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

1
Review

Eur J Pharmacol

. 2023 Sep 22;176047.

doi: 10.1016/j.ejphar.2023.176047. Online ahead of print.

The therapeutic potential of resolvins in pulmonary diseases

Daniel Centanni[1], Paul A J Henricks[1], Ferdi Engels[2]

Affiliations expand

- PMID: 37742814

- DOI: 10.1016/j.ejphar.2023.176047

Abstract

Uncontrolled inflammation leads to nonspecific destruction and remodeling of tissues and can contribute to many human pathologies, including pulmonary diseases. Stimulation of inflammatory resolution is considered an important process that protects against the progression of chronic inflammatory diseases. Resolvins generated from essential omega-3 polyunsaturated fatty acids have been demonstrated to be signaling molecules in inflammation with important pro-resolving and anti-inflammatory capabilities. By binding to specific receptors, resolvins can modulate inflammatory processes such as neutrophil migration, macrophage phagocytosis and the presence of pro-inflammatory mediators to reduce inflammatory pathologies. The discovery of these pro-resolving mediators has led to a shift in drug research from suppressing pro-inflammatory molecules to investigating compounds that promote resolution to treat inflammation. The exploration of inflammatory resolution also provided the opportunity to further understand the pathophysiology of pulmonary diseases. Alterations of resolution are now linked to both the development and exacerbation of diseases such as asthma, chronic obstructive pulmonary disease, cystic fibrosis, acute respiratory distress syndrome, cancer and COVID-19. These findings have resulted in the rise of novel design and testing of innovative resolution-based therapeutics to treat diseases. Hence, this paper reviews the generation and mechanistic actions of resolvins and investigates their role and therapeutic potential in several pulmonary diseases that may benefit from resolution-based pharmaceuticals.

Keywords: Inflammation; Inflammatory resolution; Pro-resolving mediator; Pulmonary disease; Resolvin.

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

Am J Cardiol

. 2023 Sep 22;207:179-183.

doi: 10.1016/j.amjcard.2023.08.094. Online ahead of print.

Effects of Ivabradine on Right Ventricular Systolic Function in Patients With Chronic Obstructive Pulmonary Disease and Cor Pulmonale

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Affiliations expand

- PMID: 37742537

- DOI: 10.1016/j.amjcard.2023.08.094

Abstract

Cor pulmonale is a clinical syndrome associated with pulmonary hypertension, frequently complicated by congestive heart failure, commonly caused by chronic obstructive pulmonary disease (COPD). Most patients with cor pulmonale have tachycardia. However, heart rate (HR) reduction represents a primary treatment goal to improve the survival and quality of life in these patients. Ivabradine can selectively slow HR at rest and during exercise. In this prospective study, we tested the hemodynamic effects, invasively determined using right-sided cardiac catheterization, of reducing HR with ivabradine. We selected 18 patients (13 men [72.2%], mean age 67 ± 10 years) with COPD and cor pulmonale, presenting with sinus tachycardia. All patients performed clinical evaluation, electrocardiogram, spirometry, echocardiogram, 6-minute walking distance, and right-sided cardiac catheterization within 1 month of enrollment. All tests were repeated after 6 months of ivabradine treatment (median assumed dose 11.9 mg/die). We noticed a significant decrease of HR (from 98 ± 7 to 77 ± 8 beats/min, p = 0.0001), with a concomitant reduction of the congestion index (from 25.9 ± 5.1 to 19.4 ± 5.7 mm Hg, p = 0.001), and the consequent improvement of the right ventricular systolic performance

(right ventricular stroke volume augmented from 56.7 ± 7.9 to 75.2 ± 8.6 ml/beat, p = 0.0001). This allows an improvement in clinical status and exercise tolerance (Borg scale score decreased from 5.2 ± 1.4 to 4.1 ± 1.3, p = 0.01 and the 6-minute walking distance increased to 252 ± 65 to 377 ± 59 m, p = 0.001). In conclusion, HR reduction significantly improves hemodynamic and clinical status of patients with tachycardia affected by COPD and cor pulmonale.

Keywords: Chronic obstructive pulmonary disease; Congestive heart failure; Cor pulmonale; Heart Rate; Right heart catheterization; Right ventricular systolic function; ivabradine; tachycardia.

Conflict of interest statement

Declaration of Competing Interest The authors have no competing interests to declare.

3

Respir Res

. 2023 Sep 23;24(1):226.

doi: 10.1186/s12931-023-02534-y.

Modeled small airways lung deposition of two fixed-dose triple therapy combinations assessed with in silico functional respiratory imaging

Omar Usmani[1], Grace Li[2], Jan De Backer[3], Hosein Sadafi[4], Libo Wu[5], Jonathan Marshall[6]

Affiliations expand

- PMID: 37742015

- DOI: 10.1186/s12931-023-02534-y

Abstract

Background: Small airways disease plays a key role in the pathogenesis of chronic obstructive pulmonary disease (COPD) and is a major cause of obstruction; therefore, it is a critical pharmacotherapy target. This study evaluated lung deposition of two inhaled corticosteroid (ICS)/long-acting β_2-agonist/long-acting muscarinic antagonist single-inhaler triple therapies using in silico functional respiratory imaging (FRI). Deposition was assessed using real-world inhalation profiles simulating everyday use where optimal inhalation may be compromised.

Methods: Three-dimensional airway models were produced from 20 patients with moderate-to-very severe COPD. Total, central, and regional small airways deposition as a percentage of delivered dose of budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF) 160/7.2/5 µg per actuation and fluticasone furoate/umeclidinium/vilanterol (FF/UM/VI) 100/62.5/25 µg were evaluated using in silico FRI based on in vitro aerodynamic particle size distributions of each device. Simulations were performed using multiple inhalation profiles of varying durations and flow rates representing patterns suited for a pressurized metered-dose inhaler or dry-powder inhaler (four for BGF, two for FF/UM/VI, with one common profile). For the common profile, deposition for BGF versus FF/UM/VI was compared post-hoc using paired t-tests.

Results: Across inhalation profiles, mean total lung deposition was consistently higher with BGF (47.0-54.1%) versus FF/UM/VI (20.8-22.7%) and for each treatment component, with greater deposition for BGF also seen in the central large airways. Mean regional small airways deposition was also greater across inhalation profiles with BGF (16.9-23.6%) versus FF/UM/VI (6.8-8.7%) and for each treatment component. For the common profile, total, central, and regional small airways deposition were significantly greater for BGF versus FF/UM/VI (nominal $p < 0.001$), overall and for treatment components; notably, regional small airways deposition of the ICS components was approximately five-fold greater with budesonide versus fluticasone furoate (16.1% vs. 3.3%).

Conclusions: BGF was associated with greater total, central, and small airways deposition for all components versus FF/UM/VI. Importantly, using an identical inhalation profile, there was an approximately five-fold difference in small airways deposition for the ICS components, with only a small percentage of the ICS from FF/UM/VI reaching the small

airways. Further research is needed to understand if the enhanced delivery of BGF translates to clinical benefits.

Keywords: Budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF); Chronic obstructive pulmonary disease (COPD); Fluticasone furoate/umeclidinium/vilanterol (FF/UM/VI); In silico functional respiratory imaging (FRI); Inhaled corticosteroids (ICS); Lung deposition; Triple therapy.

- 45 references

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

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4

Review

Respir Investig

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. 2023 Sep 20;61(6):773-780.

doi: 10.1016/j.resinv.2023.08.007. Online ahead of print.

Management goals and stable phase management of patients with chronic obstructive pulmonary disease in the

Japanese respiratory society guideline for the management of chronic obstructive pulmonary disease 2022 (6th edition)

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Affiliations expand

- PMID: 37741092

- DOI: 10.1016/j.resinv.2023.08.007

Abstract

Chronic obstructive pulmonary disease (COPD) is characterized by airflow obstruction on spirometry and symptoms such as dyspnea on exertion and chronic cough with sputum production, thus making it a significant healthcare issue worldwide. Japanese patients with COPD have unique characteristics compared to patients in Western countries, including older age and lower exacerbation frequency. The Japanese Respiratory Society (JRS) published the 6th edition of the COPD guideline in June 2022. This article introduces the management goals of COPD and describes its management during the stable phase, as outlined in the guideline. Management goals include improving the current status, such as the symptoms, quality of life (QOL), exercise tolerance, and physical activity, and reducing future risks through prevention of exacerbation and suppression of disease progression to prevent shortening of healthy life expectancy. Management plans should include avoidance of causative substances, assessment of disease severity, and personalized treatment plans. Pharmacotherapy using inhalation bronchodilators is a key component of the treatment of stable COPD. Bronchodilators, including short- and long-acting dilators, are commonly used to relieve symptoms and improve QOL. Inhaled corticosteroids (ICSs) are used in combination with long-acting bronchodilators, especially in patients with asthma and COPD overlap, or those experiencing frequent exacerbation of eosinophilia. Combination therapy with a long-acting muscarinic antagonist (LAMA), a long-acting beta 2 agonist (LABA), and ICS is expected to improve QOL and respiratory function and reduce mortality and exacerbation compared to the LAMA + LABA combination. Non-pharmacological therapies, including smoking cessation and pulmonary rehabilitation, should also be considered.

Keywords: COPD; Clinical question; Japanese guideline; Management.

Conflict of interest statement

Conflict of Interest Yoko Shibata: Lecture fees; Boehringer Ingelheim Japan, and AstraZeneca Japan. Tomotaka Kawayama: Honorarium from Boehringer Ingelheim Japan, AstraZeneca Japan, GSK Japan, Sanofi Japan, Novartis Japan, Kyorin, and Teijin Healthcare. Advisory Board: Helios Co., Ltd. Shigeo Muro: Honorarium from Boehringer Ingelheim Japan, and AstraZeneca Japan. Advisory Board: GSK Japan and AstraZeneca Japan. Hisatoshi Sugiura: Honorarium from Boehringer Ingelheim Japan, AstraZeneca Japan, GSK Japan, Sanofi Japan, and Novartis Japan. Advisory Board: GSK Japan and AstraZeneca, Japan.

5

COPD

. 2023 Dec;20(1):307-320.

doi: 10.1080/15412555.2023.2259224. Epub 2023 Sep 22.

Chest MRI and CT Predictors of 10-Year All-Cause Mortality in COPD

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Affiliations expand

- PMID: 37737132

- DOI: 10.1080/15412555.2023.2259224

Abstract

Pulmonary imaging measurements using magnetic resonance imaging (MRI) and computed tomography (CT) have the potential to deepen our understanding of chronic obstructive pulmonary disease (COPD) by measuring airway and parenchymal pathologic information that cannot be provided by spirometry. Currently, MRI and CT measurements are not included in mortality risk predictions, diagnosis, or COPD staging. We evaluated baseline pulmonary function, MRI and CT measurements alongside imaging texture-features to predict 10-year all-cause mortality in ex-smokers with (n = 93; 31 females; 70 ± 9years) and without (n = 69; 29 females, 69 ± 9years) COPD. CT airway and vessel measurements, helium-3 (^{3}He) MRI ventilation defect percent (VDP) and apparent diffusion coefficients (ADC) were quantified. MRI and CT texture-features were extracted using PyRadiomics (version2.2.0). Associations between 10-year all-cause mortality and all clinical and imaging measurements were evaluated using multivariable regression model odds-ratios. Machine-learning predictive models for 10-year all-cause mortality were evaluated using area-under-receiver-operator-characteristic-curve (AUC), sensitivity and specificity analyses. DL_{CO} ($\%_{pred}$) (HR = 0.955, 95%CI: 0.934-0.976, p < 0.001), MRI ADC (HR = 1.843, 95%CI: 1.260-2.871, p < 0.001), and CT informational-measure-of-correlation (HR = 3.546, 95% CI: 1.660-7.573, p = 0.001) were the strongest predictors of 10-year mortality. A machine-learning model trained on clinical, imaging, and imaging textures was the best predictive model (AUC = 0.82, sensitivity = 83%, specificity = 84%) and outperformed the solely clinical model (AUC = 0.76, sensitivity = 77%, specificity = 79%). In ex-smokers, regardless of COPD status, addition of CT and MR imaging texture measurements to clinical models provided unique prognostic information of mortality risk that can allow for better clinical management.**Clinical Trial**
Registration: www.clinicaltrials.gov NCT02279329.

Keywords: Ex-smokers; computed tomography; hyperpolarized gas MRI; machine-learning; mortality; texture analysis.

6

Adv Respir Med

. 2023 Sep 20;91(5):368-382.

doi: 10.3390/arm91050029.

Epidemiological Characteristics of 101,471 Patients Hospitalized with Chronic Obstructive Pulmonary Disease (COPD) in Poland in 2019: Multimorbidity, Duration of Hospitalization, In-Hospital Mortality

Mateusz Jankowski[1], Bogdan Bochenek[2], Joanna Wieczorek[2], Mariusz Figurski[2], Marta Gruszczyńska[2], Paweł Goryński[3], Jarosław Pinkas[1]

Affiliations expand

- PMID: 37736975

- PMCID: PMC10514800

- DOI: 10.3390/arm91050029

Free PMC article

Abstract

Chronic obstructive pulmonary disease (COPD) is a common lung disease. There is a limited amount of nationwide data on COPD patients in Poland. This study aimed to characterize patients hospitalized with COPD in Poland in 2019 as well as to identify factors associated with the risk of in-hospital death and prolonged hospitalization among patients with COPD. This study is a retrospective database analysis. Data on patients hospitalized with COPD in Poland were obtained from the Nationwide General Hospital Morbidity Dataset. Data on all adults aged ≥40 years with a diagnosis of COPD from a physician (J44 code) were included in the analysis. Data were analyzed separately for patients hospitalized due to COPD (primary diagnosis) and patients with COPD as a comorbidity (secondary diagnosis). Completed medical records were available for 101,471 patients hospitalized with COPD (36.9% were females). Of those, 32% were hospitalized due to COPD. The mean age was 71.4 ± 9.7 years. The mean duration of hospitalization was 9.4 ± 11.4 days (median 7 days). Most of the COPD patients (89.3%) had at least one comorbidity. The in-hospital mortality rate was 6.8%. Older age, presence of cardiovascular diseases, and diseases of the genitourinary system ($p < 0.05$) were the most important factors associated with the risk of in-hospital death among patients hospitalized due to COPD.

Keywords: COPD; Poland; chronic obstructive pulmonary disease; clinical characteristics; epidemiology; hospitalization; in-hospital mortality; multimorbidity; national registry.

Conflict of interest statement

The authors declare no conflict of interest.

- 49 references
- 1 figure

. 2023 Sep 21.

doi: 10.1164/rccm.202307-1301LE. Online ahead of print.

Long-Term Doxycycline Therapy for Stable COPD: Do the Benefits Outweigh the Drawbacks?

Jingcun Wang[1,2], Qiming Gan[2], Haojie Zhang[3,4], Qiuyun Xing[5], Yanjuan Wu[2], Xiaofen Su[3], Nuofu Zhang[6], Kang Wu[7]

Affiliations expand

- PMID: 37734069

- DOI: 10.1164/rccm.202307-1301LE

No abstract available

Keywords: antibiotics; chronic obstructive pulmonary disease; doxycycline; exacerbation.

