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COPD

1
J Sex Med

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-

. 2022 Sep 21;S1743-6095(22)01576-4.

doi: 10.1016/j.jsxm.2022.08.003. Online ahead of print.

COPD and Sexual Health: What the Sexual Medicine Clinician Needs to Know

Ingeborg Farver-Vestergaard[1], Yoon Frederiksen[2], Anders Løkke[3]

Affiliations expand

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- DOI: 10.1016/j.jsxm.2022.08.003

No abstract available

Keywords: Chronic Obstructive Pulmonary Disease; Communication; Dyspnea; Intimacy; Sexual Health.

Review

Pharmaceutics

. 2022 Sep 19;14(9):1974.

doi: 10.3390/pharmaceutics14091974.

A Review of Non-Invasive Drug Delivery through Respiratory Routes

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Affiliations expand

- PMID: 36145722

- DOI: 10.3390/pharmaceutics14091974

Abstract

With rapid and non-invasive characteristics, the respiratory route of administration has drawn significant attention compared with the limitations of conventional routes. Respiratory delivery can bypass the physiological barrier to achieve local and systemic disease treatment. A scientometric analysis and review were used to analyze how respiratory delivery can contribute to local and systemic therapy. The literature data obtained from the Web of Science Core Collection database showed an increasing worldwide tendency toward respiratory delivery from 1998 to 2020. Keywords analysis suggested that nasal and pulmonary drug delivery are the leading research topics in respiratory delivery. Based on the results of scientometric analysis, the research hotspots mainly included therapy for central nervous systems (CNS) disorders (Parkinson's disease,

Alzheimer's disease, depression, glioblastoma, and epilepsy), tracheal and bronchial or lung diseases (chronic obstructive pulmonary disease, asthma, acute lung injury or respiratory distress syndrome, lung cancer, and idiopathic pulmonary fibrosis), and systemic diseases (diabetes and COVID-19). The study of advanced preparations contained nano drug delivery systems of the respiratory route, drug delivery barriers investigation (blood-brain barrier, BBB), and chitosan-based biomaterials for respiratory delivery. These results provided researchers with future research directions related to respiratory delivery.

Keywords: COVID-19; nanoparticles; nasal drug delivery; pulmonary drug delivery; scientometric analysis.

Int J Environ Res Public Health

. 2022 Sep 14;19(18):11573.

doi: 10.3390/ijerph191811573.

Treatment Adherence in Patients with Obstructive Pulmonary Diseases

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Affiliations expand

- PMID: 36141843

- DOI: 10.3390/ijerph191811573

Abstract

COPD is the third most common cause of death globally. Adherence rates in patients with obstructive pulmonary diseases usually range between 10% and 40%. The aim of the study was to evaluate the level of treatment adherence to inhaled therapy in patients with obstructive pulmonary diseases. A total of 325 patients, of mean age 63.04 ± 11.29, with COPD or asthma, were included into the study between 2020 and 2021. The following questionnaires were used: Beliefs about Medicines Questionnaire, Test of Adherence to Inhalers and Adherence to Refills and Medications Scale. The respondents tended to be convinced of the necessity of their medication (3.87 points per question). The patients reported moderate levels of overall adherence (21.15 ± 6.23). A total of 74% of patients demonstrated sporadic non-compliance. We conclude that patients with obstructive pulmonary diseases are moderately adherent to their medication. Beliefs about medicines have a significant impact on adherence to medications. Being unemployed, being a non-smoker and belief in the necessity of medication are independent determinants of better medication adherence. The number of hospital admissions due to exacerbations of the disease over the last year and belief that medicines are harmful are independent determinants of poorer medication adherence.

Keywords: beliefs; chronic obstructive pulmonary disease; compliance; treatment adherence.

Eur Respir J

. 2022 Sep 22;2200302.

doi: 10.1183/13993003.00302-2022. Online ahead of print.

Combination therapy with long-acting bronchodilators and the risk of major adverse cardiovascular events in

patients with chronic obstructive pulmonary disease: a systematic review and meta-analysis

Mingjin Yang[1,2], Yishi Li[1,2], Youfan Jiang[3,2], Shuliang Guo[4], Jian-Qing He[5], Don D Sin[6,7]

Affiliations expand

- PMID: 36137586

- DOI: 10.1183/13993003.00302-2022

Abstract

Introduction: Accumulated high-quality data from randomized controlled trials (RCTs) indicate that long-acting muscarinic antagonist/long-acting β2 agonist (LAMA/LABA) combination therapy significantly improves clinical symptoms, and health status and reduces exacerbation risk of patients with chronic obstructive pulmonary disease (COPD). However, there is a growing concern that LAMA/LABA therapy may increase the risk of cardiovascular disease in patients with COPD. The aim of this paper is to determine whether the use of LAMA/LABA combination therapy modifies the risk of cardiovascular disease in patients with COPD.

Methods: Two reviewers independently searched EMBASE, PubMed, and Cochrane Library to identify relevant RCTs of LAMA/LABA or LABA/LAMA/inhaled corticosteroids (ICS) for the management of patients with COPD that reported on cardiovascular endpoints. The primary outcome was MACE (major adverse cardiovascular events), which was a composite of cardiovascular death, myocardial infarction (MI), or stroke.

Results: Fifty-one RCTs enrolling 91,021 subjects were analyzed. Both dual LAMA/LABA (1.6% *versus* 1.3%; RR, 1.42, 95% CI, 1.11-1.81) and triple therapy (1.6% *versus* 1.4%; RR, 1.29, 95% CI, 1.03-1.61) significantly increased the risk of MACE compared with ICS/LABA. The excess risk was most evident in RCTs in which the average underlying baseline risk for MACE was >1%/year. Compared with LAMA only, LABA only, or placebo, dual LAMA/LABA therapy did not significantly increase the risk of MACE, though these comparisons may have lacked sufficient statistical power.

Conclusion: Compared with ICS/LABA, dual LAMA/LABA or triple therapy increases cardiovascular risk in patients with COPD. This should be considered in the context of the incremental benefits of these therapies on symptoms and exacerbation rates in patients with COPD especially in those with a MACE risk of >1%/year.

J Cardiopulm Rehabil Prev

. 2022 Sep 22.

doi: 10.1097/HCR.0000000000000735. Online ahead of print.

Strategies to Improve Enrollment and Participation in Pulmonary Rehabilitation Following a Hospitalization for COPD: RESULTS OF A NATIONAL SURVEY

Rajashree Kotejoshyer[1], Julianna Eve, Aruna Priya, Kathleen Mazor, Kerry A Spitzer, Penelope S Pekow, Quinn R Pack, Peter K Lindenauer

Affiliations expand

- PMID: 36137210

- DOI: 10.1097/HCR.0000000000000735

Abstract

Purpose: Pulmonary rehabilitation (PR) improves outcomes for patients with chronic obstructive pulmonary disease (COPD); however, very few patients attend. We sought to describe strategies used to promote participation in PR after a hospitalization for COPD.

Methods: We surveyed a random sample of 323 US-based PR programs. Using a positive deviance approach, we developed a 39-item survey based on interviews with clinicians at hospitals demonstrating high rates of participation in PR. Items focused on strategies used to promote participation as well as relevant contextual factors.

Results: We received responses from 209 programs (65%), of which 88% (n = 184) were hospital-based outpatient facilities. Most (91%, n = 190) programs described enrolling patients continuously, and 80% (n = 167) reported a wait time from referral to the initial PR visit of <4 wk. Organization-level strategies to increase referral to PR included active surveillance (48%, n = 100) and COPD-focused staff (49%, n = 102). Provider-level strategies included clinician education (45%, n = 94), provider outreach (43%, n = 89), order sets (45%, n = 93), and automated referrals (23%, n = 48). Patient-level strategies included bedside education (53%, n = 111), flyers (49%, n = 103), motivational interviewing (33%, n = 69), financial counseling (64%, n = 134), and transportation assistance (35%, n = 73). Fewer than one-quarter (18%, n = 38) of PR programs reported using both bedside education and automatic referral, and 42% (n = 88) programs did not use either strategy.

Conclusions: This study describes current practices in the United States, and highlights opportunities for improvement at the organization, provider, and patient level. Future research needs to demonstrate the effectiveness of these strategies, alone or in combination.

Conflict of interest statement

The authors declare no conflicts of interest.

- 39 references

. 2022 Sep 12;2022:2711489.

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Association of β 2-Agonist Receptor Gene Polymorphisms with Acute Exacerbations of COPD: A Prospective Observational Study

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Affiliations expand

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- PMCID: PMC9484971

- DOI: 10.1155/2022/2711489

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Abstract

Objective: To investigate the relationship between β2-agonist receptor gene polymorphisms and acute exacerbations of chronic obstructive pulmonary disease (COPD).

Methods: Retrospective analysis of 99 patients in the respiratory and critical care unit of Fujian Provincial Hospital from 2018 to 2020. The clinical characteristics of different genotypes were compared, and the treatments of different genotypes and the analysis of factors associated with acute exacerbations of COPD were compared.

Results: During the 12-month follow-up period, 53 patients developed acute exacerbations, with the 16Arg/Arg homozygous requiring significantly more antibiotics and hormones than the other two genotypes; when agonist receptor 16 gene polymorphism was associated with the risk of acute exacerbation, 16Arg/Gly patients had a 5.286-fold increased risk of acute exacerbation (OR = 6.286, 95% CI. 1.476-26.759, P=0.013). 16Arg/Arg patients had a 5.060-fold increased risk of acute exacerbation (OR = 6.060, 95% confidence interval: 1.407-26.161, P=0.016).

Conclusion: Acute exacerbation of 16Arg/Arg COPD is very serious; 16Arg/Gly increases the risk of acute exacerbation in COPD patients; and provides help for future treatment and management options of the disease.

Conflict of interest statement

The authors declare that there are no conflicts of interest regarding the publication of this paper.

- 26 references

Respir Res

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doi: 10.1186/s12931-022-02185-5.

Long-term variability of impulse oscillometry and spirometry in stable COPD and asthma

Jianhua Xu[#1], Xingxing Sun[#1], Hanqing Zhu[#1], Yuan Cao[1], Bigyan Pudasaini[2], Wenlan Yang[1], Jinming Liu[3], Jian Guo[4]

Affiliations expand

- PMID: 36131305

- PMCID: PMC9491004

- DOI: 10.1186/s12931-022-02185-5

Abstract

Background: While optimizing spirometry is a challenge for lung function labs, long-term variability if any between IOS (impulse oscillometry) parameters and spirometry is not clearly known in stable COPD (chronic obstructive pulmonary disease) and chronic asthma. The forced oscillation technique is increasingly employed in routine lung function testing. Our aim in this study was to determine the variability in oscillometric parameters between clinic visits over weeks or months in two patient groups during a period of clinical stability. Moreover, the research assessed relationships between IOS parameters long-term variability and COPD severity.

Methods: We used data from 73 patients with stable COPD and 119 patients with stable asthma at the Shanghai Pulmonary Hospital Affiliated to Tongji University. Patients were included if they had three or more clinic visits where spirometry and IOS were performed during a clinically stable period. Data recorded from the first three visits were used. The standard deviation (SDbv), the coefficient of variation (COV), intraclass correlation coefficient (ICC) and the coefficient of repeatability (COR) were calculated, Wilcoxon Mann-Whitney test was used for data that did not conform to normality of distributions, Kruskal Wallis test was used to compare with multiple groups, post hoc comparison was analyzed by Bonferroni, Spearman correlation coefficients for non-parametric data, the multiple regression analyses to determine the relationship between long-term variability and airflow obstruction.

Results: (1) The repeatability of IOS resistance parameters with ICC values > 0.8 was high in COPD and asthma. ICC values of IOS resistance parameters were higher than IOS reactance parameters; (2) the repeatability of spirometry parameters with ICC values < 0.8 was lower than IOS resistance parameters in different GOLD (the Global Initiative for Chronic Obstructive Lung Disease) stages, the higher the stage the worse the repeatability; (3) the severity of airflow obstruction was correlated with long-term variability of R5 (R at 5 Hz) ($P < 0.05$) in GOLD4, not with long-term variability of R20 (R at 20 Hz) ($P > 0.05$) and R5-R20 ($P > 0.05$).

Conclusion: IOS resistance parameters have good long-term repeatability in asthma and COPD. Additionally, repeatability of spirometry parameters is lower than IOS resistance parameters in different GOLD stages.

Keywords: Asthma; COPD; IOS; Variability.

Conflict of interest statement

The authors confirm that there are no conflicts of interest.

- 31 references
- 2 figures

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

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Review

Eur Respir Rev

. 2022 Sep 20;31(165):220076.

doi: 10.1183/16000617.0076-2022. Print 2022 Sep 30.

Effectiveness of home-based pulmonary rehabilitation: systematic review and meta-analysis

Md Nazim Uzzaman[1], Dhiraj Agarwal[2], Soo Chin Chan[3], Julia Patrick Engkasan[3], G M Monsur Habib[4], Nik Sherina Hanafi[3], Tracy Jackson[1], Paul Jebaraj[5], Ee Ming Khoo[3], Fatim Tahirah Mirza[6], Hilary Pinnock[1], Ranita Hisham Shunmugam[7], Roberto A Rabinovich[8]

Affiliations expand

- PMID: 36130789

- DOI: 10.1183/16000617.0076-2022

Free article

Abstract

Introduction: Despite proven effectiveness for people with chronic respiratory diseases, practical barriers to attending centre-based pulmonary rehabilitation (centre-PR) limit accessibility. We aimed to review the clinical effectiveness, components and completion rates of home-based pulmonary rehabilitation (home-PR) compared to centre-PR or usual care.

Methods and analysis: Using Cochrane methodology, we searched (January 1990 to August 2021) six electronic databases using a PICOS (population, intervention, comparison, outcome, study type) search strategy, assessed Cochrane risk of bias, performed meta-analysis and narrative synthesis to answer our objectives and used the Grading of Recommendations, Assessment, Development and Evaluations framework to rate certainty of evidence.

Results: We identified 16 studies (1800 COPD patients; 11 countries). The effects of home-PR on exercise capacity and/or health-related quality of life (HRQoL) were compared to either centre-PR (n=7) or usual care (n=8); one study used both comparators. Compared to usual care, home-PR significantly improved exercise capacity (standardised mean difference (SMD) 0.88, 95% CI 0.32-1.44; p=0.002) and HRQoL (SMD -0.62, 95% CI -0.88--0.36; p<0.001). Compared to centre-PR, home-PR showed no significant difference in exercise capacity (SMD -0.10, 95% CI -0.25-0.05; p=0.21) or HRQoL (SMD 0.01, 95% CI -0.15-0.17; p=0.87).

Conclusion: Home-PR is as effective as centre-PR in improving functional exercise capacity and quality of life compared to usual care, and is an option to enable access to pulmonary rehabilitation.

Conflict of interest statement

Conflict of interest: M.N. Uzzaman has nothing to disclose. Conflict of interest: D. Agarwal has nothing to disclose. Conflict of interest: S.C. Chan has nothing to disclose. Conflict of interest: J. Patrick Engkasan has nothing to disclose. Conflict of interest: G.M.M. Habib owns a Pulmonary Rehabilitation clinic in Bangladesh. Conflict of interest: N.S. Hanafi has nothing to disclose. Conflict of interest: T. Jackson has nothing to disclose. Conflict of interest: P. Jebaraj has nothing to disclose. Conflict of interest: E.M. Khoo reports grants from UK National Institute for Health Research (NIHR) Global Health Research Unit, during the conduct of the study; personal fees from AstraZeneca, personal fees and non-financial support from GlaxoSmithKline plc, and grants from Seqirus UK Ltd, and is President of the

International Primary Care Respiratory Group, UK, outside the submitted work. Conflict of interest: F.T. Mirza has nothing to disclose. Conflict of interest: H. Pinnock reports grants from National Institute of Health Research (16/136/109 (2017-2021), during the conduct of the study. Conflict of interest: R.H. Shunmugam has nothing to disclose. Conflict of interest: R.A. Rabinovich has nothing to disclose.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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Review

Eur Respir Rev

. 2022 Sep 20;31(165):220069.

doi: 10.1183/16000617.0069-2022. Print 2022 Sep 30.

Ventilatory neural drive in chronically hypercapnic patients with COPD: effects of sleep and nocturnal noninvasive ventilation

Alexandra McCartney[1], Devin Phillips[1], Matthew James[1], Olivia Chan[1], J Alberto Neder[1,2], Juan P de-Torres[1,2], Nicolle J Domnik[3], Sophie J Crinion[4,2]

Affiliations expand

- PMID: 36130786

- DOI: 10.1183/16000617.0069-2022

Free article

Abstract

Sleep brings major challenges for the control of ventilation in humans, particularly the regulation of arterial carbon dioxide pressure (P_{aCO_2}). In patients with COPD, chronic hypercapnia is associated with increased mortality. Therefore, nocturnal high-level noninvasive positive-pressure ventilation (NIV) is recommended with the intention to reduce P_{aCO_2} down to normocapnia. However, the long-term physiological consequences of P_{aCO_2} "correction" on the mechanics of breathing, gas exchange efficiency and resulting symptoms (*i.e.* dyspnoea) remain poorly understood. Investigating the influence of sleep on the neural drive to breathe and its translation to the mechanical act of breathing is of foremost relevance to create a solid rationale for the use of nocturnal NIV. In this review, we critically discuss the mechanisms by which sleep influences ventilatory neural drive and mechanical consequences in healthy subjects and hypercapnic patients with advanced COPD. We then discuss the available literature on the effects of nocturnal NIV on ventilatory neural drive and respiratory mechanics, highlighting open avenues for further investigation.

Conflict of interest statement

Conflict of interest: A. McCartney reports no conflicts of interest. Conflict of interest: D. Phillips reports no conflicts of interest. Conflict of interest: M. James reports no conflicts of interest. Conflict of interest: O. Chan reports no conflicts of interest. Conflict of interest: J.A. Neder reports no conflicts of interest. Conflict of interest: J.P. de-Torres reports no conflicts of interest. Conflict of interest: N.J. Domnik reports no conflicts of interest. Conflict of interest: S.J. Crinion reports no conflicts of interest.

Chronic Obstr Pulm Dis

. 2022 Sep 21.

doi: 10.15326/jcopdf.2022.0307. Online ahead of print.

Interpreting Evaluating Respiratory Symptoms in COPD Diary Scores in Clinical Trials: Terminology, Methods, and Recommendations

Nancy K Leidy[1], Donald M Bushnell[1], Chau Thach[2], Carolina Hache[2], Florian S Gutzwiller[2]

Affiliations expand

- PMID: 36130315

- DOI: 10.15326/jcopdf.2022.0307

Free article

Abstract

Accurately interpreting scores on patient-reported outcome (PRO) measures is essential to understanding and communicating treatment benefit. Over the years, terminology and methods for developing recommendations for PRO score interpretation in clinical trials have evolved, leading to some confusion in the field. The phrase "minimal clinically important difference (MCID)" has been simplified to MID and use of responder thresholds to interpret statistically significant treatment effects has increased. Anchor-based derivation methods continue to be the standard, with specific variations preferred by regulatory authorities for drug development programs. In the midst of these changes, the Evaluating Respiratory Symptoms in COPD (E-RS:COPD) was developed and qualified for

use as an endpoint in COPD drug development programs. This paper summarizes the evolution of terminology and method preferences for the development of recommendations for interpreting scores from PRO measures used in clinical trials, and how these changes are reflected in the E-RS:COPD recommendations. The intent is to add clarity to discussions around PRO endpoints and facilitate use of the E-RS:COPD as a key efficacy endpoint in clinical trials of COPD.

Keywords: Evaluating Respiratory Symptoms (E-RS) in Chronic Obstructive Pulmonary Disease (COPD); PROs and clinical trials; interpretation recommendations for PRO measures; patient-reported outcome (PRO) measure; symptomatic relief.

Int J Chron Obstruct Pulmon Dis

. 2022 Sep 14;17:2241-2252.

doi: 10.2147/COPD.S362479. eCollection 2022.

Correlations of Computed Tomography Measurement of Distal Pulmonary Vascular Pruning with Airflow

Limitation and Emphysema in COPD Patients

Guoyan Tang[#1], Fengyan Wang[#1], Zhenyu Liang[#1], Cuixia Liang[#2], Jinling Wang[#3], Yuqiong Yang[1], Wanyi Tang[1,4], Weijuan Shi[1], Guoqiang Tang[3], Kai Yang[5], Zihui Wang[1], Qiasheng Li[1], Hualin Li[1], Jiaxuan Xu[1], Deyan Chen[2], Rongchang Chen[5]

Affiliations expand

- PMID: 36128016
- PMCID: PMC9482777
- DOI: 10.2147/COPD.S362479

Free PMC article

Abstract

Background: Pulmonary vascular alteration is an important feature of chronic obstructive pulmonary disease (COPD), which is characterized by distal pulmonary vascular pruning in angiography. We aimed to further investigate the clinical relevance of pulmonary vasculature in COPD patients using non-contrast computed tomography (CT).

Methods: Seventy-one control subjects and 216 COPD patients completed the questionnaires, spirometry, and computed tomography (CT) scans within 1 month and were included in the study. Small pulmonary vessels represented by percentage of cross-sectional area of pulmonary vessels smaller than 5 mm^2 or 5-10 mm^2 to the total lung fields (%CSA<5 or %CSA5-10, respectively) were measured using ImageJ software. Spearman correlation was used to investigate the relationship between %CSA<5 and airflow limitation. A receiver operating characteristic (ROC) curve was built to evaluate the value of %CSA<5 in discriminating COPD patients from healthy control subjects. Segmented regression was used to analyze the relationship between %CSA<5 and %LAA-950 (percentage of low-attenuation areas less than -950 HU).

Results: We found a significant correlation between %CSA<5 and forced expiratory volume in one second (FEV1) percentage of predicted value (%pred) ($r = 0.564$, $P < 0.001$). The area under the ROC curve for the value of %CSA<5 in distinguishing COPD was 0.816, with a cut-off value of 0.537 (Youden index J, 0.501; sensitivity, 78.24%; specificity, 71.83%). Since the relationship between %CSA<5 and %LAA-950 was not constant, performance of segmented regression was better than ordinary linear regression (adjusted R^2,

0.474 *vs* 0.332, $P < 0.001$ and $P < 0.001$, respectively). As %CSA<5 decreased, %LAA-950 slightly increased until an inflection point (%CSA<5 = 0.524) was reached, after which the %LAA-950 increased apparently with a decrease in %CSA<5.

Conclusion: %CSA<5 was significantly correlated with both airflow limitation and emphysema, and we identified an inflection point for the relationship between %CSA<5 and %LAA-950.

Keywords: airflow limitation; chronic obstructive pulmonary disease; computed tomography; emphysema; pulmonary vascular pruning.

Conflict of interest statement

Dr Yuqiong Yang reports grants from ATS MECOR Research Award, outside the submitted work. Cuixia Liang and Deyan Chen are affiliated with Neusoft Medical Systems Co., Ltd. All authors report no other conflicts of interest in this work.

- 27 references
- 5 figures

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

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Review

Int J Chron Obstruct Pulmon Dis

. 2022 Sep 14;17:2253-2261.

doi: 10.2147/COPD.S378034. eCollection 2022.

The Influence of Influenza Virus Infections in Patients with Chronic Obstructive Pulmonary Disease

Kuang-Ming Liao[1], Yi-Ju Chen[2], Chuan-Wei Shen[2], Shao-Kai Ou[2], Chung-Yu Chen[2,3,4]

Affiliations expand

- PMID: 36128015

- PMCID: PMC9482787

- DOI: 10.2147/COPD.S378034

Free PMC article

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) is a common disease and is preventable and treatable. A previous study showed that influenza virus infections were also associated with the risk of acute exacerbation in patients with COPD, and other studies showed that the influenza virus might increase the risk of stroke. However, studies on the influence of influenza infection among COPD patients are limited. In this study, we review the role of influenza infection in contributing to mortality, pneumonia, respiratory failure, COPD acute exacerbation, and ischemic stroke among COPD patients.

Materials and methods: We performed a population-based cohort study of COPD patients using data from Taiwan between January 1, 2011, and December 31, 2019. We excluded patients with lung cancer, lung transplantation and asthma. We also excluded patients who lacked COPD medication prescriptions and those treated with anti-influenza drugs without flu diagnosis records. Patients with missing or incomplete data were also excluded from the study cohort.

Results: After 1:1 matching by age, sex, COPD duration, diagnosed years and comorbidities, we enrolled 10,855 cases and controls for further analysis. The risks of pneumonia, respiratory failure, COPD acute exacerbation, and ischemic stroke were 1.770

(95% CI=1.638-1.860; P<0.0001), 1.097 (95% CI=1.008-1.194; P=0.0319), 1.338 (95% CI=1.248-1.435; P<0.0001), and 1.134 (95% CI=1.039-1.239, P=0.0051), respectively, in the influenza infection group compared with COPD patients without influenza infection.

Conclusion: Influenza infections are linked to an increased risk of ischemic stroke, pneumonia, respiratory failure, and COPD acute exacerbation among COPD patients. In conclusion, patients with COPD need to be closely monitored after having an influenza infection.

Keywords: acute exacerbation; chronic obstructive pulmonary disease; influenza virus; pneumonia; respiratory failure; stroke.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

- 34 references
- 2 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

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BMC Pulm Med

. 2022 Sep 20;22(1):357.

doi: 10.1186/s12890-022-02144-2.

