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COPD

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Sci Rep

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. 2022 Dec 3;12(1):20930.

doi: 10.1038/s41598-022-24956-2.

Mapping algorithms for predicting EuroQol-5D-3L utilities from the assessment test of chronic obstructive pulmonary disease

Chun-Hsiang Yu[1], Sheng-Mao Chang[2], Chih-Hui Hsu[3], Sheng-Han Tsai[4], Xin-Min Liao[1], Chang-Wei Chen[1], Ching-Hsiung Lin[5], Jung-Der Wang[6], Tzuen-Ren Hsiue[1], Chiung-Zuei Chen[7]

Affiliations expand

- PMID: 36463253

- DOI: 10.1038/s41598-022-24956-2

Abstract

To predict 3-Level version of European Quality of Life-5 Dimensions (EQ-5D-3L) questionnaire utility from the chronic obstructive pulmonary disease (COPD) assessment test (CAT), the study attempts to collect EQ-5D-3L and CAT data from COPD patients. Response mapping under a backward elimination procedure was used for EQ-5D score predictions from CAT. A multinomial logistic regression (MLR) model was used to identify the association between the score and the covariates. Afterwards, the predicted scores were transformed into the utility. The developed formula was compared with ordinary least squares (OLS) regression models and models using Mean Rank Method (MRM). The MLR models performed as well as other models according to mean absolute error (MAE) and root mean squared error (RMSE) evaluations. Besides, the overestimation for low utility patients (utility ≤ 0.6) and underestimation for near health (utility > 0.9) in the OLS method was improved through the means of the MLR model based on bubble chart analysis. In conclusion, response mapping with the MLR model led to performance comparable to the OLS and MRM models for predicting EQ-5D utility from CAT data. Additionally, the bubble charts analysis revealed that the model constructed in this study and MRM could be a better predictive model.

- 23 references

SUPPLEMENTARY INFO

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Physiol Rep

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. 2022 Dec;10(23):e15519.

doi: 10.14814/phy2.15519.

Respiratory-related evoked potentials in chronic obstructive pulmonary disease and healthy aging

Isabella Epiu[1,2,3], Simon C Gandevia[1,2,3], Claire L Boswell-Ruys[1,2,3], Sophie G Carter[1,2], Harrison T Finn[1,2], David A T Nguyen[1,2], Jane E Butler[1,2], Anna L Hudson[1,2,4]

Affiliations expand

- PMID: 36461659

- DOI: 10.14814/phy2.15519

Abstract

Altered neural processing and increased respiratory sensations have been reported in chronic obstructive pulmonary disease (COPD) as larger respiratory-related evoked potentials (RREPs), but the effect of healthy-aging has not been considered adequately. We tested RREPs evoked by brief airway occlusions in 10 participants with moderate-to-severe COPD, 11 age-matched controls (AMC) and 14 young controls (YC), with similar airway occlusion pressure stimuli across groups. Mean age was 76 years for COPD and AMC groups, and 30 years for the YC group. Occlusion intensity and unpleasantness was rated using the modified Borg scale, and anxiety rated using the Hospital Anxiety and Depression Scale. There was no difference in RREP peak amplitudes across groups, except for the N1 peak, which was significantly greater in the YC group than the COPD and AMC groups ($p = 0.011$). The latencies of P1, P2 and P3 occurred later in COPD versus YC ($p < 0.05$). P3 latency occurred later in AMC than YC ($p = 0.024$). COPD and AMC groups had similar Borg ratings for occlusion intensity (3.0 (0.5, 3.5) [Median (IQR)] and 3.0 (3.0, 3.0), respectively; $p = 0.476$) and occlusion unpleasantness (1.3 (0.1, 3.4) and 1.0 (0.75, 2.0), respectively; $p = 0.702$). The COPD group had a higher anxiety score than AMC group ($p = 0.013$). A higher N1 amplitude suggests the YC group had higher cognitive processing of respiratory inputs than the COPD and AMC groups. Both COPD and AMC groups showed delayed neural responses to the airway occlusion, which may indicate impaired processing of respiratory sensory inputs in COPD and healthy aging.

Keywords: EEG; dyspnea; respiratory sensation.

- 58 references

SUPPLEMENTARY INFO

Grant supportexpand

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Lancet Digit Health

. 2022 Nov 29;S2589-7500(22)00187-X.

doi: 10.1016/S2589-7500(22)00187-X. Online ahead of print.

Identifying and visualising multimorbidity and comorbidity patterns in patients in the English National Health Service: a population-based study

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Collaborators, Affiliations expand

- PMID: 36460578

- DOI: 10.1016/S2589-7500(22)00187-X

Abstract

Background: Globally, there is a paucity of multimorbidity and comorbidity data, especially for minority ethnic groups and younger people. We estimated the frequency of common disease combinations and identified non-random disease associations for all ages in a multiethnic population.

Methods: In this population-based study, we examined multimorbidity and comorbidity patterns stratified by ethnicity or race, sex, and age for 308 health conditions using electronic health records from individuals included on the Clinical Practice Research Datalink linked with the Hospital Episode Statistics admitted patient care dataset in England. We included individuals who were older than 1 year and who had been registered for at least 1 year in a participating general practice during the study period (between April 1, 2010, and March 31, 2015). We identified the most common combinations of conditions and comorbidities for index conditions. We defined comorbidity as the accumulation of additional conditions to an index condition over an individual's lifetime. We used network analysis to identify conditions that co-occurred more often than expected by chance. We developed online interactive tools to explore multimorbidity and comorbidity patterns overall and by subgroup based on ethnicity, sex, and age.

Findings: We collected data for 3 872 451 eligible patients, of whom 1 955 700 (50·5%) were women and girls, 1 916 751 (49·5%) were men and boys, 2 666 234 (68·9%) were White, 155 435 (4·0%) were south Asian, and 98 815 (2·6%) were Black. We found that a higher proportion of boys aged 1-9 years (132 506 [47·8%] of 277 158) had two or more diagnosed conditions than did girls in the same age group (106 982 [40·3%] of 265 179), but more women and girls were diagnosed with multimorbidity than were boys aged 10 years and older and men (1 361 232 [80·5%] of 1 690 521 vs 1 161 308 [70·8%] of 1 639 593). White individuals (2 097 536 [78·7%] of 2 666 234) were more likely to be diagnosed with two or more conditions than were Black (59 339 [60·1%] of 98 815) or south Asian individuals (93 617 [60·2%] of 155 435). Depression commonly co-occurred with anxiety, migraine, obesity, atopic conditions, deafness, soft-tissue disorders, and gastrointestinal disorders across all subgroups. Heart failure often co-occurred with hypertension, atrial fibrillation, osteoarthritis, stable angina, myocardial infarction, chronic kidney disease, type 2 diabetes, and chronic obstructive pulmonary disease. Spinal fractures were most strongly non-randomly associated with malignancy in Black individuals, but with osteoporosis in White individuals. Hypertension was most strongly associated with kidney disorders in those aged 20-29 years, but with dyslipidaemia, obesity, and type 2 diabetes in individuals aged 40 years and older. Breast cancer was associated with different comorbidities in individuals from different ethnic groups. Asthma was associated with different comorbidities between males and females. Bipolar disorder was associated with different comorbidities in younger age groups compared with older age groups.

Interpretation: Our findings and interactive online tools are a resource for: patients and their clinicians, to prevent and detect comorbid conditions; research funders and policy makers, to redesign service provision, training priorities, and guideline development; and biomedical researchers and manufacturers of medicines, to provide leads for research into common or sequential pathways of disease and inform the design of clinical trials.

Funding: UK Research and Innovation, Medical Research Council, National Institute for Health and Care Research, Department of Health and Social Care, Wellcome Trust, British Heart Foundation, and The Alan Turing Institute.

Conflict of interest statement

Declaration of interests DN is the UK Kidney Association Director of Informatics Research based at the UK Renal Registry and is on the steering committee for two GlaxoSmithKline-funded studies looking at kidney function markers in sub-Saharan Africa. ICKW was a member of the ISAC of CPRD and has received funding from Amgen, Bristol-Myers Squibb, Pfizer, Janssen, Bayer, GSK, and Novartis to conduct pharmacoepidemiological research outside the submitted work. RM has received consulting fees from Amgen. ADH is a co-investigator on a grant from Pfizer to identify potential therapeutic targets for heart failure using human genomics. NC is remunerated for her membership of a data safety and monitoring committee of a trial sponsored by AstraZeneca. All other authors declare no competing interests.

Review

J Pharm Pract

. 2022 Dec 2;8971900221144127.

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De-Prescribing Inhaled Corticosteroids in Chronic Obstructive Pulmonary Disease: A Narrative Review

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Affiliations expand

- PMID: 36458847

- DOI: 10.1177/08971900221144127

Abstract

Objective: Combination therapy, including inhaled corticosteroids (ICS), is often prescribed as initial treatment for Chronic Obstructive Pulmonary Disease (COPD) despite limited evidence that ICS therapy is beneficial. Prescribing rates exceed the estimated number of candidates diagnosed with COPD who are eligible for ICS treatment per guideline-directed therapy. Therefore, some patients would benefit from ICS withdrawal due to potentially inappropriate prescribing. This review aims to highlight evidence evaluating ICS withdrawal approaches in COPD. **Methods:** A comprehensive literature review was performed between June 2021 and March 2022 with assistance from a reference librarian. Sources of literature review include PubMed and Embase. The authors selected randomized controlled trials and articles evaluating ICS withdrawal approaches in patients with COPD. Three clinical trials and one post-hoc analysis are discussed in this review. Pertinent safety, efficacy, and statistical and clinical outcomes are summarized. **Conclusions:** The most appropriate approach to de-prescribe ICS maintenance therapy in COPD without clear indication remains uncertain. Pharmacists can play a role in optimizing clinical outcomes by analyzing ICS use in practice and identifying potential candidates for ICS withdrawal. The withdrawal protocols discussed in this review offer options for clinicians to help guide therapy decisions.

Keywords: chronic obstructive pulmonary disease; de-prescribe; inhaled corticosteroid; withdrawal.

. 2022 Nov 13;8:100201.

doi: 10.1016/j.rcsop.2022.100201. eCollection 2022 Dec.

Impact of a mobile integrated healthcare and community paramedicine program on improving medication adherence in patients with heart failure and chronic obstructive pulmonary disease after hospital discharge: A pilot study

Olufunke Sokan[1], Benoit Stryckman[2], Yuanyuan Liang[3], Sade Osotimehin[1], Daniel B Gingold[2], Weston W Blakeslee[4], Matthew J Moore[4], Colin A Banas[4], Colleen T Landi[5], Magaly Rodriguez[1]

Affiliations expand

- PMID: 36457714

- PMCID: PMC9707008

- DOI: 10.1016/j.rcsop.2022.100201

Abstract

Background: The mobile integrated health-community paramedicine (MIH-CP) program affiliated with the University of Maryland Medical Center focuses on improving patient transitions from hospital to home by addressing both medical and social determinants of health. Until recently, only self-contained health systems could integrate inpatient and outpatient medication data. Without some means to track patients in transition, there is a significant risk of medication-related problems and errors.

Objective: To evaluate the impact of the MIH-CP program on medication adherence among patients with congestive heart failure (CHF) and/or chronic obstructive pulmonary disease (COPD).

Methods: This is a pilot observational study designed to compare adherence to drug regimens prescribed at hospital discharge (measured by the proportion of days covered [PDC]) between patients enrolled in the MIH-CP program and a propensity-matched control group. Propensity scores were calculated using 11 demographic, diagnostic, third-party payer, and patient care-associated variables. Discharge medication details were obtained from electronic medical records. PDC for each of the medications were calculated from pharmacy claims data.

Results: Eighty-three patients were included in the study; forty-three patients were placed in the intervention group and 40 were propensity-matched controls. After adjusting for age, sex, and third-party payer, findings indicated that medication adherence was higher among patients enrolled in the MIH-CP program compared with control during the first 30 days post-discharge, specifically among patients diagnosed with CHF (8% difference in PDC, 95% confidence interval [CI], -0.12-0.28%) and COPD (14% difference, 95% CI, -0.15-0.43%), although neither result achieved statistical significance. The differences in medication adherence between patients who were enrolled and those who were not enrolled in the MIH-CP program diminished after 30 days post-discharge.

Conclusion: This pilot study demonstrated a trend toward improved medication adherence among patients enrolled in the MIH-CP program. Future research involving a larger patient cohort will be required to confirm these preliminary findings.

Keywords: ALP, Advanced Licensed Provider; CHF, Congestive Heart Failure; CHW, Community Health Worker; CI, Confidence Interval; CMS, Centers for Medicare and Medicaid Services; COPD, Chronic Obstructive Pulmonary Disease; CRISP, Chesapeake Regional Information System for our Patients; Community paramedicine; Data integration; EHR, Electronic Health Record; ICD, Institutional Classification of Diseases; IRB, Institutional Review Board; M-DRAW, Modified Drug Adherence Work-Up; MIH-CP, Mobile Integrated Health-Community Paramedicine; Medication adherence; Mobile integrated health; PDC, Proportion of Days Covered; PSM, Propensity Score Matching; SDoH, Social Determinants of Health; Telehealth; Transition of care; UMMC, University of Maryland Medical Center; UMMS, University of Maryland Medical System.

Conflict of interest statement

None declared.

- 34 references
- 4 figures

Review

Qual Life Res

. 2022 Dec 1.

doi: 10.1007/s11136-022-03310-z. Online ahead of print.

What is the impact of home non-invasive ventilation on the health-related quality of life of patients with chronic obstructive pulmonary disease? A systematic review

Alison Breen[1], Pinar Avsar[2], Zena Moore[3,4,5,6,7,8], Tom O'Connor[3,4,7], Linda Nugent[3,4], Declan Patton[3,4,9]

Affiliations expand

- PMID: 36456732

- DOI: 10.1007/s11136-022-03310-z

Abstract

Objectives: To ascertain the impact of home non-invasive ventilation (NIV) on the health-related quality of life (HRQL) of patients with moderate-to-severe chronic obstructive pulmonary disease (COPD).

Design: Systematic review.

Methods: A preliminary search of computerised databases (CINAHL, Medline, Clinical Key, Cochrane) was conducted in June 2021, without any limitations on publication date. Inclusion criteria focused on home NIV prescribed for patients with moderate-to-severe COPD. Identified papers were critically appraised for rigour and validity. Data were extracted, analysed, and a narrative synthesis completed.

Results: The review included eight studies, including five randomised controlled trials. Variations in the HRQL scores meant that the data were difficult to collate. Nevertheless, the studies did indicate an overall improved HRQL for those using NIV at home.

Conclusion: This systematic review determines that home NIV does positively impact the HRQL of those with COPD. However, the limited quality of primary studies highlights the need for more in-depth research in this area to bring about optimal standardisation of clinical practice in relation to the use of NIV at home.

Keywords: Chronic obstructive pulmonary disease; Home non-invasive ventilation; Quality of life; Systematic review.

- 28 references

SUPPLEMENTARY INFO

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Thorax

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. 2022 Dec 1;thorax-2022-219334.

doi: 10.1136/thorax-2022-219334. Online ahead of print.

Airflow limitation and mortality during cancer screening in the National Lung Screening Trial: why quantifying airflow limitation matters

Robert P Young[1], Ralph C Ward[2], Raewyn J Scott[3], Greg D Gamble[3], Gerard Silvestri[2]

Affiliations expand

- PMID: 36456179

- DOI: 10.1136/thorax-2022-219334

Abstract

Importance: Current eligibility criteria for lung cancer (LC) screening are derived from randomised controlled trials and primarily based on age and smoking history. However, the individual benefits of screening are highly variable and potentially attenuated by co-morbidities such as advanced airflow limitation (AL).

Objective: To examine the relationship between the presence and severity of AL and screening outcomes.

Methods: This was a secondary analysis of 18 463 high-risk smokers, a substudy from the National Lung Screening Trial, who underwent pre-bronchodilator spirometry at baseline and median follow-up of 6.1 years. We used descriptive statistics and a competing risk proportional hazards model to examine differences in screening outcomes by chronic obstructive pulmonary disease severity group.

Results: The risk of developing LC increased with worsening AL (effect size=0.34, p<0.0001), as did the risk of dying of LC (effect size=0.35, p<0.0001). While those with severe AL (Global Initiative for Obstructive Lung Disease, GOLD grade 3-4) had the highest risk of LC and the highest LC mortality, they also had fewer adenocarcinomas (effect size=-0.20, p=0.008) and a lower surgery rate (effect size=-0.16, p=0.014) despite comparable staging, and greater non-LC mortality relative to LC mortality (effect size=0.30, p<0.0001). In participants with no AL, screening with CT was associated with a significant reduction in LC deaths relative to chest X-ray (30.3%, 95% CI 4.5% to 49.2%, p<0.05). The clinically relevant but attenuated reduction in those with AL (18.5%, 95% CI -8.4% to 38.7%, p>0.05) could be attributed to GOLD 3-4, where no appreciable mortality reduction was observed.

Conclusion: Despite a greater risk of LC, severe AL was not associated with any apparent reduction in LC mortality following screening.

Keywords: COPD epidemiology; Lung Cancer.

Conflict of interest statement

Competing interests: None declared.

Review

Cleve Clin J Med

. 2022 Dec 1;89(12):712-718.

doi: 10.3949/ccjm.89a.21084.

On the horizon: Extracorporeal carbon dioxide removal

Justin Hanks[1], Steven Fox[2], Omar Mehkri[3], Laura W Lund[4], Tracey Dill[5], Abhijit Duggal[6], Sudhir Krishnan[7]

Affiliations expand

- PMID: 36455974

- DOI: 10.3949/ccjm.89a.21084

Free article

Abstract

Extracorporeal carbon dioxide removal ($ECCO_2R$) uses mechanical systems to treat hypercapnic respiratory failure. Its utility has been investigated in acute respiratory distress syndrome (ARDS), acute exacerbations of chronic obstructive pulmonary disease (COPD), and status asthmaticus, and as a bridge to lung transplant. In this review, we discuss how it works, why it should help, and current evidence supporting its use.

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CCJM FULL TEXT

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ERJ Open Res

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. 2022 Nov 28;8(4):00131-2022.

doi: 10.1183/23120541.00131-2022. eCollection 2022 Oct.

Exercise rehabilitation in COPD and heart failure: comparison of two national audits

Amy V Jones[1 2 3], Rachael A Evans[1 2], Alexander S Harrison[4], Lauren B Sherar[3], Michael C Steiner[1], Patrick Doherty[4], Sally J Singh[1 2 3]

Affiliations expand

- PMID: 36451843

- PMCID: PMC9703148

- DOI: 10.1183/23120541.00131-2022

Free PMC article

Abstract

Background: Pulmonary (PR) and cardiac rehabilitation (CR) are recommended in the management of chronic obstructive pulmonary disease (COPD) and chronic heart failure (CHF); the impact of coexisting COPD and CHF on completion and outcomes of rehabilitation programmes is unknown. We examined enrolment, completion and clinical outcomes of CR and PR in adults with COPD, CHF and coexisting COPD and CHF.

Methods: The National Audit of CR and National COPD Audit Programme: clinical audits of PR were analysed (211 PR and 237 CR programmes); adults with a diagnosis of CHF, COPD or coexisting COPD and CHF were identified (COPD+CHF or CHF+COPD according to database). Propensity matching was conducted (age, sex, body mass index and functional status) between COPD+CHF and COPD, and CHF+COPD and CHF. Group by time interaction was examined using mixed 2×2 analysis of variance.

Results: Those with CHF+COPD had lower enrolment and completion of CR compared to those with CHF; there were no differences in PR enrolment or completion between the two groups. Adults with COPD made a significantly larger gain in the incremental shuttle walk test compared to adults with COPD+CHF following PR (59.3 m *versus* 37.4 m); the improvements following CR were similar (CHF 77.3 m *versus* CHF+COPD 58.3 m). Similar improvements were made in the 6-min walk test following CR (CHF 45.1 m *versus* CHF+COPD 38.8 m) and PR (COPD 48.2 m *versus* COPD+CHF 44.0 m). Comparable improvements in quality of life and mood state were made following CR and PR, regardless of diagnosis.

Conclusion: We have demonstrated that multi-morbid adults benefit from exercise-based rehabilitation, yet efforts are needed to promote completion. These findings support group-based, tailored, multi-morbid exercise rehabilitation.

Conflict of interest statement

Conflict of interest: A.V. Jones has nothing to disclose. Conflict of interest: R.A. Evans reports grants or contracts from NIHR/UKRI, a speaker fee for a lecture received from Boehringer, and support for attending a meeting received from Chiesi, alloutside the submitted work; and is the Secretary of ERS Group 01.02 (Pulmonary Rehabilitation), which is an unpaid role. Conflict of interest: A.S. Harrison has received support for the present manuscript from the British Heart Foundation. The author is currently employed through the National Audit of Cardiac Rehabilitation, which is a charity-funded research group. Funding of the National Audit, research grant reference 040/HI/19/20/NACR, was received from the British Heart Foundation, outside the submitted work. Conflict of interest: L.B. Sherar has received consulting fees from Teach Active LTD, outside the submitted work. Conflict of interest: M.C. Steiner has nothing to disclose. Conflict of interest: P. Doherty has nothing to disclose. Conflict of interest: S.J. Singh has nothing to disclose.

- 45 references
- 1 figure

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Aust J Gen Pract

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. 2022 Dec;51(12):929-934.

doi: 10.31128/AJGP-08-22-6536.

Respiratory inhalers and the environment

Brett D Montgomery[1], John D Blakey[2]

Affiliations expand

- PMID: 36451327

- DOI: 10.31128/AJGP-08-22-6536

Abstract

Background: Several million inhalers are used annually by the millions of Australians with respiratory conditions such as asthma and chronic obstructive pulmonary disease (COPD). Prescriptions in primary care tend to be for pressurised metered-dose inhalers (pMDIs), and consumers can purchase pMDI salbutamol over the counter. These inhalers contain potent greenhouse gases.

Objective: This article briefly summarises the scale of the problem caused by pMDI propellants before discussing options available to general practitioners to mitigate their environmental impact while maintaining high-quality patient care.

Discussion: The best inhaler for any patient is one that they can and will use as prescribed. However, for many people with chronic airways diseases, the environmental impact of their inhalers can be considered when doctors make prescribing choices, at least until newer, more climate-friendly propellants are introduced. Other aspects of asthma and COPD management that minimise environmental impact are also important.

Review

Eur Respir Rev

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. 2022 Nov 29;31(166):220099.

doi: 10.1183/16000617.0099-2022. Print 2022 Dec 31.

Inhaled corticosteroids for the treatment of COVID-19

Mona Bafadhel[1], Rosa Faner[2], Camille Taillé[3], Richard E K Russell[4], Tobias Welte[5], Peter J Barnes[6], Alvar Agustí[7]

Affiliations expand

- PMID: 36450371

- DOI: 10.1183/16000617.0099-2022

Free article

Abstract

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has caused severe illness and mortality for millions worldwide. Despite the development, approval and rollout of vaccination programmes globally to prevent infection by SARS-CoV-2 and the development of coronavirus disease 2019 (COVID-19), treatments are still urgently needed to improve outcomes. Early in the pandemic it was observed that patients with pre-existing asthma or COPD were underrepresented among those with COVID-19. Evidence from clinical studies indicates that the inhaled corticosteroids (ICS) routinely taken for asthma and COPD could have had a protective role in preventing severe COVID-19 and, therefore, may be a promising treatment for COVID-19. This review summarises the evidence supporting the beneficial effects of ICS on outcomes in patients with COVID-19 and explores the potential protective mechanisms.

Conflict of interest statement

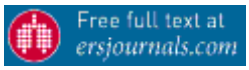
Conflict of interest: M. Bafadhel has unrestricted research grants from AstraZeneca and Roche, and has received honoraria to her institution for speaker's fees from AstraZeneca, Chiesi, Cipla and GlaxoSmithKline. She is a scientific adviser to Albus Health and ProAxsis. Conflict of interest: R. Faner has received research funding, advisory board fees and lecture fees from AstraZeneca, Chiesi, GlaxoSmithKline and Menarini. Conflict of interest: C. Taillé has received grants to her institution, advisory board fees and lecture fees from AstraZeneca, Chiesi, GlaxoSmithKline, Novartis and Sanofi. Conflict of interest: R.E.K. Russell has received advisory board fees and lecture fees from AstraZeneca, Chiesi, Cipla and GlaxoSmithKline. Conflict of interest: T. Welte has received lecture fees from AstraZeneca, Basilea, Bayer, Berlin Chemie, Biotest, Boehringer Ingelheim, GlaxoSmithKline, MSD,

Novartis, Pfizer, Roche and Sanofi-Aventis, and advisory board fees from AstraZeneca, Basilea, Bayer, Biotest, Boehringer Ingelheim, Gilead, GlaxoSmithKline, Janssen, Novartis, Pfizer and Roche. Conflict of interest: P.J. Barnes has received research funding from AstraZeneca and Boehringer Ingelheim, and funding for consultancy, scientific advisory boards and talks from AstraZeneca, Boehringer Ingelheim, Covis, Epi-Endo, Novartis, Pieris and Teva. Conflict of interest: A. Agustí has unrestricted research grants from AstraZeneca and GlaxoSmithKline, and has received honoraria for speaker's fees from AstraZeneca, Chiesi, GlaxoSmithKline, Menarini, Orion Pharma and Zambon.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS



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Ann Am Thorac Soc

. 2022 Nov 30.

doi: 10.1513/AnnalsATS.202203-237OC. Online ahead of print.

Promoting Participation in Pulmonary Rehabilitation following Hospitalization for Chronic Obstructive Pulmonary Disease, Strategies of Top-performing Systems: A Qualitative Study

Kerry A Spitzer[1], Mihaela S Stefan[1], Aruna Priya[1], Quinn R Pack[1,2,3], Penelope S Pekow[1], Tara Lagu[4,5,1], Kathy Mazor[6], Victor M Pinto-Plata[7], Kolbi Bradley[1], Brent Heineman[1], Richard L ZuWallack[8], Peter K Lindenauer[9]

Affiliations expand

- PMID: 36449407

- DOI: 10.1513/AnnalsATS.202203-237OC

Abstract

Rationale: Pulmonary rehabilitation (PR) after a hospitalization for COPD is recommended by guidelines, however few patients participate and rates vary between hospitals.

Objective: To identify contextual factors and strategies that may promote participation in PR following hospitalization for COPD.

Methods: Using a positive-deviance approach, we calculated hospital-specific rates of PR after hospitalization for COPD among a cohort of Medicare beneficiaries. At a purposive sample of high-performing and innovative hospitals in the United States we conducted in-depth interviews with key stakeholders. We defined high-performing hospitals as having a PR rate above the 95th Percentile, ≥ 6.58%. To learn from hospitals that demonstrated a commitment to improving rates of PR, regardless of post-discharge PR rates, we identified innovative hospitals based on a review of American Thoracic Society conference research presentations from prior years. Interviews were audio-recorded and transcribed verbatim. Using a directed content analysis approach, transcripts were coded iteratively to identify themes.

Results: Interviews were conducted with 38 stakeholders at 9 hospitals (7 high-performers and 2 innovators). Hospitals were diverse regarding size, teaching status, PR program characteristics, and geographic location. Participants included PR Medical Directors, PR managers, respiratory therapists, inpatient and outpatient providers and others. We found that high-performing hospitals were broadly focused on improving care for patients with COPD, and several had recently implemented new initiatives to reduce rehospitalizations after an admission for COPD in response to CMS/Medicare's Hospital Readmission Reduction Program. Innovative and high-performing hospitals had systems in place to identify patients with COPD that enabled them to provide patient education and targeted discharge planning. Strategies took several forms, including the use of a COPD navigator or educator. In addition, we found that high-performing hospitals reported effective interprofessional and patient communication, had clinical champions or external change agents, and received support from hospital leadership. Specific strategies to promote PR included education of referring providers, education of patients to increase awareness of PR and its benefits, and direct assistance overcoming barriers.

Conclusions: Our findings suggest that successful efforts to increase participation in PR may be most effective when part of larger strategy to improve outcomes for patients with COPD. Further research is necessary to test the generalizability of our findings.

Int J Tuberc Lung Dis

. 2022 Dec 1;26(12):1191-1193.

doi: 10.5588/ijtld.22.0337.

Association between chronic obstructive pulmonary disease and biomass smoke in rural areas

A Ramírez-Venegas[1], F Montiel-Lopez[1], J L Pérez Lara-Albisua[2], A Aranda-Chávez[3], H Perea-Gutiérrez[1], R Falfán-Valencia[4], G Pérez-Rubio[4], R Pérez-Padilla[1], M Ramírez-Díaz[5], M L Martínez-Gómez[6], F Cruz-Vicente[7], I Thirión-Romero[1], R H Sansores[8]

Affiliations expand

- PMID: 36447308

- DOI: 10.5588/ijtld.22.0337

No abstract available

Editorial

Respir Care

. 2022 Dec;67(12):1642-1643.

doi: 10.4187/respcare.10679.

Treating Failure of Noninvasive Ventilation for Acute Respiratory Failure Due to COPD: Sooner the Better

Anjan Devaraj[1], Anas Ahmed[1], Nicholas S Hill[2]

Affiliations expand

- PMID: 36442986

- DOI: 10.4187/respcare.10679

No abstract available

Conflict of interest statement

The authors have disclosed no conflicts of interest.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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PLoS One

. 2022 Nov 28;17(11):e0276368.

doi: 10.1371/journal.pone.0276368. eCollection 2022.

Association between use of ß2-adrenergic receptor agonists and incidence of Parkinson's disease: Retrospective cohort analysis

Hasan Nadeem[1], Bo Zhou[2 3], Dana Goldman[2 3 4], John Romley[2 3 4]

Affiliations expand

- PMID: 36441791

- DOI: 10.1371/journal.pone.0276368

Free article

Abstract

Introduction: Previous observational studies assessing β2-agonist/-antagonist use on PD risk have yielded conflicting results. We evaluated the relationship between β2-agonist use and the incidence of Parkinson's disease in patients with chronic lung disease.

Methods: We performed a retrospective cohort analysis on a 20% random sample abstracted from a traditional (fee-for-service) Medicare program in the United States. Inclusion criteria were individuals over 65 years old diagnosed with asthma, COPD, and/or bronchiectasis who were enrolled in a prescription drug (standalone Part D) plan over 2007-2010 and alive through 2014. The main outcome measure was a diagnosis of Parkinson's disease over the period 2011-2014, in relation to the number of 30-day-equivalent drug claims over 2007-2010. Logistic regression analysis was performed on a sample including 236,201 Medicare beneficiaries.

Results: The sample was 68% female, 80% white, and on average 77 years old as of 2010. Compared to non-users, β2-agonist users were more likely to be younger (76.3y versus 78.0y), smokers (40.4% versus 31.1%) and asthmatic (62.4% versus 28.3%). The odds ratio for a β2-agonist claim on PD development was 0.986 (95% CI 0.977-0.995) after adjusting for demographics, smoking history, respiratory exacerbations, comorbidities, and other drug use. Risk reductions were larger for males than females (0.974 versus 0.994, P = 0.032), and for individuals with COPD compared to those with asthma (0.968 versus 0.998, P = 0.049). Reverse causality was addressed with a Cox analysis that allowed β2-agonist use to vary from medication initiation to disease onset. By the end of the follow-up period, β2-agonist use was shown to be associated with a true protective effect against PD onset.

Discussion: β2-agonist use is associated with decreased risk of PD incidence. Further investigation, possibly including clinical trials, is warranted to strengthen the evidence base supporting clinical decision-makers looking to repurpose pharmaceuticals to prevent neurodegenerative disease onset.

Conflict of interest statement

I have read the journal’s policy and the authors of this manuscript have the following competing interests: During the past three years, Dana Goldman (DG) has received research support, speaker fees, travel assistance, or consulting income from the following sources: Amgen, Blue Cross Blue Shield of Arizona, Bristol Myers Squibb, Cedars-Sinai Health System, Edwards Lifesciences, Gates Ventures, Genentech, Gilead Sciences, Johnson & Johnson, Kaiser Family Foundation, National Institutes of Health, Novartis, Pfizer, Roche, and Walgreens Boots Alliance. DG holds equity in EntityRisk. DG reports personal fees from Biogen and GRAIL as a scientific advisor. Until November 2019, DG served on the Scientific Advisory Board of ACADIA Pharmaceuticals. Until March 2020, DG served as a scientific

advisor to Precision Medicine Group. This does not alter our adherence to PLOS ONE policies on sharing data and materials.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

J Manag Care Spec Pharm

. 2022 Dec;28(12):1366-1377.

doi: 10.18553/jmcp.2022.28.12.1366.

Prompt initiation of triple therapy following hospitalization for a chronic obstructive pulmonary disease exacerbation in the United States: An analysis of the PRIMUS study

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Affiliations expand

- PMID: 36427341

- DOI: 10.18553/jmcp.2022.28.12.1366

Abstract

BACKGROUND: Severe exacerbations requiring hospitalization contribute a substantial portion of the morbidity and costs of chronic obstructive pulmonary disease (COPD). Triple therapy (inhaled corticosteroid + long-acting β-agonist + long-acting muscarinic antagonist) is a recommended option for patients who experience recurrent COPD exacerbations or persistent symptoms. Few real-world studies have specifically examined the effect of prompt initiation of triple therapy, specifically among patients hospitalized for a COPD exacerbation. **OBJECTIVE:** To assess whether prompt initiation of triple therapy following a severe COPD exacerbation was associated with lower risk of subsequent exacerbations and lower health care use and costs and the effects of each 30-day delay of initiation. **METHODS:** Adults aged 40 years or older with COPD were identified in the Merative MarketScan Databases between January 1, 2010, and December 31, 2019, and were required to meet the following criteria: open or closed triple therapy (date of first closed prescription or last component of open=index treatment date), more than 1 inpatient admission with a primary COPD diagnosis (ie, severe exacerbation) in the prior 12 months (index exacerbation), 12 months of continuous enrollment before (baseline) and after (follow-up) index exacerbation, and absence of select respiratory diseases and cancer. Patients were stratified based on timing of open or closed triple therapy after the index exacerbation: prompt (≤30 days), delayed (31-180 days), or very delayed (181-365 days). Multivariable regression controlled for baseline characteristics (age, sex, insurance type, index year, comorbidities, prior treatment, and prior exacerbations) and estimated the odds of subsequent exacerbations, change in the number of exacerbations, and change in health care costs during 12-month follow-up associated with each 30-day delay of triple therapy initiation. **RESULTS:** A total of 6,772 patients met inclusion criteria (2,968 [43.8%] prompt, 1,998 [29.5%] delayed, and 1,806 [26.7%] very delayed). The adjusted odds of any exacerbation and a severe exacerbation during 12-month follow-up increased by 13% (odds ratio [95% CI]: 1.13 [1.11-1.15]) and 10% (1.10 [1.08-1.12]), respectively, for each 30-day delay in triple therapy initiation, and the mean number of exacerbations increased by 5.4% (95% CI = 4.7%-6.1%). There was a 3.0% increase (95% CI = 2.2%-3.8%) in mean all-cause costs and a 3.7% increase (95% CI = 2.9%-4.6%) in total COPD-related costs for each 30-day delay of triple therapy initiation. **CONCLUSIONS:** Longer delays in triple therapy initiation after a COPD hospitalization result in greater risk of subsequent exacerbations and higher health care resource use and costs. Adequate post-discharge follow-up care and earlier consideration of triple therapy may improve clinical and economic outcomes among patients with COPD. **DISCLOSURES:** This study was funded by AstraZeneca. Dr Evans is employed by Merative, formerly IBM Watson Health, and Mr Tkacz was employed by IBM Watson Health at the time of this study; Merative/IBM Watson Health received funding from AstraZeneca to conduct this study. Mr Pollack, Dr Staresinic, Dr Feigler, and Dr Patel are employed by AstraZeneca. Dr Touchette, Dr Portillo, and Dr Strange are paid consultants to AstraZeneca. Dr Strange also participates in research grants paid to the

Medical University of South Carolina by AstraZeneca, CSA Medical, and Nuvaira, and is a consultant to GlaxoSmithKline, Morair, and PulManage regarding COPD.

SUPPLEMENTARY INFO

MeSH termsexpand

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Clin Respir J

. 2022 Dec;16(12):826-834.

doi: 10.1111/crj.13554. Epub 2022 Nov 22.

Chronic obstructive pulmonary disease is associated with an increased risk of herpes zoster: A retrospective United States claims database analysis

Philippe Thompson-Leduc[1], Parinaz Ghaswalla[2], Wendy Y Cheng[3], Min-Jung Wang[3], Michael Bogart[4], Brandon J Patterson[2], Mei Sheng Duh[3], Suna Park[3], Barbara P Yawn[5]

Affiliations expand

- PMID: 36415956

- DOI: 10.1111/crj.13554

Abstract

Chronic obstructive pulmonary disease (COPD) has been reported as a potential risk factor for developing herpes zoster (HZ). We aimed at comparing incidence rates of HZ between people with versus without COPD in the US. This retrospective cohort study used data from Optum's de-identified Clinformatics Data Mart database from 1/1/2013 through 12/31/2018. We identified two cohorts of people ≥40 years without prior HZ, HZ vaccination, postherpetic neuralgia (PHN) or HZ ophthalmicus: those with (COPD+) and those without (COPD-) a COPD diagnosis. Adjusted incidence rate ratios (aIRRs) of HZ and PHN were calculated using generalized linear models, controlling for the propensity score of being diagnosed with COPD and relevant demographic and clinical characteristics. People in the COPD+ cohort (n = 161 970) were considerably older, had more comorbidities and were more likely to use corticosteroids than those in the COPD- cohort (n = 9 643 522). The incidence rate of HZ was 5.7-fold higher in the COPD+ versus COPD- cohorts (13.0 vs. 2.3 per 1000 person-years [PY]; aIRR, 2.77; 95% confidence interval [CI], 2.69 to 2.85; P < 0.001). The unadjusted incidence rate of PHN was 1.7-fold higher in the COPD+/HZ+ versus COPD-/HZ+ cohort (64.8 vs. 37.1 per 1000 PY), but not after adjustment (aIRR, 1.07; 95% CI, 0.79 to 1.45). HZ and PHN incidence rates increased with age. After adjustment, COPD+ adults had a 2.8-fold increased risk of developing HZ. These results may help to increase awareness about potential risk factors for HZ and highlight the need for vaccination among those at increased risk.

Keywords: United States; chronic obstructive pulmonary disease; herpes zoster; incidence rate.

- 27 references

SUPPLEMENTARY INFO

Grant supportexpand

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18

Comput Biol Med

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doi: 10.1016/j.compbiomed.2022.106187. Epub 2022 Oct 13.

White blood cell count and chronic obstructive pulmonary disease: A Mendelian Randomization study

Zhifa Han[1], Huiyuan Hu[2], Peiran Yang[3], Baicun Li[3], Guiyou Liu[4], Junling Pang[5], Hongmei Zhao[6], Jing Wang[7], Chen Wang[8]

Affiliations expand

- PMID: 36327882

- DOI: 10.1016/j.compbiomed.2022.106187

Free article

Abstract

Blood leukocyte counts (e.g., eosinophil count) are important biomarkers for the onset, classification, and exacerbation of chronic obstructive pulmonary disease (COPD). The causal relationships between them are necessary for the development of COPD treatment strategy, but remain unclear. Here, we implement two-sample bi-directional univariable Mendelian Randomization (MR) and multivariable MR to investigate the causal relationships. Univariable MR find that elevated blood eosinophil count significantly increases the risk of COPD (odds ratio (OR) = 1.22, 95% confidence interval (CI): 1.14-1.30, $P = 1.54 \times 10^{-09}$) and COPD-related hospitalization (OR = 1.44, 95% CI: 1.15-1.80, $P = 1.36 \times 10^{-03}$). Besides, it also significantly decreases the ratio of forced expiratory volume in the first second over forced vital capacity (FEV_1/FVC ratio) (OR = 0.942, 95% CI: 0.914-0.971, $P = 1.02 \times 10^{-04}$). These findings are fully supported by multivariate MR results. Interestingly, univariable MR reveals a weak causal relationship between elevated blood eosinophil count and COPD risk in younger people (<65 years) (OR = 1.39, 95% CI: 1.10-1.75, $P = 5.52 \times 10^{-03}$), but not older individuals (OR = 1.20, 95% CI: 0.926-1.55, P = 0.17). Finally, reverse univariable MR reveals the onset of COPD and the decreased FEV_1/FVC ratio both lead to

increased blood neutrophil count (OR = 1.03, 95% CI: 1.01-1.05, P = 3.40 × 10^{-03} and OR = 0.947, 95% CI: 0.91-0.986, P = 8.75 × 10^{-03} respectively). In summary, this MR study demonstrates that high blood eosinophil count is an independent causal mediator of COPD risk, FEV_1/FVC decline, and COPD-related hospitalization. The increase in neutrophil count is induced by COPD onset or FEV_1/FVC decline. This suggests eosinophil, but not neutrophil, may be used as a therapeutic target for preventing the onset and exacerbation of COPD and FEV_1/FVC decline. Therefore, a non-neutrophil-targeted therapeutic strategy for neutrophilic COPD is required in the future.

