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CHRONIC OBSTRUCTIVE PULMONARY DISEASE

BMC Prim Care
. 2023 Jan 14;24(1):9.
doi: 10.1186/s12875-022-01935-0.

"Decline and uneven recovery from 7 common long-term conditions managed in the Catalan primary care after two pandemic years: an observational retrospective population-based study using primary care electronic health records"

Núria Mora[1], Francesc Fina[1], Leonardo Méndez-Boo[1], Roser Cantenys[1], Mència Benítez[1,2], Nemesio Moreno[1], Elisabet Balló[1], Eduardo Hermosilla[1,3], Mireia Fàbregas[1], Carolina Guiriguet[1,2,4], Xavier Cos[5,6,7,8], Sara Rodoreda[5], Ariadna Mas[5], Yolanda Lejardi[5], Ermengol Coma[9], Manuel Medina[1]
Affiliations expand

- PMID: 36641483

- DOI: 10.1186/s12875-022-01935-0

Abstract

Background: The incidence of chronic diseases during the COVID-19 pandemic has drastically been reduced worldwide due to disruptions in healthcare systems. The aim of our study is to analyse the trends in the incidence of 7 commonly managed primary care chronic diseases during the last 2 years of the COVID-19 pandemic in Catalonia.

Methods: We performed an observational retrospective population-based study using data from primary care electronic health records from January 2018 to August 2022 (5.1 million people older than 14 years). We divided the study period into two: a pre-pandemic period (before 14 March 2020) and a pandemic period. We performed a segmented regression analysis of daily incidence rates per 100,000 inhabitants of 7 chronic diseases: type 2 diabetes mellitus (T2DM), asthma, chronic obstructive pulmonary disease (COPD), ischemic heart disease (IHD), heart failure (HF), hypertension and hypercholesterolemia. In addition, we compared annual incidence between pandemic years (2020, 2021 and 2022) and 2019. Associated incidence rate ratios (IRR) were also calculated. Finally, we estimated the number of expected diagnoses during the pandemic period using data from 2019 and we compared it with the observed data.

Results: We analysed 740,820 new chronic diseases' diagnoses. Daily incidence rates of all 7 chronic diseases were drastically interrupted on 14 March 2020, and a general upward trend was observed during the following months. Reductions in 2020 were around 30% for all conditions except COPD which had greater reductions (IRR: 0.58 [95% CI: 0.57 to 0.6]) and HF with lesser drops (IRR: 0.86 [95% CI: 0.84 to 0.88]). Some of the chronic conditions have returned to pre-pandemic diagnosis levels, except asthma, COPD and IHD. The return to pre-pandemic diagnosis levels compensated for the drops in 2020 for T2DM and HF, but not for hypertension which presented an incomplete recovery. We also observed an excess of hypercholesterolemia diagnoses of 8.5% (95%CI: 1.81% to 16.15%).

Conclusions: Although primary care has recovered the pre-pandemic diagnosis levels for some chronic diseases, there are still missing diagnoses of asthma, COPD and IHD that should be addressed.

Keywords: COVID-19; Chronic diseases; Electronic health records; Incidence; Primary care.

- 32 references

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Review

Rev Mal Respir
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. 2023 Jan 12;S0761-8425(22)00465-X.

doi: 10.1016/j.rmr.2022.12.008. Online ahead of print.

[Selection of candidates for lung transplantation for chronic obstructive pulmonary disease]

[Article in French]

V Bunel[1], G Brioude[2], G Deslée[3], S Stelianides[4], H Mal[5]
Affiliations expand

- PMID: 36641354

- DOI: 10.1016/j.rmr.2022.12.008

No abstract available

SUPPLEMENTARY INFO

Publication typesexpand
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Respir Res
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. 2023 Jan 13;24(1):15.
doi: 10.1186/s12931-022-02297-y.

Recognising the importance of chronic lung disease: a consensus statement from the Global Alliance for Chronic Diseases (Lung Diseases group)

Gillian Sandra Gould[1], John R Hurst[2], Antigona Trofor[3], Jennifer A Alison[4], Gregory Fox[4], Muralidhar M Kulkarni[5], Craig E Wheelock[6,7], Marilyn Clarke[1], Ratika Kumar[8]
Affiliations expand

- PMID: 36639661

- DOI: 10.1186/s12931-022-02297-y

Abstract

Background: Chronic respiratory diseases are disorders of the airways and other structures of the lung, and include chronic obstructive pulmonary disease (COPD), lung cancer, asthma, bronchiectasis, interstitial lung diseases, occupational lung diseases and pulmonary hypertension. Through this article we take a broad view of chronic lung disease while highlighting (1) the complex interactions of lung diseases with environmental factors (e.g. climate change, smoking and vaping) and multimorbidity and (2) proposed areas to strengthen for better global patient outcomes.

Conclusion: We suggest new directions for the research agenda in high-priority populations and those experiencing health disparities. We call for lung disease to be made a research priority with greater funding allocation globally.

- 69 references

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Publication typesexpand
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Expert Rev Respir Med
.
. 2023 Jan 13.
doi: 10.1080/17476348.2023.2167716. Online ahead of print.

Health impact of e-cigarettes and heated tobacco products in chronic obstructive pulmonary disease: Current and emerging evidence

Jaymin B Morjaria[1], Davide Campagna[2345], Grazia Caci[6], Renee O'Leary[37], Riccardo Polosa[23578]
Affiliations expand

- PMID: 36638185

- DOI: 10.1080/17476348.2023.2167716

Abstract

Introduction: Quitting is the only proven method to attenuate the progression of chronic obstructive pulmonary disease (COPD). However, most COPD smokers do not seem to respond to smoking cessation interventions and may benefit by lessening the negative health effects of long-term cigarette smoke exposure by switching to non-combustible nicotine delivery alternatives, such as heated tobacco products (HTPs) and e-cigarettes (ECs).