Artificial intelligence to differentiate asthma from COPD in medico-administrative databases

Hassan Joumaa[1], Raphaël Sigogne[2], Milka Maravic[2,3], Lucas Perray[2], Arnaud Bourdin[4,5], Nicolas Roche[6,7]

Affiliations expand

- PMID: 36127649
- PMCID: PMC9487098
- DOI: 10.1186/s12890-022-02144-2

Free PMC article

Abstract

Introduction: Discriminating asthma from chronic obstructive pulmonary disease (COPD) using medico-administrative databases is challenging but necessary for medico-economic analyses focusing on respiratory diseases. Artificial intelligence (AI) may improve dedicated algorithms.

Objectives: To assess performance of different AI-based approaches to distinguish asthmatics from COPD patients in medico-administrative databases where the clinical diagnosis is absent. An "Asthma COPD Overlap" category was defined to further test whether AI can detect complexity.

Methods: This study included 178,962 patients treated by two "R03" treatment prescriptions at least from January 2016 to December 2018 and managed by either a general practitioner and/or a pulmonologist participating in a permanent longitudinal observatory of prescription in ambulatory medicine (LPD). Clinical diagnoses are available in this database and were used as gold standards to develop diagnostic rules. Three types of AI approaches were explored using data restricted to demographics and treatment dispensations: multinomial regression, gradient boosting and recurrent neural networks (RNN). The best performing model (based on metric properties) was then applied to estimate the size of asthma and COPD populations based on a database (LRx) of treatment dispensations between July, 2018 and June, 2019.

Results: The best models were obtained with the boosting approach and RNN, with an overall accuracy of 68%. Performance metrics were better for asthma than COPD. Based on LRx data, the extrapolated numbers of patients treated for asthma and COPD in France were 3.7 and 1.2 million, respectively. Asthma patients were younger than COPD patients (mean, 49.9 vs. 72.1 years); COPD occurred mostly in men (68%) compared to asthma (33%).

Conclusion: AI can provide models with acceptable accuracy to distinguish between asthma, ACO and COPD in medico-administrative databases where the clinical diagnosis is absent. Deep learning and machine learning (RNN) had similar performances in this regard.

Keywords: Algorithms; Asthma; COPD; Chronic obstructive pulmonary disease; Epidemiology; Healthcare administrative databases; ICD code; Prevalence.

Conflict of interest statement

The authors declare no conflicts of interest.

- 38 references
- 2 figures

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

. 2022 Sep 20;12(1):15698.

doi: 10.1038/s41598-022-18353-y.

Different inhaled corticosteroid doses in triple therapy for chronic obstructive pulmonary disease: systematic review and Bayesian network meta-analysis

Hyun Woo Lee[1], Hee Moon Park[1], Eun Jin Jang[2], Chang-Hoon Lee[3]

Affiliations expand

- PMID: 36127353

- PMCID: PMC9489688

- DOI: 10.1038/s41598-022-18353-y

Free PMC article

Abstract

A systematic review and Bayesian network meta-analysis is necessary to evaluate the efficacy and safety of triple therapy with different doses of inhaled corticosteroids (ICS) in stable chronic obstructive pulmonary disease (COPD). We selected 26 parallel randomized controlled trials (41,366 patients) comparing triple therapy with ICS/long-acting beta-agonist (LABA), LABA/long-acting muscarinic antagonist (LAMA), and LAMA in patients with stable COPD for ≥ 12 weeks from PubMed, EMBASE, the Cochrane Library, and clinical trial registries (search from inception to June 30, 2022). Triple therapy with high dose (HD)-ICS exhibited a lower risk of total exacerbation in pre-specified subgroups treated for ≥ 48 weeks than that with low dose (LD)-ICS (odds ratio [OR] = 0.66, 95% credible interval [CrI] = 0.52-0.94, low certainty of evidence) or medium dose (MD)-ICS (OR = 0.66, 95% CrI = 0.51-0.94, low certainty of evidence). Triple therapy with HD-ICS exhibited a lower risk of moderate-to-severe exacerbation in pre-specified subgroups with forced expiratory volume in 1 s < 65% (OR = 0.6, 95% CrI = 0.37-0.98, low certainty of evidence) or previous exacerbation history (OR = 0.6, 95% CrI = 0.36-0.999, very low certainty of evidence) than triple therapy with MD-ICS. Triple therapy with HD-ICS may reduce acute exacerbation in

patients with COPD treated with other drug classes including triple therapy with LD- or MD-ICS or dual therapies.

Conflict of interest statement

The corresponding author (C.H.L.) received a research fund, which is not related to this manuscript, from GSK. Other authors have completed the ICMJE uniform disclosure form at http://www.icmje.org/disclosure-of-interest/ and declare: no support from any organization for the submitted work; no financial relationships with any organizations that might have an interest in the submitted work in the previous 3 years; no other relationships or activities that could appear to have influenced the submitted work.

- 87 references
- 2 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

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Cite

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15

Curr Opin Pulm Med

.

. 2022 Sep 21.

doi: 10.1097/MCP.0000000000000922. Online ahead of print.

Chronic obstructive pulmonary disease and obstructive sleep apnoea overlap:

co-existence, co-morbidity, or causality?

Emily O'Neill[1], Silke Ryan, Walter T McNicholas

Affiliations expand

- PMID: 36124997

- DOI: 10.1097/MCP.0000000000000922

Abstract

Purpose of review: The chronic obstructive pulmonary disease and obstructive sleep apnoea overlap syndrome is associated with higher morbidity and mortality rates than either disease alone. There is evidence of a bidirectional relationship between the two conditions, with the overlap syndrome encompassing a spectrum of clinical phenotypes.

Recent findings: This review examines the evidence for the various factors that determine the overlap syndrome, the impact overlap syndrome has on co-morbidities, and implications for diagnosis and treatment.

Summary: The accurate diagnosis of the overlap syndrome is critical given its implications for treatment optimisation and reduction in healthcare utilisation and costs.

- 75 references

. 2022 Sep 13;17:2229-2239.

doi: 10.2147/COPD.S373595. eCollection 2022.

Effect of Macrolide Antibiotics on In-Hospital Mortality Among Acute Exacerbation of COPD Patients: A Propensity Score-Matched Analysis

Thotsaporn Morasert[1], Orakarn Kriengwattanakul[2], Prapasri Kulalert[3]

Affiliations expand

- PMID: 36124296

- PMCID: PMC9482436

- DOI: 10.2147/COPD.S373595

Free PMC article

Abstract

Objective: This study aimed to assess whether the short-term use of macrolide antibiotics during hospitalization can reduce in-hospital all-cause mortality compared to non-macrolide treatment in patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD).

Methods: A propensity score (PS) matching analysis was performed using retrospective data from the admission records of AECOPD patients in the medical general ward and medical intensive care unit of a tertiary care center between October 2015 and September 2018. The multivariable Cox proportional hazard model was performed to eliminate residual confounding after the PS analysis.

Results: The mortality rate was 11.1% of 1528 admissions in the PS matching cohort. Approximately 70% of patients had respiratory failure requiring intubation on initial admission, and 34% had pneumonia. Macrolide treatment significantly reduced in-hospital

mortality among AECOPD patients (adjusted hazard ratio, 0.55; 95% confidence interval 0.32-0.96; *P*=0.034). Clarithromycin was the most commonly prescribed macrolide (80%).

Conclusion: Macrolide antibiotics reduced in-hospital mortality in hospitalized AECOPD patients. The combination of antimicrobial and immunomodulatory effects of macrolide treatment could play an essential role.

Keywords: AECOPD; macrolides; mortality; propensity score-matched.

Conflict of interest statement

The authors have no conflicts of interest in relation to this work.

- 35 references
- 3 figures

. 2022 Sep 13;16:2521-2531.

doi: 10.2147/PPA.S377832. eCollection 2022.

Health Priorities in Chronic Obstructive Pulmonary Disease Patients with Multimorbidity: A Qualitative Study

Mengqian Cai[1], Miaoling Cui[1], Ying Nong[2], Jinlian Qin[1], Sucai Mo[1]

Affiliations expand

- PMID: 36124126
- PMCID: PMC9482456
- DOI: 10.2147/PPA.S377832

Free PMC article

Abstract

Purpose: To explore the health priorities of patients with multimorbidity in COPD and the factors as to why their condition is prioritized.

Methods: This qualitative study was conducted from February to April 2022 at a hospital in China. A specially selected sample of 18 patients completed a general information sheet and face-to-face interviews. The Colaizzi method was used to analyze the data.

Results: Participants reported their experience which fell into three themes: disease burden, health perception and views of others. In addition, participants explained that health knowledge from short videos on mobile apps influenced them, which in turn influenced their ranking.

Conclusion: Our findings suggested that health priorities of patients with multimorbidity in COPD manifest differently. Specifically, our findings suggested that patients' health priorities are most influenced by disease burden, health perception, and the opinions of those around them. Nursing staff should fully understand each patients'own perspectives and provide them with personalized support.

Keywords: chronic obstructive pulmonary disease; health priorities; multimorbidity; multiple chronic conditions; qualitative research.

Conflict of interest statement

All authors declare no conflict of interest.

- 31 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

Proceed to details

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18

Observational Study

Int J Chron Obstruct Pulmon Dis

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. 2022 Sep 12;17:2217-2227.

doi: 10.2147/COPD.S375956. eCollection 2022.

Comparison of Ultrasound Measurements for Diaphragmatic Mobility, Diaphragmatic Thickness, and Diaphragm Thickening Fraction with Each Other and with Lung

Function in Patients with Chronic Obstructive Pulmonary Disease

Alina Schulz[1], Annika Erbuth[1], Mariya Boyko[1], Sandy Vonderbank[1], Hakan Gürleyen[1], Natalie Gibis[1,2], Andreas Bastian[1]

Affiliations expand

- PMID: 36118281
- PMCID: PMC9480595
- DOI: 10.2147/COPD.S375956

Free PMC article

Abstract

Purpose: To compare ultrasound measurements of diaphragmatic mobility, diaphragm thickness, and diaphragm thickening fraction with one another and also with lung function parameters in patients with chronic obstructive pulmonary disease (COPD).

Patients and methods: We conducted a prospective, observational study from 2015 to 2018. A total of 140 patients were randomly selected for this study. Diaphragmatic thickness was measured at deep expiration and deep inspiration with a linear 10-MHz ultrasound probe. Diaphragm thickening fraction was calculated as the ratio between diaphragm thickness at deep inspiration and end expiratory diaphragm thickness. Diaphragmatic mobility was measured with a 3.5-MHz curved probe. Forced expiratory volume in one second (FEV1), residual lung volume, Pimax, and P0.1max were also measured. Sonographic results were compared to FEV1 and other lung function parameters.

Results: There was a significant positive correlation between diaphragmatic mobility and the following measurements: FEV1 ($P < 0.01$), diaphragm thickening fraction ($P = 0.013$), and lung function parameters reflecting ventilatory muscle strength such as Pimax ($P < 0.017$) and P0.1/Pimax ($P < 0.01$). There was a significant negative correlation between diaphragmatic mobility and both residual volume ($P < 0.01$) and diaphragmatic thickness ($P = 0.022$). In contrast, there was no correlation between diaphragmatic thickness and FEV1, Pimax, and P0.1/Pimax. Diaphragm thickening fraction had a significant correlation with FEV1 ($P = 0.041$).

Conclusion: In patients with COPD, diaphragm mobility measured sonographically correlates with different lung function parameters and also with sonographically measured diaphragm thickness (negative correlation) and diaphragm thickening fraction (positive correlation).

Keywords: COPD; diaphragmatic mobility; diaphragmatic thickening; diaphragmatic thickness; ultrasound.

Conflict of interest statement

None of the authors has competing interests or financial interests in the publication of this study.

- 18 references
- 12 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

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19

Respir Res

-
-
-

. 2022 Sep 18;23(1):250.

doi: 10.1186/s12931-022-02181-9.

A prediction model for hospital mortality in patients with severe

community-acquired pneumonia and chronic obstructive pulmonary disease

Dong Huang[#1,2], Dingxiu He[#3], Linjing Gong[#1,2], Rong Yao[#4], Wen Wang[#5], Lei Yang[1], Zhongwei Zhang[6], Qiao He[5], Zhenru Wu[2], Yujun Shi[7], Zongan Liang[8]

Affiliations expand

- PMID: 36117161
- PMCID: PMC9482754
- DOI: 10.1186/s12931-022-02181-9

Free PMC article

Abstract

Background: No personalized prediction model or standardized algorithm exists to identify those at high risk of death among severe community-acquired pneumonia (SCAP) patients with chronic obstructive pulmonary disease (COPD). The aim of this study was to investigate the risk factors and to develop a useful nomogram for prediction of mortality in those patients.

Methods: We performed a retrospective, observational, cohort study in the intensive care unit (ICU) of West China Hospital, Sichuan University with all consecutive SCAP patients with COPD between December 2011 and December 2018. The clinical data within 24 h of admission to ICU were collected. The primary outcome was hospital mortality. We divided the patients into training and testing cohorts (70% versus 30%) randomly. In the training cohort, univariate and multivariate logistic regression analysis were used to identify independent risk factors applied to develop a nomogram. The prediction model was assessed in both training and testing cohorts.

Results: Finally, 873 SCAP patients with COPD were included, among which the hospital mortality was 41.4%. In training cohort, the independent risk factors for hospital mortality were increased age, diabetes, chronic renal diseases, decreased systolic blood pressure (SBP), and elevated fibrinogen, interleukin 6 (IL-6) and blood urea nitrogen (BUN). The C index was 0.840 (95% CI 0.809-0.872) in training cohort and 0.830 (95% CI 0.781-0.878) in testing cohort. Furthermore, the time-dependent AUC, calibration plots, DCA and clinical impact curves indicated the model had good predictive performance. Significant association of risk stratification based on nomogram with mortality was also found (P for

trend < 0.001). The restricted cubic splines suggested that estimated associations between these predictors and hospital mortality were all linear relationships.

Conclusion: We developed a prediction model including seven risk factors for hospital mortality in patients with SCAP and COPD. It can be used for early risk stratification in clinical practice after more external validation.

Keywords: Chronic obstructive pulmonary disease; Mortality; Nomogram; Risk factors; Severe community-acquired pneumonia.

Conflict of interest statement

The authors declare that they have no competing interests.

- 37 references
- 6 figures

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

Med J Aust

. 2022 Sep 18.

doi: 10.5694/mja2.51708. Online ahead of print.

COPD-X Australian guidelines for the diagnosis and management of chronic obstructive pulmonary disease: 2022 update

Eli Dabscheck[1], Johnson George[2], Kelcie Hermann[3], Christine F McDonald[4], Vanessa M McDonald[5], Renae McNamara[6], Mearon O'Brien[3], Brian Smith[7], Nicholas A Zwar[8], Ian A Yang[9,10]

Affiliations expand

- PMID: 36116098

- DOI: 10.5694/mja2.51708

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) is a treatable and preventable disease characterised by persistent respiratory symptoms and chronic airflow limitation on spirometry. COPD is highly prevalent and is associated with exacerbations and comorbid conditions. "COPD-X" provides quarterly updates in COPD care and is published by the Lung Foundation Australia and the Thoracic Society of Australia and New Zealand.

Main recommendations: The COPD-X guidelines (version 2.65) encompass 26 recommendations addressing: case finding and confirming diagnosis; optimising function; preventing deterioration; developing a plan of care; and managing an exacerbation.

Changes in management as a result of these guidelines: Both non-pharmacological and pharmacological strategies are included within these recommendations, reflecting the importance of a holistic approach to clinical care for people living with COPD to delay disease progression, optimise quality of life and ensure best practice care in the community and hospital settings when managing exacerbations. Several of the new recommendations, if put into practice in the appropriate circumstances, and notwithstanding known variations in the social determinants of health, could improve quality of life and reduce exacerbations, hospitalisations and mortality for people living with COPD.

Keywords: Chronic obstructive pulmonary disease; Guidelines as topic.

- 90 references

FULL TEXT LINKS

WILEY Full Text Article

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21

Respir Res

. 2022 Sep 16;23(1):247.

doi: 10.1186/s12931-022-02158-8.

Relationships of serum CC16 levels with smoking status and lung function in COPD

Kelli C Gribben[1], Jill A Poole[2], Amy J Nelson[2], Paraskevi A Farazi[3], Christopher S Wichman[4], Art J Heires[5], Debra J Romberger[5 6], Tricia D LeVan[3 5 6]

Affiliations expand

- PMID: 36114505

- PMCID: PMC9479424

- DOI: 10.1186/s12931-022-02158-8

Free PMC article

Abstract

Background: The club cell secretory protein (CC16) has anti-inflammatory and antioxidant effects, and low CC16 serum levels have been associated with both risk and progression of COPD, yet the interaction between smoking and CC16 on lung function outcomes remains unknown.

Methods: Utilizing cross-sectional data on United States veterans, CC16 serum concentrations were measured by ELISA and log transformed for analyses. Spirometry was conducted and COPD status was defined by post-bronchodilator FEV_1/FVC ratio < 0.7. Smoking measures were self-reported on questionnaire. Multivariable logistic and linear regression were employed to examine associations between CC16 levels and COPD, and lung function with adjustment for covariates. Unadjusted Pearson correlations described relationships between CC16 level and lung function measures, pack-years smoked, and years since smoking cessation.

Results: The study population (N = 351) was mostly male, white, with an average age over 60 years. An interaction between CC16 and smoking status on FEV_1/FVC ratio was demonstrated among subjects with COPD (N = 245, p = 0.01). There was a positive correlation among former smokers and negative correlation among current or never smokers with COPD. Among former smokers with COPD, CC16 levels were also positively correlated with years since smoking cessation, and inversely related with pack-years smoked. Increasing CC16 levels were associated with lower odds of COPD (OR_{adj} = 0.36, 95% CI 0.22-0.57, P_{adj} < 0.0001).

Conclusions: Smoking status is an important effect modifier of CC16 relationships with lung function. Increasing serum CC16 corresponded to increases in FEV_1/FVC ratio in former smokers with COPD versus opposite relationships in current or never smokers. Additional longitudinal studies may be warranted to assess relationship of CC16 with smoking cessation on lung function among subjects with COPD.

Keywords: CC16; COPD; Former smokers; Lung function.

Conflict of interest statement

The authors declare no competing interests.

- 25 references
- 5 figures

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

Editorial

Am J Respir Crit Care Med

. 2022 Sep 15;206(6):669-671.

doi: 10.1164/rccm.202207-1407ED.

Lung Health for All: Chronic Obstructive Lung Disease and World Lung Day 2022

David M G Halpin[1], Claus F Vogelmeier[2], Alvar Agusti[3]

Affiliations expand

- PMID: 36112775

- DOI: 10.1164/rccm.202207-1407ED

No abstract available

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Monaldi Arch Chest Dis

. 2022 Sep 13.

doi: 10.4081/monaldi.2022.2314. Online ahead of print.

Clinical course of COPD in patients with Arg16Gly (rs1042713) polymorphism of *ADRB2* gene

Kostiantyn Dmytriiev[1], Yuriy Mostovoy[2], Nataliia Slepchenko[3], Yuliia Smereka[4]

Affiliations expand

- PMID: 36111412

- DOI: 10.4081/monaldi.2022.2314

Free article

Abstract

The ADBR2 gene has been studied for its possible relationship with the development and clinical course of chronic obstructive pulmonary disease (COPD), including response to beta-2 agonists, with existing data being contentious on the subject. So, the purpose of this study was to look into the potential impact of the arginine-16-glycine (Arg16Gly) polymorphism on the clinical course and drug utilization in COPD patients. Data show that patients with Arg16Arg have a lower number of hospital admissions for exacerbations (p=0.048), but only in the total number of exacerbations, including those treated out-

patients (p=0.086). Each glycine (Gly) copy was associated with a higher number of exacerbations (OR: 0.25; 95% CI: 0.00-055; p=0.048). The number of exacerbations after LABA/LAMA treatment was similar across groups, indicating that all ADRB2 variants responded well to the treatment. Furthermore, there were no statistically significant differences in mMRC and CAT values across all study visits. Interestingly, groups differed in their use of antibiotics (AB) at all visits, with Arg16Arg being associated with the least amount of AB use. There was also a link discovered between clycine copies and increased use of glucocorticoids. As a result, Arg16Gly is involved in the clinical course of COPD as well as the utilization of drug groups. Based on the findings, we can speculate that the cross-talk between the ADRB2 gene and the corticosteroid receptor is altered in patients with the Gly16Gly genotype.

BMJ Open

. 2022 Sep 15;12(9):e061875.

doi: 10.1136/bmjopen-2022-061875.

Conditions associated with the initiation of domiciliary care following a hospital admission: a cohort study in East London, England

Fiona Grimm[#1], Dan Lewer[#2], John Craig[3], Rafi Rogans-Watson[4], Jenny Shand[3 5]

Affiliations expand

- PMID: 36109027

- DOI: 10.1136/bmjopen-2022-061875

Free article

Abstract

Objective: Older people and people with complex needs often require both health and social care services, but there is limited insight into individual journeys across these services. To help inform joint health and social care planning, we aimed to assess the relationship between hospital admissions and domiciliary care receipt.

Design: Retrospective cohort study, using linked data on primary care activity, hospital admissions and social care records.

Setting: London Borough of Barking and Dagenham, England.

Participants: Adults aged 19 and over who lived in the area on 1 April 2018 and who were registered at a general practice in East London between 1 April 2018 and 31 March 2020 (n=140 987).

Outcome measures: The outcome was initiation of domiciliary care. We estimated the rate of hospital-associated care package initiation, and of care packages unrelated to hospital admission. We also described the characteristics of hospital admissions that preceded domiciliary care, including primary diagnosis codes.

Results: 2041/140 987 (1.4%) participants had a domiciliary care package during a median follow-up of 1.87 years. 32.6% of packages were initiated during a hospital stay or within 7 days of discharge. The rate of new domiciliary care packages was 120 times greater (95% CI 110 to 130) during or after a hospital stay than at other times, and this association was present for all age groups. Primary admission reasons accounting for the largest number of domiciliary care packages were hip fracture, pneumonia, stroke, urinary tract infection, septicaemia and exacerbations of long-term conditions (chronic obstructive pulmonary disease and heart failure). Admission reasons with the greatest likelihood of a subsequent domiciliary care package were fractures and strokes.

Conclusion: Hospitals are a major referral route into domiciliary care. While patients admitted due to new and acute illnesses account for many domiciliary care packages, exacerbations of long-term conditions and age-related and frailty-related conditions are also important drivers.

Keywords: health policy; public health; rehabilitation medicine; social medicine.

Conflict of interest statement

Competing interests: None declared.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

Semin Thromb Hemost

. 2022 Sep 15.

doi: 10.1055/s-0042-1756190. Online ahead of print.

Pulmonary Embolism and Chronic Obstructive Pulmonary Disease

Laurent Bertoletti[1][2][3][4], Francis Couturaud[4][5][6], Olivier Sanchez[4][7][8], David Jimenez[9][10][11]

Affiliations expand

- PMID: 36108648

- DOI: 10.1055/s-0042-1756190

Abstract

Chronic obstructive pulmonary disease (COPD) is a frequent and devastating chronic respiratory disease. COPD is ranked among the top five causes of death worldwide. Patients with COPD suffer from persistent dyspnea, with periods of acute worsening, called exacerbations. Such exacerbations may be severe. In fact, one-third of COPD patients will be hospitalized because of an exacerbation. Hospitalization due to respiratory failure has been identified as a powerful predisposing risk factor for venous thromboembolism (VTE) for many years. Therefore, COPD is recognized as a moderate risk factor for VTE, with an odds ratio between 2 and 9, similar to other risk factors such as estrogen-containing contraceptives or (any) cancer. However, unlike other risk factors such as contraception, the presence of COPD can modify the initial presentation of VTE and worsen the short-term prognosis of patients who have acute pulmonary embolism (PE), particularly during a COPD exacerbation. It is not only that both stable COPD and acute exacerbations of COPD might increase the risk of VTE, but PE itself may mimic the symptoms of a COPD exacerbation. Hence, some authors have evaluated the prevalence of PE among COPD patients with acute worsening. This clinical review (1) gives an update on epidemiological data, clinical presentation, and prognosis of PE associated with COPD; (2) presents the results of the Prevalence de l'Embolie Pulmonaire chez les patients admis pour exacerbation de BPCO study, which aimed at determining the frequency of PE in COPD patients hospitalized for an acute exacerbation; (3) discusses the results of the Significance of Pulmonary Embolism in COPD Exacerbations study, the first randomized trial having compared the efficacy of a systematic search for PE versus routine care on admission for a COPD exacerbation; and (4) provides a selection of remaining unmet needs on the association between COPD and PE.

Conflict of interest statement

L.B. reports grants from Bayer, grants and personal fees from MSD, personal fees and nonfinancial support from BMS/Pfizer, and personal fees and nonfinancial support from Léo-Pharma, outside the submitted work. F.C. reports grants, personal fees and nonfinancial support from Bayer, personal fees from MSD, grants, personal fees and nonfinancial support from BMS/Pfizer, nonfinancial support from Léo-Pharma, personal fees from Astra-Zeneca, and nonfinancial support from Janssen, outside the submitted work; D.J. reports personal fees from Bayer, personal fees and nonfinancial support from BMS/Pfizer, personal fees from Léo-Pharma, grants and personal fees from SANOFI, personal fees from Boehringer-Ingelheim, grants and personal fees from Daiichi Sankyo, and grants and personal fees from ROVI, outside the submitted work; O.S. reports personal fees and nonfinancial support from Bayer, grants and personal fees from MSD, grants, personal fees, and nonfinancial support from BMS/Pfizer, personal fees from Léo-Pharma, personal fees from SANOFI, and personal fees from Boehringer-Ingelheim, outside the submitted work.

Editorial

J Am Heart Assoc

. 2022 Sep 20;11(18):e027112.

doi: 10.1161/JAHA.122.027112. Epub 2022 Sep 14.

