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17-28 May 2022

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ALLEGO IL PDF DEL RECENTE LAVORO "SMALL AIRWAYS: THE "SILENT ZONE" OF 2021 GINA REPORT" CORTESEMENTE TRASMESSOMI DA MARCELLO COTTINI A NOME DI TUTTI GLI AUTORI

COPD

Int J Chron Obstruct Pulmon Dis

. 2022 May 20;17:1195-1204.

doi: 10.2147/COPD.S337683. eCollection 2022.

Associations Between Physical Activity, Smoking Status, and Airflow Obstruction and Self-Reported COPD: A Population-Based Study

Yao-Kuang Wu[1,2], Wen-Lin Su[1,2], Mei-Chen Yang[1,2], Sin-Yi Chen[1], Chih-Wei Wu[1], Chou-Chin Lan[1,2]

Affiliations expand

- PMID: 35620350

- PMCID: PMC9128642

- DOI: 10.2147/COPD.S337683

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a preventable and treatable disease with an increased mortality rate in recent years, mainly caused by exposure to tobacco smoke. Regular physical activity is thought to diminish the risk of COPD exacerbation, while very few studies investigate the interaction between smoking and physical activity on COPD development. This study aims to investigate the association between smoking status, physical activity and prevalent COPD.

Methods: This study analyzed data of adults 20 to 79 years old from the National Health and Nutrition Examination Survey (NHANES) 2007-2012.

Results: A total of 6404 participants aged 20-79 were included and divided into four groups by their physical activity levels and smoking status. Amongst, 2819 (43.7%) were physically active non-smokers, 957 (14.8%) were physically inactive non-smokers, 1952 (30.3%) were physically active smokers, and 717 (11.1%) were physically inactive smokers. Prevalence of airflow obstruction were 5.7%, 7.1%, 17.7% and 18.6%, respectively. After adjustment, physically active smokers (aOR=2.71, 95% CI=1.94-3.80) and physically inactive smokers (aOR=2.70, 95% CI=1.78-4.09) but not physically active non-smokers were more likely to have airflow obstruction than physically active non-smokers. These associations were similar among most subgroups by age, sex, or BMI. Among smokers, being physically inactive was not significantly associated with a greater chance for prevalent airflow obstruction than being physically active.

Conclusion: Smokers, regardless of their physical activity level, are more likely to have airflow obstruction as compared with physically active non-smokers. Within smokers, being physically inactive poses no excess chance to be airflow obstructed. The findings indicate that physical activity level seem not altering the relationship between smoking and airflow obstruction.

Keywords: airflow obstruction; chronic obstructive pulmonary disease; physical activity; smoking.

Conflict of interest statement

The authors report no conflicts of interest in this work.

- 26 references
- 1 figure

SUPPLEMENTARY INFO

Grant supportexpand

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BMC Med Res Methodol

. 2022 May 25;22(1):150.

doi: 10.1186/s12874-022-01616-7.

Relationship between risk, cumulative burden of exacerbations and mortality in patients with COPD: modelling analysis using data from the ETHOS study

Kirsty Rhodes[1], Martin Jenkins[2], Enrico de Nigris[3], Magnus Aurivillius[4], Mario Ouwens[5]

Affiliations expand

- PMID: 35614467

- PMCID: PMC9134588

- DOI: 10.1186/s12874-022-01616-7

Abstract

Background: The major drivers of cost-effectiveness for chronic obstructive pulmonary disease (COPD) therapies are the occurrence of exacerbations and deaths. Exacerbations, including acute and long-term events, can cause worsening of COPD and lead to an increased risk of further exacerbations, and ultimately may elevate the risk of death. In contrast to this, health economic models are based on COPD severity progression. In this post hoc analysis of the ETHOS study, we focus on the progression of COPD due to exacerbations and deaths.

Methods: We fitted semi-parametric and fully parametric multi-state Markov models with the following five progressive states: State 1, no exacerbation; State 2, 1 moderate exacerbation; State 3, ≥ 2 moderate exacerbations; State 4, ≥ 1 severe exacerbations; State 5, death. The models only allowed a patient to transition to a worsened health state, and transitions did not necessarily have to be to the next adjacent state. We used the multi-state models to analyse data from ETHOS, a phase III, 52-week study assessing the efficacy and safety of triple therapy with budesonide/glycopyrronium/formoterol fumarate dihydrate in moderate-to-very severe COPD.

Results: The Weibull multi-state Markov model showed good fit of the data. In line with clinical evidence, we found a higher mortality risk after a severe exacerbation (11.4-fold relative ratio increase [95% CI, 7.7-17.0], 6.4-fold increase [95% CI, 3.8-10.8] and 5.4-fold increase [95% CI, 2.9-10.3] relative to no exacerbations, 1 moderate exacerbation or ≥ 2 moderate exacerbations, respectively). One moderate exacerbation increased mortality risk 1.8-fold (95% CI, 1.1-2.9) vs no exacerbations. We also found a higher risk of severe exacerbation and mortality following ≥ 2 moderate exacerbations.

Conclusion: Multi-state modelling of patients with COPD in ETHOS found an acute and chronic effect of severe exacerbations on mortality risk. Risk was also increased after a moderate exacerbation. Clinical management with effective pharmacotherapies should be optimised to avoid even moderate exacerbations. Modelling with exacerbations could be an alternative to current COPD models focused on disease progression.

Trial registration: NCT02465567.

Keywords: Chronic obstructive pulmonary disease; Cost of illness; Disease progression; Incidence.

Conflict of interest statement

KR, MJ, MA and MO are all employees and shareholders of AstraZeneca. EdN was an employee of AstraZeneca at the time of the analysis.

- 41 references
- 3 figures

SUPPLEMENTARY INFO

MeSH terms, Substances, Associated dataexpand

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Review

Eur Respir Rev

. 2022 May 25;31(164):210259.

doi: 10.1183/16000617.0259-2021. Print 2022 Jun 30.

Antibiotic resistance in chronic respiratory diseases: from susceptibility testing to the resistome

Hélène Pailhoriès[1,2], Jean-Louis Herrmann[3,4], Lourdes Velo-Suarez[5], Claudie Lamoureux[6,7], Clémence Beauruelle[6,7], Pierre-Régis Burgel[8], Geneviève Héry-Arnaud[9,6,7]

Affiliations expand

- PMID: 35613743

- DOI: 10.1183/16000617.0259-2021

Abstract

The development of resistome analysis, *i.e.* the comprehensive analysis of antibiotic-resistance genes (ARGs), is enabling a better understanding of the mechanisms of antibiotic-resistance emergence. The respiratory microbiome is a dynamic and interactive network of bacteria, with a set of ARGs that could influence the response to antibiotics. Viruses such as bacteriophages, potential carriers of ARGs, may also form part of this respiratory resistome. Chronic respiratory diseases (CRDs) such as cystic fibrosis, severe asthma, chronic obstructive pulmonary disease and bronchiectasis, managed with long-term antibiotic therapies, lead to multidrug resistance. Antibiotic susceptibility testing provides a partial view of the bacterial response to antibiotics in the complex lung environment. Assessing the ARG network would allow personalised, targeted therapeutic strategies and suitable antibiotic stewardship in CRDs, depending on individual resistome and microbiome signatures. This review summarises the influence of pulmonary antibiotic protocols on the respiratory microbiome, detailing the variable consequences according to antibiotic class and duration of treatment. The different resistome-profiling methods are explained to clarify their respective place in antibiotic-resistance analysis in the lungs. Finally, this review details current knowledge on the respiratory resistome related to therapeutic strategies and provides insight into the application of resistome analysis to counter the emergence of multidrug-resistant respiratory pathogens.

