employment as production worker). Epoxy skin sensitization status was obtained through a patch-test. The association between epoxy-exposure and respiratory symptoms was estimated using modified Poisson regression (prevalence ratio (PR)) adjusting for smoking and age.

Results: A total of 13.3% of the epoxy-exposed production workers and 4.9% of non-exposed office workers reported two or more respiratory symptoms (PRadj=1.8, 95% CI 0.4-9.5). For years of exposure, PRadj values were 1.2 (<1 yr), 1.0 (≥1-<5 yr), and 2.6 (≥5 yr). Higher PRadj were found among men. Epoxy-sensitized production workers had a PRadj of 0.4, while non-sensitized workers had a PRadj of 1.9, compared to non-exposed office workers.

Conclusion: Epoxy-exposed production workers showed a tendency to report respiratory symptoms more often than non-exposed office workers. However, we found no clear association between exposure duration and symptoms. Further studies are highly warranted to evaluate the potential association between epoxy exposure and respiratory symptoms.

Keywords: asthma; lung disease; occupational exposure; respiratory symptom; work.

Supplementary info

Grants and fundingExpand

Full text links

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Cite

3

Review

Curr Allergy Asthma Rep

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. 2025 Sep 19;25(1):39.

doi: 10.1007/s11882-025-01219-4.

The Effect of Exercise on Asthma in Children: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Zhenghui Zha [# 1], Yuli Zhang [# 2], Cuiyun Tian [3], Dongxiang Huang [4], Tuming Shen [5], Songtao Wang [6]

Affiliations Expand

- PMID: 40971080

- DOI: 10.1007/s11882-025-01219-4

Abstract

Purpose of review: Asthma is a heterogeneous respiratory condition and a common childhood disease. The effects of exercise on childhood asthma have not been fully clarified. This study aims to systematically evaluate the impact of exercise on children with asthma, specifically examining lung function, exercise capacity, airway inflammation, and health-related quality of life (HRQoL).

Recent findings: 13 randomized controlled trials (RCTs) involving 673 children with asthma, with a mean age ranging from 7.3 to 14 years, were included. The results of the meta-analysis showed that exercise can improve the six-minute walk test (6MWT) distance and the pediatric asthma quality of life questionnaire (PAQLQ) scores in children with asthma but cannot reduce the fractional exhaled nitric oxide (FeNO) level. Exercise intervention within 8 weeks only had a positive effect on forced vital capacity percentage (FVC%) and forced expiratory flow between 25% and 75% of forced vital capacity (FEF 25-75%) in children with asthma but had no positive effect on forced expiratory volume in 1 s percentage (FEV1%). Exercise intervention for more than 8 weeks had no positive effect on the above indicators. In children with asthma, exercise training has the potential to improve exercise ability and health quality of life but not inflammation. Additionally, exercise intervention does not provide sustained improvement of lung function, although training within 8 weeks can temporarily increase FVC% and FEF 25-75%.

Keywords: Asthma; Children; Exercise; Meta-analysis; RCT.

Conflict of interest statement

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

- 45 references

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

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Editorial

World J Pediatr

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. 2025 Sep 19.

doi: 10.1007/s12519-025-00968-6. Online ahead of print.

Updated therapeutics of asthma

Dafni Moriki [1], Giuseppe Iacomino [2]

Affiliations Expand

- PMID: 40968344

- DOI: 10.1007/s12519-025-00968-6

No abstract available

Conflict of interest statement

Declarations. Conflict of interest: The authors declare no conflicts of interest. Ethical approval: Not applicable.

- 29 references

Supplementary info

Publication typesExpand

Full text links

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Cite

5

Eur Arch Otorhinolaryngol

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. 2025 Sep 18.

doi: 10.1007/s00405-025-09677-2. Online ahead of print.

Evaluation of extended dupilumab dosing intervals Q2W (biweekly) versus Q4W (monthly) in chronic rhinosinusitis with nasal polyposis: a real-world study from Saudi Arabia : Extended dupilumab dosing in CRSwNP

Abdullah S Alghamdi [1], Faisal A Saati [2], Salma Alkhammash [3], Adeeb A Bulkhi [4], Sumaiya H Muathen [2], Omar A Abu Suliman [2]

Affiliations Expand

- PMID: 40968202

- DOI: 10.1007/s00405-025-09677-2

Abstract

Background: Chronic rhinosinusitis with nasal polyposis (CRSwNP), often Linked to asthma, significantly affects quality of life. While dupilumab 300 mg every two weeks (Q2W) is effective, it is costly. This real-world Saudi study evaluated whether extending dosing to every four weeks (Q4W) maintains effectiveness in patients with or without asthma.

Methods: In this retrospective single-cohort study, 42 adults with CRSwNP who completed at least one year of stable Q2W dupilumab therapy were transitioned to Q4W and followed for one additional year. Clinical, biomarker, and imaging outcomes were analyzed.

Results: Clinical outcomes between Q2W and Q4W were largely comparable. Eight CRSwNP patients had comorbid asthma (19%). Median nasal polyp scores remained stable, and symptom scores for nasal congestion, discharge, smell loss, and fatigue showed no significant changes. Sino-Nasal Outcome Test (SNOT)-22 and Lund-Mackay scores trended lower in the Q4W group compared to Q2W group but were not statistically significant. Blood eosinophils were modestly reduced, while asthma control remained stable, with high asthma control test scores. Total IgE levels (IU/mL) were significantly lower in the Q4W group (32.5 [10.1-76.4] vs. 52.7 [19.8-215], p<0.001), suggesting immunologic benefit. Fractional exhaled nitric oxide (FeNO) levels were unchanged. Overall, 92.9% maintained symptom control on Q4W for one year; three reverted to Q2W due to worsening of asthma control symptoms.

Conclusion: Transitioning from Q2W to Q4W dupilumab dosing is effective for most CRSwNP patients, including those with asthma, after one year of stable therapy. This approach may reduce treatment burden without compromising clinical outcomes.

Keywords: Asthma; Biologic therapy; Chronic rhinosinusitis; Dosing intervals; Dupilumab; Nasal polyposis.

Conflict of interest statement

Declarations. Ethics approval: This study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board at King Abdullah Medical City in Saudi Arabia (identifier: 25-1377). Consent to participate: All data were anonymized to protect patient confidentiality. Due to the retrospective nature of the research, the requirement for informed consent was waived. Consent for publication: Not applicable. Conflicts of interest: The authors declare no conflicts of interest. Guarantor: ASA. Artificial intelligence (AI) use: We used AI tools only to improve the English language for clarity. All writing, data, and citations were done solely by the authors, with no AI involvement in the content itself.

- **24 references**

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Randomized Controlled Trial

BMJ Open

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. 2025 Sep 17;15(9):e100195.

doi: 10.1136/bmjopen-2025-100195.

Personalised exercise-rehabilitation for people with multiple long-term conditions (PERFORM): a randomised feasibility study

Rachael A Evans [1 2], Sharon A Simpson [3], James R Manifield [1 2], Zahira Ahmed [1 2], Shaun Barber [4], Gwen Barwell [4], Sophie Eleanor Brown [3], Paulina

Daw [5], Sarah G Dean [6], Patrick J Doherty [7], Heather Fraser [8], Nikki Gardiner [9], Colin Greaves [5], Tracy Ibbotson [10], Bhautesh Jani [11], Kate Jolly [12], Frances Mair [11], Emma McIntosh [8], Dimitrios Megaritis [13], Daniel Miller [14], Paula Ormandy [15], Susan Smith [16], Ioannis Vogiatzis [13], Ghazala Waheed [4], Tom M Withers [5], Rod S Taylor [3 17], Sally J Singh [18 2 9]; PERFORM Research Team

Collaborators, Affiliations Expand

- PMID: 40967655

- DOI: 10.1136/bmjopen-2025-100195

Free article

Abstract

Objective: Existing exercise-based rehabilitation services, such as cardiac and pulmonary rehabilitation, are traditionally commissioned around single long-term conditions (LTCs) and therefore may not meet the complex needs of adults with multiple long-term conditions (MLTCs) or multimorbidity. The aim of this study was to assess the feasibility and acceptability of the newly developed personalised exercise-rehabilitation programme for people with multiple long-term conditions (PERFORM) and the trial methods.

Design: A parallel two-group mixed-methods feasibility randomised controlled trial (RCT) with embedded process and economic evaluation.

Setting: Three UK sites (two acute hospital settings, one community-based healthcare setting).