Keywords: Chronic obstructive pulmonary disease; Eosinophil; Mendelian randomization; Neutrophil.

Conflict of interest statement

Declarations competing interest ZFH: conflicts of interest-none, financial disclosures-none HYH: conflicts of interest-none, financial disclosures-none PRY: conflicts of interest-none, financial disclosures-none BCL: conflicts of interest-none, financial disclosures-none GYL: conflicts of interest-none, financial disclosures-none JLP: conflicts of interest-none, financial disclosures-none HMZ: conflicts of interest-none, financial disclosures-none JW: conflicts of interest-none, financial disclosures-none CW: conflicts of interest-none, financial disclosures-none

 2022 Dec;482:153355.

doi: 10.1016/j.tox.2022.153355. Epub 2022 Oct 18.

A hypoxia-driven occurrence of chronic kidney disease and osteoporosis in COPD individuals: New insights into environmental cadmium exposure

Aleksandar Cirovic[1], Aleksandar Denic[2], Bart L Clarke[3], Robert Vassallo[4], Ana Cirovic[1], Greg M Landry[5]

Affiliations expand

- PMID: 36265524

- DOI: 10.1016/j.tox.2022.153355

Abstract

Humans are exposed to cadmium via a variety of anthropogenic and natural pathways. Hypoxia, a key pathophysiological consequence of chronic obstructive pulmonary disease (COPD), as well as anemia, induce expression of many genes, including divalent metal transporter (DMT-1) , to induce cell adaptation to decreased pO_2. DMT-1 then becomes increasingly expressed in a majority of organs, specifically the duodenum and the kidney. DMT-1 serves as an iron transporter; however, it can transport other physiologically important elements, including manganese (Mn^{2+}) and zinc (Zn^{2+}), as well as highly toxic divalent cations such as cadmium (Cd^{2+}). Chronic obstructive pulmonary disease (COPD) is a highly prevalent, non-communicable disease in populations > 40 years of age, and is a leading cause of death worldwide. Occurrence of comorbidities accompanying COPD, such as chronic kidney disease (CKD) and osteoporosis increase the mortality rate and costs of treatment. As cadmium has been shown to be significantly osteo- and nephrotoxic, its hazardous effects could deteriorate bone microarchitecture and decrease kidney function positioning it as a likely environmental contributor to comorbidity development. In this review, we highlight the important contribution of hypoxia-induced DMT-1 expression mediating a cadmium (Cd^{2+}) overload-induced CKD and osteoporosis axes. Furthermore, individuals who suffer from chronic lung disease with hypoxic respiratory failure, such as severe COPD appear to be significantly more sensitive to cadmium toxicity than healthy individuals.

Keywords: Cadmium; Chronic kidney disease; Chronic obstructive pulmonary disease; Divalent metal transporter 1; Hypoxia; Osteoporosis.

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 types, MeSH terms, Substancesexpand

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Pulm Pharmacol Ther

. 2022 Dec;77:102169.

doi: 10.1016/j.pupt.2022.102169. Epub 2022 Oct 14.

Assessment of extrafine beclomethasone/formoterol for the treatment of chronic obstructive pulmonary disease: A non-interventional study in a Bulgarian population

Vladimir A Hodzhev[1], Andrey N Kenderov[2], Yavor Y Ivanov[3], Diana P Gospodinova-Vulkova[4], Krasimir Kalinov[5]

Affiliations expand

- PMID: 36252915

- DOI: 10.1016/j.pupt.2022.102169

Free article

Abstract

Background: The beneficial effects of application of a fixed dose beclomethasone dipropionate (BDP) and formoterol fumarate (F) for the treatment of severe chronic obstructive disease (COPD) has been amply proven in well controlled clinical trials. Whether this also holds for real-world conditions and in such a heterogeneous patient population as is encountered in Bulgaria remained to be investigated.

Methods: In an observational, non-interventional study, 441 Bulgarian patients with severe COPD who were enrolled at 36 sites across the country received extrafine BDP/FF-combination therapy using the NEXThaler® DPI or the Foster® pMDI over a period of 16 weeks. At visits at the beginning, after 4 weeks and at the end of the study, alterations in lung function parameters FEV_1 and FVC, disease symptoms, changes in CAT score, and patient distribution in GOLD 2017 categories A through D were assessed.

Results: A large share of the Bulgarian patients with severe COPD suffered from serious comorbidities, received additional medication, and about 2/3 were former or current smokers. Extrafine BDP/FF caused an increase in mean FEV_1, FVC, a decrease of health impact as assessed by the CAT score, and a considerable shift of the share of category C and D patients towards A and B. In addition, the percentage of patients that were free of symptoms impacting everyday life such as fatigue and shortness of breath at rest increased throughout the study. A comparison of both application devices indicated that the NEXThaler® was superior in terms of lung functional aspects, as these parameters displayed a constant improvement over the observation period, whereas they plateaued at week 4 when using the pMDI.

Conclusions: The therapeutic benefits of extrafine BDP/FF known from clinical trials could also be observed in a real-world setting, even in such a heterogenous patient population as the Bulgarian. The NEXThaler® appeared to be highly efficient in this setting, opening a new choice for the lung specialist and the patient to select the one device considered most suitable and practical.

Keywords: Bulgaria; COPD; Extrafine DPI; NEXThaler®; pMDI.

Conflict of interest statement

Declaration of competing interest VH have received speaking fees and payments for advisory board meetings from Chiesi Farmaceutici S.p.A., AstraZeneca and Boehringer Ingelheim, speaking fees from Berlin-Chemie and Teva; AK; YI has received speaking fees and advisory board meetings from Chiesi Farmaceutici S.p.A. AstraZeneca, Boehringer Ingelheim; DG-V have received speaking fees and advisory board meetings from Chiesi Farmaceutici S.p.A. AstraZeneca, Boehringer Ingelheim; KK.

Semin Respir Crit Care Med

. 2022 Dec;43(6):825-838.

doi: 10.1055/s-0042-1755567. Epub 2022 Oct 17.

Chronic Obstructive Pulmonary Disease and Small Airways Diseases

Brett M Elicker[1]

Affiliations expand

- PMID: 36252610

- DOI: 10.1055/s-0042-1755567

Abstract

The small airways are a common target of injury within the lungs and may be affected by a wide variety of inhaled, systemic, and other disorders. Imaging is critical in the detection and diagnosis of small airways disease since significant injury may occur prior to pulmonary function tests showing abnormalities. The goal of this article is to describe the typical imaging findings and patterns of small airways diseases. An approach which divides the imaging appearances into four categories (tree-in-bud opacities, poorly defined centrilobular nodules, mosaic attenuation, and emphysema) will provide a framework in which to formulate appropriate and focused differential diagnoses.

Conflict of interest statement

None declared.

Review

Lung

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-

. 2022 Dec;200(6):691-696.

doi: 10.1007/s00408-022-00579-2. Epub 2022 Oct 14.

Impact of Biologic Therapy on the Small Airways Asthma Phenotype

Rory Chan[1], Brian J Lipworth[2]

Affiliations expand

- PMID: 36239786
- PMCID: PMC9675679
- DOI: 10.1007/s00408-022-00579-2

Free PMC article

Abstract

The small airways dysfunction (SAD) asthma phenotype is characterised by narrowing of airways < 2 mm in diameter between generations 8 and 23 of the bronchial tree. Recently, this has become particularly relevant as measurements of small airways using airway oscillometry for example, are strong determinants of asthma control and exacerbations in moderate-to-severe asthma. The small airways can be assessed using spirometry as forced expiratory flow rate between 25 and 75% of forced vital capacity (FEF_{25-75}) and has been deemed more accurate in detecting small airways dysfunction than forced expiratory volume in 1 s (FEV_1). Oscillometry as the heterogeneity in resistance between 5 and 20 Hz (R5-R20), low frequency reactance at 5 Hz (X5) or area under the reactance curve between 5 Hz and the resonant frequency can also be used to assess the small airways. The small airways can also be assessed using the multiple breath nitrogen washout (MBNW) test giving rise to values including functional residual capacity, lung clearance index and ventilation distribution heterogeneity in the conducting (Scond) and the acinar (Sacin) airways. The ATLANTIS group showed that the prevalence of small airways disease in asthma defined on FEF_{25-75}, oscillometry and MBNW all increased with progressive GINA asthma disease stages. As opposed to topical inhaler therapy that might not adequately penetrate the small airways, it is perhaps more intuitive that systemic anti-inflammatory therapy with biologics targeting downstream cytokines and upstream epithelial anti-alarmins may offer a promising solution to SAD. Here we therefore aim to appraise the available evidence for the effect of anti-IgE, anti-IL5 (Rα), anti-IL4Rα, anti-TSLP and anti-IL33 biologics on small airways disease in patients with severe asthma.

Keywords: Benralizumab; Dupilumab; FEF25–75; Itepekimab; Mepolizumab; Multiple breath nitrogen washout; Omalizumab; Oscillometry; Reslizumab; Severe asthma; Small airways; Tezepelumab.

Conflict of interest statement

Chan reports personal fees (talks) and support attending ERS from AstraZeneca and personal fees (talks) from Thorasys. Lipworth reports non-financial support (equipment) from GSK; grants, personal fees (consulting, talks and advisory board), other support (attending ATS and ERS) and from AstraZeneca; personal fees (talks and consulting) from Sanofi, personal fees (consulting, talks and advisory board) from Circassia in relation to the submitted work; grants, personal fees (consulting, talks, advisory board), other support (attending ERS) from Teva, personal fees (talks and consulting), grants and other support (attending ERS and BTS) from Chiesi, personal fees (consulting) from Lupin, personal fees (consulting) from Glenmark, personal fees (consulting) from Vectura, personal fees (consulting) from Reddy, personal fees (consulting) from Sandoz; grants, personal fees (consulting, talks, advisory board), other support (attending BTS) from Boehringer Ingelheim, grants and personal fees (advisory board and talks) from Mylan outside of the submitted work; and the son of BJL is presently an employee of AstraZeneca.

- 53 references

SUPPLEMENTARY INFO

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Editorial

Am J Respir Cell Mol Biol

. 2022 Dec;67(6):621-622.

doi: 10.1165/rcmb.2022-0371ED.

Inflammatory Alveolar Type 2 Cells in Chronic Obstructive Pulmonary Disease: Impairing or Improving Disease Outcome?

Pavan Prabhala[1], Mattias Magnusson[1]

Affiliations expand

- PMID: 36223081

- DOI: 10.1165/rcmb.2022-0371ED

No abstract available

Comment on

- Anomalous Epithelial Variations and Ectopic Inflammatory Response in Chronic Obstructive Pulmonary Disease.
  Watanabe N, Fujita Y, Nakayama J, Mori Y, Kadota T, Hayashi Y, Shimomura I, Ohtsuka T, Okamoto K, Araya J, Kuwano K, Yamamoto Y.Am J Respir Cell Mol Biol. 2022 Dec;67(6):708-719. doi: 10.1165/rcmb.2021-0555OC.PMID: 36108172

Observational Study

Adv Ther

. 2022 Dec;39(12):5582-5589.

doi: 10.1007/s12325-022-02331-x. Epub 2022 Oct 11.

The Prescribing Practice for COPD: Relationship to Circadian Rhythm, Disease Severity, and Clinical Phenotype in the STORICO Observational Study

Raffaele Antonelli Incalzi[1], Francesco Blasi[2,3], Giorgio Walter Canonica[4], Maria Pia Foschino[5], Renato Prediletto[6], Lucia Simoni[7], Alessandra Ori[7], Clara Giovannetti[8], Stefania Barsanti[8], Nicola Scichilone[9]

Affiliations expand

- PMID: 36219388

- DOI: 10.1007/s12325-022-02331-x

Abstract

Introduction: While selected clinical and laboratory findings are taken into account to find the best therapeutic strategies for chronic obstructive pulmonary disease (COPD), it is unknown whether the circadian rhythm of respiratory symptoms, a distinctive feature of COPD, affects the prescription pattern of pharmacological therapy. The main aim of this study was to verify whether the circadian rhythm of symptoms correlates with bronchodilating therapy prescribed to COPD patients as per clinical practice. A secondary

objective was to assess the relationship between Global Initiative for Chronic Obstructive Lung Disease (GOLD) stage and circadian rhythm of symptoms and health status.

Methods: Five hundred sixty-six COPD patients were enrolled in the Italian multicenter STORICO study. Patients underwent a multidimensional assessment, and correlates of prescribed therapy were assessed through a multivariate multilevel model.

Results: As expected, patients in GOLD D stage were more likely to receive triple inhaled therapy than GOLD A-C patients, but the circadian rhythm of symptoms, assessed by the nighttime, morning, and daytime symptoms of the COPD questionnaire, was unrelated to the prescription pattern. The multivariate model showed that emphysematous (EM) patients had a 50% increased risk compared with patients affected by chronic bronchitis (CB) of being prescribed long-acting β2-agonists (LABA)/long-acting muscarinic antagonist (LAMA) fixed-dose combination (FDC) instead of triple therapy [relative risk (RR) $_{\text{EM versus CB}}$ 1.50, 95% CI 1.11, 2.03]. Symptoms, mainly in the early morning and daytime, were highly prevalent, even in GOLD B stage (76%).

Conclusion: Even if we cannot infer about causality of the symptoms-therapy relationship, based on the structured recording of circadian symptoms clearly shows that symptoms are poorly controlled as the circadian rhythm of symptoms does not correlate with the prescription pattern, and many patients are symptomatic both at daytime and by nighttime. Thus, therapy should be better tailored to the individual needs, with special attention to control nocturnal symptoms.

Trial registration: ClinicalTrials.gov identifier, NCT03105999.

Keywords: COPD; Circadian rhythm; Clinical phenotype; Observational; Prescribed therapies; Real-world.

- 15 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Associated dataexpand

FULL TEXT LINKS

SpringerLink FULL-TEXT ARTICLE

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Cite

Respir Care

. 2022 Dec;67(12):1517-1526.

doi: 10.4187/respcare.10155. Epub 2022 Oct 4.

Timing of Treatment Outcomes and Risk Factors for Failure of BPAP in Patients Hospitalized for COPD Exacerbation

Christopher L Mosher[1], Jeremy M Weber[2], Bhargav S Adagarla[3], Megan L Neely[4], Scott M Palmer[5], Neil R MacIntyre[6]

Affiliations expand

- PMID: 36195347

- DOI: 10.4187/respcare.10155

Abstract

Background: Patients hospitalized for COPD exacerbation have an increased risk of mortality, particularly among those who fail bi-level positive airway pressure (BPAP) for hypercapnic respiratory failure subsequently requiring invasive mechanical ventilation. Therefore, we sought to investigate the treatment course of BPAP and factors associated with BPAP treatment failure.

Methods: We performed a retrospective cohort study using real-world evidence to investigate subjects with COPD who were treated with BPAP during a hospitalization for COPD exacerbation. Treatment outcomes were defined within 7 d from BPAP initiation as either failure, persistent, or success. Failure was defined as death or progression to invasive ventilation. Persistent was defined as receiving BPAP during hospital day 7. Success was defined as liberation from BPAP prior to hospital day 7 and not meeting criteria for failure.

Unadjusted multinomial logistic regression models were used to examine the association between BPAP treatment outcomes and 17 recipient characteristics.

Results: Among the 427 clinical encounters, 78% were successful, 10% were persistent, and 12% experienced failure. The median time to failure and success was 8 h and 16 h, respectively. Increasing age, body mass index (BMI), bicarbonate level, and creatinine level were significantly associated with either BPAP treatment failure, persistent treatment, or both.

Conclusions: The first 8 h following initiation of BPAP is a critical time period where patients are at high risk for life-threatening decompensation. Careful consideration should be given to increasing age, BMI, bicarbonate level, and creatinine level as these factors were associated with BPAP treatment failure or persistent treatment.

Keywords: COPD; bi-level positive airway pressure (BPAP); electronic health record; exacerbation; hypercapnic respiratory failure; noninvasive ventilation; risk factors.

Conflict of interest statement

Dr MacIntyre discloses relationships with InspiRx, Phillips, Hillrom, and Inogen. The remaining authors have disclosed no conflicts of interest.

. 2022 Dec;19(6):445-457.

doi: 10.1007/s11897-022-00582-x. Epub 2022 Sep 30.

Defining the Phenotypes for Heart Failure With Preserved Ejection Fraction

Dane Rucker[1], Jacob Joseph[2,3]

Affiliations expand

- PMID: 36178663

- DOI: 10.1007/s11897-022-00582-x

Abstract

Purpose of review: Heart failure with preserved ejection fraction (HFpEF) imposes a significant burden on society and healthcare. The lack in efficacious therapies is likely due to the significant heterogeneity of HFpEF. In this review, we define various phenotypes based on underlying comorbidities or etiologies, discuss phenotypes arrived at by novel methods, and explore therapeutic targets.

Recent findings: A few studies have used machine learning methods to uncover sub-phenotypes within HFpEF in an unbiased manner based on clinical features, echocardiographic findings, and biomarker levels. We synthesized the literature and propose three broad phenotypes: (1) young, with few comorbidities, usually obese and with low natriuretic peptide levels, (2) obese with substantive cardiometabolic burden and comorbidities and impaired ventricular relaxation, (3) old, multimorbid, with high rates of atrial fibrillation, renal and coronary artery disease, chronic obstructive pulmonary disease, and left ventricular hypertrophy. We also propose potential therapeutic strategies for these phenotypes.

Keywords: Biomarkers; Heart failure with preserved ejection fraction; Imaging; Machine learning; Phenotypes; Precision medicine.

- 122 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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27

Am J Respir Crit Care Med

. 2022 Dec 1;206(11):1408-1417.

doi: 10.1164/rccm.202202-0335UP.

Selected Bibliography of Recent Research in Chronic Obstructive Pulmonary Disease

Ashraf Fawzy[1], Jonathan R Baker[2], Thomas L Keller[3], Laura C Feemster[3,4], Louise E Donnelly[2], Nadia N Hansel[1]

Affiliations expand

- PMID: 36178396

- DOI: 10.1164/rccm.202202-0335UP

No abstract available

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

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Review

Curr Opin Allergy Clin Immunol

-
-
-

. 2022 Dec 1;22(6):335-342.

doi: 10.1097/ACI.0000000000000856. Epub 2022 Sep 19.

Bronchiectasis and obstructive lung diseases in primary antibody deficiencies and beyond: update on management and pathomechanisms

Leif G Hanitsch[1,2]

Affiliations expand

- PMID: 36165423

- DOI: 10.1097/ACI.0000000000000856

Abstract

Purpose of review: Pulmonary complications are among the most frequent manifestations in patients with primary antibody deficiency (PAD), contributing significantly to morbidity and mortality. Here, we focus on recent findings in obstructive pulmonary disease and bronchiectasis in PAD. Since specific data on patients with PAD is limited and management mostly follows general recommendations, this review also aims to summarize data from the immunocompetent population.

Recent findings: Potential risk factors for the development and progression of bronchiectasis include reduced immunoglobulins and lower CD4 cells. In addition, Pseudomonas aeruginosa and an altered microbiome might contribute to local inflammation and disease progression. Findings on the contribution of neutrophils and eosinophils in the affected immunocompetent population require confirmation in PAD. Despite its high global burden, there is an extreme paucity of data on chronic obstructive pulmonary disease in PAD. Lower IgA and IgM are associated with asthma in PAD, but the heterogeneity of prevalence among PAD groups is poorly understood. Recent observations of non-IgE-mediated pathomechanisms in asthma may be of particular interest in PAD patients.

Summary: Management of PAD patients with chronic lung disease requires a multidisciplinary team approach including immunology, pulmonology, infectious disease and physiotherapy. Diagnostic processes should be harmonized to ensure a more precise perspective on prevalence and disease courses.

- 59 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Wolters Kluwer

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29

J Sex Med

. 2022 Dec;19(12):1725-1729.

doi: 10.1016/j.jsxm.2022.08.003. Epub 2022 Sep 21.

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

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

Affiliations expand

- PMID: 36151033

- DOI: 10.1016/j.jsxm.2022.08.003

No abstract available

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

Editorial

Respirology

. 2022 Dec;27(12):1012-1014.

doi: 10.1111/resp.14371. Epub 2022 Sep 14.

Sealing the gap in bronchoscopic lung volume reduction

James Tonkin[1,2], Pallav L Shah[1,2,3]

Affiliations expand

- PMID: 36104311

- DOI: 10.1111/resp.14371

Free article

No abstract available

Keywords: bronchoscopic lung volume reduction (BLVR); emphysema; endobronchial valves; lung hyperinflation; sealant.

- 20 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

WILEY Free Full Text

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31

Ann Am Thorac Soc

. 2022 Dec;19(12):2111-2112.

doi: 10.1513/AnnalsATS.202207-653LE.

Chronic Obstructive Pulmonary Disease in the LGBTQI + Population

Maria Maddalena Sirufo[1,2], Lina Maria Magnanimi[1], Lia Ginaldi[1,2,3], Massimo De Martinis[1,2,3,4]

Affiliations expand

- PMID: 36103717

- DOI: 10.1513/AnnalsATS.202207-653LE

No abstract available

Ann Am Thorac Soc

. 2022 Dec;19(12):2112-2113.

doi: 10.1513/AnnalsATS.202209-752LE.

Reply: Chronic Obstructive Pulmonary Disease in the LGBTQI+ Population

Jamuna K Krishnan[1], Monika M Safford[1]

Affiliations expand

- PMID: 36103714

- DOI: 10.1513/AnnalsATS.202209-752LE

No abstract available

SUPPLEMENTARY INFO

Publication types, Grant supportexpand

FULL TEXT LINKS

Exploring chronic airways disease patients' perspectives on self-management topics

Austin McMillan[1], Noah Tregobov[2], Jessica Shum[3], Ian Christie[4], Alizeh Akhtar[5], Iraj Poureslami[6], in honour of the late Dr. J. Mark FitzGerald[7]

Affiliations expand

- PMID: 36100513

- DOI: 10.1016/j.pec.2022.08.020

Abstract

Objectives: In this study, we explored chronic airways disease (CAD) patients' responses to health literacy (HL) communication domain questions within disease self-management scenarios, as part of a larger CAD HL measurement tool development study.

Methods: Adult asthma and chronic obstructive pulmonary disease (COPD) patients from specialty care respiratory clinics were initially presented with realistic disease management scenarios and asked to share information they would communicate. Participants' responses were grouped into response categories that were reviewed and verified by key informants. A new cohort of CAD patients then responded to the same scenarios and had their answers placed into the developed response categories by trained interviewers.

Results: 19 initial stage participants' responses informed response categories for the following self-management topics: Inhaler Use (n = 20); Prednisone Use (n = 30); Flu (Influenza) (n = 35); and Weather Forecasting & Air Quality Index (n = 29). 141 participants' responses were categorised during the second stage.

Conclusions: Specialty care CAD patients displayed an understanding of key information to communicate across disease self-management topic. Our two-step, patient-driven approach may interest researchers investigating health-related communication from patients' perspectives.

Practice implications: Findings may illuminate potential areas to investigate communication gaps among CAD patients; further investigation is warranted among non-specialty care patients.

Keywords: Chronic airways disease; Health literacy; Patient perspectives; Self-management.

Conflict of interest statement

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

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

ELSEVIER FULL-TEXT ARTICLE

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34

COPD

. 2022 Dec;19(1):330-338.

doi: 10.1080/15412555.2022.2039608.

Validation of Clinical COPD Phenotypes for Prognosis of Long-Term Mortality in Swedish and Dutch Cohorts

S Gagatek[1], S R A Wijnant[2 3 4], B Ställberg[5], K Lisspers[5], G Brusselle[2 3 6], X Zhou[1 7], M Hasselgren[8], S Montgomeryi[9], J Sundhj[10], C Janson[1], Ö Emilsson[1], L Lahousse[3 4], A Malinovschi[7]

Affiliations expand

- PMID: 36074400

- DOI: 10.1080/15412555.2022.2039608

Abstract

Chronic obstructive pulmonary disease (COPD) is a heterogeneous disease with variable mortality risk. The aim of our investigation was to validate a simple clinical algorithm for long-term mortality previously proposed by Burgel *et al.* in 2017. Subjects with COPD from two cohorts, the Swedish PRAXIS study (*n* = 784, mean age (standard deviation (SD)) 64.0 years (7.5), 42% males) and the Rotterdam Study (*n* = 735, mean age (SD) 72 years (9.2), 57% males), were included. Five clinical clusters were derived from baseline data on age, body mass index, dyspnoea grade, pulmonary function and comorbidity (cardiovascular disease/diabetes). Cox models were used to study associations with 9-year mortality. The distribution of clinical clusters (1-5) was 29%/45%/8%/6%/12% in the PRAXIS study and 23%/26%/36%/0%/15% in the Rotterdam Study. The cumulative proportion of deaths at the 9-year follow-up was highest in clusters 1 (65%) and 4 (72%), and lowest in cluster 5 (10%) in the PRAXIS study. In the Rotterdam Study, cluster 1 (44%) had the highest cumulative mortality and cluster 5 (5%) the lowest. Compared with cluster 5, the meta-analysed age- and sex-adjusted hazard ratio (95% confidence interval) for cluster 1 was 6.37 (3.94-10.32) and those for clusters 2 and 3 were 2.61 (1.58-4.32) and 3.06 (1.82-5.13), respectively. Burgel's clinical clusters can be used to predict long-term mortality risk. Clusters 1 and 4 are associated with the poorest prognosis, cluster 5 with the best prognosis and clusters 2 and 3 with intermediate prognosis in two independent cohorts from Sweden and the Netherlands.

Keywords: COPD; comorbidities; epidemiology; mortality; phenotypes.

Editorial

Respirology

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. 2022 Dec;27(12):1006-1007.

doi: 10.1111/resp.14354. Epub 2022 Aug 28.

Would chronic mucus hypersecretion affect the clinical response to medications of COPD patients?

Fanny Wai San Ko[1], David Shu Cheong Hui[1]

Affiliations expand

- PMID: 36031687

- DOI: 10.1111/resp.14354

Free article

No abstract available

Keywords: COPD medication; chronic mucus hypersecretion; exacerbation rate.

- 10 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

WILEY Free Full Text

Proceed to details

Cite

Randomized Controlled Trial

Respirology

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-
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. 2022 Dec;27(12):1034-1044.

doi: 10.1111/resp.14339. Epub 2022 Aug 15.

Effect of chronic mucus hypersecretion on treatment responses to inhaled therapies in patients with chronic obstructive pulmonary disease: Post hoc analysis of the IMPACT trial

Philip J Thompson[1], Gerard J Criner[2], Mark T Dransfield[3], David M G Halpin[4], MeiLan K Han[5], David A Lipson[6,7], Ghassan J Maghzal[8], Fernando J Martinez[9], Dawn Midwinter[10], Dave Singh[11], Lee Tombs[12], Robert A Wise[13]

Affiliations expand

- PMID: 35970518

- DOI: 10.1111/resp.14339

Free article

Abstract

Background and objective: Chronic mucus hypersecretion (CMH) is a clinical phenotype of COPD. This exploratory post hoc analysis assessed relationship between CMH status and treatment response in IMPACT.

Methods: Patients were randomized to once-daily fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI) 100/62.5/25 µg, FF/VI 100/25 µg or UMEC/VI 62.5/25 µg and designated CMH+ if they scored 1/2 in St George's Respiratory Questionnaire (SGRQ) questions 1 and 2. Endpoints assessed by baseline CMH status included on-treatment exacerbation rates, change from baseline in trough forced expiratory volume in 1 second, SGRQ total score, COPD Assessment Test (CAT) score, proportion of SGRQ and CAT responders at Week 52 and safety.

Results: Of 10,355 patients in the intent-to-treat population, 10,250 reported baseline SGRQ data (CMH+: 62% [n = 6383]). FF/UMEC/VI significantly ($p < 0.001$) reduced on-treatment moderate/severe exacerbation rates versus FF/VI and UMEC/VI in CMH+ (rate ratio: 0.87 and 0.72) and CMH- patients (0.82 and 0.80). FF/UMEC/VI significantly ($p < 0.05$) reduced on-treatment severe exacerbation rates versus UMEC/VI in CMH+ (0.62) and CMH- (0.74) subgroups. Similar improvements in health status and lung function with FF/UMEC/VI were observed, regardless of CMH status. In CMH+ patients, FF/VI significantly ($p < 0.001$) reduced on-treatment moderate/severe and severe exacerbation rates versus UMEC/VI (0.83 and 0.70).

Conclusion: FF/UMEC/VI had a favourable benefit: risk profile versus dual therapies irrespective of CMH status. The presence of CMH did not influence treatment response or exacerbations, lung function and/or health status. However, CMH did generate differences when dual therapies were compared and the impact of CMH should be considered in future trial design.

Keywords: COPD; chronic mucus hypersecretion; chronic obstructive pulmonary disease; clinical outcomes; single-inhaler triple therapy.

- 29 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

WILEY Free Full Text

Proceed to details

Cite

Randomized Controlled Trial

J Clin Sleep Med

. 2022 Dec 1;18(12):2763-2774.

doi: 10.5664/jcsm.10210.

Therapy for insomnia with chronic obstructive pulmonary disease: a randomized trial of components

Mary Kapella[1], Alana Steffen[1], Bharati Prasad[1,2], Franco Laghi[3,4], Sachin Vispute[5], Gretchen Kemner[1,6], Celso Teixeira[7], Tara Peters[1], Jeehye Jun[1], Julie Law[1], David Carley[1]

Affiliations expand

- PMID: 35946416

- DOI: 10.5664/jcsm.10210

Abstract

Study objectives: To determine efficacy and mechanisms of cognitive behavioral therapy for insomnia (CBT-I) and chronic obstructive pulmonary disease (COPD) education (COPD-ED) on clinical outcomes in adults with concurrent COPD and insomnia.

Methods: We conducted a 2 × 2 factorial study to test the impact of CBT-I and COPD-ED delivered alone or in combination on severity of insomnia and fatigue, sleep, and dyspnea. Participants were randomized to 1 of 4 groups-group 1: CBT-I + attention control (AC; health videos, n = 27); group 2: COPD-ED + AC, n = 28; group 3: CBT-I + COPD-ED, n = 27; and group 4, AC only, n = 27. Participants received six 75-minute weekly sessions. Dependent variables included insomnia severity, sleep by actigraphy, fatigue, and dyspnea measured at baseline, immediately postintervention, and at 3 months postintervention.

Presumed mediators of intervention effects included beliefs and attitudes about sleep, self-efficacy for sleep and COPD, and emotional function.

Results: COPD patients (percent predicted forced expiratory volume in 1 second [FEV1pp] 67% ± 24% [mean ± standard deviation]), aged 65 ± 8 years, with insomnia participated in the study. Insomnia and sleep improved more in patients who received CBT-I than in those who did not, an effect that was sustained at 3 months postintervention and mediated by beliefs and attitudes about sleep. CBT-I was associated with clinically important improvements in fatigue and dyspnea. When CBT-I and COPD-ED were concurrently administered, effects on insomnia, fatigue, and dyspnea were attenuated.

Conclusions: CBT-I produced significant and sustained decreases in insomnia improved sleep and clinically important improvement in fatigue, and dyspnea. The combination of CBT-I and COPD-ED reduced CBT-I's effectiveness. Further research is needed to understand the mechanisms associated with effects of insomnia therapy on multiple symptoms in COPD.

Clinical trial registration: Registry: ClinicalTrials.gov; Name: A Behavioral Therapy for Insomnia Co-existing with COPD; URL: https://clinicaltrials.gov/ct2/show/NCT01973647; Identifier: NCT01973647.

Citation: Kapella M, Steffen A, Prasad B, et al. Therapy for insomnia with chronic obstructive pulmonary disease: a randomized trial of components. *J Clin Sleep Med*. 2022;18(12):2763-2774.

Keywords: chronic obstructive pulmonary disease; cognitive behavioral therapy; dyspnea; fatigue; insomnia; sleep.

Multicenter Study

Radiology

. 2022 Dec;305(3):699-708.

doi: 10.1148/radiol.212985. Epub 2022 Aug 2.

Sex Differences in Airways at Chest CT: Results from the COPDGene Cohort

Surya P Bhatt[1], Sandeep Bodduluri[1], Arie Nakhmani[1], Young-Il Kim[1], Joseph M Reinhardt[1], Eric A Hoffman[1], Amin Motahari[1], Carla G Wilson[1], Stephen M Humphries[1], Elizabeth A Regan[1], Dawn L DeMeo[1]

Affiliations expand

- PMID: 35916677

- DOI: 10.1148/radiol.212985

Abstract

Background The prevalence of chronic obstructive pulmonary disease (COPD) in women is fast approaching that in men, and women experience greater symptom burden. Although sex differences in emphysema have been reported, differences in airways have not been systematically characterized. Purpose To evaluate whether structural differences in airways may underlie some of the sex differences in COPD prevalence and clinical outcomes. Materials and Methods In a secondary analyses of a multicenter study of never-, current-, and former-smokers enrolled from January 2008 to June 2011 and followed up longitudinally until November 2020, airway disease on CT images was quantified using seven metrics: airway wall thickness, wall area percent, and square root of the wall thickness of a hypothetical airway with internal perimeter of 10 mm (referred to as Pi10) for airway wall; and lumen diameter, airway volume, total airway count, and airway fractal dimension for airway lumen. Least-squares mean values for each airway metric were calculated and adjusted for age, height, ethnicity, body mass index, pack-years of smoking, current smoking status, total lung capacity, display field of view, and scanner type. In ever-smokers, associations were tested between each airway metric and postbronchodilator forced expiratory volume in 1 second (FEV_1)-to-forced vital capacity (FVC) ratio, modified

Medical Research Council dyspnea scale, St George's Respiratory Questionnaire score, and 6-minute walk distance. Multivariable Cox proportional hazards models were created to evaluate the sex-specific association between each airway metric and mortality. Results In never-smokers (*n* = 420), men had thicker airway walls than women as quantified on CT images for segmental airway wall area percentage (least-squares mean, 47.68 ± 0.61 [standard error] vs 45.78 ± 0.55; difference, -1.90; *P* = .02), whereas airway lumen dimensions were lower in women than men after accounting for height and total lung capacity (segmental lumen diameter, 8.05 mm ± 0.14 vs 9.05 mm ± 0.16; difference, -1.00 mm; *P* < .001). In ever-smokers (*n* = 9363), men had greater segmental airway wall area percentage (least-squares mean, 52.19 ± 0.16 vs 48.89 ± 0.18; difference, -3.30; *P* < .001), whereas women had narrower segmental lumen diameter (7.80 mm ± 0.05 vs 8.69 mm ± 0.04; difference, -0.89; *P* < .001). A unit change in each of the airway metrics (higher wall or lower lumen measure) resulted in lower FEV_1-to-FVC ratio, more dyspnea, poorer respiratory quality of life, lower 6-minute walk distance, and worse survival in women compared with men (all *P* < .01). Conclusion Airway lumen sizes quantified at chest CT were smaller in women than in men after accounting for height and lung size, and these lower baseline values in women conferred lower reserves against respiratory morbidity and mortality for equivalent changes compared with men. © RSNA, 2022 *Online supplemental material is available for this article.*

Development and validation of a risk prediction model for anxiety or depression among patients with chronic obstructive pulmonary disease between 2018 and 2020

Tingyu Tang[1], Zongju Li[2], Xiaoling Lu[1], Jianzong Du[1]

Affiliations expand

- PMID: 35916588
- PMCID: PMC9351569
- DOI: 10.1080/07853890.2022.2105394

Free PMC article

Abstract

Anxiety and depression are important risk factors for chronic obstructive pulmonary disease (COPD). The aim of this study was to develop a prediction model to predict anxiety or depression in COPD patients. The retrospective study was conducted in COPD patients receiving stable treatment between 2018 and 2020 to develop prediction model. The variables, were readily available in clinical practice, were analysed. After data preprocessing, model training and performance evaluation were performed. Validity of the prediction model was verified in 3 comparative model training. Between 2018 and 2020, 375 eligible patients were analysed. Thirteen variables were included into the final model: gender, age, marital status, education level, long-term residence, per capita annual household income, payment method of medical expenses, direct economic costs of treating COPD in the past year, smoking, COPD progression, number of acute exacerbation of COPD in the last year, regular treatment with inhalants and family oxygen therapy. Risk score threshold in each sample in the training set was 1.414. The area under the curve value was respectively 0.763 and 0.702 in the training set and test set, which were higher than three comparative models. The simple prediction model to predict anxiety or depression in patients with COPD has been developed. Based on 13 available data in clinical indicators, the model may serve as an instrument for clinical decision-making for COPD patients who may have anxiety or depression.Key messagesThirteen variables were

included into the prediction model.The AUC value was, respectively, 0.763 and 0.702 in the training set and test set, which were higher than three comparative models.The simple prediction model to predict anxiety or depression in patients with COPD has been developed.

Keywords: COPD; Prediction model; anxiety; depression; validation.

Conflict of interest statement

No potential conflict of interest was reported by the authors.

- 52 references
- 7 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

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Am J Respir Crit Care Med

. 2022 Dec 1;206(11):1317-1325.

doi: 10.1164/rccm.202204-0671PP.

Definition and Nomenclature of Chronic Obstructive Pulmonary Disease: Time for Its Revision

Bartolome Celli[1], Leonardo Fabbri[2], Gerard Criner[3], Fernando J Martinez[4], David Mannino[5], Claus Vogelmeier[6], Maria Montes de Oca[7], Alberto Papi[2], Don D Sin[8], MeiLan K Han[9], Alvar Agusti[10]

Affiliations expand

- PMID: 35914087

- DOI: 10.1164/rccm.202204-0671PP

No abstract available

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

Am J Respir Crit Care Med

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. 2022 Dec 1;206(11):1433-1434.

doi: 10.1164/rccm.202207-1366LE.

High-flow Nasal Cannula Oxygen Therapy for Stable Hypercapnic COPD: Just Good Enough?

Yi Wang[1], Yong Jie Ding[1], Qing Yun Li[1]

Affiliations expand

- PMID: 35904804

- DOI: 10.1164/rccm.202207-1366LE

No abstract available

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

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42

Review

Stem Cell Rev Rep

. 2022 Dec;18(8):2629-2645.

doi: 10.1007/s12015-022-10422-z. Epub 2022 Jul 23.

A Maverick Review of Common Stem/Progenitor Markers in Lung Development

Yijian Lin[1,2,3,4], Dachun Wang[5,6], Yiming Zeng[7,8,9,10]

Affiliations expand

- PMID: 35871209

- DOI: 10.1007/s12015-022-10422-z

Abstract

Several attempts have been made to reconstruct the whole lung using pluripotent stem cells (PSCs) to treat terminal stage diseases, such as chronic obstructive pulmonary disease [COPD] and idiopathic pulmonary fibrosis [IPF], for which whole-organ transplantation is currently the only treatment option. The development of induced differentiation technologies has made it possible to regenerate lungs from the 'bottom-up' via stepwise protocols. Nonetheless, the earliest lung multipotent progenitors, namely lung primordial stem cells, have not been identified to date. Considering the intricate crosstalk network that regulates lung development, stepwise protocols to differentiate PSCs into lung progenitors have raised some key questions: (1) the heterogeneity of these induced progenitors, and (2) obtaining a high-purity population. One important strategy to overcome these hurdles is to identify relevant markers or factors that regulate the complex network in lung morphogenesis according to those erected in vivo and ex vivo experiments. For screening lung primordial stem cells, several markers are 'on the shelf', and this review explores the most common or substantiated candidates. We artificially divided these markers into positive selecting and negative limiting proximal or distal markers as well as early progenitor markers that can be used to identify lung primordial stem cell, which represents the earliest progenitor during lung morphogenesis.