Areas covered: Compared with conventional cigarettes, HTPs and ECs offer substantial reduction in exposure to toxic chemicals and have the potential to reduce harm from cigarette smoke when used as tobacco cigarette substitutes. In this review, we examine the available clinical studies and population surveys on the respiratory health effects of ECs and HTPs in COPD patients.

Expert opinion: The current research on the impact of ECs and HTPs on COPD patients' health is limited, and more high-quality studies are needed to draw definitive conclusions. However, this review provides a comprehensive overview of the available literature for health professionals looking to advise COPD patients on the use of these products. While ECs and HTPs may offer some benefits in reducing harm from cigarette smoke, their long-term effects on COPD patients' health are still unclear.

Keywords: Alternative Nicotine Delivery Systems; Electronic Nicotine Delivery Systems; Modified Risk Tobacco Product; Reduced Risk Product; chronic obstructive pulmonary disease; electronic cigarettes; heated tobacco products; smoking cessation; tobacco harm reduction; vaping.

Clin Respir J

. 2023 Jan 12.
doi: 10.1111/crj.13580. Online ahead of print.

Effect of compliance to continuous positive airway pressure on exacerbations, lung function and symptoms in patients with chronic obstructive pulmonary disease and

obstructive sleep apnea (overlap syndrome)

Athanasios Voulgaris[1,2], Kostas Archontogeorgis[2], Stavros Anevlavis[1], Michail Fanaridis[3], Marios E Froudarakis[1], Sofia Schiza[3], Paschalis Steiropoulos[1,2]
Affiliations expand

- PMID: 36635888

- DOI: 10.1111/crj.13580

Abstract

Introduction: Patients with overlap syndrome (OS), that is obstructive sleep apnea (OSA) and chronic obstructive pulmonary disease (COPD), are at increased risk of acute exacerbations related to COPD (AECOPD). We assessed the effect of CPAP compliance on AECOPD, symptoms and pulmonary function in OS patients.

Methods: Consecutive OS patients underwent assessment at baseline and at 12 months under treatment with CPAP of: AECOPD and hospitalizations, COPD Assessment Test (CAT) and modified British Medical Research Council (mMRC) questionnaires, pulmonary function testing and 6-min walking test (6MWT).

Results: In total, 59 patients (54 males) with OS were followed for 12 months and divided post hoc according to CPAP compliance into: group A with good (≥4 h CPAP use/night, n = 29) and group B with poor (<4 h CPAP use/night, n = 30) CPAP compliance. At 12 months, group A showed improvements in FEV_1 (p = 0.024), total lung capacity (p = 0.024), RV/TLC (p = 0.003), 6MWT (p < 0.001) and CAT (p < 0.001). COPD exacerbations decreased in patients with good CPAP compliance from baseline to 12 months (17 before vs. 5 after, p = 0.001), but not in those with poor compliance (15 before vs. 15 after, p = 1). At multivariate regression analysis, COPD exacerbations were associated with poor CPAP compliance (β = 0.362, 95% CI: 0.075-0.649, p = 0.015).

Conclusions: When compared to poorly compliant patients, OS patients with good CPAP compliance had a lower number of AECOPD and showed improved lung function and COPD related symptoms.

Keywords: chronic obstructive pulmonary disease; compliance; continuous positive airway pressure; exacerbations; obstructive sleep apnea; overlap syndrome.

- 33 references

SUPPLEMENTARY INFO

Grant supportexpand

Thorax
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. 2023 Jan 12;thoraxjnl-2022-218675.
doi: 10.1136/thorax-2022-218675. Online ahead of print.

COPD in Africa: risk factors, hospitalisation, readmission and associated outcomes-a systematic review and meta-analysis

Chidiamara Maria Njoku[1], John R Hurst[2], Leigh Kinsman[3], Saliu Balogun[#4], Kehinde Obamiro[#5]
Affiliations expand

- PMID: 36635039

- DOI: 10.1136/thorax-2022-218675

Abstract

Background: This review aims to synthesise available evidence on the prevalence of chronic obstructive pulmonary disease (COPD), associated risk factors, hospitalisations and COPD readmissions in Africa.

Method: Using the Met-Analyses and Systematic Reviews of Observational Studies guideline, electronic databases were searched from inception to 1 October 2021. The quality of studies was assessed using the Newcastle-Ottawa Scale. Evidence from retrieved articles was synthesised, and a random-effect model meta-analysis was conducted. The protocol was registered on PROSPERO.

Results: Thirty-nine studies met the inclusion criteria, with 13 included in the meta-analysis. The prevalence of COPD varied between the Global Initiative for Chronic Obstructive Lung Disease (2%-24%), American Thoracic Society/European Respiratory Society (1%-17%) and Medical Research Council chronic bronchitis (2%-11%) criteria, respectively. Increasing age, wheezing and asthma were consistent risk factors for COPD from studies included in the narrative synthesis. Our meta-analysis indicated that prior tuberculosis ((OR 5.98, 95% CI 4.18 to 8.56), smoking (OR 2.80, 95% CI: 2.19 to 3.59) and use of biomass fuel (OR 1.52, 95% CI: 1.39 to 1.67)) were significant risk factors for COPD. Long-term oxygen therapy (HR 4.97, 95% CI (1.04 to 23.74)) and frequent

hospitalisation (≥3 per year) (HR 11.48, 95% CI (1.31 to 100.79)) were risk factors associated with 30-day COPD readmission.

Conclusion: This study not only highlights specific risk factors for COPD risk in Africa but also demonstrates the paucity and absence of research in several countries in a continent with substantial COPD-related mortality. Our findings contribute towards the development of evidence-based clinical guidelines for COPD in Africa.PROSPERO registration numberCRD42020210581.