Participants: 60 adults with MLTCs (defined as the presence of ≥2 LTCs) with at least one known to benefit from exercise therapy were randomised 2:1 to PERFORM intervention plus usual care (PERFORM group) or usual care alone (control group).

Intervention: The intervention consisted of 8 weeks of supervised group-based exercise rehabilitation and structured self-care symptom-based support.

Primary and secondary outcome measures: Primary feasibility outcomes included: trial recruitment (percentage of a target of 60 participants recruited within 4.5 months), retention (percentage of participants with complete EuroQol data at 3 months) and intervention adherence (percentage of intervention group attending ≥60% sessions). Other feasibility measures included completion of outcome measures at baseline (pre-randomisation), 3 months post-randomisation (including patient-reported outcomes, exercise capacity and collection of health and social care resource use) and intervention fidelity.

Results: Target recruitment (40 PERFORM group, 20 control group) was met within the timeframe. Participants were 57% women with a mean (SD) age of 62 (13) years, body mass index of 30.8 (8.0) kg/m^2 and a median of 4 LTCs (most common: diabetes (41.7%), hypertension (38.3%), asthma (36.7%) and a painful condition (35.0%)). We achieved EuroQol outcome retention of 76.7% (95% CI: 65.9% to 87.1%; 46/60 participants) and intervention adherence of 72.5% (95% CI: 56.3% to 84.4%;

29/40 participants). Data completion for attendees was over 90% for 11/18 outcome measures.

Conclusions: Our findings support the feasibility and rationale for delivering the PERFORM comprehensive self-management and exercise-based rehabilitation intervention for people living with MLTCs and progression to a full multicentre RCT to formally assess clinical effectiveness and cost-effectiveness.

Trial registration number: ISRCTN68786622.

Keywords: Multimorbidity; REHABILITATION MEDICINE; Self-Management.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication types, MeSH termsExpand

Full text links

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Cite

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Review

Annu Rev Physiol

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. 2025 Sep 18.

doi: 10.1146/annurev-physiol-042924-084007. Online ahead of print.

The Developmental Origins of Asthma and COPD

Francesca Polverino [1], Don D Sin [2]

Affiliations Expand

- PMID: 40967241

- DOI: 10.1146/annurev-physiol-042924-084007

Abstract

Approximately two-thirds of cases of chronic obstructive pulmonary disease (COPD) and adult asthma are in part driven by impaired lung development related to early-life events. Many children who suffer insults to their lungs during the first few years of life experience abnormal lung development, growth, and/or maturation, leading to impaired lung function, which may persist throughout their lifespan. This abnormal lung trajectory may be exacerbated by lung dysanapsis, genetic and epigenetic alterations, oxidative stress and/or inflammation in the airways related to environmental factors including exposure to active or secondhand smoke, air pollution, poor nutrition and social deprivation, and repeated childhood respiratory tract infections. Children with asthma may transition to COPD in adulthood if their asthma is poorly controlled or in the presence of other risk factors such as smoking. As many of these factors are modifiable, prompt diagnosis and implementation of preventive measures should be considered as early as possible in children at risk for abnormal lung development. This review provides an update on the interplay between genetic, environmental, and socioeconomic factors, their cumulative impact on lung development, and its implication for the risk and burden of asthma and COPD in the global population.

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J Allergy Clin Immunol

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. 2025 Sep 18:S0091-6749(25)00934-0.

doi: 10.1016/j.jaci.2025.08.018. Online ahead of print.

Tezepelumab in active osteoarthritis with asthma

Roberto Colli [1], Jakob Nilsson [2], Lukas Frischknecht [2]

Affiliations Expand

- PMID: 40965387

- DOI: 10.1016/j.jaci.2025.08.018

No abstract available

Keywords: TSLP; Tezepelumab; alarmin; joint; osteoarthritis.

Conflict of interest statement

Disclosure statement Disclosure of potential conflict of interest: The authors declare that they have no relevant conflicts of interest.

Supplementary info

Publication typesExpand

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Editorial

Thorax

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. 2025 Sep 17:thorax-2025-223178.

doi: 10.1136/thorax-2025-223178. Online ahead of print.

Ultrafine particles and health: the next frontier in understanding air pollution hazards

Laura Nicolaou [1 2 3], William Checkley [4 2 5]

Affiliations Expand

- PMID: 40962500

- DOI: 10.1136/thorax-2025-223178

No abstract available

Keywords: Asthma.

Conflict of interest statement

Competing interests: None declared.

Supplementary info

Publication typesExpand

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Cite

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Ann Am Thorac Soc

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. 2025 Sep 17.

doi: 10.1513/AnnalsATS.202412-1273OC. Online ahead of print.

Prevalence and Clinical Characteristics of Persistent Airflow Limitation in the NOVELTY Cohort

Richard Beasley [1 2], Rod Hughes [3], Alvar Agusti [4], Peter Calverley [5], Bradley Chipps [6], Ricardo Del Olmo [7], Alberto Papi [8], David Price [9 10 11], Hiromasa Inoue [12], Christer Janson [13], Maarten van den Berge [14 15], Helen Reddel [16 17], Hana Müllerová [18], Anastasios Mangelis [19 20], Eleni Rapsomaniki [21]

Affiliations Expand

- **PMID: 40961358**

- **DOI: 10.1513/AnnalsATS.202412-1273OC**

Abstract

Rationale: The clinical characteristics of persistent airflow limitation (PAL) were explored in patients aged ≥12 years with physician-assigned diagnoses of asthma, asthma plus chronic obstructive pulmonary disease (COPD), or COPD in the NOVEL Observational longiTudinal studY (NOVELTY) cohort. The NOVELTY study is a prospective study conducted in primary and secondary care in 18 countries.

Objectives: To determine the proportion of patients with PAL at baseline, their baseline characteristics, and the stability and prognostic utility of PAL during follow-up.

Methods: PAL was defined as post-bronchodilator forced expiratory volume in 1 second/forced vital capacity (FEV1/FVC) ratio less than the lower limit of the normal range (European Respiratory Society [ERS]/American Thoracic Society [ATS]) or as <0.7 (Global Initiative for Chronic Obstructive Lung Disease [GOLD] criteria).

Results: We studied 9,081 patients over 3 years (asthma: 4,754; asthma+COPD; 1,147; COPD: 3,180). Baseline prevalence of PAL was 24.2% and 29.2% (asthma), 63.3% and 74.1% (asthma+COPD), and 65.4% and 75.8% (COPD) using ERS/ATS and GOLD criteria, respectively. Patients with PAL had markedly worse symptom burden and a history of more frequent moderate and severe exacerbations. In patients with asthma PAL was associated with higher blood eosinophils and fractional exhaled nitric oxide (FeNO) values; 60% had never smoked. Of patients with PAL at baseline 84% continued to meet PAL criteria at Year 3. Irrespective of physician diagnosis, PAL was a marker of increased risk of moderate and severe exacerbations and poor symptom control during the 3-year follow-up.

Conclusions: PAL is a stable trait, associated with more severe disease and poor outcomes in adults with a physician-assigned diagnosis of asthma and/or COPD. Clinical Trial Registration (if any): NOVELTY: NCT02760329.

11

Multicenter Study

Allergol Immunopathol (Madr)

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. 2025 Sep 16;53(5):193-196.

doi: 10.15586/aei.v53i5.1448. eCollection 2025.

Efficacy of tezepelumab in patients with severe allergic asthma in clinical practice

Juan Carlos Miralles-López [1], Yulia Petryk Petryk [2], Juan José Cortés Collado [3], Francisco-Javier Bravo-Gutierrez [4], Rubén Andújar-Espinosa [5], Manuel Castilla-Martínez [6], Cayetano Díaz-Chantar [7], Sheila Cabrejos-Perotti [8], José Valverde-Molina [9] [10], Virginia Pérez-Fernández [11], Re-Asgramur Group [12]

Affiliations Expand

- PMID: 40960451

- DOI: 10.15586/aei.v53i5.1448

Abstract

Introduction: Tezepelumab is a human monoclonal immunoglobulin G2λ antibody that targets the cytokine thymic stromal lymphopoietin (TSLP). In clinical trials, tezepelumab has been shown to reduce the annualized asthma exacerbation rate in patients with both high and low levels of T2 inflammation biomarkers.