Is It the Heart or the Lung? Sometimes It Is Both

Sanjay Sethi[1]

Affiliations expand

- PMID: 36102223

- DOI: 10.1161/JAHA.122.027112

Free article

No abstract available

Keywords: Editorials; chronic obstructive pulmonary disease; exacerbation.

Review

Tuberc Respir Dis (Seoul)

. 2022 Sep 13.

doi: 10.4046/trd.2022.0116. Online ahead of print.

Adverse Effects of Air Pollution on Pulmonary Diseases

Ui-Won Ko[1], Sun Young Kyung[1]

Affiliations expand

- PMID: 36097730

- DOI: 10.4046/trd.2022.0116

Free article

Abstract

Environmental exposure to air pollution is known to have adverse effects on various organs. Air pollution has greater effects on the pulmonary system as the lungs are directly exposed to contaminants in the air. Here, we review the associations of air pollution with the development, morbidity, and mortality of pulmonary diseases. Short- and long-term exposure to air pollution have been shown to increase mortality risk even at concentrations below the current national guidelines. Ambient air pollution has been shown to be

associated with lung cancer. Particularly long-term exposure to particulate matter with a diameter < 2.5 μm (PM2.5) has been reported to be associated with lung cancer even at low concentrations. In addition, exposure to air pollution has been shown to increase the incidence risk of chronic obstructive pulmonary disease (COPD) and has been correlated with exacerbation and mortality of COPD. Air pollution has also been linked to exacerbation, mortality, and development of asthma. Exposure to nigrogen dioxide (NO2) has been demonstrated to be related to increased mortality in patients with idiopathic pulmonary fibrosis (IPF). Additionally, air pollution increases the incidence of infectious diseases, such as pneumonia, bronchitis, and tuberculosis. Furthermore, emerging evidence supports a link between air pollution and coronavirus disease 2019 (COVID-19) transmission, susceptibility, severity and mortality. In conclusion, the stringency of air quality guidelines should be increased and further therapeutic trials are required in patients at high risk of adverse health effects of air pollution.

Keywords: COVID-19; air pollution; asthma; chronic obstructive pulmonary disease; idiopathic pulmonary fibrosis; lung cancer; mortality.

Lancet

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. 2022 Sep 17;400(10356):869-871.

doi: 10.1016/S0140-6736(22)01660-9. Epub 2022 Sep 5.

Classification of COPD: fostering prevention and precision medicine in the Lancet Commission on COPD

Guy G Brusselle[1], Marc Humbert[2]

Affiliations expand

- PMID: 36075257

- DOI: 10.1016/S0140-6736(22)01660-9

No abstract available

Conflict of interest statement

GGB has received payments from AstraZeneca, Boehringer-Ingelheim, Chiesi, GlaxoSmithKline, Merck Sharp & Dohme, Novartis, and Sanofi for advisory boards and lectures on asthma, COPD, interstitial lung disease, and chronic cough. MH declares payments for advisory boards or lectures on asthma or pulmonary hypertension from Acceleron, Aerovate, Altavant, AOP Orphan, AstraZeneca, Bayer, Chiesi, Ferrer, GlaxoSmithKline, Janssen, Merck, MorphogenIX, Novartis, Sanofi, Shou Ti, and United Therapeutics, and grants to his institution from Acceleron, AOP Orphan, Janssen, Merck, and Shou Ti.

Comment on

- Towards the elimination of chronic obstructive pulmonary disease: a Lancet Commission.
  Stolz D, Mkorombindo T, Schumann DM, Agusti A, Ash SY, Bafadhel M, Bai C, Chalmers JD, Criner GJ, Dharmage SC, Franssen FME, Frey U, Han M, Hansel NN, Hawkins NM, Kalhan R, Konigshoff M, Ko FW, Parekh TM, Powell P, Rutten-van Mölken M, Simpson J, Sin DD, Song Y, Suki B, Troosters T, Washko GR, Welte T, Dransfield MT.Lancet. 2022 Sep 17;400(10356):921-972. doi: 10.1016/S0140-6736(22)01273-9. Epub 2022 Sep 5.PMID: 36075255 Review. No abstract available.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Review

Lancet

. 2022 Sep 17;400(10356):921-972.

doi: 10.1016/S0140-6736(22)01273-9. Epub 2022 Sep 5.

Towards the elimination of chronic obstructive pulmonary disease: a Lancet Commission

Daiana Stolz[1], Takudzwa Mkorombindo[2], Desiree M Schumann[3], Alvar Agusti[4], Samuel Y Ash[5], Mona Bafadhel[6], Chunxue Bai[7], James D Chalmers[8], Gerard J Criner[9], Shyamali C Dharmage[10], Frits M E Franssen[11], Urs Frey[12], MeiLan Han[13], Nadia N Hansel[14], Nathaniel M Hawkins[15], Ravi Kalhan[16], Melanie Konigshoff[17], Fanny W Ko[18], Trisha M Parekh[2], Pippa Powell[19], Maureen Rutten-van Mölken[20], Jodie Simpson[21], Don D Sin[22], Yuanlin Song[23], Bela Suki[24], Thierry Troosters[25], George R Washko[5], Tobias Welte[26], Mark T Dransfield[27]

Affiliations expand

- PMID: 36075255

- DOI: 10.1016/S0140-6736(22)01273-9

No abstract available

Conflict of interest statement

Declaration of interests DS reports a grant from the Swiss National Foundation (SNF 320030_189280), and unrestricted grants from Curetis, AstraZeneca, and Boston Scientifics (paid to their institution); honoraria for participation in data safety monitoring or advisory boards or talks for CSL Behring, Berlin-Chemie Menarini, Novartis, GlaxoSmithKline, AstraZeneca, Vifor, Merck, Sanofi, Merck Sharp & Dohme, Boehringer Ingelheim, and Chiesi; and is the current Global Initiative for Chronic Obstructive Lung Disease (GOLD) representative for Switzerland, the immediate past Education Council Chair of the European Respiratory Society, and President of the Education Committee of the Swiss Respiratory Society. SYA reports grants from the US National Institutes of Health (K08HL145118) and the Pulmonary Fibrosis Foundation (the I M Rosenzweig Junior Investigator Award), and is an owner of Quantitative Imaging Solutions. AA reports unrestricted research grants from GlaxoSmithKline and AstraZeneca; consulting fees from GlaxoSmithKline, AstraZeneca, Sanofi and Merck Sharp & Dohme; and payment for lectures and presentations from GlaxoSmithKline, AstraZeneca, Chiesi, and Menarini. MH reports personal fees from GlaxoSmithKline, AstraZeneca, Boehringer Ingelheim, Cipla, Chiesi, Novartis, Pulmonx, Teva, Verona, Merck, Mylan, Sanofi, DevPro, Aerogen, Polarian, Regeneron, United Therapeutics, UpToDate, Altesa Biopharma, Medscape, NACE, and Integrity; has received either in-kind research support or funds paid to their institution from the US National Institutes of Health, Novartis, Sunovion, Nuvaira, Sanofi, AstraZeneca, Boehringer Ingelheim, Gala Therapeutics, Biodesix, the COPD Foundation, and the American Lung Association; has participated in data safety monitoring boards for Novartis and Medtronic (funds paid to their institution); and has received stock options from Meissa Vaccines and Altesa Biopharma. TMP reports an early career development grant (K23HL153672) from the US National Heart, Lung, and Blood Institute. MRvM's department received €2000 from the Clinic for Respiratory Medicine and Pulmonary Cell Research, University Hospital Basel (Basel, Switzerland) for calculating the smoking-attributable burden of COPD reported in the Commission. Her department also received an unrestricted grant of €198 000 from Boehringer Ingelheim to develop a health economic cost-effectiveness model of COPD. BS is supported by a National Institutes of Health grant (U01 HL-139466). JDC reports grants from or contracts with AstraZeneca, GlaxoSmithKline, Boehringer Ingelheim, Gilead Sciences, Grifols, Insmed, and Novartis, and consulting fees from AstraZeneca, GlaxoSmithKline, Boehringer Ingelheim, Janssen, Grifols, Zambon, Pfizer, Novartis, Chiesi, and Insmed. NMH reports grants from AstraZeneca, and payment or honoraria for presentations, speakers' bureaus, or participation on advisory boards from AstraZeneca, Novartis, and BI-Lilley. MTD reports grants or contracts from the American Lung Association, the US Department of Defense, and the US National Institutes of Health, consulting fees from AstraZeneca, GlaxoSmithKline, Novartis, Pulmonx, and Teva, and support for attending meetings from Pulmonx. YS has received support from the Science and Technology Commission of Shanghai Municipility (200Z2261200). TW has served as an advisory board member or received honoraria for lectures from AstraZeneca, Berlin-Chemie, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, and Novartis, and has received research grants from the German Ministry for Research and Education, GlaxoSmithKline, and AstraZeneca. FMEF reports institutional study grants from AstraZeneca and personal fees for consultancy or presentations from AstraZeneca, Boehringer Ingelheim, Chiesi,

GlaxoSmithKline, Merck Sharp & Dohme, and Novartis. SCD holds investigator-initiated grants from AstraZeneca and GlaxoSmithKline. DDS reports honoraria for speaking engagements for AstraZeneca, Boehringer Ingelheim, and GlaxoSmithKline. MB reports grants or contracts (to their institution) from AstraZeneca and Roche and consulting fees (paid to their institution) from AstraZeneca, Sanofi, and Roche; honoraria for lectures, presentations, speakers' bureaus, manuscript writing, or educational events from AstraZeneca, Sanofi, Chiesi, and GlaxoSmithKline; participation on an advisory board from AstraZeneca; and scientific advisor work for ProAxsis and Albushealth. NNH reports grants or contracts (to their institution) from the National Instiutes of Health, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, and the COPD Foundation; and participation on data safety monitoring boards or advisory boards for AstraZeneca and GlaxoSmithKline. RK reports grants from the National Heart, Lung, and Blood Institute, the Respiratory Health Association, PneumRx, Spiration, and AstraZeneca, and personal fees from AstraZeneca, CVS Caremark, GlaxoSmithKline, CSA Medical, and Boehringer Ingelheim. GJC has received personal fees from Almirall, Amgen, AstraZeneca, Boehringer Ingelheim, Broncus Medical, Chiesi, CSA Medical, Eolo, Gala Therapeutics, GlaxoSmithKline, Helios Medical, Merck, Medtronic, Mereo BioPharma, NGM Biopharmaceuticals, Novartis, Nuvaira, Olympus, Philips, Pulmonx, Respironics, Respivant Sciences, the Implementation Group, Sanofi, Regeneron, Gilead, and Verona. GRW has been supported by the National Heart, Lung, and Blood Institute (grants R01 HL116473 and R01 HL122464). All other authors declare no competing interests.

Comment in

- Mark Dransfield: breathing new ideas into COPD.

  Watts G.Lancet. 2022 Sep 17;400(10356):879. doi: 10.1016/S0140-6736(22)01701-9. Epub 2022 Sep 5.PMID: 36075253 No abstract available.

- COPD: from an end-stage disease to lifelong lung health.

  The Lancet.Lancet. 2022 Sep 17;400(10356):863. doi: 10.1016/S0140-6736(22)01700-7. Epub 2022 Sep 5.PMID: 36075254 No abstract available.

- Classification of COPD: fostering prevention and precision medicine in the Lancet Commission on COPD.
  Brusselle GG, Humbert M.Lancet. 2022 Sep 17;400(10356):869-871. doi: 10.1016/S0140-6736(22)01660-9. Epub 2022 Sep 5.PMID: 36075257 No abstract available.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Editorial

Lancet

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. 2022 Sep 17;400(10356):863.

doi: 10.1016/S0140-6736(22)01700-7. Epub 2022 Sep 5.

COPD: from an end-stage disease to lifelong lung health

The Lancet

- PMID: 36075254

- DOI: 10.1016/S0140-6736(22)01700-7

No abstract available

Comment on

- Towards the elimination of chronic obstructive pulmonary disease: a Lancet Commission.
  Stolz D, Mkorombindo T, Schumann DM, Agusti A, Ash SY, Bafadhel M, Bai C, Chalmers JD, Criner GJ, Dharmage SC, Franssen FME, Frey U, Han M, Hansel NN, Hawkins NM, Kalhan R, Konigshoff M, Ko FW, Parekh TM, Powell P, Rutten-van Mölken M, Simpson J, Sin DD, Song Y, Suki B, Troosters T, Washko GR, Welte T, Dransfield MT.Lancet. 2022 Sep 17;400(10356):921-972. doi: 10.1016/S0140-6736(22)01273-9. Epub 2022 Sep 5.PMID: 36075255 Review. No abstract available.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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Comment

Lancet

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. 2022 Sep 17;400(10356):879.

doi: 10.1016/S0140-6736(22)01701-9. Epub 2022 Sep 5.

Mark Dransfield: breathing new ideas into COPD

Geoff Watts

- PMID: 36075253

- DOI: 10.1016/S0140-6736(22)01701-9

No abstract available

Comment on

- Towards the elimination of chronic obstructive pulmonary disease: a Lancet Commission.

Stolz D, Mkorombindo T, Schumann DM, Agusti A, Ash SY, Bafadhel M, Bai C, Chalmers JD, Criner GJ, Dharmage SC, Franssen FME, Frey U, Han M, Hansel NN, Hawkins NM, Kalhan R, Konigshoff M, Ko FW, Parekh TM, Powell P, Rutten-van Mölken M, Simpson J, Sin DD, Song Y, Suki B, Troosters T, Washko GR, Welte T, Dransfield MT.Lancet. 2022 Sep 17;400(10356):921-972. doi: 10.1016/S0140-6736(22)01273-9. Epub 2022 Sep 5.PMID: 36075255 Review. No abstract available.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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Biochem Biophys Res Commun

. 2022 Sep 24;622:64-71.

doi: 10.1016/j.bbrc.2022.07.025. Epub 2022 Jul 11.

Rheology predicts sputum eosinophilia in patients with muco-obstructive lung diseases

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Affiliations expand

- PMID: 35843096

- DOI: 10.1016/j.bbrc.2022.07.025

Abstract

Background: Mucus is known to play a pathogenic role in muco-obstructive lung diseases, but little is known about the determinants of mucus rheology. The purpose of this study is to determine which sputum components influence sputum rheology in patients with muco-obstructive lung diseases.

Methods: We performed a cross sectional prospective cohort study. Spontaneous sputum was collected from consecutive patients with muco-obstructive lung diseases. Sputum rheology was assessed using the Rheomuco® rheometer (Rheonova, Grenoble); the elastic modulus G', viscous modulus G", and the critical stress threshold σc were recorded. Key quantitative and qualitative biological sputum components were determined by cytology, nucleic acid amplification tests and mass spectrometry.

Results: 48 patients were included from January to August 2019. Among them, 10 had asthma, 14 COPD and 24 non-CF bronchiectasis (NCFB). The critical stress threshold σc predicted a sputum eosinophilia superior to 1.25% with 89.19% accuracy (AUC = 0.8762). G' and G" are positively correlated with MUC5AC protein concentration ((rho = 0.361; P = .013) and (rho = 0.335; P = .021), respectively). σc was positively correlated with sputum eosinophilia (rho = 0.394; P = .012), MUC5B (rho = 0.552; P < .001) and total protein (rho = 0.490; P < .001) concentrations. G' and G" were significantly higher in asthma patients (G' = 14.49[7.18-25.26]Pa, G'' = 3.0[2.16-5.38]Pa) compared to COPD (G' = 5.01[2.94-6.48]Pa, P = .010; G'' = 1.45[1.16-1.94]Pa, P = .006) and to NCFB (G' = 4.99[1.49-10.49]Pa, P = .003; G'' = 1.46[0.71-2.47]Pa, P = .002).

Conclusion: In muco-obstructive lung diseases, rheology predicts sputum eosinophilia and is correlated with mucin concentrations, regardless of the underlying disease.

Clinical trial registration: (registrar, website, and registration number), where applicable NCT04081740.

Keywords: Asthma; COPD; Eosinophil; Mucins; Non-CF bronchiectasis.

Conflict of interest statement

Declaration of competing interest Dr. Suehs reports grants from Astra Zeneca, outside the submitted work. Dr Patarin is a full-time employee of Rheonova. Rheonova designed and built the rheometer used in this study. Pr. Molinari reports personal fees from Astra Zeneca, grants from GSK, outside the submitted work. Pr. Bourdin reports grants, personal fees, non-financial support and other from Astra Zeneca, grants, personal fees and other from GSK, grants, personal fees, non-financial support and other from Boeringher

Ingelheim, personal fees, non-financial support and other from Novartis, personal fees and other from Teva, personal fees and other from Regeneron, personal fees, non-financial support and other from Chiesi Farmaceuticals, personal fees, non-financial support and other from Actelion, other from Gilead, personal fees and non-financial support from Roche, outside the submitted work. The remaining authors (MV, JV, CH, AP, EML, IV, JC) have no conflicts of interest to disclose.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Associated dataexpand

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BJGP Open

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Are we missing lifetime COPD diagnosis among people with COPD recorded death? A population-based retrospective cohort study

Alicia Gayle[1 2 3], Alexandra Lenoir[4 5], Cosetta Minelli[6 2], Jennifer Quint[6 2]

Affiliations expand

- PMID: 35788026

- DOI: 10.3399/BJGPO.2022.0060

Free article

Abstract

Background: The British Lung Foundation (BLF) has previously estimated that there are 2.2 million people in the UK who have symptoms, but no diagnosis, of chronic obstructive pulmonary disease (COPD).

Aim: To investigate the proportion of patients with a missed COPD diagnosis among those with COPD as the cause of death on their death certificate, and how this has changed over a period of 17 years (2000-2017).

Design & setting: Clinical Practice Research Datalink (CPRD) Aurum and GOLD primary care data were linked with Office for National Statistics (ONS) mortality data and Hospital Episode Statistics (HES) data. Adults who died between 2000 and 2017 with COPD as their main cause of death were included.

Method: Using a range of diagnostic COPD criteria, the proportion of patients with a missed COPD diagnosis was estimated, and the demographic and clinical characteristics of patients with and without prior COPD diagnosis were described, using a mixed-effect logistic regression model.

Results: Depending on the COPD definition used, between 96% and 27% of the 78 621 patients included received a diagnosis of COPD before death. Using presence of a COPD Read or SNOMED CT code and performed spirometry as a main definition, just over half of the patients (52%) had received a COPD diagnosis overall, with a proportion of those who did not decreasing from 91% in 2000 to 31% in 2017 (P_{trend} <0.001).

Conclusion: The proportion of people with COPD-recorded death and who had received a diagnosis of COPD has improved (increased) over time, and currently represents the majority of them. This suggests that few patients are now being missed.

Keywords: Clinical Practice Research Datalink; diagnosis; general practice; primary health care; pulmonary disease, chronic obstructive.

J Affect Disord

. 2022 Sep 15;313:77-83.

doi: 10.1016/j.jad.2022.06.059. Epub 2022 Jun 26.

Outcomes associated with comorbid anxiety and depression among patients with stable COPD: A patient registry study in China

Dong Wu[1], Xuanna Zhao[1], Dan Huang[1], Zhun Dai[2], Min Chen[1], Dongming Li[1], Bin Wu[3]

Affiliations expand

- PMID: 35760193

- DOI: 10.1016/j.jad.2022.06.059

Free article

Abstract

Background: Anxiety and depression are common among patients with chronic obstructive pulmonary disease (COPD), but the associations between psychiatric symptoms and specific COPD outcomes are uncertain.

Methods: Associations of psychiatric symptoms (anxiety and depression) and COPD outcomes (COPD Assessment Test (CAT), modified Medical Research Council dyspnea scale (mMRC), number of acute exacerbations and percentage predicted forced expiratory volume in 1 second (FEV_1% predicted)) sets were performed by canonical correlation analysis in 876 patients with COPD.

Results: In primary analysis, we discovered a statistically significant relationship between symptoms of anxiety/depression and COPD outcomes sets (1 - Λ = 0.11; P < .001). Symptoms of anxiety/depression and four COPD outcomes sets shared 11 % of variance. CAT was the main driver of the relationship (r_s = -0.930; r_s^2 = 0.8649) followed by mMRC (r_s = -0.632; r_s^2 = 0.3994) and exacerbation history (r_s = -0.478; r_s^2 = 0.2285); FEV_1% predicted did't make a significant contribution to the relationship (r_s = 0.134; r_s^2 = 0.018). In secondary analysis, women were associated with a stronger correlation based on the shared variance between psychiatric symptoms and COPD outcomes sets (17.4 %) than men (9.8 %).

Limitations: Some confounding factors such as education level, income, didn't be included. There were considerably fewer women enrolled in this study than men.

Conclusion: Psychiatric symptoms were associated with COPD subjective outcomes, and more related to COPD outcomes in women.

Keywords: Anxiety; COPD; Canonical correlation analysis; Depression; Multivariate.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Proceed to details

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Editorial

Am J Respir Crit Care Med

. 2022 Sep 15;206(6):655-656.

doi: 10.1164/rccm.202206-1026ED.

Bronchoscopic Lung Volume Reduction: To the Heart of the Matter

Justin L Garner[1,2], Pallav L Shah[1,2,3]

Affiliations expand

- PMID: 35653705

- DOI: 10.1164/rccm.202206-1026ED

No abstract available

Comment on

- Reduction of Lung Hyperinflation Improves Cardiac Preload, Contractility, and Output in Emphysema: A Clinical Trial in Patients Who Received Endobronchial Valves.
  van der Molen MC, Hartman JE, Vanfleteren LEGW, Kerstjens HAM, van Melle JP, Willems TP, Slebos DJ.Am J Respir Crit Care Med. 2022 Sep 15;206(6):704-711. doi: 10.1164/rccm.202201-0214OC.PMID: 35584341 Clinical Trial.

Editorial

Am J Respir Crit Care Med

. 2022 Sep 15;206(6):657-658.

doi: 10.1164/rccm.202205-0956ED.

The Serpin-tine Search for Factors Associated with COVID-19 Severity in Patients with Chronic Obstructive Pulmonary Disease

Aaron Scott[1], Sinéad Weldon[2], Clifford C Taggart[2]

Affiliations expand

- PMID: 35612929

- DOI: 10.1164/rccm.202205-0956ED

No abstract available

Comment on

- Increased SARS-CoV-2 Infection, Protease, and Inflammatory Responses in Chronic Obstructive Pulmonary Disease Primary Bronchial Epithelial Cells Defined with Single-Cell RNA Sequencing.
  Johansen MD, Mahbub RM, Idrees S, Nguyen DH, Miemczyk S, Pathinayake P, Nichol K, Hansbro NG, Gearing LJ, Hertzog PJ, Gallego-Ortega D, Britton WJ, Saunders BM, Wark PA, Faiz A, Hansbro PM.Am J Respir Crit Care Med. 2022 Sep 15;206(6):712-729. doi: 10.1164/rccm.202108-1901OC.PMID: 35549656

Am J Respir Crit Care Med

. 2022 Sep 15;206(6):786-789.

doi: 10.1164/rccm.202201-0153LE.

The Severity of Functional Small Airway Disease in Military Personnel with Constrictive Bronchiolitis as Measured by Quantitative Computed Tomography

Caroline W Davis[1], Camden L Lopez[1], Alexander J Bell[1], Robert F Miller[2], Alexander S Rabin[1,3], Susan Murray[1], Michael J Falvo[4,5], MeiLan K Han[1], Craig J Galban[1], John J Osterholzer[1,3]

Affiliations expand

- PMID: 35608541

- DOI: 10.1164/rccm.202201-0153LE

No abstract available

Eur Respir J

. 2022 Sep 15;60(3):2101954.

doi: 10.1183/13993003.01954-2021. Print 2022 Sep.

A polygenic risk score and age of diagnosis of COPD

Jingzhou Zhang[1,2], Hanfei Xu[3], Dandi Qiao[1], Dawn L DeMeo[1,4], Edwin K Silverman[1,4], George T O'Connor[2], Brian D Hobbs[1,4], Josée Dupuis[3], Michael H Cho[1,4,5], Matthew Moll[6,4,5]

Affiliations expand

- PMID: 35115341

- DOI: 10.1183/13993003.01954-2021

Abstract

Background: Genetic susceptibility may be associated with earlier onset of chronic obstructive pulmonary disease (COPD). We hypothesised that a polygenic risk score (PRS) for COPD would be associated with earlier age of diagnosis of COPD.

Methods: In 6647 non-Hispanic White (NHW) and 2464 African American (AA) participants from COPDGene, and 6812 participants from the Framingham Heart Study (FHS), we tested the relationship of the PRS and age of COPD diagnosis. Age at diagnosis was determined by: 1) self-reported age at COPD diagnosis or 2) age at visits when moderate-to-severe airflow limitation (Global Initiative for Chronic Obstructive Lung Disease (GOLD) grade 2-4) was observed on spirometry. We used Cox regression to examine the overall and time-dependent effects of the PRS on incident COPD. In the COPDGene study, we also examined the PRS's predictive value for COPD at age <50 years (COPD50) using logistic regression and area under the curve (AUC) analyses, with and without the addition of other risk factors present at early life (*e.g.* childhood asthma).

Results: In Cox models, the PRS demonstrated age-dependent associations with incident COPD, with larger effects at younger ages in both cohorts. The PRS was associated with COPD50 (OR 1.55 (95% CI 1.41-1.71) for NHW, OR 1.23 (95% CI 1.05-1.43) for AA and OR 2.47 (95% CI 2.12-2.88) for FHS participants). In COPDGene, adding the PRS to known early-life risk factors improved prediction of COPD50 in NHW (AUC 0.69 *versus* 0.74; p<0.0001) and AA (AUC 0.61 *versus* 0.64; p=0.04) participants.

