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

1
Int J Chron Obstruct Pulmon Dis

. 2023 Sep 12;18:2027-2038.

doi: 10.2147/COPD.S426215. eCollection 2023.

Cigarette Smoking Contributes to Th1/Th2 Cell Dysfunction via the Cytokine Milieu in Chronic Obstructive Pulmonary Disease

Gang Chen[1], Qing Mu[1], Zhao-Ji Meng[2]

Affiliations expand

- PMID: 37720875

- PMCID: PMC10504905

- DOI: 10.2147/COPD.S426215

Abstract

Background: Dysregulation and pyroptosis of T-helper (Th) cells and inflammatory cytokines have been implicated in the pathogenesis of chronic obstructive pulmonary disease (COPD). However, the immune response mechanisms as a consequence of tobacco smoke exposure are not fully understood. We hypothesized that cigarette smoke-induced inflammation could be modulated through the cytokine milieu and T-cell nicotinic acetylcholine receptors (nAChRs).

Methods: The proportions of peripheral blood Th1 and Th2 cells from patients with COPD, smokers without airway obstruction and healthy nonsmokers were analyzed using flow cytometry. The levels of plasma proinflammatory cytokines and their potential association with pulmonary function were also measured. The influence of cigarette smoke extract (CSE) on the conditioned differentiation of T helper cell subsets was further examined in vitro.

Results: Significantly higher Th1 cell and plasma IFN-γ and IL-18 levels but lower levels of Th2 cells were found in the peripheral blood from patients with COPD. The increased plasma levels of IFN-γ and IL-18 were negatively correlated with pulmonary function (FEV1% predicted value). Pyroptosis participates in COPD development probably through the activation of the NLRP3 inflammasome upon exposure to CSE. CSE does not directly induce the differentiation of T helper cells; however, under conditioned medium, CSE promotes Th1 development through α7 nAChR modification, while it does not substantially interfere with Th2 differentiation.

Conclusion: The differences in the cytokine milieu play a key role in the effects of CSE on the immune response in patients with COPD.

Keywords: COPD; T helper 1; Th1 cells; Th2; chronic obstructive pulmonary disease; cigarette smoke; nAChRs; nicotinic acetylcholine receptors.

Conflict of interest statement

The authors report no conflicts of interest in this work.

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Int J Chron Obstruct Pulmon Dis

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Comorbidity of Pulmonary Fibrosis and COPD/Emphysema: Research Status, Trends, and Future Directions ---------- A Bibliometric Analysis from 2004 to 2023

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Affiliations expand

- PMID: 37720874

- PMCID: PMC10505036

- DOI: 10.2147/COPD.S426763

Abstract

Objective: The comorbidity of pulmonary fibrosis and COPD/emphysema has garnered increasing attention. However, no bibliometric analysis of this comorbidity has been conducted thus far. This study aims to perform a bibliometric analysis to explore the current status and cutting-edge trends in the field, and to establish new directions for future research.

Methods: Statistical computing, graphics, and data visualization tools such as VOSviewer, CiteSpace, Biblimatrix, and WPS Office were employed.

Results: We identified a total of 1827 original articles and reviews on the comorbidity of pulmonary fibrosis and COPD/emphysema published between 2004 and 2023. There was an observed increasing trend in publications related to this comorbidity. The United States, Japan, and the United Kingdom were the countries with the highest contributions. Professor Athol Wells and the University of Groningen had the highest h-index and the most articles, respectively. Through cluster analysis of co-cited documents, we identified the top 17 major clusters. Keyword analysis predicted that NF-κB, oxidative stress, physical activity, and air pollution might be hot spots in this field in the future.

Conclusion: This bibliometric analysis demonstrates a continuous increasing trend in literature related to the comorbidity of pulmonary fibrosis and COPD/emphysema. The research hotspots and trends identified in this study provide a reference for in-depth research in this field, aiming to promote the development of the comorbidity of pulmonary fibrosis and COPD/emphysema.

Keywords: COPD; CiteSpace; VOSviewer; bibliometric analysis; pulmonary fibrosis.

Conflict of interest statement

The authors declare that there is no conflict of interest in this work.

3

Cancer Treat Res Commun

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. 2023 Sep 12;100762.

doi: 10.1016/j.ctarc.2023.100762. Online ahead of print.

Immunotherapy for the elderly. Maybe the best option for lung cancer?

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Affiliations expand

- PMID: 37714780

- DOI: 10.1016/j.ctarc.2023.100762

Abstract

Lung cancer is usually diagnosed at advanced stage and systematic therapy is administered. New current diagnostic techniques such as the convex-endobronchial ultrasound, radial endobronchial ultrasound, cone beam ct, electromagnetic navigation and robotic bronchoscopy provide us with a high diagnostic yield. These techniques are minimal invasive and patients with comorbidities such as chronic obstructive pulmonary disease and heart failure can be diagnosed with minimal adverse effects. All these techniques provide sufficient sample for molecular investigation. Since immunotherapy was first administered, we have more and more information regarding the appropriate patient target group. Several published studies divided patients as elderly ≥75 and non-elderly ≤74 and investigated the adverse effects of different drugs and survival. In our current commentary we present information on patients receiving immunotherapy versus chemoimmunotherapy in two groups of elderly and non-elderly. Elderly patients can receive both combinations without differences between the two groups, however; more studies are needed to clarify certain aspects.

Keywords: Adverse effects; Biopsy; Chemotherapy; Cone beam CT; Ebus; Elderly; Non-small cell lung cancer; Radial-ebus; Tyrosine kinase inhibitors.

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.

Editorial

Thorax

. 2023 Sep 15;thorax-2023-220517.

doi: 10.1136/thorax-2023-220517. Online ahead of print.

Is antidepressant use a concern for patients with COPD?

Gianluca Trifirò [1], Salvatore Crisafulli [2]

Affiliations expand

- PMID: 37714536

- DOI: 10.1136/thorax-2023-220517

No abstract available

Keywords: COPD Exacerbations; COPD Pharmacology; Drug induced Lung Disease; Drug reactions.

Conflict of interest statement

Competing interests: None declared.

SUPPLEMENTARY INFO

5

Panminerva Med

. 2023 Sep 15.

doi: 10.23736/S0031-0808.23.04892-9. Online ahead of print.

Pulmonary rehabilitation and risk of fall in elderly with chronic obstructive pulmonary disease

Matteo Tarasconi[1], Federico M Oliva[1], Nicolino Ambrosino[2], Giovanni Sotgiu[3], Laura Saderi[3], Elisabetta Zampogna[4], Ombretta Mentasti[1], Antonio Spanevello[1,5], Dina Visca[1,5]

Affiliations expand

- PMID: 37712861

- DOI: 10.23736/S0031-0808.23.04892-9

Abstract

Background: Few data are available on the effects of pulmonary rehabilitation (PR) on risk of fall in over 80 individuals with chronic obstructive pulmonary disease (COPD). We investigated the effectiveness of PR on the risk of fall in older as compared to younger than 80 individuals.

Methods: Parallel-group retrospective exploratory study of individuals undergone in-hospital PR. The risk of fall was defined as a gait speed ≤0.8 m/s (primary outcome). Outcome measures (exercise capacity, physical performance, symptoms, and health status) were also assessed.

Results: As compared to younger, individuals over 80 suffered from more severe symptoms, a reduction in physical performance and in exercise capacity and greater risk of fall (P=0.0001). The proportion of participants at risk of fall increased with age, and after PR decreased significantly without any significant difference between age groups. However, 53.4% of older individuals were still at risk of fall, as compared to 17.5% of those under 80 (P=0.0001). After PR, both populations had improved outcomes measures, without any significant between group differences.

Conclusions: In individuals with COPD pulmonary rehabilitation reduced the risk of fall, while improving outcome measures independent of age, however, more than 50% of those over 80 were still at risk of fall. The pulmonary rehabilitation programs for individuals over 80 should include strategies effective in reducing the risk of fall.

6

Clin Respir J

. 2023 Sep 15.

doi: 10.1111/crj.13698. Online ahead of print.

Differences in chronic obstructive pulmonary disease among US nursing home residents with heart failure

according to sex and type of heart failure

Seun Osundolire[1], Robert J Goldberg[1], Kate L Lapane[1]

Affiliations expand

- PMID: 37712492

- DOI: 10.1111/crj.13698

Abstract

Background: Heart failure and chronic obstructive pulmonary disease (COPD) are leading cause of death throughout the world. Few recent studies have, however, examined possible sex and type of heart failure (HFpEF, HFrEF, and unspecified/other heart failure) differences in the prevalence of these chronic conditions among nursing home residents.

Objectives: The aim of this study is to examine the magnitude of concomitant COPD and differences according to sex and heart failure type, in terms of the prevalence of COPD among nursing home residents with heart failure.

Methods: The principal study outcomes were examined in a cross-sectional study of 97 495 US nursing home residents with heart failure using the 2018 Minimum Data Set. The diagnoses of heart failure and COPD were operationalized through a review of nursing home admission, progress notes, and physical examination findings.

Results: The average age of this study population was 81.3 ± 11.0 years, 67.3% were women, and 53.8% had COPD. A slightly higher prevalence of COPD was found among men than women. A higher proportion of unspecified heart failure type was found in both men and women, than reduced and preserved ejection fractions, respectively. In both men and women, there was a higher prevalence of COPD among those with various chronic conditions and current tobacco users.

Conclusions: COPD is highly prevalent among medically complex middle-aged and older nursing home residents with heart failure. Future research should focus on increasing our understanding of factors that influence the risk and optimal management of COPD and heart failure to improve the quality of life for nursing home residents.

Keywords: aging; chronic disease; comorbidities; epidemiology.

- 55 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

7

Endocr Metab Immune Disord Drug Targets

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. 2023 Sep 13.

doi: 10.2174/1871530323666230913105752. Online ahead of print.

Managing osteoporosis in COPD

Lilan Shen[1], Juanqin Lv[1], Jie Li[1], Jing Zhou[1], Xiaomin Wang[1]

Affiliations expand

- PMID: 37711118

- DOI: 10.2174/1871530323666230913105752

Abstract

Chronic obstructive pulmonary disease (COPD) is a serious respiratory disease with high morbidity, disability and mortality worldwide. Every year, many people die from the disease or its comorbidities. Osteoporosis is a common complication of COPD, which can lead to increased fractures in COPD patients, aggravate the disease, and then bring great pain and burden to patients. The possible factors leading to osteoporosis in COPD patients include

systemic inflammation, corticosteroid use, vitamin D deficiency, physical inactivity, tobacco exposure, lower bone mineral density, hypogonadism, hypoxia, and anemia. In clinical practice, the rate of diagnosis and treatment of osteoporosis in patients with COPD is low. Several studies demonstrated that treating osteoporosis with bisphosphonates could improve bone density, make breathing easier, and improve the quality of life of COPD patients. However, no studies have examined the effect of anti-osteoporosis therapy on fracture prevention in COPD patients. More research is needed to clarify how to implement holistic medical interventions in COPD patients with osteoporosis. We recommend that every COPD patient be screened for osteoporosis and treated with standard medications for primary osteoporosis.

Keywords: Chronic obstructive pulmonary disease; comorbidities; fracture; osteoporosis.

8

Review

Palliat Med

. 2023 Sep 14;2692163231194838.

doi: 10.1177/02692163231194838. Online ahead of print.

Effectiveness and safety of opioids on breathlessness and exercise endurance in patients with chronic obstructive

pulmonary disease: A systematic review and meta-analysis of randomised controlled trials

Meilu Liu[1], Wei Xiao[1], Longyi Du[1], Yan Yu[1], Xugui Chen[1], Bing Mao[1], Juanjuan Fu[1]

Affiliations expand

- PMID: 37710987

- DOI: 10.1177/02692163231194838

Abstract

Background: Opioids are recommended to treat advanced refractory dyspnoea despite optimal therapy by the American Thoracic Society clinical practice guidelines, while newly published randomised controlled trials of opioids in chronic obstructive pulmonary disease yield conflicting results.

Aim: This study aimed to evaluate the effectiveness and safety of opioids for patients with chronic obstructive pulmonary disease.

Design: Systematic review and meta-analysis (PROSPERO CRD42021272556).

Data sources: Databases of PubMed, EMBASE and CENTRAL were searched from inception to 2022 for eligible randomised controlled trials.

Results: Twenty-four studies including 975 patients, were included. In cross-over studies, opioids improved breathlessness (standardised mean difference, -0.43; 95% CI, -0.55 to -0.30; I^2 = 18%) and exercise endurance (standardised mean difference, 0.22; 95% CI, 0.02-0.41; I^2 = 70%). However, opioids failed to improve dyspnoea (standardised mean difference, -0.02; 95% CI, -0.22 to 0.19; I^2 = 39%) and exercise endurance (standardised mean difference, 0.00; 95% CI, -0.27 to 0.27; I^2 = 0%) in parallel control studies that administered sustained-release opioids for more than 1 week. The opioids used in most crossover studies were short-acting and rarely associated with serious adverse effects. Only minor side effects such as dizziness, nausea, constipation and vomiting were identified for short-acting opioids.