Methods: This is a prospective, multicenter study of RE-ASGRAMUR (Register of Severe Asthma of the Region of Murcia) conducted under routine clinical practice conditions. We analyzed exacerbations, changes in lung function (pre-bronchodilator FEV1), asthma control (ACT), and quality of life (mini AQLQ). In addition, T2 biomarkers, including blood eosinophils and exhaled nitric oxide (FeNO), were analyzed.

Results: We present a series of 38 patients with severe allergic asthma who received treatment with tezepelumab. More than half of these patients had previously shown inadequate responses to other biologic therapies. Following treatment, the annualized rate of exacerbations decreased markedly from a baseline mean of 2.2 to 0.28, representing an 86.8% reduction. The Asthma Control Test (ACT) score improved by an average of 5.2 points, while the mini Asthma Quality of Life Questionnaire (miniAQLQ) score increased by 1 point. Pulmonary function also improved significantly, with a mean increase of 170 mL in FEV_1. Furthermore, type 2 inflammatory biomarkers, including blood eosinophil counts and fractional exhaled nitric oxide (FeNO), showed a significant reduction.

Conclusions: Tezepelumab is an effective treatment for severe allergic asthma, improving exacerbations, disease control, quality of life, and lung function.

Keywords: allergic asthma; efficacy; real-life; tezepelumab.

Conflict of interest statement

Juan Carlos Miralles López has received consultancy fees from AstraZeneca and speaker fees from Novartis, GSK, AstraZeneca, Sanofi, Chiesi, and Gebro. Yulia Petryk has received speaker fees from AstraZeneca, Sanofi, and Chiesi. Juan José Cortés Collado has received speaker fees from AstraZeneca, Sanofi, and GSK. Francisco Javier Bravo Gutiérrez has received speaker fees from Novartis, Ferrer, GSK, AstraZeneca, Sanofi, and Chiesi. Rubén Espinosa Andújar has received speaker fees from GSK, AstraZeneca, Sanofi, FAES, and Chiesi. Manuel Castilla-Martínez has received consultancy fees from GSK and AstraZeneca and speaker

fees from Novartis, GSK, AstraZeneca, Sanofi, and Chiesi. Sheila Cabrejos-Perotti has received speaker fees from Sanofi. María Jesús Avilés-Inglés has received speaker fees from Chiesi. Inmaculada Ibarra Calabuig has received speaker fees of Roxall, Hall allergy, Asacpharma, Inmunotek, Diater, Sanofi, and Allergy Therapeutics. Miguel Henrique Reyes Cotes has received speaker fees from GSK and AstraZeneca. Manuel José Pajarón-Fernández has received speaker fees from GSK. María Loreto Alemany-Francés has received speaker fees from Novartis, GSK, AstraZeneca, and Chiesi. José Valverde Molina has received consultancy fees from AstraZeneca and speaker fees from Novartis, GSK, Astra Zeneca, Sanofi, and GEBRO. The remaining authors declare that they have no conflicts of interest.

- 13 references

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

Full text links

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ERJ Open Res

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. 2025 Sep 15;11(5):00961-2024.

doi: 10.1183/23120541.00961-2024. eCollection 2025 Sep.

Oropharyngeal enlargement in obstructive lung disease: quantification and machine learning

Asma Abdolijomoor [1 2 3], Jiwoong Choi [1 2 3], David H Lee [1], So Ri Kim [4], Seoung Ju Park [4], Gong Yong Jin [5], Eric A Hoffman [6 7 8], Mario Castro [1], Chang Hyun Lee [6 9], Kum Ju Chae [5]

Affiliations Expand

- PMID: 40959168

- PMCID: PMC12434485

- DOI: 10.1183/23120541.00961-2024

Abstract

Background: While lower airway remodelling of obstructive lung diseases (OLDs), such as asthma and COPD, is comprehensively studied, the understanding of upper airway remodelling in OLD remains limited. This study aimed to investigate upper airway dimensions in patients with OLD using quantitative computed tomography (QCT) imaging and to identify relevant parameters for predicting OLD using machine learning techniques.

Methods: A prospective cohort of 26 healthy controls, 73 COPD patients and 86 asthma patients underwent upper airway computed tomography (CT) scans from the oral cavity to the subglottal region. Multiscale lung structure and function were assessed using ITK-SNAP and in-house QCT software. Feature-importance estimation methods from STREAMLINE were utilised to select potentially relevant upper airway metrics. The Wilcoxon rank-sum test and Pearson's correlation were employed for pairwise comparisons and correlation analysis, respectively. The Youden index was used to determine optimal cut-off values of relevant upper airway features.

Results: After standardising QCT results, patients with OLD exhibited greater mouth-to-supraglottal metrics, notably greater oral space air fraction and pharyngeal length. Both metrics showed a negative correlation with forced expiratory volume in 1 s/forced vital capacity (R=-0.24; p=0.001). Feature-importance analysis identified oral space air fraction and normalised pharyngeal length as key features discriminating patients with OLD from healthy controls. An oral space air fraction value of ≥0.8 predicted OLD with approximately 100% sensitivity and 69% specificity.

Conclusions: Quantitative upper airway CT measurement combined with machine learning analysis revealed oropharyngeal enlargement in patients with OLD.

Conflict of interest statement

Conflict of interest: S.R. Kim is an associate editor of this journal. E.A. Hoffman is a cofounder and shareholder of VIDA Diagnostics. The other authors declare no conflict of interest.

- **31 references**
- **5 figures**

Full text links

Cite

13

Pulm Ther

. 2025 Sep 16.

doi: 10.1007/s41030-025-00313-2. Online ahead of print.

Real-world Comparative Effectiveness in Patients with Asthma Newly Initiating Fluticasone Furoate/Vilanterol or Budesonide/Formoterol: A United Kingdom General Practice Cohort Study

Ashley Woodcock [1], John Blakey [2 3], Arnaud Bourdin [4], Giorgio Walter Canonica [5 6], Christian Domingo [7], Alexander Ford [8], Rosie Hulme [8], Theo Tritton [8], Ines Palomares [9], Sanchayita Sadhu [10], Arunangshu Biswas [10], Manish Verma [11]

Affiliations Expand

- PMID: 40956480

- DOI: 10.1007/s41030-025-00313-2

Free article

Abstract

Introduction: It is important that treatment recommendations reflect real-world data when available, as randomised controlled trials have stringent eligibility criteria and do not represent the entire asthma population or their usual ecosystem of care. Limited real-world evidence has compared the effectiveness of fluticasone furoate/vilanterol (FF/VI) and budesonide/formoterol (BUD/FOR) to date in asthma; we explored this in England using patients from general practice.

Methodology: We retrospectively compared new FF/VI users and new BUD/FOR users from 1 December 2015 to 28 February 2019, based on de-identified data from the Clinical Practice Research Datalink. The baseline period pre-index was ≥ 1 year; the follow-up period was 1 year. At index, eligible adults (≥ 18 years) with diagnosed asthma had ≥ 1 prescription for FF/VI or BUD/FOR, ≥ 1 years' general practitioner registration and records eligible for linkage to Hospital Episode Statistics. Chronic obstructive pulmonary disease was an exclusion criterion. The primary study outcome assessed the overall asthma exacerbation rate in new FF/VI or BUD/FOR users. Secondary outcomes included oral corticosteroid (OCS) use and medication persistence (analysed using Kaplan-Meier curves). For each treatment comparison, propensity scores were generated and confounding between baseline group characteristics was adjusted via inverse probability of treatment weighting, separately carried out for each study outcome. Intercurrent events (ICEs) were considered for analyses, such as death, loss to follow-up, rescue-medication use, treatment discontinuation or switching.

Results: Between groups, baseline attributes were well balanced. Annual per-person rates of exacerbation were numerically similar in the while on-treatment population (measuring outcome until ICE; FF/VI, 0.1356; BUD/FOR, 0.1583 [P = 0.3023]). Patients who continued initiation treatment for 1 year without interruption had significantly lower annual per-person exacerbation rates with FF/VI (0.0722 [n = 425]) versus BUD/FOR (0.2258 [n = 546]) (rate ratio 0.3197 [P = 0.0003]). Patients indexed on FF/VI had significantly fewer OCS prescriptions and lower OCS dosage versus BUD/FOR (respective coefficients: - 0.29 [P = 0.0352]; 0.41 [P = 0.0004]) and improved treatment persistence (hazard ratio: 0.62 [P < 0.0001]).