Keywords: COPD epidemiology; COPD exacerbations; long term oxygen therapy (LTOT); tuberculosis.

Conflict of interest statement

Competing interests: None declared.

Review

Eur Respir Rev

. 2023 Jan 11;32(167):220173.
doi: 10.1183/16000617.0173-2022. Print 2023 Mar 31.

Endotyping COPD: hypoxia-inducible factor-2 as a molecular "switch" between the vascular and airway phenotypes?

Oleh Myronenko[1], Vasile Foris[1,2], Slaven Crnkovic[2,3], Andrea Olschewski[2,4], Sonia Rocha[5], Mark R Nicolls[6], Horst Olschewski[7,2]
Affiliations expand

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- DOI: 10.1183/16000617.0173-2022

Free article

Abstract

COPD is a heterogeneous disease with multiple clinical phenotypes. COPD endotypes can be determined by different expressions of hypoxia-inducible factors (HIFs), which, in combination with individual susceptibility and environmental factors, may cause predominant airway or vascular changes in the lung. The pulmonary vascular phenotype is relatively rare among COPD patients and characterised by out-of-proportion pulmonary hypertension (PH) and low diffusing capacity of the lung for carbon monoxide, but only mild-to-moderate airway obstruction. Its histologic feature, severe remodelling of the small pulmonary arteries, can be mediated by HIF-2 overexpression in experimental PH models. HIF-2 is not only involved in the vascular remodelling but also in the parenchyma destruction. Endothelial cells from human emphysema lungs express reduced HIF-2α levels, and the deletion of pulmonary endothelial *Hif-2α* leads to emphysema in mice. This means that both upregulation and downregulation of HIF-2 have adverse effects and that HIF-2 may represent a molecular "switch" between the development of the vascular and airway phenotypes in COPD. The mechanisms of HIF-2 dysregulation in the lung are only partly understood. HIF-2 levels may be controlled by NAD(P)H oxidases *via* iron- and redox-dependent mechanisms. A better understanding of these mechanisms may lead to the development of new therapeutic targets.

Conflict of interest statement

Conflicts of interest: The authors have no conflicts of interest to disclose.

Multicenter Study

J Am Acad Orthop Surg
.
. 2023 Jan 15;31(2):81-86.

doi: 10.5435/JAAOS-D-21-01055.

Preoperative Comorbidities Associated With Early Mortality in Hip Fracture Patients: A Multicenter Study

Michael A McHugh[1], Jenna L Wilson, Nathaniel E Schaffer, Eric C Olsen, Aaron Perdue, Jaimo Ahn, Mark E Hake
Affiliations expand

- PMID: 36580049

- DOI: 10.5435/JAAOS-D-21-01055

Abstract

Objective: Multiple comorbidities in hip fracture patients are associated with increased mortality and complications. The goal of this study was to characterize the relationship between specific patient factors including comorbidities and outcomes in geriatric hip fractures, including length of stay, unplanned ICU admission, discharge disposition, complications, and mortality.

Methods: This is a retrospective review of a trauma database from five Level 1 and Level 2 trauma centers of patients with hip fractures of the femoral neck and intertrochanteric region who underwent treatment using hip pinning, hemiarthroplasty, total hip arthroplasty, cephalomedullary nailing, or dynamic hip screw fixation. Mortality was the primary outcome variable (including in-hospital mortality, 30-day mortality, 60-day mortality, and 90-day mortality). Secondary outcome variables included in-hospital adverse events, unplanned transfer to the ICU, postoperative length of stay, and discharge disposition. Regression analyses were used for evaluation of relationships between comorbidities as independent variables and primary and secondary outcomes as dependent variables.

Results: Two thousand three hundred patients were included. The mortality was 1.8%, 7.0%, 10.9%, and 14.1% for in-hospital, 30-day, 60-day, and 90-day mortality, respectively. Diabetes and cognitive impairment present on admission were associated with mortality at all-time intervals. COPD was the only comorbidity that signaled in-hospital adverse event with an odds ratio of 1.67 (P = 0.012). No patient factors, time to surgery, or comorbidities signaled unplanned ICU transfer. Patients with renal failure and COPD had longer hospital stays after surgery.

Conclusion: Geriatric hip fractures continue to have high short-term morbidity and mortality. Identifying patients with increased odds of early mortality and adverse events can help teams optimize care and outcomes. Patients with diabetes, cognitive impairment, renal failure, and COPD may benefit from continued and improved medical optimization during the perioperative period as well as being more closely managed by a medicine team without delaying time to the operating room.

- 41 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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Life Sci

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. 2023 Jan 15;313:121214.
doi: 10.1016/j.lfs.2022.121214. Epub 2022 Nov 26.

Genetic screening of MMP1 as a potential pathogenic gene in chronic obstructive pulmonary disease

Erkang Yi[1], Weitao Cao[1], Jiahuan Zhang[1], Biting Lin[2], Zihui Wang[1], Xiaoyu Wang[1], Ge Bai[1], Xinyue Mei[1], ChengShu Xie[2], Jing Jin[1], Xinyuan Liu[1], Haiqing Li[1], Fan Wu[1], Zhiwei Lin[2], Ruiting Sun[1], Bing Li[2], Yumin Zhou[1], Pixin Ran[3]
Affiliations expand

- PMID: 36442527

- DOI: 10.1016/j.lfs.2022.121214

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a complex and heterogeneous syndrome. Airway inflammation and remodeling are the two key processes involved in COPD pathogenesis. However, the key pathogenic genes driving COPD development have not been revealed. This study aims to identify and validate hub gene(s) underlying COPD development through bioinformatics analysis and experimental validation.