Conclusions: Sustained-release opioids did not improve dyspnoea and exercise endurance. Short-acting opioids appeared to be safe, have potential to lessen dyspnoea

and improve exercise endurance, supporting benefit in managing episodes of breathlessness and providing prophylactic treatment for exertional dyspnoea.

Keywords: Chronic obstructive pulmonary disease; breathlessness; exercise endurance; meta-analysis; opioids.

9

BMC Pulm Med

. 2023 Sep 14;23(1):347.

doi: 10.1186/s12890-023-02639-6.

Causes of hypercapnic respiratory failure: a population-based case-control study

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Affiliations expand

- PMID: 37710243

- PMCID: PMC10503117

- DOI: 10.1186/s12890-023-02639-6

Free PMC article

Abstract

Objective: There are no population-based data on the relative importance of specific causes of hypercapnic respiratory failure (HRF). We sought to quantify the associations between hospitalisation with HRF and potential antecedent causes including chronic obstructive pulmonary disease (COPD), obstructive sleep apnea, and congestive cardiac failure. We used data on the prevalence of these conditions to estimate the population attributable fraction for each cause.

Methods: A case-control study was conducted among residents aged ≥ 40 years from the Liverpool local government area in Sydney, Australia. Cases were identified from hospital records based on $PaCO_2$ > 45 mmHg. Controls were randomly selected from the study population using a cluster sampling design. We collected self-reported data on medication use and performed spirometry, limited-channel sleep studies, venous sampling for N-terminal pro-brain natriuretic peptide (NT-proBNP) levels, and sniff nasal inspiratory pressure (SNIP) measurements. Logistic regression analyses were performed using directed acyclic graphs to identify covariates.

Results: We recruited 42 cases and 105 controls. HRF was strongly associated with post-bronchodilator airflow obstruction, elevated NT-proBNP levels, reduced SNIP measurements and self-reported opioid medication use. There were no differences in the apnoea-hypopnea index or oxygen desaturation index between groups. COPD had the highest population attributable fraction (42%, 95% confidence interval 18% to 59%).

Conclusions: COPD, congestive cardiac failure, and self-reported use of opioid medications, but not obstructive sleep apnea, are important causes of HRF among adults over 40 years old. No single cause accounts for the majority of cases based on the population attributable fraction.

Keywords: Hypercapnia causes; Hypercapnic respiratory failure; Hypercarbia causes; Respiratory acidosis; Ventilatory failure causes.

Conflict of interest statement

H.V. has received in-kind support from ResMed in the form of ApneaLink devices previously used for another project. ResMed were not involved in this study. Authors Y.C., F.L.G. and G.B.M. have no competing interests to declare.

- 38 references
- 2 figures

10

Handb Exp Pharmacol

. 2023 Sep 15.

doi: 10.1007/164_2023_679. Online ahead of print.

Asthma and COPD: A Focus on β-Agonists – Past, Present and Future

Jillian G Baker[1,2], Dominick E Shaw[3]

Affiliations expand

- PMID: 37709918

- DOI: 10.1007/164_2023_679

Abstract

Asthma has been recognised as a respiratory disorder for millennia and the focus of targeted drug development for the last 120 years. Asthma is one of the most common chronic non-communicable diseases worldwide. Chronic obstructive pulmonary disease (COPD), a leading cause of morbidity and mortality worldwide, is caused by exposure to tobacco smoke and other noxious particles and exerts a substantial economic and social burden. This chapter reviews the development of the treatments of asthma and COPD

particularly focussing on the β-agonists, from the isolation of adrenaline, through the development of generations of short- and long-acting β-agonists. It reviews asthma death epidemics, considers the intrinsic efficacy of clinical compounds, and charts the improvement in selectivity and duration of action that has led to our current medications. Important β2-agonist compounds no longer used are considered, including some with additional properties, and how the different pharmacological properties of current β2-agonists underpin their different places in treatment guidelines. Finally, it concludes with a look forward to future developments that could improve the β-agonists still further, including extending their availability to areas of the world with less readily accessible healthcare.

- 539 references

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PLoS One

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. 2023 Sep 14;18(9):e0291561.

doi: 10.1371/journal.pone.0291561. eCollection 2023.

Mortality risk after the first occurrence of osteoporotic vertebral compression fractures in the general population: A nationwide cohort study

Hee Jung Son[1], Se-Jun Park[2], Jeong-Keun Kim[2], Jin-Sung Park[2]

Affiliations expand

- PMID: 37708119

- PMCID: PMC10501656

- DOI: 10.1371/journal.pone.0291561

Free PMC article

Abstract

Osteoporotic vertebral compression fractures (OVCF) can cause severe pain, changes in balance, gait velocity, muscle fatigue, risk of falls, and subsequent fractures. Thus, OVCF significantly lowers the individual's health-related quality of life. Additionally, OVCF may increase patient mortality rates. However, studies on post-OVCF mortality are limited. This study aimed to evaluate mortality risk after the first occurrence of OVCF in the general population using a nationwide dataset from the Korean National Health Insurance System. We identified 291,203 newly diagnosed patients with OVCF and 873,609 patients without OVCF at a ratio of 1:3 matched by sex and age between 2010 and 2012. We investigated the latent characteristics of patients' demographic information and chronic comorbidities that could affect mortality when diagnosed with OVCF. By comparing the cohort data, the hazard ratio for subsequent mortality in patients with OVCF was calculated and adjusted based on several risk factors. Despite adjusting for demographic characteristics and chronic comorbidities, the risk of mortality was 1.22 times higher in the OVCF cohort than in the control group. Multivariate analysis showed that male sex, old age, low-income status, and high Charlson Comorbidity Index were associated with a higher risk of mortality. In addition, the presence of chronic comorbidities, including diabetes mellitus, ischemic heart disease, stroke, chronic obstructive pulmonary disease, cancer, and end-stage renal disease, was shown to increase the risk of mortality. This population-based cohort study showed that newly diagnosed OVCF significantly increased the subsequent risk of mortality. Moreover, post-OVCF mortality is influenced by demographic characteristics and chronic comorbidities.

Conflict of interest statement

The authors have declared that no competing interests exist.

- 22 references
- 2 figures

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

12

Clin Exp Allergy

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. 2023 Sep 13.

doi: 10.1111/cea.14392. Online ahead of print.

Improvement of exertional dyspneoa in patients with chronic obstructive pulmonary disease and severe allergic asthma responding to omalizumab

Sophie Pereira[1], Juliette Verhille[1], Emeline Cailliau[2], Philippe Bonniaud[3,4], Gilles Devouassoux[4,5], Stéphanie Fry[4,6], Laurent Guilleminault[4,7], Naji Khayath[4,8], Christophe Leroyer[9], Cécile Chenivesse[4,6], Nathalie Bautin[6]

Affiliations expand

- PMID: 37705326

- DOI: 10.1111/cea.14392

No abstract available

- 9 references

13

Ann Am Thorac Soc

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. 2023 Sep 13.

doi: 10.1513/AnnalsATS.202304-301OC. Online ahead of print.

A Cost-Effectiveness Analysis of Azithromycin for the Prevention of Acute Exacerbations of Chronic Obstructive Pulmonary Disease

Safa Ahmadian[1], Kate M Johnson[1,2], Joseph Khoa Ho[1], Don D Sin[3,4], Larry D Lynd[5], Mark Harrison[1], Mohsen Sadatsafavi[6]

Affiliations expand

- PMID: 37703432

- DOI: 10.1513/AnnalsATS.202304-301OC

Abstract

Objective: Daily oral azithromycin therapy can reduce the risk of acute exacerbations of chronic obstructive pulmonary disease (COPD). However, given its adverse events and additional costs, it is not known whether adding long-term azithromycin as an adjunct therapy to inhaled pharmacotherapy is cost-effective. The objective of this study was to evaluate the cost-effectiveness add-on azithromycin therapy in COPD as recommended by contemporary COPD management guidelines.

Methods: We extended a previously validated Canadian COPD policy model to include azithromycin-related inputs and outcomes. The cost-effectiveness of azithromycin was evaluated over a 20-year time horizon in patients who continue to exacerbate despite receiving maximal inhaled therapies. The benefit of azithromycin was modeled as a reduction in exacerbation rates. Adverse events included cardiovascular death, hearing loss, gastrointestinal symptoms, and antimicrobial resistance. The incremental cost-effectiveness ratio (ICER) was calculated with costs in 2020 Canadian dollars ($) and quality-adjusted life-years (QALYs) discounted at 1.5% per year. The analysis was stratified among patient subgroups based on exacerbation histories.

Results: In patients with a positive exacerbation history (≥1 event in the previous 12 months), azithromycin was associated with $49,732 costs, 7.65 QALYs, and 10.95 exacerbations per patient over 20 years. The corresponding values were $48,436, 7.62, and 11.86 for the reference group, resulting in an ICER of $43,200 per QALY gained. In patients defined as frequent exacerbators (≥2 moderate or ≥1 severe event in the past 12 months), the ICER was reduced to $8,862 per QALY gained. In patients with no history of exacerbation, azithromycin had lower QALYs and higher costs than the reference group.

Conclusions: Add-on azithromycin is cost-effective in patients with a recent history of exacerbations at commonly accepted willingness-to-pay thresholds of $50,000-$100,000 / QALY. Guidelines should consider recommending add-on azithromycin for patients who had at least one moderate or severe exacerbation in the past year, albeit more information about treatment efficacy would strengthen this recommendation.

J Palliat Med

. 2023 Sep 13.

doi: 10.1089/jpm.2023.0263. Online ahead of print.

Prognostic Factors of Mortality in Non–Chronic Obstructive Pulmonary Disease Chronic Lung Disease: A Scoping Review

Sheryl Hui Xian Ng[1], Gin Tsen Chai[2,3], Pradeep Paul George[1], Palvinder Kaur[1], Wan Fen Yip[1], Zi Yan Chiam[4], Han Yee Neo[4], Woan Shin Tan[1], Allyn Hum[4,5]

Affiliations expand

- PMID: 37702606

- DOI: 10.1089/jpm.2023.0263

Abstract

Introduction: Patients with chronic lung disease (CLD) experience a heavy symptom burden at the end of life, but their uptake of palliative care is notably low. Having an understanding of a patient's prognosis would facilitate shared decision making on treatment options and care planning between patients, families, and their clinicians, and complement clinicians' assessments of patients' unmet palliative needs. While literature on prognostication in patients with chronic obstructive pulmonary disease (COPD) has been established and summarized, information for other CLDs remains less consolidated. Summarizing the mortality risk factors for non-COPD CLDs would be a novel contribution to literature. Hence, we aimed to identify and summarize the prognostic factors associated with non-COPD CLDs from the literature. ***Methods:*** We conducted a scoping review following published guidelines. We searched MEDLINE, Embase, PubMed, CINAHL, Cochrane Library, and Web of Science for studies published between 2000 and 2020 that described non-COPD CLD populations with an all-cause mortality risk period of up to three years. Only primary studies which reported associations with mortality adjusted through multivariable analysis were included. ***Results:*** Fifty-five studies were reviewed, with 53

based on interstitial lung disease (ILD) or connective tissue disease-associated ILD populations and two in bronchiectasis populations. Prognostic factors were classified into 10 domains, with pulmonary function and disease being the largest. Older age, lower forced vital capacity, and lower carbon monoxide diffusing capacity were most commonly investigated and associated with statistically significant increases in mortality risks. ***Conclusions:*** This comprehensive overview of prognostic factors for patients with non-COPD CLDs would facilitate the identification and prioritization of candidate factors to predict short-term mortality, supporting tool development for decision making and to identify high-risk patients for palliative needs assessments. Literature focused on patients with ILDs, and more studies should be conducted on other CLDs to bridge the knowledge gap.

Keywords: bronchiectasis; interstitial lung disease; palliative care; prognostic factors; scoping review.

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Review

Clin Respir J

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. 2023 Sep 12.

doi: 10.1111/crj.13695. Online ahead of print.

High flow nasal cannula versus noninvasive ventilation in the treatment of acute hypercapnic respiratory failure: A systematic review and meta-analysis

Aisling C Fahey[1], Martina O'Connell[1,2,3], Nicola Cornally[1], Mohamad M Saab[1]

Affiliations expand

- PMID: 37700578

- DOI: 10.1111/crj.13695

Abstract

Chronic obstructive pulmonary disease can lead to acute hypercapnic respiratory failure (AHRF), often treated using noninvasive ventilation (NIV). Emerging research suggests the potential utility of high flow nasal cannula (HFNC) for AHRF. This systematic review and meta-analysis aimed to determine the effect of HFNC versus NIV on AHRF management. A search of electronic databases (CINAHL, MEDLINE, and Academic Search Complete), web sources, and trial registries was last conducted on 9 February 2023. Quality and risk of bias assessments were conducted. Meta-analyses were used to synthesise data. Seven randomised controlled trials were included. No statistically significant differences between HFNC and NIV were found within the following outcomes of interest: (i) correction of pCO2: standardised mean difference (SMD) = -0.16, 95% confidence interval (CI) (-0.34 to 0.02), p = 0.08; (ii) correction of pH: SMD = -0.05, 95% CI (-0.25 to 0.14), p = 0.59; (iii) correction of pO2: SMD = -0.15, 95% CI (-0.40 to 0.09), p = 0.22; (iv) intubation rates: risk ratio (RR) = 0.87, 95% CI (0.41 to 1.82), p = 0.71; (v) mortality rates: RR = 0.85, 95% CI (0.47 to 1.56), p = 0.61; and (vi) treatment switch: RR = 1.30, 95% CI (0.43 to 3.94), p = 0.64. More controlled trials with large sample sizes are required to investigate the management of AHRF of various aetiologies. HFNC may be used as a final exhaustive measure for COPD-related AHRF where NIV is not tolerated, and when it is not clinically indicated to extend to endotracheal intubation.