Am J Respir Crit Care Med

. 2023 Sep 21.

doi: 10.1164/rccm.202307-1214LE. Online ahead of print.

Microbiological Monitoring in Therapeutic Trials in COPD

Miguel Angel Martinez-Garcia[1], Alvar Agusti[2]

Affiliations expand

- PMID: 37734068

- DOI: 10.1164/rccm.202307-1214LE

No abstract available

Keywords: COPD; Chronic bronchial infection; Doxycycline; Exacerbation; Prevention.

9

Eur J Intern Med

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. 2023 Sep 18;S0953-6205(23)00336-9.

doi: 10.1016/j.ejim.2023.09.017. Online ahead of print.

Non-invasive high-frequency oscillatory ventilation for carbon dioxide clearance in a hypercapnic lung

model of chronic obstructive pulmonary disease and healthy subjects

Jianyi Niu[1], Zhenfeng He[1], Lili Guan[2], Luqian Zhou[1], Rongchang Chen[3]

Affiliations expand

- PMID: 37730518

- DOI: 10.1016/j.ejim.2023.09.017

No abstract available

Conflict of interest statement

Declaration of Competing Interest There was no conflict of interest between the authors.

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

doi: 10.1177/08897077231186228. Online ahead of print.

Effects of Smoking Marijuana on the Respiratory System: A Systematic Review

Jorge Vásconez-González[1,2], Karen Delgado-Moreira[1], Belén López-Molina[1], Juan S Izquierdo-Condoy[1], Esteban Gámez-Rivera[1], Esteban Ortiz-Prado[1]

Affiliations expand

- PMID: 37728136

- DOI: 10.1177/08897077231186228

Abstract

Background: The prevalence of marijuana use and its derivatives has surged over the past century, largely due to increasing legalization globally. Despite arguments advocating its benefits, marijuana smoking exposes the lungs to harmful combustion byproducts, leading to various respiratory issues such as asthma, pneumonia, emphysema, and chronic obstructive pulmonary disease.

Methods: We embarked on an extensive literature search, utilizing PubMed/Medline, Scopus, Web of Science, and Google Scholar databases, identifying 200 studies. After the elimination of duplicates, and meticulous review of abstracts and full texts, 55 studies were included in our analysis.

Results: Current literature demonstrates that marijuana use negatively impacts lung function, triggering symptoms like chronic cough, sputum production, and wheezing, and diminishing FEV1/FVC ratio in spirometry tests. Moreover, prolonged or chronic marijuana use augments the risk of respiratory function impairment. While the carcinogenic effects of marijuana are still contested, a weak correlation between marijuana use and lung cancer has been observed in some studies. Additionally, instances of other pathologies linked to marijuana use have been reported, including the development of COPD, pulmonary bullae, spontaneous pneumothorax, pleuritic pain, chronic pulmonary aspergillosis, hemoptysis, and pulmonary Langerhans cell histiocytosis.

Conclusions: The evidence underscores that marijuana use is detrimental to respiratory health. In light of the escalating trend of marijuana use, particularly among the youth, it is imperative to advocate public health messages discouraging its consumption.

Keywords: acute effects; cannabis; consumption; long-term effects; marijuana; respiratory system.

11

Review

Expert Rev Respir Med

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. 2023 Sep 20.

doi: 10.1080/17476348.2023.2259800. Online ahead of print.

Should we be screening for COPD? – looking through the lens of lung cancer screening

Robert P Young[1], Raewyn J Scott[1]

Affiliations expand

- PMID: 37728077

- DOI: 10.1080/17476348.2023.2259800

Abstract

Introduction: In May 2022, the US Preventive Services Task Force published their recommendation against screening for chronic obstructive pulmonary disease (COPD) in asymptomatic adults. However, we argue the routine use of spirometry in both asymptomatic and symptomatic high-risk smokers has utility.

Areas covered: We provide published and unpublished observations from a secondary analyses of the American College of Radiology Imaging Network(ACRIN), arm of the National Lung Screening Trial, including 18,643 high-risk current or former smokers who underwent pre-bronchodilator spirometry at baseline. According to history alone, 20% reported a prior diagnosis of 'COPD,' although only 11% (about one half), actually had airflow limitation (Diagnosed COPD) and 9% had Global Initiative for Obstructive Pulmonary Disease GOLD 0 Pre-COPD. Of the remaining 80% of 'asymptomatic' screening participants, 23% had airflow limitation (Screen-detected COPD) and 13% had preserved ratio impaired spirometry (PRISm). This means 45% of this high-risk cohort were reclassified by spirometry, and together with comorbid disease, identified subgroups where lung cancer screening efficacy could be optimized by between 2-6 fold.

Expert opinion: Our preliminary findings suggest lung cancer screening outcomes vary according to 'new' COPD-related spirometric-defined subgroups and that screening spirometry, together with comorbid disease, identifies those for whom lung cancer screening is mostly beneficial or potentially harmful.

Keywords: Chronic bronchitis; Chronic obstructive pulmonary disease; Mortality; Spirometry; airflow limitation; lung cancer screening.

. 2023 Sep 18;9(5):00289-2023.

doi: 10.1183/23120541.00289-2023. eCollection 2023 Sep.

Lung volumes differentiate the predominance of emphysema *versus* airway disease phenotype in early COPD: an observational study of the COPDGene cohort

Siyang Zeng[1,2,3], Gang Luo[1], David A Lynch[4], Russell P Bowler[4], Mehrdad Arjomandi[2,3]

Affiliations expand

- PMID: 37727675

- PMCID: PMC10505951

- DOI: 10.1183/23120541.00289-2023

Free PMC article

Abstract

Rationale: Lung volumes identify the "susceptible smokers" who progress to develop spirometric COPD. However, among susceptible smokers, development of spirometric COPD seems to be heterogeneous, suggesting the presence of different pathological mechanisms during early establishment of spirometric COPD. The objective of the present study was to determine the differential patterns of radiographic pathologies among susceptible smokers.

Methods: We categorised smokers with preserved spirometry (Global Initiative for Chronic Obstructive Lung Disease (GOLD) stage 0) in the Genetic Epidemiology of COPD (COPDGene) cohort based on tertiles (low, intermediate and high) of lung volumes (either

total lung capacity (TLC), functional residual capacity FRC or FRC/TLC) at baseline visit. We then examined the differential patterns of change in spirometry and the associated prevalence of computed tomography measured pathologies of emphysema and airway disease with those categories of lung volumes.

Results: The pattern of spirometric change differed when participants were categorised by TLC *versus* FRC/TLC: those in the high TLC tertile showed stable forced expiratory volume in 1 s (FEV_1), but enlarging forced vital capacity (FVC), while those in the high FRC/TLC tertile showed decline in both FEV_1 and FVC. When participants from the high TLC and high FRC/TLC tertiles were partitioned into mutually exclusive groups, compared to those with high TLC, those with high FRC/TLC had lesser emphysema, but greater air trapping, more self-reported respiratory symptoms and exacerbation episodes and higher likelihood of progressing to more severe spirometric disease (GOLD stages 2-4 *versus* GOLD stage 1).

Conclusions: Lung volumes identify distinct physiological and radiographic phenotypes in early disease among susceptible smokers and predict the rate of spirometric disease progression and the severity of symptoms in early COPD.

Conflict of interest statement

Conflict of interest: S. Zeng reports a grant from National Library of Medicine. Conflict of interest: G. Luo reports a grant from National Heart, Lung, and Blood Institute of the National Institutes of Health (R01HL142503). Conflict of interest: M. Arjomandi reports grants from the Departments of Defense (W81XWH-20-1-0158) and Veterans Affairs (CXV-00125), the Flight Attendant Medical Research Institute (012500WG and CIA190001), and the California Tobacco-related Disease Research Program (T29IR0715) during the conduct of the study. He has received research support from Guardant Health and Genentech. Conflict of interest: The remaining authors have nothing to disclose.

13

Crit Care

. 2023 Sep 19;27(1):359.

doi: 10.1186/s13054-023-04631-2.

Non-ventilator-associated ICU-acquired pneumonia (NV-ICU-AP) in patients with acute exacerbation of COPD: From the French OUTCOMEREA cohort

Louis-Marie Galerneau[1,2], Sébastien Bailly[3], Nicolas Terzi[4,3], Stéphane Ruckly[5], Maité Garrouste-Orgeas[6], Johanna Oziel[7], Vivien Hong Tuan Ha[8], Marc Gainnier[9], Shidasp Siami[10], Claire Dupuis[11], Jean-Marie Forel[12], Anaïs Dartevel[4], Julien Dessajan[13], Christophe Adrie[14], Dany Goldgran-Toledano[15], Virginie Laurent[16], Laurent Argaud[17], Jean Reignier[18], Jean-Louis Pepin[3], Michael Darmon[19], Jean-François Timsit[13]; OUTCOME R. E. A. network

Collaborators, Affiliations expand

- PMID: 37726796

- PMCID: PMC10508006

- DOI: 10.1186/s13054-023-04631-2

Free PMC article

Abstract

Background: Non-ventilator-associated ICU-acquired pneumonia (NV-ICU-AP), a nosocomial pneumonia that is not related to invasive mechanical ventilation (IMV), has been less studied than ventilator-associated pneumonia, and never in the context of patients in an ICU for severe acute exacerbation of chronic obstructive pulmonary disease (AECOPD), a common cause of ICU admission. This study aimed to determine the factors

associated with NV-ICU-AP occurrence and assess the association between NV-ICU-AP and the outcomes of these patients.

Methods: Data were extracted from the French ICU database, OutcomeRea™. Using survival analyses with competing risk management, we sought the factors associated with the occurrence of NV-ICU-AP. Then we assessed the association between NV-ICU-AP and mortality, intubation rates, and length of stay in the ICU.

Results: Of the 844 COPD exacerbations managed in ICUs without immediate IMV, NV-ICU-AP occurred in 42 patients (5%) with an incidence density of 10.8 per 1,000 patient-days. In multivariate analysis, prescription of antibiotics at ICU admission (sHR, 0.45 [0.23; 0.86], p = 0.02) and no decrease in consciousness (sHR, 0.35 [0.16; 0.76]; p < 0.01) were associated with a lower risk of NV-ICU-AP. After adjusting for confounders, NV-ICU-AP was associated with increased 28-day mortality (HR = 3.03 [1.36; 6.73]; p < 0.01), an increased risk of intubation (csHR, 5.00 [2.54; 9.85]; p < 0.01) and with a 10-day increase in ICU length of stay (p < 0.01).

Conclusion: We found that NV-ICU-AP incidence reached 10.8/1000 patient-days and was associated with increased risks of intubation, 28-day mortality, and longer stay for patients admitted with AECOPD.

Keywords: Acute exacerbation of chronic obstructive pulmonary disease; Intensive care medicine; Non-ventilator-associated ICU-acquired pneumonia; Prevalence; Prognosis.

Conflict of interest statement

LMG is supported by Pfizer for attending meetings and/or travel. NT is supported by Pfizer for attending meetings and/or travel and non-financial supports from Gilead outside this work. The other authors declare that they have no competing interests.

- 40 references
- 2 figures

14

Review

BMC Cardiovasc Disord

. 2023 Sep 19;23(1):469.

doi: 10.1186/s12872-023-03486-3.

Use of telemonitoring in patient self-management of chronic disease: a qualitative meta-synthesis

Anna Creber[1], Donato Giuseppe Leo[2,3], Benjamin J R Buckley[4,5], Mahin Chowdhury[1], Stephanie L Harrison[6,4,7], Masoud Isanejad[4,8], Deirdre A Lane[6,4,9]; TAILOR investigators

Affiliations expand

- PMID: 37726655

- PMCID: PMC10510185

- DOI: 10.1186/s12872-023-03486-3

Free PMC article

Abstract

Background: Telemonitoring for the remote patient self-management of chronic conditions can be a cost-effective method for delivering care in chronic disease; nonetheless, its implementation in clinical practice remains low. The aim of this meta-synthesis is to explore barriers and facilitators associated with the use of remote patient

monitoring of chronic disease, drawing on qualitative research, and assessing participant interactions with this technology.

Method: A meta-synthesis of qualitative studies was performed. MEDLINE, SCOPUS and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched from database date of inception to 5 February 2021. The Critical Appraisal Skills Programme (CASP) was used to critically appraise each study. Thematic synthesis was performed to identify user (patients, carers and healthcare professionals) perspectives and experiences of patient remote monitoring of chronic disease (Type 2 diabetes mellitus, chronic obstructive pulmonary disease, and cardiovascular disease).

Results: Searches returned 10,401 studies and following independent screening by two reviewers, nine studies were included in this meta-synthesis. Data were synthesised and categorised into four key themes: (1) Improved care; (2) Communication; (3) Technology feasibility & acceptability; and (4) Intervention concerns. Most patients using patient remote devices felt motivated in managing their own lifestyles and felt reassured by the close monitoring and increased communication. Barriers identified involved generational differences and difficulties with the technology used.

Conclusion: Most studies showed a positive attitude to telemonitoring, with patients preferring the convenience of telemonitoring in comparison to attending regular clinics. Further research is required to assess the most effective technology for chronic disease management, how to maintain long-term patient adherence, and identify effective approaches to address generational variation in telemonitoring up-take.

Keywords: Chronic disease; Meta-synthesis; Telehealth; Telemedicine; Telemonitoring; e-health.

Conflict of interest statement

AC, DGL, MC, and MI report no conflicts of interest. BJRB has received research funding from BMS/Pfizer. SLH has received an investigator-initiated grant from Bristol-Myers Squibb. DAL has received investigator-initiated educational grants from Bristol Myers Squibb (BMS); been a speaker for Boehringer Ingelheim, Bayer, and BMS/Pfizer and consulted for Boehringer Ingelheim, Bayer, and BMS/Pfizer; all outside the submitted work.

- 28 references
- 2 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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

1
CJEM

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doi: 10.1007/s43678-023-00597-w. Online ahead of print.

Predictors of mortality among older major trauma patients

Krishan Yadav[1 2 3], Jacinthe Lampron[4 5], Richard Nadj[6], Rikesh Raichura[6], Sonshire Figueira[5], Marie-Joe Nemnom[4], Monica Taljaard[4 7], Marcel Émond[8], Axel Benhamed[9], Debra Eagles[10 4 7]

Affiliations expand

- PMID: 37742324

- DOI: 10.1007/s43678-023-00597-w

Abstract

in English, French

Background: Older trauma patients have a higher mortality yet are more likely to be under-triaged compared to younger patients. Studies have suggested that current trauma team activation criteria are suboptimal for older patients.

Objectives: The objective was to describe trauma care delivered, patient outcomes, and to identify variables independently associated with mortality.

Methods: We performed a health records review from 2014 to 2020 of older (age ≥ 65 years) trauma patients presenting to a level one trauma centre with any of the following: injury severity score (ISS) > 12, and all trauma team activations or admission to the trauma ward. The primary outcome was 30-day all-cause mortality. Secondary outcomes included injury mechanism and trauma care delivered. Multivariable logistic regression was used to identify factors independently associated with 30-day all-cause mortality. Multiple imputation was used to deal with missing data.