Keywords: Differentiation; Lung primordial stem cell; Lung progenitor; Marker; Transcriptional factor.

- 114 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

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SpringerLink FULL-TEXT ARTICLE

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Editorial

Am J Respir Crit Care Med

. 2022 Dec 1;206(11):1303-1304.

doi: 10.1164/rccm.202207-1311ED.

High Flow Nasal Oxygen at Home to Prevent Chronic Obstructive Pulmonary Disease Exacerbations?

Jean-Pierre Frat[1 2 3], Arnaud W Thille[1 2 3]

Affiliations expand

- PMID: 35853196

- DOI: 10.1164/rccm.202207-1311ED

No abstract available

Comment on

- Home High-Flow Nasal Cannula Oxygen Therapy for Stable Hypercapnic COPD: A Randomized Clinical Trial.
  Nagata K, Horie T, Chohnabayashi N, Jinta T, Tsugitomi R, Shiraki A, Tokioka F, Kadowaki T, Watanabe A, Fukui M, Kitajima T, Sato S, Tsuda T, Kishimoto N, Kita H, Mori Y, Nakayama M, Takahashi K, Tsuboi T, Yoshida M, Hataji O, Fuke S, Kagajo M, Nishine H, Kobayashi H, Nakamura H, Okuda M, Tachibana S, Takata S, Osoreda H, Minami K, Nishimura T, Ishida T, Terada J, Takeuchi N, Kohashi Y, Inoue H, Nakagawa Y, Kikuchi T, Tomii K.Am J Respir Crit Care Med. 2022 Dec 1;206(11):1326-1335. doi: 10.1164/rccm.202201-0199OC.PMID: 35771533 Clinical Trial.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

AJRCCM Final Version

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44

Ann Am Thorac Soc

. 2022 Dec;19(12):1993-2002.

doi: 10.1513/AnnalsATS.202110-1127OC.

Unsupervised Learning Identifies Computed Tomographic Measurements as Primary Drivers of Progression, Exacerbation, and Mortality in Chronic Obstructive Pulmonary Disease

Nancy F Yuan[1], Kyle Hasenstab[2], Tara Retson[3], Douglas J Conrad[4], David A Lynch[5], Albert Hsiao[3]

Affiliations expand

- PMID: 35830591

- DOI: 10.1513/AnnalsATS.202110-1127OC

Abstract

Rationale: Chronic obstructive pulmonary disease (COPD) is a heterogeneous syndrome with phenotypic manifestations that tend to be distributed along a continuum. Unsupervised machine learning based on broad selection of imaging and clinical phenotypes may be used to identify primary variables that define disease axes and stratify patients with COPD. **Objectives:** To identify primary variables driving COPD heterogeneity using principal component analysis and to define disease axes and assess the prognostic value of these axes across three outcomes: progression, exacerbation, and mortality. **Methods:** We included 7,331 patients between 39 and 85 years old, of whom 40.3% were Black and 45.8% were female smokers with a mean of 44.6 pack-years, from the COPDGene (Genetic Epidemiology of COPD) phase I cohort (2008-2011) in our analysis. Out of a total of 916 phenotypes, 147 continuous clinical, spirometric, and computed tomography (CT) features were selected. For each principal component (PC), we computed a PC score based on feature weights. We used PC score distributions to define disease axes along which we divided the patients into quartiles. To assess the prognostic value of these axes, we applied logistic regression analyses to estimate 5-year (*n* = 4,159) and 10-year (*n* = 1,487) odds of progression. Cox regression and Kaplan-Meier analyses were performed to estimate 5-year and 10-year risk of exacerbation (*n* = 6,532) and all-cause mortality (*n* = 7,331). **Results:** The first PC, accounting for 43.7% of variance, was defined by CT measures of air trapping and emphysema. The second PC, accounting for 13.7% of variance, was defined by spirometric and CT measures of vital capacity and lung volume. The third PC, accounting for 7.9% of the variance, was defined by CT measures of lung mass, airway thickening, and body habitus. Stratification of patients across each disease axis revealed up to 3.2-fold (95% confidence interval [CI] 2.4, 4.3) greater odds of 5-year progression, 5.4-fold (95% CI 4.6, 6.3) greater risk of 5-year exacerbation, and 5.0-fold (95% CI 4.2, 6.0) greater risk of 10-year mortality between the highest and lowest quartiles. **Conclusions:** Unsupervised learning analysis of the COPDGene cohort reveals that CT measurements may bolster patient stratification along the continuum of COPD phenotypes. Each of the disease axes also individually demonstrate prognostic potential, predictive of future forced expiratory volume in 1 second decline, exacerbation, and mortality.

Keywords: disease axes; heterogeneity; principal component analysis; prognostication; unsupervised machine learning.

Randomized Controlled Trial

Am J Respir Crit Care Med

. 2022 Dec 1;206(11):1326-1335.

doi: 10.1164/rccm.202201-0199OC.

Home High-Flow Nasal Cannula Oxygen Therapy for Stable Hypercapnic COPD: A Randomized Clinical Trial

Kazuma Nagata[1], Takeo Horie[2], Naohiko Chohnabayashi[3], Torahiko Jinta[3], Ryosuke Tsugitomi[3], Akira Shiraki[4], Fumiaki Tokioka[5], Toru Kadowaki[6], Akira Watanabe[7], Motonari Fukui[8], Takamasa Kitajima[8], Susumu Sato[9], Toru Tsuda[10], Nobuhito Kishimoto[11], Hideo Kita[12], Yoshihiro Mori[13], Masayuki Nakayama[14], Kenichi Takahashi[15], Tomomasa Tsuboi[16], Makoto Yoshida[17], Osamu Hataji[18], Satoshi Fuke[19], Michiko Kagajo[4], Hiroki Nishine[20], Hiroyasu Kobayashi[21], Hiroyuki Nakamura[22], Miyuki Okuda[23], Sayaka Tachibana[24], Shohei Takata[25], Hisayuki Osoreda[26], Kenichi Minami[27], Takashi Nishimura[28], Tadashi Ishida[5], Jiro Terada[29], Naoko Takeuchi[30], Yasuo Kohashi[31], Hiromasa Inoue[32], Yoko Nakagawa[33], Takashi Kikuchi[33], Keisuke Tomii[1]

Affiliations expand

- PMID: 35771533

- DOI: 10.1164/rccm.202201-0199OC

Abstract

Rationale: The long-term effects of using a high-flow nasal cannula for chronic hypercapnic respiratory failure caused by chronic obstructive pulmonary disease remain unclear. **Objectives:** To assess whether long-term high-flow nasal cannula use reduces the number of exacerbations and improves other physiological parameters in patients with chronic hypercapnic respiratory failure caused by chronic obstructive pulmonary disease. **Methods:** We enrolled 104 participants (aged ⩾40 yr) with daytime hypercapnia (Global Initiative for Chronic Obstructive Lung Disease stages 2-4) receiving long-term oxygen therapy (⩾16 h/d for ⩾1 mo) and randomly assigned them to high-flow nasal

cannula/long-term oxygen therapy and long-term oxygen therapy groups. The primary endpoint was the moderate or severe exacerbation rate. We compared changes from baseline in arterial blood gas values, peripheral oxygen saturation, pulmonary function, health-related quality-of-life scores, and the 6-minute-walk test. **Measurements and Main Results:** High-flow nasal cannula use significantly reduced the rate of moderate/severe exacerbations (unadjusted mean count 1.0 vs. 2.5, a ratio of the adjusted mean count between groups [95% confidence interval] of 2.85 [1.48-5.47]) and prolonged the duration without moderate or severe exacerbations. The median time to first moderate or severe exacerbation in the long-term oxygen therapy group was 25 (14.1-47.4) weeks; this was not reached in the high-flow nasal cannula/long-term oxygen therapy group. High-flow nasal cannula use significantly improved health-related quality of life scores, peripheral oxygen saturation, and specific pulmonary function parameters. No safety concerns were identified. **Conclusions:** A high-flow nasal cannula is a reasonable therapeutic option for patients with stable hypercapnic chronic obstructive pulmonary disease and a history of exacerbations. Clinical trial registered with www.umin/ac.jp (UMIN000028581) and www.clinicaltrials.gov (NCT03282019).

Keywords: chronic obstructive pulmonary disease; hypercapnia; oxygen inhalation therapy; pulmonary disease; respiratory insufficiency.

Comment in

- High Flow Nasal Oxygen at Home to Prevent Chronic Obstructive Pulmonary Disease Exacerbations?
  Frat JP, Thille AW.Am J Respir Crit Care Med. 2022 Dec 1;206(11):1303-1304. doi: 10.1164/rccm.202207-1311ED.PMID: 35853196 No abstract available.

. 2022 Dec;61(6):4978-4995.

doi: 10.1007/s10943-022-01578-6. Epub 2022 May 20.

The Dropsy of Popes (1555-1978): A Bad Prognostic Sign Foreboding of Death

Natale Gaspare De Santo[1], Carmela Bisaccia[2], Luca Salvatore De Santo[3]

Affiliations expand

- PMID: 35596044

- PMCID: PMC9569309

- DOI: 10.1007/s10943-022-01578-6

Free PMC article

Erratum in

- Correction: The Dropsy of Popes (1555-1978): A Bad Prognostic Sign Foreboding of Death.
  De Santo NG, Bisaccia C, De Santo LS.J Relig Health. 2022 Dec;61(6):4996. doi: 10.1007/s10943-022-01599-1.PMID: 35689740 **Free PMC article.** No abstract available.

Abstract

The purpose of this study is to explore the historical background of edema as a prognostic sign in popes, a special category of medical subjects whose health status was closely monitored and chronicled because of their unique important status in the events of their times. Nine out of 51 popes, who reigned in the years 1555-1978, died edematous at a mean age of 75.5 years of age. The cause of edema was: heart failure for John Paul I, liver disease, obstructive nephropathy associated with anemia for Paul IV, who also suffered from deep vein thrombosis, and malnutrition for Innocent XIII. Chronic kidney disease due to renal stones of gouty origin caused edema in Clement VIII, Clement X, Clement XI, and Benedict XIV. Obstructive nephropathy due to renal stones of non-gouty origin caused

edema in Clement XIII, whereas toxic nephropathy due to the use of mercurials caused edema in Clement XIV. Innocent XI, Benedict XIV, and Clement XIV were bled before death because of impending pulmonary edema. It is not surprising that chronic kidney disease was a significant cause of edema in popes with chronic kidney disease which is associated with impaired sodium excretion. The edema was likely aggravated by the excessive dietary salt intake of the period when the importance of sodium chloride restriction was still not discovered and effective diuretic agents were not available.

Keywords: Chronic kidney diseases; Edema; Popes; Salt consumption.

- 53 references
- 2 figures

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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Comment

Ann Med

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. 2022 Dec;54(1):867-868.

doi: 10.1080/07853890.2022.2052953.

Letter to the editor regarding "effect of pulmonary rehabilitation in patients with chronic obstructive pulmonary disease: a systematic review and meta-analysis"

Hui Wang[1], Fan Zhang[2]

Affiliations expand

- PMID: 35321596
- PMCID: PMC8956296
- DOI: 10.1080/07853890.2022.2052953

Free PMC article

No abstract available

Conflict of interest statement

The authors reported no potential conflict of interest.

Comment on

- Effect of pulmonary rehabilitation in patients with chronic obstructive pulmonary disease: a systematic review and meta-analysis of randomized controlled trials. Zhang H, Hu D, Xu Y, Wu L, Lou L.Ann Med. 2022 Dec;54(1):262-273. doi: 10.1080/07853890.2021.1999494.PMID: 35037535 **Free PMC article.**

- Cited by 1 article
- 5 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

J Assoc Physicians India

. 2022 Dec;69(12):11-12.

Salmeterol-Fluticasone: The Role Revisited

Agam Vora[1], Raja Dhar[2], Lancelot Pinto[3], Parvaiz Koul[4], Pratyusha Gaonkar[5]

Affiliations expand

- PMID: 35057598

Abstract

Apart from the individual diseases, some patients also show overlapping manifestations of asthma and COPD. Nevertheless, the diagnosis of COPD is often delayed due to inaccessibility to spirometry; the prevalence of the asthma COPD overlap phenotype is rather high given the exposure to biomass smoke. Furthermore, the rates of exacerbations are twice as high compared to the patients with either of the diseases. A treatment strategy that would reduce the risk of exacerbations would contribute immensely to the management of such patients. Evidence of eosinophilia (marker of inflammation) in patients with asthma, asthma COPD overlap phenotype or COPD alone should prompt treatment with a combination of inhaled corticosteroids (ICS)/ long-acting β-agonists (LABA); several studies have shown improvement in the airflow limitation and reduction in the rate of exacerbations with salmeterol-fluticasone combination (SFC). Considering the association of COPD and cardiovascular diseases (CVD), it is critical to determine the cardiovascular safety of the LABA in such patients. Salmeterol is a highly selective partial b-2 agonist; the TORCH study and the studies comparing formoterol and salmeterol infer that there is no increased risk of new cardiovascular adverse events either with Salmeterol or SFC. Furthermore, the combination may provide certain degree of cardio-protection.

Since COPD per se increases the risk of CVD, the cardio-safety of salmeterol outweighs its onset of action. SFC has well substantiated benefits in patients with asthma, COPD and high-risk patients such as those with an overlap of COPD and asthma symptoms, patients with elevated eosinophils and pre-existing CVD. An advisory board was hence conducted, which discussed the role of combination of salmeterol and fluticasone (SFC) not only in asthma and COPD but also in asthma COPD overlap phenotype. Based on the panel's clinical experience and the expertise derived thereof, the propositions regarding the place of SFC therapy in patients with stable and uncontrolled asthma, asthma COPD overlap phenotype and COPD has been put forth.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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Meta-Analysis

Ann Med

. 2022 Dec;54(1):262-273.

doi: 10.1080/07853890.2021.1999494.

Effect of pulmonary rehabilitation in patients with chronic obstructive pulmonary disease: a systematic review and meta-analysis of randomized controlled trials

Hong Zhang[1], Dandan Hu[1], Yikai Xu[1], Lixia Wu[1], Liming Lou[1]

Affiliations expand

- PMID: 35037535

- PMCID: PMC8765243

- DOI: 10.1080/07853890.2021.1999494

Free PMC article

Abstract

Objective: The present systematic review and meta-analysis of randomized clinical trials (RCTs) aimed to investigate the effects of pulmonary rehabilitation in individuals with chronic obstructive pulmonary disease (COPD).

Methods: The RCTs of pulmonary rehabilitation programs published between 1999 and 2021 were retrieved from electronic databases (PubMed, Cochrane Library, and Embase). Two reviewers independently assessed the topical relevance and trial quality and extracted data for meta-analysis using the Stata software version 14.0.

Results: A total of 39 trials involving 2,397 participants with COPD were evaluated. We found that patients who received pulmonary rehabilitation program had significant improvement in the 6-min walk test (6MWT), St. George Respiratory Questionnaire score, and the modified British Medical Research Council score as compared to those who received usual care. Yoga and Tai Chi showed significant improvement in the forced expiratory volume (FEV1)% in 1 s predicted value. However, no significant difference was detected in the modified Borg score, forced vital capacity (FVC), and FEV1/FVC predicted value between the pulmonary rehabilitation and usual care groups.

Conclusion: Yoga and Tai Chi showed a significant improvement in the FEV1% predicted value. Also, pulmonary rehabilitation program improved the exercise capacity, the quality of life, and dyspnoea in patients with COPD.Key messagesA total of 39 trials involving 2,397 participants with COPD were evaluated.We found that patients who received pulmonary rehabilitation program had significant improvement in the 6MWT, St. George Respiratory Questionnaire score, and the modified British Medical Research Council score as compared to those who received usual care.Yoga and Tai Chi showed significant improvement in the FEV1% predicted value.No significant difference was detected in the modified Borg score, FVC, and FEV1/FVC predicted value between the pulmonary rehabilitation and usual care groups.

Keywords: Pulmonary rehabilitation; chronic obstructive pulmonary disease; meta-analysis; randomized controlled trials; systematic review.

Conflict of interest statement

No potential conflict of interest was reported by the authors.

Comment in

- Letter to the editor regarding "effect of pulmonary rehabilitation in patients with chronic obstructive pulmonary disease: a systematic review and meta-analysis". Wang H, Zhang F.Ann Med. 2022 Dec;54(1):867-868. doi: 10.1080/07853890.2022.2052953.PMID: 35321596 **Free PMC article.** No abstract available.

- Cited by 5 articles
- 71 references
- 6 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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Review

Sleep Breath

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. 2022 Dec;26(4):1551-1560.

doi: 10.1007/s11325-021-02540-8. Epub 2022 Jan 16.

Review of the prevalence, pathogenesis and management of OSA–COPD overlap

M Brennan[1], M J McDonnell[2], S M Walsh[2], F Gargoum[2], R Rutherford[2]

Affiliations expand

- PMID: 35034250

- DOI: 10.1007/s11325-021-02540-8

Abstract

Purpose: OSA-COPD overlap is an important and prevalent condition yet remains under-recognised among the vast majority of respiratory health professionals. Patients with OSA-COPD overlap experience more severe respiratory symptoms and worse quality of life, and the relative risk of exacerbations, hospitalisations, and mortality is higher than in either disease state alone.

Methods: Electronic databases PUBMED and Google Scholar were searched for studies and academic papers that discussed OSA-COPD overlap. Relevant papers that discussed prevalence, pathophysiology, microbiome studies, treatment regimens and outcomes were included in this paper.

Results: High-risk patients with either COPD or OSA should be screened for overlap syndrome as part of routine clinical practice. Screening questionnaires can identify high-risk patients with COPD who may benefit from formal polysomnography. Patients with OSA who are aged over 40 with a significant smoking history or environmental exposures have an increased pre-test probability of obstructive airway disease. The potential roles of gastro-oesophageal reflux disease and lung-gut microbiome are evolving and merit further investigation. A tailored approach to reach a timely diagnosis and thus optimisation of both conditions are key to management. CPAP is the primary therapy for OSA; however, patients with more advanced COPD, with daytime hypercapnia or severe nocturnal desaturations, may benefit from bilevel positive airway pressure.

Conclusion: Increased awareness, access to timely investigations and initiation of therapy will improve overall outcomes in OSA-COPD overlap by reducing hospitalisations for exacerbations of COPD and improve mortality rates.

Keywords: COPD; Exacerbations; Mortality; Obstructive sleep apnoea; Overlap syndrome.

- Cited by 2 articles
- 74 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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COPD

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. 2022 Dec;19(1):18-46.

doi: 10.1080/15412555.2021.2020234. Epub 2022 Jan 9.

Effects of Home-Based Pulmonary Rehabilitation on Dyspnea, Exercise Capacity, Quality of Life and Impact of the Disease in COPD Patients: A Systematic Review

Diêgo Mendes Xavier[1], Endi Lanza Galvão[2], Alenice Aliane Fonseca[3,4], Glaciele Maria de Souza[2], Vanessa Pereira Lima[1,4]

Affiliations expand

- PMID: 35000507

- DOI: 10.1080/15412555.2021.2020234

Abstract

Conventional pulmonary rehabilitation programs are used as therapies for the treatment of chronic obstructive pulmonary disease (COPD). However, this modality presents barriers that make rehabilitation difficult. For this reason, home-based pulmonary rehabilitation (HBPR) has been used to overcome these barriers. The objective was to systematically compare a structured program with HBPR or a control group for participants with COPD. The primary outcome was an improvement in symptoms in the level of dyspnea and secondary outcomes were parameters in lung function, exercise capacity, health-related quality of life (HRQoL) and the impact of the disease on the individual. The Medline (*via* PubMed), Virtual Health Library and Cochrane Library databases were searched until May 10, 2021. Randomized controlled trials were included without restrictions on the year of publication or language. The risk of bias was evaluated using the Cochrane risk-of-bias tool for randomized trials (RoB). Our results showed that there was a significant decrease in the level of dyspnea, (MD: 5.46; 95% CI: 1.97 to 8.96), increased distance covered (MD: 61.75; 95% CI: 42, 94 to 80.56, significant improvement in HRQoL (MD: -11.30; 95% CI: -19.81 to -2.79) and reduction in the impact of the disease (DM: -4.71; 95% CI: -7.95 to -1.47). All results found were comparing the intervention group versus the control group. To conclude we found a reduction in the levels of dyspnea, an increase in the distance covered on the six-minute walk test, improving HRQoL and decreasing the impact of the disease in COPD patients in home-based pulmonary rehabilitation.

Keywords: Physical therapy modalities; chronic obstructive; exercise tolerance; pulmonary disease.

J Asthma

. 2022 Dec;59(12):2402-2412.

doi: 10.1080/02770903.2021.2022160. Epub 2022 Jan 11.

Manifesto on inhaled triple therapy in asthma: an Interasma (Global Asthma Association – GAA) document

Fulvio Braido[1,2], Angelica Tiotiu[3,4], Guillermo Guidos-Fogelbach[5], Ilaria Baiardini[2,6,7], Filippo Cosini[8], Jaime Correia de Sousa[9,10], Andras Bikov[11,12], Sylvia Novakova[13], Marina Labor[14], Igor Kaidashev[15], Denislava Nedeva[16], Krzysztof Kowal[17], Stefan Mihaicuta[18], Marilyn Urrutia Pereira[19], Dirceu Solé[20], Plamela Novakova[21], Herberto Chong-Neto[22], Laura Vrzy[8], Ignacio J Ansotegui[23], Jonathan A Bernstein[24], Louis-Philippe Boulet[25], Giorgio Walter Canonica[6,7,26], Lawrence Dubuske[27], Carlos Nunes[28], Juan Carlos Ivancevich[29], Pierachille Santus[30], Nelson Rosario[31], Alexander Emelyanov[32], Paschalis Steiropoulos[33]

Affiliations expand

- PMID: 34936532

- DOI: 10.1080/02770903.2021.2022160

Abstract

Objective: The optimal use of drug combinations for the management of asthma is providing significant results. This has prompted Interasma (Global Asthma Association) to take a position on inhaled triple therapy in asthma.**Methods:** We performed an extensive literature research to clinical trials, meta-analyses, randomized controlled trials and systematic reviews.**Results:** Starting from an extensive literature review, Interasma executive committee discussed and approved this Manifesto, developed by Interasma scientific network (INES) members.**Conclusions:** The manifesto describes the evidence gathered to date and states, advocates, and proposes issues on inhaled corticosteroid (ICS) plus long-acting beta 2 agonist (LABA) and long-acting muscarinic antagonists (LAMA) with the aim of challenging assumptions, fostering commitment, and bringing about change.

Keywords: Asthma management; Interasma; asthma control; asthma pharmacotherapy; asthma treatment; consensus; manifesto.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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J Asthma

. 2022 Dec;59(12):2509-2519.

doi: 10.1080/02770903.2021.2018703. Epub 2021 Dec 29.

Clinical outcomes among hospitalized US adults with asthma or chronic obstructive pulmonary disease, with or without COVID-19

Cheryl R Cornwell[1,2], Joy Hsu[1], Lindsay K Tompkins[1,3], Audrey F Pennington[1], W Dana Flanders[1,4], Kanta Sircar[1]

Affiliations expand

- PMID: 34902258

- PMCID: PMC9240101 (available on 2023-12-01)

- DOI: 10.1080/02770903.2021.2018703

Abstract

Objective: This study assesses the risk of severe clinical outcomes during hospitalizations of adults with asthma and/or COPD plus COVID-19 and compares those risks with those during hospitalizations of adults with asthma and/or COPD without COVID-19.

Methods: We used data from 877 U.S. hospitals from the Premier Healthcare Database during March 2020-March 2021. Hospitalizations (*n* = 311,215) among patients aged ≥18 years with an ICD-10-CM diagnosis involving asthma or COPD were classified into three groups: adults with asthma (but not COPD), adults with COPD (but not asthma), and adults with both asthma and COPD. We used multivariable Poisson regression to assess associations of severe clinical outcomes [intensive care unit (ICU) admission, use of invasive mechanical ventilation (IMV), and death] and COVID-19 status.

Results: The percentage of hospitalizations among patients with asthma and COVID-19 resulting in ICU admission, IMV, and death were 46.9%, 14.0%, and 8.0%, respectively. These risks were higher than those among patients with asthma without COVID-19 (adjusted risk ratio [aRR], 1.17 [95% confidence interval (CI), 1.14-1.21], 1.61 [95% CI, 1.50-1.73], and 5.56 [95% CI, 4.89-6.32]), respectively. Risks of ICU admission, IMV, and death were also high among patients with COPD and COVID-19 and exceeded the corresponding risks among patients with COPD without COVID-19.

Conclusion: Hospitalizations among patients with asthma and/or COPD with COVID-19 had a more severe clinical course than hospitalizations for asthma and/or COPD exacerbations without COVID-19.

Supplemental data for this article is available online at at www.tandfonline.com/ijas .

Keywords: Asthma; COVID-19; asthma–COPD overlap; chronic obstructive pulmonary disease.

Conflict of interest statement

Declaration of interest
The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

Minerva Surg

. 2022 Dec;77(6):634-636.

doi: 10.23736/S2724-5691.21.09291-1. Epub 2021 Dec 10.

Efficacy of naloxone combined with noninvasive ventilator in the treatment of COPD complicated with type II respiratory failure

Xin Xu[1], Danfeng Ma[2], Feng Zhou[3]

Affiliations expand

- PMID: 34889569

- DOI: 10.23736/S2724-5691.21.09291-1

Free article

No abstract available

Sleep Breath

. 2022 Dec;26(4):1603-1611.

doi: 10.1007/s11325-021-02500-2. Epub 2021 Nov 16.

Anxiety and depression in patients with chronic obstructive pulmonary disease and obstructive sleep apnea: the overlap syndrome

Zhiling Zhao[#1], Dongmei Zhang[#1], Haiyan Sun[1], Dandan Chang[2], Xiaoshuang Lv[1], Junlin Lin[1], Junqing Liu[1], Xiaotao Wu[1], Ke Hu[3], Xiheng Guo[4], Zhaohui Tong[5]

Affiliations expand

- PMID: 34783978

- DOI: 10.1007/s11325-021-02500-2

Abstract

Purpose: Psychological symptoms are increasingly being noted in patients with chronic diseases. Currently, little evidence is available on the mental health of patients with overlap syndrome (OVS, chronic obstructive pulmonary disease plus obstructive sleep apnea). This study aimed to describe the prevalence and identify influencing factors of anxiety and depression in patients with OVS.

Methods: We recruited patients admitted for chronic obstructive pulmonary disease (COPD) from July 2018 to July 2019 who also underwent polysomnography tests to assess obstructive sleep apnea (OSA). COPD patients who had an apnea-hypopnea index (AHI) ≥ 5/h were defined as OVS. COPD patients who had an AHI < 5/h were identified as pure

COPD. Questionnaires were administered to evaluate depression and anxiety in all subjects. We compared the differences in scores between patients with OVS and pure COPD.

Results: Two hundred and fifty-two patients were included, 180 (71%) patients had OVS, while only 72 patients had pure COPD. In the OVS group, 54% of the patients had depression, and 77% of the patients had anxiety. We found that patients with OVS had higher anxiety (8.00 (4.00, 10.00) vs. 6.00 (3.00, 9.00), p = 0.018) and depression (8.00 (4.00, 10.00) vs. 5.50 (2.25, 10.00), p = 0.022) scores than patients with pure COPD. A higher proportion of patients with hypertension (41% vs. 21%) and coronary heart disease (14% vs. 4%) were found in the OVS group. Chest pain, COPD Assessment Test (CAT) score, and OVS were independent risk factors for depression (P<0.05). A positive correlation was shown between anxiety and depression (r=0.638, p < 0.001).

Conclusions: Anxiety and depression were more severe in patients with OVS than in patients with pure COPD. More attention should be paid to the mental health of OVS patients.

Trial registration: ClinicalTrials.gov; URL: www.

Clinicaltrials: gov . NO.: NCT03182309. Registered on June 9, 2017; https://clinicaltrials.gov/ct2/show/NCT03182309?term=NCT+03182309&draw=2&rank=1.

Keywords: Anxiety; Chronic obstructive pulmonary disease; Depression; Overlap syndrome.

- Cited by 1 article
- 23 references

SUPPLEMENTARY INFO

MeSH terms, Associated dataexpand

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COPD

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. 2022 Dec;19(1):1-9.

doi: 10.1080/15412555.2021.1977789. Epub 2021 Sep 21.

Triple Inhaler versus Dual Bronchodilator Therapy in COPD: Real-World Effectiveness on Mortality

Samy Suissa[1,2], Sophie Dell'Aniello[1,2], Pierre Ernst[1,2]

Affiliations expand

- PMID: 34544314

- DOI: 10.1080/15412555.2021.1977789

Abstract

Randomized trials of triple therapy including an inhaled corticosteroid (ICS) for chronic obstructive pulmonary disease (COPD) reported remarkable benefits on mortality compared with dual bronchodilators, likely resulting from ICS withdrawal at randomization. We compared triple therapy with dual bronchodilator combinations on major COPD outcomes in a real-world clinical practice setting. We identified a cohort of COPD patients, age 50 or older, treated during 2002-2018, from the United Kingdom's Clinical Practice Research Datalink. Patients initiating treatment with a long-acting muscarinic antagonist (LAMA), a long-acting beta$_2$-agonist (LABA) and an ICS on the same day, were compared with patients initiating a LAMA and LABA, weighted by fine stratification of propensity scores. Subjects were followed-up one year for all-cause mortality, severe exacerbation and pneumonia. The cohort included 117,729 new-users of LAMA-LABA-ICS and 26,666 of LAMA-LABA. The adjusted hazard ratio (HR) of all-cause mortality with LAMA-LABA-ICS compared with LAMA-LABA was 1.17 (95% CI: 1.04-1.31) while for severe exacerbation and pneumonia it was 1.19 (1.08-1.32) and 1.29 (1.16-1.45) respectively. However, mortality was not elevated with triple therapy among patients with asthma diagnosis (HR 0.99; 95% CI: 0.74-1.34), with two or more prior exacerbations (HR 0.88; 95% CI: 0.70-1.11), and with FEV_1 percent predicted >30%. In a real-world setting of COPD treatment, triple therapy initiation was not more effective than dual bronchodilators at preventing all-cause mortality and severe COPD exacerbations. Triple therapy may be unsafe among patients

without prior exacerbations, in whom ICS are not recommended, with no asthma diagnosis and with very severe airflow obstruction.Supplemental data for this article is available online at https://doi.org/10.1080/15412555.2021.1977789 .

Keywords: New-user cohort design; exacerbations; inhaled coticosteroids; long-acting bronchodilators; observational research; pneumonia; real-world evidence.

Comment in

- Evaluating the Impact of Triple Therapy on Mortality in Copd: The End is the Beginning?
  Kostikas K, Kyriakopoulos C, Gogali A.COPD. 2022;19(1):57-60. doi: 10.1080/15412555.2021.1998410. Epub 2022 Jan 20.PMID: 35050797 No abstract available.

- Cited by 1 article

Randomized Controlled Trial

Physiother Theory Pract

. 2022 Dec;38(12):1937-1945.

doi: 10.1080/09593985.2021.1907824. Epub 2021 Apr 8.

Slow chest compression acutely reduces dynamic hyperinflation in people with chronic obstructive pulmonary disease: a randomized cross-over trial

Anelise Bauer Munari[1,2], Raysa Silva Venâncio[1,2], Aline Almeida Gulart[1,3], Jaqueline Aparecida Da Silveira[1,2], Suelen Roberta Klein[1,3], Ana Carolina Martins[1], Anamaria Fleig Mayer[1,2,3]

Affiliations expand

- PMID: 33829946

- DOI: 10.1080/09593985.2021.1907824

Abstract

Background: Strategies to minimize dynamic hyperinflation (DH) and dyspnea, such as slow chest compression (SCC), are relevant in people with chronic obstructive pulmonary disease (COPD).

Objectives: To analyze the acute effects of SCC after exercise on DH and dyspnea in people with COPD and to identify responders to the technique.

Methods: This is a cross-over study with 40 patients. Two six-minute step tests (6MSTs) were performed followed by a one-minute application of SCC ($6MST_{SCC}$) or rest ($6MST_{CONTROL}$), at random. End-expiratory lung volume (EELV) and dyspnea were assessed. A difference ≥76 ml in ΔEELV between SCC and control characterized the responders.

Results: The performance in $6MST_{SCC}$ and $6MST_{CONTROL}$ were similar. There was a greater reduction in EELV after $6MST_{SCC}$ compared to $6MST_{CONTROL}$ (124 ± 193 ml vs. 174 ± 183 ml; $p = .049$), while there was no difference in change in dyspnea between the SCC and control groups. Twenty-one participants were SCC responders and had higher functional residual capacity [FRC: 5.36 ± 1.09 vs. 4.58 ± 0.94; $p = .02$; cutoff point: 4.56; sensitivity = 76%; specificity = 53%; AUC = 0.71 (95%CI: 0.54 to 0.87); $p = .02$].

Conclusion: SCC applied immediately after exercise reduced DH, but did not reduce dyspnea in people with COPD. The technique is beneficial only for some patients and FRC can help to identify them.

Keywords: Chronic obstructive pulmonary disease; activities of daily living; dyspnea; inspiratory capacity.

BMJ Support Palliat Care

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. 2022 Dec;12(e6):e759-e762.

doi: 10.1136/bmjspcare-2019-001869. Epub 2019 Jul 11.

Australia-modified Karnofsky Performance Scale and physical activity in COPD and lung cancer: an exploratory pooled data analysis

Carlo Barbetta[1], Victoria Allgar[2], Matthew Maddocks[3], Catarina Ribeiro[4], Andrew Wilcock[5], David C Currow[6], Jane Phillips[7], Miriam J Johnson[8,9]

Affiliations expand

- PMID: 31296518

- DOI: 10.1136/bmjspcare-2019-001869

Abstract

Objectives: Patient-relevant measures of functional status are required in chronic obstructive pulmonary disease (COPD) and lung cancer in clinical practice and research. We explored the relationship between the Australia-modified Karnofsky Performance Scale (AKPS) and measures of functional capacity and physical activity in these patient groups.

Methods: Pooled clinical trial data were analysed to explore the relationship between AKPS and average daily steps (ADS), 6 min walk distance (6MWD), and body mass index, airflow obstruction, dyspnoea and exercise score (COPD group). Receiver operator characteristic curves were produced to compare sensitivity and specificity of cut-offs (no dependency >70, high dependency <60) and area under the curve (AUC).

Results: Seven clinical trials included people with COPD (n=79) and lung cancer (n=150). To detect an AKPS of >70, the optimal ADS cut-points were COPD, 3342 steps (AUC 0.88, 95% CI 0.79 to 0.97, sensitivity 82%, specificity 76%), and lung cancer, 3380 steps (AUC 0.72, 95% CI 0.64 to 0.81, sensitivity 61%, specificity 74%), and for 6MWD (COPD only) 242 m (AUC 0.72, 95% CI 0.63 to 0.81, sensitivity 73%, specificity 34%).

Conclusions: An AKPS score is strongly related to ADS in people with COPD and lung cancer. The AKPS may be useful in clinical practice and research to indicate levels of physical activity where ADS and 6 min walk test are not possible. Longitudinal data are needed to confirm these findings.

Keywords: chronic obstructive pulmonary disease; functional independence; lung cancer; outcome measurement; performance status; physical activity.

Conflict of interest statement

Competing interests: None declared.

- Cited by 2 articles

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

BMJ Full Text

ASTHMA

1
Sci Rep

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. 2022 Dec 3;12(1):20905.

doi: 10.1038/s41598-022-24763-9.

Safety and efficacy of tezepelumab vs. placebo in adult patients with severe uncontrolled asthma: a systematic review and meta-analysis

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Affiliations expand

- PMID: 36463281

- DOI: 10.1038/s41598-022-24763-9

Abstract

Patients with severe uncontrolled asthma still experience acute asthma symptoms and exacerbations, particularly those with non-eosinophilic inflammation who take the maximum amount of standard drug therapy. Tezepelumab, a human monoclonal antibody, can improve lung function and enhance control of asthma symptoms in those patients, regardless of the disease's baseline characteristics. This study aims to investigate the safety and efficacy of using tezepelumab in controlling severe symptoms of uncontrolled asthma. We performed a comprehensive literature search in several databases, including PubMed, Scopus, Web of Science, Cochrane Library, and clinicaltrial.gov, using a well-established search strategy to include all relevant publications. According to our inclusion criteria, we searched for randomized controlled trials comparing tezepelumab versus placebo in patients with severe, uncontrolled asthma. We analyzed the data using The Revman 5.4

program software. The search identified 589 potential articles. After excluding studies inconsistent with selection criteria, four studies were included and analyzed qualitatively and quantitatively. The pooled effect demonstrated the better performance of tezepelumab over the placebo regarding the decrease in annualized asthma exacerbation rate (MD = - 0.74, (95% CI [- 1.04, - 0.44], p < 0.00001)), asthma control questionnaire-6 (ACQ-6) Score MD = - 0.32, (95% CI [- 0.43, - 0.21], p < 0.00001)), blood eosinophil count (MD = - 139.38 cells/mcL, (95% CI [- 150.37, - 128.39], p < 0.00001)), feNO (MD = - 10 ppb, (95% CI [- 15.81, - 4.18], p = 0.0008)) and serum total IgE (MD = - 123.51 UI/ml, (95% CI [- 206.52, - 40.50], p = 0.004)). All tezepelumab groups had higher pre-bronchodilator forced expiratory volume in 1 s than the placebo group (MD = 0.16, (95% CI [0.10, 0.21], p < 0.00001)). Higher efficacy and safety profile was detected for tezepelumab to control the exacerbations of severe uncontrolled adult asthmatics.

- 37 references

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2

Editorial

Ann Allergy Asthma Immunol

. 2022 Nov 29;S1081-1206(22)01901-9.

doi: 10.1016/j.anai.2022.10.022. Online ahead of print.

The best of 2022 American College of Allergy, Asthma, and Immunology literature review

David A Khan[1]

Affiliations expand

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- DOI: 10.1016/j.anai.2022.10.022

No abstract available

SUPPLEMENTARY INFO

Publication typesexpand

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3

Respir Investig

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. 2022 Nov 30;S2212-5345(22)00147-2.

doi: 10.1016/j.resinv.2022.10.006. Online ahead of print.

Clinical significance of fractional exhaled nitric oxide and periostin as potential markers to assess therapeutic efficacy in patients with cough variant asthma

Masaki Hanibuchi[1], Atsushi Mitsuhashi[2], Tatsuya Kajimoto[3], Atsuro Saijo[3], Seidai Sato[2], Tetsuya Kitagawa[4], Yasuhiko Nishioka[2]

Affiliations expand

- PMID: 36463016

- DOI: 10.1016/j.resinv.2022.10.006

Abstract

Background: In Japan, cough variant asthma (CVA) is the most common etiology of chronic cough. Contrary to substantial progress in understanding the roles of various factors in classic asthma, little is known regarding the pathogenesis and development of CVA. Furthermore, few studies have explored valuable biomarkers for evaluating the therapeutic efficacy of patients with CVA.

Methods: We conducted a single-center, prospective study to investigate the clinical significance of various clinical factors as potential "therapeutic" markers for CVA.

Results: From December 2019 to September 2020, we enrolled 20 patients with CVA and 10 age-matched healthy control subjects. Fractional exhaled nitric oxide (FeNO) values were significantly higher in patients with CVA than those in healthy controls. All patients with CVA commenced treatment at the initial visit, which markedly alleviated symptoms 12 weeks after treatment. FeNO values and serum periostin levels were significantly decreased following treatment, and altered FeNO values correlated with improved visual analogue scale scores of symptoms. Moreover, changes in both FeNO values and serum periostin levels were significantly correlated with increased values of some pulmonary function tests while also correlating with each other.