Keywords: acidosis; blood gas analysis; hypercapnia; meta-analysis; noninvasive ventilation; oxygen saturation; respiratory; respiratory insufficiency.

- 53 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Proceed to details

Cite

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16

Respir Res

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. 2023 Sep 12;24(1):221.

doi: 10.1186/s12931-023-02527-x.

Airway inflammatory changes in the lungs of patients with asthma-COPD overlap (ACO): a bronchoscopy endobronchial biopsy study

Surajit Dey[1], Wenying Lu[1,2], Greg Haug[3], Collin Chia[2,3], Josie Larby[3], Heinrich C Weber[4], Archana Vijay Gaikwad[1], Prem Bhattarai[1,2], Affan Mahmood Shahzad[1], Prabuddha S Pathinayake[5], Peter A B Wark[5,6], Mathew Suji Eapen[1], Sukhwinder Singh Sohal[7,8]

Affiliations expand

- PMID: 37700291

- PMCID: PMC10498556

- DOI: 10.1186/s12931-023-02527-x

Free PMC article

Abstract

Background: Although asthma and chronic obstructive pulmonary disease (COPD) are two distinct chronic airway inflammatory diseases, they often co-exist in a patient and the condition is referred to as asthma-COPD overlap (ACO). Lack of evidence regarding the inflammatory cells in ACO airways has led to their poor prognosis and treatment. The objective of this endobronchial biopsy (EBB) study was to enumerate inflammatory cellular changes in the airway wall of ACO compared with asthma, COPD current smokers (CS) and ex-smokers (ES), normal lung function smokers (NLFS), and non-smoker controls (HC).

Methods: EBB tissues from 74 patients were immunohistochemically stained for macrophages, mast cells, eosinophils, neutrophils, CD8+ T-cells and CD4+ T-cells. The microscopic images of stained tissues were evaluated in the epithelium, reticular basement membrane (RBM) cells/mm RBM length, and lamina propria (LP) cells/mm^2 up to a depth of 120 μM using the image analysis software Image-Pro Plus 7.0. The observer was blinded to the images and disease diagnosis. Statistical analysis was performed using GraphPad Prism v9.

Results: The tissue macrophages in ACO were substantially higher in the epithelium and RBM than in HC ($P < 0.001$ for both), COPD-ES ($P < 0.001$ for both), and -CS ($P < 0.05$ and < 0.0001, respectively). The ACO LP macrophages were significantly higher in number than COPD-CS ($P < 0.05$). The mast cell numbers in ACO were lower than in NLFS ($P < 0.05$) in the epithelium, lower than COPD ($P < 0.05$) and NLFS ($P < 0.001$) in RBM; and lower than HC ($P < 0.05$) in LP. We noted lower eosinophils in ACO LP than HC ($P < 0.05$) and the lowest neutrophils in both ACO and asthma. Furthermore, CD8+ T-cell numbers increased in the ACO RBM than HC ($P < 0.05$), COPD-ES ($P < 0.05$), and NLFS ($P < 0.01$); however, they were similar in number in epithelium and LP across groups. CD4+ T-cells remained lower in number across all regions and groups.

Conclusion: These results suggest that the ACO airway tissue inflammatory cellular profile differed from the contributing diseases of asthma and COPD with a predominance of macrophages.

Keywords: ACO; Asthma; CD + 8 T-cells; COPD; Inflammatory cells; Macrophage; Mast cells.

Conflict of interest statement

Dr. Sohal has served on the Small Airway Advisory Board of Chiesi Australia and have received honorarium. Dr. Sohal reports travel support from Chiesi, AstraZeneca, GSK outside the submitted work. All the other authors do not have any conflict of interest to declare.

- 48 references
- 13 figures

SUPPLEMENTARY INFO

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17

Am J Respir Crit Care Med

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Repeatability of Pulmonary Quantitative Computed Tomography Measurements in Chronic Obstructive Pulmonary Disease

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Collaborators, Affiliations expand

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No abstract available

SUPPLEMENTARY INFO

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Editorial

Am J Respir Crit Care Med

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doi: 10.1164/rccm.202306-1106ED.

A STAR Is Born: A New Approach to Assessing Chronic Obstructive Pulmonary Disease Severity

Peter M A Calverley[1]

Affiliations expand

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- DOI: 10.1164/rccm.202306-1106ED

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Comment on

- FEV_1/FVC Severity Stages for Chronic Obstructive Pulmonary Disease.
  Bhatt SP, Nakhmani A, Fortis S, Strand MJ, Silverman EK, Sciurba FC, Bodduluri S.Am J Respir Crit Care Med. 2023 Sep 15;208(6):676-684. doi: 10.1164/rccm.202303-0450OC.PMID: 37339502

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Review

Lancet

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Global access and patient safety in the transition to environmentally friendly

respiratory inhalers: the Global Initiative for Asthma perspective

Mark L Levy[1], Eric D Bateman[2], Keith Allan[3], Leonard B Bacharier[4], Matteo Bonini[5], Louis-Philippe Boulet[6], Arnaud Bourdin[7], Chris Brightling[8], Guy Brusselle[9], Roland Buhl[10], Muhwa Jeremiah Chakaya[11], Alvaro A Cruz[12], Jeffrey Drazen[13], Francine M Ducharme[14], Liesbeth Duijts[15], Louise Fleming[16], Hiromasa Inoue[17], Fanny W S Ko[18], Jerry A Krishnan[19], Refiloe Masekela[20], Kevin Mortimer[21], Paulo Pitrez[22], Sundeep Salvi[23], Aziz Sheikh[24], Helen K Reddel[25], Arzu Yorgancıoğlu[26]

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Declaration of interests MLL has received payments from publishers Taylor Francis and from Class Publishing; consulting fees from Smart Respiratory, Respiri, Imperial College, AstraZeneca, Novartis, and Teva; speaker or writing fees from Chiesi, AstraZeneca, and Teva; honoraria for manuscript writing and educational events from Consorzio Futuro in Ricerca; fees for expert testimony from HM Coroner, Waltham Forrest, London; support to attend meetings from Teva; and has held leadership roles (unpaid) in GINA, NHS England, and UK All Party Parliamentary Advisory Group (Asthma). EDB has received consulting fees from AstraZeneca, Regeneron, and Sanofi; speaker fees from AstraZeneca, Boehringer Ingelheim, Cipla, Novartis, Regeneron, Orion, and Sanofi Aventis; support to attend meetings from Orion, Sanofi, AstraZeneca, and GINA; and has participated (unpaid) in a board for DSMB for PACE study in COPD. KA declares no competing interests. LBB has received grants from the National Heart, Lung, and Blood Institute and National Institute of Allergy and Infectious Diseases; book royalties from Elsevier; consulting fees from Sanofi, Regeneron, Genentech, GlaxoSmithKline, DBV technologies, Teva, Medscape, Kinaset, OM Pharma, AstraZeneca, and Recludix; speaker fees from Sanofi, Regeneron, and GlaxoSmithKline; payment for advisory board participation from DBV Technologies, AstraZeneca, and Vertex; has participated in American Academy of Allergy Asthma & Immunology (unpaid) and American Board of Allergy and Immunology (paid); and has received medical writing services from Sanofi/Regeneron. MB has received grants from AstraZeneca and from GlaxoSmithKline; consulting fees from AstraZeneca, GlaxoSmithKline, and Sanofi; and speaker fees from AstraZeneca, Boehringer, Chiesi, GlaxoSmithKline, Menarini, Novartis, and Sanofi. L-PB has received grants from Amgen, AstraZeneca, GlaxoSmithKline, Merck, Novartis, and Sanofi-Regeneron; royalties for texts

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AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline and Novartis; and support to attend meetings from Novartis and from Boehringer Ingelheim. JAK has received grants (paid to institution) from the National Heart, Lung, and Blood Institute, COPD Foundation, Regeneron, Sergey Brin Family Foundation, US Patient Centered Outcomes Research Institute, and American Lung Association; consulting fees from GlaxoSmithKline, AstraZeneca, CereVu Medical, Propeller and ResMed, and BData; speaker fees from University of Chicago, and from American Academy of Asthma, Allergy, and Immunology; support to attend meetings from Global Initiative for Asthma and from American Thoracic Society; and has participated in Respiratory Health Association, Global Initiative for Asthma, and COPD Foundation. RM has received speaker fees from AstraZeneca and Organon; payment for advisory board participation from AstraZeneca and Organon; and has participated (unpaid) in leadership roles within Global Asthma Network. KM has received payment for advisory board participation from AstraZeneca and GlaxoSmithKline. PP has received consulting fees from AstraZeneca, GlaxoSmithKline, Sanofi, Boehringer Ingelheim, and Novartis; support to attend meetings from AstraZeneca and Boehringer Ingelheim; payment for advisory board participation from AstraZeneca; and is an unpaid member of the Board of Directors for the Brazilian Severe Asthma Group. SS has received consulting fees (paid to institution) and speaker fees (paid to institution) from Cipla, India. AS has received support to attend meetings from GINA. HKR has received grants from AstraZeneca, GlaxoSmithKline, Novartis, and Perpetual Philanthropy; consulting fees from Novartis, AstraZeneca, and GlaxoSmithKline; speaker fees from Alkem, AstraZeneca, GlaxoSmithKline, Teva, Boehringer-Ingelheim, Sanofi, Getz, and Chiesi; payment for advisory board participation from AstraZeneca, GlaxoSmithKline, Novartis, Chiesi, and Sanofi; and has participated (unpaid) in Global Initiative for Asthma as Chair of Science Committee, and in National Asthma Council Australia's Guidelines Committee. AY has received consulting fees (paid to institution) from GSK, AstraZeneca, and Chiesi; speaker fees (paid to institution) from GlaxoSmithKline, AstraZeneca, Bilim, and Abdi Ibrahim; and support to attend meetings from GINA. MJC declares no competing interests.

Environ Res

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Climate change and mortality rates of COPD and asthma: A global analysis from 2000 to 2018

Huan Minh Tran[1], Ting-Wu Chuang[2], Hsiao-Chi Chuang[3], Feng-Jen Tsai[4]

Affiliations expand

- PMID: 37352955

- DOI: 10.1016/j.envres.2023.116448

Abstract

Background: Climate change plays a significant role in global health threats, particularly with respiratory diseases such as chronic obstructive pulmonary disease (COPD) and asthma, but the long-term global-scale impact of climate change on these diseases' mortality remains unclear.

Objective: This study aims to investigate the impact of climate change on the age-standardized mortality rates (ASMR) of COPD and asthma at national levels.

Methods: We used Global Burden of Disease (GBD) data of ASMR of COPD and asthma from 2000 to 2018. The climate change index was represented as the deviance percentage of temperature (DPT) and relative humidity (DPRH), calculated based on 19-year temperature and humidity averages. Annual temperature, RH, and fine particulate matter ($PM_{2.5}$) levels in 185 countries/regions were obtained from ERA5 and the OECD's environmental statistics database. General linear mixed-effect regression models were used to examine the associations between climate change with the log of ASMR (LASMR) of COPD and asthma.

Results: After adjusting for annual $PM_{2.5}$, SDI level, smoking prevalence, and geographical regions, a 0.26% increase in DPT was associated with decreases of 0.016, 0.017, and 0.014

per 100,000 people in LASMR of COPD and 0.042, 0.046, and 0.040 per 100,000 people in LASMR of asthma for both genders, males, and females. A 2.68% increase in DPRH was associated with increases of 0.009 and 0.011 per 100,000 people in LASMR of COPD. We observed a negative association of DPT with LASMR for COPD in countries/regions with temperatures ranging from 3.8 to 29.9 °C and with LASMR for asthma ranging from -5.3-29.9 °C. However, we observed a positive association of DPRH with LASMR for both COPD and asthma in the RH range of 41.2-67.2%.

Conclusion: Climate change adaptation and mitigation could be crucial in reducing the associated COPD and asthma mortality rates, particularly in regions most vulnerable to temperature and humidity fluctuations.

Keywords: Asthma; Chronic obstructive pulmonary disease (COPD); Climate change; Mortality rate; Relative humidity; Temperature.