Results: We enrolled 1,380 patients (mean age 80 years, mean ISS 18); 26.8% had multimorbidity (≥ 2 chronic conditions) and 65.9% met criteria for polypharmacy (≥ 5 medications). The most common mechanism was fall from standing height (61.1%). Thirty-day all-cause mortality occurred in 239 (17.3%) patients. A Glasgow coma scale (GCS) < 15 (odds ratio [OR] = 5.55; 95% CI 3.73-8.24), ISS > 15 (OR = 3.75, 95% CI 2.35-6.01), age ≥ 85 years (OR = 2.04, 95% CI 1.29-3.22), anticoagulation with a direct oral anticoagulant (DOAC) or warfarin (OR = 1.59, 95% CI 1.08-2.35) and multimorbidity (OR = 1.53, 95% CI 1.06-2.22) were significantly associated with increased risk 30-day mortality (C-statistic = 0.82, 95% CI 0.79-0.85). Dementia (OR = 0.61, 95% CI 0.40-0.95) and time to CT scan > 60 min (OR = 0.50, 95% CI 0.34-0.74) were associated with decreased mortality risk.

Conclusion: We identified five factors associated with increased 30-day mortality in older trauma patients: GCS < 15, ISS > 15, age ≥ 85 years, anticoagulation, and multimorbidity. These factors should be considered when developing modified trauma team activation criteria for older adults.

Keywords: Aged; Mortality; Trauma.

- 24 references

FULL TEXT LINKS

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2

EBioMedicine

. 2023 Sep 21;96:104792.

doi: 10.1016/j.ebiom.2023.104792. Online ahead of print.

Disease trajectories following myocardial infarction: insights from process mining of 145 million hospitalisation episodes

Christopher J Hayward[1], Jonathan A Batty[1], David R Westhead[2], Owen Johnson[3], Chris P Gale[4], Jianhua Wu[5], Marlous Hall[6]

Affiliations expand

- PMID: 37741008

- DOI: 10.1016/j.ebiom.2023.104792

Abstract

Background: Knowledge of post-myocardial infarction (MI) disease risk to date is limited-yet the number of survivors of MI has increased dramatically in recent decades. We investigated temporally ordered sequences of all conditions following MI in nationwide electronic health record data through the application of process mining.

Methods: We conducted a national retrospective cohort study of all hospitalisations (145,670,448 episodes; 34,083,204 individuals) admitted to NHS hospitals in England (1st January 2008-31st January 2017, final follow-up 27th March 2017). Through process mining, we identified trajectories of all major disease diagnoses following MI and compared their relative risk (RR) and all-cause mortality hazard ratios (HR) to a risk-set matched non-MI control cohort using Cox proportional hazards and flexible parametric survival models.

Findings: Among a total of 375,669 MI patients (130,758 females; 34.8%) and 1,878,345 matched non-MI patients (653,790 females; 34.8%), we identified 28,799 unique disease trajectories. The accrual of multiple circulatory diagnoses was more common amongst MI patients (RR 4.32, 95% CI 3.96-4.72) and conferred an increased risk of death (HR 1.32, 1.13-1.53) compared with matched controls. Trajectories featuring neuro-psychiatric diagnoses (including anxiety and depression) following circulatory disorders were markedly

more common and had increased mortality post MI (HR ranging from 1.11 to 1.73) compared with non-MI individuals.

Interpretation: These results provide an opportunity for early intervention targets for survivors of MI-such as increased focus on the psychological and behavioural pathways-to mitigate ongoing adverse disease trajectories, multimorbidity, and premature mortality.

Funding: British Heart Foundation; Alan Turing Institute.

Keywords: Disease trajectories; Electronic health records; Machine learning; Multimorbidity; Myocardial infarction; Process mining.

Conflict of interest statement

Declaration of interests CJH, JAB, DRW, OJ, JW, and MH have no conflicts of interest to declare. CPG has received funding from Abbott Diabetes, Bristol Myers Squibb and the European Society of Cardiology, and consulting fees from AI Nexus, AstraZeneca, Amgen, Bayer, Bristol Myers Squibb, Boehrinher-Ingleheim, CardioMatics, Chiesi, Daiichi Sankyo, GPRI Research B.V., Menarini, Novartis, iRhyth, Organon as well as payment for honoraria or lectures from AstraZeneca, Boston Scientific, Menarini, Novartis, Raisio Group, Wondr Medical, Zydus. CPG declares participation on Data Safety Monitoring or Advisory boards for the DANBLCOK and TARGET CTCA trials and editorial and committee membership of the NICE Indicator Advisory Committee, EHJ Quality of Care and Clinical Outcomes and ESC Quality Indicator Committee.

3

J Natl Cancer Inst

. 2023 Sep 20;djad200.

doi: 10.1093/jnci/djad200. Online ahead of print.

Effectiveness of geriatric assessment and management in older cancer patients: a systematic review and meta-analysis

Mohammed Rashidul Anwar[1], Shant Torkom Yeretzian[2], Ana Patricia Ayala[3], Emma Matosyan[4], Henriette Breunis[5], Kathyrin Bote[6], Martine Puts[6], Mohammed Hassan Habib[7], Qixuan Li[8], Yeva Sahakyan[9], Shabbir M H Alibhai[1,7,10], Lusine Abrahamyan[1,9,11]

Affiliations expand

- PMID: 37738290

- DOI: 10.1093/jnci/djad200

Abstract

Background: Frailty and multimorbidity among older cancer patients affect treatment tolerance and efficacy. Comprehensive Geriatric Assessment (CGA) and management is recommended to optimize cancer treatment but its effect on various outcomes remains uncertain.

Objective: To conduct a systematic review and meta-analysis of randomized controlled trials (RCTs) and cost-effectiveness studies comparing CGA (with or without implementation of recommendations) to usual care in older cancer patients.

Methods: We searched MEDLINE, EMBASE, CINAHL, and Cochrane Trials from inception to January 27, 2023 for RCTs and cost-effectiveness studies. Pooled estimates for outcomes were calculated using random-effects models.

Results: Nineteen full-text articles representing 17 RCTs were included. Average participant age was 72-80 years, and 31%-62% were female. CGA type, mode of delivery and evaluated outcomes varied across studies. Meta-analysis revealed no difference in risk of mortality [Risk ratio (RR) =1.08 (95% CI: 0.91 to 1.29)], hospitalization [RR = 0.92 (95% CI: 0.77 to 1.10)], early treatment discontinuation [RR = 0.89 (95% CI: 0.67 to 1.19)], initial dose reduction [RR = 0.99 (95% CI: 0.99 to 1.26], and subsequent dose reduction [RR = 0.87 (95% CI: 0.70 to 1.09)]. However, the risk of treatment toxicity was significantly lower in the CGA group [RR = 0.78 (95% CI: 0.70 to 0.86)]. No cost-effectiveness studies were identified.

Conclusion: Compared with usual care, CGA was not associated with a difference in risk of mortality, hospitalization, treatment discontinuation, and dose reduction but was associated with a lower risk of treatment toxicity indicating its potential to optimize cancer treatment in this population. Further research is needed to evaluate cost-effectiveness.

4

Adv Respir Med

. 2023 Sep 20;91(5):368-382.

doi: 10.3390/arm91050029.

Epidemiological Characteristics of 101,471 Patients Hospitalized with Chronic Obstructive Pulmonary Disease (COPD) in Poland in 2019: Multimorbidity, Duration of Hospitalization, In-Hospital Mortality

Mateusz Jankowski[1], Bogdan Bochenek[2], Joanna Wieczorek[2], Mariusz Figurski[2], Marta Gruszczyńska[2], Paweł Goryński[3], Jarosław Pinkas[1]

Affiliations expand

- PMID: 37736975

- PMCID: PMC10514800

- DOI: 10.3390/arm91050029

Free PMC article

Abstract

Chronic obstructive pulmonary disease (COPD) is a common lung disease. There is a limited amount of nationwide data on COPD patients in Poland. This study aimed to characterize patients hospitalized with COPD in Poland in 2019 as well as to identify factors associated with the risk of in-hospital death and prolonged hospitalization among patients with COPD. This study is a retrospective database analysis. Data on patients hospitalized with COPD in Poland were obtained from the Nationwide General Hospital Morbidity Dataset. Data on all adults aged ≥40 years with a diagnosis of COPD from a physician (J44 code) were included in the analysis. Data were analyzed separately for patients hospitalized due to COPD (primary diagnosis) and patients with COPD as a comorbidity (secondary diagnosis). Completed medical records were available for 101,471 patients hospitalized with COPD (36.9% were females). Of those, 32% were hospitalized due to COPD. The mean age was 71.4 ± 9.7 years. The mean duration of hospitalization was 9.4 ± 11.4 days (median 7 days). Most of the COPD patients (89.3%) had at least one comorbidity. The in-hospital mortality rate was 6.8%. Older age, presence of cardiovascular diseases, and diseases of the genitourinary system ($p < 0.05$) were the most important factors associated with the risk of in-hospital death among patients hospitalized due to COPD.

Keywords: COPD; Poland; chronic obstructive pulmonary disease; clinical characteristics; epidemiology; hospitalization; in-hospital mortality; multimorbidity; national registry.

Conflict of interest statement

The authors declare no conflict of interest.

- 49 references
- 1 figure

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

5

J Adv Nurs

. 2023 Sep 20.

doi: 10.1111/jan.15868. Online ahead of print.

Spanish version of the Self-Care of Chronic Illness Inventory: A validation study amongst community-dwelling older adults with chronic multimorbidity

José Manuel Hernández-Padilla[1], Iria Dobarrio-Sanz[1], Cayetano Fernández-Sola[1,2], María Del Mar Jiménez-Lasserrotte[1], Matías Correa-Casado[1,3], María Dolores Ruiz-Fernández[1]

Affiliations expand

- PMID: 37727056

- DOI: 10.1111/jan.15868

Abstract

Aim: To psychometrically assess the Spanish version of the Self-Care of Chronic Illness Inventory (SC-CII-Sp) in community-dwelling older adults with chronic multimorbidity.

Design: A methodological study.

Method: A total of 1260 older adults participated in the study between May 2020 and February 2022. The data were analysed using SPSS Statistics® 26 and AMOS® 24. The items' content validity index and the Fleiss' kappa were calculated to assess the SC-CII-Sp's content validity. Convergent validity was assessed by calculating the Pearson correlation coefficient between the participants' scores on the SC-CII-Sp and their scores on the Spanish Chronic Disease Self-Efficacy scale (SCD-SE). Construct validity was tested by performing a confirmatory factor analysis (CFA). The SC-CII-Sp's reliability was tested by computing the Cronbach's alpha.

Results: The SC-CII-Sp showed good content and convergent validity. The CFA showed that the SC-CII-Sp has three sub-scales. The 8-item Self-Care Maintenance sub-scale has good internal consistency and is comprised of two dimensions: illness-related and health-promoting behaviour. The Self-Care Monitoring sub-scale had excellent internal consistency and its five loaded items belonged to a single dimension. The 6-item Self-Care Management sub-scale has adequate internal consistency and two dimensions: autonomous and consulting behaviour.

Conclusion: The Spanish version of SC-CII is a valid and reliable instrument to be used in the assessment of self-care behaviours amongst Spanish-speaking, community-dwelling older adults with chronic multimorbidity.

Implications for the profession: Nurses need valid and reliable tools to assess self-care behaviours in Spanish-speaking community-dwelling older adults with chronic multimorbidity. This study provides a 19-item tool that allows for the comprehensive evaluation of self-care behaviours in healthy and ill states.

Impact: Using the SC-CII-Sp in clinical or research settings could help nurses to examine the effects of different interventions on self-care behaviours amongst Spanish-speaking, community-dwelling older adults with chronic multimorbidity.

Patient or public contribution: None to be reported.

Keywords: chronic illness; comorbidity; elderly; multimorbidity; psychometrics; self-care; validity.

- 53 references

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

6

Gerontology

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. 2023 Sep 19.

doi: 10.1159/000532060. Online ahead of print.

Early-life factors and multimorbidity risk later in older age: Evidence based on CHARLS

Minjun Zhao, Xu He, Tianrong Li, Heng Shao, Qian Huo, Yan Li

- PMID: 37725916

- DOI: 10.1159/000532060

Abstract

Introduction: Early-life factors were reported to exert influence on the health condition of individuals in the long-term. However, limited research explored the connection between early-life factors and multimorbidity in later years.

Methods: We utilized the data from the China Health and Retirement Longitudinal Study to assess this possible association in the present cross-sectional study. Multimorbidity was determined based on 14 common chronic diseases included in the study. Logistic regression was employed to examine the link between early-life factors and subsequent multimorbidity.

Results: Out of 7,578 participants who met the inclusion criteria for analysis, 3,765 (49.68%) were females. The mean age was 68.25 ± 6.70 years. Participants who rated their health during childhood as average [odds ratio (OR) 0.78, 95% confidence interval (CI) 0.63-0.96] or better [OR 0.72, 95% CI 0.57-0.91] were significantly less likely to experience multimorbidity in older life. By contrast, experiencing violence from two of family members was significantly associated with future multimorbidity [OR (95% CI), 1.29 (1.04-1.60)]. A superior family financial situation was also negatively associated with multimorbidity, with average [OR (95% CI), 0.72 (0.63-0.83)] and better off than average [OR (95% CI), 0.76 (0.62-0.93)].

Discussion: Individuals with poor health status, inferior family socioeconomic status or experienced violence from family members in childhood were more likely to suffer from multimorbidity in later life. Enhanced social monitoring of potentially adverse conditions in youngsters and targeted interventions could help mitigate the progression of multimorbidity in later life.

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

1

Review

J Allergy Clin Immunol

. 2023 Sep 22;S0091-6749(23)01192-2.

doi: 10.1016/j.jaci.2023.09.013. Online ahead of print.

Climate change is a health crisis with opportunities for healthcare action: A

focus on healthcare providers, patients with asthma and allergic immune diseases, their families and neighbors

Nicholas J Nassikas [1], Diane R Gold [2]

Affiliations expand

- PMID: 37742937

- DOI: 10.1016/j.jaci.2023.09.013

Abstract

Climate change has increased the frequency of extreme weather events and compounded natural disasters. Heat, wildfires, flooding and pollen are already threatening public health and disproportionately affecting individuals in susceptible situations and vulnerable locations. In this special issue of JACI, we address what is known and not known about the biologic as well as clinical upstream and downstream effects of climate change on asthma and allergy development and exacerbation. We present potential actions individuals can take at the family, neighborhood, community, healthcare system, national and international levels to build climate resilience, to protect their own health and the health and welfare of others. We emphasize the importance of actions and policies that are context specific and just. We emphasize the need for the healthcare system, which contributes between 3-5% of global greenhouse gas emissions, to reduce its carbon footprint and build resiliency. Healthcare providers play a pivotal role in helping policymakers understand the effects of climate on the health of our patients. There is still a window to avoid the most serious effects of climate change on human health and our planet.

Keywords: Greenhouse gas emissions; asthma; atopic dermatitis; extreme weather; heat; mechanisms.