Conclusions: A COPD PRS is associated with earlier age of diagnosis of COPD and retains predictive value when added to known early-life risk factors.

Conflict of interest statement

Conflict of interest: E.K. Silverman received grant support from GlaxoSmithKline and Bayer. M.H. Cho has received grant support from GlaxoSmithKline and Bayer, consulting fees from Genentech and AstraZeneca, and speaking fees from Illumina. D.L. DeMeo has received support from Bayer and Honoraria from Novartis. J. Dupuis received NIH funding for salary coverage paid to Boston University. J. Zhang, H. Xu, D. Qiao, G.T. O'Connor, B.D. Hobbs and M. Moll have no conflict of interest to declare.

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

ASTHMA

1
Sci Rep

. 2022 Sep 23;12(1):15921.

doi: 10.1038/s41598-022-20069-y.

Ragweed pollen concentration predicts seasonal rhino-conjunctivitis and asthma severity in patients allergic to ragweed

Maira Bonini[1], Gianna Serafina Monti[2], Matteo Maria Pelagatti[2], Valentina Ceriotti[3], Elisabetta Elena Re[4], Barbara Bramè[4], Paolo Bottero[5], Anna Tosi[6], Adriano Vaghi[7], Alberto Martelli[8], Giovanni Maria Traina[9], Loredana Rivolta[10], Federica Rivolta[11], Claudio Maria Ortolani[6]

Affiliations expand

- PMID: 36151263

- DOI: 10.1038/s41598-022-20069-y

Abstract

In this work, we investigate the correlation between ragweed pollen concentration and conjunctival, nasal, and asthma symptom severity in patients allergic to ragweed pollen using ambient pollen exposure in the Milan area during the 2014 ragweed season We calculate the pollen/symptom thresholds and we assess the effectiveness of ragweed allergen immunotherapy (AIT). A total of 66 participants allergic to ragweed (Amb a 1) were enrolled in the study and divided into two groups: AIT treated (24) and no AIT treated (42). Pollen counts and daily symptom/medication patient diaries were kept. Autoregressive distributed lag models were used to develop predictive models of daily symptoms and evaluate the short-term effects of temporal variations in pollen concentration on the onset of symptoms. We found significant correlations between ragweed pollen load and the intensity of symptoms for all three symptom categories, both in no AIT treated (τ = 0.341, 0.352, and 0.721; and ρ = 0.48, 0.432, and 0.881; p-value < 0.001) and in AIT treated patients ([Formula: see text]= 0.46, 0.610, and 0.66; and ρ = 0.692, 0.805, and 0.824; p-value < 0.001). In both groups, we observed a positive correlation between the number of symptoms reported and drug use. Mean symptom levels were significantly higher in no AIT treated than in AIT treated patients (p-value < 0.001) for all symptom categories. Pollen concentration thresholds for the four symptom severity levels (low, medium-low, medium-high and high) were calculated. Ragweed pollen concentration is predictive of symptom severity in patients with a ragweed (Amb a 1) allergy. Patients treated with AIT had significantly reduced mean symptom levels compared to those without AIT.

- 58 references

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J Allergy Clin Immunol Pract

. 2022 Sep 20;S2213-2198(22)00825-X.

doi: 10.1016/j.jaip.2022.08.020. Online ahead of print.

Allergy Electronic Health Record Documentation: A 2022 Work Group Report of the AAAAI Adverse Reactions to Drugs, Biologicals, and Latex Committee

Autumn C Guyer[1], Eric Macy[2], Andrew A White[3], Merin E Kuruvilla[4], Rachel G Robison[5], Santhosh Kumar[6], David A Khan[7], Elizabeth J Phillips[8], Allison Ramsey[9], Kimberly Blumenthal[10]

Affiliations expand

- PMID: 36151034

- DOI: 10.1016/j.jaip.2022.08.020

Abstract

The allergy section of the electronic health record (EHR) is ideally reviewed and updated by health care workers during routine outpatient visits, emergency room visits, inpatient hospitalizations, and surgical procedures. This EHR section has the potential to help proactively and comprehensively avoid exposures to drugs, contact irritants, foods, and

other agents for which, based on an individual's medical history and/or genetics, there is increased risk for adverse outcomes with future exposures. Because clinical decisions are made and clinical decision support is triggered based on allergy details from the EHR, the allergy module needs to provide meaningful, accurate, timely, and comprehensive allergy information. Although the allergy section of the EHR must meet these requirements to guide appropriate clinical decisions and treatment plans, current EHR allergy modules have not achieved this standard. We urge EHR vendors to collaborate with allergists to optimize and modernize allergy documentation. A work group within the Adverse Reactions to Drugs, Biologicals, and Latex Committee of the American Academy of Allergy, Asthma & Immunology was formed to create recommendations for allergy documentation in the EHR. Whereas it is recognized that the term "allergy" is often used incorrectly because most adverse drug reactions (ADRs) are not true immune-mediated hypersensitivity reactions, "allergy" in this article includes allergies and hypersensitivities as well as side effects and intolerances. Our primary objective is to provide guidance for the current state of allergy documentation in the EHR. This guidance includes clarification of the definition of specific ADR types, reconciliation of confirmed ADRs, and removal of disproved or erroneous ADRs. This document includes a proposal for the creation, education, and implementation of a drug allergy labeling system that may allow for more accurate EHR documentation for improved patient safety.

Keywords: Adverse drug reaction; Anaphylaxis; Documentation; Drug allergy; Electronic Health Record; Hypersensitivity; Intolerance.

J Pers Med

. 2022 Sep 17;12(9):1526.

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Effectiveness of Dupilumab in the Treatment of Patients with Uncontrolled Severe CRSwNP: A "Real-Life" Observational Study in Naïve and Post-Surgical Patients

Giancarlo Ottaviano[1], Tommaso Saccardo[1], Giuseppe Roccuzzo[1], Riccardo Bernardi[1], Alessandra Di Chicco[1], Alfonso Luca Pendolino[2,3], Bruno Scarpa[4], Edoardo Mairani[1], Piero Nicolai[1]

Affiliations expand

- PMID: 36143311

- DOI: 10.3390/jpm12091526

Abstract

Background: Chronic rhinosinusitis with nasal polyps (CRSwNP) represents 25-30% of all CRS cases, and in the most severe forms it is associated with a poor quality of life and a high rate of nasal polyps' recurrence after surgery. Dupilumab has been suggested as a treatment option for severe CRSwNP. ***Methods***: Patients with severe CRSwNP receiving dupilumab from January 2021 were followed up at 1, 3, 6, 9 and 12 months from the first administration and were considered for this study. At baseline and at each follow-up, patients underwent nasal endoscopy and completed the Sinonasal Outcome Test (SNOT)-22, a Visual Analogue Scale (VAS) for smell/nasal obstruction, the Nasal Congestion Score and the Asthma Control Test. Peak nasal inspiratory flow (PNIF), a smell test, nasal cytology and blood eosinophilia were also evaluated. ***Results***: Forty-seven patients were included in the study. Of these, 33 patients had a history of previous surgery (ESS) and had recurrent nasal polyps, while 14 patients were naïve to nasal surgery. Both subjective and objective parameters improved after biological treatment and were correlated with each other (p < 0.05), except for the SNOT-22 and the nasal polyp's score. No correlations were found between nasal and blood eosinophilia. No differences were observed when comparing the post-surgical and the naïve groups. ***Conclusions***: Dupilumab improves nasal obstruction and the sense of smell and reduces the level of local inflammation in severe CRSwNP patients in a similar way in both naïve and post-surgical patients.

Keywords: ACT; NPS; PNIF; PROMs; SNOT-22; Sniffin' sticks; blood eosinophilia; dupilumab; nasal cytology; naïve patients.

Review

Biomedicines

. 2022 Sep 19;10(9):2330.

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Investigational Treatments in Phase I and II Clinical Trials: A Systematic Review in Asthma

Luigino Calzetta[1], Marina Aiello[1], Annalisa Frizzelli[1], Elena Pistocchini[2], Beatrice Ludovica Ritondo[2], Paola Rogliani[2], Alfredo Chetta[1]

Affiliations expand

- PMID: 36140430

- DOI: 10.3390/biomedicines10092330

Abstract

Inhaled corticosteroids (ICS) remain the mainstay of asthma treatment, along with bronchodilators serving as control agents in combination with ICS or reliever therapy. Although current pharmacological treatments improve symptom control, health status, and the frequency and severity of exacerbations, they do not really change the natural course of asthma, including disease remission. Considering the highly heterogeneous nature of asthma, there is a strong need for innovative medications that selectively target components of the inflammatory cascade. The aim of this review was to systematically

assess current investigational agents in Phase I and II randomised controlled trials (RCTs) over the last five years. Sixteen classes of novel therapeutic options were identified from 19 RCTs. Drugs belonging to different classes, such as the anti-interleukin (IL)-4Rα inhibitors, anti-IL-5 monoclonal antibodies (mAbs), anti-IL-17A mAbs, anti-thymic stromal lymphopoietin (TSLP) mAbs, epithelial sodium channel (ENaC) inhibitors, bifunctional M_3 receptor muscarinic antagonists/β_2-adrenoceptor agonists (MABAs), and anti-Fel d 1 mAbs, were found to be effective in the treatment of asthma, with lung function being the main assessed outcome across the RCTs. Several novel investigational molecules, particularly biologics, seem promising as future disease-modifying agents; nevertheless, further larger studies are required to confirm positive results from Phase I and II RCTs.

Keywords: Phase I; Phase II; RCT; asthma; efficacy; investigational.

Conflict of interest statement

L.C. reports grants and personal fees from Boehringer Ingelheim, grants and personal fees from Novartis, nonfinancial support from AstraZeneca, grants from Chiesi Farmaceutici, grants from Almirall, personal fees from ABC Farmaceutici, personal fees from Edmond Pharma, grants and personal fees from Zambon, personal fees from Verona Pharma, personal fees from Ockham Biotech. M.A. has no conflicts of interest to declare. A.F. has no conflicts of interest to declare. E.P. has no conflicts of interest to declare. B.L.R. has no conflicts of interest to declare. P.R. reports grants and personal fees from Boehringer Ingelheim, grants and personal fees from Novartis, personal fees from AstraZeneca, grants and personal fees from Chiesi Farmaceutici, grants and personal fees from Almirall, grants from Zambon, personal fees from Biofutura, personal fees from GlaxoSmithKline, personal fees from Menarini, and personal fees from Mundipharma. A.C. received grants from Menarini and Astra Zeneca and a personal fee from Chiesi.

BMJ Case Rep

. 2022 Sep 22;15(9):e251581.

doi: 10.1136/bcr-2022-251581.

Subglottic stenosis masquerading as asthma in a young adult: an overlooked and delayed diagnosis

Carys Whittet[1], Simon Morris[2], Laysan Pope[2]

Affiliations expand

- PMID: 36137644

- DOI: 10.1136/bcr-2022-251581

Abstract

An otherwise fit young woman presented with a 10-year history of non-progressive wheeze and 'noisy breathing'. She had previously been diagnosed with teenage-onset asthma but had been unresponsive to inhaled corticosteroids and bronchodilators. A dysfunctional breathing disorder had been considered a possible diagnosis by several general practitioners, and there were no features to suggest systemic conditions. The patient had undergone an otherwise apparently uncomplicated intubation general anaesthetic for a gastroenterological investigation 13 years earlier. An outpatient flexible endoscopic examination of the upper aerodigestive tract demonstrated an isolated subglottic stenosis which was characterised by cross-sectional imaging. Microlaryngoscopy confirmed a smooth subglottic stenosis which was dilated using a minimally invasive balloon dilatation technique to good clinical effect.

Keywords: Asthma; Ear, nose and throat/otolaryngology; General practice / family medicine; Otolaryngology / ENT.

Conflict of interest statement

Competing interests: None declared.

J Asthma Allergy

. 2022 Sep 14;15:1305-1319.

doi: 10.2147/JAA.S376213. eCollection 2022.

The Prevalence of Bronchodilator Responsiveness "Asthma" Among Adult Indigenous Australians Referred for Lung Function Testing in the Top End Northern Territory of Australia

Subash S Heraganahally[1,2,3], Timothy P Howarth[3,4], Angus Lloyd[1], Elisha White[3], Antony Veale[5], Helmi Ben Saad[6]

Affiliations expand

- PMID: 36132978
- PMCID: PMC9484079
- DOI: 10.2147/JAA.S376213

Free PMC article

Abstract

Background: Among Indigenous Australians, studies examining the clinical significance of airway bronchodilator responsiveness (BDR) are limited. In this retrospective study, we examined the nature of underlying lung disease in adult Indigenous patients with BDR referred for lung function testing (LFT) in the Top End Health Service region of the Northern Territory of Australia.

Methods: Presence or absence of BDR as per usual (FVC or FEV_1 change pre to post ≥12% and ≥0.2L) and updated (2021 ">10% predicted) ATS/ERS criteria among Indigenous and non-Indigenous Australians was determined. The radiological findings in the Indigenous study participants with and without BDR were next assessed for the presence of underlying chronic airway/lung disease.

Results: We found that 123/742 (17%) Indigenous and 578/4579 (13%) non-Indigenous patients had a significant BDR. Indigenous patients with BDR were younger (mean difference 7 years), with a greater proportion of females (52 vs 32%), underweight (15 vs 4%) and current smokers (52 vs 25%). Indigenous patients with BDR displayed lower LFT values, and a higher proportion exhibited FVC BDR compared to non-Indigenous (34 vs 20%). Almost half (46%) of Indigenous patients with BDR had evidence of COPD and/or bronchiectasis on radiology. Adjusting for the presence of radiologic or spirometric evidence of COPD, the presence of BDR was similar between Indigenous and non-Indigenous patients (5-8 vs 7-11%), irrespective of which BDR criteria was used.

Conclusion: BDR was higher overall among Indigenous in comparison to non-Indigenous patients; however, a significant proportion of Indigenous patients demonstrating BDR had evidence of underlying COPD/bronchiectasis. This study highlights that although presence of BDR among Indigenous people may indicate asthma, it may also be observed among patients with COPD/bronchiectasis or could represent asthma/COPD/bronchiectasis overlap. Hence, a combination of clinical history, LFT and radiology should be considered for precise diagnosis of lung disease in this population.

Keywords: airway obstruction; asthma; first nations; radiology imaging; reversible airflow obstruction; spirometry.

Conflict of interest statement

All authors declare no conflicts of interest for this study.

- 69 references
- 4 figures

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Review

Int J Chron Obstruct Pulmon Dis

. 2022 Sep 14;17:2253-2261.

doi: 10.2147/COPD.S378034. eCollection 2022.

The Influence of Influenza Virus Infections in Patients with Chronic Obstructive Pulmonary Disease

Kuang-Ming Liao[1], Yi-Ju Chen[2], Chuan-Wei Shen[2], Shao-Kai Ou[2], Chung-Yu Chen[2,3,4]

Affiliations expand

- PMID: 36128015

- PMCID: PMC9482787

- DOI: 10.2147/COPD.S378034

Free PMC article

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) is a common disease and is preventable and treatable. A previous study showed that influenza virus infections were also associated with the risk of acute exacerbation in patients with COPD, and other studies showed that the influenza virus might increase the risk of stroke. However, studies on the

influence of influenza infection among COPD patients are limited. In this study, we review the role of influenza infection in contributing to mortality, pneumonia, respiratory failure, COPD acute exacerbation, and ischemic stroke among COPD patients.

Materials and methods: We performed a population-based cohort study of COPD patients using data from Taiwan between January 1, 2011, and December 31, 2019. We excluded patients with lung cancer, lung transplantation and asthma. We also excluded patients who lacked COPD medication prescriptions and those treated with anti-influenza drugs without flu diagnosis records. Patients with missing or incomplete data were also excluded from the study cohort.

Results: After 1:1 matching by age, sex, COPD duration, diagnosed years and comorbidities, we enrolled 10,855 cases and controls for further analysis. The risks of pneumonia, respiratory failure, COPD acute exacerbation, and ischemic stroke were 1.770 (95% CI=1.638-1.860; P<0.0001), 1.097 (95% CI=1.008-1.194; P=0.0319), 1.338 (95% CI=1.248-1.435; P<0.0001), and 1.134 (95% CI=1.039-1.239, P=0.0051), respectively, in the influenza infection group compared with COPD patients without influenza infection.

Conclusion: Influenza infections are linked to an increased risk of ischemic stroke, pneumonia, respiratory failure, and COPD acute exacerbation among COPD patients. In conclusion, patients with COPD need to be closely monitored after having an influenza infection.

Keywords: acute exacerbation; chronic obstructive pulmonary disease; influenza virus; pneumonia; respiratory failure; stroke.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

- 34 references
- 2 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

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Randomized Controlled Trial

Respir Res

. 2022 Sep 20;23(1):258.

doi: 10.1186/s12931-022-02164-w.

Metabolomic changes related to airway inflammation, asthma pathogenesis and systemic activity following inhaled fluticasone furoate/vilanterol: a randomized controlled trial

Peter Daley-Yates[1], Brian Keppler[2], Amanda Baines[3], George Bardsley[4], James Fingleton[5]

Affiliations expand

- PMID: 36127726

- PMCID: PMC9487108

- DOI: 10.1186/s12931-022-02164-w

Free PMC article

Abstract

Background: Fluticasone furoate/vilanterol trifenatate (FF/VI) is an inhaled therapy for the treatment of asthma, with a prolonged duration of anti-inflammatory and bronchodilatory action. This study investigated the global metabolomic and lipidomic profile following treatment with FF/VI or placebo and assessed whether changes correlated with exhaled nitric oxide levels as a measure of airway inflammation.

Methods: This was a single-center, randomized, double-blind, placebo-controlled, two-period, crossover, repeat-dose study. Adults with asthma (forced expiratory volume in 1 s ≥ 60% predicted; fraction of exhaled nitric oxide [FeNO] > 40 parts per billion) received once-daily FF/VI 100 µg/25 µg or placebo for 14 days, followed by a 21-day washout period. Serum samples were taken at pre-dose (T1), and 15 and 21 days (T2 and T3, respectively) post dose in each period. The metabolomic and lipidomic profiles were analyzed by liquid chromatography with tandem mass spectrometry and polar liquid chromatography platforms, and ions were matched to a library of standards for metabolite identification and quantification. FeNO values at each timepoint were evaluated for correlations with the biochemical data.

Results: Of 27 randomized participants (mean age 24.5 years, 63% male), 26 provided serum samples for metabolomic analysis. A total of 1969 metabolites were identified, 1634 of which corresponded to a named structure in a reference library. Treatment-related changes in the metabolome were generally subtle, with a modest increase in metabolite perturbations across timepoints. The percentage of metabolites with significant changes ($p < 0.05$ for all) (increases↑/decreases↓) versus placebo were: 2.1% (1.1%↑/1.0%↓), 6.7% (0.46%↑/6.2%↓) and 11.8% (0.86%↑/10.9%↓) at T1, T2 and T3, respectively. Treatment with FF/VI reduced FeNO levels by 60%, whereas the systemic intermediates involved in NO biosynthesis remained unaffected. Evidence of systemic anti-inflammatory activity was seen in complex lipid pathways, suggesting reduced phospholipase-A2 activity, but without downstream impact on free fatty acids or inflammatory mediators. Consistent with the pathogenesis of asthma, there was evidence of higher fatty acid β-oxidation and lower glycolysis in the placebo arm; this pattern was reversed in the treatment arm.

Conclusions: Despite the prolonged airway anti-inflammatory action of FF/VI, this was accompanied by only subtle systemic metabolomic and lipidomic changes. Trial registration Prospectively registered on ClinicalTrials.gov registry number NCT02712047.

Keywords: Asthma; Clinical trial; Fluticasone furoate; Inhaled corticosteroid; Long-acting β2-agonist; Metabolomics; Vilanterol.

Conflict of interest statement

GB has no conflicts of interest to declare. JF reports grants from GSK during the conduct of the study; grants, personal fees and non-financial support from AstraZeneca; grants from Genentech; and personal fees and non-financial support from GSK and Boehringer

Ingelheim. AB and PDY are employees of, and shareholders in, GSK BK is an employee of Metabolon, Inc, which received funding from GSK to conduct the study.

- 20 references
- 9 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Associated data, Grant supportexpand

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J Allergy Clin Immunol

. 2022 Sep 17;S0091-6749(22)01215-5.

doi: 10.1016/j.jaci.2022.09.012. Online ahead of print.

Mechanisms by which dupilumab normalizes eicosanoid metabolism and restores aspirin-tolerance in AERD: A hypothesis

César Picado[1], Joaquim Mullol[2], Jordi Roca-Ferrer[3]

Affiliations expand

- PMID: 36126795

- DOI: 10.1016/j.jaci.2022.09.012

Abstract

Aspirin-exacerbated respiratory disease (AERD) is associated with overproduction of pro-inflammatory cysteinyl leukotrienes (CysLTs), defective generation of anti-inflammatory prostaglandin E2 (PGE_2), and reduced expression of the EP2 receptor for PGE_2. Reduced PGE_2 synthesis results from the down-regulation of inducible cyclooxygenase 2 (COX-2). Since PGE_2 signalling via EP2 inhibits the 5-lipoxygenase(5-LO)/Leukotriene C4 synthase (LTC4S)-dependent pathway, the deficient levels of both PGE_2 and EP2 likely contribute to the excessive baseline production of CysLTs in AERD compared with aspirin-tolerant asthma patients. The COX-2 pathway is regulated by an autocrine metabolic loop involving interleukin IL-1β, IL-1RI, EP2, COX-2, mPGE-1 and PGE_2. Previous studies reported that this metabolic loop is dysregulated in AERD patients. When the down-expressed EP2 receptor is normalized, the entire loop returns to its normal function. Co-treatment of airway cells from healthy subjects with IL-4 and IFN-γ induces alterations in the metabolic loop similar to those seen in AERD patients. Interleukin 4, which is produced in excess in AERD airways, likely contributes to altering the normal functioning of the IL-1β, IL-1RI, EP2, COX-2, mPGE-1 and PGE_2 autocrine metabolic loop in these patients. We hypothesized that by blocking IL-4 action, dupilumab normalizes EP2 expression, and restores the normal functioning of the COX-2 pathway autocrine metabolic loop, normalizing the synthesis of PGE_2 and thereby restoring aspirin tolerance.

Keywords: aspirin; asthma; dupilumab; leukotriene; non-steroidal anti-inflammatory drug; prostaglandin E(2).

doi: 10.1111/all.15519. Online ahead of print.

Legends of allergy and immunology: Lorenzo moretta – unfolding the mysteries of NK cells and much more

Giorgio Walter Canonica[1,2], Anthony S Fauci[3]

Affiliations expand

- PMID: 36125331

- DOI: 10.1111/all.15519

No abstract available

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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11

BMJ Open

. 2022 Sep 19;12(9):e064538.

doi: 10.1136/bmjopen-2022-064538.

EPI-ASTHMA study protocol: a population-based multicentre stepwise study on the prevalence and characterisation of patients with asthma according to disease severity in Portugal

Cristina Jácome[1,2], Dinis Brito[3,4], Catarina João[5], Filipa Lopes[6], Janete Santos[5], Liliana Amorim[7], Maria João Barbosa[3,8], Marisa Pardal[9], Pedro Teixeira[3,7], Filipa Bernardo[9], Joao A Fonseca[5,2,6,10], Jaime Correia-de-Sousa[3]

Affiliations expand

- PMID: 36123070
- PMCID: PMC9486331
- DOI: 10.1136/bmjopen-2022-064538

Free PMC article

Abstract

Introduction: In Portugal as in other countries, data on the epidemiology of asthma are mainly grounded in questionnaire studies. Additionally, the detailed characterisation of asthma in terms of disease severity, control and phenotypes remain scarce. Studies assessing the prevalence of asthma and its subgroups using accurate methods are needed. This study aims to determine the prevalence of asthma, difficult-to-treat asthma and severe asthma, and to evaluate sociodemographic and clinical characteristics of those patients, in mainland Portugal.

Methods and analysis: A population-based nationwide study with a multicentre stepwise approach will be conducted between 2021 and 2023 in 38 primary care centres of the Portuguese National Health Service. The stepwise approach will comprise four stages: Stage 0-telephone call invitation to adult subjects (≥18 years) randomly selected (n~15 000); stage 1-telephone screening interview assessing the participants' respiratory symptoms (n~7500); stage 2-diagnostic visit, including physical examination, diagnostic

tests (eg, spirometry, fraction of exhaled nitric oxide, blood eosinophil count) and patient-reported outcome measures for diagnostic confirmation of those identified with possible asthma at stage 1 (n~1800); stage 3-further evaluation of patients with asthma and of patients with difficult-to-treat asthma and severe asthma, after 3 months (n~460). At stage 3, data will be collected from a review of the patient's electronic health records, a follow-up telephone call and the CARATm (Caracteristicas Auto-reportadas de Asma em Tecnologias Móveis) app database. The prevalence of asthma, difficult-to-treat asthma and severe asthma will be determined as the percentage of patients with asthma confirmed from the overall population (stage 1). For the analysis of factors associated with asthma, difficult-to-treat asthma and severe asthma, logistic regression models will be explored.

Ethics and dissemination: Ethical approvals for the study were obtained from the ethics committee of the local health unit of Matosinhos, Porto (38/CES/JAS), Alto Minho (38/2021/CES) and the regional health administration of Lisbon-Vale do Tejo (035/CES/INV/2021). Results will be published in peer-reviewed journals.

Trial registration number: NCT05169619.

Keywords: Asthma; Chronic airways disease; EPIDEMIOLOGY.