Conflict of interest statement

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

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FEV_1/FVC Severity Stages for Chronic Obstructive Pulmonary Disease

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Affiliations expand

- PMID: 37339502

- DOI: 10.1164/rccm.202303-0450OC

Abstract

Rationale: The diagnosis of chronic obstructive pulmonary disease (COPD) is based on a low FEV_1/FVC ratio, but the severity of COPD is classified using FEV_1% predicted ($ppFEV_1$). **Objectives:** To test a new severity classification scheme for COPD using FEV_1/FVC ratio, a more robust measure of airflow obstruction than $ppFEV_1$. **Methods:** In COPDGene (Genetic Epidemiology of COPD) (*N* = 10,132), the severity of airflow obstruction was categorized by Global Initiative for Chronic Obstructive Lung Disease (GOLD) stages 1-4 ($ppFEV_1$ of ⩾80%, ⩾50-80%, ⩾30-50%, and <30%). A new severity classification (STaging of Airflow obstruction by Ratio; STAR) was tested in COPDGene-FEV_1/FVC ⩾0.60 to <0.70, ⩾0.50 to <0.60, ⩾0.40 to <0.50, and <0.40, respectively, for stages 1-4-and applied to the combined Pittsburgh SCCOR and Emphysema COPD Research Registry for replication (*N* = 2,017). **Measurements and Main Results:** The agreements (weighted Bangdiwala B values) between GOLD and the new FEV_1/FVC ratio severity stages were 0.89 in COPDGene and 0.88 in the Pittsburgh cohort. In COPDGene and the Pittsburgh cohort, compared with GOLD staging, STAR provided significant discrimination between the absence of airflow obstruction and stage 1 for all-cause mortality, respiratory quality of life, dyspnea, airway wall thickness, exacerbations, and lung function decline. No major differences were noted for emphysema, small airway disease, and 6-minute-walk distance. The STAR classification system identified a greater number of adults with stage 3/4 disease who would be eligible for lung transplantation and lung volume reduction procedure evaluations. **Conclusions:** The new STAR severity classification scheme provides discrimination for mortality that is similar to the GOLD classification but with a more uniform gradation of disease severity. STAR differentiates patients' symptoms, disease burden, and prognosis better than the existing scheme based on $ppFEV_1$, and is less sensitive to race/ethnicity and other demographic characteristics.

Keywords: COPD; airflow obstruction; severity; staging.

Comment in

- A STAR Is Born: A New Approach to Assessing Chronic Obstructive Pulmonary Disease Severity.
  Calverley PMA.Am J Respir Crit Care Med. 2023 Sep 15;208(6):647-648. doi: 10.1164/rccm.202306-1106ED.PMID: 37486264 No abstract available.

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

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Randomized Controlled Trial

Ann Behav Med

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. 2023 Sep 13;57(10):855-865.

doi: 10.1093/abm/kaad026.

Depression Symptoms and Physical Activity in Veterans With COPD: Insights From a Web-Based, Pedometer-Mediated Physical Activity Intervention

Patricia M Bamonti[1,2], Christine Perndorfer[3,4], Stephanie A Robinson[5,6], Maria A Mongiardo[7], Emily S Wan[7,8], Marilyn L Moy[1,7,9]

Affiliations expand

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Abstract

Background: Depression is known to limit physical activity (PA) among individuals with chronic obstructive pulmonary disease (COPD). However, whether and how depression influences the effectiveness of PA interventions is unknown.

Purpose: The study examined the association between baseline depression symptoms and change in daily step count and whether group assignment to a web-based, pedometer-mediated PA intervention moderated the association between baseline depression symptoms and change in daily step count.

Methods: Secondary analysis included two cohorts of U.S. Veterans with COPD (n = 212; 97% male; mean age 69 ± 8 years) assessed at baseline and 3 months. Cohorts 1 and 2 were randomly assigned to the same PA intervention (n = 111) or a control group (n = 101). Multivariate regressions tested the main effects of baseline depression symptoms (BDI-II total and cognitive-affective and somatic subscales) on change in daily steps, as well as the interaction between baseline BDI-II and subscales and group assignment on change in daily steps.

Results: Greater BDI-II total score (B = -31.8, SE = 14.48, p = .030) and somatic subscale scores (B = -99.82, SE = 35.76, p = .006) were associated with less improvement in daily step count. There was a significant interaction between baseline cognitive-affective subscale and the intervention predicting change in daily step count (B = -88.56, SE = 42.31, p = .038). When cognitive-affective subscale scores were ≥1 SD above the mean, the intervention was no longer associated with an increase in daily step count (p = .585).

Conclusions: Depression should be routinely assessed and targeted as part of PA promotion efforts.

Keywords: Chronic obstructive pulmonary disease (COPD); Depression; Physical activity; Physical activity promotion.

Plain language summary

United States (U.S.) Veterans have high rates of chronic obstructive pulmonary disease (COPD), a progressive lung disease that causes shortness of breath. Promoting physical activity (PA) is an important component to the management of COPD resulting in improved outcomes. Technology-based interventions (i.e., pedometers, websites) are effective at increasing PA in persons with COPD. However, depression symptoms, such as low mood and motivation, may influence their effectiveness. This secondary data analysis examined whether depression symptoms were related to improvement in daily step count. Two cohorts of U.S. Veterans were randomized to either a web-based, pedometer-mediated PA intervention (i.e., pedometer, goal setting and feedback, education and online community) or a control group (i.e., pedometer only or usual care). Daily step count was assessed at baseline and at 3 months. Across both groups, greater overall depression symptoms and greater bodily symptoms of depression (i.e., fatigue) were associated with less improvement in daily step count. Veterans with greater cognitive-affective symptoms of depression (i.e., low mood, loss of interest, or pleasure) who were assigned to the intervention group showed no improvement in daily step count compared with controls. Results highlight the importance of detecting and treating depression as part of PA interventions.

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

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J Allergy Clin Immunol Pract

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Bronchodilator responsiveness is less common in allergic bronchopulmonary aspergillosis complicating asthma than asthma alone

Babu Ram[1], Valliappan Muthu[1], Kuruswamy Thurai Prasad[1], Inderpaul Singh Sehgal[1], Sahajal Dhooria[1], Ashutosh Nath Aggarwal[1], Ritesh Agarwal[2]

Affiliations expand

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Keywords: ABPA; ABPM; BDR; FEV1; clinical trials; lung function; spirometry.

2

J Allergy Clin Immunol Pract

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Metabolic dysfunction, triglyceride-glucose index, and risk of severe asthma exacerbation

Kristen A Staggers[1], Charles Minard[1], Michelle Byers[2], Drew A Helmer[3], Tianshi David Wu[4]

Affiliations expand

- PMID: 37716524

- DOI: 10.1016/j.jaip.2023.09.001

Abstract

Background: Metabolic conditions may worsen asthma. There is a need to define a composite biomarker of metabolic dysfunction that has relevance to asthma outcomes.

Objective: To determine the association of the triglyceride-glucose index (TyG), a biomarker of metabolic syndrome and insulin resistance, with risk of severe asthma exacerbation.

Methods: A five-year retrospective cohort of patients with asthma receiving healthcare from the US Veterans Health Administration from January 1, 2015, to December 31, 2019, was constructed. Fasting TyG indices were extracted. Patients were followed for a severe asthma exacerbation, defined as an asthma-related corticosteroid prescription fill or an emergency encounter or hospitalization for asthma. Adjusted models estimated relative hazard of exacerbation associated with elevated TyG accounting for known exacerbation risk factors.

Results: 108,219 patients fulfilled study criteria. Over 286,343 person-years of follow-up, 21,467 exacerbations were identified, corresponding to a crude rate of 7.5 exacerbations/100 person-years. In exploratory analysis, we found a threshold effect at a TyG of 8.3, which was defined as elevated. In a fully adjusted model, patients with an elevated TyG had a 6% (95% confidence interval, 3%, 10%) higher hazard for severe asthma exacerbation, independent of eosinophil count, smoking, obesity, and asthma treatment intensity.

Conclusion: Elevated TyG is a risk factor for severe asthma exacerbation independent of conventional predictors. Elevated TyG may identify patients who warrant more intensive asthma treatment and who are candidates for future clinical trials of metabolic intervention for purposes of improving asthma morbidity.

Keywords: Epidemiology; exacerbations; metabolism; non-allergic asthma; risk factors.

3

Int Forum Allergy Rhinol

. 2023 Sep 16.

doi: 10.1002/alr.23268. Online ahead of print.

Combination of omalizumab with allergen immunotherapy versus immunotherapy alone for allergic diseases: A meta-analysis of randomized controlled trials

Ying-Ying Zhang[1], Min Zhang[1], Jia-Qi Zhang[1], Qiu-Qi Li[1], Mei-Ping Lu[1], Lei Cheng[1,2]

Affiliations expand

- PMID: 37715592

- DOI: 10.1002/alr.23268

Abstract

Background: Allergen immunotherapy (AIT)-associated adverse events (AEs) limit its usage in the management of allergic diseases. The monoclonal anti-IgE antibody (omalizumab) and AIT have complementary actions. However, no consensus has been reached on whether their combination could exert superior efficacy and safety.

Objective: To evaluate whether the combination of AIT with omalizumab is superior to AIT alone in treating allergic diseases.

Methods: The MEDLINE/PubMed, Embase, Scopus and Cochrane Library databases were searched to identify randomized control trials (RCTs) reporting the outcomes of omalizumab combined with AIT (omalizumab + AIT) versus AIT alone. A random-effect model was established to estimate outcomes with a 95% confidence interval (CI).

Results: A total of 11 eligible RCTs (involving 901 patients) were screened out for the meta-analysis. According to a pooled analysis, omalizumab + AIT significantly increased the number of patients achieving the target maintenance dose (TMD) and sustained unresponsiveness (SU) to allergens (odds ratio [OR] = 2.43; 95% CI: 1.33-4.44; p = 0.004; I^2 = 35%, and OR = 6.77; 95% CI: 2.10-21.80; p = 0.001; I^2 = 36%, respectively). Similarly, individuals receiving the combination therapy reported significantly fewer episodes of severe systemic AEs than AIT alone (OR = 0.32; 95% CI: 0.18-0.59; p = 0.0003; I^2 = 0%). Meanwhile, the improvements in symptom severity score (mean difference [MD] = -0.26), rescue medication daily means score (MD = -0.14), and number of patients consuming epinephrine in AIT (OR = 0.20) were all more evident than those in AIT alone.

Conclusion: Omalizumab + AIT can significantly enhance the efficacy and safety of AIT by increasing TMD and SU to allergens, while decreasing severe systemic AEs.

Keywords: Allergen immunotherapy; allergic rhinitis; anti-IgE; asthma; food allergy; omalizumab.

- 73 references

SUPPLEMENTARY INFO

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FULL TEXT LINKS

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Cite

4

Respir Investig

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. 2023 Sep 12;61(6):733-737.

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Effect of biologic therapy on the humoral immune response to the BNT162b2 vaccine in patients with asthma

Masahiro Shirata[1], Isao Ito[2], Tsuyoshi Oguma[1], Tadao Nagasaki[1], Issei Oi[3], Nobuyoshi Hamao[3], Kensuke Nishioka[3], Toyohiro Hirai[1]

Affiliations expand

- PMID: 37714091

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Abstract

The effect of inhaled corticosteroids (ICS) and biologics on the humoral immune response following severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) mRNA vaccination in patients with asthma is unknown. We prospectively evaluated the humoral immune response 3 weeks (T1) and 6 months (T2) after the second dose of BNT162b2 in 30 SARS-CoV-2-naïve patients with asthma. We measured anti-spike immunoglobulin G (IgG) titers and serum-neutralizing activity against the ancestral SARS-CoV-2 strain. The anti-spike IgG titer and neutralizing activity did not differ significantly between the biologics and non-biologics groups at T1 (P = 0.708 and P = 0.417, respectively) or T2 (P = 0.299 and P = 0.492, respectively). In the multivariate analysis, age and sex were significantly associated with the magnitude of the humoral immune response; however, the use of biologics and ICS dose were not, suggesting that these would not affect BNT162b2

immunogenicity in patients with asthma. Larger studies are needed to validate these findings.

Keywords: Asthma; Biologic agents; Immunogenicity; Inhaled corticosteroids; SARS-CoV-2 mRNA vaccine.

Conflict of interest statement

Conflict of Interest The authors have no conflicts of interest.

5

Respirology

. 2023 Sep 15.

doi: 10.1111/resp.14593. Online ahead of print.

Asthma and landscape fire smoke: A Thoracic Society of Australia and New Zealand position statement

Vanessa M McDonald[1 2 3], Gregory Archbold[2], Tesfalidet Beyene[1 2], Bronwyn K Brew[4], Peter Franklin[5], Peter G Gibson[1 2 3], John Harrington[2 3], Philip M Hansbro[6 7], Fay H Johnston[8], Paul D Robinson[9 10], Michael Sutherland[11], Deborah Yates[12 13], Graeme R Zosky[8 14], Michael J Abramson[15]

Affiliations expand

- PMID: 37712340

- DOI: 10.1111/resp.14593

Abstract

Landscape fires are increasing in frequency and severity globally. In Australia, extreme bushfires cause a large and increasing health and socioeconomic burden for communities and governments. People with asthma are particularly vulnerable to the effects of landscape fire smoke (LFS) exposure. Here, we present a position statement from the Thoracic Society of Australia and New Zealand. Within this statement we provide a review of the impact of LFS on adults and children with asthma, highlighting the greater impact of LFS on vulnerable groups, particularly older people, pregnant women and Aboriginal and Torres Strait Islander peoples. We also highlight the development of asthma on the background of risk factors (smoking, occupation and atopy). Within this document we present advice for asthma management, smoke mitigation strategies and access to air quality information, that should be implemented during periods of LFS. We promote clinician awareness, and the implementation of public health messaging and preparation, especially for people with asthma.