Methods: Three lung tissue sequencing datasets of the COPD (including GSE38974, GSE103174, and GSE106986) were analyzed. Further, differentially expressed genes (DEGs) were used to

compare patients with COPD with non-COPD individuals, and the Robust Rank Aggregation (RRA) analysis was also performed. Results revealed a series of potential pathogenic genes of COPD. DEGs were subjected to KEGG, GO, and GSEA analyses. The scRNA dataset of human lung tissues (Human Lung Cell Atlas), and human primary airway epithelial cells (GSE134147) were used to identify the cell subtype localization. The qRT-PCR assay was performed in the human lung tissues, COPD mice model, and primary bronchial epithelial cells at the air-liquid interface (ALI) under cigarette smoke extract (CSE) stimulation to verify the expression of the hub genes. LASSO and GLM analysis with the hub genes were performed to identify the most critical gene. RNA-seq was performed after knocking down the critical gene using siRNA in HBECs at ALI. The potential role of the critical gene was confirmed through qRT-PCR, Western blot, and Immunofluorescence (IF) assays.

Results: A total of 98 genes were significantly and differently expressed in 3 GEO datasets. The KEGG and GO analyses showed that most of these genes are responsible for inflammation, immunity, and cell proliferation. The core gene set including 15 genes was screened out and consequently, the MMP1 was the most likely responsible for the progression of COPD. Moreover, we confirmed that MMP1 is significantly related to inflammatory effects and cilia function in human bronchial epithelial cells cultured at the air-liquid interface (ALI).

Conclusion: In summary, we confirmed that inflammation and cell proliferation are potentially critical processes in COPD occurrence and development. A total of 15 potential hub genes were identified among which MMP1 was the most likely gene responsible for the development of COPD. Therefore, MMP1 is a potential molecular target of COPD therapy.

Keywords: Air–liquid interface; Bioinformatics analysis; Chronic obstructive pulmonary disease; Matrix metalloproteinase1; RNA-Seq.

Conflict of interest statement

Competing interest The authors declare no conflict of interest.

J Nutr

. 2023 Jan 14;152(12):2771-2777.

doi: 10.1093/jn/nxac232.

Association between Fish Consumption and Risk of Chronic Obstructive Pulmonary Disease among Chinese Men and Women: an 11-Year Population-Based Cohort Study

Wei Yu[1], Kexiang Shi[1], Weihua Cao[1], Jun Lv[1,2], Yu Guo[3], Pei Pei[4], Qingmei Xia[4], Huaidong Du[5,6], Yiping Chen[5,6], Ling Yang[5,6], Xiaohui Sun[7], Rajani Sohoni[5], Sam Sansome[5], Junshi Chen[8], Zhengming Chen[5], Liming Li[1,2], Canqing Yu[1,2]
Affiliations expand

- PMID: 36205613

- DOI: 10.1093/jn/nxac232

Abstract

Background: Epidemiological evidence on the relation between fish consumption and chronic obstructive pulmonary disease (COPD) is limited, especially among Chinese.

Objectives: The aim was to explore the prospective association between fish consumption and COPD among a large population-based Chinese cohort.

Methods: The China Kadoorie Biobank recruited over 0.5 million participants from 10 geographically diverse regions across China from 2004 to 2008. Consumption frequency of fish at baseline was assessed by a validated food-frequency questionnaire. A total of 169,188 men and 252,238 women who had no prior COPD or other major chronic diseases at baseline were included in our analyses. Cox proportional hazard models were used to estimate HRs and 95% CIs for fish consumption categories in relation to incident COPD.

Results: During a median follow-up of 11.1 y, 11,292 incident COPD cases were documented. Fish consumption was inversely associated with COPD risk among women, with a 17% reduction in risk for participants who consumed fish ≥4 d/wk compared with nonconsumption (HR: 0.83; 95% CI: 0.70, 0.99; P-trend = 0.017), whereas we did not observe such a dose-response relation among men (HR: 0.89; 95% CI: 0.76, 1.05; P-trend = 0.373). The joint analysis showed that COPD risk was 38% and 48% lower in men and women who consumed fish ≥4 d/wk and had a healthy lifestyle [having ≥4 of the following healthy lifestyle factors: not smoking currently; never or rarely drinking alcohol; adequate physical activity; BMI (kg/m2): 18.5-23.9; normal waist circumference; reasonable diet], compared with participants with fish consumption <4 d/wk and an unhealthy lifestyle (≤1 factors).

Conclusions: Higher fish consumption was associated with lower COPD risk among Chinese women but not men. This association was independent of lifestyle factors. Eating adequate fish with an overall healthy lifestyle might help lower the risk of COPD.

Keywords: COPD; diet; fish; lifestyle; obstructive lung disease.

Am J Respir Crit Care Med

. 2023 Jan 15;207(2):221-222.
doi: 10.1164/rccm.202207-1403LE.

Impact of Adherence to Continuous Positive Airway Pressure on Outcomes in Obstructive Sleep Apnea Chronic Obstructive Pulmonary Disease Overlap Syndrome

Johad Khoury[1,2,3], Fahed Hakim[3,4]
Affiliations expand

- PMID: 36049224

- DOI: 10.1164/rccm.202207-1403LE

No abstract available

Eur Respir J

. 2023 Jan 12;61(1):2200469.
doi: 10.1183/13993003.00469-2022. Print 2023 Jan.

Association of respiratory symptoms and lung function with occupation in the multinational Burden of Obstructive Lung Disease (BOLD) study

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Affiliations expand

- PMID: 36028253

- DOI: 10.1183/13993003.00469-2022

Free article

Abstract

Background: Chronic obstructive pulmonary disease has been associated with exposures in the workplace. We aimed to assess the association of respiratory symptoms and lung function with occupation in the Burden of Obstructive Lung Disease study.