Conclusions: Our observations indicate the usefulness of FeNO and periostin as potential "therapeutic" markers for CVA. To the best of our knowledge, this is the first report demonstrating the clinical significance of these factors as potential biomarkers to assess therapeutic efficacy in patients with CVA.

Keywords: Biomarker; Cough variant asthma; Fractional exhaled nitric oxide; Periostin.

Conflict of interest statement

Conflict of interest The authors have no conflicts of interest.

. 2022 Nov 26;206:107058.

doi: 10.1016/j.rmed.2022.107058. Online ahead of print.

Efficacy and safety of dupilumab as add-on therapy for patients with severe asthma: A real-world Dutch cohort study

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Affiliations expand

- PMID: 36462399

- DOI: 10.1016/j.rmed.2022.107058

Abstract

Background: Dupilumab as add-on treatment for severe uncontrolled asthma (SA) has shown to be effective and safe by phase-III-trials. Real-world data on clinical efficacy and safety is limited.

Objective: We aim to investigate the efficacy and safety of dupilumab as add-on therapy for SA in a real-world cohort.

Material and methods: The primary endpoint was annually exacerbation-rate (AER). Secondary outcomes were maintenance oral corticosteroid (mOCS) dependency, asthma control (ACQ-5), pulmonary function (FEV_1), quality of life (AQLQ) and frequency of reported adverse events (AEs).

Results: Overall, 148 patients were included. Median AER [IQR] reduced from 4.00 [2.00-5.00] at baseline to 1.00 [0.00-2.00] at 12 months ($p < 0.001$). mOCS-dependency reduced from 39.9% of the patients at baseline, to 20.3% at 6 months and to 14.9% at 12 months ($p < 0.001$). Median ACQ improved from 3.00 [2.00-3.80] at baseline to 1.80 [0.60-2.95] after 6 months and to 1.40 [0.20-2.60] after 12 months ($p < 0.001$). Median FEV_1 (L) improved from 2.21 [1.58-2.85] to 2.50 [2.00-3.06] at 6 months and to 2.51 [1.88-3.04] after 12 months (p

< 0.001). The outcomes improved most in subgroups with high eosinophils (≥300/µL) or FeNO (≥50 ppb) at baseline. AEs were reported by 45.3% (67/148), of which headache was most frequent.

Conclusions: This study indicates that dupilumab as add-on therapy for SA is associated with significant improvements in exacerbation-rate, mOCS-dependency, asthma control, pulmonary function, and quality of life. These results are in line with those of previous phase-III-trials.

Keywords: Asthma exacerbation; Dupilumab; Real life; Severe asthma; T2-inflammation.

J Asthma

. 2022 Dec 3;1-19.

doi: 10.1080/02770903.2022.2155189. Online ahead of print.

Dexamethasone versus prednisone/prednisolone in the management of pediatric patients with acute asthmatic exacerbations: a systematic review and meta-analysis

Elise Dahan[1,2], Nour El Ghazal[1,2], Hayato Nakanishi[1,2], Joe El Haddad[1,2], Reem H Matar[1,2,3], Danijel Tosovic[4], Azizullah Beran[5], Christian A Than[1,2,4], David Stiasny[6]

Affiliations expand

- PMID: 36461938

- DOI: 10.1080/02770903.2022.2155189

Abstract

Objective: Acute asthmatic exacerbation is a common condition for pediatric emergency visits. Recently, dexamethasone has increasingly been used as an alternative to prednisone. This study aimed to evaluate the safety and efficacy of dexamethasone (DEX) against prednisone/prednisolone (PRED) in managing pediatric patients with acute asthmatic exacerbation.

Data sources: Cochrane, Embase, PubMed, Scopus, and Web of Science were searched for articles from their inception to August 2022 by two independent reviewers using the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) system. The review was registered prospectively with PROSPERO (CRD42022353462).

Study selections: From 316 studies screened, seventeen studies met the eligibility criteria, with 5967 pediatric patients experiencing an asthma exacerbation requiring treatment with either DEX (n = 2865) or PRED (n = 3102). Baseline patient characteristics (age, sex, PRAM (pediatric respiratory assessment measure), previous corticosteroid and beta-agonist inhaler) were comparable between groups.

Results: After treatment administration, the DEX group had fewer vomiting incidents (OR = 0.24, 95% CI: 0.11, 0.51, I^2=58%) and reduced non-compliance events (OR = 0.12, 95% CI: 0.04, 0.34, I^2=0%) when compared to the PRED group. Regarding emergency-department (ED)-related outcomes, there were no differences in hospital admission rates (OR = 0.83, 95% CI: 0.58, 1.19, I^2=15%), time spent in the ED (MD=-0.11 hours, 95% CI: -0.52; 0.30, I^2=82%) or relapse occurrences (OR = 0.67, 95% CI: 0.30, 1.49, I^2=52%) between both groups.

Conclusion: Although there were no differences between the DEX and PRED groups in terms of hospital admission rates, time spent in the ED or relapse events, pediatric patients receiving DEX experienced lower non-compliance and vomiting rates.

Keywords: asthma; dexamethasone; meta-analysis; pediatric; prednisolone; prednisone.

Lancet Digit Health

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doi: 10.1016/S2589-7500(22)00187-X. Online ahead of print.

Identifying and visualising multimorbidity and comorbidity patterns in patients in the English National Health Service: a population-based study

Valerie Kuan [1], Spiros Denaxas [2], Praveetha Patalay [3], Dorothea Nitsch [4], Rohini Mathur [5], Arturo Gonzalez-Izquierdo [6], Reecha Sofat [7], Linda Partridge [8], Amanda Roberts [9], Ian C K Wong [10], Melanie Hingorani [11], Nishi Chaturvedi [12], Harry Hemingway [13], Aroon D Hingorani [14], Multimorbidity Mechanism and Therapeutic Research Collaborative (MMTRC)

Collaborators, Affiliations expand

- PMID: 36460578

- DOI: 10.1016/S2589-7500(22)00187-X

Abstract

Background: Globally, there is a paucity of multimorbidity and comorbidity data, especially for minority ethnic groups and younger people. We estimated the frequency of common disease combinations and identified non-random disease associations for all ages in a multiethnic population.

Methods: In this population-based study, we examined multimorbidity and comorbidity patterns stratified by ethnicity or race, sex, and age for 308 health conditions using electronic health records from individuals included on the Clinical Practice Research Datalink linked with the Hospital Episode Statistics admitted patient care dataset in England. We included individuals who were older than 1 year and who had been registered for at least 1 year in a participating general practice during the study period (between April 1, 2010, and March 31, 2015). We identified the most common combinations of conditions and comorbidities for index conditions. We defined comorbidity as the accumulation of

additional conditions to an index condition over an individual's lifetime. We used network analysis to identify conditions that co-occurred more often than expected by chance. We developed online interactive tools to explore multimorbidity and comorbidity patterns overall and by subgroup based on ethnicity, sex, and age.

Findings: We collected data for 3 872 451 eligible patients, of whom 1 955 700 (50·5%) were women and girls, 1 916 751 (49·5%) were men and boys, 2 666 234 (68·9%) were White, 155 435 (4·0%) were south Asian, and 98 815 (2·6%) were Black. We found that a higher proportion of boys aged 1-9 years (132 506 [47·8%] of 277 158) had two or more diagnosed conditions than did girls in the same age group (106 982 [40·3%] of 265 179), but more women and girls were diagnosed with multimorbidity than were boys aged 10 years and older and men (1 361 232 [80·5%] of 1 690 521 vs 1 161 308 [70·8%] of 1 639 593). White individuals (2 097 536 [78·7%] of 2 666 234) were more likely to be diagnosed with two or more conditions than were Black (59 339 [60·1%] of 98 815) or south Asian individuals (93 617 [60·2%] of 155 435). Depression commonly co-occurred with anxiety, migraine, obesity, atopic conditions, deafness, soft-tissue disorders, and gastrointestinal disorders across all subgroups. Heart failure often co-occurred with hypertension, atrial fibrillation, osteoarthritis, stable angina, myocardial infarction, chronic kidney disease, type 2 diabetes, and chronic obstructive pulmonary disease. Spinal fractures were most strongly non-randomly associated with malignancy in Black individuals, but with osteoporosis in White individuals. Hypertension was most strongly associated with kidney disorders in those aged 20-29 years, but with dyslipidaemia, obesity, and type 2 diabetes in individuals aged 40 years and older. Breast cancer was associated with different comorbidities in individuals from different ethnic groups. Asthma was associated with different comorbidities between males and females. Bipolar disorder was associated with different comorbidities in younger age groups compared with older age groups.

Interpretation: Our findings and interactive online tools are a resource for: patients and their clinicians, to prevent and detect comorbid conditions; research funders and policy makers, to redesign service provision, training priorities, and guideline development; and biomedical researchers and manufacturers of medicines, to provide leads for research into common or sequential pathways of disease and inform the design of clinical trials.

Funding: UK Research and Innovation, Medical Research Council, National Institute for Health and Care Research, Department of Health and Social Care, Wellcome Trust, British Heart Foundation, and The Alan Turing Institute.

Conflict of interest statement

Declaration of interests DN is the UK Kidney Association Director of Informatics Research based at the UK Renal Registry and is on the steering committee for two GlaxoSmithKline-funded studies looking at kidney function markers in sub-Saharan Africa. ICKW was a

member of the ISAC of CPRD and has received funding from Amgen, Bristol-Myers Squibb, Pfizer, Janssen, Bayer, GSK, and Novartis to conduct pharmacoepidemiological research outside the submitted work. RM has received consulting fees from Amgen. ADH is a co-investigator on a grant from Pfizer to identify potential therapeutic targets for heart failure using human genomics. NC is remunerated for her membership of a data safety and monitoring committee of a trial sponsored by AstraZeneca. All other authors declare no competing interests.

Respir Med

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Risk of hospitalization in a sample of COVID-19 patients with and without chronic obstructive pulmonary disease

Laura C Myers[1], Richard Murray[2], Bonnie Donato[3], Vincent X Liu[4], Patricia Kipnis[4], Asif Shaikh[5], Jessica Franchino-Elder[3]

Affiliations expand

- PMID: 36459955

- DOI: 10.1016/j.rmed.2022.107064

Abstract

Background and objective: Patients with chronic obstructive pulmonary disease (COPD) may have worse coronavirus disease-2019 (COVID-19)-related outcomes. We compared COVID-19 hospitalization risk in patients with and without COPD.

Methods: This retrospective cohort study included patients ≥40 years, SARS-CoV-2 positive, and with Kaiser Permanente Northern California membership ≥1 year before COVID-19 diagnosis (electronic health records and claims data). COVID-19-related hospitalization risk was assessed by sequentially adjusted logistic regression models and stratified by disease severity. Secondary outcome was death/hospice referral after COVID-19.

Results and discussion: Of 19,558 COVID-19 patients, 697 (3.6%) had COPD. Compared with patients without COPD, COPD patients were older (median age: 69 vs 53 years); had higher Elixhauser Comorbidity Index (5 vs 0) and more median baseline outpatient (8 vs 4), emergency department (2 vs 1), and inpatient (2 vs 1) encounters. Unadjusted analyses showed increased odds of hospitalization with COPD (odds ratio [OR]: 3.93; 95% confidence interval [CI]: 3.40-4.60). After full risk adjustment, there were no differences in odds of hospitalization (OR: 1.14, 95% CI: 0.93-1.40) or death/hospice referral (OR: 0.96, 95% CI: 0.72-1.27) between patients with and without COPD. Primary/secondary outcomes did not differ by COPD severity, except for higher odds of hospitalization in COPD patients requiring supplemental oxygen versus those without COPD (OR: 1.84, 95% CI: 1.02-3.33).

Conclusions: Except for hospitalization among patients using supplemental oxygen, no differences in odds of hospitalization or death/hospice referral were observed in the COVID-19 patient sample depending on whether they had COPD.

Keywords: COPD; COVID-19; Healthcare resource use; Pneumonia.

Conflict of interest statement

Declaration of competing interest Dr. Bonnie Donato, Dr. Asif Shaikh, and Dr. Jessica Franchino-Elder are employees of BI. Dr. Richard Murray is the Chief Medical Officer of Spire Health and reports receiving consulting fees from BI; he serves as the Chairman of the Board for the Allergy and Asthma Foundation of America. Dr. Vincent Liu, Dr. Laura Myers, and Dr. Patricia Kipnis received funding from BI to perform the study.

Review

Curr Allergy Asthma Rep

. 2022 Dec 2.

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Recent miRNA Research in Asthma

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Affiliations expand

- PMID: 36459329

- DOI: 10.1007/s11882-022-01050-1

Abstract

Purpose of review: The study of microRNA in asthma has revealed a vibrant new level of gene regulation underlying asthma pathology. Several miRNAs have been shown to be important in asthma, influencing various biological mechanisms which lead to asthma pathology and symptoms. In addition, miRNAs have been proposed as biomarkers of asthma affection status, asthma severity, and asthma treatment response. We review all recent asthma-miRNA work, while also presenting comprehensive tables of all miRNA results related to asthma.

Recent findings: We here reviewed 63 recent studies published reporting asthma and miRNA research, and an additional 14 reviews of the same. We summarized the information for both adult and childhood asthma, as well as research on miRNAs in asthma-COPD overlap syndrome (ACOs), and virus-induced asthma exacerbations. We attempted to present a comprehensive collection of recently published asthma-associated miRNAs as well as tables of all published asthma-related miRNA results.

Keywords: Asthma; Review; miRNA.

- 97 references

SUPPLEMENTARY INFO

Publication types, Grant supportexpand

Pulm Ther

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. 2022 Dec 2.

doi: 10.1007/s41030-022-00205-9. Online ahead of print.

Responsiveness of Inhaled Corticosteroid Treatment in Children with Asthma: The Role of rs242941 Polymorphism of CRHR1 Gene

Hanh Nguyen-Thi-Bich[1], Thuy Nguyen-Thi-Dieu[2], Le Nguyen-Ngoc-Quynh[1], Huong Le-Thi-Minh[3], Sy Duong-Quy[4 5 6 7]

Affiliations expand

- PMID: 36459327

- DOI: 10.1007/s41030-022-00205-9

Abstract

Introduction: Inhaled corticosteroid (ICS) is the most widely used and effective treatment of asthma. However, some patients do not respond to ICS, which might be due to various genetic factors. Hence, understanding the genetic factors involved in the ICS response could help physicians to individualize their treatment decision and action plans for given patients. This study aimed to analyze the characteristics of corticotropin-releasing hormone receptor 1 (CRHR1) genotypes in children with asthma and the correlation between rs242941 polymorphism of CRHR1 gene and ICS responsiveness.

Methods: This prospective study included children with uncontrolled asthma, assessing their eosinophil count, IgE concentration, lung function, and fractional concentration of nitric oxide in exhaled breath (FENO) and performing CRHR1 polymorphism sequencing. The level of asthma control was assessed by asthma control test (ACT); the responsiveness of asthma treatment with ICS was evaluated by measuring the change of ACT and forced expiratory volume in 1 s (FEV_1) after treatment versus at inclusion.

Results: In total, 107 patients were analyzed for CRHR1 at rs242941. Among these, 86 (80.3%) had homozygous wild-type GG, 20 (18.7%) had heterozygous GT genotypes, and 1 (1.0%) had a homozygous variant for TT. Children with personal and family history of atopy were more likely to have GT and TT genotypes. The severity of asthma was similar between children with asthma in the three groups of GG, GT, and TT genotypes of CRHR1 at rs242941. FENO level, total IgE concentration, and eosinophilic count in children with asthma were not significantly different between GG and GT genotypes. The patient with a TT homozygous variant genotype had a higher level of FENO. There was no correlation between CRHR1 polymorphism at rs242941 and asthma control evaluated by asthma control test and lung function parameters.

Conclusion: TT genotype of rs242941 in the CRHR1 gene is not frequent. Clinical and functional characteristics of children with asthma with rs242941 polymorphism of CRHR1 gene remain homogeneously similar. There is no correlation between rs242941 polymorphism and ACT or FEV_1.

Keywords: Asthma; CRHR1; Children; FENO; ICS; rs242941.

- 24 references

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Review

Cochrane Database Syst Rev

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. 2022 Dec 2;12:CD003733.

doi: 10.1002/14651858.CD003733.pub5.

Inhaled bronchodilators for acute chest syndrome in people with sickle cell disease

Jennifer M Knight-Madden[1], Ian R Hambleton[2]

Affiliations expand

- PMID: 36458811

- DOI: 10.1002/14651858.CD003733.pub5

Abstract

Background: Bronchodilators are used to treat bronchial hyper-responsiveness in asthma. Bronchial hyper-responsiveness may be a component of acute chest syndrome in people with sickle cell disease. Therefore, bronchodilators may be useful in the treatment of acute chest syndrome. This is an update of a previously published Cochrane Review.

Objectives: The aim of the review is to determine whether the use of inhaled, short-acting bronchodilators for acute chest syndrome reduces morbidity and mortality in people with sickle cell disease and to assess whether this treatment causes adverse effects.

Search methods: We searched the Cochrane Cystic Fibrosis and Genetic Disorders Group's Trials Register comprising references identified from comprehensive electronic database searches, handsearches of relevant journals and abstract books of conference proceedings. Additional searches were carried out on MEDLINE (1966 to 2004) and Embase (1981 to 2004) and ongoing trial registries (28 September 2022). Date of the most recent search of the Group's Haemoglobinopathies Trials Register: 25 July 2022.

Selection criteria: Randomised or quasi-randomised controlled trials. Trials using quasi-randomisation methods will be included in future updates of this review if there is sufficient evidence that the treatment and control groups are similar at baseline.

Data collection and analysis: We found no trials investigating the use of bronchodilators for acute chest syndrome in people with sickle cell disease.

Main results: We found no trials investigating the use of bronchodilators for acute chest syndrome in people with sickle cell disease.

Authors' conclusions: If bronchial hyper-responsiveness is an important component of some episodes of acute chest syndrome in people with sickle cell disease, the use of inhaled bronchodilators may be indicated. There is need for a well-designed, adequately-powered randomised controlled trial to assess the benefits and risks of the addition of inhaled bronchodilators to established therapies for acute chest syndrome in people with sickle cell disease.

- 32 references

SUPPLEMENTARY INFO

Publication typesexpand

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Eur Clin Respir J

. 2022 Nov 26;10(1):2149918.

doi: 10.1080/20018525.2022.2149918. eCollection 2023.

Adherence to treatment guidelines and good asthma control in Finland

Johanna Pakkasela[1,2], Petri Salmela[1], Pekka Juntunen[2], Jussi Karjalainen[2,3], Lauri Lehtimäki[2,3]

Affiliations expand

- PMID: 36457457

- PMCID: PMC9707375

- DOI: 10.1080/20018525.2022.2149918

Abstract

Background: Asthma program in Finland decreased asthma-related mortality and expenses of care on national level, but there is lack of data on adherence to treatment guidelines and disease control on individual level. We aimed to assess adherence to guidelines and disease control among Finnish adult asthmatics.

Methods: Questionnaires were sent in Finland to 2000 randomly selected recipients aged 18-80 years, who had bought medication for obstructive airways disease during the previous 12 months. The questionnaire included questions on asthma medication, exacerbations, self-management and follow-up. Asthma symptom control was assessed by the Asthma Control Test (ACT).

Results: A high proportion (82.4%) of the 541 responders with physician-diagnosed asthma reported regular use of asthma medication and 97.1% of them used inhaled corticosteroids. Almost all (97.0%) of the asthmatics were taught how to use their inhaler and 78.4% had an asthma self-management plan, but only 35.7% reported regular annual follow-up visits. According to symptoms, 60.0% had their asthma well-controlled (ACT score ≥20). On the other hand, 29.2% had a course of oral corticosteroid and 21.8% had an asthma-related unscheduled health care visit during the previous year, but only 2.6% reported a hospitalization. Asthma control was better in those not using regular asthma medication.

Conclusions: The guidelines are well adopted in Finnish adult asthma care except for regular follow-up visits. Majority of patients had good symptom control and hospitalizations were rare. Better asthma control among those not using regular asthma medication implies they are not undertreated but have a mild disease.

Keywords: Asthma; adult; control; exacerbation; follow-up; guideline; management; medication; symptom.

Conflict of interest statement

The authors report no conflicts of interest related to this study.

- 39 references
- 4 figures

SUPPLEMENTARY INFO

Grant supportexpand

PLoS One

. 2022 Dec 1;17(12):e0269760.

doi: 10.1371/journal.pone.0269760. eCollection 2022.

E-cigarette use and respiratory symptoms in residents of the United States: A BRFSS report

Marcia H Varella[1], Olyn A Andrade[2], Sydney M Shaffer[2], Grettel Castro[1], Pura Rodriguez[1], Noël C Barengo[1 3 4], Juan M Acuna[5 6]

Affiliations expand

- PMID: 36454742

- DOI: 10.1371/journal.pone.0269760

Free article

Abstract

Purpose: E-cigarettes are the most common type of electronic nicotine delivery system in the United States. E-cigarettes contain numerous toxic compounds that has been shown to induce severe structural damage to the airways. The objective of this study is to assess if there is an association between e-cigarette use and respiratory symptoms in adults in the US as reported in the BRFSS.

Methods: We analyzed data from 18,079 adults, 18-44 years, who participated at the Behavioral Risk Factor Surveillance System (BRFSS) in the year 2017. E-cigarette smoking

status was categorized as current everyday user, current some days user, former smoker, and never smoker. The frequency of any respiratory symptoms (cough, phlegm, or shortness of breath) was compared. Unadjusted and adjusted logistic regression analysis were used to calculate odds ratios (OR) and 95% confidence intervals (CI).

Results: The BRFSS reported prevalence of smoking e-cigarettes was 6%. About 28% of the participants reported any of the respiratory symptoms assessed. The frequency of reported respiratory symptoms was highest among current some days e-cigarette users (45%). After adjusting for selected participant's demographic, socio-economic, and behavioral characteristics, and asthma and COPD status, the odds of reporting respiratory symptoms increased by 49% among those who use e-cigarettes some days (OR 1.49; 95% CI: 1.06-2.11), and by 29% among those who were former users (OR 1.29; 95% CI: 1.07-1.55) compared with those who never used e-cigarettes. No statistically significant association was found for those who used e-cigarettes every day (OR 1.41; 95% CI 0.96-2.08).

Conclusion: E-cigarettes cannot be considered as a safe alternative to aid quitting use of combustible traditional cigarettes. Cohort studies may shed more evidence on the association between e-cigarette use and respiratory diseases.

Conflict of interest statement

The authors have declared that no competing interests exist.

ERJ Open Res

. 2022 Nov 28;8(4):00246-2022.

doi: 10.1183/23120541.00246-2022. eCollection 2022 Oct.

Sputum neutrophil counts in healthy subjects: relationship with age

Augusta Beech[1,2], Dave Singh[1,2]

Affiliations expand

- PMID: 36451840
- PMCID: PMC9703149
- DOI: 10.1183/23120541.00246-2022

Free PMC article

Abstract

A threshold of ~60% has commonly been used in asthma and COPD studies to define the presence of neutrophilic airway inflammation. This threshold is based on relatively young healthy subject datasets. However, age-related increases in sputum neutrophils have been observed previously. We used a healthy cohort, with a comparatively wider age range, to re-evaluate the age-related increase in sputum neutrophils, analysing changes by decade. We also studied the long-term repeatability of sputum neutrophil counts. Differential sputum cell count data for healthy subjects (n=121) was retrospectively analysed. Subjects with a repeated count (mean interval 4.8 years) were included in longitudinal analysis. There was a significant positive association between age and sputum neutrophil % (rho=0.24, p<0.01), with 51.2% of subjects having a sputum neutrophil count >60%. Sputum neutrophil counts increased with each decade until ~60 years where a plateau was observed. The baseline sputum neutrophil % increased significantly at repeated sampling (p=0.02), with excellent long-term repeatability (intraclass correlation coefficient=0.80). We confirm previous reports of an age-related increase in sputum neutrophil % in healthy individuals and identified a plateau which occurs at age ~60 years. There was an increase in sputum neutrophil % during longitudinal follow-up, indicating that age-related neutrophilia is a progressive phenomenon. These findings question the use of an unadjusted threshold, in relation to age, to identify the presence of neutrophilic airway inflammation.

Conflict of interest statement

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

- 41 references
- 2 figures

Review

Eur Respir Rev

. 2022 Nov 29;31(166):220099.

doi: 10.1183/16000617.0099-2022. Print 2022 Dec 31.

Inhaled corticosteroids for the treatment of COVID-19

Mona Bafadhel[1], Rosa Faner[2], Camille Taillé[3], Richard E K Russell[4], Tobias Welte[5], Peter J Barnes[6], Alvar Agustí[7]

Affiliations expand

- PMID: 36450371

- DOI: 10.1183/16000617.0099-2022

Free article

Abstract

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has caused severe illness and mortality for millions worldwide. Despite the development, approval and rollout of vaccination programmes globally to prevent infection by SARS-CoV-2 and the development of coronavirus disease 2019 (COVID-19), treatments are still urgently needed to improve outcomes. Early in the pandemic it was observed that patients with pre-existing asthma or COPD were underrepresented among those with COVID-19. Evidence from clinical studies indicates that the inhaled corticosteroids (ICS) routinely taken for asthma and COPD could have had a protective role in preventing severe COVID-19 and, therefore, may be a promising treatment for COVID-19. This review summarises the evidence supporting the beneficial effects of ICS on outcomes in patients with COVID-19 and explores the potential protective mechanisms.

Conflict of interest statement

Conflict of interest: M. Bafadhel has unrestricted research grants from AstraZeneca and Roche, and has received honoraria to her institution for speaker's fees from AstraZeneca, Chiesi, Cipla and GlaxoSmithKline. She is a scientific adviser to Albus Health and ProAxsis. Conflict of interest: R. Faner has received research funding, advisory board fees and lecture fees from AstraZeneca, Chiesi, GlaxoSmithKline and Menarini. Conflict of interest: C. Taillé has received grants to her institution, advisory board fees and lecture fees from AstraZeneca, Chiesi, GlaxoSmithKline, Novartis and Sanofi. Conflict of interest: R.E.K. Russell has received advisory board fees and lecture fees from AstraZeneca, Chiesi, Cipla and GlaxoSmithKline. Conflict of interest: T. Welte has received lecture fees from AstraZeneca, Basilea, Bayer, Berlin Chemie, Biotest, Boehringer Ingelheim, GlaxoSmithKline, MSD, Novartis, Pfizer, Roche and Sanofi-Aventis, and advisory board fees from AstraZeneca, Basilea, Bayer, Biotest, Boehringer Ingelheim, Gilead, GlaxoSmithKline, Janssen, Novartis, Pfizer and Roche. Conflict of interest: P.J. Barnes has received research funding from AstraZeneca and Boehringer Ingelheim, and funding for consultancy, scientific advisory boards and talks from AstraZeneca, Boehringer Ingelheim, Covis, Epi-Endo, Novartis, Pieris and Teva. Conflict of interest: A. Agustí has unrestricted research grants from AstraZeneca and GlaxoSmithKline, and has received honoraria for speaker's fees from AstraZeneca, Chiesi, GlaxoSmithKline, Menarini, Orion Pharma and Zambon.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

PLoS One

. 2022 Nov 28;17(11):e0276368.

doi: 10.1371/journal.pone.0276368. eCollection 2022.

Association between use of ß2-adrenergic receptor agonists and incidence of Parkinson's disease: Retrospective cohort analysis

Hasan Nadeem[1], Bo Zhou[2,3], Dana Goldman[2,3,4], John Romley[2,3,4]

Affiliations expand

- PMID: 36441791

- DOI: 10.1371/journal.pone.0276368

Free article

Abstract

Introduction: Previous observational studies assessing β2-agonist/-antagonist use on PD risk have yielded conflicting results. We evaluated the relationship between β2-agonist use and the incidence of Parkinson's disease in patients with chronic lung disease.

Methods: We performed a retrospective cohort analysis on a 20% random sample abstracted from a traditional (fee-for-service) Medicare program in the United States. Inclusion criteria were individuals over 65 years old diagnosed with asthma, COPD, and/or bronchiectasis who were enrolled in a prescription drug (standalone Part D) plan over 2007-2010 and alive through 2014. The main outcome measure was a diagnosis of Parkinson's disease over the period 2011-2014, in relation to the number of 30-day-equivalent drug claims over 2007-2010. Logistic regression analysis was performed on a sample including 236,201 Medicare beneficiaries.

Results: The sample was 68% female, 80% white, and on average 77 years old as of 2010. Compared to non-users, β2-agonist users were more likely to be younger (76.3y versus 78.0y), smokers (40.4% versus 31.1%) and asthmatic (62.4% versus 28.3%). The odds ratio for a β2-agonist claim on PD development was 0.986 (95% CI 0.977-0.995) after adjusting for demographics, smoking history, respiratory exacerbations, comorbidities, and other drug use. Risk reductions were larger for males than females (0.974 versus 0.994, P = 0.032), and for individuals with COPD compared to those with asthma (0.968 versus 0.998, P = 0.049). Reverse causality was addressed with a Cox analysis that allowed β2-agonist use to vary from medication initiation to disease onset. By the end of the follow-up period, β2-agonist use was shown to be associated with a true protective effect against PD onset.

Discussion: β2-agonist use is associated with decreased risk of PD incidence. Further investigation, possibly including clinical trials, is warranted to strengthen the evidence base supporting clinical decision-makers looking to repurpose pharmaceuticals to prevent neurodegenerative disease onset.

Conflict of interest statement

I have read the journal's policy and the authors of this manuscript have the following competing interests: During the past three years, Dana Goldman (DG) has received research support, speaker fees, travel assistance, or consulting income from the following sources: Amgen, Blue Cross Blue Shield of Arizona, Bristol Myers Squibb, Cedars-Sinai Health System, Edwards Lifesciences, Gates Ventures, Genentech, Gilead Sciences, Johnson & Johnson, Kaiser Family Foundation, National Institutes of Health, Novartis, Pfizer, Roche, and Walgreens Boots Alliance. DG holds equity in EntityRisk. DG reports personal fees from Biogen and GRAIL as a scientific advisor. Until November 2019, DG served on the Scientific Advisory Board of ACADIA Pharmaceuticals. Until March 2020, DG served as a scientific advisor to Precision Medicine Group. This does not alter our adherence to PLOS ONE policies on sharing data and materials.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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World Allergy Organ J

. 2022 Nov 20;15(12):100720.

doi: 10.1016/j.waojou.2022.100720. eCollection 2022 Dec.

Clinical predictors of treatment response to tiotropium add-on therapy in adult asthmatic patients: From multicenter real-world cohort data in Korea

Ji-Su Shim[1], Juhae Jin[2], Sae-Hoon Kim[3], Taehoon Lee[4], An-Soo Jang[5], Chan Sun Park[6], Jae-Woo Jung[7], Jae-Woo Kwon[8], Ji-Yong Moon[9], Min-Suk Yang[10], Jaechun Lee[11], Jeong-Hee Choi[12 13], Yoo Seob Shin[14], Hee-Kyoo Kim[15], Sujeong Kim[16], Joo-Hee Kim[17], Sang-Heon Cho[18], Young-Hee Nam[19], Sang-Hoon Kim[20], So Young Park[21], Gyu Young Hur[22], Sang-Ha Kim[23], Hye-Kyung Park[24], Hyun Jung Jin[25], Jae-Hyun Lee[26], Jung-Won Park[26], Ho Joo Yoon[9], Byoung Whui Choi[27], Young-Joo Cho[1], Min-Hye Kim[1], Tae-Bum Kim[2], Cohort for Reality and Evolution of Adult Asthma in Korea (COREA) Study Group

Affiliations expand

- PMID: 36438190

- PMCID: PMC9679363

- DOI: 10.1016/j.waojou.2022.100720

Free PMC article

Abstract

Background: Tiotropium, a long-acting muscarinic antagonist, is recommended for add-on therapy to inhaled corticosteroids (ICS)-long-acting beta 2 agonists (LABA) for severe asthma. However, real-world studies on the predictors of response to tiotropium are limited. We investigated the real-world use of tiotropium in asthmatic adult patients in Korea and we identified predictors of positive response to tiotropium add-on.

Methods: We performed a multicenter, retrospective, cohort study using data from the Cohort for Reality and Evolution of Adult Asthma in Korea (COREA). We enrolled asthmatic participants who took ICS-LABA with at least 2 consecutive lung function tests at 3-month intervals. We compared tiotropium users and non-users, as well as tiotropium responders and non-responders to predict positive responses to tiotropium, defined as 1) increase in forced expiratory volume in 1 s (FEV1) ≥ 10% or 100 mL; and 2) increase in asthma control test (ACT) score ≥3 after 3 months of treatment.

Results: The study included 413 tiotropium users and 1756 tiotropium non-users. Tiotropium users had low baseline lung function and high exacerbation rate, suggesting more severe asthma. Clinical predictors for positive response to tiotropium add-on were 1) positive bronchodilator response (BDR) [odds ratio (OR) = 6.8, 95% confidence interval (CI): 1.6-47.4, P = 0.021] for FEV1 responders; 2) doctor-diagnosed asthma-chronic obstructive pulmonary disease overlap (ACO) [OR = 12.6, 95% CI: 1.8-161.5, *P* = 0.024], and 3) initial ACT score <20 [OR = 24.1, 95% CI: 5.45-158.8, P < 0.001] for ACT responders. FEV1 responders also showed a longer exacerbation-free period than those with no FEV1 increase (*P* = 0.014), yielding a hazard ratio for the first asthma exacerbation of 0.5 (95% CI: 0.3-0.9, *P* = 0.016).

Conclusions: The results of this study suggest that tiotropium add-on for uncontrolled asthma with ICS-LABA would be more effective in patients with positive BDR or ACO. Additionally, an increase in FEV1 following tiotropium may predict a lower risk of asthma exacerbation.

Keywords: Asthma; Muscarinic antagonists; Predictor; Tiotropium; Treatment response.

- 31 references

- 1 figure

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Editorial

Respirology

-
-
-

. 2022 Nov 27.

doi: 10.1111/resp.14412. Online ahead of print.

Small babies at birth, small lungs for life?

Stefano Guerra[1], Erik Melén[2]

Affiliations expand

- PMID: 36437530

- DOI: 10.1111/resp.14412

No abstract available

Keywords: gestational age; paediatric; respiratory function test; respiratory structure and function; small lung.

- 11 references

BMC Pulm Med

. 2022 Nov 28;22(1):445.

doi: 10.1186/s12890-022-02241-2.

"Life-changing": the experience of super-responders to biologics in severe asthma

Joseph W Lanario[1], Lucy Cartwright[2], Rupert C Jones[3], Ross Sayers[4], Michael E Hyland[2 3], Matthew Masoli[4 5]

Affiliations expand

- PMID: 36437459

- PMCID: PMC9702657

- DOI: 10.1186/s12890-022-02241-2

Free PMC article

Abstract

Background: There is limited information on the patient's perspective of how biologic treatments impact their lives. We conducted a qualitative study to explore the patient's experience of being considered a super-responder from a quality of life perspective.

Methods: Patients with severe asthma identified as super-responders were invited to semi-structured interviews conducted online. Participants could bring a family member/friend to the interview. The interviews explored experiences of biologic treatment, were transcribed and underwent thematic analysis.

Results: Twenty-five participants took part in this study. Themes emerged on the impact of biologic treatment for participants and for their friends/family: (i) Words used to describe their often life-changing experiences and (ii) the positive changes noted. Biologic treatment stopped the disruption of family life and social life caused by exacerbations. Improvements in mental health were also noted. Marked individual variations in the way it affected their lives were noted. Most participants noticed improvements 2-3 months after starting their biologic, but some noticed improvement within a few days and others after 6 months.

Conclusions: Super-responders reported profound but heterogeneous improvements following biologic treatment beyond asthma symptoms and exacerbations including important benefits to social and family life. Improvements may be underestimated as social and family benefits are not reliably measured in current studies with implications for health economic evaluations. Not all patients are super-responders, and excellent responses may be lost in group mean data in trials. Individual time course and response patterns need further elucidation to identify who will respond best to biologics.

Keywords: Biologics; Patient perspectives; QoL; Qualitative; Severe asthma; Super-responders.

Conflict of interest statement

J.W Lanario reports non-promotional research grants from GSK, AZ and Teva outside the submitted work. L. Cartwright reports a non-promotional research grant from GSK outside the submitted work. R.C. Jones reports non-promotional research grants from GSK, AZ, Teva outside the submitted work and personal fees form GSK, Novartis and Optimum Patient Care. R. Sayers has nothing to report. M.E. Hyland reports non-promotional research grants from GSK, AZ and Teva outside the submitted work and personal fees GSK. M. Masoli reports a non-promotional research grant from GSK outside the submitted work and personal fees from GSK and AZ.

- 27 references

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

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Sci Rep

. 2022 Nov 27;12(1):20363.

doi: 10.1038/s41598-022-24909-9.

Machine learning did not beat logistic regression in time series prediction for severe asthma exacerbations

Anne A H de Hond[1][2][3], Ilse M J Kant[4][5][6], Persijn J Honkoop[6], Andrew D Smith[7], Ewout W Steyerberg[5][6], Jacob K Sont[6]

Affiliations expand

- PMID: 36437306

- PMCID: PMC9701686

- DOI: 10.1038/s41598-022-24909-9

Free PMC article

Abstract

Early detection of severe asthma exacerbations through home monitoring data in patients with stable mild-to-moderate chronic asthma could help to timely adjust medication. We evaluated the potential of machine learning methods compared to a clinical rule and logistic regression to predict severe exacerbations. We used daily home monitoring data from two studies in asthma patients (development: n = 165 and validation: n = 101 patients). Two ML models (XGBoost, one class SVM) and a logistic regression model provided predictions based on peak expiratory flow and asthma symptoms. These models were compared with an asthma action plan rule. Severe exacerbations occurred in 0.2% of all daily measurements in the development (154/92,787 days) and validation cohorts (94/40,185 days). The AUC of the best performing XGBoost was 0.85 (0.82-0.87) and 0.88 (0.86-0.90) for logistic regression in the validation cohort. The XGBoost model provided overly extreme risk estimates, whereas the logistic regression underestimated predicted risks. Sensitivity and specificity were better overall for XGBoost and logistic regression compared to one class SVM and the clinical rule. We conclude that ML models did not beat logistic regression in predicting short-term severe asthma exacerbations based on home monitoring data. Clinical application remains challenging in settings with low event incidence and high false alarm rates with high sensitivity.

Conflict of interest statement

The authors declare no competing interests.

- 36 references
- 2 figures

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MeSH termsexpand

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J Asthma

. 2022 Dec 1;1-10.

doi: 10.1080/02770903.2022.2144350. Online ahead of print.

Epidemiology, treatment and health care resource use of patients with severe asthma in Germany – a retrospective claims data analysis

Fraence Hardtstock[1], Julia Krieger[1], Thomas Wilke[1], Marco Lukas[2], Bernhard Ultsch[2], Robert Welte[2], Renate Quinzler[3], Ulf Maywald[4], Hartmut Timmermann[5]

Affiliations expand

- PMID: 36373984

- DOI: 10.1080/02770903.2022.2144350

Abstract

Background: Asthma causes various clinical symptoms, including unpredictable severe exacerbations, and even though most patients can achieve a reasonable disease control due to adequate treatment, some patients do not. This study seeks to describe healthcare resource utilization (HCRU) and treatment of asthma and severe asthma patients in Germany.

Method: A retrospective claims data analysis has been conducted on adult asthma patients and a subset of patients with severe asthma, identified during July 2017 - June 2018. A proxy was used to identify severe asthma patients based on therapy options recommended within the German treatment guideline for treating these patients. These include (i) biologics, (ii) medium/high-dose inhaled corticosteroids (ICS) in conjunction with LABA/montelukast and antibiotics/oral corticosteroids (OCS), and (iii) long-term OCS therapy. HCRU and treatment of patients were observed during a 1-year follow-up period (July 2018 - June 2019).