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

2

Pulmonology

. 2023 Sep 22;S2531-0437(23)00154-X.

doi: 10.1016/j.pulmoe.2023.08.003. Online ahead of print.

Disease burden, comorbidities and antecedents of chronic cough phenotypes in Australian adults

S Suresh[1], J L Perret[2], E H Walters[3], M J Abramson[4], G Bowatte[2], C Lodge[2], A Lowe[2], B Erbas[5], P Thomas[6], G S Hamilton[7], A B Chang[8], S C Dharmage[9], D S Bui[2]

Affiliations expand

- PMID: 37743172

- DOI: 10.1016/j.pulmoe.2023.08.003

Abstract

Background and objectives: While adult chronic cough has high burden, its phenotypes, particularly those without aetiologically related underlying conditions, are understudied. We investigated the prevalence, lung function and comorbidities of adult chronic cough phenotypes.

Methods: Data from 3608 participants aged 53 years from the Tasmanian Longitudinal Health Study (TAHS) were included. Chronic cough was defined as cough on most days for >3 months in a year. Chronic cough was classified into "explained cough" if there were any one of four major cough-associated conditions (asthma, COPD, gastroesophageal reflux disease or rhinosinusitis) or "unexplained cough" if none were present. Adjusted regression

analyses investigated associations between these chronic cough phenotypes, lung function and non-respiratory comorbidities at 53 years.

Results: The prevalence of chronic cough was 10% (95%CI 9.1,11.0%) with 46.4% being "unexplained". Participants with unexplained chronic cough had lower FEV_1/FVC (coefficient: -1.2% [95%CI:-2,3, -0.1]) and increased odds of comorbidities including obesity (OR=1.6 [95%CI: 1.2, 2.3]), depression (OR=1.4 [95%CI: 1.0, 2.1]), hypertension (OR=1.7 [95%CI: 1.2, 2.4]) and angina, heart attack or myocardial infarction to a lesser extent, compared to those without chronic cough. Participants with explained chronic cough also had lower lung function than both those with unexplained chronic cough and those without chronic cough.

Conclusions: Chronic cough is prevalent in middle-age and a high proportion is unexplained. Unexplained cough contributes to poor lung function and increased comorbidities. Given unexplained chronic cough is not a symptom of major underlying respiratory conditions it should be targeted for better understanding in both clinical settings and research.

Keywords: Chronic cough; Comorbidity; Cough phenotypes; Lung function.

Conflict of interest statement

Conflicts of interest Michael Abramson received grants from Pfizer and Boehringer Ingelheim outside the submitted work. Other authors have no conflicts of interest.

. 2023 Sep 21;S0091-6749(23)01190-9.

doi: 10.1016/j.jaci.2023.09.011. Online ahead of print.

Climate change and epigenetic biomarkers in allergic and airway diseases

Andres Cardenas[1], Raj Fadadu[2], Supinda Bunyavanich[3]

Affiliations expand

- PMID: 37741554

- DOI: 10.1016/j.jaci.2023.09.011

Abstract

Human epigenetic variation is associated with both environmental exposures and allergic diseases and can potentially serve as a biomarker connecting climate change with allergy and airway diseases. In this narrative review, we summarize recent human epigenetic studies examining exposure to temperature, precipitation, extreme weather events, and malnutrition to discuss findings as they relate to allergic and airway diseases. Temperature has been the most widely studied exposure, with the studies implicating both short-term and long-term exposure with epigenetic alterations and epigenetic aging. Few studies have examined natural disasters or extreme weather events. The studies available have reported differential DNA methylation of multiple genes and pathways, some of which were previously associated with asthma or allergy. Few studies have integrated climate-related events, epigenetic biomarkers, and allergic disease together. Prospective longitudinal studies are needed along with the collection of target tissues beyond blood samples, such as nasal and skin cells. Finally, global collaboration to increase diverse representation of study participants, particularly those most affected by climate injustice, and strengthen replication, validation, and harmonization of measurements will be needed to elucidate the impact of climate change on the human epigenome.

Keywords: Climate change; DNA methylation; epigenetic clocks; epigenetics; epigenomics; extreme weather; malnutrition; precipitation; temperature.

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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4

Review

Heart Lung

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. 2023 Sep 21;63:23-34.

doi: 10.1016/j.hrtlng.2023.09.004. Online ahead of print.

Efficacy and safety of fluticasone propionate/salmeterol and fluticasone propionate monotherapy in step-up treatment of childhood asthma: A systematic review and meta-analysis

Hua Li[1], Tao Dong[2], Jinling Luan[3]

Affiliations expand

- PMID: 37740997

- DOI: 10.1016/j.hrtlng.2023.09.004

Abstract

Background: Asthma is a chronic respiratory disease that affects millions of children worldwide and can impair their quality of life and development. Inhaled glucocorticoids are the mainstay of asthma treatment, but some children require step-up therapy with additional drugs to achieve symptom control. Fluticasone propionate and salmeterol (FSC) has been shown to reduce asthma exacerbations and improve lung function in adults. However, the evidence for its efficacy and safety in children is limited.

Objective: This study aims to provide a comprehensive basis for treatment selection by summarizing existing clinical randomized controlled trials (RCTs) on the efficacy of FSC compared to fluticasone propionate (FP) monotherapy in children with asthma who require step-up treatment.

Methods: Five online databases and three clinical trial registration platforms were systematically searched. The effect size and corresponding 95% confidence interval (CI) were calculated based on the heterogeneity among the included studies.

Results: Twelve RCTs were identified and a total of 9, 859 patients were involved. The results of the meta-analysis revealed that the use of FSC was associated with a greater reduction in the incidence of asthma exacerbations than FP alone when the dose of FP was the same or when the duration of treatment exceeded 12 weeks. In addition, FSC resulted in a greater proportion of time with asthma-free and without the use of albuterol compared to FP alone when the duration of treatment exceeded 12 weeks. No significant differences were observed between FSC and FP alone in the incidence of drug-related adverse events and other adverse events.

Conclusion: Both FSC and FP alone are viable options for the initial selection of step-up treatment in asthmatic children. While, FSC treatment demonstrates a greater likelihood of reducing asthma exacerbations which is particularly important for reducing the personnel, social and economic burden in children requiring step-up asthma treatment.

Keywords: Asthma; Children; Efficacy; Fluticasone propionate; Meta-analysis; Safety; Salmeterol; Step-up treatment.

Conflict of interest statement

Declaration of Competing Interest All the authors declare that they have no conflict of interest.

SUPPLEMENTARY INFO

Publication typesexpand

Editorial

J Allergy Clin Immunol

. 2023 Sep 20;S0091-6749(23)01187-9.

doi: 10.1016/j.jaci.2023.09.008. Online ahead of print.

Increasing wildfire smoke from the climate crisis: Impacts on asthma and allergies

John R Balmes[1], Stephanie M Holm[2]

Affiliations expand

- PMID: 37739070

- DOI: 10.1016/j.jaci.2023.09.008

No abstract available

Keywords: Climate change; PM(2.5); allergies; asthma; wildfire smoke.

6

Review

J Allergy Clin Immunol

. 2023 Sep 20;S0091-6749(23)01184-3.

doi: 10.1016/j.jaci.2023.09.005. Online ahead of print.

The SARS-CoV-2 Pandemic and Asthma: What We Have Learned and What is still Unknown

Christa McPhee[1], Kateryna Yevdokimova[2], Linda Rogers[2], Monica Kraft[2]

Affiliations expand

- PMID: 37739069

- DOI: 10.1016/j.jaci.2023.09.005

Abstract

The SARS-CoV-2 pandemic has brought new insights into the immunological intricacies of asthma. In this review, we discuss the epidemiology of asthma in patients infected with SARS-CoV-2 and the risk of severe infection. Type 2 inflammation had an overall protective effect against SARS-CoV-2 infection by various mechanisms summarized in this review.

Asthma, intranasal, and inhaled corticosteroids decreased the ACE2 receptor, an important receptor for SARS-CoV-2 entry into host cells. We summarize the nuances of treatment of type 2 inflammation despite its underlying protective effects. Research to date has shown that patients on various allergen immunotherapies and biologics do benefit from being vaccinated.

Keywords: ACE2 Receptor; Allergen Immunotherapy; Antiviral mechanisms; Asthma; Biologic; COVID-19; Exacerbations; Immunophenotyping assessment of COVID-19; Type 2 Inflammation; Vaccine.

7

J Asthma

. 2023 Sep 22;1-20.

doi: 10.1080/02770903.2023.2263078. Online ahead of print.

Safety and efficacy of benralizumab in elderly subjects with severe asthma

Marcela Valverde-Monge[1,2], Remedios Cárdenas[3], Ismael García-Moguel[4,5], Ana Rosado[6], Mar Gandolfo-Cano[7,8], Teresa Robledo Echarren[9,10], María Del Mar Moro-Moro[11], María Del Mar Reaño Martos[12], Rafael Pineda-Pineda[13], Cristina Martin-Arriscado Arroba[14], Javier Domínguez-Ortega[15]; AIRE Group

Affiliations expand

- PMID: 37737844

- DOI: 10.1080/02770903.2023.2263078

Abstract

Introduction: The prevalence of asthma in adults >65 years old is approximately 12-14%, and 10% have severe asthma. A higher mortality rate is observed in subjects with asthma >65 years old and especially >80 years old.

Objective: To analyze the effectiveness and safety of at least three doses of benralizumab in a subgroup of elderly subjects (>65 years old) with uncontrolled severe eosinophilic asthma in real-life conditions.

Methods: This was a retrospective multicenter study (AUTOBENRA study) conducted in 9 hospitals that included 72 patients aged >18 years old with uncontrolled severe asthma based on the Spanish Asthma Guidelines who were treated with at least three doses of benralizumab, self-administered at home since before April 30, 2021. The recruitment period ended on October 1, 2021. Written consent was obtained before the study commencement. In this subanalysis, we compared the results between patients >65 years old and patients <65 years old.

Results: A total of 72 subjects with severe asthma were screened, and 54 were included (MD: 57.3 ± 10 years old). There were 12 subjects aged >65 years old [MD: 69.8 ± 4.3 years old (minimum: 65 years old; maximum: 83 years old)]. Subjects >65 years old experienced statistically significant improvement in lung function, ACT and mini-AQLQ with benralizumab. Additionally, 9 patients (75%) experienced no asthma exacerbation ($p = 0.0047$), half (3/6) were able to stop OCS ($p = 0.08$), and no adverse effects with benralizumab were reported during the 20 months of follow-up.

Conclusions: In patients aged >65 years old, benralizumab was an effective and safe therapy for severe eosinophilic asthma in our study, with no significant differences from the younger subgroup. This is especially important since they are a group with numerous comorbidities, medications and worse quality of life.

Keywords: >65 years old; benralizumab; elderly; safety; self-administration; severe eosinophilic asthma.

8

J Asthma

. 2023 Sep 22;1-17.

doi: 10.1080/02770903.2023.2263090. Online ahead of print.

Adherence to the asthma pathway, including pre-triage bronchodilator history, reduces hospitalizations

Suttipong Ittiporn[1,2], Kanlaya Prajongdee[3]

Affiliations expand

- PMID: 37737546

- DOI: 10.1080/02770903.2023.2263090

Abstract

Objective: To determine if adherence to an asthma treatment pathway is associated with a decrease in hospitalizations. **Methods:** A prospective cohort design was conducted of Thai children aged 2 to 15 years who visited the emergency department with severe asthma exacerbations, defined as a Buddhasothorn Asthma Severity Score ≥ 8. Patients who received systemic corticosteroids and nebulized short-acting beta-2 agonists combined with ipratropium bromides were classified as the adherence group. The timing of steroid and bronchodilator administration, length of hospital stay, and hospitalization rate were examined in relation to adherence to the asthma pathway. Multivariable logistic regression models and adjusted odds ratios were used to assess associations. **Results:** A total of 118 episodes of asthma exacerbations (EAEs) from 59 participants were included. Patients who adhered to the pathway had a significantly higher rate of systemic corticosteroid

administration within 1 hour of arrival at triage (88.6% vs. 41.9%, adjusted Odds Ratio: aOR 10.21; 95%CI 3.52-29.62). A higher proportion of the patients who adhered to the pathway also received inhaled ipratropium bromide ≥ 2 doses within 1 hour of arrival at triage (72.7% vs. 12.2%, aOR 23.51; 95%CI 7.73-71.54) and it was administered significantly faster by 31 minutes (5 minutes vs. 36 minutes, p < 0.001) compared to non-adherence group. The hospitalization rate was significantly lower by almost half of EAEs for adherence group (36.4% vs. 63.5%, aOR 0.41; 95%CI 0.18-0.93). **Conclusions:** Accurate assessment of severity and adherence to the clinical pathway can reduce hospitalization in pediatric patients with severe asthma exacerbations.

Keywords: Asthma; Clinical pathway; Emergency department; Hospital admissions; Pediatrics.

9

Editorial

Respirology

. 2023 Sep 21.

doi: 10.1111/resp.14606. Online ahead of print.

Which biologic? New findings from a real-world study

Gabriel Lavoie[1], Ian D Pavord[1]

Affiliations expand

- PMID: 37735863

- DOI: 10.1111/resp.14606

No abstract available

Keywords: asthma; benralizumab; biologic; eosinophilic asthma; mepolizumab; real world; severe asthma.

- 15 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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10

Ann Rheum Dis

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. 2023 Sep 21;ard-2023-224756.

doi: 10.1136/ard-2023-224756. Online ahead of print.

Dupilumab for relapsing or refractory sinonasal and/or asthma manifestations in eosinophilic granulomatosis with polyangiitis: a European retrospective study

Berengere Molina [1], Roberto Padoan [2], Maria Letizia Urban [3], Pavel Novikov [4], Marco Caminati [5], Camille Taillé [6], Antoine Néel [7], Laurence Bouillet [8 9], Paolo Fraticelli [10], Nicolas Schleinitz [11], Christine Christides [12], Laura Moi [13], Bertrand Godeau [14], Ann Knight [15], Jan Walter Schroeder [16], Sylvain Marchand-Adam [17], Helder Gil [18], Vincent Cottin [19], Cécile-Audrey Durel [20], Elena Gelain [21], Boris Lerais [22], Marc Ruivard [23], Matthieu Groh [24], Maxime Samson [25 26], Luca Moroni [27], Jens Thiel [28 29], Anna Kernder [30], Jan Willem Cohen Tervaert [31 32], Giulia Costanzo [33], Marco Folci [34], Sonia Rizzello [35], Pascal Cohen [36], Giacomo Emmi [3 37], Benjamin Terrier [38]

Affiliations expand

- PMID: 37734881

- DOI: 10.1136/ard-2023-224756

Abstract

Background: Eosinophilic granulomatosis with polyangiitis (EGPA) is often associated with glucocorticoid-dependent asthma and/or ear, nose and throat (ENT) manifestations. When immunosuppressants and/or mepolizumab are ineffective, dupilumab could be an option. We describe the safety and efficacy of off-label use of dupilumab in relapsing and/or refractory EGPA.