Methods: We analysed cross-sectional data from 28 823 adults (≥40 years) in 34 countries. We considered 11 occupations and grouped them by likelihood of exposure to organic dusts, inorganic dusts and fumes. The association of chronic cough, chronic phlegm, wheeze, dyspnoea, forced vital capacity (FVC) and forced expiratory volume in 1 s (FEV_1)/FVC with occupation was assessed, per study site, using multivariable regression. These estimates were then meta-analysed. Sensitivity analyses explored differences between sexes and gross national income.

Results: Overall, working in settings with potentially high exposure to dusts or fumes was associated with respiratory symptoms but not lung function differences. The most common occupation was farming. Compared to people not working in any of the 11 considered occupations, those who were farmers for ≥20 years were more likely to have chronic cough (OR 1.52, 95% CI 1.19-1.94), wheeze (OR 1.37, 95% CI 1.16-1.63) and dyspnoea (OR 1.83, 95% CI 1.53-2.20), but not lower FVC (β=0.02 L, 95% CI -0.02-0.06 L) or lower FEV_1/FVC (β=0.04%, 95% CI -0.49-0.58%). Some findings differed by sex and gross national income.

Conclusion: At a population level, the occupational exposures considered in this study do not appear to be major determinants of differences in lung function, although they are associated with more respiratory symptoms. Because not all work settings were included in this study, respiratory surveillance should still be encouraged among high-risk dusty and fume job workers, especially in low- and middle-income countries.

Conflict of interest statement

Conflict of interest: J. Ratanachina, A.F.S. Amaral, S. De Matteis, H. Lawin, K. Mortimer, D.O. Obaseki, I. Harrabi, M. Denguezli, E.F.M. Wouters, C. Janson, A. Gulsvik, H.H. Cherkaski, F. Mejza, P.A. Mahesh, A. Elsony, R. Ahmed, W. Tan, L.C. Loh, A. Rashid, M. Studnicka, A.A. Nafees, T. Seemungal, A. Aquart-Stewart, M. Al Ghobain, J. Zheng, S. Juvekar, S. Salvi, R. Jogi, T. Gislason, A.S. Buist, P. Cullinan and P. Burney have no conflict of interest to disclose. R. Nielsen reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline and Novartis, and receipt of equipment/material/services from ResMed Norway; and is President of the Norwegian Respiratory Society. D. Mannino reports royalties from Up to Date; personal fees from GlaxoSmithKline, AstraZeneca and Schlesinger Law Firm; honoraria from American Association of Respiratory Care; and stock in GlaxoSmithKline; and is the Medical Director of the COPD Foundation.

Am J Respir Crit Care Med

. 2023 Jan 15;207(2):183-192.
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Health Care Spending on Respiratory Diseases in the United States, 1996-2016

Kevin I Duan[1,2], Maxwell Birger[3], David H Au[1,2], Laura J Spece[1,2], Laura C Feemster[1,2], Joseph L Dieleman[4]
Affiliations expand

- PMID: 35997678

- DOI: 10.1164/rccm.202202-0294OC

Abstract

Rationale: Respiratory conditions account for a large proportion of health care spending in the United States. A full characterization of spending across multiple conditions and over time has not been performed. **Objectives:** To estimate health care spending in the United States for 11 respiratory conditions from 1996 to 2016, providing detailed trends and an evaluation of factors associated with spending growth. **Methods:** We extracted data from the Institute of Health Metrics and Evaluation's Disease Expenditure Project Database, producing annual estimates in spending for 38 age and sex groups, 7 types of care, and 3 payer types. We performed a decomposition analysis to estimate the change in spending associated with changes in each of five factors (population growth, population aging, disease prevalence, service usage, and service price and intensity). **Measurements and Main Results:** Total spending across all respiratory conditions in 2016 was $170.8 billion (95% confidence interval [CI], $164.2-179.2 billion), increasing by $71.7 billion (95% CI, $63.2-80.8 billion) from 1996. The respiratory conditions with the highest spending in 2016 were asthma and chronic obstructive pulmonary disease, contributing $35.5 billion (95% CI, $32.4-38.2 billion) and $34.3 billion (95% CI, $31.5-37.3 billion), respectively. Increasing service price and intensity were associated with 81.4% (95% CI, 70.3-93.0%) growth from 1996 to 2016. **Conclusions:** U.S. spending on respiratory conditions is high, particularly for chronic conditions like asthma and chronic obstructive pulmonary disease. Our findings suggest that service price and intensity, particularly for pharmaceuticals, should be a key focus of attention for policymakers seeking to reduce health care spending growth.

Keywords: health economics; health expenditures; health policy.

Comment in

- How Much Does the United States Spend on Respiratory Diseases?
  Nurmagambetov TA.Am J Respir Crit Care Med. 2023 Jan 15;207(2):126-127. doi: 10.1164/rccm.202209-1696ED.PMID: 36155100 No abstract available.

SUPPLEMENTARY INFO

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FULL TEXT LINKS

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ASTHMA

BMC Prim Care
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"Decline and uneven recovery from 7 common long-term conditions managed in the Catalan primary care after two pandemic years: an observational retrospective population-based study using primary care electronic health records"

Núria Mora[1], Francesc Fina[1], Leonardo Méndez-Boo[1], Roser Cantenys[1], Mència Benítez[1,2], Nemesio Moreno[1], Elisabet Balló[1], Eduardo Hermosilla[1,3], Mireia Fàbregas[1], Carolina

Guiriguet[1,2,4], Xavier Cos[5,6,7,8], Sara Rodoreda[5], Ariadna Mas[5], Yolanda Lejardi[5], Ermengol Coma[9], Manuel Medina[1]
Affiliations expand

- PMID: 36641483

- DOI: 10.1186/s12875-022-01935-0

Abstract

Background: The incidence of chronic diseases during the COVID-19 pandemic has drastically been reduced worldwide due to disruptions in healthcare systems. The aim of our study is to analyse the trends in the incidence of 7 commonly managed primary care chronic diseases during the last 2 years of the COVID-19 pandemic in Catalonia.