Keywords: asthma; exacerbation; impacts risk; landscape fire smoke; management; mitigation; pathogenesis.

- 89 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

WILEY Full Text Article UNIMORE

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6

Geohealth

. 2023 Sep 13;7(9):e2023GH000849.

doi: 10.1029/2023GH000849. eCollection 2023 Sep.

Assessing the Effect of Precipitation on Asthma Emergency Department Visits in New York State From 2005 to 2014: A Case-Crossover Study

Arjita Rai[1], Temilayo Adeyeye[1,2], Tabassum Insaf[2,3], Neil Muscatiello[1]

Affiliations expand

- PMID: 37711363

- PMCID: PMC10499370

- DOI: 10.1029/2023GH000849

Free PMC article

Abstract

The Earth's precipitation patterns are changing, and regional precipitation is expected to continue to increase in New York State (NYS). Heavy precipitation may negatively affect asthma prevalence through its effect on seasonally varying allergens. We employed a threshold analysis using a time-stratified semi-symmetric bi-directional case-crossover study design to assess the effect of increase in precipitation on asthma (ICD-9 code 493.xx, *N* = 970,903) emergency department (ED) visits between 2005 and 2014 during non-winter months in NYS. Spatially contiguous gridded meteorological data from North American Land Data Assimilation System (NLDAS) were utilized. We used conditional logistic regression models and stratified the analyses by seasons. During non-winter months, we found a small, statistically significant risk of asthma ED visits for precipitation levels above 50 mm, with differences by season. These results suggest that heavy precipitation may be related to an increased risk of asthma ED visits. Gridded

meteorological estimates provide a means of addressing the gaps in exposure classification, and these findings provide opportunities for further research on interactions with aeroallergens and meteorological conditions in the context of climate and health.

Keywords: NLDAS; asthma; climate; emergency department visits; precipitation; rainfall.

Conflict of interest statement

The authors declare no conflicts of interest relevant to this study.

- 68 references
- 1 figure

7

Int J Equity Health

. 2023 Sep 14;22(1):190.

doi: 10.1186/s12939-023-02002-5.

"Asthma is a very bully disease" – patient experiences of living with chronic respiratory diseases in Cape Town, South Africa

Marie Stolbrink[1,2], Chantel Streicher[3], Khanyisa Mcimeli[4], Brian Allwood[5], Kevin Mortimer[6,7,8], Martha Chinouya[9]

Affiliations expand

- PMID: 37710307

- PMCID: PMC10500759

- DOI: 10.1186/s12939-023-02002-5

Free PMC article

Abstract

Background: Chronic respiratory diseases are common in Cape Town, South Africa. Yet the experiences of how adults with these conditions, such as asthma or COPD (chronic obstructive pulmonary disease), negotiate the health system are poorly understood. Qualitative methodology lends itself to investigate this question.

Aim of study: To explore the "emic" experiences of adults with CRDs in Cape Town when they were negotiating the health system using semi-structured interviews.

Methods: Interviews were conducted following informed consent with purposively sampled adults who had attended public hospitals in Cape Town with chronic respiratory disease flare-ups. This work was nested in the quantitative "Diagnosing Airways Disease" study. The topic guide explored patients' experiences of accessing healthcare including receiving and interpretations of the diagnosis and management, and impacts on daily life. Interviews were conducted in Afrikaans, isiXhosa, or English; transcribed, and translated into English and thematically analysed until saturation.

Results: Thirty-two interviews (16 in Afrikaans, 8 in isiXhosa, 8 in English) were completed in 2022. 17 women and 15 men participated. Most participants were older than 50 years (25/32), and most were unemployed (13/32) or retired (11/32). The identified themes were: Perceived causes of illness; experiences of healthcare; perceived risks and barriers when accessing healthcare; and impact on earnings. The perceived causes of their illness and risks were structural, and included air pollution, poor quality housing, occupational exposures, limited healthcare services, and fear of violence. These factors led to self-treatment, sharing of medicines, and delay in receiving a diagnosis. Many paid privately for treatments or services to overcome identified shortcomings of the public healthcare system, and many reported additional significant indirect costs. Being ill had a profound impact on income. The identified themes were explored through the lens of "structural

violence", where "social structures stop individuals ... from reaching their full potential" (Galtung, 1969).

Conclusion: In Cape Town structural elements such as stretched healthcare professionals, insufficiently enforced policies on e.g., housing or work-place exposures, poverty and crime made it difficult for participants to successfully navigate their illness experience. It forced some to pay out of pocket to receive perceived better healthcare privately.

Keywords: Asthma; COPD; Cape Town; Chronic respiratory disease; Experience; Healthcare; Qualitative research; Semi-structured interview; South Africa.

Conflict of interest statement

The authors declare no competing interests.

- 55 references
- 1 figure

8

Handb Exp Pharmacol

. 2023 Sep 15.

doi: 10.1007/164_2023_679. Online ahead of print.

Asthma and COPD: A Focus on β-Agonists – Past, Present and Future

Jillian G Baker[1,2], Dominick E Shaw[3]

Affiliations expand

- PMID: 37709918

- DOI: 10.1007/164_2023_679

Abstract

Asthma has been recognised as a respiratory disorder for millennia and the focus of targeted drug development for the last 120 years. Asthma is one of the most common chronic non-communicable diseases worldwide. Chronic obstructive pulmonary disease (COPD), a leading cause of morbidity and mortality worldwide, is caused by exposure to tobacco smoke and other noxious particles and exerts a substantial economic and social burden. This chapter reviews the development of the treatments of asthma and COPD particularly focussing on the β-agonists, from the isolation of adrenaline, through the development of generations of short- and long-acting β-agonists. It reviews asthma death epidemics, considers the intrinsic efficacy of clinical compounds, and charts the improvement in selectivity and duration of action that has led to our current medications. Important β2-agonist compounds no longer used are considered, including some with additional properties, and how the different pharmacological properties of current β2-agonists underpin their different places in treatment guidelines. Finally, it concludes with a look forward to future developments that could improve the β-agonists still further, including extending their availability to areas of the world with less readily accessible healthcare.

- 539 references

9

Review

Respir Investig

. 2023 Sep 12;61(6):675-681.

doi: 10.1016/j.resinv.2023.07.003. Online ahead of print.

Patient profiling to predict response to bronchial thermoplasty in patients with severe asthma

Satoshi Ano[1], Norihiro Kikuchi[2], Masashi Matsuyama[3], Nobuyuki Hizawa[3]

Affiliations expand

- PMID: 37708632

- DOI: 10.1016/j.resinv.2023.07.003

Abstract

Bronchial thermoplasty is the only device-based nonpharmacological treatment approach for severe asthma. Current guidelines are cautious in recommending bronchial thermoplasty because of unknown patient response prediction. Recent research on bronchial thermoplasty includes up-to-date, state-of-the-art, and recent-advances reviews. However, these reviews provide a broad and general discussion on equipment, technique, patient selection, and patient management, with little evaluation of the predictors of a beneficial response. Predicting an optimal response to bronchial thermoplasty in patients with severe asthma remains elusive. The lack of reliable predictive markers means that bronchial thermoplasty remains a last-line treatment and makes profiling for predicting the response or efficacy a topic of study. Genetic changes are associated with airway remodeling. A gap in the literature exists regarding patient profiling to predict the response to bronchial thermoplasty in patients with severe asthma. Therefore, recently published omics data and genetic associations regarding the response to bronchial

thermoplasty therapy should be reviewed. We present an up-to-date review of recent publications profiling the response to bronchial thermoplasty in patients with severe asthma.

Keywords: Bronchial thermoplasty (BT); Predictive markers; Severe asthma; Transcriptome.

Conflict of interest statement

Conflict of Interest The authors have no conflicts of interest.

10

Review

N Engl J Med

. 2023 Sep 14;389(11):1023-1031.

doi: 10.1056/NEJMcp2304871.

Asthma in Adults

Giselle Mosnaim[1]

Affiliations expand

- PMID: 37703556

- DOI: 10.1056/NEJMcp2304871

No abstract available

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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11

Ann Am Thorac Soc

-
-
-

. 2023 Sep 13.

doi: 10.1513/AnnalsATS.202304-321RL. Online ahead of print.

Effect of Biological Therapy on Total Body Composition in Severe Asthma

Edith Visser[1,2], Lianne Ten Have[3], Anneke Ten Brinke[4], Kim de Jong[3]

Affiliations expand

- PMID: 37703386

- DOI: 10.1513/AnnalsATS.202304-321RL

No abstract available

12

Curr Pediatr Rev

. 2023 Sep 12.

doi: 10.2174/1573396320666230912103108. Online ahead of print.

Treatment of allergic rhinitis in clinical practice

Maria Angela Tosca[1], Chiara Trincianti[1], Matteo Naso[1], Valentina Nosratian[1], Giorgio Ciprandi[2]

Affiliations expand

- PMID: 37702169

- DOI: 10.2174/1573396320666230912103108

Abstract

Allergic rhinitis is a prevalent condition among children, with its occurrence reaching up to 40% of the general population in some geographical areas. A type 2 immunity sustains allergic rhinitis. Consequently, type 2 inflammation leads to eosinophilic infiltrate of the nasal mucosa. Allergic inflammation causes the symptom occurrence. Typical nasal symptoms include nasal itching, sneezing, watery rhinorrhea, and nasal congestion. Nasal congestion depends on vasodilation and increased mucus production. These conditions result in nasal obstruction. Nasal obstruction is closely associated with type 2 inflammation. Allergic rhinitis usually occurs in association with other allergic conditions, in particular allergic conjunctivitis and asthma. The effective management of allergic rhinitis

involves avoiding triggering allergens and employing pharmacological treatments as per ARIA guidelines. These treatments may include intranasal/oral antihistamines or/and nasal corticosteroids. In particular, antihistamines are particularly indicated for symptoms consequent to mediators' release, mainly concerning histamine. These histamine-dependent symptoms include itching, sneezing, and rhinorrhea. Nasal obstruction, being associated with inflammation, is responsive to corticosteroids, administered mostly intranasally. The fixed combination of a topical antihistamine plus a topical corticosteroid is very effective, but is indicated for adolescents only. However, nasal lavage is safe, cheap, and adequate, thus its use is prevalent. Namely, nasal lavage allows to remove secretions, allergens, mediators. In addition, hypertonic solutions exert a decongestant activity. On the other hand, the allergen-specific immunotherapy is still the only causal treatment. Nutraceuticals have also been used to relieve symptoms. The objective of this review is to explore and compare the traditional and new therapeutic approaches for pollen-induced allergic rhinitis in children.

Keywords: allergen-specific immunotherapy; allergy; antihistamines; children; infections; intranasal corticosteroids; nasal lavage; nutraceuticals; rhinitis.

13

Respir Res

. 2023 Sep 12;24(1):221.

doi: 10.1186/s12931-023-02527-x.

Airway inflammatory changes in the lungs of patients with asthma-COPD

overlap (ACO): a bronchoscopy endobronchial biopsy study

Surajit Dey[1], Wenying Lu[1,2], Greg Haug[3], Collin Chia[2,3], Josie Larby[3], Heinrich C Weber[4], Archana Vijay Gaikwad[1], Prem Bhattarai[1,2], Affan Mahmood Shahzad[1], Prabuddha S Pathinayake[5], Peter A B Wark[5,6], Mathew Suji Eapen[1], Sukhwinder Singh Sohal[7,8]

Affiliations expand

- PMID: 37700291

- PMCID: PMC10498556

- DOI: 10.1186/s12931-023-02527-x

Free PMC article

Abstract

Background: Although asthma and chronic obstructive pulmonary disease (COPD) are two distinct chronic airway inflammatory diseases, they often co-exist in a patient and the condition is referred to as asthma-COPD overlap (ACO). Lack of evidence regarding the inflammatory cells in ACO airways has led to their poor prognosis and treatment. The objective of this endobronchial biopsy (EBB) study was to enumerate inflammatory cellular changes in the airway wall of ACO compared with asthma, COPD current smokers (CS) and ex-smokers (ES), normal lung function smokers (NLFS), and non-smoker controls (HC).

Methods: EBB tissues from 74 patients were immunohistochemically stained for macrophages, mast cells, eosinophils, neutrophils, CD8+ T-cells and CD4+ T-cells. The microscopic images of stained tissues were evaluated in the epithelium, reticular basement membrane (RBM) cells/mm RBM length, and lamina propria (LP) cells/mm^2 up to a depth of 120 μM using the image analysis software Image-Pro Plus 7.0. The observer was blinded to the images and disease diagnosis. Statistical analysis was performed using GraphPad Prism v9.