Results: The study included 388 932 adult asthma patients (prevalence: 7.90%), with 2.51%-12.88% affected by severe asthma (depending on the definition). 22.60% of all asthma patients experienced hospitalizations (severe asthma: 36.11%). Furthermore,

13.59% received OCS (severe asthma: 39.91%), but only 0.18% (severe asthma: 1.25%) received biologics. Only 23.95% (severe asthma: 41.17%) visited a pulmonologist.

Conclusions: A considerable proportion of severe asthma patients receive long-term OCS therapy. However, less than 50% have seen a pulmonologist who would typically seek a change in treatment to avoid the long-term consequences of OCS. To optimize the treatment of severe asthma in Germany, better referral of these patients to specialists is needed and considering potential treatment alternatives.

Keywords: Germany; Treatment pattern; disease burden; oral corticosteroids; real-world evidence.

J Asthma

. 2022 Dec 1;1-11.

doi: 10.1080/02770903.2022.2145219. Online ahead of print.

Impulse oscillometry (IOS) for detection of exercise induced bronchoconstriction in children with asthma ages 6–15 years

Samriti Gupta[1,2], Aparna Mukherjee[1,3], Sumita Gupta[1], Kana Ram Jat[1], Jhuma Sankar[1], Rakesh Lodha[1], S K Kabra[1]

Affiliations expand

- PMID: 36336903

- DOI: 10.1080/02770903.2022.2145219

Abstract

Objectives: To determine the discriminatory value of various impulse oscillometry (IOS) parameters, and to find the cutoff value of the appropriate parameter for identifying exercise-induced bronchoconstriction (EIB) in children with asthma.

Methods: This cross-sectional study was conducted in India from October 2016 to March 2018 in children with asthma who were 6-15 years of age. One hundred and five children were enrolled and subjected to pre-exercise IOS and spirometry followed by free running treadmill test as an exercise challenge. All children could achieve minute ventilation >17.5-21 times of FEV_1 during the exercise challenge test. Then, IOS and spirometry were performed at 10 ± 2, 20 ± 2, and 30 ± 2 min post-exercise challenge. EIB was defined as reduction of FEV_1 ≥10% within 30 min of exercise. For purposes of analysis, the children were grouped into two categories: "EIB Present" or "EIB Absent".

Results: The prevalence of EIB in our study was 20.95% (*n* = 22). ΔR5max percentage within 30 min post-exercise (AUC 0.74; 95% CI: 0.64, 0.84) had the best discriminating capacity among all IOS parameters for identifying EIB. A cutoff value of 14.1% increase in R5 within 30 min post-exercise was obtained for detection of EIB (sensitivity-95.45%, specificity-50.6%, PPV-33.87% and NPV-97.67%).

Conclusions: A percentage change in R5 with a cutoff value of 14.1% increase post-exercise had the best discriminatory capacity among all IOS parameters for detection of EIB in children with asthma. However, low positive predictive value (PPV) with high negative predictive value (NPV) made this cutoff value more apt to rule out EIB.

Keywords: EIB; FEV1; R5; airway hyperresponsiveness; early detection; post-exercise.

Lancet Respir Med

. 2022 Dec;10(12):1110-1113.

doi: 10.1016/S2213-2600(22)00388-5. Epub 2022 Nov 3.

Moving the pathway goalposts: COPD as an immune-mediated inflammatory disease

Steven P Cass[1], Andrew P Cope[2], Dan V Nicolau Jr[3], Richard E K Russell[4], Mona Bafadhel[3]

Affiliations expand

- PMID: 36335958

- DOI: 10.1016/S2213-2600(22)00388-5

No abstract available

Conflict of interest statement

SPC, APC, and DVN Jr declare no competing interests. REKR discloses consultancy or speaker fees paid to their institution from AstraZeneca, Chiesi, and GlaxoSmithKline, is a scientific advisor to GlaxoSmithKline, and discloses support for attending meetings from Boehringer Ingelheim. MB discloses grants paid to their institution from AstraZeneca, Roche, and Asthma & Lung UK, has received consultancy or speaker fees paid to their institution from AstraZeneca, Chiesi, GlaxoSmithKline, and Sanofi, and is a scientific advisor to ProAxsis and AlbusHealth.

Review

Curr Opin Allergy Clin Immunol

. 2022 Dec 1;22(6):396-401.

doi: 10.1097/ACI.0000000000000853. Epub 2022 Aug 16.

Is immunotherapy safe for treatment of severe asthma

Tolly E G Epstein[1,2], Christopher W Calabria[3]

Affiliations expand

- PMID: 36305469

- DOI: 10.1097/ACI.0000000000000853

Abstract

Purpose of review: The benefits of allergen immunotherapy (AIT), including subcutaneous allergen immunotherapy (SCIT) and sublingual allergen immunotherapy (SLIT), for IgE-mediated asthma are well established, especially for dust mite. This review will explore whether the benefits of AIT outweigh the risks in severe asthmatic patients.

Recent findings: Studies have mostly included mild and moderate asthmatic patients, but at least a few studies do show improvements in asthma symptoms and medication use in severe asthmatic patients. Asthma, and especially uncontrolled asthma, is a major risk factor for severe and fatal systemic reactions from SCIT. Uncontrolled asthma is an absolute contraindication for SCIT. It is less clear whether the benefits of SCIT and SLIT may outweigh the risks in well controlled, severe asthmatic patients, and further study is needed in this area. Asthma biologics, especially Omalizumab, may improve outcomes in severe, controlled asthmatic patients on SCIT, but further data are needed regarding timing of initiation and duration of treatment.

Summary: Although severe asthmatic patients may benefit from AIT, significant risks exist, especially in those with uncontrolled asthma. Further study is needed regarding optimal strategies to minimize risks.

- 45 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

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Multicenter Study

Lung

.

. 2022 Dec;200(6):697-706.

doi: 10.1007/s00408-022-00583-6. Epub 2022 Oct 20.

Different Impacts of Blood and Sputum Eosinophil Counts on Lung Function and Clinical Outcomes in Asthma: Findings from the COREA Cohort

Duong Duc Pham[1], Ji-Hyang Lee[1], Ju-Young Kim[2], Jin An[3], Woo-Jung Song[1], Hyouk-Soo Kwon[1], You Sook Cho[1], Tae-Bum Kim[4]

Affiliations expand

- PMID: 36264333

- DOI: 10.1007/s00408-022-00583-6

Abstract

Purpose: Blood (EOS-B) and sputum (EOS-S) eosinophil counts may contribute differently to asthma pathogenesis. We compared the impact of the baseline EOS-B and EOS-S levels on lung function, asthma control, and exacerbation in Korean asthma patients.

Methods: Asthma patients with baseline EOS-B (n = 4257) and EOS-S (n = 1049) levels from a multicenter cohort (COREA) were included. Pulmonary function test (%FEV1 predicted), asthma control test (ACT), and asthma exacerbation incidence were followed-up every 3 months for one year. Linear mixed-effect models and survival analyses were used to examine the association between eosinophilic groups defined by EOS-B or EOS-S and outcomes.

Results: High eosinophilic groups were associated with a low baseline value and a high improvement in the %FEV1 predicted and ACT scores over time. The magnitude of group difference in %FEV1 predicted was twofold higher in the EOS-S versus EOS-B classification [mean and 95% CI: 4.7 (0.6-8.8) versus 2.0 (0.2-3.7) for the baseline value and - 1.5 (- 2.3 to - 0.8) versus - 0.8(- 1.1 to -0.4) for the slope of change], whereas it was identical in ACT score. The magnitude of the impact increased linearly with the elevation of the cut-off level for the EOS-B but remained stable for the EOS-S classification. Patients with an elevation of both their EOS-B and EOS-S showed a higher increment in the %FEV1 predicted and ACT over time. Neither the EOS-B nor EOS-S was associated with asthma exacerbation.

Conclusion: EOS-S and EOS-B contribute differently to the clinical outcomes and should be taken into account independently to improve asthma care.

Keywords: Asthma; Blood; Eosinophil; Lung function; Sputum.

- 25 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

Adv Ther

. 2022 Dec;39(12):5307-5326.

doi: 10.1007/s12325-022-02340-w. Epub 2022 Oct 17.

A Renewed Charter: Key Principles to Improve Patient Care in Severe Asthma

Andrew Menzies-Gow[1,2], David J Jackson[3], Mona Al-Ahmad[4], Eugene R Bleecker[5], Francisco de Borja G Cosio Piqueras[6], Stephen Brunton[7], Giorgio Walter Canonica[8,9], Charles K N Chan[10], John Haughney[11], Steve Holmes[12], Janwillem Kocks[13,14,15], Tonya Winders[16,17]

Affiliations expand

- PMID: 36251167

- PMCID: PMC9573814

- DOI: 10.1007/s12325-022-02340-w

Free PMC article

Abstract

Asthma is a heterogenous respiratory disease, usually associated with chronic airway inflammation and hyper-responsiveness, which affects an estimated 339 million people worldwide. Severe asthma affects approximately 5-10% of patients with asthma, approximately 17-34 million people globally, more than half of whom have uncontrolled

disease. Severe asthma carries a substantial burden of disease, including unpredictable symptoms and potentially life-threatening flare-ups. Furthermore, severe asthma has a substantial burden on health care systems and economies worldwide. In 2018, a group of experts from the clinical community, patient support groups, and professional organisations joined together to develop the Severe Asthma Patient Charter, which set out six principles to define what patients should expect for the management of their severe asthma and what should constitute a basic standard of care. Since the publication of that original Charter in 2018, several important changes have occurred, including an improved understanding of asthma and effective asthma management; several new therapies have become available; and finally, the COVID-19 pandemic has placed a spotlight on respiratory conditions, the workforces that treat them, and the fundamental importance of health care system resilience. With those developments in mind, we, representatives of the academic, clinical, and patient advocacy group communities, have updated the Charter to Improve Patient Care in Severe Asthma with a focus on six principles: (1) I deserve a timely, comprehensive assessment of my asthma and its severity; (2) I deserve a timely, straightforward referral to an appropriate specialist for my asthma when it is not well controlled; (3) I deserve to understand what makes my asthma worse; (4) I deserve access to treatment and care that reduces the impact of asthma on my daily life; (5) I deserve not to be reliant on systemic corticosteroids; (6) I deserve to be involved in decisions about my treatment and care.

Keywords: Health care; Patient advocacy; Severe asthma.

- 92 references
- 2 figures

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SpringerLink FULL-TEXT ARTICLE

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Pulm Pharmacol Ther

. 2022 Dec;77:102171.

doi: 10.1016/j.pupt.2022.102171. Epub 2022 Oct 13.

Comparative clinical pharmacology of mometasone furoate, fluticasone propionate and fluticasone furoate

Peter T Daley-Yates[1], Amanda Deans[2], Rashmi Mehta[3], Ana R Sousa[4]

Affiliations expand

- PMID: 36243386

- DOI: 10.1016/j.pupt.2022.102171

Abstract

Aims: To investigate the pharmacokinetics and effects on the hypothalamic-pituitary-adrenal (HPA) axis of mometasone furoate (MF), fluticasone propionate (FP) and fluticasone furoate (FF).

Methods: Study 1: Fourteen healthy participants received inhaled and intravenous MF (inhaled dose via Twisthaler) and FP (inhaled dose via Diskus), both given at 400 µg, using a randomised, single-dose, four-way crossover design. Study 2: Twenty-seven participants with mild to moderate asthma, who discontinued their corticosteroid medication for 5 days to obtain a baseline 24 h serum cortisol, received inhaled MF Twisthaler and FP Diskus, both given at 400 µg twice daily (BID), using a randomised, 14-day repeat dose, two-way crossover design. Study 3: Forty-four healthy participants were randomised to a double-blind, placebo-controlled, five-period crossover study where the following treatments were administered via the inhaled route for 7 days: FP Diskus (250, 500, 1000 µg BID), FF Diskus (100, 200, 400, 800, 1600 µg once daily [QD]) or placebo Diskus. In each study, 24-h serial blood samples were collected and assayed to assess concentrations of MF, 6β-hydroxy mometasone, mometasone, FP, FF and cortisol. Pharmacokinetic and serum cortisol parameters were estimated as geometric means and 95% confidence intervals (CI).

Results: Study 1: For intravenous MF and FP, respectively: absolute bioavailability was 11.4% (95% CI: 7.5, 17.6) and 7.8% (6.3, 9.6); plasma clearance was 47 L/h (41, 52) and 60 L/h (52, 69); half-life was 7.4 h (6.9, 8.0) and 7.2 h (6.5, 8.0); and volume of distribution was

499 L (439, 567) and 623 L (557, 698). Inhalation of single dose MF or FP did not significantly affect serum cortisol (<10% reduction from baseline), whereas intravenous administration of MF or FP each changed serum cortisol by approximately -50% from baseline. Study 2: For MF and FP, respectively: area under the curve up to the last measurable concentration on Day 1 was 421 pg h/mL (270, 659) and 248 pg h/mL (154, 400), and on Day 14 was 1092 pg h/mL (939, 1269) and 591 pg h/mL (501, 696); absolute bioavailability was 12.8% (11.2, 14.2) and 8.9% (7.7, 10.2). On Day 14, 24-h serum cortisol change from baseline was -35% (-44%, -26%) and -18% (-28%, -5%) for MF and FP, respectively; the reduction was significantly greater for MF than FP (ratio for geometric adjusted mean serum cortisol concentration: 1.28 [1.04, 1.56]). Low plasma concentrations of 6β-hydroxy mometasone were detected after intravenous dosing (Study 1) and after multiple inhaled dosing (Study 2); mometasone was not detected in any samples. Study 3: Inhaled FP and FF had similar systemic bioavailability estimates (12.0% [11.0, 13.2] and 15.0% [12.0, 17.3], respectively), but a differential effect on the HPA axis which was in agreement with the known 1.7-fold higher glucocorticoid receptor-binding affinity of FF versus FP. However, for FP 250 µg BID and FF 100, 200 and 400 µg QD, reduction in serum cortisol was not significantly different from placebo. For higher doses, FP 500 and 1000 µg BID, and FF 800 and 1600 µg QD, changes in serum cortisol concentration relative to placebo were -30%, -70%, -41% and -90%, respectively. Repeat inhaled dosing of FP 1000 µg/day (within the therapeutic dose range) resulted in comparable cortisol suppression to MF in the therapeutic range (30% reduction); whereas for FF this occurred at more than 3-fold above the therapeutic dose range (644 µg/day).

Conclusions: Single inhaled and intravenous doses of MF and FP (400 µg) resulted in similar bioavailability and reductions in serum cortisol. Repeat dosing of inhaled MF and FP in the therapeutic range (800 µg/day) resulted in greater systemic exposure for MF, and a 35% reduction in serum cortisol that was 2-fold greater than for FP. The higher glucocorticoid receptor-binding affinity and bioavailability, lower clearance and the presence of active metabolites may contribute to the greater systemic exposure and effect on cortisol for MF. Repeat dosing of inhaled FP and FF resulted in similar systemic bioavailability but differed in terms of the dose required for comparable cortisol suppression to MF in the therapeutic range. Unlike FP and FF, MF has active metabolites that may contribute to its systemic effects, while device/formulation performance differences also exist between MF-containing products.

Keywords: Bioavailability; Cortisol suppression; Fluticasone furoate; Fluticasone propionate; Mometasone furoate; Pharmacokinetics.

Conflict of interest statement

Declaration of competing interest PDY, AD, RM and ARS are employees of and own stocks/shares in GSK.

Int J STD AIDS

. 2022 Dec;33(14):1165-1173.

doi: 10.1177/09564624221129406. Epub 2022 Oct 14.

The use of dupilumab in patients with HIV

Nicole Edmonds[1], Patricia Zhao[1], Richard H Flowers[2]

Affiliations expand

- PMID: 36240731

- DOI: 10.1177/09564624221129406

Abstract

Background: The goal of this study was to complete the first Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) based systematic review of dupilumab use in patients living with human immunodeficiency virus (HIV).

Methods: A systematic literature review was performed using PubMed, Google Scholar, Ovid MEDLINE, and Science Direct databases as well as an internal review using University of Virginia's electronic medical record system. All reports of dupilumab use in patients with confirmed HIV were included.

Results: 14 published cases comprising 23 patients were identified and included in the review. Additionally, four unpublished cases from our own institution were included for a final cohort of 27 patients. A total of 25 patients (96%) were observed to have a clinical response, defined as improvement or complete resolution of their cutaneous or asthmatic symptoms. In 100% of patients, viral load improved or did not change, and in 80% of patients, CD4 counts remained stable. Side effects occurred in 48% of patients but were self-limited.

Discussion and conclusions: All reported cases indicate that dupilumab is safe in patients with HIV with stable CD4 counts and low viral loads. Most patients had significant improvement within 2 months of treatment with mild side effects.

Keywords: General dermatology; HIV; TH2 phenotype; asthma; atopic dermatitis; dupilumab; human immunodeficiency virus; medical dermatology; prurigo nodularis.

Review

Lung

. 2022 Dec;200(6):691-696.

doi: 10.1007/s00408-022-00579-2. Epub 2022 Oct 14.

Impact of Biologic Therapy on the Small Airways Asthma Phenotype

Rory Chan[1], Brian J Lipworth[2]

Affiliations expand

- PMID: 36239786
- PMCID: PMC9675679
- DOI: 10.1007/s00408-022-00579-2

Free PMC article

Abstract

The small airways dysfunction (SAD) asthma phenotype is characterised by narrowing of airways < 2 mm in diameter between generations 8 and 23 of the bronchial tree. Recently, this has become particularly relevant as measurements of small airways using airway oscillometry for example, are strong determinants of asthma control and exacerbations in moderate-to-severe asthma. The small airways can be assessed using spirometry as forced expiratory flow rate between 25 and 75% of forced vital capacity (FEF_{25-75}) and has been deemed more accurate in detecting small airways dysfunction than forced expiratory volume in 1 s (FEV_1). Oscillometry as the heterogeneity in resistance between 5 and 20 Hz (R5-R20), low frequency reactance at 5 Hz (X5) or area under the reactance curve between 5 Hz and the resonant frequency can also be used to assess the small airways. The small airways can also be assessed using the multiple breath nitrogen washout (MBNW) test giving rise to values including functional residual capacity, lung clearance index and ventilation distribution heterogeneity in the conducting (Scond) and the acinar (Sacin) airways. The ATLANTIS group showed that the prevalence of small airways disease in asthma defined on FEF_{25-75}, oscillometry and MBNW all increased with progressive GINA asthma disease stages. As opposed to topical inhaler therapy that might not adequately penetrate the small airways, it is perhaps more intuitive that systemic anti-inflammatory therapy with biologics targeting downstream cytokines and upstream epithelial anti-alarmins may offer a promising solution to SAD. Here we therefore aim to appraise the available evidence for the effect of anti-IgE, anti-IL5 (Rα), anti-IL4Rα, anti-TSLP and anti-IL33 biologics on small airways disease in patients with severe asthma.

Keywords: Benralizumab; Dupilumab; FEF25–75; Itepekimab; Mepolizumab; Multiple breath nitrogen washout; Omalizumab; Oscillometry; Reslizumab; Severe asthma; Small airways; Tezepelumab.

Conflict of interest statement

Chan reports personal fees (talks) and support attending ERS from AstraZeneca and personal fees (talks) from Thorasys. Lipworth reports non-financial support (equipment) from GSK; grants, personal fees (consulting, talks and advisory board), other support (attending ATS and ERS) and from AstraZeneca; personal fees (talks and consulting) from Sanofi, personal fees (consulting, talks and advisory board) from Circassia in relation to the submitted work; grants, personal fees (consulting, talks, advisory board), other support (attending ERS) from Teva, personal fees (talks and consulting), grants and other support (attending ERS and BTS) from Chiesi, personal fees (consulting) from Lupin, personal fees (consulting) from Glenmark, personal fees (consulting) from Vectura, personal fees (consulting) from Reddy, personal fees (consulting) from Sandoz; grants, personal fees (consulting, talks, advisory board), other support (attending BTS) from Boehringer Ingelheim, grants and personal fees (advisory board and talks) from Mylan outside of the submitted work; and the son of BJL is presently an employee of AstraZeneca.

- 53 references

. 2022 Dec;200(6):707-716.

doi: 10.1007/s00408-022-00575-6. Epub 2022 Oct 13.

Narrative Review of the Mechanisms and Treatment of Cough in Asthma, Cough Variant Asthma, and Non-asthmatic Eosinophilic Bronchitis

Nermin Diab[1 2 3], Matthew Patel[4], Paul O'Byrne[4 5], Imran Satia[4 6 5]

Affiliations expand

- PMID: 36227349

- DOI: 10.1007/s00408-022-00575-6

Abstract

Chronic cough is a debilitating condition affecting 10-12% of the general population and is one of the leading causes for referral to secondary care. Many conditions have been associated with chronic cough, including asthma, gastro-esophageal reflux disease and upper airways cough syndrome. Inflammatory airway conditions including cough variant asthma (CVA) and non-asthmatic eosinophilic bronchitis (NAEB) contribute to a significant proportion of presentations with chronic cough, with differing diagnostic criteria and different responses to commonly used asthma therapy for their respective diagnoses. Mechanistic studies in both animal models and humans have identified increased neuronal sensitivity and subsequent central sensitization. These mechanisms include inflammatory-mediated nociceptor sensitization and alterations of afferent nerve terminal excitability, phenotypic changes in the vagal afferent neurons over time, and central neuroplasticity resulting from increased synaptic signalling from peripheral afferents. The aim of this review is to discuss the mechanisms, neurophysiology, and management approaches currently available for patients presenting with chronic cough with underlying asthma, CVA, and NAEB and to shed a light on areas of further research required to elucidate the mechanisms of cough in this patient population.

Keywords: Asthma; Chronic cough; Cough variant asthma; Eosinophils; Nerves; Non-asthmatic eosinophilic bronchitis.

- 94 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

SpringerLink FULL-TEXT ARTICLE

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Review

Trends Mol Med

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. 2022 Dec;28(12):1112-1127.

doi: 10.1016/j.molmed.2022.09.001. Epub 2022 Oct 5.

Asthma exacerbations: the Achilles heel of asthma care

Amanda McIntyre[1], William W Busse[2]

Affiliations expand

- PMID: 36208987

- DOI: 10.1016/j.molmed.2022.09.001

Abstract

Asthma exacerbations significantly impact millions of patients worldwide to pose large disease burdens on affected patients, families, and health-care systems. Although numerous environmental factors cause asthma exacerbations, viral respiratory infections are the principal triggers. Advances in the pathophysiology of asthma have elucidated dysregulated protective immune responses and upregulated inflammation that create susceptibility and risks for exacerbation. Biologics for the treatment of severe asthma reduce rates of exacerbations and identify specific pathways of inflammation that contribute to altered pathophysiology, novel therapeutic targets, and informative biomarkers. Major steps to prevent exacerbations include the identification of molecular pathways whose blockage will prevent asthma attacks safely, predictably, and effectively.

Keywords: T2 inflammation; airway inflammation; asthma exacerbations; biologics; rhinovirus infections.

Conflict of interest statement

Declaration of interests W.W.B. is a consultant for Sanofi, Regeneron, and GlaxoSmithKline.

. 2022 Dec 1;60(6):2200571.

doi: 10.1183/13993003.00571-2022. Print 2022 Dec.

U-BIOPRED/BIOAIR proteins: inflammation or infection?

David L Hahn[1], Wilmore Webley[2]

Affiliations expand

- PMID: 36202417

- DOI: 10.1183/13993003.00571-2022

No abstract available

Conflict of interest statement

Conflict of interest: D.L. Hahn and W. Webley are uncompensated members of the Intracell Research Group (IRG) scientific advisory board. The mission of IRG includes dissemination of evidence for chronic infection in chronic diseases including asthma. Outside the submitted work, W. Webley also reports grant funding from USDA/NIFA, and lecture honoraria from Baystate Medical Center.

Comment on

- Plasma proteins elevated in severe asthma despite oral steroid use and unrelated to Type-2 inflammation.
  Sparreman Mikus M, Kolmert J, Andersson LI, Östling J, Knowles RG, Gómez C, Ericsson M, Thörngren JO, Emami Khoonsari P, Dahlén B, Kupczyk M, De Meulder B, Auffray C, Bakke PS, Beghe B, Bel EH, Caruso M, Chanez P, Chawes B, Fowler SJ, Gaga M, Geiser T, Gjomarkaj M, Horváth I, Howarth PH, Johnston SL, Joos G, Krug N, Montuschi P, Musial J, Niżankowska-Mogilnicka E, Olsson HK, Papi A, Rabe KF, Sandström T, Shaw DE, Siafakas NM, Uhlén M, Riley JH, Bates S, Middelveld RJM, Wheelock CE, Chung KF, Adcock IM, Sterk PJ, Djukanovic R, Nilsson P, Dahlén SE, James A; U-BIOPRED (Unbiased Biomarkers for the Prediction of Respiratory Disease outcome) Study Group and the BIOAIR (Longitudinal Assessment of Clinical Course and Biomarkers in Severe Chronic Airway Disease) Consortium.Eur Respir J. 2022 Feb 17;59(2):2100142. doi: 10.1183/13993003.00142-2021. Print 2022 Feb.PMID: 34737220 **Free PMC article.** Clinical Trial.

Review

Cytokine

.
2022 Dec;160:156049.

doi: 10.1016/j.cyto.2022.156049. Epub 2022 Oct 3.

IL-7: Comprehensive review

Hila Winer[1], Gisele O L Rodrigues[1], Julie A Hixon[1], Francesca B Aiello[2], Tu Chun Hsu[3], Brianna T Wachter[1], Wenqing Li[1], Scott K Durum[4]

Affiliations expand

- PMID: 36201890

- DOI: 10.1016/j.cyto.2022.156049

Abstract

Overview: IL-7 is a member of the family of cytokines with four anti-parallel α helixes that bind Type I cytokine receptors. It is produced by stromal cells and is required for development and homeostatic survival of lymphoid cells.

Genomic architecture: Interleukin 7 (IL7) human IL7: gene ID: 3574 on ch 8; murine Il7 gene ID: 16,196 on ch 3.

Protein: Precursor contains a signal sequence, mature human IL-7 peptide 152aa, predicted 17.4kd peptide, glycosylated resulting in 25kd. Crystal structure: http://www.rcsb.org/structure/3DI2. REGULATION OF IL-7 PRODUCTION: Major producers are stromal cells in thymus, bone marrow and lymphoid organs but also reported in other tissues. Production is primarily constitutive but reported to be affected by IFNγ and other factors. IL-7 RECEPTORS: Two chains IL-7Rα (IL-7R) and γc (IL-2RG). Human IL-7R: gene ID 3575 on ch 5; human IL2RG: gene ID 3561 on ch X; mouse IL-7R: gene ID 16,197 on ch 15; murine Il2rg gene ID 16,186 on ch X. Member of γc family of receptors for cytokines IL-2, -4, -9, -15, and -21. Primarily expressed on lymphocytes but reports of other cell types. Expression in T-cells downregulated by IL-7. Low expression on Tregs, no expression on mature B-cells. Crystal structure: http://www.rcsb.org/structure/3DI2. IL-7 RECEPTOR SIGNAL TRANSDUCTION PATHWAYS: Major signals through JAK1, JAK3 to STAT5 and through non-canonical STAT3, STAT1, PI3K/AKT and MEK/ERK pathways. BIOLOGICAL ACTIVITY OF IL-7: Required for survival of immature thymocytes, naïve T-cells, memory T-cells, pro-B-cells and innate lymphocytes. Pharmacological treatment with IL-7 induces expansion of naïve and memory T-cells and pro-B-cells. ABNORMALITIES OF THE IL-7 PATHWAY IN DISEASE: Deficiencies in the IL-7 pathway in humans and mice result in severe combined immunodeficiency due to lymphopenia. Excessive signaling of the pathway in mice drives autoimmune diseases and in humans is associated with autoimmune syndromes including multiple sclerosis, type 1 diabetes, rheumatoid arthritis, sarcoidosis, atopic dermatitis and asthma. Mutations in the IL-7 receptor pathway drive acute lymphoblastic leukemia.

Clinical applications: IL-7 has been evaluated in patients with cancer and shown to expand lymphocytes. It accelerated lymphocyte recovery after hematopoietic stem cell transfer, and increased lymphocyte counts in AIDS patients and sepsis patients. Monoclonal antibodies blocking the IL-7 receptor are being evaluated in autoimmune diseases. Cytotoxic monoclonals are being evaluated in acute lymphoblastic leukemia. Drugs blocking the signal transduction pathway are being tested in autoimmunity and acute lymphoblastic leukemia.

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 types, MeSH terms, Substancesexpand

Review

Pulm Pharmacol Ther

. 2022 Dec;77:102167.

doi: 10.1016/j.pupt.2022.102167. Epub 2022 Sep 28.

May a different kinetic mode explain the high efficacy/safety profile of inhaled budesonide?

Ralph Brattsand [1], Olof Selroos [2]

Affiliations expand

- PMID: 36180011

- DOI: 10.1016/j.pupt.2022.102167

Free article

Abstract

The claimed functional basis for ICSs in asthma and COPD is airway selectivity, attained by inhaling a potent, lipophilic compound with long local dissolution/absorption time. The

development has been empirically based, resulting in five widely used ICSs. Among them, budesonide (BUD) deviates by being less lipophilic, leading to a more rapid systemic uptake with plasma peaks with some systemic anti-inflammatory activity. By this, BUD fits less well into the current pharmacological dogma of optimal ICS profile. In this review we compared the physicochemical, pharmacological and clinical properties of BUD, fluticasone propionate (FP) and fluticasone furoate (FF), representing different levels of lipophilicity, airway and systemic kinetics, focusing on their long-acting β2-agonist (LABA) combinations, in line with current GINA and GOLD recommendations. We are aware of the differences between formoterol (FORM) and the not rapid acting LABAs such as e.g. salmeterol and vilanterol but our comparisons are based on currently available combination products. A beclomethasone dipropionate (BDP)/FORM combination is also commented upon. Based on clinical comparisons in asthma and COPD, we conclude that the BUD/formoterol (BUD/FORM) combination is as effective and safe as the FP and FF combinations, and is in some cases even better as it can be used as "maintenance plus reliever therapy" (MART) in asthma and as maintenance in COPD. This is difficult to explain by current views of required ICS's/LABAs pharmacokinetic profiles. We propose that BUD achieves its efficacy by a combination of airway and systemic activity. The airway activity is dominating. The systemic activity contributes by plasma peaks, which are high enough for supportive anti-inflammatory actions at the blood and bone marrow levels but not sufficiently long to trigger a similar level of systemic adverse effects. This may be due to BUD's capacity to exploit a systemic differentiation mechanism as programmed for cortisol's various actions. This differentiation prospect can be reached only for an ICS with short plasma half-life. Here we present an alternative mode for an ICS to reach combined efficacy and safety, based on a poorly investigated and exploited physiological mechanism. A preference of this mode is broader versatility, due to that its straighter dose-response should allow a better adaptation to disease fluctuations, and that its rapid activity enables use as "anti-inflammatory reliever".

Keywords: Budesonide; Clinical profile; Cortisol mechanisms; Fluticasone furoate; Fluticasone propionate; Inhaled corticosteroids; Pharmacokinetics.

Conflict of interest statement

Declaration of competing interest RB and OS are former employees of Astra and/or AstraZeneca, Sweden, but retired many years ago. We have initiated and written this article independent of AstraZeneca. AstraZeneca was given the opportunity to review the final draft. The authors retained full editorial control. RB holds stocks with AstraZeneca.

Respirology

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. 2022 Dec;27(12):1018-1021.

doi: 10.1111/resp.14381. Epub 2022 Sep 29.

What have we learnt from real-life research in asthma and COPD? Standards and novel designs for the future

David Price[1][2][3], Thendral Uthaman[1]

Affiliations expand

- PMID: 36172950

- DOI: 10.1111/resp.14381

Free article

No abstract available

Keywords: chronic obstructive pulmonary disease; clinical guidelines; real-life research; severe asthma.

- 13 references

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

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Allergy

. 2022 Dec;77(12):3695-3696.

doi: 10.1111/all.15519. Epub 2022 Sep 27.

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

- 6 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

Review

Pediatr Pulmonol

. 2022 Dec;57(12):2915-2927.

doi: 10.1002/ppul.26134. Epub 2022 Oct 19.

Exercise rehabilitation in pediatric asthma: A systematic review and network meta-analysis

Jing Jiang[1,2], Dong Zhang[1,3], Yapan Huang[2], Zhenguo Wu[1,2], Wei Zhang[2]

Affiliations expand

- PMID: 36103241

- DOI: 10.1002/ppul.26134

Abstract

Objective: This systematic review delineates various exercise-based pulmonary rehabilitation (PR) designs and quantifies how they may be optimized in pediatric asthma treatment.

Design: Comprehensive systematic review, network meta-analysis, and quality analyses using PubMed, Embase, Cochrane Library, Web of Science Core Collection, and Medline searches.

Interventions: Discrete and combined endurance, respiratory, resistance, strength, and interval training.

Main outcome measures: Forced expiratory volume at 1 s to predicted value ratio (FEV_1 % pred), forced vital capacity to predicted value ratio (FVC% pred), forced expiratory flow between 25% and 75% of vital capacity ratio (FEF25%-75%), the Pediatric Asthma Quality of Life Questionnaire (PAQLQ), and the 6-min walk test (6MWT).

Results: Twenty-four randomized controlled trials (RCTs) involving a combined 1031 patients were included. Endurance training was the most common form of PR (58.3%), typically conducted through outpatient clinics (29.2%). Network meta-analysis showed that compared with other PR, interval training significantly improved PAQLQ total scores, and activity, symptom, and emotional domains. Interval training also had a significant effect on the 6MWT. No adverse events were reported. Exercise training did not have a significant effect on FEV_1 % pred; however, combined endurance and respiratory training significantly improved both FVC% pred and FEF25%-75%.

Conclusions: Exercise-based PR is safe and effective in childhood asthma treatment. Interval training may be a core component for improving quality of life and exercise capacity in this patient population, while combined respiratory and endurance training may significantly affect lung function. The clinical efficacy of these results should be confirmed through high-quality RCTs.

Keywords: childhood asthma; endurance training; exercise training; interval training; pulmonary rehabilitation; strength training.

- 43 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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Cite

Pediatr Pulmonol

. 2022 Dec;57(12):3165-3168.

doi: 10.1002/ppul.26143. Epub 2022 Sep 23.

Environmental radon and childhood asthma

Lana Mukharesh[1,2], Kimberly F Greco[3], Tina Banzon[2,4], Petros Koutrakis[5], Longxiang Li[5], Marissa Hauptman[2,6], Wanda Phipatanakul[2,4], Jonathan M Gaffin[1,2]

Affiliations expand

- PMID: 36101499

- PMCID: PMC9682467

- DOI: 10.1002/ppul.26143

Free PMC article

No abstract available

Conflict of interest statement

CONFLICT OF INTEREST
The authors declare no conflict of interest.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

Case Reports

Am J Emerg Med

. 2022 Dec;62:145.e5-145.e8.

doi: 10.1016/j.ajem.2022.08.056. Epub 2022 Sep 6.

A successful extracorporeal cardiopulmonary resuscitation for severe status asthmaticus with an ultra-long cardiac arrest

Hu Zhai[1], Lei Huang[2], Tong Li[3], Xiaomin Hu[2], Dawei Duan[2], Peng Wu[2]

Affiliations expand

- PMID: 36100495

- DOI: 10.1016/j.ajem.2022.08.056

Abstract

The mortality of severe asthma with cardiac arrest is still close to 100% even if it is treated with conventional cardiopulmonary resuscitation (CCPR). Extracorporeal cardiopulmonary resuscitation (ECPR) has been widely accepted as an alternative method when CCPR is futile. However, the maximum "low-flow" duration has not been well defined. Here, we

reported a 55-year-old male with severe asthma with cardiac arrest, who was successfully treated with ECPR after 100 min of ultra-long CCPR. He was withdrawn from extracorporeal membrane oxygenator and ventilator at 72 h and 14 days after admission respectively and was discharged without permanent neurologic sequelae. This case illustrates the critical role of ECPR as a last resort in near-fatal asthma. For such patients with bystander, starting ECPR after >60 min of CCPR can still obtain satisfactory prognoses.

Keywords: Asthma; Emergency medicine; Extracorporeal life support; Intensive care; Resuscitation.

Conflict of interest statement

Declaration of Competing Interest The authors declare that there is no conflict of interests regarding the publication of this article.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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Chemosphere

. 2022 Dec;308(Pt 2):136316.

doi: 10.1016/j.chemosphere.2022.136316. Epub 2022 Sep 6.

Particulate matter pollution and asthma mortality in China: A

nationwide time-stratified case-crossover study from 2015 to 2020

Wei Liu[1], Jing Wei[2], Miao Cai[3], Zhengmin Qian[4], Zheng Long[1], Lijun Wang[1], Michael G Vaughn[5], Hannah E Aaron[4], Xunliang Tong[6], Yanming Li[6], Peng Yin[7], Hualiang Lin[8], Maigeng Zhou[1]

Affiliations expand

- PMID: 36084833

- DOI: 10.1016/j.chemosphere.2022.136316

Abstract

Background: A national and comprehensive evaluation is lacking on the relationship between short-term exposure to submicron particulate matter (PM_1) pollution and asthma mortality.

Methods: Data was obtained from 29,553 asthma deaths from the China National Mortality Surveillance System from 2015 to 2020. We used a bilinear interpolation approach to estimate each participant's daily ambient particulate matter pollution and meteorological variables exposure based on their geocoded residential address and a 10 km × 10 km grid from China High Air Pollutants and the fifth generation of European ReAnalysis-Land reanalysis data set. The associations were estimated using a time-stratified case-crossover design and conditional logistic regressions.

Results: Our results revealed significant associations between short-term exposure to various particulate matter and asthma mortality. The 5-day moving average of particulate matter exposure produced the most pronounced effect. Compared to fine particulate matter ($PM_{2.5}$) and inhalable particulate matter (PM_{10}), significantly stronger effects on asthma mortality related to PM_1 pollution were noted. The ERs% for asthma mortality associated with each interquartile range (IQR) increase of exposures to PM_1 (IQR: 19.2 μg/m^3) was 5.59% (95% CI: 2.11-9.19), which is 14% and 22% higher than that for $PM_{2.5}$ (IQR: 32.0 μg/m^3, 4.82% (95% CI: 1.84-7.90)) and PM_{10} (IQR: 52.2 μg/m^3, 4.37% (95% CI: 1.16-7.69)), respectively. The estimates remained consistent in various sensitivity analyses.

Conclusions: Our study provided national evidence that acute exposures to various ambient particulate matter pollution can increase mortality due to asthma in China, highlighting stronger associations with ambient PM_1 than $PM_{2.5}$ and PM_{10}. China needs to adjust the current ambient air quality standards urgently and pay greater attention to the adverse health effects of PM_1.

Keywords: Air pollutants; Asthma; Mortality; Particle size; Particulate matter; Submicron particulate matter.

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.

Review

Allergy

. 2022 Dec;77(12):3567-3583.

doi: 10.1111/all.15505. Epub 2022 Sep 16.

Mechanisms regulating neutrophil responses in immunity, allergy, and autoimmunity

Alaz Özcan[1], Onur Boyman[1 2 3]

Affiliations expand

- PMID: 36067034

- DOI: 10.1111/all.15505

Abstract

Neutrophil granulocytes, or neutrophils, are the most abundant circulating leukocytes in humans and indispensable for antimicrobial immunity, as exemplified in patients with inborn and acquired defects of neutrophils. Neutrophils were long regarded as the foot soldiers of the immune system, solely destined to execute a set of effector functions against invading pathogens before undergoing apoptosis, the latter of which was ascribed to their short life span. This simplistic understanding of neutrophils has now been revised on the basis of insights gained from the use of mouse models and single-cell high-throughput techniques, revealing tissue- and context-specific roles of neutrophils in guiding immune responses. These studies also demonstrated that neutrophil responses were controlled by sophisticated feedback mechanisms, including directed chemotaxis of neutrophils to tissue-draining lymph nodes resulting in modulation of antimicrobial immunity and inflammation. Moreover, findings in mice and humans showed that neutrophil responses adapted to different deterministic cytokine signals, which controlled their migration and effector function as well as, notably, their biologic clock by affecting the kinetics of their aging. These mechanistic insights have important implications for health and disease in humans, particularly, in allergic diseases, such as atopic dermatitis and allergic asthma bronchiale, as well as in autoinflammatory and autoimmune diseases. Hence, our improved understanding of neutrophils sheds light on novel therapeutic avenues, focusing on molecularly defined biologic agents.