Conflict of interest statement

Conflict of interest: P-R. Burgel reports grants or contracts from GSK, Boehringer Ingelheim and Vertex; consulting fees from AstraZeneca, Chiesi, GSK and Insmed; and payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim, Chiesi, GSK, Insmed, Novartis, Pfizer, Vertex and Zambon, all outside the submitted work. The remaining authors have nothing to disclose.

Clin Sci (Lond)

. 2022 May 27;136(10):733-746.

doi: 10.1042/CS20210900.

Autophagy in asthma and chronic obstructive pulmonary disease

Peter J Barnes[1], Jonathan Baker[1], Louise E Donnelly[1]

Affiliations expand

- PMID: 35608088

- DOI: 10.1042/CS20210900

Abstract

Autophagy (or macroautophagy) is a key cellular process that removes damaged molecules (particularly proteins) and subcellular organelles to maintain cellular homeostasis. There is growing evidence that abnormalities in autophagy may contribute to the pathogenesis of many chronic diseases, including asthma and chronic obstructive pulmonary disease (COPD). In asthma, increased autophagy plays a role in promoting type 2 immune responses and eosinophilic inflammation, whereas decreased autophagy may be important in neutrophilic asthma. Acute exposure to cigarette smoke may activate autophagy, resulting in ciliary dysfunction and death of airway epithelial cells, whereas in stable COPD most studies have demonstrated an impairment in autophagy, with reduced autophagic flux and accumulation of abnormal mitochondria (defective mitophagy) and linked to cellular senescence. Autophagy may be increased or decreased in different cell types and depending on the cellular environment, making it difficult to target autophagy therapeutically. Several existing drugs may activate autophagy, including rapamycin, metformin, carbamazepine, cardiac glycosides and statins, whereas others, such as chloroquine, inhibit this process. However, these drugs are nonspecific and more selective

drugs are now in development, which may prove useful as novel agents to treat asthma and COPD in the future.

Keywords: aggresomes; inflammation; lysosome; macroautophagy; mitophagy; xenophagy.

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

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J Asthma

. 2022 May 24;1-12.

doi: 10.1080/02770903.2022.2082307. Online ahead of print.

Nebulizer versus metered dose inhaler with space chamber (MDI spacer) for acute asthma and chronic obstructive pulmonary disease (COPD) exacerbation: attitudes of patients and healthcare providers in the COVID-19 era

Rayan Alsuwaigh[1], Yan Cao[2], Youxin Puan[1], Anthony Yii[1], Soyah Binti Mohamed Noor[2], Hui Ye[2], Haijuan Chen[2], Xiao Ling Li[2], Norlidah Binte Mohd Noor[2], Jason Liew[1], Tunn Ren Tay[1]

Affiliations expand

- PMID: 35608065

- DOI: 10.1080/02770903.2022.2082307

Abstract

ObjectiveShort-acting bronchodilators for asthma and chronic obstructive pulmonary disease (COPD) exacerbations are commonly delivered by nebulizers although administration using metered dose inhaler with space chamber (MDI spacer) has been shown to be equally efficacious. There are few studies examining patients' and healthcare providers' attitudes on the 2 administration methods in adults. This study explores patients' and healthcare providers' attitudes on the use of nebulizer versus MDI spacer for acute asthma and COPD exacerbations in adults.**Methods**Patients admitted for asthma or COPD exacerbations, doctors and nurses in a university-affiliated hospital were surveyed from 1 April 2021 to 30 Sept 2021 regarding their views on the effectiveness, ease of use, preparation and administration, side effects, and infection risk of the 2 administration methods.**Results**Ninety-nine patients, 103 doctors and 650 nurses completed the survey. 60.6% of patients perceived nebulizer to be more effective. Patients who found nebulizer more comfortable were more likely to prefer nebulizer (OR 43.97, p = 0.01), while those who associated it with a greater infection risk were less likely to prefer nebulizer (OR 0.15, p = 0.03). 49.5% of doctors and 49.1% of nurses perceived nebulizer to be more effective, compared to 10.7% and 34.5%, respectively, for MDI spacer. Effectiveness and patient comfort influenced doctors' and nurses' preference for nebulizer while ease of preparation and administration influenced nurses' preference only.**Conclusions**Patients and healthcare providers perceived nebulizer to be more effective. Factors unique to each group influenced their preference for nebulizer.

Keywords: Bronchodilator; administration; attitude; infection risk; preference.

Eur Respir J

. 2022 May 20;2102897.

doi: 10.1183/13993003.02897-2021. Online ahead of print.

Severe pulmonary hypertension associated with chronic obstructive pulmonary disease Long-term results of a prospective French multicenter cohort

Gaëlle Dauriat[1], Martine Reynaud-Gaubert[2], Vincent Cottin[3], Bouchra Lamia[4], David Montani[5 6], Drifa Belhadi[7], Marc Humbert[5 6], Cedric Laouenan[7], Hervé Mal[8], French group of investigators on severe PH-COPD

Affiliations expand

- PMID: 35595319

- DOI: 10.1183/13993003.02897-2021

No abstract available

Ann Intensive Care

. 2022 May 19;12(1):41.

doi: 10.1186/s13613-022-01018-4.

Physiological effects of high-intensity versus low-intensity noninvasive positive pressure ventilation in patients with acute exacerbation of chronic obstructive pulmonary disease: a randomised controlled trial

Zujin Luo[1,2], Zhixin Cao[2], Yichong Li[3], Jiawei Jin[2], Wei Sun[2], Jian Zhu[2], Na Zhao[2], Jichen Liu[2], Bing Wei[4], Yue Hu[4], Ying Zhang[4], Yingmin Ma[5], Chen Wang[6,7,8,9]

Affiliations expand

- PMID: 35587843

- PMCID: PMC9120318

- DOI: 10.1186/s13613-022-01018-4

Free PMC article

Abstract

Background: High-intensity noninvasive positive pressure ventilation (NPPV) is a novel ventilatory approach to maximally decreasing elevated arterial carbon dioxide tension ($PaCO_2$) toward normocapnia with stepwise up-titration of pressure support. We tested whether high-intensity NPPV is more effective than low-intensity NPPV at decreasing

$PaCO_2$, reducing inspiratory effort, alleviating dyspnoea, improving consciousness, and improving NPPV tolerance in patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD).

Methods: In this physiological, randomised controlled trial, we assigned 24 AECOPD patients to undergo either high-intensity NPPV (n = 12) or low-intensity NPPV (n = 12). The primary outcome was $PaCO_2$ 24 h after randomisation. Secondary outcomes included gas exchange other than $PaCO_2$ 24 h after randomisation, inspiratory effort, dyspnoea, consciousness, NPPV tolerance, patient-ventilator asynchrony, cardiac function, ventilator-induced lung injury (VILI), and NPPV-related adverse events.

Results: Inspiratory positive airway pressure 24 h after randomisation was significantly higher (28.0 [26.0-28.0] vs. 15.5 [15.0-17.5] cmH_2O; p = 0.000) and NPPV duration within the first 24 h was significantly longer (21.8 ± 2.1 vs. 15.3 ± 4.7 h; p = 0.001) in the high-intensity NPPV group. $PaCO_2$ 24 h after randomisation decreased to 54.0 ± 11.6 mmHg in the high-intensity NPPV group but only decreased to 67.4 ± 10.6 mmHg in the low-intensity NPPV group (p = 0.008). Inspiratory oesophageal pressure swing, oesophageal pressure-time product (PTPes)/breath, PTPes/min, and PTPes/L were significantly lower in the high-intensity group. Accessory muscle use and dyspnoea score 24 h after randomisation were also significantly lower in that group. No significant between-groups differences were observed in consciousness, NPPV tolerance, patient-ventilator asynchrony, cardiac function, VILI, or NPPV-related adverse events.

Conclusions: High-intensity NPPV is more effective than low-intensity NPPV at decreasing elevated $PaCO_2$, reducing inspiratory effort, and alleviating dyspnoea in AECOPD patients.