Patients and methods: We conducted an observational multicentre study of EGPA patients treated with dupilumab. Complete response was defined by Birmingham Vasculitis Activity Score (BVAS)=0 and prednisone dose ≤4 mg/day, and partial response by BVAS=0 and prednisone dose >4 mg/day. Eosinophilia was defined as an eosinophil count >500/mm^3.

Results: Fifty-one patients were included. The primary indication for dupilumab was disabling ENT symptoms in 92%. After a median follow-up of 13.1 months, 18 patients (35%) reported adverse events (AEs), including two serious AEs. Eosinophilia was reported in 34 patients (67%), with a peak of 2195/mm3 (IQR 1268-4501) occurring at 13 weeks (IQR 4-36) and was associated with relapse in 41%. Twenty-one patients (41%) achieved a complete response and 12 (24%) a partial response. Sixteen (31%) patients experienced an EGPA relapse while on dupilumab, which was associated with blood eosinophilia in 14/16 (88%) patients. The median eosinophil count at the start of dupilumab was significantly lower in relapsers than in non-relapsers, as was the median time between stopping anti-IL-5/IL-5R and switching to dupilumab.

Conclusion: These results suggest that dupilumab may be effective in treating patients with EGPA-related ENT manifestations. However, EGPA flares occurred in one-third of patients and were preceded by eosinophilia in 88%, suggesting that caution is required.

Keywords: Autoimmune Diseases; Biological Therapy; Immune System Diseases; Systemic vasculitis; Therapeutics.

Conflict of interest statement

Competing interests: None declared.

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Eur Respir J

. 2023 Sep 21;2300558.

doi: 10.1183/13993003.00558-2023. Online ahead of print.

Dupilumab leads to better-controlled asthma & quality of life in children: the VOYAGE study

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Affiliations expand

- PMID: 37734856

- DOI: 10.1183/13993003.00558-2023

Abstract

Background: Dupilumab has shown long-term treatment benefits in children with uncontrolled asthma. We assessed in more detail the impact of dupilumab on asthma control and health-related quality of life (HRQoL) in children and their caregivers.

Methods: Children aged 6-11 years with uncontrolled moderate-to-severe type 2 asthma (baseline blood eosinophils ≥150 cells·μL^{-1} or fractional exhaled nitric oxide [F_{eNO}] ≥20 ppb; n=350) were treated with dupilumab or placebo for 52 weeks in the VOYAGE study. Primary outcomes of these analyses were asthma control (change from baseline in Interviewer-Administered 7-item Asthma Control Questionnaire [ACQ-7-IA] and achieving a clinically meaningful response of ≥0.5]; proportion of patients achieving well-controlled asthma or better [ACQ-7-IA ≤0.75]), effect on patients' (Standardised Paediatric Asthma Quality of Life Questionnaire [PAQLQ[S]-IA]), and caregivers' (Paediatric Asthma Caregiver's Quality of Life Questionnaire [PACQLQ] score) HRQoL; and allergic rhinitis-related QoL.

Results: Dupilumab *versus* placebo significantly improved children's ACQ-7-IA scores by week 4 with sustained improvements through week 52 (least-squares mean difference at week 52: -0.44, 95% CI -0.59 to -0.30; p<0.0001); a higher proportion achieved a clinically meaningful response (week 52: 86% *versus* 75%; p=0.0051). At weeks 24 and 52, more children who received dupilumab achieved well-controlled asthma (ACQ-7-IA ≤0.75: 61% *versus* 43%, p=0.0001; 70% *versus* 46%, p<0.0001, respectively). Significant improvements in PAQLQ[S]-IA and PACQLQ scores were observed by week 52.

Conclusions: In children aged 6-11 years with moderate-to-severe type 2 asthma, dupilumab treatment was associated with rapid, sustained improvements in asthma control. HRQoL was significantly improved for children and their caregivers.

Funding: Sanofi and Regeneron Pharmaceuticals Inc.

12

JAMA

.
. 2023 Sep 21;e2318768.

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Canadian Wildfire Smoke and Asthma Syndrome Emergency Department Visits in New York City

Kai Chen[1], Yiqun Ma[1], Michelle L Bell[2], Wan Yang[3]

Affiliations expand

- PMID: 37733685

- PMCID: PMC10514869 (available on 2024-03-21)

- DOI: 10.1001/jama.2023.18768

No abstract available

Plain language summary

This study examines the association between the Canadian wildfires that occurred in summer 2023 with emergency department visits for asthma symptoms in New York City.

Conflict of interest statement

Conflict of Interest Disclosures: Dr Bell reported receiving grants from the National Institutes of Health (NIH), the Environmental Protection Agency, HEI, the Wellcome Trust, the Robert Wood Johnson Foundation, Yale Women Faculty Forum, and the High Tide Foundation; receiving honoraria from NIH, Clinique, the Government of Hong Kong Special Administrative Region–Food and Health Bureau, Colorado School of Public Health, PAC-12, IOP, and Fund for Scientific Research–FNRS outside the submitted work; receiving travel reimbursement from the Colorado School of Public Health; and being a member of EPA

Clean Air Scientific Advisory Council (CASAC) and multiple National Academies committees. No other disclosures were reported.

13

J Allergy Clin Immunol

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. 2023 Sep 18;S0091-6749(23)01183-1.

doi: 10.1016/j.jaci.2023.07.025. Online ahead of print.

Molecular pathways underlying lung–brain axis signaling in asthma: relevance for psychopathology and neuroinflammation

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Affiliations expand

- PMID: 37730134

- DOI: 10.1016/j.jaci.2023.07.025

Abstract

Background: Accumulating evidence indicates that asthma has systemic effects and impacts brain function. Although airway inflammation is proposed to initiate afferent communications with the brain, the signaling pathways have not been established.

Objective: We sought to identify the cellular and molecular pathways involved in afferent lung to brain communication during airway inflammation in asthma.

Methods: In twenty-three adults with mild asthma, segmental bronchial provocation with allergen (SBP-Ag) was used to provoke airway inflammation and retrieve bronchoalveolar lavage (BAL) fluid for targeted protein analysis and RNA-sequencing to determine gene-expression profiles. Neural responses to emotional cues in nodes of the salience network were assessed with functional magnetic resonance imaging at baseline and 48h post-SBP-Ag.

Results: Cell deconvolution and gene co-expression network analysis identified 11 cell-associated gene modules that changed in response to SBP-Ag. SBP-Ag increased BAL eosinophils and expression of an eosinophil-associated module enriched for genes related to Th17-type inflammation (e.g., IL17A), as well as cell proliferation in lung and brain (e.g., NOTCH1, VEGFA, LIF). Increased expression of genes in this module, as well as several Th17-type inflammation-related proteins, was associated with an increase from baseline in salience network reactivity.

Conclusions: Our results identify a specific inflammatory pathway linking asthma-related airway inflammation and emotion-related neural function. Systemically, Th17-type inflammation has been implicated in both depression and neuroinflammation, with impacts on long-term brain health. Thus, our data emphasize that inflammation in the lung in asthma may have profound effects outside of the lung that may be targetable with novel therapeutic approaches.

Keywords: IL-17; TH17; asthma; depression; eosinophils; fMRI; gene expression network analysis; salience network.

Int Arch Allergy Immunol

. 2023 Sep 20;1-13.

doi: 10.1159/000533403. Online ahead of print.

The Relationship between Allergic Disease and Sexual Dysfunction: A Scoping Review

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Affiliations expand

- PMID: 37729893

- DOI: 10.1159/000533403

Free article

Abstract

Introduction: Sexual dysfunction (SD) and allergic disease are common health concerns worldwide and bear a potential relationship. This scoping review is conducted to analyze the currently available data regarding the associations between these two health issues.

Methods: A comprehensive literature search was performed in the databases of PubMed, MEDLINE, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), and Web of Science to retrieve studies that were published before January 2023. A narrative synthesis was conducted to analyze the effects of allergic diseases on SD based on the evaluation of the Female Sexual Function Index (FSFI) and International Index of Erectile Function (IIEF).

Results: Twelve observational studies were included after the selection process. The results generally suggested lower FSFI or IIEF scores in patients with asthma, allergic rhinitis, allergic rhinoconjunctivitis, and urticaria compared to the healthy control groups. The underlying factors of this relationship could be inflammation, psychological factors, hormonal changes, sleep disorders, sexual behavior-related allergic reactions, social economic status, and the use of medications.

Conclusion: SD and allergic disease are interrelated based on the extant literature. This scoping review provides insights into the clinical implications of both entities, while more research studies are warranted to further elucidate this complex relationship.

Keywords: Allergic conjunctivitis; Allergic disease; Allergic rhinitis; Sexual dysfunction; Urticaria.

15

J Bras Pneumol

. 2023 Sep 18;49(4):e20230236.

doi: 10.36416/1806-3756/e20230236.

The role of the pulmonary function laboratory to assist in disease management: Asthma

[Article in English, Portuguese]

José Alberto Neder[1], Danilo Cortozi Berton[2], Denis E O'Donnell[1]

Affiliations expand

- PMID: 37729249

- DOI: 10.36416/1806-3756/e20230236

Free article

No abstract available

SUPPLEMENTARY INFO

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. 2023 Sep 20.

doi: 10.1002/ppul.26679. Online ahead of print.

A multicenter randomized, double-blind, placebo-controlled, parallel-group study to evaluate the effects of a 1-year regimen of orally inhaled fluticasone furoate 50 µg once daily on growth velocity in prepubertal, pediatric participants with well-controlled asthma

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Affiliations expand

- PMID: 37728224

- DOI: 10.1002/ppul.26679

Abstract

Introduction: Growth impairment is a known adverse event (AE) of corticosteroids in children. This study aimed to assess the effect of once-daily (QD) inhaled fluticasone furoate (FF) versus placebo on growth velocity over 1 year in prepubertal children with well-controlled asthma.

Materials and methods: This randomized, double-blind, parallel-group, placebo-controlled, multicenter study (NCT02889809) included prepubertal children, aged 5 to <9 years (boys), and 5 to <8 years (girls), with ≥6 months' asthma history. Children received inhaled placebo QD plus background open-label montelukast QD for a 16-week run-in period and were then randomized 1:1 to receive inhaled FF 50 µg QD or placebo QD (whilst continuing background open-label montelukast) for a 52-week treatment period. The primary endpoint was the difference in growth velocity (cm/year) over the treatment period. Other growth endpoints were measured, as were incidence of AEs and asthma exacerbation. Growth analyses included all intent-to-treat (ITT) participants with ≥3 post-randomization, on-treatment clinic visit height assessments (GROWTH population).

Results: Of 644 children in the run-in period, 477 (mean age 6.2 years, 63% male) entered the 52-week treatment period (ITT population: FF N = 238, placebo N = 239; GROWTH population: N = 457 [FF N = 231; placebo N = 226]). The least-squares mean difference in growth velocity for FF versus placebo was -0.160 cm/year (95% confidence interval: -0.462, 0.142). There were no new safety signals.

Conclusions: Over 1 year, FF 50 µg QD had a minimal effect on growth velocity versus placebo, with no new safety signals.

Keywords: height; inhaled corticosteroids; pediatric asthma.

- 29 references

SUPPLEMENTARY INFO

Review

Subst Abus

. 2023 Sep 20;8897077231186228.

doi: 10.1177/08897077231186228. Online ahead of print.

Effects of Smoking Marijuana on the Respiratory System: A Systematic Review

Jorge Vásconez-González[1,2], Karen Delgado-Moreira[1], Belén López-Molina[1], Juan S Izquierdo-Condoy[1], Esteban Gámez-Rivera[1], Esteban Ortiz-Prado[1]

Affiliations expand

- PMID: 37728136

- DOI: 10.1177/08897077231186228

Abstract

Background: The prevalence of marijuana use and its derivatives has surged over the past century, largely due to increasing legalization globally. Despite arguments advocating its benefits, marijuana smoking exposes the lungs to harmful combustion byproducts, leading to various respiratory issues such as asthma, pneumonia, emphysema, and chronic obstructive pulmonary disease.

Methods: We embarked on an extensive literature search, utilizing PubMed/Medline, Scopus, Web of Science, and Google Scholar databases, identifying 200 studies. After the elimination of duplicates, and meticulous review of abstracts and full texts, 55 studies were included in our analysis.

Results: Current literature demonstrates that marijuana use negatively impacts lung function, triggering symptoms like chronic cough, sputum production, and wheezing, and diminishing FEV1/FVC ratio in spirometry tests. Moreover, prolonged or chronic marijuana use augments the risk of respiratory function impairment. While the carcinogenic effects of marijuana are still contested, a weak correlation between marijuana use and lung cancer has been observed in some studies. Additionally, instances of other pathologies linked to marijuana use have been reported, including the development of COPD, pulmonary bullae, spontaneous pneumothorax, pleuritic pain, chronic pulmonary aspergillosis, hemoptysis, and pulmonary Langerhans cell histiocytosis.

Conclusions: The evidence underscores that marijuana use is detrimental to respiratory health. In light of the escalating trend of marijuana use, particularly among the youth, it is imperative to advocate public health messages discouraging its consumption.

Keywords: acute effects; cannabis; consumption; long-term effects; marijuana; respiratory system.

. 2023 Sep 20.

doi: 10.1002/ejhf.3039. Online ahead of print.

Noncardiac comorbidities and intensive up-titration of oral treatment in patients recently hospitalized for heart failure: insights from the STRONG-HF trial

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Affiliations expand

- PMID: 37728038

- DOI: 10.1002/ejhf.3039

Abstract

Aims: To assess the potential interaction between noncardiac comorbidities (NCCs) and the efficacy and safety of high intensity care (HIC) versus usual care (UC) in STRONG-HF trial, including stable patients with improved but still elevated NPs METHODS AND RESULTS: In the trial, 8 NCCs were reported: anemia, diabetes, renal dysfunction, severe liver disease, COPD/asthma, stroke/TIA, psychiatric/neurological disorders, and malignancies. Patients were classified by NCC number (0, 1, 2 and ≥3). The treatment effect of HIC versus UC on the primary endpoint, 180-day death or HF-rehospitalization, was compared by NCC number and by each individual comorbidity. Among the 1078 patients, the prevalence of 0, 1, 2 and ≥3 NCCs was 24.3%, 39.8%, 24.5% and 11.3%. Achievement of full doses of HF-therapies at 90- and 180-days in the HIC was similar irrespective of NCCs number. In the HIC, the primary endpoint occurred in 10.0%, 16,6%, 13,6% and 26,2%, in those with 0, 1, 2 and ≥3 NCCs, as compared to 19,1%, 25,4%, 23,3% and 26,2% in UC

(interaction-p=0.80). The treatment benefit of HIC vs. UC on the primary endpoint didn't differ significantly by each individual comorbidity. There was no significant treatment interaction by NCC number in quality-of-life improvement (p=0.98) or the incidence of serious adverse events (p=0.11).

Conclusions: In the STRONG-HF trial, non-cardiac comorbidities neither limited the rapid up-titration of HF-therapies, nor attenuated the benefit of HIC on primary endpoint. In the context of a clinical trial, the benefit-risk ratio favors the rapid up-titration of HF-therapies even in patients with multiple NCCs This article is protected by copyright. All rights reserved.

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ERJ Open Res

. 2023 Sep 18;9(5):00302-2023.