Results: The tissue macrophages in ACO were substantially higher in the epithelium and RBM than in HC ($P < 0.001$ for both), COPD-ES ($P < 0.001$ for both), and -CS ($P < 0.05$ and < 0.0001, respectively). The ACO LP macrophages were significantly higher in number than COPD-CS ($P < 0.05$). The mast cell numbers in ACO were lower than in NLFS ($P < 0.05$) in the epithelium, lower than COPD ($P < 0.05$) and NLFS ($P < 0.001$) in RBM; and lower than HC ($P < 0.05$) in LP. We noted lower eosinophils in ACO LP than HC ($P < 0.05$) and the

lowest neutrophils in both ACO and asthma. Furthermore, CD8+ T-cell numbers increased in the ACO RBM than HC ($P < 0.05$), COPD-ES ($P < 0.05$), and NLFS ($P < 0.01$); however, they were similar in number in epithelium and LP across groups. CD4+ T-cells remained lower in number across all regions and groups.

Conclusion: These results suggest that the ACO airway tissue inflammatory cellular profile differed from the contributing diseases of asthma and COPD with a predominance of macrophages.

Keywords: ACO; Asthma; CD + 8 T-cells; COPD; Inflammatory cells; Macrophage; Mast cells.

Conflict of interest statement

Dr. Sohal has served on the Small Airway Advisory Board of Chiesi Australia and have received honorarium. Dr. Sohal reports travel support from Chiesi, AstraZeneca, GSK outside the submitted work. All the other authors do not have any conflict of interest to declare.

- 48 references
- 13 figures

doi: 10.1126/scisignal.adg6360. Epub 2023 Sep 12.

TSLP shapes the pathogenic responses of memory CD4+ T cells in eosinophilic esophagitis

Yrina Rochman[1], Michael Kotliar[1], Netali Ben-Baruch Morgenstern[1], Artem Barski[1,2], Ting Wen[1], Marc E Rothenberg[1]

Affiliations expand

- PMID: 37699081

- DOI: 10.1126/scisignal.adg6360

Abstract

The cytokine thymic stromal lymphopoietin (TSLP) mediates type 2 immune responses, and treatments that interfere with TSLP activity are in clinical use for asthma. Here, we investigated whether TSLP contributes to allergic inflammation by directly stimulating human CD4+ T cells and whether this process is operational in eosinophilic esophagitis (EoE), a disease linked to variants in *TSLP*. We showed that about 10% of esophageal-derived memory CD4+ T cells from individuals with EoE and less than 3% of cells from control individuals expressed the receptor for TSLP and directly responded to TSLP, as determined by measuring the phosphorylation of STAT5, a transcription factor activated downstream of TSLP stimulation. Accordingly, increased numbers of TSLP-responsive memory CD4+ T cells were present in the circulation of individuals with EoE. TSLP increased the proliferation of CD4+ T cells, enhanced type 2 cytokine production, induced the increased abundance of its own receptor, and modified the expression of 212 genes. The epigenetic response to TSLP was associated with an enrichment in BATF and IRF4 chromatin-binding sites, and these transcription factors were induced by TSLP, providing a feed-forward loop. The numbers of circulating and esophageal CD4+ T cells responsive to TSLP correlated with the numbers of esophageal eosinophils, supporting a potential functional role for TSLP in driving the pathogenesis of EoE and providing the basis for a blood-based diagnostic test based on the extent of TSLP-induced STAT5 phosphorylation in circulating CD4+ T cells. These findings highlight the potential therapeutic value of TSLP inhibitors for the treatment of EoE.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

Review

Adv Ther

. 2023 Sep 12.

doi: 10.1007/s12325-023-02647-2. Online ahead of print.

Efficacy of Biologics in Patients with Allergic Severe Asthma, Overall and by Blood Eosinophil Count: A Literature Review

Jonathan A Bernstein[1,2], Jean-Pierre Llanos[3], Gillian Hunter[4], Neil Martin[5,6], Christopher S Ambrose[7]

Affiliations expand

- PMID: 37698716

- DOI: 10.1007/s12325-023-02647-2

Abstract

Patients with uncontrolled, allergic severe asthma may be prescribed biologic therapies to reduce exacerbations and improve disease control. Randomized controlled trials (RCTs) of

these therapies have differed in design, with varying results overall and by baseline blood eosinophil count (BEC). This study describes published annualized asthma exacerbation rate (AAER) reductions from RCTs in patients with allergic severe asthma, overall and by baseline BEC category. A literature search was performed to identify published phase 3 RCT data of US Food and Drug Administration-approved biologics for severe asthma in patients with severe, uncontrolled asthma and confirmed sensitization to perennial aeroallergens. Analyses focused on AAER reduction versus placebo in the overall population and/or in those with an elevated or low BEC at baseline or screening. Baseline serum total immunoglobulin E levels varied between RCT populations. In patients with allergic severe asthma across all BEC categories, data were available for tezepelumab, dupilumab, benralizumab and omalizumab only; the greatest AAER reduction was observed with tezepelumab. In patients with allergic severe asthma and BECs of ≥ 260 cells/μL or ≥ 300 cells/μL, AAER reductions were observed with all biologics (tezepelumab, dupilumab, mepolizumab, benralizumab and omalizumab); the greatest AAER reduction was observed with tezepelumab and the smallest AAER reduction was observed with omalizumab. In patients with allergic severe asthma and BECs of < 260 cells/μL or < 300 cells/μL (regardless of historical BEC), an AAER reduction was observed with tezepelumab but not with benralizumab or omalizumab. Differential mechanisms of action may explain the differences in results observed between biologics. Among patients with allergic severe asthma, the efficacy of biologics in RCTs varied considerably overall and by BEC. Tezepelumab was the only biologic to demonstrate AAER reductions consistently across all subgroups. These differences can inform provider treatment decisions when selecting biologic treatments for patients with allergic severe asthma.

Keywords: Allergic asthma; Biologic; Blood eosinophil; Efficacy; Exacerbations; Literature review; Perennial allergy; Randomized placebo-controlled trial; Severe asthma.

- 43 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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16

J Asthma

.
. 2023 Sep 14;1-7.

doi: 10.1080/02770903.2023.2255277. Online ahead of print.

Breathing pattern disorder in chronic rhinosinusitis with severe asthma: nasal obstruction and polyps do not increase prevalence

Rebecca Livingston[1,2], Helene Bellas[1,2], Jagdeep Sahota[2,3], Therese Bidder[2,4], Florian Vogt[2], Valerie J Lund[3,5], Simon B Gane[3,5], Douglas S Robinson[2], Harsha H Kariyawasam[2,4,5]

Affiliations expand

- PMID: 37668326

- DOI: 10.1080/02770903.2023.2255277

Abstract

Objectives: Chronic rhinosinusitis (CRS) with severe asthma are associated with breathing pattern disorder (BPD). Mouth breathing is a sign of breathing pattern disorder, and nose breathing a fundamental part of breathing pattern retraining for BPD. The prevalence of BPD in relation to CRS subtypes and the relationship of nasal obstruction to BPD in CRS and associated severe asthma is unknown. The breathing pattern assessment tool (BPAT) can identify BPD. Our objective was to thus investigate the prevalence of BPD, nasal airflow obstruction and measures of airway disease severity in CRS with (CRSwNP) and without nasal polyps (CRSsNP) in severe asthma.

Methods: We determined whether CRS status, peak nasal inspiratory flow (PNIF) or polyp disease increased BPD prevalence. Demographic factors, measures of airway function and breathlessness in relation to BPD status and CRS subtypes were also evaluated.

Results: 130 Patients were evaluated (n = 69 had BPD). The prevalence of BPD in CRS with severe asthma was 53.1%. There was no difference between BPD occurrence between

CRSwNP and CRSsNP. The mean polyp grade and PNIF were not statistically different between the BPD and non-BPD group. The presence of nasal polyps did not increase breathlessness.

Conclusions: BPD and CRS are commonly co-associated. CRS status and nasal obstruction per se does not increase BPD prevalence.

Keywords: Chronic rhinosinusitis; breathing pattern disorder; nasal obstruction; severe asthma.

17

Zhonghua Jie He He Hu Xi Za Zhi

. 2023 Sep 12;46(9):880-896.

doi: 10.3760/cma.j.cn112147-20230311-00126.

[Expert consensus on the diagnosis, treatment and management of mild bronchial asthma in China (2023 edition)]

[Article in Chinese]

Chinese Thoracic Society

- PMID: 37491161

- DOI: 10.3760/cma.j.cn112147-20230311-00126

Abstract

in English, Chinese

Bronchial asthma is a common chronic respiratory disease. Patients with mild asthma account for more than half of the total asthma population. The diagnosis of mild asthma is much more difficult because the symptoms are mild and sometimes atypical, and even in the presence of near-normal pulmonary ventilation function, usually undetected by physicians or patients. Timely diagnosis, effective treatment and standardized management will prevent from the progression and reduce the burden of mild asthma. In order to guide physicians in the diagnosis, treatment and management of mild asthma, the Asthma Group of the Chinese Thoracic Society organized relevant experts to develop the Expert Consensus. This consensus includes epidemiology, diagnosis and evaluation, treatment and management, education and prevention of mild asthma, also involving diagnosis and treatment of mild atypical asthma. This expert consensus is intended to provide with expert opinion to improve the understanding and standardized diagnosis and treatment of mild asthma among clinicians in China, especially in primary care clinics.

18

Am J Respir Crit Care Med

. 2023 Sep 15;208(6):655-656.

doi: 10.1164/rccm.202306-0995VP.

Type 1 Error on Type 2 Inflammation: Circular Analysis in Asthma Clustering

Brian J Patchett[1,2], Edward S Schulman[1]

Affiliations expand

- PMID: 37478329

- DOI: 10.1164/rccm.202306-0995VP

No abstract available

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

19

Environ Res

-
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. 2023 Sep 15;233:116448.

doi: 10.1016/j.envres.2023.116448. Epub 2023 Jun 21.

Climate change and mortality rates of COPD and asthma: A global analysis from 2000 to 2018

Huan Minh Tran[1], Ting-Wu Chuang[2], Hsiao-Chi Chuang[3], Feng-Jen Tsai[4]

Affiliations expand

- PMID: 37352955

- DOI: 10.1016/j.envres.2023.116448

Abstract

Background: Climate change plays a significant role in global health threats, particularly with respiratory diseases such as chronic obstructive pulmonary disease (COPD) and asthma, but the long-term global-scale impact of climate change on these diseases' mortality remains unclear.

Objective: This study aims to investigate the impact of climate change on the age-standardized mortality rates (ASMR) of COPD and asthma at national levels.

Methods: We used Global Burden of Disease (GBD) data of ASMR of COPD and asthma from 2000 to 2018. The climate change index was represented as the deviance percentage of temperature (DPT) and relative humidity (DPRH), calculated based on 19-year temperature and humidity averages. Annual temperature, RH, and fine particulate matter ($PM_{2.5}$) levels in 185 countries/regions were obtained from ERA5 and the OECD's environmental statistics database. General linear mixed-effect regression models were used to examine the associations between climate change with the log of ASMR (LASMR) of COPD and asthma.

Results: After adjusting for annual $PM_{2.5}$, SDI level, smoking prevalence, and geographical regions, a 0.26% increase in DPT was associated with decreases of 0.016, 0.017, and 0.014 per 100,000 people in LASMR of COPD and 0.042, 0.046, and 0.040 per 100,000 people in LASMR of asthma for both genders, males, and females. A 2.68% increase in DPRH was associated with increases of 0.009 and 0.011 per 100,000 people in LASMR of COPD. We observed a negative association of DPT with LASMR for COPD in countries/regions with temperatures ranging from 3.8 to 29.9 °C and with LASMR for asthma ranging from -5.3-29.9 °C. However, we observed a positive association of DPRH with LASMR for both COPD and asthma in the RH range of 41.2-67.2%.

Conclusion: Climate change adaptation and mitigation could be crucial in reducing the associated COPD and asthma mortality rates, particularly in regions most vulnerable to temperature and humidity fluctuations.

Keywords: Asthma; Chronic obstructive pulmonary disease (COPD); Climate change; Mortality rate; Relative humidity; Temperature.

Conflict of interest statement

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

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

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

1
Int Arch Allergy Immunol

. 2023 Sep 15;1-11.

doi: 10.1159/000531956. Online ahead of print.

Regulation of T Helper Cell Type 2 Immune Response by Controlling Beta-2 Adrenergic Receptor in Dendritic Cells of Patients with Allergic Rhinitis

Ji Woo Yeon[1], Byoungjae Kim[2,3], Junhyoung Byun[1], Semyoung Jung[1], Jaehyung Park[1], Munsoo Han[1,4], Seung-Kuk Baek[1,4], Tae Hoon Kim[1,4]

Affiliations expand

- PMID: 37717570

- DOI: 10.1159/000531956

Abstract

Introduction: Allergic diseases are mediated by T helper cell type 2 (Th2) cells, which are differentiated by dendritic cells (DCs). Recently, it was reported that cAMP concentration in DCs is important for inducing allergic responses. However, the regulatory function of cAMP in DCs in Th2 immune responses is unclear. It was hypothesized that the regulation of G protein-coupled receptors (GPCRs) to increase cAMP levels in DCs would reduce Th2 immune responses.