Conclusions: Patients who continued initiation treatment for a year without interruption had reduced exacerbation rates with FF/VI versus BUD/FOR. The FF/VI group also had reduced treatment discontinuation and OCS use.

Keywords: Asthma; Budesonide/formoterol; Comparative effectiveness; England; Fluticasone furoate/vilanterol; General practice; Real-world data.

Plain language summary

In this study, people in England beginning one of two common, daily, treatments for their asthma: budesonide/formoterol (shortened as BUD/FOR) or fluticasone furoate/vilanterol (shortened as FF/VI), were compared to determine how well the treatments work. Adults with asthma, starting these treatments from December 2015 to February 2019, were chosen from a database, holding information from general practice as well as hospital visits. Data were de-identified, meaning that study researchers were not able to tell who each patient was. The study did not include anyone with obstructive lung disease. The primary study question asked if asthma exacerbation rates were different in the groups who began BUD/FOR versus FF/VI. The frequency and dose of additional oral corticosteroids, and how many patients continued the new asthma treatment for 12 months were other study questions. In the interests of fairness, attributes of patients for both groups were examined and balanced. Per year, for every hundred patients, the FF/VI group had 14 exacerbations (2267 patients in total), similar to the 16 exacerbations in the BUD/FOR group (7776 patients in total). Of the patients continuing treatment without interruption for a whole year, the overall number of exacerbations was significantly lower in the FF/VI group (7/100 patients [425 patients overall]) than in the BUD/FOR group (23/100 patients [546 patients overall]). Compared to patients treated with BUD/FOR, those treated with FF/VI had reduced use of oral corticosteroids and had a 38% lower risk of stopping treatment.

Conflict of interest statement

Declarations. Conflict of Interest: Ashley Woodcock has given lectures for Orion and consulted for GSK and Orion. John Blakey reports grants or contracts from AstraZeneca, GSK, and Novartis; consulting fees from Boehringer Ingelheim, Chiesi, and GSK; payment or honoraria from AstraZeneca, Chiesi, and GSK; support for attending meetings and/or travel from AstraZeneca, Boehringer Ingelheim, and GSK; receipt of medical writing support from GSK and Teva; payment to their institution for advisory work from Asthma Australia; and unpaid advisory work from Asthma WA. Arnaud Bourdin has received grants, personal fees, non-financial support, and other support from Actelion, AstraZeneca, Boehringer Ingelheim, and

GSK; personal fees, non-financial support, and other support from Chiesi, Novartis, and Regeneron; personal fees and non-financial support from Teva; personal fees from Gilead; non-financial support and other support from Roche; and other support from Nuvaira. Giorgio Walter Canonica reports having received research grants as well as being a lecturer or having received advisory board fees from: A. Menarini, AstraZeneca, Celltrion, Chiesi, Faes, Firma, Genentech, GSK, Hal Allergy, Innovacaremd, Novartis, OM Pharma, Red Maple, Sanofi-Aventis, Sanofi-Regeneron, Stallergenes Greer, and Uriach Pharma. Christian Domingo declares having received financial aid for travel support and speakers' bureaus from ALK-Abello, Allergy Therapeutics, AstraZeneca, Chiesi, GSK, Hall Allergy, Inmunotek, A. Menarini Diagnostics, MSD, Novartis, ROXALL, Sanofi, and Stallergenes. Alexander Ford, Rosie Hulme and Theo Tritton are employees of Adelphi Real World, which received funding for this study from GSK. Arunangshu Biswas, Ines Palomares, Manish Verma, and Sanchayita Sadhu are GSK employees; Arunangshu Biswas, Ines Palomares and Manish Verma hold financial equities in GSK. Ethical Approval: This study was conducted according to GSK SOP52213 (Conducting Quality Control Review of Study Results generated using Existing Data in VEO and USVEO) and complied with all applicable laws regarding patient privacy. CPRD has NHS Health Research Authority (HRA) Research Ethics Committee (REC) approval to allow the collection and release of anonymised primary care data for observational research [NHS HRA REC reference number: 05/MRE04/87]. Each year CPRD obtains Section 251 regulatory support through the HRA Confidentiality Advisory Group (CAG), to enable patient identifiers, without accompanying clinical data, to flow from CPRD contributing GP practices in England to NHS Digital, for the purposes of data linkage [CAG reference number: 21/CAG/0008]. The protocol for this research was approved by CPRD's Research Data Governance (RDG) Process (protocol number: 221602) and the approved protocol is available upon request. Linked pseudonymised data were provided for this study by CPRD. Data are linked by NHS Digital, the statutory trusted third party for linking data, using identifiable data held only by NHS Digital. Select general practices consent to this process at a practice level with individual patients having the right to opt-out. This study is based in part on data from the CPRD obtained under license from the UK Medicines and Healthcare products Regulatory Agency. The data are provided by patients and collected by the NHS as part of their care and support. The Office for National Statistics (ONS) was the provider of the ONS Data contained within the CPRD Data and maintains a Copyright © [2025]. The Hospital Episode Statistics (HES) was the provider of HES-Admitted Patient Care and HES-Outpatient databases contained within the CPRD Data and maintain a Copyright © [2025] and Copyright © [2025] respectively. Linked data were reused with the permission of The Health & Social Care Information Centre, all rights reserved. As this study used aggregate CPRD-HES data omitting patient identification, no patient contact or primary collection of data from human participants was required. The interpretation and conclusions contained in this study are those of the author/s alone.

- **18 references**

Supplementary info

Grants and fundingExpand

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J Pediatr Health Care

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. 2025 Sep 16:S0891-5245(25)00260-3.

doi: 10.1016/j.pedhc.2025.08.007. Online ahead of print.

Chemical Pneumonitis from a Swimming Pool Disinfectant Exposure in a 13-Year-Old Male: A Case Report

Erin M Field, Camron Johnson-Privitera

- PMID: 40956262

- DOI: 10.1016/j.pedhc.2025.08.007

Abstract

While chlorine and other pool chemicals can be used for the purpose of disinfection and pool maintenance, they also serve as a potential respiratory hazard. We report the case of a 13-year-old boy who presented to the emergency department after experiencing immediate dyspnea, drooling, coughing, nausea, and vomiting following an exposure to newly added pool chemicals. The patient's medical history included intermittent asthma with a recent history of an acute exacerbation two weeks before the inhaled chemical exposure. The treatment course following pool chemical exposure consisted of corticosteroids, bronchodilator therapy, and supportive care. At 1-week follow-up, the patient had no ongoing pulmonary symptoms but developed sinus discomfort and inflammation treated with a sinus rinse and azithromycin. Here, we describe the pathophysiology, risk factors, symptoms, treatment, and long-term consequences of a case of acute chemical pneumonitis caused by exposure to inhaled chemicals. This case emphasizes the importance of pool chemical safety, and the respiratory effects acute chlorine inhalation can have both in the short and long term.

Keywords: Inhalation exposure; asthma; lung diseases; lung injury; sinusitis.

Conflict of interest statement

CONFLICTS OF INTEREST None to report.

Full text links

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Cite

15

Review

Allergy

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. 2025 Sep 16.

doi: 10.1111/all.70031. Online ahead of print.

Predictors of Response to Biologics for Severe Asthma: A Systematic Review and Meta-Analysis

Anna Rattu [1 2], Piers Dixey [3 4], David Charles [5], Chris Brightling [6], Kian Fan Chung [7], Apostolos Bossios [8 9 10], Arnaud Bourdin [11], Ratko Djukanovic [1 12 13], Sven-Erik Dahlén [14 15], Louise Fleming [16], Rekha Chaudhuri [17], Erik Melén [18], Antoine Deschildre [19 20], Charles Pilette [21], Gerard H Koppelman [22 23], Andrew Exley [24], Freja Anckers [25], Sarah Miller [26], Hanna Nielsen [25 27], Clare Williams [28], Ekaterina Khaleva [1 29], Graham Roberts [1 30 31]; 3TR consortium Respiratory Work Package

Affiliations Expand

- **PMID: 40956008**

- **DOI: 10.1111/all.70031**

Abstract

Biologics are effective for severe asthma, but not all patients benefit equally. There is an urgent need to understand which biologic works best for which patient. We systematically searched for predictors of response to biologics (except omalizumab) for severe asthma in four bibliographic databases and two trial registries from 1990 to 2024. Two reviewers screened records, extracted data, and assessed risk of bias using a modified CASP checklist. Data were synthesized narratively, and certainty of evidence assessed using the modified GRADE framework. Comparable studies were meta-analyzed using a random-effects model.