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Development of a risk score to increase detection of severe alpha-1 antitrypsin deficiency

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Affiliations expand

- PMID: 37727673

- PMCID: PMC10505949

- DOI: 10.1183/23120541.00302-2023

Free PMC article

Abstract

Background: Alpha-1 antitrypsin deficiency (AATD) is an under-recognised genetic cause of chronic obstructive lung disease, and many fewer cases than estimated have been identified. Can a reported respiratory and hepatic disease history from a large AATD testing database be used to stratify a person's risk of severe AATD?

Methods: We analysed data extracted from the AATD National Detection Program. Demographics and medical history were evaluated to predict AATD PI*ZZ genotype. Logistic regression and integer programming models identified predictors and obtained risk scores. These were internally validated on a subset of the data.

Results: Out of 301 343 subjects, 1529 (0.5%) had PI*ZZ genotype. Predictors of severe AATD were asthma, bronchitis, emphysema, allergies, bronchiectasis, family history of AATD, cirrhosis, hepatitis and history of abnormal liver function tests. The derived model establishes a subject's risk of severe AATD, and scores ≥0 had an estimated risk of 0.41%, sensitivity 84.62% and specificity 24.32%. A model simulating guideline recommendations had an estimated risk of 0.51% with a sensitivity of 37.98% and specificity 46.60%. By recommending screening for scores ≥0, we estimate that more subjects would be screened (75.7% *versus* 53.4%) and detected (84.6% *versus* 58.2%) compared to a guideline-simulated model.

Conclusion: This medical history risk model is a useful predictive tool to detect subjects at greater risk of having severe AATD and improves sensitivity of detection. Scores <0 are at lower risk and may need not be screened; testing is recommended for scores ≥0 and consistent with current guidelines.

Conflict of interest statement

Conflict of interest: None declared.

- 41 references
- 3 figures

20

Med Princ Pract

. 2023 Sep 19.

doi: 10.1159/000534172. Online ahead of print.

Ocular Surface, Intraocular Pressure and Lens Condition in Bronchodilator and Steroid-Treated Patients with Chronic Pulmonary Disease

Özge Aydın Güçlü, Ayna Sariyeva Ismayilov

- PMID: 37725938

- DOI: 10.1159/000534172

Free article

Abstract

Objectives: The aim of this study was to investigate ocular surface, intraocular pressure and lens condition in bronchodilator- and steroid-treated chronic pulmonary disease patients.

Methods: In this cross-sectional clinical study, 101 patients with chronic pulmonary disease were treated with an inhaler and/or nebulized therapy for bronchodilatation. The patients were evaluated in 2 groups namely chronic obstructive pulmonary disease (COPD)

and asthma. We investigated the effects of patient demographic characteristics, smoking, and medications on the presence of dry eye disease (DED), intraocular pressure, and cataract.

Results: Patients had a mean age of 66.4 ± 11.9 years, and 46.5% (n = 47) were female. A unit increase in the length of inhaled corticosteroids (ICS) and long-acting beta-agonists (LABA) combination use was associated with a 1.02-fold increase in cataract risk (OR: 1.02, CI: 1.01-1.04, p = 0.016), and current smokers had 10.8 times as many cataracts (OR: 10.79, CI: 1.70-68.30, p = 0.011). Patients who used a nebulized corticosteroid had a 9.15 times higher risk of developing dry eyes than those who did not (OR: 9.15, CI: 2.34-35.75, p = 0.001). In patients using ICS-LABA, in comparison to formoterol beclomethasone, salmeterol fluticasone was found to increase the risk 7.49-fold for DED (OR: 7.49, CI: 1.48-35.75, p = 0.015).

Conclusions: Nebulizer delivery of steroids is associated with dry eye and cataracts. Smoking, ageing, and long-term inhaled steroid use have all been linked to an increased risk of cataracts. Longitudinal and larger sample size studies are needed to explore cause-effect relationships.

21

J Asthma

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. 2023 Sep 19;1-9.

doi: 10.1080/02770903.2023.2260881. Online ahead of print.

Predicting pediatric severe asthma exacerbations: an administrative claims-based predictive model

Mandana Rezaeiahari[1], Clare C Brown[1], Arina Eyimina[1], Tamara T Perry[2,3], Anthony Goudie[1], Melanie Boyd[1], J Mick Tilford[1], Akilah A Jefferson[2,3]

Affiliations expand

- PMID: 37725084

- DOI: 10.1080/02770903.2023.2260881

Abstract

Objective: Previous machine learning approaches fail to consider race and ethnicity and social determinants of health (SDOH) to predict childhood asthma exacerbations. A predictive model for asthma exacerbations in children is developed to explore the importance of race and ethnicity, rural-urban commuting area (RUCA) codes, the Child Opportunity Index (COI), and other ICD-10 SDOH in predicting asthma outcomes.

Methods: Insurance and coverage claims data from the Arkansas All-Payer Claims Database were used to capture risk factors. We identified a cohort of 22,631 children with asthma aged 5-18 years with 2 years of continuous Medicaid enrollment and at least one asthma diagnosis in 2018. The goal was to predict asthma-related hospitalizations and asthma-related emergency department (ED) visits in 2019. The analytic sample was 59% age 5-11 years, 39% White, 33% Black, and 6% Hispanic. Conditional random forest models were used to train the model.

Results: The model yielded an area under the curve (AUC) of 72%, sensitivity of 55% and specificity of 78% in the OOB samples and AUC of 73%, sensitivity of 58% and specificity of 77% in the training samples. Consistent with previous literature, asthma-related hospitalization or ED visits in the previous year (2018) were the two most important variables in predicting hospital or ED use in the following year (2019), followed by the total number of reliever and controller medications.

Conclusions: Predictive models for asthma-related exacerbation achieved moderate accuracy, but race and ethnicity, ICD-10 SDOH, RUCA codes, and COI measures were not important in improving model accuracy.

Keywords: Random forest; claims data; conditional random forest; machine learning; variable importance.

22

Review

Immunotherapy

. 2023 Sep 19.

doi: 10.2217/imt-2023-0079. Online ahead of print.

Tezepelumab: an anti-thymic stromal lymphopoietin monoclonal antibody for the treatment of asthma

Masaharu Shinkai[1], Tadataka Yabuta[2]

Affiliations expand

- PMID: 37724378

- DOI: 10.2217/imt-2023-0079

Free article

Abstract

Asthma is a common chronic respiratory disease in which epithelial cytokines and airway inflammation play critical pathophysiological roles. Thymic stromal lymphopoietin (TSLP), an epithelial cytokine, is central in the initiation and persistence of airway inflammation in asthma. Tezepelumab is a human immunoglobulin G2λ (IgG2λ) monoclonal antibody developed for treating moderate-to-severe asthma by specifically binding to TSLP and preventing its binding to the TSLP receptor on inflammatory cells. In this narrative review, we describe the results of clinical trials that evaluated the pharmacokinetics, pharmacodynamics, efficacy and safety of tezepelumab in patients with moderate-to-severe asthma. We also introduce the ongoing clinical trials in patients with asthma as well as future trials investigating the use of tezepelumab for other indications.

Keywords: Th2 cell; asthma; clinical trial; epithelial cytokine; inflammation; innate lymphocyte; lung health; tezepelumab; thymic stromal lymphopoietin.

Plain language summary

Asthma is a long-term disease that causes inflammation in the cells of the lung. One of the cytokines (proteins) involved in asthma is called thymic stromal lymphopoietin (TSLP). This cytokine is produced by the airway epithelium, a layer of cells covering the respiratory tract in the lungs, where it activates inflammatory cells. Tezepelumab is a new drug that blocks the activity of TSLP in the lungs and helps reduce asthma symptoms, such as coughing and breathlessness. In this article, we describe the clinical trials that investigated how well tezepelumab works, as well as its safety, in people with moderate or severe asthma. We also describe the trials of tezepelumab that are now underway in people with asthma, allergies or other inflammatory diseases.

. 2023 Sep 19.

doi: 10.1007/s12325-023-02659-y. Online ahead of print.

Effect of Tezepelumab on Lung Function in Patients With Severe, Uncontrolled Asthma in the Phase 3 NAVIGATOR Study

Andrew Menzies-Gow[1,2], Christopher S Ambrose[3], Gene Colice[4], Gillian Hunter[5], Bill Cook[3], Nestor A Molfino[6], Jean-Pierre Llanos[7], Elliot Israel[8]

Affiliations expand

- PMID: 37723356

- DOI: 10.1007/s12325-023-02659-y

Abstract

Introduction: Severe asthma is associated with airway inflammation and airway obstruction. In the phase 3 NAVIGATOR study, tezepelumab treatment significantly improved pre-bronchodilator forced expiratory volume in 1 s (FEV_1) compared with placebo in patients with severe, uncontrolled asthma. This analysis assessed the effect of tezepelumab versus placebo on additional lung function parameters in patients from NAVIGATOR.

Methods: NAVIGATOR was a multicenter, randomized, double-blind, placebo-controlled study. Patients (12-80 years old) receiving medium- or high-dose inhaled corticosteroids and at least one additional controller medication, with or without oral corticosteroids, were randomized 1:1 to tezepelumab 210 mg or placebo subcutaneously every 4 weeks for 52 weeks. Changes from baseline to week 52 in pre-bronchodilator FEV_1, post-bronchodilator FEV_1, forced vital capacity (FVC), pre-bronchodilator FEV_1/FVC ratio, pre-bronchodilator forced expiratory flow between 25 and 75% of vital capacity (FEF_{25-75}), and morning and evening peak expiratory flow (PEF) were assessed.

Results: Tezepelumab treatment improved all evaluated lung function parameters over 52 weeks compared with placebo [least-squares mean difference (95% confidence interval): pre-bronchodilator FEV_1, 0.13 (0.08, 0.18) L; post-bronchodilator FEV_1, 0.12 (0.07, 0.16) L;

FVC, 0.13 (0.07, 0.19) L; FEV_1/FVC ratio, 2.06% (1.22%, 2.90%); FEF_{25-75}, 0.13 (0.07, 0.19) L/s; morning PEF, 16.6 (8.1, 25.1) L/min; and evening PEF, 14.9 (6.3, 23.4) L/min]. Improvements were observed as early as weeks 1-2 and were maintained over 52 weeks. Greater improvements in lung function compared with placebo were observed in patients with a disease duration of less than 20 years, those with baseline post-bronchodilator FEV_1 reversibility of at least 20%, and in patients with a baseline post-bronchodilator FEV_1/FVC ratio of less than 0.7.

Conclusion: These findings further support the benefits of tezepelumab treatment in improving airflow limitation in patients with severe, uncontrolled asthma.

Clinical trial registration: NAVIGATOR (NCT03347279).

Keywords: Biologics; Forced expiratory volume in 1 s (FEV1); Pulmonary function; Tezepelumab; Thymic stromal lymphopoietin (TSLP).

- 35 references

SUPPLEMENTARY INFO

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Proc Natl Acad Sci U S A

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. 2023 Sep 26;120(39):e2302409120.

doi: 10.1073/pnas.2302409120. Epub 2023 Sep 18.

Emergency department visits respond nonlinearly to wildfire smoke

Sam Heft-Neal[1], Carlos F Gould[2], Marissa L Childs[3], Mathew V Kiang[4], Kari C Nadeau[5], Mark Duggan[6 7 8], Eran Bendavid[9 10], Marshall Burke[1 2 8]

Affiliations expand

- PMID: 37722035

- DOI: 10.1073/pnas.2302409120

Abstract

Air pollution negatively affects a range of health outcomes. Wildfire smoke is an increasingly important contributor to air pollution, yet wildfire smoke events are highly salient and could induce behavioral responses that alter health impacts. We combine geolocated data covering all emergency department (ED) visits to nonfederal hospitals in California from 2006 to 2017 with spatially resolved estimates of daily wildfire smoke PM[Formula: see text] concentrations and quantify how smoke events affect ED visits. Total ED visits respond nonlinearly to smoke concentrations. Relative to a day with no smoke, total visits increase by 1 to 1.5% in the week following low or moderate smoke days but decline by 6 to 9% following extreme smoke days. Reductions persist for at least a month. Declines at extreme levels are driven by diagnoses not thought to be acutely impacted by pollution, including accidental injuries and several nonurgent symptoms, and declines come disproportionately from less-insured populations. In contrast, health outcomes with the strongest physiological link to short-term air pollution increase dramatically in the week following an extreme smoke day: We estimate that ED visits for asthma, COPD, and cough all increase by 30 to 110%. Data from internet searches, vehicle traffic sensors, and park visits indicate behavioral changes on high smoke days consistent with declines in healthcare utilization. Because low and moderate smoke days vastly outweigh high smoke days, we estimate that smoke was responsible for an average of 3,010 (95% CI: 1,760-4,380) additional ED visits per year 2006 to 2017. Given the increasing intensity of wildfire smoke events, behavioral mediation is likely to play a growing role in determining total smoke impacts.

Keywords: behavior; health; pollution; wildfire.

SUPPLEMENTARY INFO

MeSH terms, Grants and fundingexpand

JAMA

. 2023 Sep 19;330(11):1096.

doi: 10.1001/jama.2023.12733.

Housing Mobility Intervention for Childhood Asthma

Shen Ko[1], Nin-Chieh Hsu[2]

Affiliations expand

- PMID: 37721618

- DOI: 10.1001/jama.2023.12733

No abstract available

Comment in

- Housing Mobility Intervention for Childhood Asthma-Reply.

  Pollack CE, Matsui EC, Keet CA.JAMA. 2023 Sep 19;330(11):1097. doi: 10.1001/jama.2023.12736.PMID: 37721613 No abstract available.

- Piperacillin-Tazobactam vs Cefoxitin Prophylaxis for Pancreatoduodenectomy.
  Jouffroy R, Lupinacci RM, Dournon N.JAMA. 2023 Sep 19;330(11):1097-1098. doi: 10.1001/jama.2023.12776.PMID: 37721615 No abstract available.

Comment on

- Association of a Housing Mobility Program With Childhood Asthma Symptoms and Exacerbations.
  Pollack CE, Roberts LC, Peng RD, Cimbolic P, Judy D, Balcer-Whaley S, Grant T, Rule A, Deluca S, Davis MF, Wright RJ, Keet CA, Matsui EC.JAMA. 2023 May 16;329(19):1671-1681. doi: 10.1001/jama.2023.6488.PMID: 37191703

Comment

JAMA

. 2023 Sep 19;330(11):1097.

doi: 10.1001/jama.2023.12736.

Housing Mobility Intervention for Childhood Asthma–Reply

Craig Evan Pollack[1,2], Elizabeth C Matsui[3], Corinne A Keet[4]

Affiliations expand

- PMID: 37721613

- DOI: 10.1001/jama.2023.12736

No abstract available

Comment on

- Association of a Housing Mobility Program With Childhood Asthma Symptoms and Exacerbations.