Methods: We performed an observational retrospective population-based study using data from primary care electronic health records from January 2018 to August 2022 (5.1 million people older than 14 years). We divided the study period into two: a pre-pandemic period (before 14 March 2020) and a pandemic period. We performed a segmented regression analysis of daily incidence rates per 100,000 inhabitants of 7 chronic diseases: type 2 diabetes mellitus (T2DM), asthma, chronic obstructive pulmonary disease (COPD), ischemic heart disease (IHD), heart failure (HF), hypertension and hypercholesterolemia. In addition, we compared annual incidence between pandemic years (2020, 2021 and 2022) and 2019. Associated incidence rate ratios (IRR) were also calculated. Finally, we estimated the number of expected diagnoses during the pandemic period using data from 2019 and we compared it with the observed data.

Results: We analysed 740,820 new chronic diseases' diagnoses. Daily incidence rates of all 7 chronic diseases were drastically interrupted on 14 March 2020, and a general upward trend was observed during the following months. Reductions in 2020 were around 30% for all conditions except COPD which had greater reductions (IRR: 0.58 [95% CI: 0.57 to 0.6]) and HF with lesser drops (IRR: 0.86 [95% CI: 0.84 to 0.88]). Some of the chronic conditions have returned to pre-pandemic diagnosis levels, except asthma, COPD and IHD. The return to pre-pandemic diagnosis levels compensated for the drops in 2020 for T2DM and HF, but not for hypertension which presented an incomplete recovery. We also observed an excess of hypercholesterolemia diagnoses of 8.5% (95%CI: 1.81% to 16.15%).

Conclusions: Although primary care has recovered the pre-pandemic diagnosis levels for some chronic diseases, there are still missing diagnoses of asthma, COPD and IHD that should be addressed.

Keywords: COVID-19; Chronic diseases; Electronic health records; Incidence; Primary care.

- 32 references

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Cite

Respir Med
.
. 2023 Jan 11;107003.
doi: 10.1016/j.rmed.2022.107003. Online ahead of print.

Incident and recurrent depression among older adults with asthma during the COVID-19 pandemic: Findings from the Canadian Longitudinal Study on Aging

Andie MacNeil[1], Grace Li[2], Ying Jiang[3], Margaret de Groh[3], Esme Fuller-Thomson[4]
Affiliations expand

- PMID: 36641372

- DOI: 10.1016/j.rmed.2022.107003

Abstract

Objectives: (1) In a subsample of older adults with asthma without a history of depression, to determine the factors associated with developing depression during the COVID-19 pandemic; (2) in a subsample of older adults with asthma with a history of depression, to identify factors associated with recurrent depression during the pandemic.

Methods: Data came from four waves (Baseline [2011-2015], Follow-up 1 [2015-2018]; COVID Spring 2020, COVID Autumn 2020) of the Canadian Longitudinal Study on Aging's comprehensive cohort (n = 2,047 with asthma). The outcome of interest was a positive screen for depression based on the CES-D-10 during the autumn of 2020. Bivariate and multivariate logistic regression analyses were conducted.

Results: Among older adults with asthma without a history of depression (n = 1,247), approximately 1 in 7 (13.5%) developed depression for the first time during the COVID-19 pandemic. Among those with a history of depression (n = 770), approximately 1 in 2 (48.6%) experienced a recurrence of depression. The risk of incident depression and recurrent depression was higher among those who were lonely, those experiencing family conflict during the pandemic, and those who had difficulty accessing healthcare resources during the pandemic. The risk of

incident depression only was higher among those who had difficulty accessing resources and/or loss of income during the pandemic. The risk of recurrent depression only was higher among those with functional limitations.

Conclusions: There is a need for targeted interventions to support the mental health of older adults with asthma who have the above identified vulnerabilities during the pandemic.

Keywords: Asthma; CLSA; COVID-19; Depression; Older adults.

Conflict of interest statement

Declaration of competing interest None.
Proceed to details
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Respir Med

. 2023 Jan 11;107118.
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Interactions between microbiome and underlying mechanisms in asthma

Purevsuren Losol[1], Milena Sokolowska[2], Yoon-Seok Chang[3]
Affiliations expand

- PMID: 36641058

- DOI: 10.1016/j.rmed.2023.107118

Abstract

Microbiome primes host innate immunity in utero and play fundamental roles in the development, training, and function of the immune system throughout the life. Interplay between the microbiome and immune system maintains mucosal homeostasis, while alterations of microbial community dysregulate immune responses, leading to distinct phenotypic features of immune-mediated diseases including asthma. Microbial imbalance within the mucosal environments, including upper and lower airways, skin, and gut, has consistently been observed in asthma patients and linked to increased asthma exacerbations and severity. Microbiome research has increased to uncover hidden

microbial members, function, and immunoregulatory effects of bacterial metabolites within the mucosa. This review provides an overview of environmental and genetic factors that modulate the composition and function of the microbiome, and the impacts of microbiome metabolites and skin microbiota on immune regulation in asthma.

Keywords: Asthma; Diet; Immunity; Metabolite; Microbiome.

Conflict of interest statement

Declaration of competing interest MS declares scientific grants from Swiss National Science Foundation (SNSF), GSK, Novartis and speakers free from AstraZeneca. The other authors have no financial conflicts of interest.

Respir Res

. 2023 Jan 13;24(1):14.
doi: 10.1186/s12931-022-02281-6.