Methods: Human DCs from patients with allergic rhinitis (AR) and from healthy controls were subjected to next-generation sequencing (NGS) to identify potential GPCR. To investigate the functions of GPCR agonists, the in vitro co-culture experiment that THP-1 cells were differentiated into DCs and cultured with human CD4+ T-cells and an AR animal in vivo model were used.

Results: Among the GPCRs, the beta-2 adrenergic receptor (ADRB2) of allergic DCs was significantly increased by NGS analysis. The expression of ADRB2 was also increased in Der p 1-treated DCs, which was reduced by treatment with the ADRB2 agonist salbutamol. Salbutamol treatment induced cAMP production in THP-1 derived DCs. In an in vitro co-culture experiment, salbutamol-treated DCs reduced the secretion of Th2 cytokine. In an in vivo AR animal experiment, salbutamol-administered mice showed reduced allergic behavior and Th2 cytokine expression in the nasal mucosa.

Conclusions: The regulation of ADRB2 with salbutamol alleviated the allergic response in vitro DC-T cell co-culture and in vivo AR animal models, suggesting that ADRB2 is a therapeutic target for AR and that ADRB2 agonists may be a promising medication for AR.

Keywords: Allergic rhinitis; Beta-2 adrenergic receptor; Co-culture; Dendritic cell; G protein-coupled receptor; T helper cell type 2 immune response; cAMP.

2

BMC Pediatr

. 2023 Sep 16;23(1):466.

doi: 10.1186/s12887-023-04291-9.

Prevalence of allergen sensitization among children with allergic rhinitis in Changzhou, China: a retrospective observational study

Zhibang Hu[1], Jianrong Xue[1], Min Pan[2], Yongzheng Bao[1], Wenlan Zou[1], Chunhui Wang[1], Jing Ma[3]

Affiliations expand

- PMID: 37716964

- DOI: 10.1186/s12887-023-04291-9

Abstract

Objective: To determine the prevalence of sensitivity to common inhaled and food allergens among children with allergic rhinitis (AR) in Changzhou in eastern China and provide a basis for epidemiological research of pediatric allergic rhinitis and allergen avoidance in this region.

Methods: This was a retrospective observational study, a total of 1248 children with AR were enrolled at the Third People's Hospital of Changzhou between January 2018 and December 2019. The serum-specific immunoglobulin E (sIgE) to 19 kinds of inhaled and food allergens and serum total IgE were detected with the AllergyScreen test (Mediwiss Analytic GmbH, Moers, Germany). All participants had a positive reaction to at least one allergen in the test (the sIgE concentration ≥ 0.35 IU/ml).

Results: Among the patients, 818 (65.54%) were male and 430 (34.46%) were female, with 81 (6.50%) aged 1-3 year, 501 (40.14%) aged 4-7 year, and 666 (53.36%) aged 8-14 year.

The positivity rate of inhaled allergens was 80.05% (n = 999), while the positivity rate of food allergens was 66.19% (n = 826). 828 patients (66.35%) were sensitized to multiple allergens. The most common inhaled allergens were Dermatophagoides pteronyssinus (65.38%), mold mix (25.56%), house dust (20.67%), and dog hair dander (13.94%), and the most common food allergens were cow's milk (30.31%), cashew nut (27.9%), egg (22.68%), and beef (12.98%). With an increase in age, the inhaled allergen positivity rate showed a significant increase ($P < 0.01$), while the food allergen positivity rate decreased significantly ($P < 0.01$). There were significant age differences in total IgE levels ($P < 0.01$) and the total IgE level was highest in the group aged 8-14 year.

Conclusions: Dermatophagoides pteronyssinus was the most common sensitizing allergen in pediatric patients with AR in Changzhou. Several other inhaled and food allergens were also common. We observed that multiple allergenic factors play an important role in the occurrence and development of AR.

Keywords: Allergen; Changzhou, China; Children; Prevalence; Specific IgE.

- 31 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

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J Allergy Clin Immunol Pract

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. 2023 Sep 14;S2213-2198(23)01015-2.

doi: 10.1016/j.jaip.2023.08.047. Online ahead of print.

Future directions of Allergen Immunotherapy (AIT) for allergic rhinitis: an experts' perspective

Oliver Pfaar[1], Jay Portnoy[2], Hendrik Nolte[3], Adam M Chaker[4], Jorge A Luna-Pech[5], Amber Patterson[6], Aarti Pandya[7], Désirée Larenas-Linnemann[8]

Affiliations expand

- PMID: 37716529

- DOI: 10.1016/j.jaip.2023.08.047

Abstract

Background: Allergen Immunotherapy (AIT) is broadly used all over the world as the only available disease-modifying treatment option. The aim of this experts' perspective is to address seven important unmet needs for the further direction of AIT and to provide the readership with the authors' positions on these topics.

Methods: An international group of experts in the field of AIT have formulated seven important aspects for the future position of AIT, performed a current literature review and proposed a consented position on these topics.

Results: The aspects discussed and consented by the authors include i) alternative routes of allergen application in AIT, ii) the potential of recombinant vaccines, iii) the role of allergy diagnosis based on component-resolved diagnosis for AIT composition, iv) the impact of COVID-19 vaccination for further innovations in AIT, v) potential of combining biologics to AIT, vi) future innovations in high-risk children/adolescents and vii) the future regulatory position on AIT.

Conclusion: Important unmet needs and topics for AIT have been addressed in this expert review. The authors' views and personal position on these seven aspects have also been elaborated.

Keywords: Allergen Immunotherapy; Allergic rhinitis; allergen immunotherapy; future; intralymphatic immunotherapy; recombinants; regulatory.

4

Int Forum Allergy Rhinol

. 2023 Sep 16.

doi: 10.1002/alr.23268. Online ahead of print.

Combination of omalizumab with allergen immunotherapy versus immunotherapy alone for allergic diseases: A meta-analysis of randomized controlled trials

Ying-Ying Zhang[1], Min Zhang[1], Jia-Qi Zhang[1], Qiu-Qi Li[1], Mei-Ping Lu[1], Lei Cheng[1,2]

Affiliations expand

- PMID: 37715592

- DOI: 10.1002/alr.23268

Abstract

Background: Allergen immunotherapy (AIT)-associated adverse events (AEs) limit its usage in the management of allergic diseases. The monoclonal anti-IgE antibody (omalizumab) and AIT have complementary actions. However, no consensus has been reached on whether their combination could exert superior efficacy and safety.

Objective: To evaluate whether the combination of AIT with omalizumab is superior to AIT alone in treating allergic diseases.

Methods: The MEDLINE/PubMed, Embase, Scopus and Cochrane Library databases were searched to identify randomized control trials (RCTs) reporting the outcomes of omalizumab combined with AIT (omalizumab + AIT) versus AIT alone. A random-effect model was established to estimate outcomes with a 95% confidence interval (CI).

Results: A total of 11 eligible RCTs (involving 901 patients) were screened out for the meta-analysis. According to a pooled analysis, omalizumab + AIT significantly increased the number of patients achieving the target maintenance dose (TMD) and sustained unresponsiveness (SU) to allergens (odds ratio [OR] = 2.43; 95% CI: 1.33-4.44; p = 0.004; I^2 = 35%, and OR = 6.77; 95% CI: 2.10-21.80; p = 0.001; I^2 = 36%, respectively). Similarly, individuals receiving the combination therapy reported significantly fewer episodes of severe systemic AEs than AIT alone (OR = 0.32; 95% CI: 0.18-0.59; p = 0.0003; I^2 = 0%). Meanwhile, the improvements in symptom severity score (mean difference [MD] = -0.26), rescue medication daily means score (MD = -0.14), and number of patients consuming epinephrine in AIT (OR = 0.20) were all more evident than those in AIT alone.

Conclusion: Omalizumab + AIT can significantly enhance the efficacy and safety of AIT by increasing TMD and SU to allergens, while decreasing severe systemic AEs.

Keywords: Allergen immunotherapy; allergic rhinitis; anti-IgE; asthma; food allergy; omalizumab.

- 73 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

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5

Curr Pediatr Rev

. 2023 Sep 12.

doi: 10.2174/1573396320666230912103108. Online ahead of print.

Treatment of allergic rhinitis in clinical practice

Maria Angela Tosca[1], Chiara Trincianti[1], Matteo Naso[1], Valentina Nosratian[1], Giorgio Ciprandi[2]

Affiliations expand

- PMID: 37702169

- DOI: 10.2174/1573396320666230912103108

Abstract

Allergic rhinitis is a prevalent condition among children, with its occurrence reaching up to 40% of the general population in some geographical areas. A type 2 immunity sustains allergic rhinitis. Consequently, type 2 inflammation leads to eosinophilic infiltrate of the nasal mucosa. Allergic inflammation causes the symptom occurrence. Typical nasal symptoms include nasal itching, sneezing, watery rhinorrhea, and nasal congestion. Nasal congestion depends on vasodilation and increased mucus production. These conditions result in nasal obstruction. Nasal obstruction is closely associated with type 2 inflammation. Allergic rhinitis usually occurs in association with other allergic conditions, in particular allergic conjunctivitis and asthma. The effective management of allergic rhinitis involves avoiding triggering allergens and employing pharmacological treatments as per ARIA guidelines. These treatments may include intranasal/oral antihistamines or/and nasal corticosteroids. In particular, antihistamines are particularly indicated for symptoms consequent to mediators' release, mainly concerning histamine. These histamine-dependent symptoms include itching, sneezing, and rhinorrhea. Nasal obstruction, being associated with inflammation, is responsive to corticosteroids, administered mostly intranasally. The fixed combination of a topical antihistamine plus a topical corticosteroid is very effective, but is indicated for adolescents only. However, nasal lavage is safe, cheap, and adequate, thus its use is prevalent. Namely, nasal lavage allows to remove secretions, allergens, mediators. In addition, hypertonic solutions exert a decongestant activity. On the other hand, the allergen-specific immunotherapy is still the only causal treatment. Nutraceuticals have also been used to relieve symptoms. The objective of this review is to

explore and compare the traditional and new therapeutic approaches for pollen-induced allergic rhinitis in children.

Keywords: allergen-specific immunotherapy; allergy; antihistamines; children; infections; intranasal corticosteroids; nasal lavage; nutraceuticals; rhinitis.

Chronic cough

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Thorac Cancer

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. 2023 Sep 17.

doi: 10.1111/1759-7714.15110. Online ahead of print.

Altered functional connectivity of the nucleus tractus solitarii in patients with chronic cough after lung surgery: an rs-fMRI study

Ming-Sheng Wu[1,2], Zheng-Wei Chen[2], Xiao Chen[1,2], Gao-Xiang Wang[2], Chun-Sheng Xu[3], Yong-Fu Zhu[4], Ming-Ran Xie[1,2]

Affiliations expand

- PMID: 37718475

- DOI: 10.1111/1759-7714.15110

Abstract

Background: To explore the altered functional connectivity (FC) of the nucleus tractus solitarii (NTS) in patients with chronic cough after lung surgery using resting-state functional magnetic resonance imaging (rs-fMRI), and the association between abnormal FC and clinical scale scores.

Methods: A total of 22 patients with chronic cough after lung surgery and 22 healthy controls were included. Visual analog scale (VAS), Mandarin Chinese version of the Leicester Cough Questionnaire (LCQ-MC), and Hamilton anxiety rating scale (HAMA) scores were assessed, and rs-fMRI data were collected. The FC analysis was performed using the NTS as the seed point, and FC values with all voxels in the whole brain were calculated. A two-sample t-test was used to compare FC differences between the two groups. The FC values of brain regions with differences were extracted and correlated with clinical scale scores.

Results: In comparison to healthy controls, FC values in the NTS and anterior cingulate cortex(ACC) were reduced in patients with chronic cough after lung surgery (GRF correction, p-voxel < 0.005, p-cluster < 0.05) which were positively correlated with LCQ-MC scores ($r = 0.534$, $p = 0.011$), but with VAS ($r = -0.500$, $p = 0.018$), HAMA ($r = -0.713$, $p < 0.001$) scores were negatively correlated.

Conclusions: Reduced FC of the NTS with ACC may be associated with cough hypersensitivity and may contribute to anxiety in patients with chronic cough after lung surgery.

Keywords: anxiety; cough; functional connectivity; nucleus tractus solitarii; resting-state functional magnetic resonance imaging.

- 28 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

Review

Rev Mal Respir

. 2023 Sep 13;S0761-8425(23)00206-1.

doi: 10.1016/j.rmr.2023.07.004. Online ahead of print.