  Pollack CE, Roberts LC, Peng RD, Cimbolic P, Judy D, Balcer-Whaley S, Grant T, Rule A, Deluca S, Davis MF, Wright RJ, Keet CA, Matsui EC.JAMA. 2023 May 16;329(19):1671-1681. doi: 10.1001/jama.2023.6488.PMID: 37191703

- Housing Mobility Intervention for Childhood Asthma.
  Ko S, Hsu NC.JAMA. 2023 Sep 19;330(11):1096. doi: 10.1001/jama.2023.12733.PMID: 37721618 No abstract available.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

27

Pediatr Pulmonol

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. 2023 Sep 18.

doi: 10.1002/ppul.26688. Online ahead of print.

Long term respiratory morbidity of cesarean-delivered second twin compared to their vaginally-delivered sibling: A retrospective population-based cohort study

Israel Yoles[1,2], Eyal Sheiner[1], Tamar Wainstock[3]

Affiliations expand

- PMID: 37721028

- DOI: 10.1002/ppul.26688

Abstract

Background: Offspring born via cesarean delivery (CD) may be more prone to develope long-term respiratory diseases, compared to those delivered vaginally (VD). In this study, we compared the rates of respiratory diseases between first twins VD and second twins delivered via CD.

Methods: This was a retrospective database study. All twin deliveries encompassed at the Soroka University Medical Center, a large tertiary hospital in southern Israel, between 1991 and 2020, in which the first twin was VD and the second via CD were included. Respiratory diseases included respiratory tract diseases such as bronchiolitis and bronchial asthma. The cumulative incidence of respiratory diseases was compared between the twins using Kaplan-Meier survival analysis and multivariable Cox models to adjust for confounding variables.

Results: A total of 395,408 deliveries occurred during the study period, with 13,402 (3.4%) of all deliveries being twins. Of these, 184 (1.4%) were first twins VD and second twins delivered via CD. The second CD twin was more likely to have a non-reassuring fetal heart rate pattern and an Apgar score less than 7 at 5 min. No other differences were found between the siblings. The incidence of long-term respiratory diseases was not statistically different between the CD and VD siblings (7.6% vs. 9.4%, respectively; OR = 0.54; 95% CI: 0.23-1.26). Similarly, the cumulative incidence of respiratory diseases was not statistically different (Kaplan-Meier, log-rank, p = .59), and in the multivariable analysis which adjusted for birthweight and fetal distress during delivery (adjusted hazard ratio = 1.06; 95% CI: 0.43-26.25).

Conclusions: While the immediate outcomes for the CD twin were slightly worse compared to the VD twin, there was no difference in long-term respiratory diseases between the siblings.

Keywords: cesarean section; long-term morbidity; respiratory diseases; siblings; twins.

- 44 references

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

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

1
Acta Otolaryngol

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. 2023 Sep 22;1-6.

doi: 10.1080/00016489.2023.2255222. Online ahead of print.

Type 2 diabetes mellitus increases postoperative recurrence risk in Chinese patients with chronic rhinosinusitis

Mengfei Luo[1], En Zhou[2], Fusen Peng[1]

Affiliations expand

- PMID: 37737711

- DOI: 10.1080/00016489.2023.2255222

Abstract

Background: The effect of type 2 diabetes mellitus (T2DM) on postoperative recurrence of chronic sinusitis (CRS) is unclear.

Objective: To investigate the association between T2DM and postoperative recurrence in CRS patients.

Methods: CRS patients who underwent surgery in our hospital from January 2018 to April 2020 were included and followed up for three years. Patients were classified into non-recurrent and recurrent CRS groups based on follow-up outcome, and logistic regression analysis was performed to identify risk factors for postoperative recurrence.

Results: A total of 412 CRS patients were included of whom 68 had T2DM. The postoperative recurrence rate was significantly higher in the T2DM group compared to the non-T2DM group ($p < .05$). T2DM prevalence and fasting blood glucose (FBG) levels were higher in recurrent CRS patients than those in non-recurrent CRS cases ($p < .05$). Multivariate regression analyses showed that age, duration of disease, FBG, and comorbid allergic rhinitis (AR) were significantly associated with an increased risk of postoperative recurrence of CRS ($p < .05$). Furthermore, adjusted logistic regression model revealed that T2DM was an independent risk factor for postoperative recurrence of CRS ($p < .05$).

Conclusions: Elevated FBG levels may significantly influenced the postoperative recurrence of CRS in Chinese patients, and T2DM was an independent risk factor for recurrence.

Keywords: Chronic rhinosinusitis; fasting blood glucose; recurrence; surgery; type 2 diabetes mellitus.

Otolaryngol Clin North Am

. 2023 Sep 20;S0030-6665(23)00156-1.

doi: 10.1016/j.otc.2023.08.009. Online ahead of print.

Allergic Rhinitis, Rhinosinusitis, and Asthma: Connections Across the Unified Airway

Paavali Hannikainen[1], Chase Kahn[2], Elina Toskala[2]

Affiliations expand

- PMID: 37735024

- DOI: 10.1016/j.otc.2023.08.009

Abstract

The upper and lower airways are referred to as a single, integrated entity in the unified airway paradigm. When an allergen exposure occurs, the body responds locally and systemically, causing inflammation in other respiratory sites. As a result, asthmatic lower airway inflammation frequently coexists with upper airway inflammation, such as allergic rhinitis. Otolaryngologists are in a unique position to detect undiagnosed lower airway illness, start the proper therapy, and improve patient outcomes since they regularly encounter patients with upper airway problems.

Keywords: Allergic rhinitis; Asthma; Inflammation; Shared immunity; Unified airway.

Conflict of interest statement

Disclosure E. Toskala – GSK: speakers' bureau, research funding, consultant; Aerin: consultant; Optinose: research funding; Medtronic: consultant.

SUPPLEMENTARY INFO

Int Arch Allergy Immunol

. 2023 Sep 20;1-13.

doi: 10.1159/000533403. Online ahead of print.

The Relationship between Allergic Disease and Sexual Dysfunction: A Scoping Review

Ting-Yi Chiang[1,2], Hsiang-Ying Lee[3,4,5], Wei-Chen Chien[6], Hsiao-Chun Su[7], Yung-Chun Su[8], Chung-Wei Lin[9]

Affiliations expand

- PMID: 37729893

- DOI: 10.1159/000533403

Free article

Abstract

Introduction: Sexual dysfunction (SD) and allergic disease are common health concerns worldwide and bear a potential relationship. This scoping review is conducted to analyze the currently available data regarding the associations between these two health issues.

Methods: A comprehensive literature search was performed in the databases of PubMed, MEDLINE, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), and Web of Science to retrieve studies that were published before January 2023. A narrative synthesis was conducted to analyze the effects of allergic diseases on SD based on the evaluation of the Female Sexual Function Index (FSFI) and International Index of Erectile Function (IIEF).

Results: Twelve observational studies were included after the selection process. The results generally suggested lower FSFI or IIEF scores in patients with asthma, allergic rhinitis, allergic rhinoconjunctivitis, and urticaria compared to the healthy control groups. The underlying factors of this relationship could be inflammation, psychological factors, hormonal changes, sleep disorders, sexual behavior-related allergic reactions, social economic status, and the use of medications.

Conclusion: SD and allergic disease are interrelated based on the extant literature. This scoping review provides insights into the clinical implications of both entities, while more research studies are warranted to further elucidate this complex relationship.

Keywords: Allergic conjunctivitis; Allergic disease; Allergic rhinitis; Sexual dysfunction; Urticaria.

Chronic cough

1
Pulmonology

. 2023 Sep 22;S2531-0437(23)00154-X.

doi: 10.1016/j.pulmoe.2023.08.003. Online ahead of print.

Disease burden, comorbidities and antecedents of chronic cough phenotypes in Australian adults

S Suresh[1], J L Perret[2], E H Walters[3], M J Abramson[4], G Bowatte[2], C Lodge[2], A Lowe[2], B Erbas[5], P Thomas[6], G S Hamilton[7], A B Chang[8], S C Dharmage[9], D S Bui[2]

Affiliations expand

- PMID: 37743172

- DOI: 10.1016/j.pulmoe.2023.08.003

Abstract

Background and objectives: While adult chronic cough has high burden, its phenotypes, particularly those without aetiologically related underlying conditions, are understudied. We investigated the prevalence, lung function and comorbidities of adult chronic cough phenotypes.

Methods: Data from 3608 participants aged 53 years from the Tasmanian Longitudinal Health Study (TAHS) were included. Chronic cough was defined as cough on most days for >3 months in a year. Chronic cough was classified into "explained cough" if there were any one of four major cough-associated conditions (asthma, COPD, gastroesophageal reflux disease or rhinosinusitis) or "unexplained cough" if none were present. Adjusted regression analyses investigated associations between these chronic cough phenotypes, lung function and non-respiratory comorbidities at 53 years.

Results: The prevalence of chronic cough was 10% (95%CI 9.1,11.0%) with 46.4% being "unexplained". Participants with unexplained chronic cough had lower FEV_1/FVC (coefficient: -1.2% [95%CI:-2,3, -0.1]) and increased odds of comorbidities including obesity (OR=1.6 [95%CI: 1.2, 2.3]), depression (OR=1.4 [95%CI: 1.0, 2.1]), hypertension (OR=1.7 [95%CI: 1.2, 2.4]) and angina, heart attack or myocardial infarction to a lesser extent, compared to those without chronic cough. Participants with explained chronic cough also had lower lung function than both those with unexplained chronic cough and those without chronic cough.

Conclusions: Chronic cough is prevalent in middle-age and a high proportion is unexplained. Unexplained cough contributes to poor lung function and increased

comorbidities. Given unexplained chronic cough is not a symptom of major underlying respiratory conditions it should be targeted for better understanding in both clinical settings and research.

Keywords: Chronic cough; Comorbidity; Cough phenotypes; Lung function.

Conflict of interest statement

Conflicts of interest Michael Abramson received grants from Pfizer and Boehringer Ingelheim outside the submitted work. Other authors have no conflicts of interest.

2

Review

Respir Investig

. 2023 Sep 20;61(6):773-780.

doi: 10.1016/j.resinv.2023.08.007. Online ahead of print.

Management goals and stable phase management of patients with chronic obstructive pulmonary disease in the Japanese respiratory society guideline

for the management of chronic obstructive pulmonary disease 2022 (6th edition)

Yoko Shibata[1], Tomotaka Kawayama[2], Shigeo Muro[3], Hisatoshi Sugiura[4]; members of Japanese Respiratory Society COPD Guideline 6th Edition Editing Committee

Affiliations expand

- PMID: 37741092

- DOI: 10.1016/j.resinv.2023.08.007

Abstract

Chronic obstructive pulmonary disease (COPD) is characterized by airflow obstruction on spirometry and symptoms such as dyspnea on exertion and chronic cough with sputum production, thus making it a significant healthcare issue worldwide. Japanese patients with COPD have unique characteristics compared to patients in Western countries, including older age and lower exacerbation frequency. The Japanese Respiratory Society (JRS) published the 6th edition of the COPD guideline in June 2022. This article introduces the management goals of COPD and describes its management during the stable phase, as outlined in the guideline. Management goals include improving the current status, such as the symptoms, quality of life (QOL), exercise tolerance, and physical activity, and reducing future risks through prevention of exacerbation and suppression of disease progression to prevent shortening of healthy life expectancy. Management plans should include avoidance of causative substances, assessment of disease severity, and personalized treatment plans. Pharmacotherapy using inhalation bronchodilators is a key component of the treatment of stable COPD. Bronchodilators, including short- and long-acting dilators, are commonly used to relieve symptoms and improve QOL. Inhaled corticosteroids (ICSs) are used in combination with long-acting bronchodilators, especially in patients with asthma and COPD overlap, or those experiencing frequent exacerbation of eosinophilia. Combination therapy with a long-acting muscarinic antagonist (LAMA), a long-acting beta 2 agonist (LABA), and ICS is expected to improve QOL and respiratory function and reduce mortality and exacerbation compared to the LAMA + LABA combination. Non-pharmacological therapies, including smoking cessation and pulmonary rehabilitation, should also be considered.

Keywords: COPD; Clinical question; Japanese guideline; Management.

Conflict of interest statement

Conflict of Interest Yoko Shibata: Lecture fees; Boehringer Ingelheim Japan, and AstraZeneca Japan. Tomotaka Kawayama: Honorarium from Boehringer Ingelheim Japan, AstraZeneca Japan, GSK Japan, Sanofi Japan, Novartis Japan, Kyorin, and Teijin Healthcare. Advisory Board: Helios Co., Ltd. Shigeo Muro: Honorarium from Boehringer Ingelheim Japan, and AstraZeneca Japan. Advisory Board: GSK Japan and AstraZeneca Japan. Hisatoshi Sugiura: Honorarium from Boehringer Ingelheim Japan, AstraZeneca Japan, GSK Japan, Sanofi Japan, and Novartis Japan. Advisory Board: GSK Japan and AstraZeneca, Japan.

3

Pediatr Pulmonol

. 2023 Sep 22.

doi: 10.1002/ppul.26677. Online ahead of print.

Factors influencing behavioral cough suppression therapy in children with nonspecific chronic cough

Robert Brinton Fujiki[1], Miranda L Wright[2,3], Amanda E Fujiki[4], Susan L Thibeault[1]

Affiliations expand

- PMID: 37737562

- DOI: 10.1002/ppul.26677

Abstract

Background: Behavioral cough suppression therapy (BCST) with a speech-language pathologist is a common treatment for chronic nonspecific cough (a.k.a., tic cough) in children. Yet, the outcomes and duration of pediatric BCST have eluded formal investigation. This study examined whether BCST improves cough in children with nonspecific cough and factors that predict the course of treatment. Additionally, the cough characteristics and comorbidities associated with the condition were examined.

Methods: A retrospective, observational cohort design was utilized. Cough characteristics, medical history, and BCST treatment details and outcomes for 151 children were extracted from the electronic medical record of a large outpatient pediatric otolaryngology clinic.

Results: Cough was dry and onset unaccompanied by illness in most cases. Roughly half of patients reported gradual onset and cough proceeded by tickle. On average, patients experienced symptoms for 19 months (SD = 20.09) before diagnosis. Rates of comorbid General Anxiety Disorder were elevated compared to pediatric norms. Additionally, high rates of asthma (22.1%), reflux (62.3%), and disordered sleep breathing (19.2%) were observed. Common findings on laryngoscopy included interarytenoid edema and erythema. Vocal fold changes were observed in 22.9% of children. BCST reduced cough in 92.5% of patients following an average of 1.7 sessions. Comorbid behavioral health diagnoses ($p = 0.013$) or induced laryngeal obstruction symptoms ($p = 0.025$) were significant predictors of increased therapy sessions. Cough proceeded by tickle significantly predicted fewer sessions in therapy ($p = 0.011$).

Interpretation: Although randomized clinical trials are needed, these data suggest that BCST is a low-risk, effective treatment for children with nonspecific cough.

Keywords: chronic cough; pediatrics; tic cough.

- 56 references

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

4

Review

Curr Med Res Opin

. 2023 Sep 22;1-11.

doi: 10.1080/03007995.2023.2255128. Online ahead of print.