Validation of the CaReQoL asthma: a patient reported outcome measure for monitoring the perceived effects of pulmonary rehabilitation in adult patients with severe refractory asthma

Linda Springvloet[1], Mattanja Triemstra[1], Bart Knottnerus[1], Marlon Rolink[1], Harry Heijerman[2], Dolf de Boer[3]
Affiliations expand

- PMID: 36639773

- DOI: 10.1186/s12931-022-02281-6

Abstract

Background: The CaReQoL Asthma assesses the care-related quality of life outcomes of pulmonary rehabilitation retrospectively in patients with severe asthma. The questionnaire comprises five domains (physical functioning; social functioning; coping with asthma; knowledge about asthma; medication).

Aim: To investigate construct and criterion validity of the CaReQoL Asthma, as well as its responsiveness and minimal important change (MIC), in comparison with other health measures (AQLQ, ACQ and FEV_1).

Methods: Eighty three adults with severe refractory asthma filled out the CaReQoL Asthma at 6 and 12 months after a 12-week personalized multidisciplinary pulmonary rehabilitation program in a tertiary asthma centre, either in Switzerland or The Netherlands. Construct validity and responsiveness were assessed by testing pre-defined hypotheses about associations with changes in AQLQ, ACQ and FEV_1 scores. Criterion validity and MIC was assessed using Global Perceived Effect (GPE). Factor analyses, Cronbach's alpha, Spearman's correlations, paired t-tests and Student-Newman-Keuls tests were performed.

Results: Cronbach's alphas of the questionnaire domains ranged from 0.82 to 0.95. Good construct validity and responsiveness were found; 84% of the assessed correlations confirm pre-defined hypotheses and reflect both weak and moderate to strong correlations. Good criterion validity was also identified, with CaReQol scores discriminating better than other health measures between levels of GPE at 6 months post-rehabilitation. The MIC for the total score was estimated at 0.84.

Conclusion: These study results suggest that the CaReQoL Asthma is a valid and responsive instrument and shows to be a comprehensive and tailored questionnaire for evaluating and monitoring outcomes of pulmonary rehabilitation in patients with severe refractory asthma. In order to further substantiate the reliability and validity of the CaReQoL Asthma, as well as to monitor outcomes of pulmonary rehabilitation in patients with severe asthma, it is recommended to use the CaReQoL Asthma in addition to other disease specific instruments.

Keywords: Asthma; Patient reported outcome measurement (PROM); Pulmonary rehabilitation; Responsiveness; Validity.

- 28 references

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BMC Microbiol

. 2023 Jan 13;23(1):13.
doi: 10.1186/s12866-023-02757-5.

Upper respiratory tract microbiota is associated with small airway function and asthma severity

Yi Li[1], Congying Zou[2], Jieying Li[3], Wen Wang[4], Yue Guo[3], Lifang Zhao[3], Chunguo Jiang[3], Peng Zhao[5], Xingqin An[1]
Affiliations expand

- PMID: 36639753

- DOI: 10.1186/s12866-023-02757-5

Abstract

Background: Characteristics of airway microbiota might influence asthma status or asthma phenotype. Identifying the airway microbiome can help to investigate its role in the development of asthma phenotypes or small airway function.

Methods: Bacterial microbiota profiles were analyzed in induced sputum from 31 asthma patients and 12 healthy individuals from Beijing, China. Associations between small airway function and airway microbiomes were examined.

Results: Composition of sputum microbiota significantly changed with small airway function in asthma patients. Two microbiome-driven clusters were identified and characterized by small airway function and taxa that had linear relationship with small airway functions were identified.

Conclusions: Our findings confirm that airway microbiota was associated with small airway function in asthma patients.

Keywords: Ashtma; Maximal expiratory flow; Mirobiome; Phenotype; Small airway function.

- 52 references

SUPPLEMENTARY INFO

Grant supportexpand
Proceed to details
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Respir Res

. 2023 Jan 13;24(1):15.
doi: 10.1186/s12931-022-02297-y.

Recognising the importance of chronic lung disease: a consensus statement from the Global Alliance for Chronic Diseases (Lung Diseases group)

Gillian Sandra Gould[1], John R Hurst[2], Antigona Trofor[3], Jennifer A Alison[4], Gregory Fox[4], Muralidhar M Kulkarni[5], Craig E Wheelock[6,7], Marilyn Clarke[1], Ratika Kumar[8]
Affiliations expand

- PMID: 36639661

- DOI: 10.1186/s12931-022-02297-y

Abstract

Background: Chronic respiratory diseases are disorders of the airways and other structures of the lung, and include chronic obstructive pulmonary disease (COPD), lung cancer, asthma, bronchiectasis, interstitial lung diseases, occupational lung diseases and pulmonary hypertension. Through this article we take a broad view of chronic lung disease while highlighting (1) the complex interactions of lung diseases with environmental factors (e.g. climate change, smoking and vaping) and multimorbidity and (2) proposed areas to strengthen for better global patient outcomes.

Conclusion: We suggest new directions for the research agenda in high-priority populations and those experiencing health disparities. We call for lung disease to be made a research priority with greater funding allocation globally.

- 69 references

SUPPLEMENTARY INFO

Publication typesexpand
Proceed to details
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7
Qual Life Res
.
. 2023 Jan 13.
doi: 10.1007/s11136-022-03322-9. Online ahead of print.

Patient-reported outcome (PRO) measurements in chronic and malignant diseases: ten years' experience with PRO-algorithm-based patient-clinician interaction (telePRO) in AmbuFlex

Niels Henrik I Hjollund[1,2,3], Louise Pape Larsen[4], Annette Ladefoged de Thurah[5], Birgith Engelst Grove[4], Halla Skuladottir[6], Hanne Linnet[6], Rasmus Blechingberg Friis[6], Søren Paaske Johnsen[7], Ole May[8], Annesofie Lunde Jensen[9], Troels Krarup Hansen[9], Gry Assam Taarnhøj[10], Lærke Kjær Tolstrup[10], Helle Pappot[10], Per Ivarsen[11,12], Liv Dørflinger[13], Anne Jessen[4], Nanna Toxvig Sørensen[4], Liv Marit Valen Schougaard[4], The AmbuFlex Team[4]
Affiliations expand

- PMID: 36639598

- DOI: 10.1007/s11136-022-03322-9

Abstract

Background: Patient-reported Outcome (PRO) measures may be used as the basis for out-patient follow-up instead of fixed appointments. The patients attend follow-up from home by filling in questionnaires developed for that specific aim and patient group (telePRO). The questionnaires are handled in real time by a specific algorithm, which assigns an outcome color reflecting clinical need. The specific questionnaires and algorithms (named solutions) are constructed in a consensus process with clinicians. We aimed to describe AmbuFlex' telePRO solutions and the algorithm outcomes and variation between patient groups, and to discuss possible applications and challenges.