Trial registration: ClinicalTrials.gov (NCT04044625; registered 5 August 2019).

Keywords: Chronic obstructive pulmonary disease; Exacerbation; High intensity; Hypercapnia; Low intensity; Noninvasive positive pressure ventilation; Normocapnia; Physiological effects.

Conflict of interest statement

The authors declare that they have no competing interests.

- 30 references
- 6 figures

SUPPLEMENTARY INFO

Associated data, Grant supportexpand

Radiology

. 2022 May 17;213054.

doi: 10.1148/radiol.213054. Online ahead of print.

Emphysema Progression at CT by Deep Learning Predicts Functional Impairment and Mortality: Results from the COPDGene Study

Andrea S Oh[1], David Baraghoshi[1], David A Lynch[1], Samuel Y Ash[1], James D Crapo[1], Stephen M Humphries[1], COPDGene Investigators[1]

Affiliations expand

- PMID: 35579519

- DOI: 10.1148/radiol.213054

Abstract

Background Visual assessment remains the standard for evaluating emphysema at CT; however, it is time consuming, is subjective, requires training, and is affected by variability that may limit sensitivity to longitudinal change. Purpose To evaluate the clinical and imaging significance of increasing emphysema severity as graded by a deep learning

algorithm on sequential CT scans in cigarette smokers. Materials and Methods A secondary analysis of the prospective Genetic Epidemiology of Chronic Obstructive Pulmonary Disease (COPDGene) study participants was performed and included baseline and 5-year follow-up CT scans from 2007 to 2017. Emphysema was classified automatically according to the Fleischner emphysema grading system at baseline and 5-year follow-up using a deep learning model. Baseline and change in clinical and imaging parameters at 5-year follow-up were compared in participants whose emphysema progressed versus those who did not. Kaplan-Meier analysis and multivariable Cox regression were used to assess the relationship between emphysema score progression and mortality. Results A total of 5056 participants (mean age, 60 years ± 9 [SD]; 2566 men) were evaluated. At 5-year follow-up, 1293 of the 5056 participants (26%) had emphysema progression according to the Fleischner grading system. This group demonstrated progressive airflow obstruction (forced expiratory volume in 1 second [percent predicted]: -3.4 vs -1.8), a greater decline in 6-minute walk distance (-177 m vs -124 m), and greater progression in quantitative emphysema extent (adjusted lung density: -1.4 g/L vs 0.5 g/L; percentage of lung voxels with CT attenuation less than -950 HU: 0.6 vs 0.2) than those with nonprogressive emphysema (P < .001 for each). Multivariable Cox regression analysis showed a higher mortality rate in the group with emphysema progression, with an estimated hazard ratio of 1.5 (95% CI: 1.2, 1.8; P < .001). Conclusion An increase in Fleischner emphysema grade on sequential CT scans using an automated deep learning algorithm was associated with increased functional impairment and increased risk of mortality. ClinicalTrials.gov registration no. NCT00608764 © RSNA, 2022 *Online supplemental material is available for this article.* See also the editorial by Grenier in this issue.

Comment in

- Deep Learning Assessment of Emphysema Progression at CT Predicts Outcomes. Grenier PA.Radiology. 2022 May 17:220627. doi: 10.1148/radiol.220627. Online ahead of print.PMID: 35579529 No abstract available.

SUPPLEMENTARY INFO

Associated dataexpand

FULL TEXT LINKS

Radiology FULL TEXT

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Expert Opin Pharmacother

. 2022 May 22;1-11.

doi: 10.1080/14656566.2022.2076592. Online ahead of print.

Advances in inhaled corticosteroids for the treatment of chronic obstructive pulmonary disease: what is their value today?

Mario Cazzola[1], Josuel Ora[2], Luigino Calzetta[3], Paola Rogliani[1,2], Maria Gabriella Matera[4]

Affiliations expand

- PMID: 35575510

- DOI: 10.1080/14656566.2022.2076592

Abstract

Introduction: As of today, there is still a need to determine which COPD patients may benefit from ICS therapy, whether ICSs are useful in COPD patients without chronic bronchitis, and whether long-acting bronchodilators can reduce the risk of exacerbations in frequent exacerbators even if ICSs are not used, and whether combination therapy including ICSs is helpful in infrequent exacerbators to optimize the use of ICSs in COPD.

Areas covered: Herein, the authors provide an overview of use of ICS in COPD, discuss their value to the current treatment armamentarium and focus on emerged aspects on which there is no consensus.

Expert opinion: There is growing agreement on why, in whom, and when ICS therapy can be used in COPD, although the consensus is still lacking because of the heterogeneity of COPD. The use of BECs is only helpful in T2 inflammation, while there is a lack of biomarkers indicating the presence of T1 and T17 immunity, which is poorly responsive to ICS. Identifying ICS-sensitive endotypes using specific biomarkers that have yet to be identified and validated is likely to demonstrate that ICSs can influence the natural course of COPD in at least a subset of patients.

Keywords: COPD; blood eosinophil count; exacerbation; inhaled corticosteroids; mortality; phenotype; pneumonia.

Eur Respir J

. 2022 May 19;59(5):2102899.

doi: 10.1183/13993003.02899-2021. Print 2022 May.

Mortality after admission with pneumonia is higher than after admission with an exacerbation of COPD

Jørgen Vestbo[1], Grant Waterer[2], David Leather[3], Courtney Crim[4], Nawar Diar Bakerly[5], Lucy Frith[6], Loretta Jacques[6], Catherine Harvey[7], Imran Satia[8,9], Ashley Woodcock[8], Salford Lung Study Investigators

Affiliations expand

- PMID: 35273031

- PMCID: PMC9117732

- DOI: 10.1183/13993003.02899-2021

Abstract

Mortality after an admission for pneumonia is considerably higher than for an admission for an exacerbation in COPD patients recruited from usual clinical practice. A proper diagnosis in acute worsenings of symptoms in COPD is therefore important. https://bit.ly/3LyhnnC

Conflict of interest statement

Conflict of interest: J. Vestbo received personal fees from GlaxoSmithKline plc., Chiesi Pharmaceuticals, Boehringer Ingelheim, Novartis and AstraZeneca, congress attendance from Chiesi and holds a grant from Boehringer Ingelheim. G. Waterer received personal fees from GlaxoSmithKline plc. N. Diar Bakerly received grants and personal fees from GlaxoSmithKline plc., Novartis and Almirall/AstraZeneca, and congress attendance from Boehringer Ingelheim. I. Satia received personal fees from GlaxoSmithKline plc., consulting and speaker fees from AstraZeneca and Merck, grants from Merck, GlaxoSmithKline plc, fellowship from ERS Marie-Curie Award, E.J. Moran Campbell Early Career Award, Department of Medicine, McMaster, outside the submitted work. A. Woodcock received speaker fees and expenses from Boehringer Ingelheim, Chiesi, GlaxoSmithKline and Novartis; is chairman/shareholder of Reacta Healthcare and Axalbion, and Chairman of the Medicines Evaluation Unit. D. Leather, L. Frith, L. Jacques and C. Harvey are employees of GlaxoSmithKline plc. and hold shares in the company. C. Crim was an employee of GlaxoSmithKline plc. at the time of the study.

ASTHMA

Review

J Pers Med

. 2022 May 23;12(5):850.

doi: 10.3390/jpm12050850.