Interdisciplinary collaboration in the diagnosis and management of chronic cough: the role and importance of primary care providers

Peter V Dicpinigaitis[1], Kenneth W Altman[2], Isil Ulger Isci[3], Xuehua Ke[3], Michael Blaiss[4]

Affiliations expand

- PMID: 37736002

- DOI: 10.1080/03007995.2023.2255128

Abstract

Chronic cough (CC) is associated with many conditions, so identifying contributing causes poses a diagnostic challenge. However, guidelines written for US physicians do not explicitly outline suggested roles for primary care providers (PCPs) in the approach to patients with CC, including refractory or unexplained CC. The objective of this review is to

describe the role of PCPs in the diagnosis and treatment of CC in adults. This narrative review draws upon literature (identified via a PubMed search performed January 9, 2023, using primary care/disease state-related terms) and expertise from specialist physicians to provide recommendations for CC management in primary care. Cough is one of the top reasons patients seek care from PCPs; accordingly, PCPs are often the first physicians to conduct workup and initiate treatment. Patients with CC often experience a burdensome cough that lasts for years, have high healthcare resource utilization (HCRU), undergo multiple or failed treatment trials, and have limited success finding an etiology. Although specialist referral may be needed for many diagnostic tests, initial aspects of CC workup and management should be completed in primary care. Often more accessible than specialists, real-world evidence on HCRU suggests PCPs are important stakeholders in diagnosing and managing CC, including during initial workup and treatment for the most common causes of CC (ie, upper-airway cough syndrome, asthma, noneosinophilic asthmatic bronchitis, and gastroesophageal reflux disease). Thorough workup at the primary care level may facilitate earlier identification of CC cause(s), improving patient journey to diagnosis and management.

Keywords: cough hypersensitivity syndrome; cough/diagnosis; patient care team; physicians/primary care.

5

Nat Commun

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. 2023 Sep 20;14(1):5844.

doi: 10.1038/s41467-023-41495-0.

Chronic cough relief by allosteric modulation of P2X3 without taste disturbance

Chang-Run Guo[#1,2,3], Zhong-Zhe Zhang[#1], Xing Zhou[#1], Meng-Yang Sun[1], Tian-Tian Li[1], Yun-Tao Lei[1], Yu-Hao Gao[1], Qing-Quan Li[1], Chen-Xi Yue[1], Yu Gao[1], Yi-Yu Lin[1], Cui-Yun Hao[1], Chang-Zhu Li[4], Peng Cao[5], Michael X Zhu[6], Ming-Qiang Rong[7], Wen-Hui Wang[8], Ye Yu[9,10]

Affiliations expand

- PMID: 37730705
- PMCID: PMC10511716
- DOI: 10.1038/s41467-023-41495-0

Free PMC article

Abstract

P2X receptors are cation channels that sense extracellular ATP. Many therapeutic candidates targeting P2X receptors have begun clinical trials or acquired approval for the treatment of refractory chronic cough (RCC) and other disorders. However, the present negative allosteric modulation of P2X receptors is primarily limited to the central pocket or the site below the left flipper domain. Here, we uncover a mechanism of allosteric regulation of P2X3 in the inner pocket of the head domain (IP-HD), and show that the antitussive effects of quercetin and PSFL2915 (our nM-affinity P2X3 inhibitor optimized based on quercetin) on male mice and guinea pigs were achieved by preventing allosteric changes of IP-HD in P2X3. While being therapeutically comparable to the newly licensed P2X3 RCC drug gefapixant, quercetin and PSFL2915 do not have an adverse effect on taste as gefapixant does. Thus, allosteric modulation of P2X3 via IP-HD may be a druggable strategy to alleviate RCC.

Conflict of interest statement

The authors declare no competing interests.

- 94 references
- 10 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Proceed to details

Cite

Share

6

Review

Subst Abus

. 2023 Sep 20;8897077231186228.

doi: 10.1177/08897077231186228. Online ahead of print.

Effects of Smoking Marijuana on the Respiratory System: A Systematic Review

Jorge Vásconez-González[1,2], Karen Delgado-Moreira[1], Belén López-Molina[1], Juan S Izquierdo-Condoy[1], Esteban Gámez-Rivera[1], Esteban Ortiz-Prado[1]

Affiliations expand

- PMID: 37728136

- DOI: 10.1177/08897077231186228

Abstract

Background: The prevalence of marijuana use and its derivatives has surged over the past century, largely due to increasing legalization globally. Despite arguments advocating its benefits, marijuana smoking exposes the lungs to harmful combustion byproducts, leading to various respiratory issues such as asthma, pneumonia, emphysema, and chronic obstructive pulmonary disease.

Methods: We embarked on an extensive literature search, utilizing PubMed/Medline, Scopus, Web of Science, and Google Scholar databases, identifying 200 studies. After the elimination of duplicates, and meticulous review of abstracts and full texts, 55 studies were included in our analysis.

Results: Current literature demonstrates that marijuana use negatively impacts lung function, triggering symptoms like chronic cough, sputum production, and wheezing, and diminishing FEV1/FVC ratio in spirometry tests. Moreover, prolonged or chronic marijuana use augments the risk of respiratory function impairment. While the carcinogenic effects of marijuana are still contested, a weak correlation between marijuana use and lung cancer has been observed in some studies. Additionally, instances of other pathologies linked to marijuana use have been reported, including the development of COPD, pulmonary bullae, spontaneous pneumothorax, pleuritic pain, chronic pulmonary aspergillosis, hemoptysis, and pulmonary Langerhans cell histiocytosis.

Conclusions: The evidence underscores that marijuana use is detrimental to respiratory health. In light of the escalating trend of marijuana use, particularly among the youth, it is imperative to advocate public health messages discouraging its consumption.

Keywords: acute effects; cannabis; consumption; long-term effects; marijuana; respiratory system.

Review

Immunotherapy

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. 2023 Sep 19.

doi: 10.2217/imt-2023-0079. Online ahead of print.

Tezepelumab: an anti-thymic stromal lymphopoietin monoclonal antibody for the treatment of asthma

Masaharu Shinkai[1], Tadataka Yabuta[2]

Affiliations expand

- PMID: 37724378

- DOI: 10.2217/imt-2023-0079

Free article

Abstract

Asthma is a common chronic respiratory disease in which epithelial cytokines and airway inflammation play critical pathophysiological roles. Thymic stromal lymphopoietin (TSLP), an epithelial cytokine, is central in the initiation and persistence of airway inflammation in asthma. Tezepelumab is a human immunoglobulin G2λ (IgG2λ) monoclonal antibody developed for treating moderate-to-severe asthma by specifically binding to TSLP and preventing its binding to the TSLP receptor on inflammatory cells. In this narrative review, we describe the results of clinical trials that evaluated the pharmacokinetics, pharmacodynamics, efficacy and safety of tezepelumab in patients with moderate-to-severe asthma. We also introduce the ongoing clinical trials in patients with asthma as well as future trials investigating the use of tezepelumab for other indications.

Keywords: Th2 cell; asthma; clinical trial; epithelial cytokine; inflammation; innate lymphocyte; lung health; tezepelumab; thymic stromal lymphopoietin.

Plain language summary

Asthma is a long-term disease that causes inflammation in the cells of the lung. One of the cytokines (proteins) involved in asthma is called thymic stromal lymphopoietin (TSLP). This cytokine is produced by the airway epithelium, a layer of cells covering the respiratory tract in the lungs, where it activates inflammatory cells. Tezepelumab is a new drug that blocks the activity of TSLP in the lungs and helps reduce asthma symptoms, such as coughing and breathlessness. In this article, we describe the clinical trials that investigated how well tezepelumab works, as well as its safety, in people with moderate or severe asthma. We also describe the trials of tezepelumab that are now underway in people with asthma, allergies or other inflammatory diseases.

SUPPLEMENTARY INFO

Publication types, Grants and fundingexpand

FULL TEXT LINKS

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

1
Acad Radiol

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. 2023 Sep 22;S1076-6332(23)00452-X.

doi: 10.1016/j.acra.2023.08.034. Online ahead of print.

Central Bronchial Deformity in Pulmonary Sarcoidosis: A Finding Suggestive of an Upper Lobe Fibrotic Phenotype on Chest Images

Takeshi Kawanobe[1], Tetsuo Yamaguchi[2], Takeshi Johkoh[3], Chiyoko Kono[4], Michiru Sawahata[5], Noriharu Shijubo[6], Satoshi Konno[7], Koichiro Tatsumi[8]

Affiliations expand

- PMID: 37743162

- DOI: 10.1016/j.acra.2023.08.034

Abstract

Rationale and objectives: Bronchial and lung parenchymal structural remodeling may occur due to disease progression in patients with pulmonary sarcoidosis; however, its mechanisms remain unclear. Central bronchial deformity (CBD) associated with shrinkage in the upper lobe (SUL) is often observed in such patients. This study aimed to examine the association between CBD and structural remodeling to identify features indicating disease severity on chest images.

Materials and methods: This retrospective cohort study included 72 patients with pulmonary sarcoidosis, excluding patients with only bilateral hilar lymphadenopathy. The participants were divided into with and without CBD groups to examine the association between CBD and other structural remodeling, including SUL, cyst and/or low attenuation area-like emphysema (Cyst/LAA), pleural/sub-pleural thickening (PT), and traction bronchiectasis (TrBE), in the upper lobe on chest images. The association of CBD phenotype with respiratory dysfunction was also examined.

Results: CBD was highly associated with SUL (81.4% vs. 8.9%), Cyst/LAA (44.4% vs. 6.7%), and PT (59.2% vs. 3.7%). The respective odds ratios in the univariable and multivariable analyses were as follows: SUL, 45.1 and 39.9; Cyst/LAA, 11.2 and 14.2; and PT, 64.0 and 68.7. TrBE was frequently associated with CBD (22.25% vs. 4.4%); the odds ratio was 6.14 in the univariable analysis. Furthermore, participants with CBD exhibited lower %FVC and $\%D_{LCO}$.

Conclusion: CBD is significantly associated with lung remodeling (SUL, Cyst/LAA, TrBE, and PT) and respiratory dysfunction. CBD may be a crucial clinical phenotype to identify upper lobe fibrotic changes.

Keywords: Bronchiectasis; Emphysema; Fibrosis; Pulmonary sarcoidosis.

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

Editorial

Ann Allergy Asthma Immunol

. 2023 Sep 21;S1081-1206(23)01259-0.

doi: 10.1016/j.anai.2023.09.006. Online ahead of print.

EOSINOPHILIC BRONCHIECTASIS AND THERAPEUTIC OPORTUNITIES

Grace Oscullo[1], Jose Daniel Gomez-Olivas[1], Miguel Ángel Martínez-García[2]

Affiliations expand

- PMID: 37741495

- DOI: 10.1016/j.anai.2023.09.006

No abstract available

Keywords: Neutrophils; bronchiectasis; eosinophils; inhaled corticosteroids; severity.

3

Pulm Pharmacol Ther

. 2023 Sep 21;102260.

doi: 10.1016/j.pupt.2023.102260. Online ahead of print.

Nontuberculous mycobacterial (NTM) infections in bronchiectasis patients: A retrospective US registry cohort study

Myriam Drysdale[1], Radmila Choate[2], Amanda E Brunton[3], Simon Tiberi[4], Iain A Gillespie[5], Noah Lininger[3], Susan B Shrimpton[5], Mark Metersky[6], Nicole C Lapinel[7], Pamela J McShane[8], Christopher J Richards[9], Colin Swenson[10], Hema Sharma[5], David Mannino[11], Kevin L Winthrop[12]; Bronchiectasis and NTM Research Registry Investigators

Affiliations expand

- PMID: 37741357

- DOI: 10.1016/j.pupt.2023.102260

Abstract

Rationale: Longitudinal epidemiological and clinical data are needed to improve the management of patients with bronchiectasis developing nontuberculous mycobacterial (NTM) pulmonary disease.

Objectives: To describe the epidemiology, patient management, and treatment outcomes of NTM infections in patients with bronchiectasis enrolled in the United States Bronchiectasis and NTM Research Registry (US BRR).

Methods: This was a retrospective cohort study of patients with bronchiectasis and NTM infections enrolled with follow-up in the US BRR in 2008-2019. The study included patients with ≥1 positive NTM respiratory culture in the 24-month baseline period (baseline NTM cohort) and/or during the annual follow-up visits (incident NTM cohort). Incidence, prevalence, baseline patient characteristics, treatment exposure, treatment outcomes, and respiratory clinical outcomes were described in the baseline NTM cohort, incident NTM cohort, and both cohorts combined (prevalent NTM cohort).

Results: Between 2008 and 2019, 37.9% (1457/3840) of patients with bronchiectasis in the US BRR met the inclusion criteria for this study, and were reported to have Mycobacterium avium complex (MAC) and/or Mycobacterium abscessus complex (MABSC) infections. MAC prevalence increased steadily in the US BRR during 2009-2019; incidence was relatively stable, except for a peak in 2011 followed by a slow decrease. MABSC and mixed MAC/MABSC infections were rare. Most patients with bronchiectasis and NTM infections in the registry were female, White, and aged >65 years. The antibiotics administered most commonly reflected current guidelines. In the prevalent cohort, 44.9% of MAC infections and 37.1% of MABSC infections remained untreated during follow-up, and MAC treatment was initiated with delay (>90 days after positive NTM respiratory culture) twice as frequently as promptly (≤90 days after positive NTM respiratory culture) (68.6% vs 31.4%, respectively). The median time from diagnosis to treatment was shorter for MABSC vs MAC infections (194.0 days [interquartile range (IQR) 8.0, 380.0] vs 296.0 days [IQR 35.0, 705.0], respectively). Among patients with MAC infections who completed treatment, 27.6% were classified as cured and 29.6% as treatment failure during the annual follow-up visit window. For MABSC, these proportions were 25.0% and 28.0%, respectively.

Conclusions: A considerable proportion of MAC and MABSC infections were untreated or treated after initial delay/observation. MABSC infections were more likely to be treated and start treatment sooner than MAC infections. Further longitudinal studies are warranted to evaluate the monitor-with-delay approach and inform clinical guidelines.

Keywords: Bronchiectasis; Epidemiology; Mycobacterium avium complex (MAC); Nontuberculous mycobacteria; Registry.

Conflict of interest statement

Declaration of competing interest MD, HS, IG, ST, SS: employees of GSK and GSK shareholders at the time of this study; all GSK employees were involved in the study design, decision to publish, data analysis and interpretation, and preparation of the manuscript. ST: scientific liaison officer of The Union; deputy editor of the International

Journal of Tuberculosis and Lung Disease. CS: speaker fees from Insmed. DM: consulting fees from AstraZeneca, COPD Foundation; honoraria from Medscape; payment for expert testimony from Schlesinger Law Firm; stock or stock options with GSK and Johnson and Johnson. MM: advisory board, grants and consulting fees from Insmed. NL: grants for educational projects and conference travel fees from Insmed. PMS: grants as primary investigator for clinical trials from AN2 Therapeutics, Boehringer Ingelheim, Electromed, Hillrom, Insmed, Parateck, Redhill, Revovion; honorarium for steering committee from Insmed; speaker fees for Arikayce from Insmed. KW: grants and/or consulting fees from AN2, Insmed, Paratek, Renovion, Red Hill Biopharma, and Vast; 470 advisory board from Red Hill Biopharma.