Keywords: autoimmunity; autoinflammation; immunodeficiency; infection; inflammation.

- 158 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

J Clin Pharmacol

. 2022 Dec;62(12):1472-1474.

doi: 10.1002/jcph.2146. Epub 2022 Oct 3.

Over-the-Counter Epinephrine for Asthma Treatment: Too Much Risk for Too Little Benefit

Bruce I Gaynes[1], ACCP Public Policy Committee

Affiliations expand

- PMID: 36057794

- DOI: 10.1002/jcph.2146

No abstract available

Keywords: asthma; epinephrine; inhalants; nonprescription; toxicity.

Review

Curr Opin Allergy Clin Immunol

. 2022 Dec 1;22(6):409-412.

doi: 10.1097/ACI.0000000000000852. Epub 2022 Aug 16.

Is allergy immunotherapy-induced anaphylaxis still a real problem?

David I Bernstein[1], Karen Berendts[2]

Affiliations expand

- PMID: 35980016

- DOI: 10.1097/ACI.0000000000000852

Abstract

Purpose of review: The current review describes the incidence and risk for anaphylaxis due to allergy injections.

Recent findings: The incidence of fatal anaphylaxis occurs with approximately one in 7.2 million injection visits. Severe anaphylaxis may occur once in every 160 000 visits. The major risk for fatal anaphylaxis is severe and uncontrolled asthma.

Summary: Understanding risk factors for anaphylaxis to allergy injections has led to clinic protocols aimed at preventing such events. The efficacy of these preventive measures remains to be determined in future studies.

- 17 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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Editorial

Respirology

-
-
-

. 2022 Dec;27(12):1002-1005.

doi: 10.1111/resp.14346. Epub 2022 Aug 17.

The severe asthma–obesity conundrum: Consequences for exertional dyspnoea and exercise tolerance in men and women

J Alberto Neder[1], Denis E O'Donnell[1]

Affiliations expand

- PMID: 35977722

- DOI: 10.1111/resp.14346

Free article
No abstract available

Keywords: asthma; exercise and pulmonary rehabilitation; respiratory structure and function; ventilation.

- 42 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

WILEY Free Full Text

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Review

Allergy

-
-
-

. 2022 Dec;77(12):3538-3552.

doi: 10.1111/all.15473. Epub 2022 Aug 23.

Biologics and airway remodeling in severe asthma

Gilda Varricchi[1 2 3 4], Sebastian Ferri[5], Jack Pepys[6], Remo Poto[1 2 3], Giuseppe Spadaro[1 2 3], Emanuele Nappi[5 6], Giovanni Paoletti[5 6], Johann Christian Virchow[7], Enrico Heffler[5 6], Walter G Canonica[5 6]

Affiliations expand

- PMID: 35950646

- DOI: 10.1111/all.15473

Abstract

Asthma is a chronic inflammatory airway disease resulting in airflow obstruction, which in part can become irreversible to conventional therapies, defining the concept of airway remodeling. The introduction of biologics in severe asthma has led in some patients to the complete normalization of previously considered irreversible airflow obstruction. This highlights the need to distinguish a "fixed" airflow obstruction due to structural changes unresponsive to current therapies, from a "reversible" one as demonstrated by lung function normalization during biological therapies not previously obtained even with high-dose systemic glucocorticoids. The mechanisms by which exposure to environmental factors initiates the inflammatory responses that trigger airway remodeling are still incompletely understood. Alarmins represent epithelial-derived cytokines that initiate immunologic events leading to inflammatory airway remodeling. Biological therapies can improve airflow obstruction by addressing these airway inflammatory changes. In addition, biologics might prevent and possibly even revert "fixed" remodeling due to structural changes. Hence, it appears clinically important to separate the therapeutic effects (early and late) of biologics as a new paradigm to evaluate the effects of these drugs and future treatments on airway remodeling in severe asthma.

Keywords: airway remodeling; biologics; biomarkers; immunotherapies; severe asthma.

Allergy

. 2022 Dec;77(12):3617-3628.

doi: 10.1111/all.15442. Epub 2022 Jul 25.

Maternal prenatal immunity, neonatal trained immunity, and early airway microbiota shape childhood asthma development

Avery DeVries[1,2], Kathryn McCauley[3,4], Douglas Fadrosh[3], Kei E Fujimura[5], Debra A Stern[1], Susan V Lynch[3,4], Donata Vercelli[1,2,6,7]

Affiliations expand

- PMID: 35841380

- PMCID: PMC9712226 (available on 2023-12-01)

- DOI: 10.1111/all.15442

Abstract

Background: The path to childhood asthma is thought to initiate in utero and be further promoted by postnatal exposures. However, the underlying mechanisms remain underexplored. We hypothesized that prenatal maternal immune dysfunction associated with increased childhood asthma risk (revealed by low IFN-γ:IL-13 secretion during the third trimester of pregnancy) alters neonatal immune training through epigenetic mechanisms and promotes early-life airway colonization by asthmagenic microbiota.

Methods: We examined epigenetic, immunologic, and microbial features potentially related to maternal prenatal immunity (IFN-γ:IL-13 ratio) and childhood asthma in a birth cohort of mother-child dyads sampled pre-, peri-, and postnatally (N = 155). Epigenome-wide DNA methylation and cytokine production were assessed in cord blood mononuclear cells (CBMC) by array profiling and ELISA, respectively. Nasopharyngeal microbiome composition was characterized at age 2-36 months by 16S rRNA sequencing.

Results: Maternal prenatal immune status related to methylome profiles in neonates born to non-asthmatic mothers. A module of differentially methylated CpG sites enriched for microbe-responsive elements was associated with childhood asthma. In vitro responsiveness to microbial products was impaired in CBMCs from neonates born to mothers with the lowest IFN-γ:IL-13 ratio, suggesting defective neonatal innate immunity in those who developed asthma during childhood. These infants exhibited a distinct pattern of upper airway microbiota development characterized by early-life colonization by Haemophilus that transitioned to a Moraxella-dominated microbiota by age 36 months.

Conclusions: Maternal prenatal immune status shapes asthma development in her child by altering the epigenome and trained innate immunity at birth, and is associated with pathologic upper airway microbial colonization in early life.

Keywords: DNA methylation; childhood asthma; maternal prenatal immunity; nasal microbiome; trained innate immunity.

. 2022 Dec;77(12):3676-3679.

doi: 10.1111/all.15438. Epub 2022 Jul 23.

The nasopharyngeal and salivary microbiomes in COVID-19 patients with and without asthma

Josh G Kim[1], Ai Zhang[1], Adriana M Rauseo[2], Charles W Goss[3], Philip A Mudd[4], Jane A O'Halloran[2], Leyao Wang[1]

Affiliations expand

- PMID: 35837881

- PMCID: PMC9350136

- DOI: 10.1111/all.15438

Free PMC article

No abstract available

Conflict of interest statement

No conflict of interest in relation to this work was reported by the authors.

- 10 references
- 2 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

WILEY Full Text Article Europe PMC FREE FULL TEXT

Proceed to details

Respirology

. 2022 Dec;27(12):1025-1033.

doi: 10.1111/resp.14323. Epub 2022 Jul 10.

Factors associated with 6-min walk distance in severe asthma: A cross-sectional study

Anders Pitzner-Fabricius[1], Vanessa L Clark[2], Vibeke Backer[1,3], Peter G Gibson[2,4], Vanessa M McDonald[2,4]

Affiliations expand

- PMID: 35811337

- DOI: 10.1111/resp.14323

Free article

Abstract

Background and objective: Exercise capacity is associated with health-related quality of life and symptom control in severe asthma. Thus, interventions targeting exercise capacity are likely to be beneficial. However, clinical and biological factors impacting exercise capacity in severe asthma are sparsely investigated. We aimed to describe the association of selected clinical and biological factors with 6-min walk distance (6MWD) in adults with severe asthma and investigate the impact of sex on these outcomes.

Methods: A cross-sectional study in adults with severe asthma was conducted. Exercise capacity was measured by 6-min walk test, and association between 6MWD and predictors were evaluated using multiple linear regression.

Results: A total of 137 patients (females, 85; median age, 59 years) were recruited. Overall, asthma control (-15.2 m, 95% CI -22.6 to -7.7; p = 0.0001) and BMI (-3.2 m, 95% CI -5.1 to -1.3; p = 0.001) were significantly associated with exercise capacity (adjusted variance, adj. R^2 = 0.425). In females, 5-item Asthma Control Questionnaire (ACQ-5; p = 0.005) and BMI (p < 0.001) were significantly associated with 6MWD (adj. R^2 = 0.423). In males, a 0.5-point increase in ACQ-5 was associated with a decrease in 6MWD by 10.2 m (95% CI -22.8 to 2.4; p = 0.11), but no clinical nor biological factors reached statistical significance (adj. R^2 = 0.393).

Conclusion: Asthma symptoms and BMI were associated with exercise capacity in the overall population. Optimizing these factors may enhance the ability of patients to improve their exercise capacity and gain the associated positive health outcomes, but further studies are warranted.

Keywords: 6-min walk test; BMI; exercise capacity; quality of life; severe asthma.

- 44 references

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

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48

J Eur Acad Dermatol Venereol

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-
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. 2022 Dec;36(12):2406-2413.

doi: 10.1111/jdv.18415. Epub 2022 Jul 14.

Adults with concomitant atopic dermatitis and asthma have more frequent urgent healthcare utilization and less frequent scheduled follow-up visits than adults with atopic dermatitis or asthma only: a nationwide cohort study

Z Ali[1], A Egeberg[1], J P Thyssen[1], C S Ulrik[2,3], S F Thomsen[1,4]

Affiliations expand

- PMID: 35796157

- DOI: 10.1111/jdv.18415

Abstract

Background: Atopic dermatitis (AD) and asthma often co-occur in the same patient, and healthcare utilization is related to disease severity of these diseases.

Objective: The objective of the study was to investigate differences in healthcare utilization in adults with concomitant AD and asthma compared to patients with asthma or AD only.

Methods: All Danish adults with a hospital diagnosis of AD, asthma or concomitant AD, and asthma recorded in national registries were included. Healthcare utilization data were obtained in 3-month intervals from 2 years prior to index date (the date of the first hospital diagnosis) and to 5 years after.

Results: A total of 12 409 patients with AD were included (11 590 with AD only and 819 with concomitant AD and asthma), and 65 539 with asthma only. Adults with concomitant AD and asthma had higher risk of hospitalization for AD (OR 1.38, 95% CI (1.15-1.67), P = 0.001) and asthma (OR 1.16, 95% CI (1.00-1.35), P = 0.047) compared to patients with only AD and asthma, respectively. These patients also had fewer visits in outpatient clinics for AD (OR 0.10, 95% CI (0.08-0.12), P < 0.001) and asthma (OR 0.34, 95% CI (0.29-0.39), P < 0.001) compared to patients with only AD or asthma. Outpatient clinic visits for rhinitis

were more frequent among patients with concomitant AD and asthma compared to patients with only AD or asthma.

Conclusion: Adults with concomitant AD and asthma had different patterns of healthcare utilization compared to adults with AD or asthma alone, suggesting that improvements in management and monitoring may reduce unscheduled healthcare visits and lower healthcare costs.

- 17 references

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

Eur Respir J

. 2022 Dec 1;60(6):2200442.

doi: 10.1183/13993003.00442-2022. Print 2022 Dec.

Airway autoantibodies are determinants of asthma severity

Brittany Salter[1,2], Nan Zhao[1,3,4,2], Kiho Son[1], Nadia Suray Tan[1], Anna Dvorkin-Gheva[5], Katherine Radford[1], Nicola LaVigne[1], Chynna Huang[1], Melanie Kjarsgaard[1], Quan-Zhen Li[6], Konstantinos Tselios[7], Hui Fang Lim[8], Nader Khalidi[7], Parameswaran Nair[1], Manali Mukherjee[9,5]

Affiliations expand

- PMID: 35777765

- DOI: 10.1183/13993003.00442-2022

Abstract

Background: Local airway autoimmune responses may contribute to steroid dependence and persistent eosinophilia in severe asthma. Auto-IgG antibodies directed against granule proteins such as eosinophil peroxidase (EPX), macrophage scavenger receptor with collagenous structure (MARCO) and nuclear/extranuclear antigens (antinuclear antibodies (ANAs)) have been reported. Our objective was to describe the prevalence and clinical characteristics of asthmatic patients with airway autoreactivity, and to assess if this could be predicted from clinical history of autoreactivity.

Methods: We analysed anti-EPX, anti-MARCO and ANAs in 218 sputum samples collected prospectively from 148 asthmatic patients, and evaluated their association with lung function parameters, blood/airway inflammation, severity indices and exacerbations. Additionally, 107 of these patients consented to fill out an autoimmune checklist to determine personal/family history of systemic autoimmune disease and symptoms.

Results: Out of the 148 patients, 59 (40%) were anti-EPX IgG$^+$, 53 (36%) were anti-MARCO IgG$^+$ and 64 out of 129 (50%) had ≥2 nuclear/extranuclear autoreactivities. A composite airway autoreactivity score (CAAS) demonstrated that 82 patients (55%) had ≥2 airway autoreactivities (considered as CAAS$^+$). Increased airway eosinophil degranulation (OR 15.1, 95% CI 1.1-199.4), increased blood leukocytes (OR 3.5, 95% CI 1.3-10.1) and reduced blood lymphocytes (OR 0.19, 95% CI 0.04-0.84) predicted CAAS$^+$. A third of CAAS$^+$ patients reported an exacerbation, associated with increased anti-EPX and/or anti-MARCO IgG ($p<0.05$). While no association was found between family history or personal diagnosis of autoimmune disease, 30% of CAAS$^+$ asthmatic patients reported sicca symptoms ($p=0.02$). Current anti-inflammatory (inhaled/oral corticosteroids and/or adjunct anti-interleukin-5 biologics) treatment does not attenuate airway autoantibodies, irrespective of eosinophil suppression.

Conclusion: We report 55% of moderate-severe asthmatic patients to have airway autoreactivity that persists despite anti-inflammatory treatment and is associated with exacerbations.

Conflict of interest statement

Conflicts of interest: H.F. Lim reports grants from the National Medical Research Council Singapore, personal fees for lectures from AstraZeneca, outside the submitted work. N. Khalidi reports grants from BMS, Sanofi and AbbVie, personal fees from AstraZeneca and Roche, outside the submitted work. P. Nair reports grants and personal fees for lectures from AstraZeneca and Teva, grants and personal fees for advisory board work from Sanofi, personal fees for advisory board work from Equillium, grants from Foresee and Cyclomedica, personal fees for consultancy from Arrowhead Pharma, personal fees for lectures and advisory board work from GSK, outside the submitted work. M. Mukherjee reports grants from the Canadian Institutes of Health Research, Canadian Asthma Allergy Immunology Foundation and Methapharm Specialty Pharmaceuticals, personal fees for lectures from AstraZeneca, personal fees for consultancy from GlaxoSmithKline and Novartis, outside the submitted work. All other authors disclose no potential conflicts of interest.

Drugs Real World Outcomes

. 2022 Dec;9(4):667-679.

doi: 10.1007/s40801-022-00304-8. Epub 2022 Jun 8.

Adverse Drug Events Related to Common Asthma Medications in US Hospitalized Children, 2000–2016

Luyu Xie[1,2], Andrew Gelfand[3], Matthew S Mathew[1,2], Folefac D Atem[1,2], Nimisha Srikanth[1,2,4], George L Delclos[5], Sarah E Messiah[6,7]

Affiliations expand

- PMID: 35676469

- PMCID: PMC9712902

- DOI: 10.1007/s40801-022-00304-8

Free PMC article

Abstract

Background: The reduction in adverse drug events is a priority in healthcare. Medications are frequently prescribed for asthmatic children, but epidemiological trends of adverse drug events related to anti-asthmatic medications have not been described in hospitalized children.

Objective: The objective of this study was to report incidence trends, risk factors, and healthcare utilization of adverse drug events related to anti-asthmatic medications by major drug classes in hospitalized children in the USA from 2000 to 2016.

Methods: A population-based temporal analysis included those aged 0-20 years who were hospitalized with asthma from the 2000 to 2016 Kids Inpatient Database. Age-stratified weighted temporal trends of the inpatient incidence of adverse drug events related to anti-asthmatic medications (i.e., corticosteroids and bronchodilators) were estimated. Stepwise multivariate logistic regression models generated risk factors for adverse drug events.

Results: From 2000 to 2016, 12,640 out of 698,501 pediatric asthma discharges (1.7%) were associated with adverse drug events from anti-asthmatic medications. 0.83% were adverse drug events from corticosteroids, resulting in a 1.14-fold increase in the length of stay (days) and a 1.42-fold increase in hospitalization charges (dollars). The overall incidence (per 1000 discharges) of anti-asthmatic medication adverse drug events increased from 5.3 (95% confidence interval [CI] 4.6-6.1) in 2000 to 21.6 (95% CI 18.7-24.6) in 2016 (p-trend = 0.024). Children aged 0-4 years had the most dramatic increase in the incidence of bronchodilator adverse drug events from 0.2 (95% CI 0.1-0.4) to 19.3 (95% CI 15.2-23.4) [p-trend ≤ 0.001]. In general, discharges among asthmatic children with some comorbidities were associated with an approximately two to five times higher odds of adverse drug events.

Conclusions: The incidence of adverse drug events from common anti-asthmatic medications quadrupled over the past decade, particularly among preschool-age children who used bronchodilators, resulting in substantial increased healthcare costs. Those asthmatic children with complex medical conditions may benefit the most from adverse drug event monitoring.

Conflict of interest statement

All authors have no conflicts of interest that are directly relevant to the content of this article

- 45 references
- 1 figure

Clin Exp Pediatr

. 2022 Dec;65(12):574-584.

doi: 10.3345/cep.2021.01746. Epub 2022 Apr 19.

Diagnosis and management of asthma in infants and preschoolers

Hai Lee Chung[1]

Affiliations expand

- PMID: 35436814

- DOI: 10.3345/cep.2021.01746

Free article

Abstract

Asthma is one of the most common chronic disease affecting children, and it often starts in infancy and preschool years. In previous birth cohorts, frequent wheezing in early life was associated with the development of asthma in later childhood and reduced lung function persisting into adulthood. Preschool wheezing is considered an umbrella term for distinctive diseases with different clinical features (phenotypes), each of which may be related to different underlying pathophysiologic mechanisms (endotypes). The classification of phenotypes of early wheezing is needed to identify children at high risk for developing asthma later who might benefit from early intervention. However, diagnosis of asthma in infants and preschoolers is particularly difficult because objective lung function tests cannot be performed and definitive biomarkers are lacking. Moreover, management of early asthma is challenging because of its different phenotypic presentations. Many prediction models and asthma guidelines have been developed to provide useful information for physicians to assess young children with recurrent wheezing and manage them appropriately. Many recent studies have investigated the application of personalized medicine for early asthma by identifying specific phenotypes and biomarkers. Further researches, including genetic and molecular studies, are needed to establish a clear definition of asthma and develop more targeted therapeutic approaches in this age group.

Keywords: Asthma; Diagnosis; Management; Preschoolers.

J Dev Orig Health Dis

. 2022 Dec;13(6):674-682.

doi: 10.1017/S2040174422000083. Epub 2022 Mar 8.

Adulthood asthma as a consequence of childhood adversity: a systematic review of epigenetically affected genes

Yasemin Saygideger[1,2], Hakan Özkan[3], Oya Baydar[1], Ozge Yilmaz[4]

Affiliations expand

- PMID: 35256035

- DOI: 10.1017/S2040174422000083

Abstract

There is an accumulating data that shows relation between childhood adversity and vulnerability to chronic diseases as well as epigenetic influences that in turn give rise to these diseases. Asthma is one of the chronic diseases that is influenced from genetic regulation of the inflammatory biomolecules and therefore the hypothesis in this research was childhood adversity might have caused epigenetic differentiation in the asthma-related genes in the population who had childhood trauma. To test this hypothesis, the literature was systematically reviewed to extract epigenetically modified gene data of the adults who had childhood adversity, and affected genes were further evaluated for their association with asthma. PRISMA guidelines were adopted and PubMed and Google Scholar were included in the searched databases, to evaluate epigenetic modifications in asthma-related genes of physically, emotionally or sexually abused children. After retrieving a total of 5245 articles, 36 of them were included in the study. Several genes and pathways that may contribute to pathogenesis of asthma development, increased inflammation, or response to asthma treatment were found epigenetically affected by childhood traumas. Childhood adversity, causing epigenetic changes in DNA, may lead to asthma development or influence the course of the disease and therefore should be taken into account for the prolonged health consequences.

Keywords: Asthma; asthma-related genes; child abuse; childhood adversity; epigenetics; inflammation.

Meta-Analysis

Arch Dis Child

. 2022 Dec;107(12):1100-1105.

doi: 10.1136/archdischild-2021-323496. Epub 2022 Feb 23.

Effect of asthma education on health outcomes in children: a systematic review

Wen-Yi Liu[1 2 3], Zhu Liduzi Jiesisibieke[2], Tao-Hsin Tung[4]

Affiliations expand

- PMID: 35197244
- PMCID: PMC9685736
- DOI: 10.1136/archdischild-2021-323496

Free PMC article

Abstract

Background: It remains unknown whether child-oriented asthma education is associated with better health outcomes. This meta-analysis investigated the effects of asthma education on hospitalisation and emergency department and clinic visits.

Methods: We searched the Cochrane Library, PubMed and EMBASE for relevant studies from inception to 4 July 2021, and selected studies that reported hospitalisation or emergency department or clinic visits as outcomes. The participants were only children. Two authors independently selected the studies, assessed the quality of the included studies and retrieved the data. A third senior author was engaged to resolve disagreements. Fifteen longitudinal studies were included for the systematic review and meta-analysis. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 was used as the standard of reporting (PRISMA registration ID is 284509).

Findings: Compared with the control group, the asthma education group had 54% lower hospitalisation risk (95% CI 0.32 to 0.66), and 31% lower emergency department visit risk (95% CI 0.59 to 0.81). Sensitivity analysis showed that the asthma education group had a reduced clinic visit risk (risk ratio (RR)=0.80, 95% CI 0.67 to 0.97). Subgroup analysis showed that asthma education involving both children and parents/guardians was associated with fewer hospitalisations (RR=0.38, 95% CI 0.24 to 0.59) and emergency department visits (RR=0.69, 95% CI 0.57 to 0.83). Asthma education in hospitals or non-hospitals can reduce the risk of hospitalisation and emergency department visits. However, only education in the hospitals was associated with the reduction of clinical visits (RR=0.45, 95% CI 0.22 to 0.92).

Interpretation: Education is effective for controlling asthma, especially for reducing hospitalisation and emergency department and clinic visits. Education involving both children and parents/guardians is more effective than that involving only children. The setting of asthma education does not impact its effect to a large extent.

Keywords: child health; child health services.

Conflict of interest statement

Competing interests: None declared.

- 54 references
- 2 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

J Asthma

. 2022 Dec;59(12):2375-2385.

doi: 10.1080/02770903.2021.2020813. Epub 2022 Jan 30.

Effectiveness of mepolizumab in patients with severe eosinophilic asthma: results from real-world clinical practice in Finland

Ville Koistinen[1], Paula Kauppi[2], Juhana Idänpään-Heikkilä[3], Lauri Veijalainen[3], Ilona Iso-Mustajärvi[4], Tero Ylisaukko-Oja[4 5], Juha Mehtälä[4], Arja Viinanen[6 7], Maritta Kilpeläinen[6 7]

Affiliations expand

- PMID: 35094632

- DOI: 10.1080/02770903.2021.2020813

Abstract

Objectives: Mepolizumab treatment provides clinical benefits for patients with severe eosinophilic asthma in randomized controlled trials. However, real-world data for patients in Finland are lacking.

Methods: This retrospective, non-interventional, chart review study included patients with severe eosinophilic asthma ≥18 years of age initiating mepolizumab between January 1, 2016 and January 31, 2019 at three investigational sites in Finland. Patient characteristics during the 12 months prior to mepolizumab initiation (baseline) were recorded and primary and secondary endpoints included changes from baseline in disease outcomes during follow-up (up to 24 months following mepolizumab initiation). Exploratory endpoints included association between patient characteristics and exacerbation frequency/annual cumulative oral corticosteroid (OCS) dose.

Results: Overall, 51 patients were included (mean 17.8 months follow-up). At baseline, patients had a mean (standard deviation) blood eosinophil count of 550 (410) cells/μL; impaired lung function and health-related quality of life; poor symptom control; frequent exacerbations (2.78/year); and 90% were using OCS (mean: 9.80 mg/day). At the last follow-up visit, reductions from baseline in blood eosinophil count (84%) and fractional exhaled nitric oxide (26%) were observed, as were improvements in Asthma Quality of Life Questionnaire score (36%) and Asthma Control Test score (34%). Reductions in the mean number of annual exacerbations (82%) and mean daily OCS dose (39%) were also seen; reductions were observed even after adjustment for several patient baseline characteristics.

Conclusions: Results are consistent with previous randomized clinical trials, indicating that Finnish patients experience clinically relevant improvements when treated with mepolizumab in real-world clinical practice.

Keywords: Treatment; control/management; pharmacotherapy; quality of life; therapy.

. 2022 Dec;69(12):11-12.

Salmeterol-Fluticasone: The Role Revisited

Agam Vora[1], Raja Dhar[2], Lancelot Pinto[3], Parvaiz Koul[4], Pratyusha Gaonkar[5]

Affiliations expand

- PMID: 35057598

Abstract

Apart from the individual diseases, some patients also show overlapping manifestations of asthma and COPD. Nevertheless, the diagnosis of COPD is often delayed due to inaccessibility to spirometry; the prevalence of the asthma COPD overlap phenotype is rather high given the exposure to biomass smoke. Furthermore, the rates of exacerbations are twice as high compared to the patients with either of the diseases. A treatment strategy that would reduce the risk of exacerbations would contribute immensely to the management of such patients. Evidence of eosinophilia (marker of inflammation) in patients with asthma, asthma COPD overlap phenotype or COPD alone should prompt treatment with a combination of inhaled corticosteroids (ICS)/ long-acting β-agonists (LABA); several studies have shown improvement in the airflow limitation and reduction in the rate of exacerbations with salmeterol-fluticasone combination (SFC). Considering the association of COPD and cardiovascular diseases (CVD), it is critical to determine the cardiovascular safety of the LABA in such patients. Salmeterol is a highly selective partial b-2 agonist; the TORCH study and the studies comparing formoterol and salmeterol infer that there is no increased risk of new cardiovascular adverse events either with Salmeterol or SFC. Furthermore, the combination may provide certain degree of cardio-protection. Since COPD per se increases the risk of CVD, the cardio-safety of salmeterol outweighs its onset of action. SFC has well substantiated benefits in patients with asthma, COPD and high-risk patients such as those with an overlap of COPD and asthma symptoms, patients with elevated eosinophils and pre-existing CVD. An advisory board was hence conducted, which discussed the role of combination of salmeterol and fluticasone (SFC) not only in asthma and COPD but also in asthma COPD overlap phenotype. Based on the panel's clinical experience and the expertise derived thereof, the propositions regarding the place of SFC therapy in patients with stable and uncontrolled asthma, asthma COPD overlap phenotype and COPD has been put forth.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

Observational Study

J Asthma

. 2022 Dec;59(12):2495-2508.

doi: 10.1080/02770903.2021.2018701. Epub 2022 Jan 9.

Severe asthma exacerbation rates are increased among female, Black, Hispanic, and younger adult patients: results from the US CHRONICLE study

Njira Lugogo[1], Elizabeth Judson[2], Erin Haight[2], Frank Trudo[2], Bradley E Chipps[3], Jennifer Trevor[4], Christopher S Ambrose[5]

Affiliations expand

- PMID: 35000529

- DOI: 10.1080/02770903.2021.2018701

Abstract

Objective: To describe clinical outcomes in patients with severe asthma (SA) by common sociodemographic determinants of health: sex, race, ethnicity, and age.

Methods: CHRONICLE is an observational study of subspecialist-treated, United States adults with SA receiving biologic therapy, maintenance systemic corticosteroids, or

uncontrolled by high-dosage inhaled corticosteroids with additional controllers. For patients enrolled between February 2018 and February 2020, clinical characteristics and asthma outcomes were assessed by sex, race, ethnicity, age at enrollment, and age at diagnosis. Treating subspecialists reported exacerbations, exacerbation-related emergency department visits, and asthma hospitalizations from 12 months before enrollment through the latest data collection. Patients completed the St. George's Respiratory Questionnaire and the Asthma Control Test at enrollment.

Results: Among 1884 enrolled patients, the majority were female (69%), reported White race (75%), non-Hispanic ethnicity (69%), and were diagnosed with asthma as adults (60%). Female, Black, Hispanic, and younger patients experienced higher annualized rates of exacerbations that were statistically significant compared with male, White, non-Hispanic, and older patients, respectively. Black, Hispanic, and younger patients also experienced higher rates of asthma hospitalizations. Female and Black patients exhibited poorer symptom control and poorer health-related quality of life.

Conclusions: In this contemporary, real-world cohort of subspecialist-treated adults with SA, female sex, Black race, Hispanic ethnicity, and younger age were important determinants of health, potentially attributable to physiologic and social factors. Knowledge of these disparities in SA disease burden among subspecialist-treated patients may help optimize care for all patients.

Supplemental data for this article is available online at at www.tandfonline.com/ijas .

Keywords: Epidemiology; management/control; pharmacotherapy; phenotypes; quality of life.

J Asthma

. 2022 Dec;59(12):2402-2412.

doi: 10.1080/02770903.2021.2022160. Epub 2022 Jan 11.

Manifesto on inhaled triple therapy in asthma: an Interasma (Global Asthma Association – GAA) document

Fulvio Braido[1,2], Angelica Tiotiu[3,4], Guillermo Guidos-Fogelbach[5], Ilaria Baiardini[2,6,7], Filippo Cosini[8], Jaime Correia de Sousa[9,10], Andras Bikov[11,12], Sylvia Novakova[13], Marina Labor[14], Igor Kaidashev[15], Denislava Nedeva[16], Krzysztof Kowal[17], Stefan Mihaicuta[18], Marilyn Urrutia Pereira[19], Dirceu Solé[20], Plamela Novakova[21], Herberto Chong-Neto[22], Laura Vrzy[8], Ignacio J Ansotegui[23], Jonathan A Bernstein[24], Louis-Philippe Boulet[25], Giorgio Walter Canonica[6,7,26], Lawrence Dubuske[27], Carlos Nunes[28], Juan Carlos Ivancevich[29], Pierachille Santus[30], Nelson Rosario[31], Alexander Emelyanov[32], Paschalis Steiropoulos[33]

Affiliations expand

- PMID: 34936532

- DOI: 10.1080/02770903.2021.2022160

Abstract

Objective: The optimal use of drug combinations for the management of asthma is providing significant results. This has prompted Interasma (Global Asthma Association) to take a position on inhaled triple therapy in asthma.**Methods:** We performed an extensive literature research to clinical trials, meta-analyses, randomized controlled trials and systematic reviews.**Results:** Starting from an extensive literature review, Interasma executive committee discussed and approved this Manifesto, developed by Interasma scientific network (INES) members.**Conclusions:** The manifesto describes the evidence gathered to date and states, advocates, and proposes issues on inhaled corticosteroid (ICS) plus long-acting beta 2 agonist (LABA) and long-acting muscarinic antagonists (LAMA) with the aim of challenging assumptions, fostering commitment, and bringing about change.

Keywords: Asthma management; Interasma; asthma control; asthma pharmacotherapy; asthma treatment; consensus; manifesto.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

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Ann Med

. 2022 Dec;54(1):11-21.

doi: 10.1080/07853890.2021.2014555.

Clinical analysis of hypereosinophilic syndrome first presenting with asthma-like symptoms

Xuan Wei[1], Xiaofeng Li[1], Zuyou Wei[1], Hui Zhang[1], Jiehua Deng[1], Suke Xing[1], Jianquan Zhang[1,2]

Affiliations expand

- PMID: 34935570
- PMCID: PMC8725856
- DOI: 10.1080/07853890.2021.2014555

Free PMC article

Abstract

Introduction: Clinical manifestations of hypereosinophilic syndrome (HES) are diverse. This study aimed to summarise these clinical characteristics with asthma-like onset as the first symptom, and compare these characteristics and treatment strategies between idiopathic and parasitic HES.

Materials and methods: We retrospectively analysed 36 HES patients with asthma-like symptoms as the first episode, between January 2013 and October 2019. Data of patients with HES of an unknown cause (idiopathic HES) and parasitic infection (parasite HES) were analysed.

Results: The idiopathic and parasite HES groups included 16 and 20 patients, respectively, with more males in the parasite HES group ($p < .05$). Wheezing and dry rales was the most common symptom and signs, with no significant differences in symptoms and signs between the groups. The most often misdiagnosed disease was bronchial asthma. The peripheral blood eosinophil count was significantly increased compared with normal counts in both groups ($p > .05$). Abnormal pulmonary function is mainly manifested as obstructive ventilatory disorder and mixed ventilatory disorder. Chest computed tomography showed extensive ground-glass exudation, patches, consolidation, nodules, and pleural effusion. Histopathological examination showed eosinophilic infiltration without vasculitis or granuloma. Glucocorticoids had a significant therapeutic effect, and the parasite HES group required combined deworming drugs. The duration of corticosteroids therapy in the idiopathic HES group was significantly longer than that in the parasite HES group ($p < .05$). The overall prognosis was good, and 81.25% of the patients were clinically cured in the parasite HES group; however, relapse occurred easily in the idiopathic HES group.

Conclusions: Asthma-like symptoms, obstructive ventilatory disorder or positive bronchial dilation test, and poor response to inhaled corticosteroids are not necessarily indicative of refractory asthma; HES should be considered. The clinical characteristics of HES of different aetiologies are similar. Systemic corticosteroid therapy is preferred for idiopathic and parasitic infections. Idiopathic HES is treated with prolonged corticosteroids and relapses easily.Key MessagesAsthma-like symptoms, obstructive ventilatory disorder or positive bronchial dilation tests, and poor responses to inhaled corticosteroids are not necessarily indicative of refractory asthma, and hypereosinophilic syndrome should be considered.The clinical characteristics of hypereosinophilic syndrome of different aetiologies are similar, and systemic glucocorticoid therapy is preferred for both idiopathic and parasitic infections.Idiopathic hypereosinophilic syndrome is treated with prolonged corticosteroids and relapses easily.

Keywords: Eosinophils; glucocorticoid; idiopathic; parasitic infection.

Conflict of interest statement

No potential conflict of interest was reported by the author(s).

- Cited by 1 article
- 32 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

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59

J Asthma

. 2022 Dec;59(12):2530-2538.

doi: 10.1080/02770903.2021.2020815. Epub 2021 Dec 27.

Interleukin (IL)-33 immunobiology in asthma and airway inflammatory diseases

Rohit Gaurav[1], Jill A Poole[1]

Affiliations expand

- PMID: 34928757

- PMCID: PMC9234100 (available on 2023-12-01)

- DOI: 10.1080/02770903.2021.2020815

Abstract

Objective: Identify key features of IL-33 immunobiology important in allergic and nonallergic airway inflammatory diseases and potential therapeutic strategies to reduce disease burden.

Data sources: PubMed, clinicaltrials.gov.

Study selections: A systematic and focused literature search was conducted of PubMed from March 2021 to December 2021 using keywords to either PubMed or BioMed Explorer including IL-33/ST2, genetic polymorphisms, transcription, translation, post-translation modification, nuclear protein, allergy, asthma, and lung disease. Clinical trial information on IL-33 was extracted from clinicaltrials.gov in August 2021.

Results: In total, 72 publications with relevance to IL-33 immunobiology and/or clinical lung disease were identified (allergic airway inflammation/allergic asthma *n* = 26, non-allergic airway inflammation *n* = 9, COPD *n* = 8, lung fibrosis *n* = 10). IL-33 levels were higher in serum, BALF and/or lungs across inflammatory lung diseases. Eight studies described viral infections and IL-33 and 4 studies related to COVID-19. Mechanistic studies (*n* = 39) including transcript variants and post-translational modifications related to the immunobiology of IL-33. Single nucleotide polymorphism in IL-33 or ST2 were described in 9 studies (asthma *n* = 5, inflammatory bowel disease *n* = 1, mycosis fungoides *n* = 1, ankylosing spondylitis *n* = 1, coronary artery disease *n* = 1). Clinicaltrials.gov search yielded 84 studies of which 17 were related to therapeutic or biomarker relevance in lung disease.

Conclusion: An integral role of IL-33 in the pathogenesis of allergic and nonallergic airway inflammatory disease is evident with several emerging clinical trials investigating therapeutic approaches. Current data support a critical role of IL-33 in damage signaling, repair and regeneration of lungs.

Keywords: COVID-19; IL-33; allergic asthma; asthma-COPD overlap; lung fibrosis; non-allergic asthma; regeneration; repair.

Laryngoscope

. 2022 Dec;132(12):2307-2313.

doi: 10.1002/lary.29992. Epub 2021 Dec 16.

Dupilumab Adverse Events in Nasal Polyp Treatment: Analysis of FDA Adverse Event Reporting System

Austin R Swisher[1], Rijul S Kshirsagar[2], Nithin D Adappa[2], Jonathan Liang[3]

Affiliations expand

- PMID: 34918342

- DOI: 10.1002/lary.29992

Abstract

Objectives: Dupilumab was the first biologic approved to treat chronic rhinosinusitis with nasal polyps (CRSwNP). While the risk of adverse events in phase-III clinical trials was low, dupilumab-associated adverse reactions (DAR) with real-world use is unknown and potentially under-reported. We aimed to evaluate DAR for CRSwNP treatment (CRSwNP-tx) using the FDA Adverse Event Reporting System (FAERS).

Study design: Retrospective database study.

Methods: FAERS was queried for DAR from 2019Q1 to 2021Q2. Individual DAR (iDAR) were categorized and quantitatively compared between treatment groups (CRSwNP,

asthma, atopic dermatitis). Zero-truncated Poisson regression was modeled to predict the number of iDAR, and logistic regression was modeled to predict serious DARs.

Results: There were 15,411 DAR observations; 911 for CRSwNP-tx, of which 121 (13.3%) had serious reactions and 3 died. Common CRSwNP-tx iDAR were dermatologic (13.9%), generalized (13.3%), and injection-site (10.8%) symptoms. The number of CRSwNP-tx iDAR was 2.99 [2.81, 3.17], compared to 3.44 [3.32, 3.56] for asthma and 3.18 [3.13, 3.24] for atopic dermatitis (Kruskal-Wallis test, P < .001). For CRSwNP-tx, iDAR reported-risk-ratio was 0.84 [0.77, 0.92] among men and 1.12 [1.04, 1.22] among older adults (>50). Serious DAR reported-odds-ratio was 1.37 [0.91, 2.04] among men and 1.39 [0.93, 2.08] among older adults.

Conclusions: While there are limitations with FAERS, this analysis suggests CRSwNP-tx is associated with fewer iDAR compared with other treatment indications. More iDAR are experienced among women and older adults, but men tend to have more serious DAR.

Level of evidence: 3 Laryngoscope, 132:2307-2313, 2022.

Keywords: Dupilumab; Federal Adverse Event Reporting System; adverse reactions; chronic rhinosinusitis with nasal polyps.

Comment in

- Rhinosinusitis mit Nasenpolypen: Nebenwirkungen unter Dupilumab?
  [No authors listed]Laryngorhinootologie. 2022 Nov;101(11):850. doi: 10.1055/a-1925-9365. Epub 2022 Nov 3.PMID: 36328051 German. No abstract available.

- Cited by 1 article
- 45 references

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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Observational Study

J Asthma

. 2022 Dec;59(12):2341-2351.

doi: 10.1080/02770903.2021.2010748. Epub 2021 Dec 2.