Paucigranulocytic Asthma: Potential Pathogenetic Mechanisms, Clinical Features and Therapeutic Management

Andriana I Papaioannou[1], Evangelia Fouka[2], Polyxeni Ntontsi[1], Grigoris Stratakos[3,4], Spyridon Papiris[1]

Affiliations expand

- PMID: 35629272

- DOI: 10.3390/jpm12050850

Abstract

Asthma is a heterogeneous disease usually characterized by chronic airway inflammation, in which several phenotypes have been described, related to the age of onset, symptoms, inflammatory characteristics and treatment response. The identification of the inflammatory phenotype in asthma is very useful, since it allows for both the recognition of the asthmatic triggering factor as well as the optimization of treatment The paucigranulocytic phenotype of asthma (PGA) is characterized by sputum eosinophil levels <1-3% and sputum neutrophil levels < 60%. The precise characteristics and the pathobiology of PGA are not fully understood, and, in some cases, it seems to represent a previous eosinophilic phenotype with a good response to anti-inflammatory treatment. However, many patients with PGA remain uncontrolled and experience asthmatic symptoms and exacerbations, irrespective of the low grade of airway inflammation. This observation leads to the hypothesis that PGA might also be either a special phenotype driven by different kinds of cells, such as macrophages or mast cells, or a non-inflammatory phenotype with a low grade of eosinophilic inflammation. In this review, we aim to describe the special characteristics of PGA and the potential therapeutic interventions that could be offered to these patients.

Keywords: airway inflammation; asthma; bronchial thermoplasty; eosinophils; neutrophils; paucigranulocytic asthma.

Ann Allergy Asthma Immunol

. 2022 May 24;S1081-1206(22)00487-2.

doi: 10.1016/j.anai.2022.05.019. Online ahead of print.

Effect of immune checkpoint inhibitors on asthma

Evelyn A Wang [1], Elena Goleva [1], Kwami Ketosugbo [2], Jeffrey A Kern [3], Lukas Kraehenbuehl [4], Mario E Lacouture [2], Donald Ym Leung [5]

Affiliations expand

- PMID: 35623586

- DOI: 10.1016/j.anai.2022.05.019

No abstract available

Keywords: asthma; cancer; check point inhibitors; immune related adverse events; pneumonitis.

doi: 10.1183/13993003.00446-2022. Online ahead of print.

Allergen immunotherapy effectively reduces the risk of exacerbations and lower respiratory tract infections in both seasonal and perennial allergic asthma: a nationwide epidemiological study

Christian Woehlk[1], Anna Von Bülow[2], Muzhda Ghanizada[2], Marianne Baastrup Søndergaard[2], Susanne Hansen[2], Celeste Porsbjerg[2]

Affiliations expand

- PMID: 35618279

- DOI: 10.1183/13993003.00446-2022

Abstract

Background: Allergic asthma is associated with increased risk of respiratory tract infections and exacerbations. It remains unclear whether this susceptibility is conditioned by seasonal or by perennial allergy.

Aim: To investigate perennial allergy compared with seasonal allergy as a risk factor for lower respiratory tract infections and exacerbations in asthma and whether this risk can be reduced by allergen immunotherapy (AIT).

Methodology: This is a prospective register-based nationwide study of 18-44-year-olds treated with AIT during1995-2014. Based on the type of AIT and use of anti-asthmatic drugs, patients were subdivided into two groups: perennial allergic asthma (PAA) *versus* seasonal allergic asthma (SAA). Data on antibiotics against lower respiratory tract infections (LRTI) and oral corticosteroids for exacerbations were analyzed before starting AIT (baseline) and three years after completing AIT (follow-up).

Results: We identified 2688 patients with asthma treated with AIT, among whom, 1249 had PAA and 1439 had SAA. At baseline, patients with SAA had more exacerbations, 23.8%, respectively, 16.5% p=<0.001 but there were no differences in LRTI. During the three-year

follow-up, we observed a highly significant reduction of exacerbations with an average decrease of 57% in PAA and 74% in SAA. We also observed a significant reduction of LRTI in both PAA and SAA: 17% and 20% decrease, respectively.

Conclusion: AIT effectively reduced the risk of exacerbations and lower respiratory tract infections in both seasonal- and perennial allergic asthma. Perennial allergy is seemingly not a stronger risk factor for respiratory infections and exacerbations than is seasonal allergy.

J Allergy Clin Immunol Pract

. 2022 May 21;S2213-2198(22)00495-0.

doi: 10.1016/j.jaip.2022.05.009. Online ahead of print.

Inhaled Marijuana and the Lung

Donald P Tashkin[1], Wan-Cheng Tan[2]

Affiliations expand

- PMID: 35609784

- DOI: 10.1016/j.jaip.2022.05.009

Abstract

Although vaping has recently increased as a mode of inhaling marijuana and has been associated with numerous and sometimes fatal cases of acute severe lung injury, smoking remains the most common method of inhaling marijuana and has been studied more extensively. Smoking marijuana has been shown to produce modest but significant short-term bronchodilation both in healthy subjects and those with asthma. Long-term effects of habitual marijuana smoking include the following: 1) symptoms of chronic bronchitis (increased cough, sputum production and wheezing); 2) modest effects on lung function in cross-sectional studies (no significant decrease in forced expired volume in 1 second [FEV_1) but mild reductions in FEV_1/forced vital capacity ratio [FEV_1/FVC], an increase in FVC and other lung volumes, reductions in specific airway conductance, and variable effects of maximal mid-expiratory flow rates and diffusing capacity; and 3) variable effects on age-related decline in FEV1 in longitudinal studies. Most cohort and case-control studies have failed to show that marijuana smoking is a significant risk-factor for lung cancer despite the presence of pro-carcinogenic components in marijuana smoke, although further study is warranted. The question whether marijuana smoking is associated with asthma is unclear and requires further investigation. Although delta-9 tetrahydrocannabinol (THC), the principal psychoactive component of marijuana, has immunomodulatory properties that hypothetically could increase the risk of pneumonia, the few available studies in marijuana smokers have failed to find an increased risk of pneumonia in immunocompetent users, although effects in immunosuppressed individuals have been variable.

Keywords: asthma; cancer; lung function; marijuana; pneumonia; smoking.

Clin Sci (Lond)

. 2022 May 27;136(10):733-746.

doi: 10.1042/CS20210900.

Autophagy in asthma and chronic obstructive pulmonary disease

Peter J Barnes[1], Jonathan Baker[1], Louise E Donnelly[1]

Affiliations expand

- PMID: 35608088

- DOI: 10.1042/CS20210900

Abstract

Autophagy (or macroautophagy) is a key cellular process that removes damaged molecules (particularly proteins) and subcellular organelles to maintain cellular homeostasis. There is growing evidence that abnormalities in autophagy may contribute to the pathogenesis of many chronic diseases, including asthma and chronic obstructive pulmonary disease (COPD). In asthma, increased autophagy plays a role in promoting type 2 immune responses and eosinophilic inflammation, whereas decreased autophagy may be important in neutrophilic asthma. Acute exposure to cigarette smoke may activate autophagy, resulting in ciliary dysfunction and death of airway epithelial cells, whereas in stable COPD most studies have demonstrated an impairment in autophagy, with reduced autophagic flux and accumulation of abnormal mitochondria (defective mitophagy) and linked to cellular senescence. Autophagy may be increased or decreased in different cell types and depending on the cellular environment, making it difficult to target autophagy therapeutically. Several existing drugs may activate autophagy, including rapamycin, metformin, carbamazepine, cardiac glycosides and statins, whereas others, such as chloroquine, inhibit this process. However, these drugs are nonspecific and more selective drugs are now in development, which may prove useful as novel agents to treat asthma and COPD in the future.

Keywords: aggresomes; inflammation; lysosome; macroautophagy; mitophagy; xenophagy.

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

J Allergy Clin Immunol Pract

. 2022 May 20;S2213-2198(22)00472-X.