From 5853 records, 21 studies were identified investigating predictors of anti-IL5/5Rα, 4Rα, and anti-TSLP response. We found predominantly 'moderate' to 'high' quality evidence that raised blood eosinophil counts (≥ 300 cells/μL), FeNO levels (> 40 ppb), lack of or low OCS dose (< 10 mg/day), and better asthma control predict biologic response. Evidence for the predictive value of other characteristics was limited and mostly 'low' quality. Key reasons for downgrading the evidence were heterogeneous response definitions and imprecision. No data were identified for the pediatric population or biologics targeting the non-T2 pathway. Outside of traditional inflammatory and clinical variables, there is an unmet need for universally applicable predictors of biologic response for severe asthma.

Keywords: biologics; predictive biomarkers; response; severe asthma.

- 72 references

Supplementary info

Publication types, Grants and fundingExpand

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Cite

16

J Asthma

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. 2025 Sep 15:1-14.

doi: 10.1080/02770903.2025.2562583. Online ahead of print.

Risk Factors for Uncontrolled Asthma in a Pediatric Population with Severe Asthma: FRAMAG Study

Elida Duenas-Meza [1], Sarah Pulido-Fentanes [2], Monica Mendez-Moreno [3], Nadia Juliana Proaños-Jurado [4]

Affiliations Expand

- PMID: 40952380

- DOI: 10.1080/02770903.2025.2562583

Abstract

Severe asthma (SA) in children is associated with significant morbidity, increased healthcare utilization, and reduced quality of life. Despite appropriate treatment, achieving optimal asthma control remains challenging, particularly in pediatric populations. This study aimed to identify factors associated with poor asthma control in children with SA, focusing on clinical, functional, and caregiver-related variables. This retrospective cohort study included children aged 6-17 years with SA followed for up to three years in the Asmaire-Rexpira Program in Bogota, Colombia. Asthma control was defined using a comprehensive composite score integrating symptom questionnaires, exacerbation history, corticosteroid use, hospitalizations, and spirometry. Multivariable logistic regression was used to identify independent risk factors for uncontrolled asthma. Results: Of the 228 children included, 35.5% had uncontrolled asthma. Obstructive sleep apnea (OR: 2.16; 95% CI: 1.13-4.11; p = 0.019) and moderate to severe impairment in caregiver quality of life (OR: 12.35; 95% CI: 4.15-36.80; p < 0.001) were independently associated with uncontrolled asthma. Systemic corticosteroid use and hospitalization in the prior year were significantly more common in this group. Lung function was preserved in most children; however, those with uncontrolled asthma exhibited significantly greater bronchodilator reversibility (5.8% vs. 4.1%; p = 0.015) and higher functional variability over time based on conditional FEV_1 change scores (≥ +1.96 z-score in 18.9% vs. 8.5%). Conclusions: uncontrolled asthma in children with SA is associated with comorbid sleep apnea, caregiver burden, and functional variability despite normal spirometric values. These findings underscore the need for multidimensional evaluation, caregiver support, and longitudinal monitoring to optimize asthma control in high-risk pediatric populations.

Keywords: Adherence; comorbidity; conditional change; phenotype; psychiatric disorders; quality of life.

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Eur Ann Allergy Clin Immunol

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. 2025 Sep 15.

doi: 10.23822/EurAnnACI.1764-1489.413. Online ahead of print.

Increasing the dosing interval of dupilumab in patients with severe asthma and chronic rhinosinusitis with nasal polyps

A Carbonell Martínez [1], J Carbonell Zamorano [1]

Affiliations Expand

- PMID: 40952244

- DOI: 10.23822/EurAnnACI.1764-1489.413

Free article

No abstract available

Keywords: Biological therapies Increasing; Chronic rhinosinusitis with nasal polyps (CRSwNP); Dupilumab; Severe eosinophilic asthma.

Supplementary info

Publication typesExpand

Full text links

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Cite

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Clin Otolaryngol

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. 2025 Sep 14.

doi: 10.1111/coa.70032. Online ahead of print.

Do We Have Any Environmental or Perinatal Factor Which May Predispose for Paediatric Airways Diseases? An Italian Population Prospective Study

Cecilia Rosso [1], Federica Turati [2], Alberto Maria Saibene [3], Elvira Verduci [4], Giuseppe Banderali [5], Monica Ferraroni [2], Giovanni Felisati [3], Carlotta Pipolo [3]

Affiliations Expand

- PMID: 40947826

- DOI: 10.1111/coa.70032

Abstract

Background: Paediatric airway diseases such as asthma, allergies, rhinitis, upper respiratory tract infections and acute otitis media are major health challenges for children globally. The prevalence of these conditions has been increasing, impacting children's quality of life, educational attainment and imposing a substantial economic burden.

Objectives: This longitudinal prospective study investigated the prevalence rates and environmental links associated with paediatric airway diseases in the first 3 years of life in 241 newborns, with the goal of contributing to early detection, prevention and management strategies.

Methods: Structured questionnaires were administered to parents at birth, 1 year and 3 years of age. Data on socioeconomic factors, pregnancy and delivery characteristics, parental smoking, breastfeeding, childcare attendance and children's health history were collected. Skin prick tests were conducted in year 3 to assess allergic sensitisation.

Results: Two hundred seven patients completed three-year follow-up. Factors such as having siblings, exclusive breastfeeding and attending kindergarten were associated with increased risks of certain diseases at 1 and 3 years. Smoking exposure appeared protective against wheezing in the first year. Breastfeeding showed mixed results, with protective effects against URTIs at 1 year but a potential risk factor for asthma at 1 year. Kindergarten attendance was associated with increased risks of URTIs and AOM at 3 years but appeared protective against inhalant allergies.

Conclusion: The study highlighted the complex interplay of various factors in the development of paediatric airway diseases. Further research is needed to refine our understanding of these factors and their impact on paediatric diseases.

Keywords: acute otitis media; allergy; environment; paediatric ENT diseases; risk factors; upper respiratory tract infections.

- **28 references**

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19

J Clin Invest

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. 2025 Jul 8;135(18):e193134.

doi: 10.1172/JCI193134. eCollection 2025 Sep 16.

ICOS regulates IL-10 production in group 2 innate lymphoid cells via cholesterol and cortisol biosynthesis

Yoshihiro Sakano, Kei Sakano, Benjamin P Hurrell, Mohammad H Kazemi, Xin Li, Stephen Shen, Omid Akbari

- PMID: 40627441
- PMCID: PMC12435846
- DOI: 10.1172/JCI193134

Abstract

Group 2 innate lymphoid cells (ILC2s) play a crucial role in inducing type 2 inflammation in the lungs in response to allergens. Our study investigated the regulatory mechanism of IL-10 production by ILC2s and its impact on airway hyperreactivity (AHR), focusing on the role of ICOS. We found that inhibiting ICOS in pulmonary ILC2s significantly enhanced IL-10 production. The absence of ICOS reprogrammed ILC2 steroid metabolism, leading to increased cholesterol and cortisol biosynthesis and subsequent glucocorticoid receptor (GR) activation. This reprogramming regulated MAF and NFIL3 activation, promoting IL-10 production. Notably, in vivo GR inhibition or ILC2-specific GR deficiency exacerbated AHR development in multiple mouse models. We extended these findings to human ILC2s, demonstrating concordant results between murine models and human cells. Our results indicate that ICOS negatively regulates IL-10 production in ILC2s by controlling cholesterol and cortisol biosynthesis. This mechanism provides new insights into the complex interplay between ILC2s, ICOS, and glucocorticoid signaling in the context of allergic airway inflammation.

Keywords: Allergy; Asthma; Cholesterol; Immunology; Pulmonology.

Conflict of interest statement

Conflict of interest: The authors have declared that no conflict of interest exists.

- Cited by 1 article
- 56 references
- 9 figures

Supplementary info

MeSH terms, Substances, Grants and fundingExpand

Full text links

20

Meta-Analysis

Arch Dis Child

. 2025 Sep 18;110(10):824-831.

doi: 10.1136/archdischild-2024-327523.

Oral systemic corticosteroids in children with acute asthma exacerbations: a systematic review and network meta-analysis

Shunsuke Amagasa [1], Shu Utsumi [2], Kie Okajima [3], Satoko Uematsu [3]

Affiliations Expand

- PMID: 40484453

- DOI: 10.1136/archdischild-2024-327523

Abstract

Objective: To evaluate the efficacy differentials among corticosteroid regimens by type, dosage and duration, we conducted a systematic review and network meta-analysis of randomised controlled trials (RCTs).