Conflict of interest statement

Competing interests: JC-d-S reports Advisory Board from Boheringer Ingelheim, personal fees and Advisory Board from GSK, grants, personal fees and Advisory Board from AstraZeneca, personal fees and Advisory Board from Bial, non-financial support from Mundipharma, personal fees from Sanofi, Advisory Board from Novartis, outside the submitted work. JAF declares grants from or research agreements with AstraZeneca, Mundipharma, Sanofi Regeneron and Novartis. Personal fees for lectures and attending advisory boards from AstraZeneca, GSK, Mundipharma, Novartis, Sanofi Regeneron and TEVA. MP and FB are employees of AstraZeneca, Produtos Farmacêuticos. The remaining authors declare no conflicts of interest.

- 33 references
- 1 figure

SUPPLEMENTARY INFO

MeSH terms, Substances, Associated dataexpand

FULL TEXT LINKS

BMJ Free Full Text

Respirology

. 2022 Sep 19.

doi: 10.1111/resp.14374. Online ahead of print.

Leading women in respiratory medicine and research: Opportunities for international societies to support women with examples from the American Thoracic Society

Meghan E Rebuli[1], Ilona Jaspers[1]

Affiliations expand

- PMID: 36122911

- DOI: 10.1111/resp.14374

Free article

No abstract available

Keywords: equity assessment; gender equity; increase awareness; meeting infrastructure; scientific societies; sponsorship; women.

Case Reports

Int J Infect Dis

. 2022 Sep 16;S1201-9712(22)00518-5.

doi: 10.1016/j.ijid.2022.09.019. Online ahead of print.

Acute asthma exacerbation due to SARS-CoV-2 vaccine (Pfizer-BioNTech BNT162b2 mRNA COVID-19 vaccine [Comirnaty®])

Masaru Ando [1], Yoshio Satonaga [2], Ryuichiro Takaki [2], Michitoshi Yabe [2], Takamasa Kan [2], Erika Omote [2], Toru Yamasaki [2], Kosaku Komiya [3], Kazufumi Hiramatsu [3]

Affiliations expand

- PMID: 36122668

- PMCID: PMC9477784

- DOI: 10.1016/j.ijid.2022.09.019

Abstract

The messenger ribonucleic acid vaccine against SARS-CoV-2 is effective at preventing COVID-19-associated hospitalization and the CDC has recommended vaccination for all eligible individuals. We demonstrate a case involving a patient who developed a life-threatening acute asthma exacerbation after receiving their third dose of BNT16b2 vaccine. As eosinophilia was observed after the second inoculation, it was considered likely that the patient had been sensitized to the BNT16b2 vaccine. Theoretically, the SARS-CoV-2 vaccine could trigger the exacerbation of asthma. It should be recognized that repeated SARS-CoV-2 vaccination may be a risk factor for the acute exacerbation of asthma.

Conflict of interest statement

Declaration of interests 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.

- 10 references
- 1 figure

JAMA Pediatr

. 2022 Sep 19.

doi: 10.1001/jamapediatrics.2022.3261. Online ahead of print.

Association of Early Oseltamivir With Improved Outcomes in Hospitalized Children With Influenza, 2007-2020

Patrick S Walsh[1], David Schnadower[1,2], Yin Zhang[3], Sriram Ramgopal[4,5], Samir S Shah[2,6], Paria M Wilson[1,2]

Affiliations expand

- PMID: 36121673

- DOI: 10.1001/jamapediatrics.2022.3261

Abstract

Importance: Oseltamivir is recommended for all children hospitalized with influenza, despite limited evidence supporting its use in the inpatient setting.

Objective: To determine whether early oseltamivir use is associated with improved outcomes in children hospitalized with influenza.

Design, setting, and participants: This multicenter retrospective study included 55 799 children younger than 18 years who were hospitalized with influenza from October 1, 2007, to March 31, 2020, in 36 tertiary care pediatric hospitals who participate in the Pediatric Health Information System database. Data were analyzed from January 2021 to March 2022.

Exposures: Early oseltamivir treatment, defined as use of oseltamivir on hospital day 0 or 1.

Main outcomes and measures: The primary outcome was hospital length of stay (LOS) in calendar days. Secondary outcomes included 7-day hospital readmission, late (hospital day 2 or later) intensive care unit (ICU) transfer, and a composite outcome of in-hospital death or use of extracorporeal membrane oxygenation (ECMO). Inverse probability treatment weighting (IPTW) based on propensity scoring was used to address confounding by indication. Mixed-effects models were used to compare outcomes between children who did and did not receive early oseltamivir treatment. Outcomes were also compared within high-risk subgroups based on age, presence of a complex chronic condition, early critical illness, and history of asthma.

Results: The analysis included 55 799 encounters from 36 hospitals. The median (IQR) age of the cohort was 3.61 years (1.03-8.27); 56% were male, and 44% were female. A total of 33 207 patients (59.5%) received early oseltamivir. In propensity score-weighted models, we found that children treated with early oseltamivir had shorter LOS (median 3 vs 4 days; IPTW model ratio, 0.52; 95% CI, 0.52-0.53) and lower odds of all-cause 7-day hospital readmission (3.5% vs 4.8%; adjusted odds ratio [aOR], 0.72; 95% CI, 0.66-0.77), late ICU transfer (2.4% vs 5.5%; aOR, 0.41; 95% CI, 0.37-0.46), and the composite outcome of death or ECMO use (0.9% vs 1.4%; aOR, 0.63; 95% CI, 0.54-0.73).

Conclusions and relevance: Early use of oseltamivir in hospitalized children was associated with shorter hospital stay and lower odds of 7-day readmission, ICU transfer, ECMO use, and death. These findings support the current recommendations for oseltamivir use in children hospitalized with influenza.

Review

Respir Res

. 2022 Sep 18;23(1):251.

doi: 10.1186/s12931-022-02175-7.

Roles of sirtuins in asthma

Yahui Liu[1 2 3], Guochao Shi[4 5 6]

Affiliations expand

- PMID: 36117172

- PMCID: PMC9482752

- DOI: 10.1186/s12931-022-02175-7

Free PMC article

Abstract

Sirtuins are nicotinamide adenine dinucleotide (NAD^+)-dependent lysine deacylases and deacetylases that participate in a variety of cellular processes, including transcriptional activity, energy metabolism, DNA damage response, inflammation, apoptosis, autophagy, and oxidative stress. As a result, sirtuins are linked to multiple pathophysiological processes, such as cardiovascular diseases, metabolic diseases, autoimmune diseases, infectious diseases, and respiratory diseases. Asthma is the most common respiratory disease, which is characterized by airway inflammation and airway remodeling. Accumulating evidence has indicated that sirtuins are involved in the pathogenesis of asthma. Furthermore, some studies have suggested that sirtuin modulators are potential agents for the treatment of asthma via alteration of the expression or activity of sirtuins. In this review, we illustrate the role of sirtuins in asthma, discuss related molecular mechanisms, and evaluate the sirtuins-targeted therapy for asthma.

Keywords: Asthma; Modulators; SIRT1; Sirtuins.

Conflict of interest statement

The authors declare no competing interests.

- 97 references
- 1 figure

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Clinical Trial

Lancet

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. 2022 Sep 17;400(10356):908-919.

doi: 10.1016/S0140-6736(22)01539-2.

Dupilumab in children aged 6 months to younger than 6 years with uncontrolled atopic dermatitis: a randomised, double-blind, placebo-controlled, phase 3 trial

Amy S Paller[1], Eric L Simpson[2], Elaine C Siegfried[3], Michael J Cork[4], Andreas Wollenberg[5], Peter D Arkwright[6], Weily Soong[7], Mercedes E Gonzalez[8], Lynda C Schneider[9], Robert Sidbury[10], Benjamin Lockshin[11], Steven Meltzer[12], Zhixiao Wang[13], Leda P Mannent[14], Nikhil Amin[13], Yiping Sun[13], Elizabeth Laws[15], Bolanle Akinlade[13], Myles Dillon[13], Matthew P Kosloski[13], Mohamed A Kamal[13], Ariane Dubost-Brama[14], Naimish Patel[16], David M Weinreich[13], George D Yancopoulos[13], John T O'Malley[16], Ashish Bansal[17], participating investigators

Collaborators, Affiliations expand

- PMID: 36116481

- DOI: 10.1016/S0140-6736(22)01539-2

Abstract

Background: Current systemic treatments for children younger than 6 years with moderate-to-severe atopic dermatitis that is uncontrolled with topical therapies might have suboptimal efficacy and safety. Dupilumab is approved for older children and adults with atopic dermatitis and for other type 2 inflammatory conditions. We aimed to evaluate efficacy and safety of dupilumab with concomitant low-potency topical corticosteroids in children aged 6 months to younger than 6 years with moderate-to-severe atopic dermatitis.

Methods: This randomised, double-blind, placebo-controlled, parallel-group, phase 3 trial was conducted in 31 hospitals, clinics, and academic institutions in Europe and North America. Eligible patients were aged 6 months to younger than 6 years, with moderate-to-severe atopic dermatitis (Investigator's Global Assessment [IGA] score 3-4) diagnosed according to consensus criteria of the American Academy of Dermatology, and an inadequate response to topical corticosteroids. Patients were randomly assigned (1:1) to subcutaneous placebo or dupilumab (bodyweight ≥5 kg to <15 kg: 200 mg; bodyweight ≥15 kg to <30 kg: 300 mg) every 4 weeks plus low-potency topical corticosteroids (hydrocortisone acetate 1% cream) for 16 weeks. Randomisation was stratified by age, baseline bodyweight, and region. Patient allocation was done via a central interactive web response system, and treatment allocation was masked. The primary endpoint at week 16 was the proportion of patients with IGA score 0-1 (clear or almost clear skin). The key secondary endpoint (coprimary endpoint for the EU and EU reference market) at week 16 was the proportion of patients with at least a 75% improvement from baseline in Eczema Area and Severity Index (EASI-75). Primary analyses were done in the full analysis set (ie, all randomly assigned patients, as randomly assigned) and safety analyses were done in all patients who received any study drug. This study was registered with ClinicalTrials.gov, NCT03346434.

Findings: Between June 30, 2020, and Feb 12, 2021, 197 patients were screened for eligibility, 162 of whom were randomly assigned to receive dupilumab (n=83) or placebo (n=79) plus topical corticosteroids. At week 16, significantly more patients in the dupilumab group than in the placebo group had IGA 0-1 (23 [28%] vs three [4%], difference 24% [95% CI 13-34]; p<0·0001) and EASI-75 (44 [53%] vs eight [11%], difference 42% [95% CI 29-55]; p<0·0001). Overall prevalence of adverse events was similar in the dupilumab group (53 [64%] of 83 patients) and placebo group (58 [74%] of 78 patients). Conjunctivitis incidence was higher in the dupilumab group (four [5%]) than the placebo group (none). No dupilumab-related adverse events were serious or led to treatment discontinuation.

Interpretation: Dupilumab significantly improved atopic dermatitis signs and symptoms versus placebo in children younger than 6 years. Dupilumab was well tolerated and showed an acceptable safety profile, similar to results in older children and adults.

Funding: Sanofi and Regeneron Pharmaceuticals.

Conflict of interest statement

Declaration of interests ASP has been an investigator for AbbVie, AnaptysBio, Dermavant, Eli Lilly, Incyte, Janssen, Krystal Biotech, LEO Pharma, Regeneron Pharmaceuticals, and UCB; a consultant with honorarium for AbbVie, Acrotech, Almirall, Amgen, Amryt Pharma, Arcutis Antiobix, Arena Pharmaceuticals, Azitra, BioCryst, BiomX, Boehringer Ingelheim, Botanix, BridgeBio, Bristol Myers Squibb, Castle Creek Biosciences, Catawba Research, Eli Lilly, Exicure, Gilead, Incyte, Janssen, Johnson & Johnson, Kamari Pharma, LEO Pharma, Novartis, OM Pharma, Pfizer, Pierre Fabre Dermo-Cosmetics, RAPT Therapeutics, Regeneron Pharmaceuticals, Sanofi, Seanergy, UCB, and Union; and on the data and safety monitoring board for AbbVie, Abeona, Bausch, Galderma, and Novan. ELS has been an investigator for AbbVie, Eli Lilly, Incyte, Kyowa Hakko Kirin, LEO Pharma, Pfizer, Regeneron Pharmaceuticals, Sanofi, and Trevi Therapeutics; received consultant fees from AbbVie, Amgen, Arena Pharmaceuticals, Aslan Pharma, Benevolent AI Bio Limited, BiomX, Bluefin Biomedicine, Boehringer Ingelheim, Boston Consulting Group, Collective Acumen, Coronado, Corevita, Dermavant, Eli Lilly, Evidera, ExcerptaMedica, Forté Bio RX, Galderma, GSK, Incyte, Janssen, Kyowa Hakko Kirin, LEO Pharma, Menlo Therapeutics, Merck, Novartis, Pfizer, Pierre Fabre Dermo-Cosmetics, Regeneron Pharmaceuticals, Roivant, Sanofi, SPARC India, Trevi Therapeutics, and Valeant; received study grants from AbbVie, Amgen, Arcutis, Aslan Pharma, Corevita, Eli Lilly, Incyte, Kyowa Hakko Kirin, LEO Pharma, Novartis, Pfizer, Regeneron Pharmaceuticals, Sanofi, and Trevi Therapeutics; served as a speaker for Eli Lilly, Incyte, LEO Pharma, Pfizer, Regeneron Pharmaceuticals, and Sanofi; and served on advisory boards for Arena Pharmaceuticals, Eli Lilly, GSK, Janssen, Kyowa Hakko Kirin, LEO Pharma, Pfizer, Regeneron Pharmaceuticals, and Sanofi. ECS has been a consultant for AbbVie, Dermavant, Eli Lilly, Pfizer, Regeneron Pharmaceuticals, and Verrica Pharmaceuticals; on the data and safety monitoring board for GSK, LEO Pharma, Novan, Pfizer, and USB; served on advisory boards for Sanofi; and a principal investigator in clinical trials for Eli Lilly, Regeneron Pharmaceuticals, and Verrica Pharmaceuticals. MJC has been an investigator and consultant for Astellas, Galapagos, Hyphens Pharma, Johnson & Johnson, LEO Pharma, L'Oréal, Novartis, Oxagen, Pfizer, Reckitt Benckiser, Regeneron Pharmaceuticals, and Sanofi; and a consultant for AbbVie, Almirall, Anacor Pharmaceuticals, Boots, Dermavent, Galderma, Menlo Therapeutics, and Proctor & Gamble; and received research grants from Hyphens Pharma, Johnson & Johnson, LEO Pharma, L'Oréal, Pfizer, Regeneron Pharmaceuticals, and Sanofi. AW has been an investigator for Beiersdorf, Eli Lilly, Galderma, LEO Pharma, MedImmune, Novartis, Pfizer, Regeneron Pharmaceuticals, and Sanofi; a consultant for AbbVie, Almirall, Anacor Pharmaceuticals, Eli Lilly, Galapagos, Galderma, LEO Pharma, MedImmune, Novartis, Pfizer, Regeneron Pharmaceuticals, and Sanofi; and received research grants from Beiersdorf, LEO Pharma, and Pierre Fabre. PDA has been an investigator for Regeneron Pharmaceuticals; and received a research grant and been an advisor for Sanofi. WS has been a speaker, advisory board member, and investigator for AbbVie, Amgen, AstraZeneca, GSK, LEO Pharma, Pfizer, Regeneron Pharmaceuticals, and Sanofi; a consultant for AbbVie, LEO Pharma, and Regeneron Pharmaceuticals; received investigator grants from AbbVie, Aimmune Therapeutics, Genentech, GSK, Incyte, LEO Pharma, Novartis, Pfizer, Teva, and Vanda Pharmaceuticals; a speaker for Teva; and an

advisor for Genentech. MEG has been an investigator for AbbVie, Arcutis Biotherapeutics, Dermira, Dermavant, Eli Lilly, Incyte, Krystal Biotech, Regeneron Pharmaceuticals, Sun Pharma, and Verrica Pharmaceuticals; a speaker for Galderma, Pfizer, Primus Pharmaceuticals, Regeneron Pharmaceuticals, and Sanofi; and a consultant for Unilever and Verrica Pharmaceuticals. LCS has been an investigator for DBV Technologies and Regeneron Pharmaceuticals; received research support from Genentech; and has been a consultant for AbbVie, Alladapt Immunotherapeutics, LEO Pharma, Regeneron Pharmaceuticals, and Sanofi. RS has been an investigator for Galderma, Regeneron Pharmaceuticals, and UCB; an advisory board member for LEO Pharma and Pfizer; and speaker for Beiersdorf. BL has been an investigator for Castle, Dermira, Franklin Biosciences, and Pfizer; an investigator, speaker, and consultant for AbbVie, Dermtech, Eli Lilly, Incyte, LEO Pharma, Regeneron Pharmaceuticals, and UCB; an investigator and consultant for Strata; and a speaker and consultant for Dermavant and Sanofi. SM has been an investigator for AstraZeneca, Pfizer, and Regeneron Pharmaceuticals. ZW, YS, BA, MD, MPK, MAK, DMW, GDY, and AB are employees and shareholders of Regeneron Pharmaceuticals. LPM, EL, NP, AD-B, and JTO are employees of and may hold stock or stock options in Sanofi. NA is a former employee and shareholder of Regeneron Pharmaceuticals.

Comment in

- Biological therapy for young children with atopic dermatitis.
  Halling AS, Thyssen JP.Lancet. 2022 Sep 17;400(10356):867-869. doi: 10.1016/S0140-6736(22)01742-1.PMID: 36116468 No abstract available.

Editorial

. 2022 Sep 15;60(3):2200440.

doi: 10.1183/13993003.00440-2022. Print 2022 Sep.

Planetary respiratory health for asthma, rhinoconjunctivitis and eczema

Joan B Soriano[1 2 3]

Affiliations expand

- PMID: 36109045

- DOI: 10.1183/13993003.00440-2022

No abstract available

Conflict of interest statement

Conflict of interest: J.B. Soriano has nothing to disclose.

Comment on

- The burden of asthma, hay fever and eczema in children in 25 countries: GAN Phase I study.

  García-Marcos L, Asher MI, Pearce N, Ellwood E, Bissell K, Chiang CY, El Sony A, Ellwood P, Marks GB, Mortimer K, Martínez-Torres AE, Morales E, Perez-Fernandez V, Robertson S, Rutter CE, Silverwood RJ, Strachan DP; Global Asthma Network Phase I Study Group.Eur Respir J. 2022 Sep 15;60(3):2102866. doi: 10.1183/13993003.02866-2021. Print 2022 Sep.PMID: 35144987 **Free PMC article.** Clinical Trial.

- The burden of asthma, hay fever and eczema in adults in 17 countries: GAN Phase I study.
  Mortimer K, Lesosky M, García-Marcos L, Asher MI, Pearce N, Ellwood E, Bissell K, El Sony A, Ellwood P, Marks GB, Martínez-Torres A, Morales E, Perez-Fernandez V, Robertson S, Rutter CE, Silverwood RJ, Strachan DP, Chiang CY; Global Asthma Network Phase I Study Group.Eur Respir J. 2022 Sep 15;60(3):2102865. doi:

10.1183/13993003.02865-2021. Print 2022 Sep.PMID: 35210319 **Free PMC article.** Clinical Trial.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Proceed to details

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18

Editorial

Eur Respir J

. 2022 Sep 15;60(3):2200776.

doi: 10.1183/13993003.00776-2022. Print 2022 Sep.

Oral corticosteroids in asthma and beyond: moving forward

Jeffrey Shi Kai Chan[1], Ruth B Murray[1], David Price[2,3]

Affiliations expand

- PMID: 36109044

- DOI: 10.1183/13993003.00776-2022

No abstract available

Conflict of interest statement

Conflict of interest: J.S.K. Chan and R.B. Murray report no conflicts of interest. D. Price reports advisory board membership with AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Sanofi Genzyme and Thermofisher; consultancy agreements with Airway Vista Secretariat, AstraZeneca, Boehringer Ingelheim, Chiesi, EPG Communication Holdings Ltd, FIECON Ltd, Fieldwork International, GlaxoSmithKline, Mylan, Mundipharma, Novartis, OM Pharma SA, PeerVoice, Phadia AB, Spirosure Inc, Strategic North Limited, Synapse Research Management Partners S.L., Talos Health Solutions, Theravance and WebMD Global LLC; grants and unrestricted funding for investigator-initiated studies (conducted through Observational and Pragmatic Research Institute Pte Ltd) from AstraZeneca, Boehringer Ingelheim, Chiesi, Mylan, Novartis, Regeneron Pharmaceuticals, Respiratory Effectiveness Group, Sanofi Genzyme, Theravance and UK National Health Service; payment for lectures/speaking engagements from AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, GlaxoSmithKline, Kyorin, Mylan, Mundipharma, Novartis, Regeneron Pharmaceuticals and Sanofi Genzyme; payment for travel/accommodation/meeting expenses from AstraZeneca, Boehringer Ingelheim, Mundipharma, Mylan, Novartis and Thermofisher; stock/stock options from AKL Research and Development Ltd which produces phytopharmaceuticals; owns 74% of the social enterprise Optimum Patient Care Ltd (Australia and UK) and 92.61% of Observational and Pragmatic Research Institute Pte Ltd (Singapore); 5% shareholding in Timestamp which develops adherence monitoring technology; is peer reviewer for grant committees of the UK Efficacy and Mechanism Evaluation programme, and Health Technology Assessment; and was an expert witness for GlaxoSmithKline.

Comment on

- Low-dose oral corticosteroids in asthma associates with increased morbidity and mortality.
  Skov IR, Madsen H, Henriksen DP, Andersen JH, Pottegård A, Davidsen JR.Eur Respir J. 2022 Sep 15;60(3):2103054. doi: 10.1183/13993003.03054-2021. Print 2022 Sep.PMID: 35144997

J Allergy Clin Immunol Pract

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. 2022 Sep 12;S2213-2198(22)00933-3.

doi: 10.1016/j.jaip.2022.08.047. Online ahead of print.

Occupational exposures to irritants and sensitizers, asthma and asthma control in the NutriNet-Santé cohort

Guillaume Sit[1], Raphaëlle Varraso[1], Léopold K Fezeu[2], Pilar Galan[2], Florence Orsi[1], Emilie Pacheco da Silva[1], Mathilde Touvier[2], Serge Hercberg[2], Christophe Paris[3], Nicole LE Moual[4], Orianne Dumas[1]

Affiliations expand

- PMID: 36108925

- DOI: 10.1016/j.jaip.2022.08.047

Abstract

Background: The role of chronic occupational exposures to irritants in asthma remains not well-defined. Few studies have examined their associations with asthma and its control.

Objective: To study the associations of occupational exposures with asthma and its control, with specific interest for irritants, including disinfectants/cleaning products (DCP) and solvents.

Methods: Analyses included 4469 adults (3792 with neither asthma nor respiratory symptoms, 677 with current asthma; 75.9% women, mean age 54 years) of a case-control study (2018) from the French NutriNet-Santé cohort. Current asthma was defined by ever asthma with symptoms, medication or asthma attacks in the past 12 months, adult-onset asthma by age at first asthma attack > 16 years, and uncontrolled asthma was defined by an Asthma Control Test (ACT) score <20. Ever/current exposures were assessed with the Occupational Asthma-specific Job-Exposure Matrix (OAsJEM). Associations were evaluated

by multinomial logistic regressions adjusted for sex, age, smoking status and body mass index.

Results: Ever exposures to sensitizers (High Molecular Weight [HMW]: OR 1.53, 95%CI 1.18-2.00, and Low Molecular Weight [LMW]: 1.42, 1.09-1.87), irritants (1.32, 1.03-1.68), and DCP (1.43, 1.10-1.85) were associated with current adult-onset asthma. Significant associations between ever exposures and uncontrolled adult-onset asthma were observed for HMW (2.69, 1.52-4.78) and LMW (2.27, 1.24-4.37) sensitizers, irritants (2.32, 1.36-3.95), and DCP (2.59, 1.48-4.54). Results were similar for current exposures, with higher ORs. No association was observed with solvents.

Conclusion: Occupational exposures to both sensitizers and irritants were associated with current adult-onset asthma and uncontrolled asthma. Irritant and sensitizing agents should be carefully considered in asthma management.

Keywords: Asthma; Cleaning products; Disinfectants; Irritants; Job-exposure matrix; Occupational exposure; Population-based cohort.

J Allergy Clin Immunol Pract

. 2022 Sep 12;S2213-2198(22)00925-4.

doi: 10.1016/j.jaip.2022.08.041. Online ahead of print.

Early Diagnosis of Primary Immunodeficiency Disease Using Clinical Data and Machine Learning

Anoop Mayampurath[1], Aswathy Ajith[2], Colin Anderson-Smits[3], Shun-Chiao Chang[3], Emily Brouwer[3], Julie Johnson[2], Michael Baltasi[2], Samuel Volchenboum[1], Giovanna Devercelli[3], Christina E Ciaccio[4]

Affiliations expand

- PMID: 36108921

- DOI: 10.1016/j.jaip.2022.08.041

Free article

Abstract

Background: Primary immunodeficiency diseases (PIDD) are a group of immune-related disorders that have a current median delay of diagnosis between six and nine years. Early diagnosis and treatment of PIDD has been associated with improved patient outcomes.

Objective: To develop a machine learning model utilizing elements within the electronic health record data that are related to prior symptomatic treatment to predict PIDD.