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Results From a National Survey of Asthma Provider Beliefs and Practices Regarding Exercise and Asthma: A Work Group Report of the AAAAI Committee on Sports, Exercise, and Fitness

Basil M Kahwash [1], Karen L Gregory [2], Lisa K Sharp [3], Sharmilee M Nyenhuis [4]

Affiliations expand

- PMID: 35606306

- DOI: 10.1016/j.jaip.2022.04.028

Abstract

Background: National Heart, Lung, and Blood Institute guidelines recommend regular physical activity (PA) for patients with asthma. Health care provider (HCP) counseling represents an effective approach to optimizing patient PA. However, current exercise rates among asthma patients are suboptimal, which suggests that counseling may be improved.

Objective: To understand PA counseling behaviors among HCPs who manage asthma.

Methods: A voluntary 36-item survey assessing self-reported awareness of PA recommendations and current clinical practices was sent to 979 randomly selected HCP members of the American Academy of Allergy, Asthma & Immunology.

Results: The overall response rate was 9.3% (91 of 979). Respondents were physicians (100%) and allergists/immunologists (96%) who reported an average of 18.1 ± 12.3 years in independent practice. Over half (58%) reported personally engaging in 150 min/wk or more of moderate to strenuous PA. Eighty percent of participants were unaware of specific PA guidelines for patients with asthma, yet 66% acknowledged evidence for improved asthma outcomes with moderate exercise. A large majority of respondents believed that patients with asthma (97%) and severe asthma (84%) should pursue exercise. Whereas 90% of respondents support incorporating exercise counseling into asthma care, only 69% regularly counsel asthma patients about PA. Barriers cited included limited time, lack of knowledge regarding how and where to refer patients for exercise, and other medical priorities. Potential facilitators of PA included increasing practitioner education and patient-directed posters in waiting areas.

Conclusions: Health care providers recognized PA as an important component of asthma care but were often unaware of specific guidelines. Promoting PA counseling may require using a time-efficient approach to implement counseling at each asthma patient encounter.

Keywords: Asthma; Exercise; Exercise-induced bronchoconstriction; Physical activity; Provider counseling.

. 2022 May 17;S1081-1206(22)00410-0.

doi: 10.1016/j.anai.2022.05.005. Online ahead of print.

Comorbidities in Childhood-onset and Adult-Onset Asthma

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Affiliations expand

- PMID: 35595004

- DOI: 10.1016/j.anai.2022.05.005

Abstract

Background: Age of asthma onset has emerged as an important determinant of asthma phenotypes; however, the comorbidities that predominate in either childhood- or adult-onset asthma are unknown.

Objective: To identify comorbidities associated with adult-onset versus childhood-onset asthma and with age of asthma diagnosis.

Methods: We analyzed data on 27,437 adult participants to the National Health and Nutrition Examination Surveys conducted from 2001 to 2018. Logistic regression adjusted for covariates was used to identify comorbidities associated with the asthma phenotypes and age of asthma diagnosis.

Results: About 12.6% of participants were ever diagnosed with asthma; the prevalence of childhood-onset (before 18 years old) and adult-onset (≥18 years old) current asthma was 2.7% and 5.5%, respectively. After adjusting for covariates including age, adult-onset asthma was associated higher odds of obesity (OR: 1.46, 95% CI: 1.09-1.96), hypercholesterolemia (OR: 1.67, 95% CI: 1.08-2.56), borderline high serum triglycerides (OR: 1.78, 95% CI: 1.17-2.71), and osteoarthritis (OR: 1.52, 95% CI: 1.04-2.20) than childhood-onset asthma. Older age of asthma diagnosis (per 5-year increase) was also associated with higher odds of diabetes (OR: 1.04, 95% CI: 1.00-1.07) and hypertension (OR: 1.05, 95% CI: 1.02-1.07), while younger age of asthma diagnosis was associated with higher odds of chronic obstructive pulmonary disease (COPD) (OR: 1.12, 95% CI: 1.04-1.19).

Conclusion: Age and covariates adjusted prevalence of obesity, dyslipidemia, arthritis, diabetes, and hypertension is higher in adult-onset than childhood-onset asthma and with

older age of asthma diagnosis. Conversely, COPD prevalence increases with younger age of asthma diagnosis.

Keywords: Adult-onset asthma; Asthma comorbidities; Asthma phenotypes; Childhood-onset asthma.

Clin Mol Allergy

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Effectiveness and safety of dupilumab in patients with chronic rhinosinusitis with nasal polyps and associated comorbidities: a multicentric prospective study in real life

Eustachio Nettis[1], Luisa Brussino[2,3], Vincenzo Patella[4], Laura Bonzano[5], Aikaterini Detoraki[6], Elisabetta Di Leo[7], Maria Maddalena Sirufo[8], Cristiano Caruso[9], Fabio Lodi Rizzini[10], Mariaelisabetta Conte[11], Mona-Rita Yacoub[12], Massimo Triggiani[13], Erminia Ridolo[14], Luigi Macchia[1], Giovanni Rolla[15], Raffaele Brancaccio[16], Amato De Paulis[6], Giuseppe Spadaro[6], Danilo Di Bona[1], Angela Maria D'Uggento[17], Lia Ginaldi[8,18], Francesco Gaeta[9], Eleonora Nucera[9], Kliljeda Jaubashi[10], Danilo Villalta[11], Lorenzo Dagna[12], Domenico Ciotta[13], Francesco Pucciarini[14], Diego Bagnasco[19], Giorgio Celi[20], Fulvia Chieco Bianchi[21], Lorenzo Cosmi[22], Maria Teresa

Costantino[20], Maria Angiola Crivellaro[23], Simona D'Alò[24], Pietro Del Biondo[25], Stefano Del Giacco[26], Mario Di Gioacchino[27][28], Linda Di Pietro[22], Elisabetta Favero[29], Sebastiano Gangemi[30], Gabriella Guarnieri[31], Enrico Heffler[32][33], Maria Stefania Leto Barone[34], Carla Lombardo[35], Francesca Losa[20], Andrea Matucci[36], Paola Lucia Minciullo[30], Paola Parronchi[22][37], Giovanni Passalacqua[19], Stefano Pucci[24], Oliviero Rossi[36], Lorenzo Salvati[22], Michele Schiappoli[38], Gianenrico Senna[38], Andrea Vianello[31], Alessandra Vultaggio[36], Yang Baoran[20], Cristoforo Incorvaia[39], Giorgio Walter Canonica[32][33]

Affiliations expand

- PMID: 35590407

- PMCID: PMC9121619

- DOI: 10.1186/s12948-022-00171-2

Free PMC article

Abstract

Background: Biologics are currently one of the main treatment options for a number of diseases. The IgG4 monoclonal antibody dupilumab targets the Interleukin-4 receptor alpha chain, thus preventing the biological effects of the cytokines IL-4 and IL-13, that are essential for the Th2 response. Several controlled trials showed that dupilumab is effective and safe in patients with atopic dermatitis (AD), severe asthma and chronic rhinosinusitis with nasal polyps (CRSwNP), thus resulting in approval by regulatory agencies. Aim of the study was to evaluate the efficacy and safety of dupilumab in adult patients with CRSwNP stratified by common overlapping comorbid conditions.

Methods: We performed a multicenter, observational, prospective study enrolling adult patients with severe CRSwNP who had started dupilumab treatment in the context of standard care from January 2021 to October 2021. Data were collected from twentynine Italian secondary care centers for allergy and clinical immunology, all of which were part of the Italian Society of Allergy, Asthma and Clinical Immunology (SIAAIC). A number of efficacy parameters were used. Patient data were compared using the Wilcoxon test for paired data. All statistical analyses were performed with SPSS version 20 (IBM, Armonk, NY, USA).