Severe asthma in adult, inner-city predominantly African-American and latinx population: demographic, clinical and phenotypic characteristics

Savneet Kaur[1], David Rosenstreich[1], Krystal L Cleven[2], Simon Spivack[2], Joseph Grizzanti[2], Marina Reznik[3], Sunit P Jariwala[1]

Affiliations expand

- PMID: 34822312

- DOI: 10.1080/02770903.2021.2010748

Abstract

Introduction: The burden of asthma morbidity with co-existing atopy among the racial/ethnic minorities in the socio-economically disadvantaged NYC borough of the Bronx is unusually high. The multidisciplinary Montefiore Asthma Center (MAC) provides guideline-based treatment to this high-risk population through the joint efforts of Allergists/Immunologists, Pulmonologists, and on-site health educators.

Methods: The objective of this prospective, observational study was to define the demographic and clinical characteristics of severe asthma, evaluate improvement in asthma severity and lung function through the course of treatment at the MAC, and describe the asthma phenotypes of the patients managed at the MAC. Adults with severe asthma receiving treatment at the MAC were followed from their first to their last visit at the MAC. Patient demographics, along with asthma severity and co-existing allergies, were

assessed. Possible phenotypes were defined (based on presence or absence of atopy, age at asthma onset, and blood eosinophil counts).

Results: 227 patients were included in the final analysis, of which 55.5% were Hispanic and 33.9% identified as non-Hispanic Black. Ninety-one percent (91%) of our cohort was found to be atopic and allergic rhinoconjunctivitis (ARC) was the most commonly identified co-existing allergic condition (86.3%). Mean Asthma Control Test (ACT) scores improved from 11.1 (± 4.9) at the initial visit to 14.8 (± 6.1) at the last visit. The spirometric values did not improve despite treatment at MAC.

Conclusion: A multidisciplinary severe asthma center is an ideal setting to phenotype patients and offer personalized guideline-based management and education to adults with severe asthma.

Keywords: Phenotypes; biomarkers; rhinitis/sinusitis; treatment.

J Asthma

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. 2022 Dec;59(12):2352-2359.

doi: 10.1080/02770903.2021.2010749. Epub 2021 Dec 6.

Asthma biologic trial eligibility and real-world outcomes in the United States

Regina W Lam[1], Jonathan W Inselman[2], Molly M Jeffery[2], Jacob T Maddux[3], Nilay D Shah[2,4], Matthew A Rank[3,5]

Affiliations expand

- PMID: 34818955

- PMCID: PMC9575703 (available on 2023-12-01)

- DOI: 10.1080/02770903.2021.2010749

Abstract

Objective: To compare the outcomes of real-world patients who would have been eligible for asthma biologics to those who would not have been eligible.

Methods: We used data from the OptumLabs Data Warehouse (OLDW) to categorize patients into eligible and ineligible groups based on clinical trials (n = 19 trials) used for Food and Drug Administration (FDA) approval. We then compared the change in the number of asthma exacerbations before and after biological initiation between the two groups.

Results: The percentage of people who would have been eligible for asthma biologic clinical trials ranged from 0-10.2%. The eligible group had a greater reduction in number of asthma exacerbations compared to the ineligible group based on eligibility criteria from 1 omalizumab trial (1.52, 95% CI 1.25, 1.8 in eligible vs. 0.47, 95% CI 0.43, 0.52 in ineligible) and from 1 dupilumab trial (1.6, 95% CI 0.92, 2.28 in eligible vs. 0.52, 95% CI 0.38, 0.65 ineligible). Notably, 15 of the 19 trials had fewer than 11 eligible people, limiting additional comparisons.

Conclusions: Fewer than 1 in 10 people in the United States treated with asthma biologics would have been eligible to participate in the trial for the biologic they used. Where comparisons could be made, trial eligible people have a greater reduction in exacerbations.

Supplemental data for this article is available online at https://doi.org/10.1080/02770903.2021.2010749 .

Keywords: Asthma; biologics; eligibility; external validity; trials.

Conflict of interest statement

Declaration of interest statement: None of the authors report a conflict of interest.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

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COPD

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. 2022 Dec;19(1):1-9.

doi: 10.1080/15412555.2021.1977789. Epub 2021 Sep 21.

Triple Inhaler versus Dual Bronchodilator Therapy in COPD: Real-World Effectiveness on Mortality

Samy Suissa[1,2], Sophie Dell'Aniello[1,2], Pierre Ernst[1,2]

Affiliations expand

- PMID: 34544314

- DOI: 10.1080/15412555.2021.1977789

Abstract

Randomized trials of triple therapy including an inhaled corticosteroid (ICS) for chronic obstructive pulmonary disease (COPD) reported remarkable benefits on mortality compared with dual bronchodilators, likely resulting from ICS withdrawal at randomization. We compared triple therapy with dual bronchodilator combinations on major COPD outcomes in a real-world clinical practice setting. We identified a cohort of COPD patients, age 50 or older, treated during 2002-2018, from the United Kingdom's Clinical Practice Research Datalink. Patients initiating treatment with a long-acting muscarinic antagonist (LAMA), a long-acting beta$_2$-agonist (LABA) and an ICS on the same day, were compared with patients initiating a LAMA and LABA, weighted by fine stratification of propensity scores. Subjects were followed-up one year for all-cause mortality, severe exacerbation and pneumonia. The cohort included 117,729 new-users of LAMA-LABA-ICS and 26,666 of LAMA-LABA. The adjusted hazard ratio (HR) of all-cause mortality with LAMA-LABA-ICS compared with LAMA-LABA was 1.17 (95% CI: 1.04-1.31) while for severe exacerbation and pneumonia it was 1.19 (1.08-1.32) and 1.29 (1.16-1.45) respectively. However, mortality was not elevated with triple therapy among patients with asthma diagnosis (HR 0.99; 95% CI: 0.74-1.34), with two or more prior exacerbations (HR 0.88; 95% CI: 0.70-1.11), and with FEV_1 percent predicted >30%. In a real-world setting of COPD treatment, triple therapy initiation was not more effective than dual bronchodilators at preventing all-cause mortality and severe COPD exacerbations. Triple therapy may be unsafe among patients without prior exacerbations, in whom ICS are not recommended, with no asthma diagnosis and with very severe airflow obstruction.Supplemental data for this article is available online at https://doi.org/10.1080/15412555.2021.1977789 .

Keywords: New-user cohort design; exacerbations; inhaled coticosteroids; long-acting bronchodilators; observational research; pneumonia; real-world evidence.

Comment in

- Evaluating the Impact of Triple Therapy on Mortality in Copd: The End is the Beginning?
  Kostikas K, Kyriakopoulos C, Gogali A.COPD. 2022;19(1):57-60. doi: 10.1080/15412555.2021.1998410. Epub 2022 Jan 20.PMID: 35050797 No abstract available.

- Cited by 1 article

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RHINITIS

1
Clin Exp Allergy

. 2022 Dec 1.

doi: 10.1111/cea.14257. Online ahead of print.

Trajectories of cough without a cold in early childhood and associations with atopic diseases

Amandine Divaret-Chauveau[1 2 3], Frederic Mauny[3 4], Alexander Hose[5], Martin Depner[6], Marie-Laure Dalphin[7], Vincent Kaulek[8], Cindy Barnig[8 9], Bianca Schaub[5 10], Elisabeth Schmausser-Hechfellner[6], Harald Renz[11 12], Josef Riedler[13], Juha Pekkanen[14 15], Anne M Karvonen[14], Martin Täubel[14], Roger Lauener[16 17], Caroline Roduit[16 18], Dominique Angèle Vuitton[19], Erika von Mutius[5 6 10], Silvia Demoulin-Alexikova[2], PASTURE study group

Collaborators, Affiliations expand

- PMID: 36453463

- DOI: 10.1111/cea.14257

Abstract

Background: Although children can frequently experience a cough that affects their quality of life, few epidemiological studies have explored cough without a cold during childhood.

Objectives: The objective of the study was to describe the latent class trajectories of cough from one to 10 years old and analyse their association with wheezing, atopy and allergic diseases.

Methods: Questions about cough, wheeze and allergic diseases were asked at 1, 1.5, 2, 3, 4, 5, 6 and 10 years of age in the European prospective cohort of Protection against Allergy: STUdy in Rural Environment (PASTURE). Specific IgE assays were performed at 10 years of age. Questions regarding a cough without a cold were used to build a latent class model of cough over time.

Results: Among the 961 children included in the study, apart from the never/infrequent trajectory (59.9%), eight trajectories of cough without a cold were identified: five grouped acute transient classes (24.1%), moderate transient (6.8%), late persistent (4.8%) and early persistent (4.4%). Compared with the never/infrequent trajectory, the other trajectories were significantly associated with wheezing, asthma and allergic rhinitis. For asthma, the strongest association was with the early persistent trajectory (OR_a = 31.00 [14.03-68.51]), which was inversely associated with farm environment (OR_a = 0.39 [0.19-0.77]) and had a high prevalence of cough triggers and unremitting wheeze. Late and early persistent trajectories were also associated with food allergy. Atopic sensitization was only associated with the late persistent trajectory.

Conclusion: Late and early persistent coughs without a cold are positively associated with atopic respiratory diseases and food allergy. Children having recurrent cough without a cold with night cough and triggers would benefit from an asthma and allergy assessment. Growing up on a farm is associated with reduced early persistent cough.

Keywords: allergic diseases; asthma; atopy; childhood; cough.

- 38 references

SUPPLEMENTARY INFO

Grant supportexpand

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Review

Curr Allergy Asthma Rep

. 2022 Nov 29.

doi: 10.1007/s11882-022-01054-x. Online ahead of print.

Management of Anaphylaxis During Peanut Oral Immunotherapy

Vibha Szafron[1,2], Aikaterini Anagnostou[3,4,5]

Affiliations expand

- PMID: 36445653

- DOI: 10.1007/s11882-022-01054-x

Abstract

Background: Peanut oral immunotherapy (POIT) has emerged as an active management option for peanut allergy, with an FDA-approved product now available for therapy. Allergic reactions, including anaphylaxis, can occur during therapy and their management is key in optimizing this treatment and patient outcomes.

Purpose of review: In this manuscript, we will review the rates of allergic reactions and anaphylaxis in seminal peanut oral immunotherapy research studies. We will examine factors that can alter the risk of anaphylaxis and describe various strategies, including adjunct therapies, that have the potential to mitigate anaphylaxis risk based on published evidence.

Recent findings: Rates of anaphylaxis and epinephrine administration vary in different research studies, but there is consensus that most POIT-related allergic reactions are mild or moderate and not severe. Certain external factors (for example, tiredness, exercise, viral illness) as well as uncontrolled allergic co-morbidities (asthma, allergic rhinitis) have been shown to increase the risk of anaphylaxis during OIT. The search of biomarkers who may predict who is at risk for severe allergic reactions is ongoing. Adjunct therapies have shown promise, but further studies are required to optimize their use alongside POIT. Our understanding of anaphylaxis during POIT has increased in recent years, resulting in better management strategies. However, future plans will need to involve all stakeholders,

including physicians, patients and families, researchers, public health authorities, and the food, hospitality, and catering industries.

Keywords: Anaphylaxis; Biomarkers; External factors; Peanut oral immunotherapy; Risk factors.

- 46 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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3

Sci Rep

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. 2022 Nov 28;12(1):20522.

doi: 10.1038/s41598-022-25028-1.

Influence of the environment on the characteristics of asthma

Christian Romero-Mesones[1], Iñigo Ojanguren[1 2], David Espejo[1], G Granados[1], Francisco-Javier González-Barcala[3], María-Jesús Cruz[4 5], Xavier Muñoz[1 2 6]

Affiliations expand

- PMID: 36443644

- PMCID: PMC9705565

- DOI: 10.1038/s41598-022-25028-1

Free PMC article

Abstract

Few studies have compared the prevalence of asthma in urban and rural settings or explored the issue of whether these two manifestations of the disease may represent different phenotypes. The aim of this study was: (a) to establish whether the prevalence of asthma differs between rural and urban settings, and b) to identify differences in the clinical presentation of asthma in these two environments. Descriptive epidemiological study involving individuals aged 18 or over from a rural (n = 516) and an urban population (n = 522). In the first phase, individuals were contacted by letter in order to organize the administration of a first validated questionnaire (Q1) designed to establish the possible prevalence of bronchial asthma. In the second phase, patients who had presented association patterns in the set of variables related to asthma in Q1 completed a second validated questionnaire (Q2), designed to identify the characteristics of asthma. According to Q1, the prevalence of asthma was 15% (n = 78) and 11% (n = 59) in rural and urban populations respectively. Sixty-five individuals with asthma from the rural population and all 59 individuals from the urban population were contacted and administered the Q2. Thirty-seven per cent of the individuals surveyed had previously been diagnosed with bronchial asthma (35% in the rural population and 40% in the urban setting). In the urban asthmatic population there was a predominance of women, a greater personal history of allergic rhinitis and a family history of allergic rhinitis and/or eczema. Asthma was diagnosed in adulthood in 74.8% of the patients, with no significant differences between the two populations. Regarding symptoms, cough (morning, daytime and night) and expectoration were more frequent in the urban population. The prevalence of asthma does not differ between urban and rural settings. The differences in exposure that characterize each environment may lead to different manifestations of the disease and may also affect its severity.

Conflict of interest statement

The authors declare no competing interests.

- 37 references
- 1 figure

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

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Review

Int Immunopharmacol

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. 2022 Dec;113(Pt B):109449.

doi: 10.1016/j.intimp.2022.109449. Epub 2022 Nov 17.

The role of dendritic cells in allergic diseases

Peng Liu[1], Chenglin Kang[1], Jin Zhang[1], Yue Liu[1], Jiangqi Liu[1], Tianyong Hu[2], Xianhai Zeng[3], Shuqi Qiu[4]

Affiliations expand

- PMID: 36403519

- DOI: 10.1016/j.intimp.2022.109449

Abstract

Allergic diseases are important diseases that affect many patients worldwide. Over the past few decades, the incidence of allergic diseases has increased significantly due to social development and increased environmental degradation, which has placed a huge economic burden on public health and even led to an increase in mortality. Substantial progress has been made in the understanding of the mechanisms of allergic diseases, and past studies have shown that the occurrence and development of allergic diseases are closely related to changes in the state of the immune system. With the study and in-depth understanding of innate immune lymphocytes, researchers have gradually discovered that dendritic cells (DC) play an important role in many allergic diseases. DC are the body's main antigen-presenting cells, which ingest, process, and hand allergens, and then secrete chemokines such as chemokine ligands 17(CCL17), CCL22, and upregulate their own surface co-stimulating molecules. Then DC present the antigen peptide to the initial T cells and further differentiate them into helper T cells 2(Th2). As an important part of humoral immunity, Th2 participates in the regulation of type 2 immune response through the secretion of cytokines such as interleukin 4(IL-4), IL-5, and IL-13 and plays a leading role. However, our current research on DC is limited and its status in allergic diseases is unclear.Among them, allergic rhinitis, allergic asthma, atopic dermatitis, and food allergy are DC-mediated Th2 immune-related factor disorder-related allergic diseases, and some progress has been made in recent years in the study of the pathogenesis of these diseases. This paper outlines the common phenotypes and activation pathways of DC in different allergic diseases as well as potential research directions to improve the understanding of its immunomodulatory role in different allergic diseases and ultimately find new ways to treat these diseases.

Keywords: Allergic diseases; Allergic rhinitis; Dendritic cells; Immunomodulation; Th2 type immune response.

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.

Review

Environ Sci Pollut Res Int

. 2022 Dec;29(59):88461-88487.

doi: 10.1007/s11356-022-23718-x. Epub 2022 Nov 4.

Association of individual green space exposure with the incidence of asthma and allergic rhinitis: a systematic review and meta-analysis

Birong Wu[#1], Xianwei Guo[#1], Mingming Liang[1], Chenyu Sun[2], Juan Gao[1], Peng Xie[1], Linya Feng[1], Weihang Xia[1], Haixia Liu[1], Shaodi Ma[1], Dongdong Zhao[1], Guangbo Qu[1,3], Yehuan Sun[4,5,6]

Affiliations expand

- PMID: 36329245

- DOI: 10.1007/s11356-022-23718-x

Abstract

The association between allergic respiratory diseases, such as asthma and allergic rhinitis (AR), and green space (GS) remains controversial. Our study aimed to summarize and synthesize the association between individual GS exposure and the incidence of asthma/AR. We systematically summarized the qualitative relationship between GS exposure and asthma and AR. The pooled odds ratio (OR) with 95% confidence intervals (CIs) was used to estimate the effect of the Normalized Difference Vegetation Index (NDVI) on asthma and AR. A total of 21 studies were included for systematic review, and 8 of them underwent meta-analysis. In the meta-analysis of current asthma, the 0 < radius ≤ 100 m

group, 100 < radius ≤ 300 m group, and 500 < radius ≤ 1000 m group presented weak negative associations between the NDVI and current asthma. For ever asthma, slight positive associations existed in the 0 < radius ≤ 100 m group and 300 < radius ≤ 500 m group. In addition, the NDVI might slightly reduce the risk of AR in radius of 100 m and 500 m. Our findings suggest that the effects of GS exposure on asthma and AR were not significant. Differences in GS measurements, disease diagnoses and adjusted confounders across studies may have an impact on the results. Subsequent studies should consider potential confounding factors and use more accurate GS exposure measurements to better understand the impact of GS exposure on respiratory disease in the population.

Keywords: Allergic rhinitis; Asthma; Green space; Meta-analysis; Normalized Difference Vegetation Index; Systematic review.

- 69 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

SpringerLink FULL-TEXT ARTICLE

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Ann Med

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. 2022 Dec;54(1):2929-2940.

doi: 10.1080/07853890.2022.2134584.

Childhood blood eosinophils and symptoms of allergic disorders: a cross-sectional study in Southern China

Xiangqing Hou[1], Wenting Luo[2], Hui Gan[2], Tianhao Chen[1], Baoqing Sun[2]

Affiliations expand

- PMID: 36259652
- PMCID: PMC9586638
- DOI: 10.1080/07853890.2022.2134584

Free PMC article

Abstract

Purpose: The relationship between childhood blood eosinophils and subtypes of allergic diseases remains understudied. This study aimed to examine the associations between childhood blood eosinophils and subtypes of asthma, rhinitis and dermatitis, as well as the modifying effect of age.

Methods: We obtained concurrent blood cell counts and serum Immunoglobulin E (IgE) test results in 5026 children (0-13, years) from First Affiliated Hospital of Guangzhou Medical University from 2014 to 2019. Generalized additive models with multivariable adjustments were utilized to model the exposure-response relationship between eosinophils and allergic symptoms. The robustness of the association was assessed in two age categories (<6, 6-13 years).

Results: The association of eosinophils with allergic asthma/rhinitis was positively nonlinear, with a plateau at levels of Q_4 (≥0.51, 10^9/L). Conversely, exposure-response curves between eosinophils and the risk of non-allergic asthma and rhinitis were negatively linear, and especially, became statistically significant when levels of eosinophils were larger than Q_3 (≥0.30, 10^9/L). Compared with their counterparts, school-aged children (6-13, years) with a higher level of blood eosinophils (≥0.35, 10^9/L) were more likely to suffer from allergic asthma [relative excess risk due to interaction (RERI), 2.51; 95% CI, 1.24-3.78],

allergic rhinitis (RERI, 2.79; 95% CI, 1.14-4.45) but not allergic dermatitis (RERI not significant).

Conclusion: Higher eosinophil counts were associated with the increased risk of allergic subtype symptoms and the decreased risk of non-allergic subtypes in children. Moreover, the associations between eosinophils and allergic asthma/rhinitis were accentuated in the school-aged child. These findings may contribute to providing novel insights for clinical administration relevance of allergic-related symptoms.Key messages:There was a positively nonlinear association between childhood eosinophils and allergic asthma/rhinitis.Age modified the associations between eosinophils and allergy-related outcomes. The associations of eosinophil with allergic asthma/rhinitis accentuated in the school-aged child (6-13, years).

Keywords: Children; RERI; allergic diseases; eosinophils; subtypes.

Conflict of interest statement

No potential conflict of interest was reported by the authors.

- 32 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

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Randomized Controlled Trial

Rhinology

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. 2022 Dec 1;60(6):435-443.

doi: 10.4193/Rhin22.129.

Real-world-effectiveness of biological treatment for severe chronic rhinosinusitis with nasal polyps

B R Haxel[1], T Hummel[2], K Fruth[3], K Lorenz[4], N Gunder[4], P Nahrath[4], M Cuevas[4]

Affiliations expand

- PMID: 36150163

- DOI: 10.4193/Rhin22.129

Abstract

Background: During the last two years, three different monoclonal antibodies have been approved in many countries for the treatment of patients suffering from severe chronic rhinosinusitis with nasal polyps (CRSwNP). Their efficacy has been demonstrated through large double-blind placebo-controlled clinical studies. Until now, only very limited reports on real-world data regarding this therapy have been published.

Methods: This per protocol analysis included patients with an indication for biological treatment because of uncontrolled CRSwNP, despite long-term nasal steroid treatment, systemic steroid use and/ or endonasal sinus surgery. Baseline data on demographics, medical history and comorbidities, polyp score, quality of life and sense of smell (using Sniffin' Sticks) were assessed and a treatment with either dupilumab or omalizumab was started. The patients were followed up after three and six months. The changes in polyp score, quality-of-life measures and olfaction were noted.

Results: 70 consecutive patients were evaluated during the study. Of the patients, 49 were treated with dupilumab and 21 with omalizumab. The polyp score decreased significantly after three and six months, and the quality-of-life parameters and olfaction increased. More than 90% of patients showed a moderate to excellent response to the therapy and there was no difference in the overall response between the two treatments. Olfaction improved in two thirds of the patients, but one third was still anosmic after six months treatment.

Conclusions: This real-world study shows the effectiveness of the monoclonal antibodies dupilumab and omalizumab in the treatment of severe CRSwNP. Nasal polyp scores and

quality-of-life parameters as well as measured olfactory function were improved after just three months. The response after guideline-based criteria was insufficient only in 5 patients of this cohort.

- Cited by 1 article

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

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Review

Allergy

. 2022 Dec;77(12):3584-3592.

doi: 10.1111/all.15506. Epub 2022 Sep 19.

Real-world evidence for the long-term effect of allergen immunotherapy: Current status on database-derived European studies

Christian Vogelberg[1], Ludger Klimek[2], Bernd Brüggenjürgen[3], Marek Jutel[4,5]

Affiliations expand

- PMID: 36074052

- DOI: 10.1111/all.15506

Abstract

Randomized controlled trials (RCTs) are the gold-standard for benefit-risk assessments during drug approval processes. Real-word data (RWD) and the resulting real-world evidence (RWE) are becoming increasingly important for assessing the effectiveness of drug products after marketing authorization showing how RCT results are transferred into real life care. The effectiveness of allergen immunotherapy (AIT) has been assessed in several RWE studies based on large prescription databases. We performed a literature search for retrospective cohort assessments of prescription databases in Europe to provide an overview on the methodology, long-term effectiveness outcomes, and adherence to AIT. Thirteen respective publications were selected. AIT was more effective in reducing the progression of allergic rhinitis (AR) compared to a non-AIT control group receiving only symptomatic treatment for AR for up to 6 years. The development and progression of asthma were hampered for most endpoints in patients treated with most preparations compared to the non-AIT group, receiving only anti-asthmatic medication. The results for "time to onset" of asthma were inconsistent. Adherence to AIT decreased during the recommended 3-year treatment period, however, in most studies higher adherence to subcutaneous than to sublingual AIT was shown. The analysis of long-term effectiveness outcomes of the RWE studies based on prescription databases confirms the long-term efficacy of AIT demonstrated in RCTs. Progression of rhinitis and asthma symptoms as well as delayed onset of asthma triggered by different allergens, real life adherence to the treatment shows differences in particular application routes.

Keywords: allergen immunotherapy; allergic asthma; allergic rhinitis; long-term efficacy; real-world evidence.

- 61 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

WILEY Full Text Article

Review

Allergy

. 2022 Dec;77(12):3593-3605.

doi: 10.1111/all.15507. Epub 2022 Sep 15.

Updates in biologic therapy for chronic rhinosinusitis with nasal polyps and NSAID-exacerbated respiratory disease

Xinni Xu[1], Sietze Reitsma[2], De Yun Wang[3], Wytske J Fokkens[2]

Affiliations expand

- PMID: 36067036

- DOI: 10.1111/all.15507

Abstract

Chronic rhinosinusitis with nasal polyps (CRSwNP) associated with type 2 inflammation and non-steroidal anti-inflammatory drug (NSAID)-exacerbated respiratory disease (N-ERD) can be difficult to control with standard medical therapy and sinus surgery. In this group, biologicals are potentially promising treatment options. The phase III clinical trials for omalizumab, dupilumab, mepolizumab and benralizumab in CRSwNP have demonstrated favourable outcomes. Moving forward, direct comparisons among biologicals, refining patient selection criteria for specific biologicals, determining optimal treatment duration and monitoring long-term outcomes are areas of emerging interest. This review

summarizes the clinical evidence from the recent 2 years on the role of biologicals in severe CRSwNP and N-ERD, and proposes an approach towards decision-making in their use.

Keywords: NSAID-exacerbated respiratory disease; biologicals; chronic rhinosinusitis; nasal polyps.

- 60 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

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10

Acta Paediatr

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. 2022 Dec;111(12):2384-2389.

doi: 10.1111/apa.16532. Epub 2022 Sep 13.

Being overweight and born in the spring are associated with an increased risk for rhinitis

Shmuel Goldberg[1], Elie Picard[1], Leon Joseph[1], Ron Kedem[2], Adir Sommer[2], Dorit Tzur[2], Shlomo Cohen[1]

Affiliations expand

- PMID: 36052574

- DOI: 10.1111/apa.16532

Abstract

Aim: To explore the relationship between the season of birth and the prevalence of recurrent or chronic rhinitis (rhinitis).

Methods: The medical records of consecutive 17-year-old conscripts to the Israeli army were reviewed. We compared the prevalence of rhinitis between children born during different seasons. Multivariate analysis was performed with additional variables.

Results: The prevalence of rhinitis among the 1.1 million recruits was 7.1% in males and 5.3% in females. The association between birth season and the prevalence of rhinitis was highly significant ($p < 0.001$ for both genders). Spring was the birth season with the highest prevalence of rhinitis (7.4% in males and 5.5% in females). Males born in the winter and females born in the autumn had the lowest prevalence of rhinitis (6.7%, and 5.2% respectively). There was an increased odds ratio for rhinitis among those with a body mass index above 25, higher cognitive score and maternal birth country out of Israel or Africa.

Conclusions: There was an increased risk of rhinitis among young Israeli adults who were born in the spring, were overweight and had a higher cognitive-score. Family planning to avoid a spring birth and preventing overweight may reduce the risk of chronic rhinitis.

Keywords: birth country; birth season; cognition; overweight; rhinitis.

- 30 references

SUPPLEMENTARY INFO

MeSH termsexpand

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11

Laryngoscope

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. 2022 Dec;132(12):2295-2298.

doi: 10.1002/lary.30337. Epub 2022 Aug 8.

Is Posterior Nasal Nerve Ablation Effective in Treating Symptoms of Allergic Rhinitis?

Camron Davies[1], Daniel Gorelik[2], Andrew P Lane[3], Masayoshi Takashima[2], Omar G Ahmed[2]

Affiliations expand

- PMID: 35938876

- DOI: 10.1002/lary.30337

No abstract available

- 5 references

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

WILEY Full Text Article

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Eur Arch Otorhinolaryngol

. 2022 Dec;279(12):5707-5714.

doi: 10.1007/s00405-022-07492-7. Epub 2022 Jun 20.

The diagnostic importance of periostin as a biomarker in chronic rhinosinusitis with nasal polyp

Gamze Ozturk Yilmaz[1], Erdem Atalay Cetinkaya[2], Hulya Eyigor[2], Hamit Yasar Ellidag[3], Kadir Balaban[4], Omer Tarik Selcuk[2], Gokhan Yilmaz[2], Ozer Erdem Gur[2]

Affiliations expand

- PMID: 35723731

- PMCID: PMC9207425

- DOI: 10.1007/s00405-022-07492-7

Free PMC article

Abstract

Purpose: The current studies in the literature report that periostin contributes to the formation of nasal polyps and may be a molecular biomarker for chronic rhinosinusitis with nasal polyps (CRSwNP). This study aims to investigate the effect of periostin in determining polyp burden in CRSwNP patients and evaluate its impact on postoperative surgical results and its functionality as a biomarker.

Methods: The study included 26 patients who underwent endoscopic sinus surgery due to CRSwNP and 30 patients who were scheduled to undergo septoplasty due to isolated nasal

septum deviation. We performed preoperative Lund-Mackay scoring and preoperative and postoperative SNOT-22 and Modified Lund-Kennedy scoring for the patients. Tissue and serum samples were collected from all patients in surgery and another serum sample was taken from CRSwNP patients at postoperative month 6.

Results: Tissue eosinophil ($p < 0.001$), preoperative serum ($p < 0.001$), and tissue ($p = 0.002$) periostin were significantly higher in the CRSwNP group. We observed a statistically significant positive correlation between tissue eosinophil values and tissue periostin values in CRSwNP patients ($p = 0.004$). We found a statistically significant positive correlation between the tissue periostin values and postoperative SNOT-22 scores of the CRSwNP group patients ($p = 0.005$).

Conclusion: According to the results of our study, we think that periostin can be used as a biomarker in the prediction, determination of disease severity, and prognosis of CRSwNP. Comprehensive cohort studies with larger patient series are needed to provide more information on the role and effects of periostin in cases of CRSwNP undergoing surgical treatment.

Keywords: Biomarkers; Nasal polyps; Nasal surgical procedure; Periostin; Sinusitis.

Conflict of interest statement

The authors report no declarations of interest.

- 33 references
- 4 figures

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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Int Forum Allergy Rhinol

. 2022 Dec;12(12):1562-1565.

doi: 10.1002/alr.23049. Epub 2022 Jul 5.

Prevalence of familial link in patients affected by chronic rhinosinusitis with nasal polyposis

Francesco Giombi[1,2], Alejandra Carrón-Herrero[3], Francesca Pirola[1,2], Giovanni Paoletti[1,2], Emanuele Nappi[1,2], Elena Russo[1,2], Armando De Virgilio[1,2], Giuseppe Mercante[1,2], Giorgio Walter Canonica[1,2], Giuseppe Spriano[1,2], Enrico Heffler[1,2], Luca Malvezzi[1,2]

Affiliations expand

- PMID: 35722664

- DOI: 10.1002/alr.23049

No abstract available

Keywords: asthma; chronic rhinosinusitis with nasal polyps; familial link; type-2 inflammation.

Review

Hum Vaccin Immunother

. 2022 Nov 30;18(5):2066424.

doi: 10.1080/21645515.2022.2066424. Epub 2022 Jun 15.

Update about Oralair® as a treatment for grass pollen allergic rhinitis

L Klimek[1], R Brehler[2], R Mösges[3,4,5], P Demoly[6,7], J Mullol[8], D Y Wang[9], R E O'Hehir[10], A Didier[11], M Kopp[12], C Bos[13], E Karagiannis[13]

Affiliations expand

- PMID: 35704772

- PMCID: PMC9302518

- DOI: 10.1080/21645515.2022.2066424

Free PMC article

Abstract

Sublingual immunotherapy (SLIT) is a well-tolerated, safe, and effective approach to treating allergic rhinitis (AR). Oralair® is a five-grass pollen SLIT tablet containing natural pollen allergens from five of the major grass species responsible for seasonal AR due to grass pollen allergy. Recommended use is in a pre-coseasonal regimen, starting daily treatment approximately 4 months before the start of the pollen season, with treatment then continued daily throughout the season; treatment should continue for 3-5 y. Clinical efficacy and safety of Oralair® in patients with grass pollen-induced AR has been demonstrated in a comprehensive clinical development program of randomized controlled

trials. Effectiveness has been substantiated in subsequent observational studies with sustained efficacy following treatment cessation and a favorable level of adherence, quality of life, benefit, and satisfaction for the patients. Supportive evidence for a benefit in reducing the risk or delaying the development of allergic asthma is emerging.

Keywords: 5-Grass pollen tablet; allergen immunotherapy; allergic rhinoconjunctivitis; asthma; sublingual immunotherapy.

Conflict of interest statement

L Klimek reports grants and/or personal fees from Allergopharma, MEDA/Mylan, HAL Allergie, ALK Abelló, LETI Pharma, Stallergenes, Quintiles, Sanofi, ASIT biotech, Lofarma, Allergy Therapeut., AstraZeneca, GSK, Inmunotk, outside the submitted work, and Membership: AeDA, DGHNO, Deutsche Akademie für Allergologie und klinische Immunologie, HNO-BV, GPA, EAACI. R Mösges reports personal fees and/or grants from Allergopharma, Allergy Therapeutics, Bencard, Leti, grants, Lofarma, Stallergenes, Optima, Friulchem, Hexal, Klosterfrau, FAES, Meda, Novartis, UCB, BitopAG, Hulka, Ursapharm, Menarini, Mundipharma, Pohl-Boskamp, Inmunotek, Hikma, Sandoz, Lek, Cassella, SanofiGenzyme, Engelhard, SmartPeakFlow, Strathos, outside the submitted work. R.Brehler reports personal fees from ALK, Allergopharma, Astra Zeneca, Bencard, Gesellschaft zur Förderung der Dermatologischen Forschung und Fortbildung e.V., Gesellschaft für Information und Organization mbH, GSK, HAL, Leti, Merck, Novartis, Oto-Rhino-Laryngologischer Verein, Pierre Fabre, Pohl Boskamp, Stallergenes, Thermo-Fischer; fees for clinical studies from Allergopharma, Bencard, Biotech Tools, Genentech, Leti, Novartis, Circassia. C Bos and E Karagiannis are employees of Stallergenes Greer. Alain Didier was principal investigator in the clinical development programme of Oralair. He declares he has received personal fees for consultancy services for ALK and grants for participation in clinical research projects with ALK outside the submitted work. RE O'Hehir and DY Wang report no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Meta-Analysis

Int Forum Allergy Rhinol

. 2022 Dec;12(12):1503-1516.

doi: 10.1002/alr.23011. Epub 2022 May 23.

Local nasal immunotherapy for allergic rhinitis: A systematic review and meta-analysis

Navarat Kasemsuk[1,2], Premyot Ngaotepprutaram[1,2], Dichapong Kanjanawasee[2,3], Triphoom Suwanwech[1,2], Stephen R Durham[4], Giorgio Walter Canonica[5,6], Pongsakorn Tantilipikorn[1,2]

Affiliations expand

- PMID: 35543418

- DOI: 10.1002/alr.23011

Abstract

Introduction: Local nasal immunotherapy (LNIT), an alternative noninjection immunotherapy method, is theoretically an efficient method for inducing immunotolerance directly in the affected organ. LNIT is more convenient and less invasive than injection immunotherapy, with fewer systemic reactions. The development of adjuvants to overcome LNIT's limitations raises the possibility of it being an alternative allergen immunotherapy.

Objectives: To evaluate the clinical and immunological efficacy and safety of LNIT for patients with allergic rhinitis.

Methods: A systematic search for randomized controlled trials comparing LNIT and placebo was performed using OVID Medline and Embase. Outcomes were total nasal symptom score (TNSS), symptom-medication score (SMS), medication score, immunological assessment, and nasal provocation threshold. Data were pooled for meta-analysis.

Results: A total of 20 studies with 698 participants were included. The LNIT group had greater posttreatment improvement in TNSS, SMS, and medication score than control (TNSS: standardized mean difference [SMD], -1.37 [95% confidence interval [CI], -2.04 to -0.69]; SMS: SMD, -1.55 [95% CI, -2.83 to -0.28]; and medication score: SMD, -1.09 [95% CI, -1.35 to -0.83]). Immunological assessments showed no significant differences in serum-specific IgE (mean difference [MD], 6.35; 95% CI, -4.62 to 17.31), nasal IgE (MD, -0.59; 95% CI, -1.99 to 0.81), or nasal eosinophil cationic protein (MD, 7.63; 95% CI, -18.65 to 33.91). Only serum IgG significantly increased with LNIT (MD, 0.45; 95% CI, 0.20, 0.70). Posttreatment, nasal provocation threshold was higher with LNIT (MD, 27.30; 95% CI, 10.13-44.46). No significant adverse events were reported.

Conclusions: LNIT is a safe alternative allergen immunotherapy route without significant adverse events. It improves clinical symptoms, reduces medication usage, and increases the nasal provocation threshold.

Keywords: allergic rhinitis; allergy vaccine; local nasal immunotherapy; meta-analysis; nasal administration.

- Cited by 1 article
- 58 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

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Review

Int Forum Allergy Rhinol

. 2022 Dec;12(12):1535-1550.

doi: 10.1002/alr.23018. Epub 2022 May 30.

Periostin as a biomarker in chronic rhinosinusitis: A contemporary systematic review

Gerasimos Danielides[1], Spyridon Lygeros[1], Menelaos Kanakis[2], Stephanos Naxakis[1]

Affiliations expand

- PMID: 35514144

- DOI: 10.1002/alr.23018

Abstract

Background: The role of periostin, a matricellular protein encoded by the POSTN gene, in chronic rhinosinusitis with nasal polyposis (CRSwNP) is reviewed. Periostin is considered a potential biomarker of endotype and may be useful for evaluating response to treatment.

Methods: Search terms in PubMed and Web of Science (1990-March 2022) included: ((periostin) OR (POSTN)) AND ((sinusitis) OR (nasal polyp) OR (CRSwNP) OR (CRS). The primary outcomes were differences in tissue, serum, and nasal lavage between CRSwNP and CRS without NP (CRSsNP) or controls. Associated factors reported to affect periostin expression, data regarding participants' clinical characteristics, disease endotypes, laboratory methods, and samples' origin were also pooled. Studies on <10 patients were excluded.

Results: Out of 101 records harvested through database searching, 29 prospective cross-sectional or case-control studies were eligible for review and qualitative analysis. Tissue sample origin, concurrent infection, current and past medication, primary or recurrent disease, allergic rhinitis, and smoking status should be considered as confounding factors

for periostin levels. Periostin and POSTN messenger RNA (mRNA) levels were consistently and significantly higher in CRSwNP than CRSsNP and controls. Despite the distinctly different inflammation patterns among CRSwNP endotypes, periostin-related remodeling patterns seemed to be similar.

Conclusion: Tissue and serum periostin levels, and POSTN expression appear elevated in CRSwNP, especially in eosinophilic inflammation, compared to CRSsNP and controls. Disease severity and comorbidities are also reflected in periostin and POSTN values. Carefully designed prospective studies may establish the role of periostin as a biomarker in CRSwNP and allow its incorporation in clinical practice.

Keywords: chronic rhinosinusitis; nasal polyposis; pathophysiology; periostin; remodeling.

Int Forum Allergy Rhinol

. 2022 Dec;12(12):1480-1502.

doi: 10.1002/alr.23015. Epub 2022 May 8.

Combined medical therapy in the treatment of allergic rhinitis: Systematic review and meta-analyses

Wirach Chitsuthipakorn[1,2], Minh P Hoang[3,4,5], Dichapong Kanjanawasee[6,7], Kachorn Seresirikachorn[4,5], Kornkiat Snidvongs[4,5]

Affiliations expand

- PMID: 35446512

- DOI: 10.1002/alr.23015

Abstract

Background: Antihistamines (ATH) and intranasal corticosteroids (INCS) are primary treatments for patients with allergic rhinitis (AR). When monotherapy of either primary treatment fails to control symptoms, combined medical therapy is an option. In this meta-analysis we assessed the additional effects of different medical combinations compared with primary treatments.

Methods: Systematic searches on PubMed and EMBASE were updated on November 4, 2021. Randomized, controlled trials comparing the effects of combinations with monotherapy were included. There were 7 comparisons: (1) ATH-decongestant vs ATH; (2) ATH-leukotriene receptor antagonist (LTRA) vs ATH; (3) INCS-ATH vs INCS; (4) INCS-LTRA vs INCS; (5) INCS-decongestion vs INCS; (6) INCS-saline irrigation vs INCS; and (7) ATH-saline irrigation vs ATH. Data were pooled for meta-analysis. Outcomes were composite nasal symptom score, composite ocular symptom score, quality of life (QoL), and adverse events.