Methods: We conducted a retrospective study of PIDD patients identified using inclusion criteria of PIDD-related diagnoses, immunodeficiency-specific medications, and low immunoglobulin levels. We constructed a control group of age, sex, and race-matched asthma patients. Primary outcome was the diagnosis of PIDD. We considered comorbidities, laboratory tests, medications, and radiological orders as features, all prior to diagnosis and indicative of symptom-related treatment. Features were presented sequentially to logistic regression, elastic net, and random forest classifiers, which were trained using a nested cross-validation approach.

Results: Our cohort consisted of 6,422 patients, of which 247 (4%) were diagnosed with PIDD. Our logistic regression model with comorbidities demonstrated good discrimination between PIDD and asthma patients (c-statistic 0.62 [0.58-0.65]). Adding laboratory results, medications, and radiological orders improved discrimination (c-statistic 0.70 vs. 0.62 $P < 0.001$), sensitivity, and specificity. Extending to the advanced machine learning models did not improve performance.

Conclusions: We developed a prediction model for early diagnosis of PIDD using historical data that is related to symptomatic care, which has potential to fill an important need in reducing the time to diagnose PIDD, leading to better outcomes for immunodeficient patients.

Keywords: common variable immunodeficiency (CVID); electronic health record (EHR); immunodeficiency; machine learning; primary immunodeficiency disease (PIDD); specific antibody deficiency.

Editorial

Expert Rev Clin Immunol

. 2022 Sep 20;1-5.

doi: 10.1080/1744666X.2023.2125380. Online ahead of print.

The emerging role of IL-23 in asthma and its clinical implications

Ashley Y Wu[1], R Stokes Peebles[1,2,3,4]

Affiliations expand

- PMID: 36106675

- DOI: 10.1080/1744666X.2023.2125380

No abstract available

Keywords: Airway inflammation; IL-23/Th17 axis; allergic disease; asthma; eosinophilic inflammation; group 2 innate lymphoid cells (ILC2); interleukin-17 (IL-17); interleukin-23 (IL-23); neutrophilic inflammation; type 2 inflammation.

ERJ Open Res

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. 2022 Sep 12;8(3):00319-2022.

doi: 10.1183/23120541.00319-2022. eCollection 2022 Jul.

Defining the normal range of fractional exhaled nitric oxide in children: one size does not fit all

Ran Wang[1,2], Stephen J Fowler[1,2], Stephen W Turner[3,4], Sarah Drake[1,2], Laura Healy[1,2], Lesley Lowe[1,2], Hannah Wardman[5], Miriam Bennett[1,2], Adnan Custovic[6], Angela Simpson[1,2,7], Clare S Murray[1,2,7]

Affiliations expand

- PMID: 36105153

- PMCID: PMC9465007

- DOI: 10.1183/23120541.00319-2022

Free PMC article

Abstract

Background: The normal range of fractional exhaled nitric oxide (F_{ENO}) is influenced by demographic factors. However, single, fixed cut-off values are used for clinical interpretation in children despite rapid growth. We aimed to define the normal range of F_{ENO} during childhood and evaluate its utility in a diagnostic setting.

Method: F_{ENO} percentile charts were developed using data from nonasthmatic children in a population-based birth cohort (Manchester Asthma and Allergy Study). Children were skin prick tested, F_{ENO} measured at the ages of 8, 11, 13-16 and 18 years and clinical information collected. This chart was externally validated in the Study of Eczema and Asthma to Observe the Influence of Nutrition (SEATON) cohort before being prospectively tested in symptomatic, treatment-naïve patients with suspected asthma in a diagnostic setting (Rapid Access Diagnostics for Asthma study).

Results: Height, weight, body mass index and age were predictive of F_{ENO} in univariate analysis using 1220 F_{ENO} measurements. Only height remained significant after adjustment in the overall, nonatopic and atopic populations, and was included in the predictive equations for 50th, 75th 90th and 98th percentiles. The proposed percentile lines corresponded to the 57th (95% CI 53rd-61st), 80th (76th-83rd), 90th (87th-92nd) and 98th (96th-99th) percentiles in the SEATON cohort (660 measurements). When tested in 73 symptomatic treatment-naïve children and young adults (median (interquartile range) age: 11 (8-14) years), an F_{ENO} >90th percentile gave a 96% specificity and positive predictive value of 97%, identifying 59% of children who were subsequently diagnosed with asthma after extensive testing.

Conclusion: We developed a height-based F_{ENO} percentile chart which quantifies the probability of asthma in symptomatic children and merits further validation towards clinical implementation.

Conflict of interest statement

Conflict of interest: R. Wang has nothing to disclose. Conflict of interest: S.J. Fowler has nothing to disclose. Conflict of interest: S.W. Turner has nothing to disclose. Conflict of interest: S. Drake has nothing to disclose. Conflict of interest: L. Healy has nothing to disclose. Conflict of interest: L. Lowe has nothing to disclose. Conflict of interest: H. Wardman has nothing to disclose. Conflict of interest: M. Bennett has nothing to disclose.

Conflict of interest: A. Custovic has nothing to disclose. Conflict of interest: A. Simpson has nothing to disclose. Conflict of interest: C.S. Murray has nothing to disclose.

- 38 references
- 1 figure

Pediatrics

. 2022 Sep 14;e2021054825.

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Community Interventions for Childhood Asthma ED Visits and Hospitalizations: A Systematic Review

India Gill[1], Aashna Shah[1,2], Eun Kyung Lee[1,3], Rachael Sommer[1], Kristie Ross[4,5], Aparna Bole[5,6], Darcy Freedman[1]

Affiliations expand

- PMID: 36102121

- DOI: 10.1542/peds.2021-054825

Abstract

Background and objectives: Structural and social determinants of childhood asthma inequities manifest within geographic communities that are often segregated. Childhood

asthma disproportionately affects Black, Hispanic, and low-income populations. Community interventions have the potential to improve inequities in emergency healthcare. This systematic review was conducted to assess the effectiveness of childhood asthma community interventions and provide a conceptual model to inform implementation of future community interventions.

Methods: Publications from PubMed, ScienceDirect, CINAHL, Cochrane Library, Web of Science, and hand searched references were examined from 2010 to 2021. Community intervention studies among children with asthma were included. Main outcomes were emergency department visits and hospitalizations. Community interventions exclusively focusing on schools or hospitals were excluded. Two reviewers independently assessed eligibility for final inclusion. Emergency healthcare findings were extracted in addition to co-benefits (eg, fewer missed school days and caregiver workdays).

Results: Out of 1856 records, 26 publications met the inclusion criteria. Community interventions were categorized by care coordination (n = 8), policy and environmental changes (eg, smoke-free legislature, traffic reduction models, and green housing) (n = 8), home-based (n = 6), and community-based health services (n = 4). Selected studies indicated that community interventions significantly reduced childhood asthma emergency department visits and hospitalizations through increased caregiver self-efficacy, home environmental trigger reduction, and increased access to healthcare. Because of heterogeneity among studies, we were unable to conduct a meta-analysis.

Conclusions: Findings show significant associations between community interventions and the reduction of emergency healthcare, suggesting a protective effect for severe cases of childhood asthma.

Conflict of interest statement

CONFLICT OF INTEREST DISCLOSURES: The authors have indicated they have no conflicts of interest to disclose.

Review

Tuberc Respir Dis (Seoul)

. 2022 Sep 13.

doi: 10.4046/trd.2022.0116. Online ahead of print.

Adverse Effects of Air Pollution on Pulmonary Diseases

Ui-Won Ko[1], Sun Young Kyung[1]

Affiliations expand

- PMID: 36097730

- DOI: 10.4046/trd.2022.0116

Free article

Abstract

Environmental exposure to air pollution is known to have adverse effects on various organs. Air pollution has greater effects on the pulmonary system as the lungs are directly exposed to contaminants in the air. Here, we review the associations of air pollution with the development, morbidity, and mortality of pulmonary diseases. Short- and long-term exposure to air pollution have been shown to increase mortality risk even at concentrations below the current national guidelines. Ambient air pollution has been shown to be associated with lung cancer. Particularly long-term exposure to particulate matter with a diameter < 2.5 μm (PM2.5) has been reported to be associated with lung cancer even at low concentrations. In addition, exposure to air pollution has been shown to increase the incidence risk of chronic obstructive pulmonary disease (COPD) and has been correlated with exacerbation and mortality of COPD. Air pollution has also been linked to exacerbation, mortality, and development of asthma. Exposure to nigrogen dioxide (NO2) has been demonstrated to be related to increased mortality in patients with idiopathic pulmonary fibrosis (IPF). Additionally, air pollution increases the incidence of infectious diseases, such as pneumonia, bronchitis, and tuberculosis. Furthermore, emerging evidence supports a link between air pollution and coronavirus disease 2019 (COVID-19)

transmission, susceptibility, severity and mortality. In conclusion, the stringency of air quality guidelines should be increased and further therapeutic trials are required in patients at high risk of adverse health effects of air pollution.

Keywords: COVID-19; air pollution; asthma; chronic obstructive pulmonary disease; idiopathic pulmonary fibrosis; lung cancer; mortality.

Occup Med (Lond)

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. 2022 Sep 13;kqac087.

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Occupational asthma in teachers

S Burge[1], V Moore[1], C Burge[1], A Robertson[1], C Huntley[1], G Walters[1]

Affiliations expand

- PMID: 36097688

- DOI: 10.1093/occmed/kqac087

Abstract

Background: Work-related asthma symptoms are common in teachers and teaching assistants, there are few studies evaluating their causes.

Aims: To identify causes of occupational asthma in teachers and teaching assistants referred to the Birmingham Occupational Lung Disease clinic 2000-20 using evaluation of serial Peak Expiratory Flow (PEF) records.

Methods: Teachers and teaching assistants with possible occupational asthma were asked to record PEF 2-hourly at home and work for 4 weeks. Their records were evaluated with the Oasys programme. Those with a positive score for any of the three scores (area between curves (ABC), timepoint and Oasys score from discriminant analysis) were included. Repeat records were made as indicated to help identify the cause and the effects of remedial actions.

Results: Thirty-eight teachers or teaching assistants met the inclusion criteria with all three Oasys scores positive in 24, 2/3 scores in nine and 1/3 in five. The building was the likely cause in 17 (in new builds particularly acrylates from carpet adhesives and in old buildings mould and construction dust), bystander exposure to agents in the schools in 12 (cleaning agents, acrylates from photocopiers and chloramines from indoor pools) and materials used in the classroom in 9 (most commonly MDF in design and technology classes). We illustrate how the PEF records helped identify the cause.

Conclusions: Oasys analysis of PEF records is a useful method of evaluating occupational asthma in teachers and identified difficult to confirm causes where successful remediation or redeployment was achieved.

. 2022 Sep 12;1-11.

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Physical activity and quality of life in children with well-controlled asthma

Pauline Peftoulidou[1], Maria Gioulvanidou[1], Elissavet-Anna Chrysochoou[1], Elpis Hatziagorou[1]

Affiliations expand

- PMID: 36094169

- DOI: 10.1080/02770903.2022.2123742

Abstract

Background: Asthma is the most common disease in childhood. Appropriate management and programs encouraging exercise enable children to enjoy a good quality of life (QoL).**Objective:** To assess the association between lung function, physical activity (PA), and QoL in children with well-controlled asthma.**Methods:** Fifty-four children aged 7 to 14 years attending a Pediatric Asthma Clinic were included. All children underwent spirometry and completed three self-administered validated questionnaires: The Godin Leisure-Time Exercise Questionnaire (GLTEQ), the ACT (Asthma Control Test), and the DISABKIDS for QoL.**Results:** Mean age of the study population was 11.43(±2.1), BMI, kg/m^2 (20.8 ± 3.9), FVCpp (97.1% ±12.4), and FEV1pp (99.7% ±12.43), ACT (23.4 ± 3). The GLTEQ revealed that only 3% of the studied population presented satisfactory activity, while 86% were sedentary. Both FEV1pp, and PA were significantly correlated to the children's QoL ((r^2: 0.55, p:0.0001), and (r^2:0.45, p:0.003), respectively).**Conclusions:** Despite reasonable asthma control, the children exhibited low physical activity levels, which negatively correlated to their QoL. Families of asthmatic children should be educated to highlight the benefits of exercise and increase the PA of their children.

Keywords: asthma; physical activity; quality of life; questionnaire.

Tokai J Exp Clin Med

. 2022 Sep 20;47(3):125-130.

Characteristics of Breath Sounds During Methacholine-induced Bronchoconstriction in Children with Asthma

Tomohiko Imamura, Mayumi Enseki, Yoshifumi Murayama, Hiroyuki Furuya, Hiroyuki Mochizuki[1]

Affiliations expand

- PMID: 36073283

Free article

Abstract

Objective: The utility of an analysis of breath sounds as a non-invasive lung function test in children and adults has been studied. Analyzing specific breath sounds during methacholine inhalation challenge is useful for evaluating airway constriction in asthmatic patients.

Patients and methods: The study population included 57 children with atopic asthma (male: female = 38: 19; median age, 10 years [range, 5-16 years]). The breath sound spectrum was measured before a methacholine inhalation test, just after the methacholine inhalation challenge and after β_2 agonist inhalation. The values of breath sound parameters were analyzed and the direct changes of the sound spectrum during methacholine inhalation challenge were evaluated.

Results: The values of breath sound parameters, RPF_{75} and RPF_{50}, were significantly decreased after methacholine inhalation ($P < 0.001$, $p < 0.001$, respectively), indicationg bronchoconstriction, and increased after β_2 agonist inhalation ($P < 0.001$, $p < 0.001$, respectively), indicating bronchodilation. The high-pitch area of the sound spectrum curve

around 1,500 Hz was significantly increased after methacholine inhalation ($P < 0.001$). The values returned to the baseline level after β_2 agonist inhalation.

Conclusions: Bronchoconstriction by methacholine inhalation induced a reversible high-pitch sound. The assessment of changes in the high-pitch area of the breath sound spectrum may be useful for the detection of airway narrowing in asthmatic patients.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

iScience

. 2022 Aug 5;25(9):104879.

doi: 10.1016/j.isci.2022.104879. eCollection 2022 Sep 16.

Association of short-term exposure to air pollution with emergency visits for respiratory diseases in children

Miao He[1], Yaping Zhong[1], Yuehan Chen[2], Nanshan Zhong[2], Kefang Lai[2]

Affiliations expand

- PMID: 36065191

- PMCID: PMC9440288

- DOI: 10.1016/j.isci.2022.104879

Abstract

Ambient air pollutants are health hazards to children. This study comprised 773,504 emergency department visits (EDVs) at 0-14 years of age with respiratory diseases in southern China. All air pollutants were positively associated with EDVs of total respiratory diseases, especially pneumonia. NO_2, PM_{10}, and $PM_{2.5}$ had intraday effects and cumulative effects on asthma EDVs. The effect of SO_2, PM_{10}, and $PM_{2.5}$ on pneumonia EDVs was stronger in girls than in boys. The effect of NO_2 on acute upper respiratory tract infection EDVs was greater in children aged 0-5 years old; however, the effect of PM_{10} on acute upper respiratory tract infection EDVs was greater in the 6-14 years group. In a two-pollutant model, NO_2 was associated with bronchitis and pneumonia, and PM_{10} was associated with acute upper respiratory tract infection. In this time-series study, NO_2 and PM_{10} were risk indicators for respiratory diseases in children.

Keywords: Atmospheric science; Environment; Environmental health; Exposure; Pollution.

Conflict of interest statement

The authors declare no conflicts of interest or financial interests.

- 34 references
- 6 figures

. 2022 Sep 21;1-7.

doi: 10.1080/02770903.2022.2120403. Online ahead of print.

Tiotropium for children and adolescents with severe asthma

Jefferson Antonio Buendía[1], Diana Guerrero Patiño[2]

Affiliations expand

- PMID: 36047659

- DOI: 10.1080/02770903.2022.2120403

Abstract

Introduction: An important proportion of asthma patients remain uncontrolled despite using inhaled corticosteroids and long-acting beta-agonists. Some add-on therapies, such as tiotropium bromide has been recommended for this subgroup of patients. The purpose of this study was to assess the cost-effectiveness of tiotropium as add-on therapies to ICS + LABA for children and adolescents with uncontrolled allergic asthma.

Methods: A probabilistic Markov model was created to estimate the cost and quality-adjusted life-years (QALYs) of patients with severe asthma in Colombia. Total costs and QALYS of two interventions including standard therapy (ICS + LABA), and add-on therapy with tiotropium, were calculated over a time horizon from 6 to 18 years. Probability sensitivity analyses were conducted.

Results: For a patient with severe asthma, our Markov model showed that compared to standard therapy, add-on therapy with tiotropium was associated with higher treatment costs and QALY. The incremental cost-effectiveness ratio estimated was US$2,017 in the probabilistic model after Monte-Carlo simulation. Our base-case results were robust to variations in all assumptions and parameters. The incremental net monetary benefit of US$327 with a 95% credible interval of US$396 to US425.

Conclusion: Add-on therapy with tiotropium was cost-effective when added to usual care in children and adolescents with severe asthma who remained uncontrolled despite treatment with medium or high-dose ICS/LABA. Our study provides evidence that should be used by decision-makers to improve clinical practice guidelines and should be replicated to validate their results in other middle-income countries.

Keywords: Markov model; Tiotropium; cost-effectiveness analysis; decision analysis; uncontrolled asthma.

JMIR Form Res

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doi: 10.2196/37503.

Implementation of a Work-Related Asthma Screening Questionnaire in Clinical Settings: Multimethods Study

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Affiliations expand

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Free article

Abstract

Background: A work-related asthma (WRA) screening questionnaire is currently being validated for implementation in clinical settings. To minimize barriers to integrating tools into clinical practice, a discussion of strategies for the implementation of the questionnaire has begun.

Objective: This study aimed to understand the benefits, feasibility, barriers, and limitations of implementing the Work-related Asthma Screening Questionnaire-Long version (WRASQ[L]) and asthma e-tools in clinical settings and propose dissemination and implementation strategies for the WRASQ(L).

Methods: This study was conducted in Kingston, Ontario, Canada, from September 2019 to August 2021. A workshop and 2 questionnaires were used to understand the benefits of and barriers to implementing the questionnaire in clinical settings. An expert advisory committee was established to develop the implementation and dissemination strategies. Workshops were semistructured and used thematic qualitative analysis to identify themes that provided an understanding of the benefits and limitations of and barriers to using the WRASQ(L), and e-tools in general, in clinical settings. Workshop participants included patients and health care providers, including physicians, nurses, and asthma educators, who were implementation specialists and expert electronic medical record users. A questionnaire focusing on providers' knowledge and awareness of WRA and another focusing on WRASQ(L) feedback was administered at the workshops. Advisory committee members from relevant stakeholders met 3 times to strategize implementation opportunities.

Results: A total of 6 themes were identified in the workshop: involving and addressing patient needs, novel data collection, knowledge translation, time considerations, functional and practical barriers, and human limitations. Questionnaire responses yielded positive feedback on the utility of the WRASQ(L) in clinical settings. All participants agreed that it is an easy way of collecting information on occupational and exposure history and could prompt a discussion between the health care provider and patient on how the workplace and exposures could affect one's asthma, increase awareness of WRA in patients and providers, and increase awareness of exposures in the workplace. Implementation and dissemination strategies were generated with input from the advisory committee.

Conclusions: Stakeholders and workshop participants consider the WRASQ(L) to be a useful tool that satisfies many provider needs in their clinical settings. Once validated, dissemination strategies will include developing educational materials that include the WRASQ(L), linking the questionnaire to stakeholder websites or e-toolkits, translation into other languages, leveraging health care and research networks, conference presentations, and peer-reviewed publications. Implementation strategies will include integration into electronic medical records; designing multifaceted interventions; and targeting nontraditional settings such as workplaces, pharmacies, and research settings. The WRASQ(L) addresses many benefits of and barriers to implementation, as identified in the workshop themes. These themes will guide future implementation and dissemination

strategies, noting that human limitations identified in providers and patients will need to be overcome for successful implementation.

Keywords: EMRs; asthma; barriers; dissemination; e-tools; electronic medical records; implementation; knowledge translation; limitations; mobile phone; work-related asthma.

J Asthma

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Factors affecting the success of pulmonary rehabilitation in asthma

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- DOI: 10.1080/02770903.2022.2109163

Abstract

Objective: The majority of patients with asthma limit their physical activity due to the fear of exercise dyspnea. Regular exercise, on the other hand, is currently suggested as one of the non-pharmaceutical treatment alternatives for patients with asthma since it improves their quality of life and symptom control. This study aimed to investigate the indicators of success in patients with asthma receiving pulmonary rehabilitation (PR).

Methods: A total of 131 patients with the diagnosis of asthma were included in the study. All patients attended an 8-week comprehensive, multidisciplinary, outpatient and individualized PR program.

Results: The factors related to the gains in dyspnea perception, exercise capacity, peripheral muscle strength, respiratory muscle strength and quality of life were evaluated. In the multivariate linear regression analysis, the gain in dyspnea perception is related to baseline dyspnea. The gain in exercise capacity is related to baseline exercise capacity and the amount of smoking. The gain in peripheral muscle strength is related to gender. The gain in respiratory muscle strength is related to age, and finally the gain in quality of life is related to baseline dyspnea and anxiety levels.

Conclusions: Especially men, young people, heavy smokers, and those with low initial exercise capacity, high perception of dyspnea, and high anxiety are more likely to benefit from PR.

Keywords: Asthma; gains; predictors; pulmonary rehabilitation; success.

J Asthma

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Effectiveness of a community-driven, asthma intervention: project asthma in-home response

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Affiliations expand

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- DOI: 10.1080/02770903.2022.2109167

Abstract

Objectives: Project Asthma In-home Response (AIR) is a multilevel, home-based intervention to address childhood asthma. This study aims to assess the effectiveness of the community-driven, multilevel Project AIR intervention. We hypothesize that children participating in the Project AIR intervention will have reduced asthma-related emergency room visits, hospitalizations, and asthma exacerbations. **Methods:** Seventy-Five participants of an in-home asthma intervention were surveyed at the onset of intervention and six months after the intervention. **Results:** The mean age of clients in the sample population was ten years. Most clients in the sample population were 11-15 years old (34.7%), followed by 6-10 years old (29.3%) and 3-5 years (26.0%). Participation in the Project AIR intervention resulted in significant reductions in asthma attacks (p-value 0.0003), asthma-related emergency room visits (p-value > 0.0001), and asthma-related hospitalizations (p-value 0.008).**Conclusion:** The results of this study support that in-home environmental asthma programs are an efficient method of treating asthma in a smaller metro area. Our findings reinforce prior studies in larger metropolitan areas such as New York and Boston.

Keywords: asthma; asthma morbidity; children; community; healthy homes; pediatric.

J Asthma

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Long-term outcomes of combination biologic therapy in uncontrolled severe asthma: a case study

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Affiliations expand

- PMID: 35913268

- DOI: 10.1080/02770903.2022.2109162

Abstract

Introduction: Treatment with biologics has significantly reduced the social and economic burden of severe asthma. However, some patients may still feature a suboptimal control of their symptoms while on therapy. In this subset of asthmatic patients, a benefit from a dual biologic therapy has sporadically been reported in literature. Our aim is to add our experience to the limited body of evidence supporting combination biologic therapies.

Case study: Here we present the case of a 68-year-old nonsmoker female, with an allergic and eosinophilic corticosteroid-dependent severe asthma. She displayed well controlled comorbidities and good adherence to the inhaled therapy. Omalizumab was started in 2008 with an initial remarkable clinical improvement. After nine years of biologic therapy, she reported a gradual worsening of her symptoms and exacerbations. Mepolizumab was then added in 2019.

Results: The addition of Mepolizumab resulted in a meaningful amelioration of her quality of life, asthma control, number of exacerbations and 6-minute-walking-distance at 3-year

follow-up. The average Prednisone dosage was tapered from 25 mg to 20 mg daily. No adverse events were observed since the introduction of the second biologic.

Conclusion: Our experience indicates that Mepolizumab may be beneficial and safe as an add-on biologic in a patient whose allergic and eosinophilic asthma remains uncontrolled despite treatment with an anti-IgE strategy. Further studies on a larger number of patients are required to demonstrate whether the positive outcomes published so far are replicable on a larger scale.

Keywords: Severe asthma; allergic asthma; biologic therapy; eosinophilic asthma; uncontrolled asthma.

J Asthma

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doi: 10.1080/02770903.2022.2109165. Online ahead of print.

Sinonasal and respiratory outcomes of eosinophilic granulomatosis with polyangiitis patients receiving 100 mg mepolizumab in real-life clinical practice: 1-year follow up study

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Affiliations expand

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Abstract

Background: Mepolizumab 300 mg is an approved treatment option for patients with eosinophilic granulomatosis with polyangiitis (EGPA), yet, the adequacy of 100 mg of mepolizumab in disease control is controversial.**Objective**: To evaluate the sinonasal and respiratory outcomes of EGPA patients treated with 100 mg mepolizumab for one year.**Methods**: Evaluations of 11 patients were made of the sinonasal outcome test (SNOT-22) (nasal, otologic, sleep, and emotional domains), asthma control test (ACT), forced expiratory volume in 1 s (FEV1), blood eosinophil counts and oral steroid doses before mepolizumab treatment (T0) and at the 6th (T6) and 12th (T12) months.**Results**: A significant decrease was observed in the total SNOT-22 scores in the 6th month, after which the scores continued to be stable until the 12th month. (SNOT-22 median (IQR); T0: 70(53-82); T6: 19(4-35); T12: 11(6-40); T0-T6, p = 0.02; T6-T12, p = 0.85). In the subdomains of SNOT-22, nasal and sleep-related domains improved significantly in the first 6 months, and the otologic and emotional domains only improved from baseline in the 12th month. There was a significant decrease in blood eosinophil counts in the 6th month and oral steroid dose in the 12th month (eosinophils, median(IQR), T0: 1000(700-1800), T6: 100(0-200), p = 0.02; OCS dose, median(IQR), T0: 16(8-16); T6: 4(0-4); T12: 0(0-4); T0-T12, p = 0.002). A significant improvement was observed in ACT values in the 6th month (ACT median (IQR); T0:16(8-18); T6: 22(21-25); p = 0.01).**Conclusion**: Mepolizumab 100 mg provided a significant decrease in SNOT-22 values, especially in nasal and sleep domains, eosinophil counts and OCS dose in the 6th month.