Results: In total, 82 patients with nasal polyposis were identified. A significant improvement was detected for all the applied efficacy parameters, i.e. 22-item Sino-Nasal Outcome Test (SNOT-22) and bilateral endoscopic nasal polyp score (NPS) scores for CRSwNP, Rhinitis Control Scoring System (RCSS) and Rhinoconjunctivitis Quality of Life

Questionnaire (RQLQ) scores for allergic perennial rhinitis, Forced Expiratory Volume in the 1st second (FEV1) and Asthma Quality of Life Questionnaire (AQLQ) scores for asthma, Eczema Area and Severity Index (EASI) and Dermatology Life Quality Index (DLQI) scores for AD. A non-significant improvement was also obtained in the Urticaria Activity Score over 7 days (UAS7) for chronic spontaneous urticaria. Treatment with dupilumab was well tolerated.

Conclusions: These data suggest that dupilumab treatment in patients suffering from CRSwNP and associated comorbidities may be suitable. Such outcome, although confirmation by trials is warranted, suggests the possibility to treat different disorders with a single therapy, with favorable effects especially under the cost-effectiveness aspect.

Conflict of interest statement

PP: GSK, Novartis (fees for lectures), LeoPharma (expert board); DB: GSK, Novartis, Astra, Sanofi (speaker); MC: GSK, Sanofi (speaker); EH: Sanofi, Regeneron, Novqrtis, GSK, Astrazeneca, Circassia, Stallergenes-Greer, Nestlè Purina (speaker and advisory board), AD: Sanofi, Glaxo-Smith Kline (advisory board), SDG: AstraZeneca, GSK, Novartis, Sanofi (advisory board and speaker). EN, LB, VP, LB, EDL, MMS, MT, ER, LM, GR, RB, GS, DDB, ADP, FCB, AMD, CC, CL, LG, MDG, KJ, EN, LD, DC, GG, FG, GS, DV, FLR, GP, FP, GC, LC, MTC, MAC, SD, PDB, LDP, EF, SG, MSLB, FL, AM, MRY, PLM, SP, OR, LS, MS, AV, AV, YB, CI, GWC have no competing interests.

- 37 references

Allergy

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. 2022 May 18.

doi: 10.1111/all.15379. Online ahead of print.

Safety of combining biologics in severe asthma: asthma-related and unrelated combinations

Marek Lommatzsch[1], Hendrik Suhling[2], Stephanie Korn[3], Karl-Christian Bergmann[4], Jens Schreiber[5], Thomas Bahmer[6], Klaus F Rabe[7], Roland Buhl[8], J Christian Virchow[1], Katrin Milger[9]

Affiliations expand

- PMID: 35585763

- DOI: 10.1111/all.15379

No abstract available

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Am J Respir Crit Care Med

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. 2022 May 18.

doi: 10.1164/rccm.202205-0857ED. Online ahead of print.

T2 or non-T2 Asthma Exacerbations: That is the Question

Andi Hudler[1], Fernando Holguin[2], Sunita Sharma[1]

Affiliations expand

- PMID: 35584351

- DOI: 10.1164/rccm.202205-0857ED

No abstract available

Keywords: Asthma exacerbations; T2 inflammation; asthma.

Intensive Care Med

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. 2022 May 17;1-2.

doi: 10.1007/s00134-022-06732-y. Online ahead of print.

The need to define "who" rather than "if" for ECMO in COVID-19

Stephen Whebell[1], Joe Zhang[2 3], Rebecca Lewis[4], Michael Berry[5], Stephane Ledot[5], Andrew Retter[4], Luigi Camporota[4 6]

Affiliations expand

- PMID: 35579687
- PMCID: PMC9112247
- DOI: 10.1007/s00134-022-06732-y

Free PMC article

No abstract available

Conflict of interest statement

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- Cited by 1 article
- 4 references

SUPPLEMENTARY INFO

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Allergy

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. 2022 May 17.

doi: 10.1111/all.15376. Online ahead of print.

Airway remodelling rather than cellular infiltration characterizes both type2 cytokine biomarker-high and -low severe asthma

Latifa Khalfaoui[1], Fiona A Symon[1], Simon Couillard[2], Beverley Hargadon[1], Rekha Chaudhuri[3], Steve Bicknell[3], Adel H Mansur[4], Rahul Shrimanker[2], Timothy S C Hinks[2], Ian D Pavord[2], Stephen J Fowler[5], Vanessa Brown[6], Lorcan P McGarvey[6], Liam G Heaney[6], Cary D Austin[7], Peter H Howarth[8], Joseph R Arron[7], David F Choy[7], Peter Bradding[1]

Affiliations expand

- PMID: 35579040

- DOI: 10.1111/all.15376

Abstract

Background: The most recognizable phenotype of severe asthma comprises people who are blood eosinophil and FeNO-high, driven by type 2 (T2) cytokine biology, which responds to targeted biological therapies. However, in many people with severe asthma, these T2 biomarkers are suppressed but poorly controlled asthma persists. The mechanisms driving asthma in the absence of T2 biology are poorly understood.

Objectives: To explore airway pathology in T2 biomarker-high and -low severe asthma.

Methods: T2 biomarker-high severe asthma (T2-high, n = 17) was compared with biomarker-intermediate (T2-intermediate, n = 21) and biomarker-low (T2-low, n = 20) severe asthma and healthy controls (n = 28). Bronchoscopy samples were processed for immunohistochemistry, and sputum for cytokines, PGD_2 and LTE_4 measurements.

Results: Tissue eosinophil, neutrophil and mast cell counts were similar across severe asthma phenotypes and not increased when compared to healthy controls. In contrast, the remodelling features of airway smooth muscle mass and MUC5AC expression were increased in all asthma groups compared with health, but similar across asthma subgroups. Submucosal glands were increased in T2-intermediate and T2-low asthma. In spite of similar tissue cellular inflammation, sputum IL-4, IL-5 and CCL26 were increased in T2-high

versus T2-low asthma, and several further T2-associated cytokines, PGD_2 and LTE_4 , were increased in T2-high and T2-intermediate asthma compared with healthy controls.

Conclusions: Eosinophilic tissue inflammation within proximal airways is suppressed in T2 biomarker-high and T2-low severe asthma, but inflammatory and structural cell activation is present, with sputum T2-associated cytokines highest in T2 biomarker-high patients. Airway remodelling persists and may be important for residual disease expression beyond eosinophilic exacerbations. Registered at ClincialTrials.gov: NCT02883530.

Keywords: FeNO; Th2; cytokine; eosinophil; severe asthma.

- 68 references

SUPPLEMENTARY INFO

Associated data, Grant supportexpand

FULL TEXT LINKS

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Intern Emerg Med

. 2022 Jun;17(4):953-955.

doi: 10.1007/s11739-022-02964-4. Epub 2022 May 17.

Persistent asthma hospitalisations and deaths require a national asthma prevention plan

Bianca Beghé[1], Leonardo Fabbri[2], Enrico Clini[3]

Affiliations expand

- PMID: 35578148

- DOI: 10.1007/s11739-022-02964-4

No abstract available

Keywords: Allergy; Anaphylaxixs; Bronchitis; Chronic obstructive pulmonary disease; Emphysema.

RHINITIS

1

J Otolaryngol Head Neck Surg

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. 2022 May 23;51(1):22.

doi: 10.1186/s40463-022-00580-y.

Improving predictability of IgE-high type 2 chronic sinusitis with nasal polyps in the biologic era

Austin Heffernan[1], Jobanjit Phulka[1], Andrew Thamboo[2,3]

Affiliations expand

- PMID: 35606866

- PMCID: PMC9128111

- DOI: 10.1186/s40463-022-00580-y

Free PMC article

Abstract

Background: Chronic rhinosinusitis (CRS) is an inflammatory disease that may require biological therapy. Omalizumab is an anti-IgE biologic that was recently approved by the FDA and Health Canada for use in severe CRS with nasal polyps (CRSwNP) recalcitrant to intranasal corticosteroids. Dosing is based on weight and pre-treatment serum IgE, with elevated levels of the latter being an indication for biologic treatment according to EPOS and EUFOREA guidelines. The goal of this study was to identify variables that predict IgE-high type 2 inflammation and serve as indicators for biologic treatment in CRS.