Methods: We searched four databases from their inception to March 2024 and included RCTs that evaluated oral corticosteroids for asthma exacerbations in young people aged <21 years. We compared six regimens (dexamethasone (DEXA) 0.3 mg/kg/day administered for 1 day, DEXA 0.6 mg/kg/day for 1 day, DEXA 0.6 mg/kg/day for 2 days, prednisolone (PSL) 1.0 mg/kg/day for 3 days, PSL 1.0-1.5 mg/kg/day for 5 days and PSL 2.0 mg/kg/day for 5 days). Primary outcome was relapse within 14 days, defined as unplanned visit to an emergency department or primary care physician.

Results: Eleven studies involving 2353 patients were analysed in our quantitative synthesis. There were no significant differences in the relapse rates among 15 comparisons of six regimens. As part of the results, the network estimate showed that DEXA (0.3 mg/kg/day×1 day) compared with PSL (1.0 mg/kg/day for 3 days) had

a risk ratio (RR) of 0.99 (95% CI 0.56 to 1.74), and DEXA (0.6 mg/kg/day for 2 days) compared with PSL (1.0-1.5 mg/kg/day×5 days) had an RR of 1.29 (95% CI 0.84 to 1.98). The certainty of the evidence for the included comparisons was low to very low.

Conclusion: In this network meta-analysis, there were no significant differences in the efficacy of commonly used corticosteroid regimens for acute exacerbations in childhood asthma. Short-term oral DEXA may be an acceptable alternative to a longer course of PSL.

Prospero registration number: CRD 42023449189.

Keywords: Allergy and Immunology; Emergency Service, Hospital; Paediatric Emergency Medicine.

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

1

J Allergy Clin Immunol

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. 2025 Sep 17:S0091-6749(25)00947-9.

doi: 10.1016/j.jaci.2025.08.028. Online ahead of print.

Unraveling Mechanisms of Allergen Sensitization and Allergic Rhinitis via the Nasal Transcriptome

Yeogha Yoon [1], Yoojin Chun [1], Lingdi Zhang [1], Galina Grishina [2], Alexander Grishin [2], Supinda Bunyavanich [3]

Affiliations Expand

- **PMID: 40972981**
- **DOI: 10.1016/j.jaci.2025.08.028**

Abstract

Background: Allergen sensitization is a critical early step in the pathogenesis of allergic disease. Different allergens likely trigger distinct immune pathways in the nasal epithelium.

Objective: To examine molecular mechanisms in the nasal epithelium for sensitization to different allergens.

Methods: We recruited 301 participants and profiled their sensitization to ten allergens and nasal epithelial transcriptome. Differential expression, gene ontology, causal network, and key driver analyses were performed to identify molecular processes underlying sensitization to indoor allergens, pollens, and pet allergens as well as for allergic rhinitis (AR).

Results: The cohort was 48.8% female with a mean age of 13.2 years (SD=4.1 years). Most of the cohort was sensitized to at least one allergen, with 74.1% sensitized to an indoor allergen, 60.1% pollen sensitized, and 68.1% pet sensitized. 51.8% had AR. Using a discovery and test set framework for rigor, we identified and validated 185 transcripts associated with allergen sensitization. Probabilistic causal network and key driver analyses identified a network for allergen sensitization spanning four subnetworks for lymphocyte chemotaxis, mast cell, interleukin 4, and antiviral response. While the key drivers and transcripts for indoor allergen sensitization mapped to the lymphocyte chemotaxis and antiviral response subnetworks, those for pollen sensitization mapped to the mast cell and interleukin-4 subnetworks. Pet sensitization mapped to lymphocyte chemotaxis, mast cell, and interleukin-4. Key drivers for AR significantly overlapped with those for allergen sensitization.

Conclusion: Causal network analysis of nasal transcriptome revealed allergen-specific biological processes and key drivers underlying sensitization and allergic rhinitis.

Keywords: allergen; allergic rhinitis; allergy; cat; dog; dust mite; mold; nasal transcriptome; pollen; sensitization.

2

Review

Clin Rev Allergy Immunol

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. 2025 Sep 18;68(1):87.

doi: 10.1007/s12016-025-09097-4.

Targeting IL-4/IL-13 Signaling Pathways in Chronic Rhinosinusitis with Nasal Polyps: From Mechanisms to Therapies

Jiani Chen [1 2], Chen Zhang [1 2], Qianqian Zhang [1 2], Fuying Cheng [1 2], Yizhang Wang [1 2], Shirui Xue [1 2], Yufei Yang [1 2], Wenwen Guo [1 2], Juan Liu [1 2], Kai Xue [1 2], Yaguang Zhang [3 4], Dehui Wang [2], Li Hu [1 2], Huan Wang [1 2], Xicai Sun [5 6 7]

Affiliations Expand

- PMID: 40965572

- DOI: 10.1007/s12016-025-09097-4

Abstract

Chronic rhinosinusitis with nasal polyps (CRSwNP) is a common upper airway inflammatory disorder, characterized by persistent inflammation of the sinonasal mucosa and nasal polyp formation. The pivotal roles of interleukin (IL)-4/IL-13 signaling in CRSwNP pathogenesis is increasingly recognized, evidenced by the remarkable clinical success of biologics targeting this pathway. This review provides a concise overview of the IL-4/IL-13 pathway in CRSwNP, encompassing its molecular architecture, pathogenic mechanisms, current targeted therapies, and emerging therapeutic strategies.

Keywords: Chronic rhinosinusitis with nasal polyps; Interleukin-13; Interleukin-4; Type 2 inflammation.

Conflict of interest statement

Declarations. Conflict of interest: The authors declare no competing interests.

- 134 references

Supplementary info

Publication types, MeSH terms, Substances, Grants and fundingExpand

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Cite

3

Review

. 2025 Sep 17.

doi: 10.21053/ceo.2025-00201. Online ahead of print.

Efficacy of Montelukast-Antihistamine Combination Therapy Compared with Antihistamine Monotherapy in Allergic Rhinitis: A Systematic Review and Meta-Analysis

Ji-Sun Kim [1], Gulnaz Stybayeva [2], Se Hwan Hwang [3]

Affiliations Expand

- PMID: 40961985

- DOI: 10.21053/ceo.2025-00201

Free article

Abstract

Objective: Allergic rhinitis (AR) impairs quality of life, and combination therapy is often required for comprehensive symptom control. This study aimed to evaluate the efficacy of montelukast-antihistamine combination therapy compared with antihistamine monotherapy in improving AR symptoms and quality of life.

Methods: PubMed, Embase, MEDLINE, Scopus, the Cochrane Library, and Google Scholar were searched up to April 2025. Eligible studies compared combination therapy with montelukast plus an antihistamine against antihistamine monotherapy and reported nasal symptoms or rhinoconjunctivitis quality of life questionnaire (RQLQ) scores. Standardized mean differences (SMDs) were calculated, and subgroup analyses were conducted according to antihistamine type.

Results: Fifteen studies including 2,882 subjects were analyzed. Combination therapy significantly improved daytime nasal symptoms (SMD [95% CI] = 0.44 [0.21-0.67]), nighttime nasal symptoms (SMD [95% CI] = 0.12 [0.01-0.23]), and RQLQ scores (SMD [95% CI] = 0.14 [0.00-0.27]) compared with monotherapy. Sneezing, nasal obstruction, and rhinorrhea improved significantly, while nasal itching and ocular symptoms did not. Combinations with desloratadine and levocetirizine showed greater benefits than those with loratadine or fexofenadine.

Conclusion: Montelukast-antihistamine combination therapy improves overall symptoms and quality of life compared with antihistamine monotherapy. The magnitude of benefit appears to vary depending on the specific antihistamine used, highlighting the potential value of individualized treatment strategies in the management of AR.

Keywords: Meta-Analysis; allergic rhinitis; antihistamine; drug combinations; montelukast.

Supplementary info

Publication typesExpand

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4

Int Arch Allergy Immunol

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. 2025 Sep 15:1-18.

doi: 10.1159/000548444. Online ahead of print.