[Interventionnal bronchoscopy for the treatment of tracheobronchomalacia]

[Article in French]

A M Santos Portela[1], D M Radu[1], I Onorati[1], M Peretti[1], O Freynet[2], Y Uzunhan[2], S Jerbi[3], E Martinod[4]

Affiliations expand

- PMID: 37714754

- DOI: 10.1016/j.rmr.2023.07.004

Abstract

Tracheobronchomalacia is usually characterized by more than 50% expiratory narrowing in diameter of the trachea and the bronchi. The expiratory collapse includes two entities: (1) the TBM related to the weakness of the cartilaginous rings, and (2) the Excessive Dynamic Airway Collapse (EDAC) due to the excessive bulging of the posterior membrane. Patients have nonspecific respiratory symptoms like dyspnea and cough. Diagnosis is confirmed by dynamic tests: flexible bronchoscopy and/or computed tomographic scan of the chest. There are different forms of tracheobronchomalacia in adults: primary (genetic, idiopathic) or secondary to trauma, tracheotomy, intubation, surgery, transplantation, emphysema, infection, inflammation, chronic bronchitis, extrinsic compression; or undiagnosed in childhood vascular rings. Some management algorithms have been proposed, but no specific recommendation was established. Only symptomatic patients should be treated.

Medical treatments and noninvasive positive pressure ventilation should be the first line therapy, after evaluation of various quality measures (functional status, performance status, dyspnea and quality of life scores). If symptoms persist, therapeutic bronchoscopy permits: (1) patient's selection by stent trial to determine whether patient benefit for surgical airway stabilization; (2) malacic airways stenting in patients who are not surgical candidates, improving QOL despite a high complication rate; (3) the management of stent-related complication (obstruction, plugging, migration granuloma); (4) alternative therapeutics like thermo-ablative solution. Lasty, the development of new types of stents would reduce the complication rates. These different options remained discussed.

Keywords: Airway stent; Bronchoscopie interventionnelle; Central airway stabilization; Endoprothèses des voies aériennes; Interventional Bronchoscopy; Stabilisation des voies aériennes; Tracheobronchomalacia; Tracheobronchomalacie.

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Clin Exp Pediatr

. 2023 Sep 14.

doi: 10.3345/cep.2023.00416. Online ahead of print.

Increased serum eosinophilic cationic protein in children with nonspecific chronic cough

Young Hwan Kim [1], Yoon Young Jang [1], Jieun Jeong [1], Hai Lee Chung [1]

Affiliations expand

- PMID: 37705334

- DOI: 10.3345/cep.2023.00416

Free article

No abstract available

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Review

Soc Work

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. 2023 Sep 14;68(4):341-348.

doi: 10.1093/sw/swad029.

Misophonia: A Review of the Literature and Its Implications for the Social Work Profession

Daniel Holohan [1], Kenneth Marfilius [2], Carrie J Smith [3]

Affiliations expand

- PMID: 37463856

- DOI: 10.1093/sw/swad029

Abstract

Misophonia is a chronic condition that describes aversion to specific auditory stimuli. Misophonia is characterized by physiological responsivity and negative emotional reactivity. Specific sounds, commonly referred to as "triggers," are often commonplace and sometimes repetitive. They include chewing, coughing, slurping, keyboard tapping, and pen clicking. Common emotional responses include rage, disgust, anxiety, and panic while physical responses include muscle constriction and increased heart rate. This literature review identifies research priorities, limitations, and new directions, examining the implications of misophonia for the social work profession. Misophonia is largely absent from the social work literature. However, the profession is uniquely equipped to understand, screen for, and effectively treat misophonia in direct practice or within interprofessional treatment teams. By conceptualizing misophonia as idiosyncratic and contextual, social workers would enhance the existing body of research by applying an ecological perspective which captures the interaction of individuals and environments in producing human experience. Such an approach would assist clients and clinicians in developing treatment plans that consider the roles of social and physical environments in the development and course of misophonia. A discussion of current limitations within the misophonia literature further emphasizes the need for new perspectives.

Keywords: misophonia; social work.

Br Med Bull

. 2023 Sep 12;147(1):6-19.

doi: 10.1093/bmb/ldad016.

Long COVID: what is known and what gaps need to be addressed

Benjamin Krishna[1,2], Mark Wills[1,2], Nyaradzai Sithole[1,2,3]

Affiliations expand

- PMID: 37434326

- PMCID: PMC10502447

- DOI: 10.1093/bmb/ldad016

Free PMC article

Abstract

Introduction: Long COVID is a chronic condition that follows after acute COVID-19 and is characterized by a wide range of persistent, cyclic symptoms.

Sources of data: PubMed search for publications featuring 'Long COVID' or 'post-acute sequelae of COVID-19'.

Areas of agreement: Long COVID occurs frequently post-acute COVID-19, with a majority of people experiencing at least one symptom (such as cough, fatigue, myalgia, anosmia and dyspnoea) 4 weeks after infection.

Areas of controversy: The specific symptoms and the minimum duration of symptoms required to be defined as Long COVID.

Growing points: There is a consistent reduction in Long COVID incidence amongst vaccinated individuals, although the extent of this effect remains unclear.

Areas timely for developing research: There is an urgent need to understand the causes of Long COVID, especially extreme fatigue more than 6 months after infection. We must understand who is at risk and whether reinfections similarly risk Long COVID.

Keywords: Long COVID; PASC; causes; symptoms; treatments.

Conflict of interest statement

The authors have no potential conflicts of interest.

- 123 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

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

1
Thorac Cancer

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. 2023 Sep 13.

doi: 10.1111/1759-7714.15113. Online ahead of print.

Bronchoscopy for management and identification of etiology of right middle lobe syndrome: Analysis of 66 cases

Lev Freidkin[1,2], Moshe Hecking[1,2], Dror Rosengarten[1,2], Barak Pertzov[1,2], Evgeni Gershman[1,2], Shimon Izhakian[1,2], Shai M Amor[1,2], Mordechai Reuven Kramer[1,2]

Affiliations expand

- PMID: 37704575

- DOI: 10.1111/1759-7714.15113

Free article

Abstract

Background: Right middle lobe (RML) syndrome is a recurrent or chronic obstruction of the RML causing atelectasis of the right middle lobe due to mechanical and nonmechanical etiologies. The consequences of untreated RML syndrome range from chronic cough to post-obstructive pneumonia and bronchiectasis. We report here our bronchoscopy experience in patients with RML syndrome.

Methods: We conducted a retrospective study of adult patients who underwent bronchoscopy for RML syndrome at Rabin Medical Center from 2008 through 2022. Demographic data and medical history, bronchoscopy findings and procedures, and follow-up results were collected.

Results: A total of 66 patients (57.6% male, mean age 63 ± 13 years) underwent bronchoscopy for RML syndrome during the study period. Bronchoscopy revealed a mechanical etiology in 49 (74.2%) cases, including endobronchial mass (21, 31.8%) and external compression (7, 10.6%). Malignancy was identified in 20 (30.3%) cases. In 62 patients (93.9%), the bronchoscopy resulted in partial or complete reopening of the RML bronchus. The therapeutic bronchoscopic procedures were balloon dilatation (19), laser ablation (17), mechanical debridement (12), endobronchial stent insertion (11), and cryoablation (6).

Conclusions: Malignancy was identified as the etiology of RML syndrome in approximately 25% of cases, suggesting bronchoscopy should be performed in every case of RML atelectasis. To our knowledge, this is the first reported series of endobronchial stenting of the RML bronchus in the context of RML syndrome.

Keywords: bronchoscopy; endobronchial stents; right middle lobe syndrome.

- 10 references

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Am J Respir Crit Care Med

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. 2023 Sep 13.

doi: 10.1164/rccm.202308-1317OC. Online ahead of print.

Improvement in Lung Clearance Index and Chest CT Scores with Elexacaftor/Tezacaftor/Ivacaftor Treatment in People with Cystic Fibrosis Aged 12 Years and Older – The RECOVER Study

Paul McNally[1,2], Karen Lester[3,4], Gavin Stone[1,4], Basil Elnazir[4], Michael Williamson[4], Des Cox[5,4], Barry Linnane[6,7], Laura Kirwan[8], David Rea[9], Paul O'Regan[8], Tom Semple[10,11], Clare Saunders[11], Harm A W M Tiddens[12,13], Edward McKone[14,15], Jane C Davies[16,17]

Affiliations expand

- PMID: 37703083

- DOI: 10.1164/rccm.202308-1317OC

Abstract

Rationale: Clinical trials have shown that use of Elexacaftor/Tezacaftor/Ivacaftor (ETI) is associated with improvements in sweat chloride, pulmonary function, nutrition and quality of life in people with CF. Little is known about the impact of ETI on ventilation inhomogeneity and lung structure.

Objectives: RECOVER is a real-world study, designed to measure the impact of ETI in people with CF. The primary endpoints were lung clearance ($LCI_{2.5}$) and FEV1. Secondary endpoints included spirometry-controlled chest CT scores.

Methods: The study was conducted in seven sites in Ireland and the UK. Participants 12 years and older homozygous for the F508del mutation (F508del/F508del)) or heterozygous for F508del and a minimum function mutation (F508del/MF) were recruited prior to starting ETI and followed up over 12 months. $LCI_{2.5}$ was measured using nitrogen multiple breath washout (MBW) at baseline, 6 and 12 months. Spirometry was performed as per ERS/ATS criteria. Spirometry controlled Chest CT scans were performed at baseline and 12 months. CT scans were scored using the Perth Rotterdam Annotated Grid Morphometric Analysis (PRAGMA) system. Other outcome measures include weight, height, Cystic Fibrosis Quality of Life, Revised (CFQ-R) questionnaire and sweat chloride.

Measurements and main results: 117 people with CF aged 12 and above were recruited to the study. Significant improvements were seen in LCI (-2.5, 95%CI -3.0, -2.0) and ppFEV1 (8.9, 95%CI 7.0 - 10.9), ppFVC (6.6, 95%CI 4.9 - 8.3) and ppFEF25-75% (12.4, 95%CI 7.8 - 17.0). Overall PRAGMA-CF scores reflecting airways disease (-3.46 , 95%CI -5.23 , -1.69). Scores for trapped air, mucus plugging and bronchial wall thickening improved significantly, but bronchiectasis scores did not. Sweat chloride levels decreased in both F508del/F508del (-43.1, 95%CI -47.4, -38.9) and F508del/MF (-42.8, 95%CI -48.5, -37.2) groups. CFQ-R Respiratory Domain (RD) scores improved by 14.2 points (95%CI 11.3, 17.2). At one year, sweat chloride levels were significantly lower in the F508del/F508del group compared to the F508del/MF group (33.93 v. 53.36, $p<0.001$).

Conclusions: ETI is associated with substantial improvements in LCI2.5, spirometry and PRAGMA-CF CT scores in people with CF aged 12 years and older. ETI led to improved nutrition and quality of life. People in the F508del/F508del group have significantly lower sweat chloride on ETI treatment compared to the F508del/MF group. Clinical trial registration available at www.

Clinicaltrials: gov, ID: NCT04602468.

Keywords: Computerised Tomography; Elexacaftor/Tezacaftor/Ivacaftor; cystic fibrosis; lung clearance index; sweat chloride.

SUPPLEMENTARY INFO

Associated dataexpand

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Monaldi Arch Chest Dis

. 2023 Sep 12.

doi: 10.4081/monaldi.2023.2718. Online ahead of print.

Non-cystic fibrosis bronchiectasis: a retrospective review of clinical, radiological, microbiological and lung function profile at a tertiary care center of low-middle income country

Shayan Shahid[1], Ali Bin Abdul Jabbar[2], Abdullah Wagley[3], Muhammad Daniyal Musharraf[4], Haris Zahid[5], Syed Muhammad Zubair[6], Muhammad Irfan[7]

Affiliations expand

- PMID: 37700688

- DOI: 10.4081/monaldi.2023.2718

Free article

Abstract

Non-cystic fibrosis (non-CF) bronchiectasis has emerged as a significant respiratory disease in developing countries. Given the variation in causes and clinical characteristics across different regions, it is necessary to conduct studies in regions with limited data such as low-middle income countries (LMIC). The aim of the study was to investigate the underlying causes, clinical presentation, etiology, lung function and imaging in patients with bronchiectasis who sought treatment at a tertiary care hospital in a LMIC. We conducted retrospective observational study at the Aga Khan University, Pakistan. Adult patients diagnosed with non-CF bronchiectasis on high-resolution computed tomography scan between 2000 and 2020 were included. We evaluated the etiology, clinical characteristics, microbiology, radiology and spirometric pattern of these patients. A total of 340 patients were included with 56.5% being female and 44.7% aged over 60 years. Among them, 157 (46.2%) had experienced symptoms for 1-5 years. The most common spirometric pattern observed was obstructive impairment (58.1%). Previous tuberculosis (TB) (52.94%) was the most common etiology followed by allergic bronchopulmonary aspergillosis (7.64%). Bilateral lung involvement on HRCT scan was found in 63.2% of patients. Pseudomonas aeruginosa was the most frequently identified organism (38.75%) among 240 patients with available specimens. Patients with P. aeruginosa infections had a significantly higher number of exacerbations ($p=0.016$). There was a significant difference ($p<0.001$) in P. aeruginosa growth among different etiologies. In conclusion, post-TB bronchiectasis was the most common cause of non-CF bronchiectasis in our study population. P. aeruginosa was the predominant organism, and 63.2% of the patients exhibited bilateral lung involvement. Since P. aeruginosa growth and extensive lung involvement have been associated with poor prognosis and increased mortality risk, we recommend close follow ups of these patients to improve quality of life and survival in developing countries like Pakistan.