Methods: Patients ≥ 19 yo diagnosed with CRS undergoing functional endoscopic sinus surgery were included retrospectively. Demographics, past medical history, preoperative blood work, Lund-Mackay (LM), Lund Kennedy (LK), and SNOT-22 scores were extracted. Descriptive statistics and binary logistic regression analyses were conducted. Model superiority was based on Nagelkerke R2 scores and receiver operating characteristic curves.

Results: Sixty-five patients, average age 49.96 ± 13.59 years, were included. Sixty-one binary logistic regression models for elevated serum IgE were created. Among the top 3 models, the best model had sensitivity, specificity, positive predictive value and negative predictive values of 82.1, 69.2, 80.0, and 72.0. All performance measures except sensitivity exceeded the Canadian Biologics Guideline model. Serum eosinophils ≥ 300 cell/uL, CRSwNP and LM ≥ 17 increased the odds of elevated IgE.

Conclusions: IgE-high type-2 inflammation can be predicted by a model that includes eosinophil ≥ 300 cell/uL, CRSwNP, LM ≥ 17, asthma diagnosis and SNOT-22 ≥ 40. Patients meeting these parameters have a high pretest probability for elevated IgE and would benefit from IgE serology to determine qualification for omalizumab. This could reduce unwarranted IgE serology in patients with CRSwNP but also target a patient population for further workup that will lead to optimization of resource allocation and improve healthcare equity in rural and remote areas within Canada.

Keywords: Biologics; Biomarkers; Chronic Rhinosinusitis; Endotype; Immunoglobulin-E; Monoclonal antibodies; Therapeutics.

Conflict of interest statement

The authors have conflicts of interest to disclose.

- 56 references
- 2 figures

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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J Occup Med Toxicol

. 2022 May 23;17(1):10.

doi: 10.1186/s12995-022-00351-5.

Respiratory afflictions during hairdressing jobs: case history and clinical evaluation of a large symptomatic case series

Julia Hiller[1], Annette Greiner[2], Hans Drexler[2]

Affiliations expand

- PMID: 35606825

- PMCID: PMC9125837

- DOI: 10.1186/s12995-022-00351-5

Free PMC article

Abstract

Objectives: Respiratory symptoms at work are common among hairdressers. Various working materials, most notably bleaching ingredients such as ammonium persulfate, have been made responsible. The objective of this study is to achieve a better understanding of work-related respiratory symptoms of hairdressers by describing common features in a large affected collective.

Methods: One hundred forty-eight hairdressers with respiratory symptoms at work presenting between 2012 and 2019 were consecutively included in a case series. Anamnestic and diagnostic data including pulmonary function and allergy testing were retrospectively compiled from records and analysed. Additionally, cases were categorised in five groups with respect to occupational causation certainty.

Results: 30% of the predominantly female collective had changed jobs or were on longer sick-leave. Besides respiratory symptoms, 10% also reported contact urticaria to blonde dyes. In 60% an obstructive airway disease was confirmed. A specific hypersensitivity reaction to ammonium persulfate was found in 15%. Group 1 with a proven immunological occupational causation showed significantly lower age ($p < 0.001$) and tenure time ($p = 0.001$), higher sensitization rates against environmental allergens as well as a higher total IgE ($p = 0.015$), compared to group 4 (obstructive airway disease, specific occupational causation unlikely).

Conclusions: This case series contributes to a better characterization of work-related respiratory symptoms in hairdressing as one of the largest examined collectives of symptomatic hairdressers. Ammonium persulfate as the most common specific cause showed signs of a type-I-like hypersensitivity reaction with typical risk factors for atopy. Prick testing is recommended in all symptomatic cases. However, a specific occupational causation often cannot be proved.

Keywords: Ammonium persulfate; Asthma; Hairdresser; Occupational health; Respiratory system; Rhinitis.

Conflict of interest statement

All authors have received payments for unbiased medical expert testimony in the evaluation of occupational diseases (including respiratory diseases in hairdressers) ordered

by courts or the (in Germany mandatory) statutory accident insurance carriers for work (= public body).

- 39 references
- 3 figures

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Review

Environ Sci Pollut Res Int

. 2022 May 20;1-19.

doi: 10.1007/s11356-022-20447-z. Online ahead of print.

Ambient air pollutants increase the risk of immunoglobulin E-mediated allergic diseases: a systematic review and meta-analysis

Hua Wang[1,2], Xian-Bao Li[1,2], Xiu-Jie Chu[1,2], Nv-Wei Cao[1,2], Hong Wu[1,2], Rong-Gui Huang[1,2], Bao-Zhu Li[3,4], Dong-Qing Ye[1,2]

Affiliations expand

- PMID: 35595897

- PMCID: PMC9122555

- DOI: 10.1007/s11356-022-20447-z

Free PMC article

Abstract

Immunoglobulin E (IgE)-mediated allergic diseases, including eczema, atopic dermatitis (AD), and allergic rhinitis (AR), have increased prevalence in recent decades. Recent studies have proved that environmental pollution might have correlations with IgE-mediated allergic diseases, but existing research findings were controversial. Thus, we performed a comprehensive meta-analysis from published observational studies to evaluate the risk of long-term and short-term exposure to air pollutants on eczema, AD, and AR in the population (per 10-μg/m^3 increase in $PM_{2.5}$ and PM_{10}; per 1-ppb increase in SO_2, NO_2, CO, and O_3). PubMed, Embase, and Web of Science were searched to identify qualified literatures. The Cochran Q test was used to assess heterogeneity and quantified with the I^2 statistic. Pooled effects and the 95% confidence intervals (CIs) were used to evaluate outcome effects. A total of 55 articles were included in the study. The results showed that long-term and short-term exposure to PM_{10} increased the risk of eczema (PM_{10}, RR_{long} = 1.583, 95% CI: 1.328, 1.888; RR_{short} = 1.006, 95% CI: 1.003-1.008) and short-term exposure to NO_2 (RR_{short} = 1.009, 95% CI: 1.008-1.011) was associated with eczema. Short-term exposure to SO_2 (RR_{short}: 1.008, 95% CI: 1.001-1.015) was associated with the risk of AD. For AR, $PM_{2.5}$ (RR_{long} = 1.058, 95% CI: 1.014-1.222) was harmful in the long term, and short-term exposure to PM_{10} (RR_{short}: 1.028, 95% CI: 1.008-1.049) and NO_2 (RR_{short}: 1.018, 95% CI: 1.007-1.029) were risk factors. The findings indicated that exposure to air pollutants might increase the risk of IgE-mediated allergic diseases. Further studies are warranted to illustrate the potential mechanism for air pollutants and allergic diseases.

Keywords: Air pollutants; Allergic rhinitis; Atopic dermatitis; Eczema; Systemic review.

Conflict of interest statement

The authors declare no competing interests.

- 83 references
- 3 figures

SUPPLEMENTARY INFO

Clin Mol Allergy

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Effectiveness and safety of dupilumab in patients with chronic rhinosinusitis with nasal polyps and associated comorbidities: a multicentric prospective study in real life

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Schiappoli[38], Gianenrico Senna[38], Andrea Vianello[31], Alessandra Vultaggio[36], Yang Baoran[20], Cristoforo Incorvaia[39], Giorgio Walter Canonica[32,33]

Affiliations expand

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- DOI: 10.1186/s12948-022-00171-2

Free PMC article

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Methods: We performed a multicenter, observational, prospective study enrolling adult patients with severe CRSwNP who had started dupilumab treatment in the context of standard care from January 2021 to October 2021. Data were collected from twentynine Italian secondary care centers for allergy and clinical immunology, all of which were part of the Italian Society of Allergy, Asthma and Clinical Immunology (SIAAIC). A number of efficacy parameters were used. Patient data were compared using the Wilcoxon test for paired data. All statistical analyses were performed with SPSS version 20 (IBM, Armonk, NY, USA).