Persistent Benefit of Two-Year Artemisia annua Sublingual Immunotherapy for Seasonal Allergic Rhinoconjunctivitis

Yang Liu, Kaili Zheng, Tianfei Lan, Jingyi Liu, Yuxuan Wu, Xueyan Wang, Tingting Ma

- PMID: 40952948

- DOI: 10.1159/000548444

Abstract

Introduction：Artemisia pollen is a major aeroallergen source in Northern China that can cause multiple kinds of common allergic diseases. China's first Artemisia annua sublingual drops for Artemisia pollen-induced seasonal allergic rhinitis were launched in 2021. This study aimed to evaluate the efficacy and safety of a two-year course of sublingual immunotherapy (SLIT) using Artemisia annua allergen extract in patients with seasonal allergic rhinoconjunctivitis (SARC). Additionally, it sought to assess the sustained clinical efficacy of this therapy one year post-treatment. Methods：Fifty patients (aged 4-60 years) with SARC and confirmed Artemisia annua pollen allergy were enrolled in this study. In accordance with their preferences, the subjects were assigned to either the SLIT group (n=25, receiving SLIT plus symptomatic treatment) or the control group (n=25, receiving symptomatic treatment alone) at a ratio of 1:1. The entire study lasted for 3 years, initiating a two-year treatment phase (2022 and 2023 pollen seasons) followed by a one-year post-discontinuation follow-up period (2024 pollen season), with 2021 pollen season regarded as baseline. The total rhinoconjunctivitis symptom score (TRSS), total medication score (TMS), combined score of medication and

rhinoconjunctivitis symptoms (CSMRS), and visual analogue scale (VAS) were compared between the two groups for clinical efficacy. In addition, the rhinoconjunctivitis quality of life questionnaire (RQLQ) was used to assess the impact of the Artemisia annua SLIT on the quality of life of patients. Safety was evaluated based on adverse events (AEs). Results：A total of 41 patients completed the study (SLIT: n=21, Control: n=20). There were no significant differences between the two groups during 2021 pollen season (baseline). However, the scores of TRSS (all P < 0.001), CSMRS (all P < 0.001), VAS (2022: P < 0.01; 2023: P < 0.001; 2024: P < 0.001), and RQLQ scores (2022: P < 0.01; 2023: P < 0.001; 2024: P < 0.001) were significantly lower than the control group during the 2 year SLIT treatment period and 1 year follow-up period. For TMS scores, although no statistically significant differences were found in 2022 and 2023 pollen seasons (P > 0.05), the SLIT group showed a decreasing trend. And TMS of SLIT group was significantly lower than that of the control group during 2024 pollen season (P < 0.05). In addition, RQLQ scores correlated positively with CSMRS and VAS (all P < 0.001). Conclusions：A two-year course of SLIT with Artemisia annua allergen extract significantly alleviated symptoms and reduced medication use in SARC patients, with clinical benefits persisting for at least one year post-treatment phase.

S. Karger AG, Basel.

5

Review

Expert Opin Biol Ther

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. 2025 Sep 18:1-13.

doi: 10.1080/14712598.2025.2531035. Online ahead of print.

Predicting and overcoming poor patient responses to sublingual immunotherapy for allergic diseases

Maria Angela Tosca [1], Chiara Ferrecchi [1], Talia D'ambrosio [2], Matteo Naso [1], Chiara Trincianti [1], Mattia Giovannini [3 4], Giorgio Ciprandi [5]

Affiliations Expand

- **PMID: 40622232**

- **DOI: 10.1080/14712598.2025.2531035**

Abstract

Introduction: Allergen immunotherapy (AIT) is the only disease-modifying treatment for allergic rhinitis and asthma. Sublingual immunotherapy (SLIT) is commonly used in clinical practice. Although its effectiveness has been proven in randomized controlled trials and real-world studies, poor or no responses may occur in some cases.

Areas covered: The present review aims to summarize the main possible factors involved in ineffective SLIT treatment, including immunological mechanisms, molecular and diagnostic errors, non-purified extracts, inadequate dosage, and patients' intrinsic and extrinsic characteristics. Possible remedies are also reported to predict and overcome poor patient response to guarantee optimal treatment efficacy.

Expert opinion: Identifying the reason for SLIT ineffectiveness is clinically relevant. Allergologists should carefully investigate the possible cause of poor or no response to SLIT. Identification is important as the potential removal of the interfering problems might allow SLIT to continue. The most common causes of poor SLIT efficacy include diagnostic errors, incorrect allergen dosage and schedule, poor quality extract, comorbidity, impaired immune system function, and inadequate adherence.

Keywords: Allergen immunotherapy; allergic rhinitis; immune system; response; work-up.

Supplementary info

Publication types

chronic cough

1

Respir Med

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. 2025 Sep 18:108367.

doi: 10.1016/j.rmed.2025.108367. Online ahead of print.

Drug-induced cough risk: A pharmacovigilance study of FDA adverse event reporting system database

Yang Rui [1], Tianyuan Xin [1], Yu Chen [1], Beiyi Xiang [1], Changwen Chen [1], Zhe Chen [2]

Affiliations Expand

- PMID: 40975140

- DOI: 10.1016/j.rmed.2025.108367

Abstract

Background: Drug-induced cough is a prevalent adverse drug reaction; however, the risk of cough associated with various drug classes in real-world settings has not been thoroughly elucidated.

Objectives: This study aims to systematically identify drug risk signals that are significantly associated with cough through the FAERS database, covering data from the first quarter of 2004 to the fourth quarter of 2024. The findings will provide evidence-based support for clinical medication safety and individualized monitoring.

Methods: We extracted reports in which cough was identified as the primary adverse event (AE) from the FAERS database. After data cleaning to exclude duplicate and non-drug-related records, use the Reporting Odds Ratio (ROR) and Proportional Reporting Ratio (PRR) for disproportionality analysis. Standardize the Preferred Term (PT) for cough using MedDRA 27.1. Additionally, classify each drug using the World Health Organization's Anatomical Therapeutic Chemical (ATC) classification system.

Results: This study identified 1,951 drugs associated with the AE of "cough," affecting a total of 247,158 patients. The drug categories most commonly linked to cough included antineoplastic and immunomodulating agents, respiratory system medications, and cardiovascular system medications. The drugs (primary suspect) with the highest number of reported cough cases were adalimumab, etanercept, and sacubitril/valsartan.

Conclusion: This study is the first to systematically reveal the strength of association and baseline characteristics between multiple categories of drugs and the risk of cough, confirming the high efficiency and sensitivity of the FAERS database in pharmacovigilance. The findings of this study provide an important basis for drug risk assessment and clinical intervention.

Keywords: Adverse events; Drug-Induced Cough; FAERS; Pharmacovigilance.

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.

Full text links

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

1

Review

Ann Allergy Asthma Immunol

. 2025 Sep 18:S1081-1206(25)01168-8.

doi: 10.1016/j.anai.2025.09.012. Online ahead of print.

AIRWAY OVERLAP SYNDROMES WITH ASTHMA

Carlos Amado [1], Daniel Lopez-Padilla [2], Raúl Méndez [3], Miguel Angel Martinez-Garcia [4]

Affiliations Expand

- PMID: 40975490

- DOI: 10.1016/j.anai.2025.09.012

Abstract

The airways, defined as the segment of the respiratory system extending from the pharynx to the alveoli, represent a crucial site for various inflammatory airway diseases. Among the most common are asthma, chronic obstructive pulmonary disease (COPD), bronchiectasis, and obstructive sleep apnea (OSA). Due to their high individual prevalence, it is not unusual for a single patient to suffer from two or more of these conditions simultaneously. Beyond this epidemiological coincidence, several pathophysiological links, despite notable differences among the diseases, have been identified. These connections influence not only the mutual prevalence of the disorders but also their clinical management and prognosis, frequently in a bidirectional manner. This constellation of interactions has been termed "overlap syndromes." Overlap syndromes involving asthma are especially frequent, including asthma-COPD overlap syndrome (ACOS), asthma-OSA overlap syndrome, and asthma-bronchiectasis overlap syndrome (ABOS). These syndromes often

exhibit bidirectional relationships. Asthma, for instance, may aggravate COPD symptoms, prompting modifications in its treatment; it may also worsen preexisting OSA through increased pharynx collapsability, the use of inhaled corticosteroids or contribute to more frequent bronchiectasis exacerbations. Conversely, the presence of COPD can hinder adequate asthma control, bronchiectasis may enhance the inflammatory burden and exacerbate asthma, and OSA can induce harmful nocturnal oxygen desaturations that impair asthma outcomes. These complex and dynamic interactions underscore the importance of recognizing overlap syndromes in clinical practice. An integrated, individualized approach that considers the coexistence of multiple airway diseases is essential for optimizing diagnosis, therapeutic interventions, and long-term prognosis in affected patients.