Results: Fifty-three studies were included. Compared with ATH alone, the ATH-decongestant combination improved composite nasal symptoms; ATH-LTRA improved nasal symptoms in patients with perennial AR; and ATH-nasal saline improved both symptoms and QoL. Compared with INCS alone, the INCS-intranasal ATH combination improved nasal symptoms, ocular symptoms, and QoL; INCS-LTRA improved ocular symptoms but not nasal symptoms; and INCS-nasal saline improved QoL but not symptoms. There were no additional effects observed from adding oral ATH or topical decongestant to INCS.

Conclusion: After ATH monotherapy fails to control symptoms, addition of decongestant, saline, or LTRA can improve the outcomes. When INCS monotherapy is ineffective, addition

of intranasal ATH can improve nasal symptoms; LTRA can improve ocular symptoms, and saline irrigation can improve QoL.

Keywords: allergic rhinitis; antihistamine; decongestant; intranasal; leukotriene; steroids.

- 76 references

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Eur Arch Otorhinolaryngol

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. 2022 Dec;279(12):5965-5966.

doi: 10.1007/s00405-022-07375-x. Epub 2022 Apr 8.

Ragweed sublingual immunotherapy tablets in allergic rhinoconjunctivitis

Guan-Jiang Huang[1], Bao-Rui Lin[1], Zhi-Jun Fan[1], Biao-Qing Lu[2]

Affiliations expand

- PMID: 35394188

- DOI: 10.1007/s00405-022-07375-x

No abstract available

Comment on

- Ragweed sublingual immunotherapy (SLIT) tablets in allergic rhinoconjunctivitis: a systematic review and meta-analysis.
  Dhulipalla S.Eur Arch Otorhinolaryngol. 2022 Jun;279(6):2765-2775. doi: 10.1007/s00405-022-07270-5. Epub 2022 Mar 16.PMID: 35294618 Review.

- 3 references

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Publication types, MeSH terms, Substancesexpand

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Review

Auris Nasus Larynx

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. 2022 Dec;49(6):905-911.

doi: 10.1016/j.anl.2022.01.014. Epub 2022 Feb 4.

Medical management of rhinitis in pregnancy

Keshav Kumar Gupta[1], Shahram Anari[2]

Affiliations expand

- PMID: 35131140

- DOI: 10.1016/j.anl.2022.01.014

Abstract

Medical treatment options for patients with rhinitis during pregnancy need careful considerations. It is important to distinguish between the causes of rhinitis, as this can influence treatment. Conservative options are important for patients with pregnancy-induced rhinitis (PIR) and pre-existing allergic or non-allergic rhinitis. Education and knowledge that PIR symptoms will resolve after pregnancy can offer some relief. Other strategies such as exercise, positioning, saline nasal douching/lavage, and nasal valve dilators are safe in pregnancy and can have a benefit in these patients with rhinitis of any aetiology. The main medical therapies usually used in rhinitis cannot always be directly translated to pregnant patients due to potential teratogenic effects. Topical corticosteroids have generally shown to be safe with budesonide having the strongest recommendations. Oral corticosteroids are mostly used in moderate-severe disease and should be avoided in the first trimester. Oral decongestants have associations with cardiac, ear, gut and limb abnormalities and are not recommended in the first trimester. Loratadine and cetirizine have been the most well-studied second-generation antihistamines and are generally considered safe. There has been no reported increased risk of teratogenicity with anticholinergics or cromones, with the latter being one of the first line options in pregnant women with allergic rhinitis. The role of allergen immunotherapy needs further research, but current guidance states it can be continued if already initiated prior to pregnancy. The management of rhinitis in pregnancy can therefore be complex. This review aims to evaluate the current medical management options for rhinitis in pregnancy.

Keywords: Allergy; Management; Pregnancy; Rhinitis; Rhinology.

Conflict of interest statement

Declaration of Competing Interest The authors do not have any conflict of interest to disclose.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

Observational Study

J Asthma

. 2022 Dec;59(12):2341-2351.

doi: 10.1080/02770903.2021.2010748. Epub 2021 Dec 2.

Severe asthma in adult, inner-city predominantly African-American and latinx population: demographic, clinical and phenotypic characteristics

Savneet Kaur[1], David Rosenstreich[1], Krystal L Cleven[2], Simon Spivack[2], Joseph Grizzanti[2], Marina Reznik[3], Sunit P Jariwala[1]

Affiliations expand

- PMID: 34822312

- DOI: 10.1080/02770903.2021.2010748

Abstract

Introduction: The burden of asthma morbidity with co-existing atopy among the racial/ethnic minorities in the socio-economically disadvantaged NYC borough of the Bronx is unusually high. The multidisciplinary Montefiore Asthma Center (MAC) provides guideline-based treatment to this high-risk population through the joint efforts of Allergists/Immunologists, Pulmonologists, and on-site health educators.

Methods: The objective of this prospective, observational study was to define the demographic and clinical characteristics of severe asthma, evaluate improvement in asthma severity and lung function through the course of treatment at the MAC, and describe the asthma phenotypes of the patients managed at the MAC. Adults with severe asthma receiving treatment at the MAC were followed from their first to their last visit at the MAC. Patient demographics, along with asthma severity and co-existing allergies, were assessed. Possible phenotypes were defined (based on presence or absence of atopy, age at asthma onset, and blood eosinophil counts).

Results: 227 patients were included in the final analysis, of which 55.5% were Hispanic and 33.9% identified as non-Hispanic Black. Ninety-one percent (91%) of our cohort was found to be atopic and allergic rhinoconjunctivitis (ARC) was the most commonly identified co-existing allergic condition (86.3%). Mean Asthma Control Test (ACT) scores improved from 11.1 (± 4.9) at the initial visit to 14.8 (± 6.1) at the last visit. The spirometric values did not improve despite treatment at MAC.

Conclusion: A multidisciplinary severe asthma center is an ideal setting to phenotype patients and offer personalized guideline-based management and education to adults with severe asthma.

Keywords: Phenotypes; biomarkers; rhinitis/sinusitis; treatment.

Review

J Matern Fetal Neonatal Med

.
. 2022 Dec;35(25):6498-6504.

doi: 10.1080/14767058.2021.1916462. Epub 2021 Apr 29.

Asthma and pregnancy in the 2020 decade: still a matter of concern

Ana Cláudia Vieira[1], Helena Pité[2,3], Mário Morais-Almeida[2]

Affiliations expand

- PMID: 33926358

- DOI: 10.1080/14767058.2021.1916462

Abstract

Asthma is a fairly common health problem for pregnant women and a potentially serious medical condition that may complicate pregnancy. Most complications are related to lack of disease control, which can adversely affect both maternal quality of life and perinatal outcomes. In this article, we review recent literature concerning asthma in pregnancy, describing the course of the disease and associated complications. Furthermore, we review and discuss asthma monitoring and management during pregnancy, labor and post-partum. The course of asthma symptoms during pregnancy is unpredictable but exacerbations are more common during the second trimester. The causes are multifactorial and asthma phenotype may have a role. It has been proposed that combined use of CARAT (Control of Allergic Rhinitis and Asthma Test) and lung function tests can be used to monitor and adjust therapy during pregnancy in patients with asthma. As a complement, an approach that considers airway inflammation assessment using fractional exhaled nitric oxide (FeNO), a noninvasive marker of inflammation, may improve asthma control during pregnancy. It is important to consider a few but relevant differences in asthma management and treatment regarding pregnancy and the peri-partum period to safely achieve optimal management of asthma during all these phases for both mother and offsprings.

Keywords: Asthma; control; management; pregnancy; safety; treatment.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Proceed to details

Cite

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22

Ear Nose Throat J

. 2022 Dec;101(10):637-639.

doi: 10.1177/0145561320984994. Epub 2020 Dec 23.

Necrotizing Bacterial Rhinitis in an Immunocompromised Patient

Alexandros Poutoglidis[1], Nikolaos Tsetsos[1], Stella Vakouli[1], Georgios Fyrmpas[1]

Affiliations expand

- PMID: 33355017

- DOI: 10.1177/0145561320984994

Free article

Abstract

Specific bacterial infections can cause rapid necrosis of the nasal mucosa in immunocompromised patients, mimicking an invasive fungal infection. The exclusion of the latter is a priority because rapid deterioration and death may ensue within hours to days. The time lag between investigations and final diagnosis warrants empiric administration of Amphotericin B but patients are exposed to significant side effects. Histopathology and culture of the nasal tissues provide the necessary diagnostic clues to avoid inappropriate treatment.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

CHRONIC COUGH

1
Respir Res

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. 2022 Dec 3;23(1):330.

doi: 10.1186/s12931-022-02243-y.

Effects of long-term tobramycin inhalation solution (TIS) once daily on exacerbation rate in patients with non-cystic fibrosis bronchiectasis

Lotte C Terpstra[1], Josje Altenburg[2], Inez Bronsveld[3], Martijn D de Kruif[4], Yvonne Berk[5], Dominic Snijders[6], Wouter Rozemeijer[7], Harry G M Heijerman[3], Wim G Boersma[8]

Affiliations expand

- PMID: 36463180

- DOI: 10.1186/s12931-022-02243-y

Abstract

Background: Use of long-term tobramycin inhalation solution (TIS) has been shown beneficial in cystic fibrosis (CF) and earlier findings also suggest a benefit in non-CF bronchiectasis. We investigated the efficacy and safety of maintenance TIS once daily (OD) in frequent exacerbating bronchiectasis patients chronically infected by different pathogens sensitive for tobramycin.

Objective: The primary outcome was the frequency of exacerbations during the 12-month study period. Secondary outcomes were time to first exacerbation, change in lung function and quality of life (QoL), bacterial analysis and safety.

Materials/patients: IN THIS MULTICENTER RCT PATIENTS AGED ≥ 18-YEAR-OLD WERE INCLUDED WITH CONFIRMED BRONCHIECTASIS AND ≥ 2 EXACERBATIONS IN THE PRECEDING YEAR. PATIENTS WERE ASSIGNED (1:1) TO RECEIVE TIS OR PLACEBO OD FOR 1-YEAR.: RESULTS: 58 patients were included of which 52 were analyzed in the mITT analysis. TIS reduced exacerbation frequency with a RR of 0.74 (95% CI 0.49-1.14) (p = 0.15). Within the TIS population a decrease in number of exacerbations was found (2; p = 0.00), which was also seen in the placebo-treated patients (1.5; p = 0.00). In the TIS-treated patients the QoL improved (LRTI-VAS p = 0.02 Leicester Cough p = 0.02) without additional safety concerns. No differences were found for the other secondary outcomes.

Conclusion: Long-term TIS OD is a safe treatment modality and showed a non-significant reduced exacerbation frequency of 0.74 as compared to placebo in bronchiectasis patients chronically infected by tobramycin sensitive pathogens. TIS OD may be a potential therapeutic strategy in selected patients with bronchiectasis suffering from a high burden of disease.

Trail registration number: The BATTLE study was registered at Clinical trials.gov number: NCT02657473 . Date: 13 august 2016.

Keywords: Bronchiectasis; Exacerbations; Tobramycin inhalation solution.

- 41 references

SUPPLEMENTARY INFO

Associated dataexpand

Proceed to details

Cite

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2

Respir Investig

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. 2022 Nov 30;S2212-5345(22)00147-2.

doi: 10.1016/j.resinv.2022.10.006. Online ahead of print.

Clinical significance of fractional exhaled nitric oxide and periostin as potential markers to assess therapeutic efficacy in patients with cough variant asthma

Masaki Hanibuchi[1], Atsushi Mitsuhashi[2], Tatsuya Kajimoto[3], Atsuro Saijo[3], Seidai Sato[2], Tetsuya Kitagawa[4], Yasuhiko Nishioka[2]

Affiliations expand

- PMID: 36463016

- DOI: 10.1016/j.resinv.2022.10.006

Abstract

Background: In Japan, cough variant asthma (CVA) is the most common etiology of chronic cough. Contrary to substantial progress in understanding the roles of various factors in classic asthma, little is known regarding the pathogenesis and development of CVA. Furthermore, few studies have explored valuable biomarkers for evaluating the therapeutic efficacy of patients with CVA.

Methods: We conducted a single-center, prospective study to investigate the clinical significance of various clinical factors as potential "therapeutic" markers for CVA.

Results: From December 2019 to September 2020, we enrolled 20 patients with CVA and 10 age-matched healthy control subjects. Fractional exhaled nitric oxide (FeNO) values were significantly higher in patients with CVA than those in healthy controls. All patients with CVA commenced treatment at the initial visit, which markedly alleviated symptoms 12 weeks after treatment. FeNO values and serum periostin levels were significantly decreased following treatment, and altered FeNO values correlated with improved visual analogue scale scores of symptoms. Moreover, changes in both FeNO values and serum periostin levels were significantly correlated with increased values of some pulmonary function tests while also correlating with each other.

Conclusions: Our observations indicate the usefulness of FeNO and periostin as potential "therapeutic" markers for CVA. To the best of our knowledge, this is the first report demonstrating the clinical significance of these factors as potential biomarkers to assess therapeutic efficacy in patients with CVA.

Keywords: Biomarker; Cough variant asthma; Fractional exhaled nitric oxide; Periostin.

Conflict of interest statement

Conflict of interest The authors have no conflicts of interest.

Case Reports

J Paediatr Child Health

. 2022 Dec;58(12):2333-2334.

doi: 10.1111/jpc.1_15888.

Chronic cough in a child: a novel therapeutic approach

No authors listed

- PMID: 36462159

- DOI: 10.1111/jpc.1_15888

No abstract available

Pediatr Rev

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. 2022 Dec 1;43(12):691-703.

doi: 10.1542/pir.2021-005398.

Cough Conundrums: A Guide to Chronic Cough in the Pediatric Patient

Vicki Masson[1], Catherine Kier[2], Latha Chandran[3]

Affiliations expand

- PMID: 36450640

- DOI: 10.1542/pir.2021-005398

No abstract available

. 2022 Dec;10(12):1113-1115.

doi: 10.1016/S2213-2600(22)00404-0. Epub 2022 Nov 10.

Chronic cough and cough hypersensitivity: from mechanistic insights to novel antitussives

Stuart B Mazzone[1], Imran Satia[2], Lorcan McGarvey[3], Woo-Jung Song[4], Kian Fan Chung[5]

Affiliations expand

- PMID: 36372083

- DOI: 10.1016/S2213-2600(22)00404-0

No abstract available

Conflict of interest statement

SBM holds grants from the Australian Research Council and the National Health and Medical Research Council of Australia; he declares honoraria from Merck, NeRRe Therapeutics, Reckitt Benckiser, and Bellus Health, and grant support from Merck and Bellus Health. IS is currently supported by the EJ Moran Campbell Early Career Award from the Department of Medicine, McMaster University (Hamilton, ON, Canada); he is the recipient of a European Respiratory Society RESPIRE3 Marie Sklodowska-Curie fellowship and he declares grants and personal fees from Merck Canada and GlaxoSmithKline (GSK), grants from Bayer and Bellus, and personal fees from Respiplus, Genentech, and AstraZeneca. LM reports grant support from Merck, and honoraria for lectures and advisory board participation from Chiesi, GSK, Merck, NeRRe Therapeutics, Shionogi, AstraZeneca, Nocion, Boehringer Ingelheim, and Reckitt Benckiser. W-JS declares grants from Merck and AstraZeneca, consulting fees from Merck, AstraZeneca, Shionogi, and GSK, and lecture fees from Merck, AstraZeneca, GSK, and Novartis. KFC has received honoraria from GSK, AstraZeneca, Novartis, Merck, Nocion, Shionogi, and Reckitt Benckiser for advisory board participation, and from Haleon for scientific advisory board participation for the Clean Breathing Institute; he has also been remunerated for speaking engagements by AstraZeneca, Novartis, and Merck. KFC is supported by grants from the UK Medical Research Council and Engineering Physical Sciences Research Council, and is Senior Investigator of the UK National Institute for Health Research. The Twelfth London International Cough Symposium was supported by an educational grant from Merck, with contributions from Bellus Health, Bionorica, NeRRe Therapeutics, Nocion Therapeutics, Reckitt Benkiser, Shionogi, and Trevi Therapeutics. The funders had no role in developing the programme for the Symposium.

Review

Otolaryngol Clin North Am

. 2022 Dec;55(6):1233-1242.

doi: 10.1016/j.otc.2022.07.012.

Aerodigestive Approach to Pediatric Chronic Cough

Zi Yang Jiang[1], Chelsea Gatcliffe[2], Tu Mai[3], Zhen Huang[4]

Affiliations expand

- PMID: 36371137

- DOI: 10.1016/j.otc.2022.07.012

Abstract

Chronic cough is defined as cough lasting more than 4 weeks in children aged 14 years or older. Normal children, without pathophysiology, can cough up to more than 30 times a day. When cough occurs pathologically, it is often more often and can be divided into specific and nonspecific cough types. Inputs from otolaryngology, pulmonary medicine, and gastroenterology, along with other specialties in an aerodigestive team setting, allow a team approach to consider a wide variety of causes of cough and coordinate diagnostic procedures with treatment.

Keywords: Aerodigestive; Chronic cough; Laryngeal cleft; Nonspecific cough; Protracted bacterial bronchitis; Psychogenic cough; Specific cough; Upper airway cough syndrome.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Clinical Trial

Lung

. 2022 Dec;200(6):717-724.

doi: 10.1007/s00408-022-00587-2. Epub 2022 Nov 8.

Validation and Meaningful Change Thresholds for an Objective Cough Frequency Measurement in Chronic Cough

Jonathan Schelfhout[1], Allison Martin Nguyen[1], Surinder S Birring[2], Elizabeth D Bacci[3], Margaret Vernon[4], David R Muccino[1], Carmen La Rosa[1], Jaclyn A Smith[5]

Affiliations expand

- PMID: 36348054

- PMCID: PMC9675653

- DOI: 10.1007/s00408-022-00587-2

Free PMC article

Abstract

Purpose: Objective cough frequency is used to assess efficacy of chronic cough (CC) treatments. The objective of this study was to explore the relationship between objective cough frequency and cough-specific patient-reported outcomes (PROs) and estimate a clinically meaningful change threshold (MCT) for objective cough frequency.

Methods: Data collected in a phase 2b study in participants with refractory or unexplained CC were used to investigate the relationship between 24-h cough frequency (measured using an ambulatory cough monitor) and cough-specific PROs (i.e., cough severity visual analog scale, cough severity diary, Leicester Cough Questionnaire). Convergent validity was assessed using Spearman ρ. An MCT for 24-h cough frequency was estimated using the patient global impression of change (PGIC) scale as an anchor.

Results: Correlations between 24-h cough frequency and cough-specific PROs at baseline, Week 4, and Week 12 were significant ($P < 0.0001$) but low to moderate in strength ($\rho = 0.30$-0.58). Participants categorized as very much improved/much improved (i.e., PGIC of 1 or 2) or minimally improved (i.e., PGIC of 3) had mean 24-h cough frequency reductions of 55% and 30%, respectively. Receiver operating characteristic curve analysis suggested that a 24-h cough frequency reduction of 38% optimizes sensitivity and specificity for predicting a PGIC score of 1-3.

Conclusion: Objective 24-h cough frequency is significantly associated with cough-specific PROs, but cough frequency and PROs most likely capture distinct aspects of CC. A ≥ 30% reduction in 24-h cough frequency is a reasonable MCT to define treatment response in CC clinical trials.

Keywords: Chronic cough; Clinically meaningful change; Cough monitoring; Cough severity; Objective cough frequency; Patient-reported outcomes.

Conflict of interest statement

JS, AMN, DRM, and CL are employees of Merck Sharp & Dohme LLC, a subsidiary of Merck & Co., Inc., Rahway, NJ, USA, and may hold stock or stock options in Merck & Co., Inc., Rahway, NJ, USA. SSB reports grants from Merck & Co., Inc.; personal fees for advisory board work from Bayer, Bellus, GSK, Menlo, Merck & Co., Inc., Nocion, Sanofi, and Shionogi; and reimbursement for travel expenses from Boehringer Ingelheim. EDB is an employee of Evidera, which provides consulting and other research services to pharmaceutical, medical device, and related organizations. In her salaried position, she works with a variety of companies and organizations and is precluded from receiving payment or honoraria directly from these organizations for services rendered. Evidera received funding from Merck Sharp & Dohme LLC, a subsidiary of Merck & Co., Inc., Rahway, NJ, USA, to participate in the study and the development of this manuscript. MV reports nonfinancial support from Merck Sharp & Dohme LLC, a subsidiary of Merck & Co., Inc., Rahway, NJ, USA, and personal fees from Evidera during the conduct of the study. JAS reports grants and personal fees related to the submitted work from Afferent Pharmaceuticals/Merck & Co., Inc.; grants from Ario Pharma, Bayer, Bellus, GlaxoSmithKline, Menlo, and NeRRe

Pharmaceuticals; personal fees from Ario Pharma, Bayer, Bellus, Boehringer Ingelheim, Chiesi, Genentech, GlaxoSmithKline, Menlo, Neomed, and NeRRe Pharmaceuticals; nonfinancial support from Vitalograph; and is a named inventor on a patent, owned by Manchester University NHS Foundation Trust and licensed to Vitalograph Ltd, describing the detection of cough from sound recordings.

- 34 references
- 2 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

SpringerLink FULL-TEXT ARTICLE

Proceed to details

Cite

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8

Lung

. 2022 Dec;200(6):725-736.

doi: 10.1007/s00408-022-00586-3. Epub 2022 Nov 3.

Cough Characteristics and Healthcare Journeys of Chronic Cough Patients in Community-Based Populations in South Korea and Taiwan

Woo-Jung Song[#1], Chong-Jen Yu[#2], Suk Hyun Kang[3]

Affiliations expand

- PMID: 36329168

- PMCID: PMC9675671

- DOI: 10.1007/s00408-022-00586-3

Free PMC article

Abstract

Purpose: This study aimed to understand the cough characteristics and health journeys among community-based chronic cough (CC) patients, and their characteristics associated with healthcare visits.

Methods: A population-based cross-sectional study was conducted in 2020, using the South Korea and Taiwan National Health and Wellness Survey (NHWS) and CC surveys. Patients with current CC were defined by daily coughing for > 8 weeks in the past 12 months and currently coughing at the time of survey. The survey items pertained to CC patients' treatment journey and cough characteristics.

Results: Patients with current CC in South Korea and Taiwan, respectively, had cough duration for 3.45 ± 5.13 years and 5.75 ± 7.28 years and cough severity visual analogue scale (VAS) scores of 4.50 ± 2.15 and 4.46 ± 1.92 out of 0-10 scale, with 70.3% and 57.9% having spoken with a physician about cough. Compared to CC patients who had not visited healthcare professionals for cough, those who visited reported more severe cough (VAS: 3.89 ± 1.71 vs. 4.6 ± 2.02; $p = 0.009$), worse cough-specific quality of life (Leicester Cough Questionnaire: 16.20 ± 3.23 vs.13.45 ± 2.68, $p < 0.001$), greater symptom severity (Hull Airway Reflux Questionnaire: 16.73 ± 15.16 vs. 24.57 ± 13.38; $p < 0.001$), and more urinary incontinence (13.6 vs. 26.5%, $p = 0.027$). More than 50% of patients perceived cough medication(s) as not or a little useful and 25% felt their physicians did not well understand how CC impacts their life.

Conclusion: Cough is frequently severe and persistent among community-based CC patients. They experience several issues in their health journey, including treatment ineffectiveness and physician's understanding. Further efforts are warranted to reduce CC burden in the community.

Keywords: Chronic cough; Cough-specific health-related quality of life; Disease burden; Treatment journey.

Conflict of interest statement

SH Kang is an employee of MSD, Korea. WJ Song has received research grants from MSD and AstraZeneca, consulting fees from MSD and AstraZeneca, and lecture fees from MSD, AstraZeneca, GSK, and Novartis. CJ Yu declares no conflict of interest.

- 40 references
- 3 figures

SUPPLEMENTARY INFO

Review

Curr Opin Support Palliat Care

. 2022 Dec 1;16(4):183-187.

doi: 10.1097/SPC.0000000000000623. Epub 2022 Oct 27.

The burden and impact of chronic cough in severe disease

Össur Ingi Emilsson[1,2]

Affiliations expand

- PMID: 36302225

- DOI: 10.1097/SPC.0000000000000623

Abstract

Purpose of review: Chronic cough is common in severe diseases, such as COPD, interstitial lung disease, lung cancer and heart failure, and has a negative effect on quality of life. In spite of this, patients with cough sometimes feel their cough is neglected by healthcare workers. This review aims to briefly describe cough mechanisms, highlight the burden chronic cough can be for the individual, and the clinical impact of chronic cough.

Recent findings: Chronic cough is likely caused by different mechanisms in different diseases, which may have therapeutic implications. Chronic cough, in general, has a significant negative effect on quality of life, both with and without a severe comorbid disease. It can lead to social isolation, recurrent depressive episodes, lower work ability, and even conditions such as urinary incontinence. Cough may also be predictive of more frequent exacerbations among patients with COPD, and more rapid lung function decline in idiopathic pulmonary fibrosis. Cough is sometimes reported by patients to be underappreciated by healthcare.

Summary: Chronic cough has a significant negative impact on quality of life, irrespective of diagnosis. Some differences are seen between patients with and without severe disease. Healthcare workers need to pay specific attention to cough, especially patients with severe disease.

- 47 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Proceed to details

Cite

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10

Review

Lung

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. 2022 Dec;200(6):707-716.

doi: 10.1007/s00408-022-00575-6. Epub 2022 Oct 13.

Narrative Review of the Mechanisms and Treatment of Cough in Asthma,

Cough Variant Asthma, and Non-asthmatic Eosinophilic Bronchitis

Nermin Diab[1,2,3], Matthew Patel[4], Paul O'Byrne[4,5], Imran Satia[4,6,5]

Affiliations expand

- PMID: 36227349

- DOI: 10.1007/s00408-022-00575-6

Abstract

Chronic cough is a debilitating condition affecting 10-12% of the general population and is one of the leading causes for referral to secondary care. Many conditions have been associated with chronic cough, including asthma, gastro-esophageal reflux disease and upper airways cough syndrome. Inflammatory airway conditions including cough variant asthma (CVA) and non-asthmatic eosinophilic bronchitis (NAEB) contribute to a significant proportion of presentations with chronic cough, with differing diagnostic criteria and different responses to commonly used asthma therapy for their respective diagnoses. Mechanistic studies in both animal models and humans have identified increased neuronal sensitivity and subsequent central sensitization. These mechanisms include inflammatory-mediated nociceptor sensitization and alterations of afferent nerve terminal excitability, phenotypic changes in the vagal afferent neurons over time, and central neuroplasticity resulting from increased synaptic signalling from peripheral afferents. The aim of this review is to discuss the mechanisms, neurophysiology, and management approaches currently available for patients presenting with chronic cough with underlying asthma, CVA, and NAEB and to shed a light on areas of further research required to elucidate the mechanisms of cough in this patient population.

Keywords: Asthma; Chronic cough; Cough variant asthma; Eosinophils; Nerves; Non-asthmatic eosinophilic bronchitis.

- 94 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Case Reports

J Paediatr Child Health

. 2022 Dec;58(12):2330-2331.

doi: 10.1111/jpc.15888. Epub 2022 Jan 19.

Chronic cough in a child: a novel therapeutic approach

John A Heath[1], Melissa Lambeth[1]

Affiliations expand

- PMID: 35044703

- DOI: 10.1111/jpc.15888

No abstract available

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Review

BMJ Support Palliat Care

. 2022 Dec;12(4):457-459.

doi: 10.1136/bmjspcare-2020-002363. Epub 2020 Jul 6.

Fan therapy for cough: case report and literature review

Anna Elizabeth Sutherland[1], Matthew Carey[2], Mary Miller[3,4]

Affiliations expand

- PMID: 32631958

- DOI: 10.1136/bmjspcare-2020-002363

Abstract

This case report describes the care of a 59-year-old woman with metastatic small cell lung cancer and chronic obstructive pulmonary disease who was highly symptomatic with an intractable cough. The patient reported a subjective benefit from a table fan. The authors observed an objective improvement with a marked reduction in cough frequency when the fan was in use. A literature review was undertaken and identified one randomised controlled trial assessing the use of fan for cough. The proposed underlying mechanism of cough relief is stimulation of the trigeminal nerve, possibly by cooling. This mechanism is well described in breathlessness. It presents the possibility of a novel therapeutic approach to managing cough. Further studies of both the role of nasal receptors in cough pathophysiology and the role of fan therapy in cough, where there is no concern of an airborne infectious pathogen such as COVID-19, are warranted.

Keywords: chronic obstructive pulmonary disease; lung; respiratory conditions; supportive care.

Conflict of interest statement

Competing interests: None declared.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

BMJ Full Text

BRONCHIECTASIS

1
Respir Res

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. 2022 Dec 3;23(1):330.

doi: 10.1186/s12931-022-02243-y.

Effects of long-term tobramycin inhalation solution (TIS) once daily on exacerbation rate in patients with non-cystic fibrosis bronchiectasis

Lotte C Terpstra[1], Josje Altenburg[2], Inez Bronsveld[3], Martijn D de Kruif[4], Yvonne Berk[5], Dominic Snijders[6], Wouter Rozemeijer[7], Harry G M Heijerman[3], Wim G Boersma[8]

Affiliations expand

- PMID: 36463180

- DOI: 10.1186/s12931-022-02243-y

Abstract

Background: Use of long-term tobramycin inhalation solution (TIS) has been shown beneficial in cystic fibrosis (CF) and earlier findings also suggest a benefit in non-CF bronchiectasis. We investigated the efficacy and safety of maintenance TIS once daily (OD) in frequent exacerbating bronchiectasis patients chronically infected by different pathogens sensitive for tobramycin.

Objective: The primary outcome was the frequency of exacerbations during the 12-month study period. Secondary outcomes were time to first exacerbation, change in lung function and quality of life (QoL), bacterial analysis and safety.

Materials/patients: IN THIS MULTICENTER RCT PATIENTS AGED ≥ 18-YEAR-OLD WERE INCLUDED WITH CONFIRMED BRONCHIECTASIS AND ≥ 2 EXACERBATIONS IN THE PRECEDING YEAR. PATIENTS WERE ASSIGNED (1:1) TO RECEIVE TIS OR PLACEBO OD FOR 1-YEAR.: RESULTS: 58 patients were included of which 52 were analyzed in the mITT analysis. TIS reduced exacerbation frequency with a RR of 0.74 (95% CI 0.49-1.14) (p = 0.15). Within the TIS population a decrease in number of exacerbations was found (2; p = 0.00), which was also seen in the placebo-treated patients (1.5; p = 0.00). In the TIS-treated patients the QoL improved (LRTI-VAS p = 0.02 Leicester Cough p = 0.02) without additional safety concerns. No differences were found for the other secondary outcomes.

Conclusion: Long-term TIS OD is a safe treatment modality and showed a non-significant reduced exacerbation frequency of 0.74 as compared to placebo in bronchiectasis patients chronically infected by tobramycin sensitive pathogens. TIS OD may be a potential therapeutic strategy in selected patients with bronchiectasis suffering from a high burden of disease.

Trail registration number: The BATTLE study was registered at Clinical trials.gov number: NCT02657473 . Date: 13 august 2016.

Keywords: Bronchiectasis; Exacerbations; Tobramycin inhalation solution.

- 41 references

SUPPLEMENTARY INFO

Associated dataexpand

Proceed to details

Cite

Respir Res

. 2022 Dec 3;23(1):328.

doi: 10.1186/s12931-022-02254-9.

The Establishment of China Bronchiectasis Registry and Research Collaboration (BE-China): Protocol of a prospective multicenter observational study

Yong-Hua Gao[#1], Hai-Wen Lu[#1], Bei Mao[#1], Wei-Jie Guan[#2], Yuan-Lin Song[#3], Yuan-Yuan Li[4], Dao-Xin Wang[5], Bin Wang[6], Hong-Yan Gu[7], Wen Li[8], Hong Luo[9], Ling-Wei Wang[10], Fan Li[11], Feng-Xia Guo[12], Min Zhang[13], Zhi-Jun Jie[14], Jing-Qing Hang[15], Chao Yang[16], Tao Ren[17], Zhi Yuan[18], Qing-Wei Meng[19], Qin Jia[20], Yu Chen[21], Rong-Chang Chen[22], Jie-Ming Qu[23], Jin-Fu Xu[24]

Affiliations expand

- PMID: 36463140

- DOI: 10.1186/s12931-022-02254-9

Abstract

Background: Bronchiectasis is a highly heterogeneous chronic airway disease with marked geographic and ethnic variations. Most influential cohort studies to date have been performed in Europe and USA, which serve as the examples for developing a cohort study in China where there is a high burden of bronchiectasis. The Establishment of China Bronchiectasis Registry and Research Collaboration (BE-China) is designed to: (1) describe the clinical characteristics and natural history of bronchiectasis in China and identify the differences of bronchiectasis between the western countries and China; (2) identify the risk factors associated with disease progression in Chinese population; (3) elucidate the

phenotype and endotype of bronchiectasis by integrating the genome, microbiome, proteome, and transcriptome with detailed clinical data; (4) facilitate large randomized controlled trials in China.

Methods: The BE-China is an ongoing prospective, longitudinal, multi-center, observational cohort study aiming to recruit a minimum of 10,000 patients, which was initiated in January 2020 in China. Comprehensive data, including medical history, aetiological testing, lung function, microbiological profiles, radiological scores, comorbidities, mental status, and quality of life (QoL), will be collected at baseline. Patients will be followed up annually for up to 10 years to record longitudinal data on outcomes, treatment patterns and QoL. Biospecimens, if possible, will be collected and stored at - 80 °C for further research. Up to October 2021, the BE-China has enrolled 3758 patients, and collected 666 blood samples and 196 sputum samples from 91 medical centers. The study protocol has been approved by the Shanghai Pulmonary Hospital ethics committee, and all collaborating centers have received approvals from their local ethics committee. All patients will be required to provide written informed consent to their participation.

Conclusions: Findings of the BE-China will be crucial to reveal the clinical characteristics and natural history of bronchiectasis and facilitate evidence-based clinical practice in China. Trial registration Registration Number in ClinicalTrials.gov: NCT03643653.

Keywords: BE-China; Bronchiectasis; Protocol; Real-world study; Registry.

- 52 references

SUPPLEMENTARY INFO

Associated dataexpand

Proceed to details

Cite

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3

Semin Respir Crit Care Med

. 2022 Dec;43(6):764-779.

doi: 10.1055/s-0042-1755563. Epub 2022 Oct 28.

High-Resolution Computed Tomography of Fibrotic Interstitial Lung Disease

Karen Rodriguez [1], Christian L Ashby [2], Valeria R Varela [2], Amita Sharma [1]

Affiliations expand

- PMID: 36307108

- DOI: 10.1055/s-0042-1755563

Free article

Abstract

While radiography is the first-line imaging technique for evaluation of pulmonary disease, high-resolution computed tomography (HRCT) provides detailed assessment of the lung parenchyma and interstitium, allowing normal anatomy to be differentiated from superimposed abnormal findings. The fibrotic interstitial lung diseases have HRCT features that include reticulation, traction bronchiectasis and bronchiolectasis, honeycombing, architectural distortion, and volume loss. The characterization and distribution of these features result in distinctive CT patterns. The CT pattern and its progression over time can be combined with clinical, serologic, and pathologic data during multidisciplinary discussion to establish a clinical diagnosis. Serial examinations identify progression, treatment response, complications, and can assist in determining prognosis. This article will describe the technique used to perform HRCT, the normal and abnormal appearance of the lung on HRCT, and the CT patterns identified in common fibrotic lung diseases.

Conflict of interest statement

None declared.

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

Review

Curr Opin Allergy Clin Immunol

. 2022 Dec 1;22(6):335-342.

doi: 10.1097/ACI.0000000000000856. Epub 2022 Sep 19.

Bronchiectasis and obstructive lung diseases in primary antibody deficiencies and beyond: update on management and pathomechanisms

Leif G Hanitsch[1,2]

Affiliations expand

- PMID: 36165423

- DOI: 10.1097/ACI.0000000000000856

Abstract

Purpose of review: Pulmonary complications are among the most frequent manifestations in patients with primary antibody deficiency (PAD), contributing significantly to morbidity and mortality. Here, we focus on recent findings in obstructive pulmonary disease and bronchiectasis in PAD. Since specific data on patients with PAD is limited and management

mostly follows general recommendations, this review also aims to summarize data from the immunocompetent population.

Recent findings: Potential risk factors for the development and progression of bronchiectasis include reduced immunoglobulins and lower CD4 cells. In addition, Pseudomonas aeruginosa and an altered microbiome might contribute to local inflammation and disease progression. Findings on the contribution of neutrophils and eosinophils in the affected immunocompetent population require confirmation in PAD. Despite its high global burden, there is an extreme paucity of data on chronic obstructive pulmonary disease in PAD. Lower IgA and IgM are associated with asthma in PAD, but the heterogeneity of prevalence among PAD groups is poorly understood. Recent observations of non-IgE-mediated pathomechanisms in asthma may be of particular interest in PAD patients.

Summary: Management of PAD patients with chronic lung disease requires a multidisciplinary team approach including immunology, pulmonology, infectious disease and physiotherapy. Diagnostic processes should be harmonized to ensure a more precise perspective on prevalence and disease courses.

- 59 references

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Publication types, MeSH termsexpand

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Can deep learning improve image quality of low-dose CT: a prospective study in interstitial lung disease

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Abstract

Objectives: To investigate whether deep learning reconstruction (DLR) could keep image quality and reduce radiation dose in interstitial lung disease (ILD) patients compared with HRCT reconstructed with hybrid iterative reconstruction (hybrid-IR).

Methods: Seventy ILD patients were prospectively enrolled and underwent HRCT (120 kVp, automatic tube current) and LDCT (120 kVp, 30 mAs) scans. HRCT images were reconstructed with hybrid-IR (Adaptive Iterative Dose Reduction 3-Dimensional [AIDR3D], standard-setting); LDCT images were reconstructed with DLR (Advanced Intelligence Clear-IQ Engine [AiCE], lung/bone, mild/standard/strong setting). Image noise, streak artifact, overall image quality, and visualization of normal and abnormal features of ILD were evaluated.

Results: The mean radiation dose of LDCT was 38% of HRCT. Objective image noise of reconstructed LDCT images was 33.6 to 111.3% of HRCT, and signal-to-noise ratio (SNR) was 0.9 to 3.1 times of the latter ($p < 0.001$). LDCT-AiCE was not significantly different from or even better than HRCT in overall image quality and visualization of normal lung structures. LDCT-AiCE (lung, mild/standard/strong) showed progressively better recognition of ground glass opacity than HRCT-AIDR3D ($p < 0.05$, $p < 0.01$, $p < 0.001$), and LDCT-AiCE (lung, mild/standard/strong; bone, mild) was superior to HRCT-AIDR3D in visualization of architectural distortion ($p < 0.01$, $p < 0.01$, $p < 0.01$; $p < 0.05$). LDCT-AiCE (bone, strong) was better than HRCT-AIDR3D in the assessment of bronchiectasis and/or bronchiolectasis ($p < 0.05$). LDCT-AiCE (bone, mild/standard/strong) was significantly better at the visualization of honeycombing than HRCT-AIDR3D ($p < 0.05$, $p < 0.05$, $p < 0.01$).

Conclusion: Deep learning reconstruction could effectively reduce radiation dose and keep image quality in ILD patients compared to HRCT with hybrid-IR.

Key points: • Deep learning reconstruction was a novel image reconstruction algorithm based on deep convolutional neural networks. It was applied in chest CT studies and received auspicious results. • HRCT plays an essential role in the whole process of diagnosis, treatment efficacy evaluation, and follow-ups for interstitial lung disease patients. However, cumulative radiation exposure could increase the risks of cancer. • Deep learning reconstruction method could effectively reduce the radiation dose and keep the image quality compared with HRCT reconstructed with hybrid iterative reconstruction in patients with interstitial lung disease.

Keywords: Deep learning; Intelligence; Lung diseases, Interstitial; Radiation dosage.

- 38 references

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