Results: In total, 82 patients with nasal polyposis were identified. A significant improvement was detected for all the applied efficacy parameters, i.e. 22-item Sino-Nasal Outcome Test (SNOT-22) and bilateral endoscopic nasal polyp score (NPS) scores for CRSwNP, Rhinitis Control Scoring System (RCSS) and Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) scores for allergic perennial rhinitis, Forced Expiratory Volume in the 1st second (FEV1) and Asthma Quality of Life Questionnaire (AQLQ) scores for asthma, Eczema Area and Severity Index (EASI) and Dermatology Life Quality Index (DLQI) scores for AD. A non-significant improvement was also obtained in the Urticaria Activity Score

over 7 days (UAS7) for chronic spontaneous urticaria. Treatment with dupilumab was well tolerated.

Conclusions: These data suggest that dupilumab treatment in patients suffering from CRSwNP and associated comorbidities may be suitable. Such outcome, although confirmation by trials is warranted, suggests the possibility to treat different disorders with a single therapy, with favorable effects especially under the cost-effectiveness aspect.

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- 37 references

CHRONIC COUGH

Clin Pharmacokinet

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doi: 10.1007/s40262-022-01126-1. Online ahead of print.

Safety, Pharmacodynamics, and Pharmacokinetics of P2X3 Receptor Antagonist Eliapixant (BAY 1817080) in Healthy Subjects: Double-Blind Randomized Study

Christian Friedrich[1], Klaus Francke[2], Isabella Gashaw[2,3], Christian Scheerans[2], Stefan Klein[2], Lueder Fels[2], Jaclyn A Smith[4], Thomas Hummel[5], Alyn Morice[6]

Affiliations expand

- PMID: 35624408

- DOI: 10.1007/s40262-022-01126-1

Abstract

Background and objective: There is no licensed treatment for refractory chronic cough; off-label therapies have limited efficacy and can produce adverse effects. Excessive adenosine triphosphate signaling via P2X3 receptors is implicated in refractory chronic cough, and selective P2X3 receptor antagonists such as eliapixant (BAY 1817080) are under investigation. The objective of the study was to investigate the safety and tolerability of ascending repeated oral doses of eliapixant in healthy volunteers.

Methods: We conducted a repeated-dose, double-blind, randomized, placebo-controlled study in 47 healthy male individuals. Subjects received repeated twice-daily ascending oral doses of eliapixant (10, 50, 200, and 750 mg) or placebo for 2 weeks. The primary outcome was frequency and severity of adverse events. Other outcomes included pharmacokinetics and evaluation of taste disturbances, which have occurred with the less selective P2X3 receptor antagonist gefapixant.

Results: Peak plasma concentrations of eliapixant were reached 3-4 h after administration of the first and subsequent doses. With multiple dosing, steady-state plasma concentrations were reached after ~ 6 days, and plasma concentrations predicted to achieve ≥ 80% P2X3 receptor occupancy (the level required for efficacy) were reached at 200 and 750 mg. Increases in plasma concentrations with increasing doses were less than dose proportional. After multiple dosing, mean plasma concentrations of eliapixant showed low peak-trough fluctuations and were similar for 200- and 750-mg doses. Eliapixant was well tolerated with a low incidence of taste-related adverse events.

Conclusions: Eliapixant (200 and 750 mg) produced plasma concentrations that cover the predicted therapeutic threshold over 24 h, with good safety and tolerability. These results enabled eliapixant to progress to clinical trials in patients with refractory chronic cough.

Clinical trial registration: Clinicaltrials.gov: NCT03310645 (initial registration: 16 October, 2017).

Plain Language Summary

There are few effective treatments for patients with a long-term (chronic) cough. It is thought that chronic cough is caused by nerves becoming oversensitive, wrongly causing a cough when there is no need. We tested a new drug called eliapixant in 47 healthy men. Eliapixant reduces the excessive nerve signaling responsible for chronic cough. We looked for side effects of eliapixant and measured how it behaves in the body. In particular we looked for side effects relating to the sense of taste because gefapixant, a similar drug to eliapixant, can affect taste. Participants took one of four eliapixant doses or a placebo twice daily for 2 weeks. The highest levels of eliapixant in the blood were seen 3–4 h after taking the drug, and stable concentrations were seen after about 6 days. At the two highest doses, eliapixant reached concentrations in the body that should be high enough to work in patients with chronic cough. Side effects were generally similar between eliapixant and placebo. Taste-related side effects were mild and went away without needing treatment. The positive results of this study meant that eliapixant could be tested in patients with chronic cough.

- 60 references

SUPPLEMENTARY INFO

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Idiopathic chronic eosinophilic pneumonia: a differential diagnosis of lower respiratory tract infection

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- PMID: 35606034

- DOI: 10.1136/bcr-2021-244458

Abstract

A 43-year-old woman presented with a presumed lower respiratory tract infection, with symptoms of persistent cough, lethargy, fevers and night sweats. Initial general practitioner assessment revealed raised C reactive protein and a leucocytosis comprising both a neutrophilia and an eosinophilia. The patient was initially treated for bacterial pneumonia. Despite treatment, the patient's condition did not improve and hospital admission was arranged for further investigation. Initial physical examination was unremarkable. A chest X-ray revealed bilateral, symmetrical, peripheral consolidation with an upper zone predominance. Subsequently, endobronchial washings revealed abundant eosinophils. A diagnosis of idiopathic chronic eosinophilic pneumonia was made, and the patient responded well to oral corticosteroids with complete resolution of radiological appearances 1 month later.

Keywords: pneumonia (respiratory medicine); radiology; respiratory medicine; respiratory system.

Conflict of interest statement

Competing interests: None declared.

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Healthcare utilization and costs in chronic cough

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- DOI: 10.1080/03007995.2022.2065142

Abstract

Background: Chronic cough is a common reason for medical consultations and is associated with considerable physical and psychological morbidity. This study investigated healthcare use and cost in chronic cough and assessed its relationship with cough severity, health status, objective cough frequency (CF), and anxiety and depression.

Methods: This was a prospective study of consecutive patients with chronic cough from a specialist clinic who completed a cough severity visual analogue scale (VAS), cough-specific health status (Leicester Cough Questionnaire; LCQ) and general health status EuroQol EQ-5D-5L, Generalized Anxiety Disorder (GAD7), Patient Health Questionnaire (PHQ9), and 24-hour objective CF monitoring with Leicester Cough Monitor (LCM). Case notes were reviewed for cough-specific healthcare use 12 months before and after the first cough clinic consultation. Resource use included general practitioner and hospital clinic visits, investigations, and treatments. Unit costs for healthcare use were derived predominantly from National Health Service Reference Costs.

Results: One hundred participants with chronic cough were recruited (69% female, median duration 3 years, mean age 58 years). The diagnoses of cough were unexplained (57%), refractory (27%), and other (16%). Cough severity, health status, and CF were: median (IQR) VAS = 59.5 (30-79) mm, mean (SD) LCQ = 11.9 (4.0), mean (SD) EQ-5D-5L = 0.846 (0.178), and geometric mean (SD) CF = 15.3 (2.5) coughs/hr, respectively. The mean (SD) total cost per individual for cough-related healthcare utilization was £1,663 (747). Diagnostic investigations were the largest contributor to cost (63%), followed by cough clinic consultations (25%). In multivariate analysis, anxiety (GAD7) and cough-related health status (LCQ) were associated with increased cost ($p \leq .001$ and .037).

Conclusion: Healthcare cost associated with chronic cough are largely due to diagnostic investigations and clinic consultations. The predictors of costs were health status (LCQ) and anxiety. Further studies should investigate the optimal management protocols for patients with chronic cough.

Keywords: Cough; cost; healthcare utilization.