Keywords: Asthma; Bronchiectasis, overlap syndromes; Obstructive sleep apnea, COPD.

Conflict of interest statement

Declaration of competing interest No

Supplementary info

Publication typesExpand

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Acta Med Port

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. 2025 Sep 19.

doi: 10.20344/amp.23254. Online ahead of print.

Long-Term High-Flow Nasal Cannula in Chronic Respiratory Failure in a Patient with Bronchiectasis

Ana Isabel Santos [1], Jessica Cemlyn-Jones [1], Denny Rodrigues [1]

Affiliations Expand

- PMID: 40972511

- DOI: 10.20344/amp.23254

Abstract

High-flow nasal cannula (HFNC) is a gas delivery system that provides heated and humidified air at higher flow rates than conventional oxygen therapy. While studies on the role of HFNC as a long-term treatment for chronic respiratory failure are limited, most of them focus on patients with chronic obstructive pulmonary disease. We present the case of a woman with severe bronchiectasis and chronic hypercapnic respiratory failure under nocturnal non-invasive ventilation (NIV) and 24-hour conventional oxygen therapy, who experienced multiple and prolonged hospital admissions. Long-term daytime HFNC was initiated, maintaining nocturnal NIV, resulting in significant improvements in dyspnea, better secretion management, and a reduction in exacerbation rates. While more research is needed, HFNC should be considered for long-term management of chronic respiratory failure in patients with bronchiectasis.

Keywords: Bronchiectasis/therapy; Cannula; Oxygen Inhalation Therapy; Respiratory Insufficiency/therapy.

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Ann Am Thorac Soc

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. 2025 Sep 17.

doi: 10.1513/AnnalsATS.202507-817OC. Online ahead of print.

Long-term Reductions in Inflammation in People with Cystic Fibrosis Treated with Elexacaftor/Tezacaftor/Ivacaftor

Scott D Sagel [1], T Spencer Poore [2], Brandie D Wagner [3], Jing Xie [4], Sonya L Heltshe [5 6], Mary Cross [7], Preston E Bratcher [8], Jennifer L Taylor-Cousar [9], Alexandra Wilson [10], Kimberly McBennett [11], Sarah J Morgan [12], Pradeep K Singh [13], David P Nichols [6 14], Andrea Kelly [15], George M Solomon [16]

Affiliations Expand

- **PMID: 40961158**

- DOI: 10.1513/AnnalsATS.202507-817OC

Abstract

Rationale: Inflammation is a hallmark of cystic fibrosis (CF) and associated with bronchiectasis and lung disease progression. The effects of elexacaftor/tezacaftor/ivacaftor (ETI), a CF transmembrane conductance regulator modulator therapy, on inflammation remain incompletely understood.

Objectives: Investigate two-year changes in airway and systemic inflammation in adolescents and adults with CF clinically prescribed ETI and the relationships between inflammatory changes and clinical outcomes.

Methods: PROMISE is a prospective, multicenter, observational study in people with CF ≥12 years. Assessments of sputum and blood inflammatory markers occurred before and through 24-30 months of ETI therapy in participants who enrolled in the PROMISE-Inflammation sub-study. Changes in inflammation were tested with mixed effects models. Relationships between inflammatory markers and clinical outcomes were examined using Spearman correlations.

Measurements and main results: The study cohort comprised 223 participants. ETI was associated with sustained reductions in sputum neutrophil elastase (NE) activity, calprotectin, IL-1β, and IL-8, increases in sputum IL-6 through 24/30 months of therapy, and reductions in circulating hsCRP through 12/18 months of therapy. Sputum NE activity reductions correlated with ppFEV1 and respiratory symptom score improvements at 24/30 months post-ETI. Sputum IL-6 increases correlated with ppFEV1 improvements. Serum hsCRP reductions were associated with ppFEV1 and respiratory symptoms improvements at 12/18 months post-ETI, and circulating calprotectin reductions were associated with respiratory symptom improvements.

Conclusions: Airway and systemic inflammation decreases through 2.5 years of ETI therapy in adolescents and adults with CF. Reductions in inflammation correlate with clinical improvements. These changes in inflammation represent a disease-modifying benefit of this transformative therapy.

Clinicaltrials: gov: NCT04038047.

Supplementary info

Associated dataExpand

Full text links

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Curr Opin Pulm Med

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. 2025 Sep 15.

doi: 10.1097/MCP.0000000000001212. Online ahead of print.

Primary ciliary dyskinesia phenotypes and correlation with genotype

Amjad Horani [1], Wallace Wee [2], Heymut Omran [3], Thomas Ferkol [4 5]

Affiliations Expand

- PMID: 40948093

- DOI: 10.1097/MCP.0000000000001212

Abstract

Purpose of review: Primary ciliary dyskinesia is a rare, inherited disease, and over 60 genes have been linked to motile ciliopathies. During the past quarter century, our understanding of the complex genetics and biological function of motile cilia has greatly advanced.

Recent findings: Our growing knowledge of genetics and pathophysiology of primary ciliary dyskinesia has yielded insights into novel clinical features and genotype-phenotype relationships in motile ciliopathies. Children with biallelic CCDC39 or CCDC40 mutations have greater lung disease, related to both cilia motility-dependent and motility-independent effects. Pathogenic variants in genes involved in cilia generation, like CCNO, are also associated with more severe lung disease. Conversely, people who have defects in other genes, like DHAH11 and RSPH1, have less severe lung disease, possibly related to residual ciliary motility. Finally, a growing number of primary ciliopathies are associated with abnormal motile cilia ultrastructure and function, and specific pathogenic variants can lead to distinct clinical presentations, best illustrated by structure-function studies in TUBB4B.

Summary: These findings have yielded new insights into the clinical heterogeneity of motile ciliopathies, thus broadening their clinical spectrum. Additional research to elucidate the underlying pathophysiology in these overlapping conditions is warranted.

Keywords: Kartagener syndrome; bronchiectasis; ciliopathy; genetics; primary ciliary dyskinesia.

- 50 references

Full text links

Proceed to details

Cite

5

Review

Eur Respir J

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. 2025 Sep 17;66(3):2500081.

doi: 10.1183/13993003.00081-2025. Print 2025 Sep.

Neutrophil-derived biomarkers in bronchiectasis: identifying a common therapeutic target

James D Chalmers [1 2], Marcus A Mall [3 4 5 2], Kim G Nielsen [6 7 8 9], Anne B Chang [10 11], Stefano Aliberti [12 13], Francesco Blasi [14 15], Brice Korkmaz [16 17], Natalie Lorent [18 19], Clifford C Taggart [20], Michael R Loebinger [21 22]

Affiliations Expand

- PMID: 40639876

- PMCID: PMC12441583

- DOI: 10.1183/13993003.00081-2025

Abstract

Bronchiectasis is a chronic respiratory disease that can lead to a substantial decline in lung function, ultimately leading to a significantly increased risk of morbidity and mortality. Despite the increasing global impact of bronchiectasis, no specific (or licensed) treatment for the disease currently exists, with most available therapies, though beneficial, focusing on symptom management and infection control. In part, the lack of specific treatments for bronchiectasis may be due to a lack of established biomarkers for the disease. Because bronchiectasis varies so widely in its clinical presentation and can be caused by various aetiologies, the establishment of validated biomarkers has proven challenging. However, identifying key biomarkers in bronchiectasis is crucial to developing appropriate diagnosis and management plans, as well as to measuring effective responses to treatment. While there is a multitude of potential biomarkers in bronchiectasis, almost all instances of bronchiectasis are underpinned by chronic neutrophilic inflammation. The imbalance in neutrophil serine proteases (NSPs) and their endogenous inhibitors

has been strongly linked to the lung destruction, mucosal-related defects, infection and worsening of clinical outcomes that are frequently observed in bronchiectasis. In this review, we discuss the various biomarkers linked to bronchiectasis, with a specific focus on NSPs as the most validated biomarkers in bronchiectasis, given their marked role in the pathogenesis of the disease. Lastly, we touch on potential therapeutic approaches aimed at reducing NSP activity in bronchiectasis, showing that, to date, indirect NSP inhibition appears to be the strategy that most effectively addresses chronic neutrophilic inflammation in bronchiectasis.

Conflict of interest statement

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