Keywords: Anti-IL5 therapy; Churg-Strauss sendrome; EGPA; SNOT22; asthma control; chronic rhinosinusitis; corticosteroid dose; eosinophils; mepolizumab; severe asthma.

Biochem Biophys Res Commun

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Rheology predicts sputum eosinophilia in patients with muco-obstructive lung diseases

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Affiliations expand

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Abstract

Background: Mucus is known to play a pathogenic role in muco-obstructive lung diseases, but little is known about the determinants of mucus rheology. The purpose of this study is to determine which sputum components influence sputum rheology in patients with muco-obstructive lung diseases.

Methods: We performed a cross sectional prospective cohort study. Spontaneous sputum was collected from consecutive patients with muco-obstructive lung diseases. Sputum rheology was assessed using the Rheomuco® rheometer (Rheonova, Grenoble); the elastic modulus G', viscous modulus G", and the critical stress threshold σc were recorded. Key quantitative and qualitative biological sputum components were determined by cytology, nucleic acid amplification tests and mass spectrometry.

Results: 48 patients were included from January to August 2019. Among them, 10 had asthma, 14 COPD and 24 non-CF bronchiectasis (NCFB). The critical stress threshold σc predicted a sputum eosinophilia superior to 1.25% with 89.19% accuracy (AUC = 0.8762). G' and G" are positively correlated with MUC5AC protein concentration ((rho = 0.361; P = .013) and (rho = 0.335; P = .021), respectively). σc was positively correlated with sputum

eosinophilia (rho = 0.394; P = .012), MUC5B (rho = 0.552; P < .001) and total protein (rho = 0.490; P < .001) concentrations. G' and G″ were significantly higher in asthma patients (G' = 14.49[7.18-25.26]Pa, G'' = 3.0[2.16-5.38]Pa) compared to COPD (G' = 5.01[2.94-6.48]Pa, P = .010; G'' = 1.45[1.16-1.94]Pa, P = .006) and to NCFB (G' = 4.99[1.49-10.49]Pa, P = .003; G'' = 1.46[0.71-2.47]Pa, P = .002).

Conclusion: In muco-obstructive lung diseases, rheology predicts sputum eosinophilia and is correlated with mucin concentrations, regardless of the underlying disease.

Clinical trial registration: (registrar, website, and registration number), where applicable NCT04081740.

Keywords: Asthma; COPD; Eosinophil; Mucins; Non-CF bronchiectasis.

Conflict of interest statement

Declaration of competing interest Dr. Suehs reports grants from Astra Zeneca, outside the submitted work. Dr Patarin is a full-time employee of Rheonova. Rheonova designed and built the rheometer used in this study. Pr. Molinari reports personal fees from Astra Zeneca, grants from GSK, outside the submitted work. Pr. Bourdin reports grants, personal fees, non-financial support and other from Astra Zeneca, grants, personal fees and other from GSK, grants, personal fees, non-financial support and other from Boeringher Ingelheim, personal fees, non-financial support and other from Novartis, personal fees and other from Teva, personal fees and other from Regeneron, personal fees, non-financial support and other from Chiesi Farmaceuticals, personal fees, non-financial support and other from Actelion, other from Gilead, personal fees and non-financial support from Roche, outside the submitted work. The remaining authors (MV, JV, CH, AP, EML, IV, JC) have no conflicts of interest to disclose.

Clinical Trial

Am J Respir Crit Care Med

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Reduction of Lung Hyperinflation Improves Cardiac Preload, Contractility, and Output in Emphysema: A Clinical Trial in Patients Who Received Endobronchial Valves

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Affiliations expand

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Abstract

Rationale: Pulmonary hyperinflation in patients with chronic obstructive pulmonary disease has been related to smaller cardiac chamber sizes and impaired cardiac function. Currently, bronchoscopic lung volume reduction (BLVR) with endobronchial valves is a treatment option to reduce pulmonary hyperinflation in patients with severe emphysema. **Objectives:** We hypothesized that reduction of hyperinflation would improve cardiac preload in this patient group. In addition, we investigated whether the treatment would result in elevated pulmonary artery pressures because of pulmonary vascular bed reduction. **Methods:** We included patients with emphysema and severe hyperinflation (defined by a baseline residual volume >175% of predicted) who were eligible for BLVR with endobronchial valves. Cardiac magnetic resonance imaging was obtained one day

before treatment and at 8-week follow-up. Primary endpoint was cardiac preload, as measured by the right ventricle end-diastolic volume index. As secondary endpoints, we measured indexed end-diastolic and end-systolic volumes of the right ventricle, left atrium, and left ventricle; pulmonary artery pressures; cardiac output; ejection fraction; and strain. **Measurements and Main Results:** Twenty-four patients were included. At 8-week follow-up, right ventricle end-diastolic volume index was significantly improved (+7.9 ml/m^2; SD, 10.0; P = 0.001). In addition to increased stroke volumes, we found significantly higher ejection fractions and strain measurements. Although cardiac output was significantly increased (+0.9 L/min; SD, 1.5; P = 0.007), there were no changes in pulmonary artery pressures. **Conclusions:** We found that reduction of hyperinflation using BLVR with endobronchial valves significantly improved cardiac preload, myocardial contractility, and cardiac output, without changes in pulmonary artery pressures. Clinical trial registered with www.clinicaltrials.gov (NCT03474471).

Keywords: bronchoscopic lung volume reduction; cor pulmonale; emphysema; pulmonary hyperinflation; pulmonary hypertension.

Comment in

- Bronchoscopic Lung Volume Reduction: To the Heart of the Matter.
  Garner JL, Shah PL.Am J Respir Crit Care Med. 2022 Sep 15;206(6):655-656. doi: 10.1164/rccm.202206-1026ED.PMID: 35653705 No abstract available.

- Cited by 1 article

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Impact of lifetime body mass index trajectories on the incidence and persistence of adult asthma

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Affiliations expand

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Abstract

Background: High body mass index (BMI) trajectories from childhood to adulthood are associated with the development of some chronic diseases, but whether such trajectories influence adult asthma has not been investigated to date. Therefore, we investigated associations between BMI trajectories from childhood to middle age (5-43 years) and incidence, persistence and relapse of asthma from ages 43 to 53 years.

Methods: In the Tasmanian Longitudinal Health Study (n=4194), weight and height were recorded at eight time-points between 5 and 43 years of age. BMI trajectories were developed using group-based trajectory modelling. Associations between BMI trajectories and asthma incidence, persistence and relapse from age 43 to 53 years, bronchial hyperresponsiveness (BHR) at age 50 years, and bronchodilator responsiveness at age 53 years were modelled using multiple logistic and linear regression.

Results: Five distinct BMI trajectories were identified: average, low, child high-decreasing, child average-increasing and high. Compared with the average trajectory, child average-increasing and high trajectories were associated with increased risk of incident asthma (OR 2.6, 95% CI 1.1-6.6 and OR 4.4, 95% CI 1.7-11.4, respectively) and BHR in middle age (OR 2.9, 95% CI 1.1-7.5 and OR 3.5, 95% CI 1.1-11.4, respectively). No associations were observed for asthma persistence or relapse.

Conclusions: Participants with child average-increasing and high BMI trajectories from childhood to middle age were at higher risk of incident adult asthma. Thus, encouraging

individuals to maintain a normal BMI over the life course may help reduce the burden of adult asthma.

Conflict of interest statement

Conflicts of interest: M.J. Abramson holds investigator-initiated grants for unrelated research from Pfizer, Boehringer Ingelheim and Sanofi; has undertaken an unrelated consultancy for and received assistance with conference attendance from Sanofi; and has also received a speaker's fee from GSK. The other authors included in this study declare that they have no competing interests. All authors declare no support from any organisation or no financial relationship with any organisation that could appear to have influenced the submitted work.

Review

Eur Respir J

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Asthma management in low and middle income countries: case for change

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Affiliations expand

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- PMCID: PMC9474897
- DOI: 10.1183/13993003.03179-2021

Free PMC article

Abstract

Asthma is the most common noncommunicable disease in children, and among the most common in adults. The great majority of people with asthma live in low and middle income countries (LMICs), which have disproportionately high asthma-related morbidity and mortality. Essential inhaled medications, particularly those containing inhaled corticosteroids (ICS), are often unavailable or unaffordable, and this explains much of the global burden of preventable asthma morbidity and mortality. Guidelines developed for LMICs are generally based on the outdated assumption that patients with asthma symptoms <1-3 times per week do not need (or benefit from) ICS. Even when ICS are prescribed, many patients manage their asthma with oral or inhaled short-acting β_2-agonists (SABA) alone, owing to issues of availability and affordability. A single ICS-formoterol inhaler-based approach to asthma management for all severities of asthma, from mild to severe, starting at diagnosis, might overcome SABA overuse/over-reliance and reduce the burden of symptoms and severe exacerbations. However, ICS-formoterol inhalers are currently very poorly available or unaffordable in LMICs. There is a pressing need for pragmatic clinical trial evidence of the feasibility and cost-effectiveness of this and other strategies to improve asthma care in these countries. The global health inequality in asthma care that deprives so many children, adolescents and adults of healthy lives and puts them at increased risk of death, despite the availability of highly effective therapeutic approaches, is unacceptable. A World Health Assembly Resolution on universal access to affordable and effective asthma care is needed to focus attention and investment on addressing this need.

Conflict of interest statement

Conflict of interest: The Global Initiative for Asthma (GINA) provided writing assistance during the course of the present manuscript. K. Mortimer additionally reports consulting fees from AstraZeneca, outside the submitted work, and is a member of the science committee for GINA. H.K. Reddel reports grants from AstraZeneca, GlaxoSmithKline and Novartis; consulting fees from Novartis; lecture honoraria from AstraZeneca, GlaxoSmithKline, Teva, Boehringer Ingelheim, Sanofi and Chiesi; and participation on advisory boards for AstraZeneca, GlaxoSmithKline, Novartis, Chiesi and Sanofi, outside the submitted work; and is also Chair of Scientific Committee and Member of Board of Directors for GINA, and Member of Australian Asthma Guidelines Committee for National Asthma Council. P.M. Pitrez reports consulting fees from AstraZeneca, Novartis, GSK, Boehringer Ingelheim and Sanofi; lecture honoraria from AstraZeneca, Novartis, GSK, Boehringer Ingelheim and Sanofi; and travel support from GSK and Boehringer Ingelheim, outside the submitted work. E.D. Bateman reports consulting fees from AstraZeneca, Sanofi Genzyme, Regeneron, Novartis and ALK; and lecture honoraria from AstraZeneca, Orion, Menarini, Novartis, Sanofi Genzyme and Regeneron, outside the submitted work; and is also a member of the Board and Science Committee of GINA.

Eur Respir J

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Differentiating COPD and asthma using quantitative CT imaging and machine learning

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Affiliations expand

- PMID: 35210316

- DOI: 10.1183/13993003.03078-2021

Abstract

Background: There are similarities and differences between chronic obstructive pulmonary disease (COPD) and asthma patients in terms of computed tomography (CT) disease-related features. Our objective was to determine the optimal subset of CT imaging features for differentiating COPD and asthma using machine learning.

Methods: COPD and asthma patients were recruited from Heidelberg University Hospital (Heidelberg, Germany). CT was acquired and 93 features were extracted: percentage of low-attenuating area below -950 HU (LAA_{950}), low-attenuation cluster (LAC) total hole count, estimated airway wall thickness for an idealised airway with an internal perimeter of 10 mm (Pi10), total airway count (TAC), as well as airway inner/outer perimeters/areas and wall thickness for each of five segmental airways, and the average of those five airways. Hybrid feature selection was used to select the optimum number of features, and support vector machine learning was used to classify COPD and asthma.

Results: 95 participants were included (n=48 COPD and n=47 asthma); there were no differences between COPD and asthma for age (p=0.25) or forced expiratory volume in 1 s (p=0.31). In a model including all CT features, the accuracy and F1 score were 80% and 81%, respectively. The top features were: LAA_{950}, outer airway perimeter, inner airway perimeter, TAC, outer airway area RB1, inner airway area RB1 and LAC total hole count. In the model with only CT airway features, the accuracy and F1 score were 66% and 68%, respectively. The top features were: inner airway area RB1, outer airway area LB1, outer airway perimeter, inner airway perimeter, Pi10, TAC, airway wall thickness RB1 and TAC LB10.

Conclusion: COPD and asthma can be differentiated using machine learning with moderate-to-high accuracy by a subset of only seven CT features.

Conflict of interest statement

Conflict of interest: S. Wood is a CEO and shareholder of VIDA Diagnostics, a company commercialising lung image analysis software. F. Herth is affiliated with, or has received grants or research support from, the German Federal Ministry of Education and Research (BMBF), BMG Pharma, Broncus-Uptake Medical, Deutsche Forschungsgemeinschaft (DFG), European Union, Klaus Tschirra Stiftung, Olympus Medical Systems, Pulmonx and Roche Diagnostics; honoraria or consulting fees from AstraZeneca, Berlin-Chemie, Boehringer Ingelheim, Chiesi Farmaceutici SpA, Erbe China, Novartis, MedUpdates, Pulmonx, Roche Diagnostics, Uptake Medical, Boston Scientific, Broncus-Uptake Medical, Dinova Pharmaceutical Inc., Erbe Medical, Free Flow Medical, Johnson & Johnson, Karger Publishers, LAK Medical, Nanovation and Olympus Medical. All other authors do not have any potential conflicts of interest to declare.

Comment in

- Case-finding and diagnosis of obstructive airway diseases: the Dragons' Den experience.
  Pavord ID.Eur Respir J. 2022 Sep 22;60(3):2200679. doi: 10.1183/13993003.00679-2022. Print 2022 Sep.PMID: 36137584 No abstract available.

Eur Respir J

. 2022 Sep 15;60(3):2103054.

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Low-dose oral corticosteroids in asthma associates with increased morbidity and mortality

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Affiliations expand

- PMID: 35144997

- DOI: 10.1183/13993003.03054-2021

Abstract

Background: Long-term oral corticosteroid (OCS) treatment for severe asthma is known to cause significant adverse effects, but knowledge on effects of lower exposures in general asthma populations is limited. We aimed to explore this in a nationwide Danish asthma population.

Methods: Users of asthma medication aged 18-45 years were identified in the Danish nationwide registers during 1999-2018 and followed prospectively in an open-cohort design. Incident OCS users were matched 1:4 to nonusers by propensity scores with replacement. Associations between OCS use and incident comorbidities were examined by Cox regression. Mortality rates, causes of death and rates of unscheduled hospital visits were assessed.

Results: OCS users (n=30 352) had, compared with nonusers (n=121 408), an increased risk of all outcomes with evident dose-response relationships starting at cumulative doses of ≤500 mg (prednisolone-equivalent). Hazard ratios ranged from 1.24 (95% CI 1.18-1.30) for fractures to 8.53 (95% CI 3.97-18.33) for adrenal insufficiency. Depression/anxiety had the highest incidence rate difference at 4.3 (95% CI 3.6-5.0) per 1000 person-years. Asthma-specific mortality rates were generally low at 0.15 (95% CI 0.11-0.20) and 0.04 (95% CI 0.02-0.06) per 1000 person-years for OCS users and nonusers, respectively. Mortality rates and unscheduled hospital visits increased with increasing OCS exposure.

Conclusion: The study findings should be interpreted with their observational nature in mind. However, we found that even at low cumulative exposure, OCS use in asthma management was associated with increased risk of comorbidities, mortality and

unscheduled hospital visits. Effective strategies for optimising asthma control and reducing OCS use are pivotal in asthma management.

Conflict of interest statement

Conflict of interest: I.R. Skov reports grants paid to her institution from AstraZeneca, Teva, Novartis, the Odd Fellow Lodge of Haderslev Denmark, the Region of Southern Denmark and the University of Southern Denmark; and personal fees for lectures from Roche, outside the submitted work. A. Pottegård reports participation in research projects funded by Alcon, Almirall, Astellas, AstraZeneca, Boehringer Ingelheim, Novo Nordisk, Servier and LEO Pharma, all regulator-mandated phase IV studies, all with funds paid to the institution where he was employed (no personal fees) and with no relation to the submitted work. J.R. Davidsen reports grants and personal fees for advisory board participation and lectures from Roche and Boehringer Ingelheim, and personal fees for lectures from Chiesi, outside the submitted work. H. Madsen, D.P. Henriksen and J.H. Andersen have nothing to disclose.

Comment in

- Oral corticosteroids in asthma and beyond: moving forward.
  Chan JSK, Murray RB, Price D.Eur Respir J. 2022 Sep 15;60(3):2200776. doi: 10.1183/13993003.00776-2022. Print 2022 Sep.PMID: 36109044 No abstract available.

- Cited by 1 article

. 2022 Sep 15;60(3):2101954.

doi: 10.1183/13993003.01954-2021. Print 2022 Sep.

A polygenic risk score and age of diagnosis of COPD

Jingzhou Zhang[1,2], Hanfei Xu[3], Dandi Qiao[1], Dawn L DeMeo[1,4], Edwin K Silverman[1,4], George T O'Connor[2], Brian D Hobbs[1,4], Josée Dupuis[3], Michael H Cho[1,4,5], Matthew Moll[6,4,5]

Affiliations expand

- PMID: 35115341

- DOI: 10.1183/13993003.01954-2021

Abstract

Background: Genetic susceptibility may be associated with earlier onset of chronic obstructive pulmonary disease (COPD). We hypothesised that a polygenic risk score (PRS) for COPD would be associated with earlier age of diagnosis of COPD.

Methods: In 6647 non-Hispanic White (NHW) and 2464 African American (AA) participants from COPDGene, and 6812 participants from the Framingham Heart Study (FHS), we tested the relationship of the PRS and age of COPD diagnosis. Age at diagnosis was determined by: 1) self-reported age at COPD diagnosis or 2) age at visits when moderate-to-severe airflow limitation (Global Initiative for Chronic Obstructive Lung Disease (GOLD) grade 2-4) was observed on spirometry. We used Cox regression to examine the overall and time-dependent effects of the PRS on incident COPD. In the COPDGene study, we also examined the PRS's predictive value for COPD at age <50 years (COPD50) using logistic regression and area under the curve (AUC) analyses, with and without the addition of other risk factors present at early life (*e.g.* childhood asthma).

Results: In Cox models, the PRS demonstrated age-dependent associations with incident COPD, with larger effects at younger ages in both cohorts. The PRS was associated with COPD50 (OR 1.55 (95% CI 1.41-1.71) for NHW, OR 1.23 (95% CI 1.05-1.43) for AA and OR 2.47 (95% CI 2.12-2.88) for FHS participants). In COPDGene, adding the PRS to known early-life risk factors improved prediction of COPD50 in NHW (AUC 0.69 *versus* 0.74; p<0.0001) and AA (AUC 0.61 *versus* 0.64; p=0.04) participants.

Conclusions: A COPD PRS is associated with earlier age of diagnosis of COPD and retains predictive value when added to known early-life risk factors.

Conflict of interest statement

Conflict of interest: E.K. Silverman received grant support from GlaxoSmithKline and Bayer. M.H. Cho has received grant support from GlaxoSmithKline and Bayer, consulting fees from Genentech and AstraZeneca, and speaking fees from Illumina. D.L. DeMeo has received support from Bayer and Honoraria from Novartis. J. Dupuis received NIH funding for salary coverage paid to Boston University. J. Zhang, H. Xu, D. Qiao, G.T. O'Connor, B.D. Hobbs and M. Moll have no conflict of interest to declare.

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

RHINITIS

1
Rhinology

-
-
-

. 2022 Sep 23.

doi: 10.4193/Rhin21.364. Online ahead of print.

Prevalence of Chronic Rhinosinusitis with Nasal Polyps in Catalonia (Spain): a retrospective, large-scale population-based study

I Sanchez-Collado[1], T Mora[1], R Munoz-Cano[2,3,4], P Ribo[2,3,5], J Mullol[6], A Valero[2]

Affiliations expand

- PMID: 36150155

- DOI: 10.4193/Rhin21.364

Abstract

Background: Studies on the prevalence of chronic rhinosinusitis (CRS) with nasal polyps (NP) in general-based populations are scarce in Europe and worldwide. We performed a retrospective population-based observational cohort study of 30,189 adult patients diagnosed with NP in Catalonia (Spain).

Methodology: Adult individuals (≥18 years old) with a diagnosis of NP established by medical records at different health care levels (primary, hospital, and emergency) from the Catalan Health System (CHS) were included. Socio-demographic characteristics, prevalence, overall and by age and gender, disease severity, multi-morbidities, and biomarkers of type-2 inflammation were evaluated, together with appropriate medical treatment (AMT) and Endoscopic Sinus Surgery (ESS).

Results: In general population and severity sub-populations, the overall diagnosed NP prevalence was 0.49% and higher for males than females (0.60% vs 0.39%, p less than 0.0016). The prevalence for the severe NP population was 0.12%. The NP prevalence increased with age, the highest being at ≥ 60 years old for both gender and severity groups. Asthma (40.1%), acute rhinosinusitis (41.1%), and allergic rhinitis (32.1%) were among the most frequent comorbid respiratory diseases. ESS was performed in 15.4% of NP patients. Type 2 inflammation was present in 83.8% of the NP population and was more frequent in severe than non-severe (87.1% vs 82.7%, p less than 0.0001) patients and in those with respiratory multi-morbidities (91%).

Conclusions: This is the first large-scale population-based NP epidemiology study conducted in Spain, including severity based on undergoing medical and surgical treatment and type 2 inflammation. Although the prevalence data are lower than in previous European studies, the large NP cohort studied represents an essential strength of the results.

2

Int Arch Allergy Immunol

. 2022 Sep 20;1-10.

doi: 10.1159/000526410. Online ahead of print.

Effectiveness of Low-Dose Mepolizumab in the Treatment of Eosinophilic Granulomatosis with Polyangiitis (EGPA): A Real-Life Experience

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Affiliations expand

- PMID: 36126640

- DOI: 10.1159/000526410

Abstract

Introduction: Data showing effectiveness of mepolizumab in patients with eosinophilic granulomatosis with polyangiitis (EGPA) are limited.

Methods: This is a single-center retrospective chart review of patients with EGPA treated with mepolizumab. Clinical, laboratory, functional parameters and asthma, rhinitis control, and quality of life scores (Asthma Control Test [ACT], Asthma Quality of Life Questionnaire [AQLQ], Rhinoconjunctivitis Quality of Life Questionnaire [RQLQ], and SinoNasal Outcome Test [SNOT]-22) were evaluated at the baseline, 6th month, and 12th month. Complete response was defined as the absence of asthma and/or ear, nasal symptoms and exacerbations with a prednisone of ≤7.5 mg/day, partial response if it was achieved with a prednisone of >7.5 mg/day.

Results: Overall, 25 patients (18 F/7 M) with a median age of 47 years (23-76) were enrolled. Mepolizumab 100 mg/month was administered (dose increased to 300 mg/month in 3 patients). Mepolizumab significantly decreased daily dose of oral corticosteroid (OCS) from 11.04 mg to 3.65 mg together with a significant improvement in ACT, AQLQ, RQLQ, and SNOT-22 scores and a significant reduction in asthma exacerbations and blood eosinophil count at the 6th and 12th month (all p values <0.05). The mean forced expiratory volume in 1 s increased (at baseline: 1.88 L to 2.46 L at the 12th month [p = 0.037]). Seventy-six percent of patients responded completely at the 6th month and 81.25% at the 12th month. The complete responders at the 6th and 12th month were older than partial responders and nonresponders (p = 0.030 and p = 0.057, respectively). Patients with complete response at the 6th month were on lower doses of OCS than partial responders and nonresponders (p = 0.029).

Conclusions: Low-dose mepolizumab was effective in EGPA patients by improving sinonasal and asthma outcomes, while reducing the need for OCS.

Keywords: Asthma; Eosinophilic granulomatosis with polyangiitis; Mepolizumab; Treatment response; Vasculitis.

Review

Int Immunopharmacol

. 2022 Sep 18;112:109252.

doi: 10.1016/j.intimp.2022.109252. Online ahead of print.

Programmed cell death in the epithelial cells of the nasal mucosa in allergic rhinitis

Yanan Li[1], Liwei Sun[2], Ying Zhang[3]

Affiliations expand

- PMID: 36126408

- DOI: 10.1016/j.intimp.2022.109252

Abstract

In AR, the epithelial barrier composed of Nasal epithelial cells is the first line of defense, which is crucial to protect the host immune system from harmful stimuli. Moreover, irreversible structural changes in Nasal epithelial cells can occur in response to different allergens, but the mechanism leading to such abnormal changes has not been determined. Programmed cell death is regulated by genes and interacts with multiple cell signaling pathways. To explore the regulatory mechanism and signal pathway of programmed cell death in epithelial cells of allergic rhinitis, is helpful to clarify the pathogenesis of AR and put forward treatment strategies. In this paper, the regulation mechanisms of programmed cell death such as apoptosis, pyroptosis, and autophagy occurring in epithelial cells in AR, are retrospectively summarized to better understand the pathogenesis of AR.

Conflict of interest statement

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

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Proceed to details

Review

Ann Pharmacother

. 2022 Sep 19;10600280221124230.

doi: 10.1177/10600280221124230. Online ahead of print.

Intranasal Olopatadine: Mometasone in the Treatment of Seasonal Allergic Rhinitis

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Affiliations expand

- PMID: 36123818

- DOI: 10.1177/10600280221124230

Abstract

Objective: To review the pharmacology, efficacy, and safety of intranasal olopatadine hydrochloride-mometasone furoate (OM) combination in the treatment of seasonal allergic rhinitis (SAR).

Data sources: The PubMed database and ClinicalTrials.gov were searched using the following terms: mometasone + olopatadine, GSP301, mometasone furoate, and olopatadine hydrochloride.

Study selection and data extraction: Articles published in English between January 1987 and August 2022 related to pharmacology, safety, and clinical trials were assessed.

Data synthesis: In 2 phase II clinical trials, twice-daily (BID) and once-daily (QDay) intranasal OM demonstrated significant improvements in reflective total nasal symptom score (rTNSS) (BID $P < 0.001$ and QDay $P < 0.001$) and instantaneous total nasal symptom score (iTNSS) (BID $P < 0.001$ and $P < 0.0001$; QDay $P < 0.001$ and $P < 0.0001$). In 2 phase III clinical trials, BID OM showed significant improvements in rTNSS vs. placebo ($P < 0.001$), olopatadine monotherapy ($P = 0.03$ and $P = 0.003$), and mometasone monotherapy ($P = 0.02$ and $P = 0.059$).

Relevance to patient care and clinical practice: OM is indicated for treatment of SAR symptoms. Caution with use must be considered for certain high-risk patients, existing tuberculosis; fungal, bacterial, viral, or parasitic infections; or ocular herpes simplex. Due to its quick and sustained onset of action, OM may be an ideal agent for initial treatment of moderate-severe SAR for patients 12 years and older.

Conclusion: OM significantly improves SAR symptoms and is a viable treatment option in short-term SAR.

Keywords: GSP301; Ryaltris; SAR; mometasone; olopatadine.

Ecotoxicol Environ Saf

. 2022 Oct 1;244:114076.

doi: 10.1016/j.ecoenv.2022.114076. Epub 2022 Sep 13.

Effects of early life exposure to home environmental factors on childhood allergic rhinitis: Modifications by outdoor air pollution and temperature

Chan Lu[1], Zijing Liu[2], Hongsen Liao[3], Wenhui Yang[4], Qin Li[5], Qin Liu[6]

Affiliations expand

- PMID: 36113271

- DOI: 10.1016/j.ecoenv.2022.114076

Free article

Abstract

Background: There is growing evidence that allergic rhinitis (AR) is associated with indoor environmental factors, but their role in childhood AR during early life remains unclear.

Objective: To investigate the association of preconceptional, prenatal, early postnatal, and current exposure to home environmental factors with childhood AR, and to further explore whether this association can be interacted by outdoor air pollution and temperature.

Methods: A retrospective cohort study of 8689 preschool children was conducted during 2019-2020 in Changsha, China. A standard questionnaire was used to collect data on each family's health outcomes and home environments. We considered home environmental exposures during one year before conception, pregnancy, first year of life, and past year. Associations of indoor air pollution and allergens with AR were assessed by multiple logistic regression models.

Results: Pre-birth exposure to indoor air pollution emitted by new furniture or redecoration and dampness related allergen derived from mold/damp stains and mold/damp clothes or bedding during 1 year before conception and pregnancy was significantly associated with increased AR, with adjusted ORs (95% CI) ranging from 1.35 (1.05-1.75) to 1.87 (1.55-2.27). Childhood AR was also significantly related with post-birth exposure to dampness related indoor allergen including mold/damp stains and mold/damp clothes or bedding in first year and past year and pollen allergen including total and nonflowing plants in past year, with a range of ORs (95% CI) from 1.20 (1.01-1.42) to 1.79 (1.42-2.27). We identified that pre-birth, particularly in utero exposure to both

indoor air pollution from renovation and dampness related allergens, played a key role in AR development compared to post-birth exposures, and accumulative effect was observed with the highest risk of AR. High exposure to traffic-related air pollution (TRAP) including outdoor $PM_{2.5}$, NO_2, CO, and O_3, as well as living near traffic road not only significantly increased adverse effect of home environmental factors but also decreased protective effect of household dogs on childhood AR. Early life exposure to low temperature in pregnancy and high temperature in first year significantly increased AR risk of home environmental exposure. Sensitivity analysis indicated that some sub-groups were more susceptible to AR risk of home environmental exposure.

Conclusion: Our study suggests that pre-birth exposure to home environmental factors played an important role in AR development and this effect can be interacted by TRAP and temperature, which supports a hypothesis of "(pre)fetal origin of childhood AR".

Keywords: Ambient air pollution; Childhood allergic rhinitis; Early life exposure; Environmental temperature; Indoor environments; Interaction effect.

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.

Am J Rhinol Allergy

. 2022 Sep 12;19458924221116162.

doi: 10.1177/19458924221116162. Online ahead of print.

Increased Prevalence of Eosinophilic Esophagitis in Patients With Chronic Rhinosinusitis

Jordan K Simmons[1,2], David A Leiman[1,3], Sarita U Patil[1,4], Edward McCoul[1,5], Philip G Chen[1,6], Dennis M Tang[1,2], Edward C Kuan[1,7], Elena E Chang[1,8], Arthur W Wu[1,2]

Affiliations expand

- PMID: 36112756

- DOI: 10.1177/19458924221116162

Abstract

Background: Chronic rhinosinusitis (CRS) and eosinophilic esophagitis (EoE) are immune-mediated inflammatory conditions that share common histopathologic features. Once considered two separate pathologies, preliminary data has suggested that a higher prevalence of EoE may exist in patients with CRS.

Objectives: We aimed to expand the base of evidence across geographic regions and investigate the association between EoE and CRS, including CRS with nasal polyposis (CRSwNP).

Methods: Quantitative data detailing the prevalence of CRS, CRSwNP, and EoE were pooled from 6 large academic institutions spread across the United States using Epic electronic medical record system. One-way analysis of variance was then used to analyze the data.

Results: The mean prevalence of EoE in our general population sample of over 26 million individual records was 0.058% (range, 0.013%-0.103%). The mean prevalence of EoE in our sub-populations of individual with diagnoses of CRS and CRSwNP was 0.43% (F(1,12) = [8.194], P = .01) and 0.84% (F(1,12) = [23.61], P < .01) respectively.

Conclusion: This study reveals an 8-fold greater prevalence of concurrent EoE in patients with CRS. Importantly, this is the first study to describe the association of EoE and the CRSwNP subtype, and we demonstrate a 14-fold greater prevalence of EoE in patients with CRSwNP.

Keywords: Th2-mediated inflammation; chronic rhinosinusitis; eosinophilic esophagitis; immune-mediated inflammation; nasal obstruction; nasal polyposis; post-nasal drip; rhinitis; rhinorrhea; sinusitis.

Editorial

Eur Respir J

. 2022 Sep 15;60(3):2200440.

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Planetary respiratory health for asthma, rhinoconjunctivitis and eczema

Joan B Soriano[1 2 3]

Affiliations expand

- PMID: 36109045

- DOI: 10.1183/13993003.00440-2022

No abstract available

Conflict of interest statement

Conflict of interest: J.B. Soriano has nothing to disclose.

Comment on

- The burden of asthma, hay fever and eczema in children in 25 countries: GAN Phase I study.

  García-Marcos L, Asher MI, Pearce N, Ellwood E, Bissell K, Chiang CY, El Sony A, Ellwood P, Marks GB, Mortimer K, Martínez-Torres AE, Morales E, Perez-Fernandez V, Robertson S, Rutter CE, Silverwood RJ, Strachan DP; Global Asthma Network Phase I Study Group.Eur Respir J. 2022 Sep 15;60(3):2102866. doi: 10.1183/13993003.02866-2021. Print 2022 Sep.PMID: 35144987 **Free PMC article.** Clinical Trial.

- The burden of asthma, hay fever and eczema in adults in 17 countries: GAN Phase I study.
  Mortimer K, Lesosky M, García-Marcos L, Asher MI, Pearce N, Ellwood E, Bissell K, El Sony A, Ellwood P, Marks GB, Martínez-Torres A, Morales E, Perez-Fernandez V, Robertson S, Rutter CE, Silverwood RJ, Strachan DP, Chiang CY; Global Asthma Network Phase I Study Group.Eur Respir J. 2022 Sep 15;60(3):2102865. doi: 10.1183/13993003.02865-2021. Print 2022 Sep.PMID: 35210319 **Free PMC article.** Clinical Trial.

doi: 10.1016/j.jaip.2022.08.044. Online ahead of print.

The association of prenatal C-reactive protein levels with childhood asthma and atopy

Yih-Chieh S Chen[1], Kathleen A Lee-Sarwar[1], Hooman Mirzakhani[2], George T O'Connor[3], Leonard B Bacharier[4], Robert S Zeiger[5], Hanna M Knihtilä[6], Anjali Jha[2], Rachel S Kelly[2], Nancy Laranjo[2], Raina N Fichorova[7], Ngan Luu[7], Scott T Weiss[2], Augusto A Litonjua[8]

Affiliations expand

- PMID: 36108928

- DOI: 10.1016/j.jaip.2022.08.044

Abstract

Background: The pathogenesis of childhood asthma is complex and determinants of risk may begin in utero.

Objective: To describe the association of systemic prenatal inflammation, measured by plasma C-reactive protein (CRP), with childhood asthma, eczema, and allergic rhinitis.

Methods: 522 maternal-offspring pairs from the Vitamin D Antenatal Asthma Reduction Trial (VDAART) were included. Prenatal plasma CRP was measured between 10-18 weeks gestation and between 32-38 weeks gestation. Offspring asthma, eczema, and allergic rhinitis were assessed quarterly between birth and age 6 years. We performed mediation analyses of prenatal CRP on the association between several maternal characteristics and offspring asthma.

Results: Elevated early and late prenatal CRP and an increase in CRP from early to late pregnancy were associated with asthma by age 6 years (early: adjusted odds ratio (aOR) 1.76, 95% CI 1.12,2.82, p=0.02; late: aOR 2.45, 95% CI 1.47, 4.18, p<0.001; CRP increase aOR 2.06, 95% CI 1.26, 3.39, p<0.004). Prenatal CRP and childhood asthma associations were strengthened among offspring with atopic asthma (early: aOR 3.78, 95% CI 1.49, 10.64, p=0.008; late: aOR 4.84, 95% CI 1.68, 15.50, p=0.005, CRP increase aOR 3.01, 95% CI 1.06, 9.16, p=0.04). Early and late prenatal CRP mediated 96% and 86% of the association between maternal pre-pregnancy body mass index and offspring asthma, respectively.

Conclusion: Higher prenatal CRP and an increase in CRP from early to late pregnancy are associated with childhood asthma. Systemic inflammation during pregnancy associated

with modifiable maternal characteristics may be an important determinant of childhood asthma risk.

Keywords: CRP; asthma; atopy; inflammation; prenatal.

Multicenter Study

Immunotherapy

. 2022 Oct;14(14):1109-1120.

doi: 10.2217/imt-2022-0143. Epub 2022 Sep 12.

Health and economic impact of subcutaneous allergen immunotherapy in patients with pollen-induced allergic rhinoconjunctivitis: real-word evidence from the Czech Republic

Barbora Turková[1], Jan Tužil[1,2], Barbora Pilnáčková[1], Helena Doležalová[1], Daniela Štrosová[1], Vít Petrů[3], Ester Seberová[4], Tomáš Doležal[1,5]

Affiliations expand

- PMID: 36097687

- DOI: 10.2217/imt-2022-0143

Free article

Abstract

Background: The prevalence of allergic rhinoconjunctivitis (AR) has been increasing over the years, and allergen immunotherapy (AIT) remains the only disease-modifying treatment. However, cost-effectiveness data remain scarce. **Methods:** In this single-arm, noninterventional, prospective, multicenter study, we describe the effectiveness, safety and costs of subcutaneous AIT for pollen-induced allergic rhinoconjunctivitis. **Results:** Of 471 new AIT users, 317 completed three courses of treatment, and symptoms improved in 96%; no serious adverse reactions were reported. The cost of symptomatic medication decreased by 49% and the cost of unscheduled specialist visits decreased by 73%. Except for AIT administration, total healthcare costs decreased by 54% compared with the baseline pollen season without AIT. **Conclusion:** In clinical practice, subcutaneous AIT is an effective treatment generating savings on symptomatic medication and unscheduled consultations.

Keywords: allergy; costs; economics; effectiveness; immunotherapy; pollen; rhinitis; rhinoconjunctivis; savings; subcutaneous.

Plain language summary

Hay fever has become more frequent over the years, and allergen immunotherapy (AIT) remains the only treatment able to reduce both symptoms and the root cause of this condition. However, it is not clear whether the benefits outweigh the price of the therapy. In this study, we observed patients in the common practice and described the effectiveness, safety and costs of injected AIT for pollen-induced hay fever. Of 471 new AIT users, 317 completed three courses of treatment in 3 consecutive years. Symptoms improved in 96% of them; no serious adverse reactions were reported. The cost of symptom-relieving medication decreased by 49% and the cost of unscheduled physician visits decreased by 73%. Except for costs related to AIT administration, total healthcare costs decreased by 54% compared with the years before AIT. In clinical practice, injected AIT is an effective treatment which generates savings on other medication and unscheduled physician consultations.

Multicenter Study

Respir Res

. 2022 Sep 12;23(1):243.

doi: 10.1186/s12931-022-02104-8.

Characteristics of different asthma phenotypes associated with cough: a prospective, multicenter survey in China

Jianmeng Zhou[#1], Fang Yi[#1], Feng Wu[2], Pusheng Xu[3], Meihua Chen[4], Huahao Shen[5], Lin Lin[6], Yunhui Zhang[7], Suyun Li[8], Changgui Wu[9], Yadong Yuan[10], Gang Wang[11], Xianwei Ye[12], Ping Zhang[13], Huaping Tang[14], Qianli Ma[15], Lanqing Huang[16], Zhongmin Qiu[17], Haiyan Deng[18], Chen Qiu[19], Guochao Shi[20], Jiayu Pan[1], Wei Luo[1], Kian Fan Chung[#21], Nanshan Zhong[#1], Kefang Lai[22], CPA Cohort Study Group

Collaborators, Affiliations expand

- PMID: 36096782

- PMCID: PMC9469623

- DOI: 10.1186/s12931-022-02104-8

Abstract

Background: Asthma is a heterogeneous disease with variable symptoms, which presents with cough either as the sole or predominant symptom with or without wheezing. We compared the clinical and pathophysiological characteristics of cough predominant asthma (CPA), cough variant asthma (CVA) and classic asthma (CA) in order to determine any differential phenotypic traits.

Methods: In 20 clinics across China, a total of 2088 patients were finally recruited, including 327 CVA, 1041 CPA and 720 CA patients. We recorded cough and wheezing visual analogue scale, Leicester cough questionnaire (LCQ) and asthma control test scores. Fractional exhaled nitric oxide (FeNO), induced sputum cell counts, and capsaicin cough challenge were also measured and compared.

Results: CPA patients more frequently presented with cough as the initial symptom, and laryngeal symptoms ($p < 0.001$), had less symptoms related with rhinitis/sinusitis and gastroesophageal reflux ($p < 0.05$) than CA patients. Comorbidities including rhinitis and gastroesophageal reflux were similar, while the proportion of COPD and bronchiectasis was higher in CA patients. There were no differences in FeNO levels, sputum eosinophil and neutrophil counts, FEV1 (%pred) decreased from CVA to CPA to CA patients ($p < 0.001$). Cough sensitivity was higher in CVA and CPA compared to CA ($p < 0.001$), and was positively correlated with LCQ scores.

Conclusions: CVA, CPA and CA can be distinguished by the presence of laryngeal symptoms, cough sensitivity and airflow obstruction. Asthma-associated chronic cough was not associated with airway inflammation or comorbidities in our cohort. Trial registration The Chinese Clinical Trial Registration Center, ChiCTR-POC-17011646, 13 June 2017.

Keywords: Airway inflammation; Asthma; Cough; Cough predominant asthma; Cough sensitivity.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

- 54 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

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Observational Study

Am J Respir Crit Care Med

. 2022 Sep 15;206(6):780-783.

doi: 10.1164/rccm.202203-0608LE.

Allergen Immunotherapy Reverses Immune Response to SARS-CoV-2 Vaccine in Patients with Allergic Rhinitis: A Prospective Observational Trial

Yin Yao[1], Ao Huang[1], Yi-Ke Deng[1], Yan Liu[1], Hong-Yu Zhu[1], Nan Wang[1], Zhe-Zheng Wang[1], Rong-Fei Zhu[1], Di Yu[2], Zheng Liu[1]

Affiliations expand

- PMID: 35649178

- DOI: 10.1164/rccm.202203-0608LE

No abstract available

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

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12

Clinical Trial

Eur Respir J

. 2022 Sep 15;60(3):2102865.

doi: 10.1183/13993003.02865-2021. Print 2022 Sep.

The burden of asthma, hay fever and eczema in adults in 17 countries: GAN Phase I study

Kevin Mortimer[1,2], Maia Lesosky[3,4], Luis García-Marcos[5,6], M Innes Asher[7], Neil Pearce[8], Eamon Ellwood[7], Karen Bissell[9], Asma El Sony[10], Philippa Ellwood[7], Guy B Marks[11], Antonela Martínez-Torres[12,13], Eva Morales[14], Virginia Perez-Fernandez[15], Steven Robertson[8], Charlotte E Rutter[8], Richard J Silverwood[8,16], David P Strachan[17], Chen-Yuan Chiang[18,19,20], Global Asthma Network Phase I Study Group

Affiliations expand

- PMID: 35210319

- PMCID: PMC9474894

- DOI: 10.1183/13993003.02865-2021

Free PMC article

Abstract

Aims: Asthma, hay fever and eczema are three common chronic conditions. There have been no recent multi-country data on the burden of these three conditions in adults; the aims of this study are to fill this evidence gap.

Methods: The Global Asthma Network Phase I is a multi-country cross-sectional population-based study using the same core methodology as the International Study of Asthma and Allergies in Childhood Phase III. It provides data on the burden of asthma, hay fever and eczema in children and adolescents, and, for the first time, in their parents/guardians.

Results: Data were available from 193 912 adults (104 061 female; mean±sd age 38±7.5 years) in 43 centres in 17 countries. The overall prevalence (range) of symptoms was 6.6% (0.9-32.7%) for current wheeze, 4.4% (0.9-29.0%) for asthma ever, 14.4% (2.8-45.7%) for hay fever ever and 9.9% (1.6-29.5%) for eczema ever. Centre prevalence varied considerably both between countries and within countries. There was a moderate correlation between hay fever ever and asthma ever, and between eczema ever and hay fever ever at the centre level. There were moderate to strong correlations between indicators of the burden of disease reported in adults and the two younger age groups.

Conclusion: We found evidence for a substantial burden of asthma, hay fever ever and eczema ever in the countries examined, highlighting the major public health importance of these diseases. Prevention strategies and equitable access to effective and affordable treatments for these three conditions would help mitigate the avoidable morbidity they cause.

Conflict of interest statement

Conflict of interest: The authors declare that they have no conflict of interest.

Comment in

- Planetary respiratory health for asthma, rhinoconjunctivitis and eczema.
Soriano JB.Eur Respir J. 2022 Sep 15;60(3):2200440. doi: 10.1183/13993003.00440-2022. Print 2022 Sep.PMID: 36109045 No abstract available.

- Cited by 1 article
- 32 references
- 5 figures

SUPPLEMENTARY INFO

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Clinical Trial

Eur Respir J

. 2022 Sep 15;60(3):2102866.

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The burden of asthma, hay fever and eczema in children in 25 countries: GAN Phase I study

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Abstract

Aims: There have been no worldwide standardised surveys of prevalence and severity of asthma, rhinoconjunctivitis and eczema in school children for 15 years. The present study aims to provide this information.

Methods: Following the exact International Study of Asthma and Allergies in Childhood (ISAAC) methodology (cross-sectional questionnaire-based survey), Global Asthma Network (GAN) Phase I was carried out between 2015 and 2020 in many centres worldwide.

Results: The study included 157 784 adolescents (13-14 years of age) in 63 centres in 25 countries and 101 777 children (6-7 years of age) in 44 centres in 16 countries. The current prevalence of symptoms, respectively, was 11.0% and 9.1% for asthma, 13.3% and 7.7% for rhinoconjunctivitis and 6.4% and 5.9% for eczema. The prevalence of asthma ever was 10.5% and 7.6%, hay fever ever was 15.2% and 11.1% and eczema ever was 10.6% and 13.4%, respectively. Centres in low or lower middle gross national income countries (LICs or LMICs) had significantly lower prevalence of the three disease symptoms and diagnoses (except for hay fever). In children, the prevalence of asthma and rhinoconjunctivitis symptoms was higher in boys, while the reverse occurred among adolescents. For eczema, while the prevalence among female adolescents was double that of males, there was no sex difference among children. Centre accounted for non-negligible variability in all disease symptoms (10-20%).

Conclusion: The burdens of asthma, rhinoconjunctivitis and eczema vary widely among the limited number of countries studied. Although symptom prevalence is lower in LICs and LMICs, it represents a considerable burden everywhere studied.

Conflict of interest statement

Conflict of interest: C.E. Rutter declares UK Medical Research Council funding for a PhD as part of MRCLID DTP with LSHTM and St Georges, grant number MR/N013638/1, in connection with the present manuscript. All other authors declare no competing interests.

Comment in

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- Cited by 2 articles
- 35 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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CHRONIC COUGH

1
J Korean Med Sci

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Effectiveness and Safety of Codeine and Levodropropizine in Patients With Chronic Cough

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Affiliations expand

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Abstract

Background: Recent progress in chronic cough management includes controlling cough triggers and hypersensitivity using antitussives. Therefore, we investigated the effects and safety outcomes of antitussives, codeine and levodropropizine, in patients with chronic cough.

Methods: We conducted an open-label, randomized comparative trial with newly referred patients with chronic cough. Patients were orally administered codeine (60 mg/day) and levodropropizine (180 mg/day) for 2 weeks. Cough severity, including the visual analog scale (VAS), Cough Symptom Score (CSS), Leicester Cough Questionnaire (LCQ), and safety for each treatment were assessed. The primary outcome was VAS score changes before and after 2 weeks of treatment.

Results: Among the 88 participants, 45 and 43 in the codeine and levodropropizine groups, respectively, were included in the analysis. Changes in the VAS score were higher in the codeine group than in the levodropropizine group (35.11 ± 20.74 vs. 19.77 ± 24.83, $P = 0.002$). Patients administered codeine also had improved CSS (2.96 ± 2.35 vs. 1.26 ± 1.89, $P < 0.001$) and LCQ (3.28 ± 3.36 vs. 1.61 ± 3.53, $P = 0.025$) than those administered levodropropizine. Treatment-related adverse events, including drowsiness, constipation, and headaches, were more frequent in the codeine group than in the levodropropizine group. However, no significant differences existed in the adverse events leading to discontinuation.

Conclusion: Codeine is an effective and generally well-tolerated antitussive for chronic cough. However, it may induce side effects in some patients. Individual responses and adverse events should be carefully monitored when codeine is used to treat chronic cough.

Keywords: Chronic Cough; Codeine; Levodropropizine Visual Analogue Scale; Safety.

Conflict of interest statement

The authors have no potential conflicts of interest to disclose.

- 29 references
- 3 figures

Multicenter Study

Respir Res

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Characteristics of different asthma phenotypes associated with cough: a prospective, multicenter survey in China

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Abstract

Background: Asthma is a heterogeneous disease with variable symptoms, which presents with cough either as the sole or predominant symptom with or without wheezing. We compared the clinical and pathophysiological characteristics of cough predominant asthma (CPA), cough variant asthma (CVA) and classic asthma (CA) in order to determine any differential phenotypic traits.

Methods: In 20 clinics across China, a total of 2088 patients were finally recruited, including 327 CVA, 1041 CPA and 720 CA patients. We recorded cough and wheezing visual analogue scale, Leicester cough questionnaire (LCQ) and asthma control test scores. Fractional exhaled nitric oxide (FeNO), induced sputum cell counts, and capsaicin cough challenge were also measured and compared.

Results: CPA patients more frequently presented with cough as the initial symptom, and laryngeal symptoms ($p < 0.001$), had less symptoms related with rhinitis/sinusitis and gastroesophageal reflux ($p < 0.05$) than CA patients. Comorbidities including rhinitis and gastroesophageal reflux were similar, while the proportion of COPD and bronchiectasis was higher in CA patients. There were no differences in FeNO levels, sputum eosinophil and neutrophil counts, FEV1 (%pred) decreased from CVA to CPA to CA patients ($p < 0.001$). Cough sensitivity was higher in CVA and CPA compared to CA ($p < 0.001$), and was positively correlated with LCQ scores.

Conclusions: CVA, CPA and CA can be distinguished by the presence of laryngeal symptoms, cough sensitivity and airflow obstruction. Asthma-associated chronic cough was not associated with airway inflammation or comorbidities in our cohort. Trial registration The Chinese Clinical Trial Registration Center, ChiCTR-POC-17011646, 13 June 2017.

Keywords: Airway inflammation; Asthma; Cough; Cough predominant asthma; Cough sensitivity.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

- 54 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

QJM

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Giant cell arteritis presenting with chronic cough and headache after BNT162b2 mRNA COVID-19 vaccination

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No abstract available

- 6 references
- 1 figure

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