Methods: TelePRO solutions with more than 100 processed questionnaires were included in the analysis. Data were retrieved together with data from national registers. Characteristics of patients, questionnaires and outcomes were tabulated for each solution. Graphs were constructed depicting the overall and within-patient distribution of algorithm outcomes for each solution.

Results: From 2011 to 2021, 29 specific telePRO solutions were implemented within 24 different ICD-10 groups. A total of 42,015 patients were referred and answered 171,268 questionnaires. An existing applicable instrument with cut-off values was available for four solutions, whereas items were selected or developed ad hoc for the other solutions. Mean age ranged from 10.7 (Pain in children) to 73.3 years (chronic kidney disease). Mortality among referred patients varied between 0 (obesity, asthma, endometriosis and pain in children) and 528 per 1000 patient years (Lung cancer). There was substantial variation in algorithm outcome across patient groups while different solutions within the same patient group varied little.

Discussion: TelePRO can be applied in diseases where PRO can reflect clinical status and needs. Questionnaires and algorithms should be adapted for the specific patient groups and clinical aims. When PRO is used as replacement for clinical contact, special carefulness should be observed with respect to patient safety.

Keywords: Algorithm; Chronic disease; Decision support systems; Malignant diseases; Outpatient follow-up; Patient-reported outcome measures; Questionnaires.

- 59 references

Proceed to details
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J Allergy Clin Immunol Pract

. 2023 Jan 10;S2213-2198(23)00051-X.
doi: 10.1016/j.jaip.2022.12.040. Online ahead of print.

Impaired respiratory system resistance and reactance are associated with bronchial wall thickening in persistent asthma

Rory Chan[1], Chary Duraikannu[2], Mohamed Jaushal Thouseef[2], Brian Lipworth[3]
Affiliations expand

- PMID: 36639055

- DOI: 10.1016/j.jaip.2022.12.040

Abstract

Background: A recent study demonstrated a significant correlation between bronchial biopsy airway remodelling with quantitative computed tomography looking at bronchial wall thickness.

Objectives: To identify clinical associations with bronchial wall thickness in moderate-to-severe asthma.

Methods: 92 respiratory physician diagnosed GINA-defined moderate-to-severe asthma patients were included in this retrospective cohort study. Blinded to all clinical data, two senior thoracic radiologists independently measured airway lumen and total airway area at four different bronchopulmonary segments using high resolution CT imaging. We calculated adjusted odds ratios (aORs) in regard to the association of bronchial wall thickness with spirometry, oscillometry, exacerbations and nasal polyps.

Results: The pooled analysis for all four bronchopulmonary segments showed that AX≥1.0kPa/L, R5-R20 ratio ≥25%, ≥2 exac/yr and nasal polyposis exhibited aOR (95%CI) of 3.54 (1.22,10.32); 2.89 (1.03,8.05); 4.17 (1.25,13.90); and 9.85 (2.33,41.74) respectively in their association with wall area thickness ≥50%. These translated into a respective 72%, 65%, 76% and 90% increased likelihood for wall area ≥50%.

Conclusion: Bronchial wall thickness is associated with peripheral airways resistance and reactance, severe exacerbations and nasal polyposis in persistent asthma.

Keywords: airway remodelling; asthma; bronchial wall thickness; exacerbations; oscillometry; peripheral airways resistance; reactance.

J Allergy Clin Immunol Pract

. 2023 Jan 10;S2213-2198(23)00052-1.
doi: 10.1016/j.jaip.2023.01.002. Online ahead of print.

THE ICS/FORMOTEROL RELIEVER THERAPY REGIMEN IN ASTHMA: A REVIEW

Richard Beasley[1], Pepa Bruce[2], Claire Houghton[2], Lee Hatter[3]

Affiliations expand

- PMID: 36639054

- DOI: 10.1016/j.jaip.2023.01.002

Abstract

The Global Initiative for Asthma (GINA) recommends that low dose inhaled corticosteroid (ICS)/formoterol is preferred to short-acting beta$_2$-agonists (SABA's) as reliever therapy in adolescents and adults with asthma, across the range of asthma severity. This recommendation represents the most fundamental change in asthma management for many decades. In this commentary, we review the rationale for combination ICS/formoterol therapy, the evidence on which this recommendation has been made, the limitations in the evidence, the practical issues relevant to the implementation of ICS/formoterol reliever-based regimens in clinical practice, and the emerging evidence for the efficacy and safety of combination ICS/salbutamol reliever therapy regimens.

Keywords: adolescents; adults; asthma; formoterol; inhaled corticosteroids; reliever; short-acting beta(2)-agonist.

Editorial

J Allergy Clin Immunol

. 2023 Jan 10;S0091-6749(23)00008-8.
doi: 10.1016/j.jaci.2023.01.003. Online ahead of print.

Knowledge gaps and future opportunities for biologics in childhood allergic and immunologic disorders

Cullen M Dutmer[1], Andrew H Liu[2]
Affiliations expand

- PMID: 36638920

- DOI: 10.1016/j.jaci.2023.01.003

No abstract available

Keywords: asthma; biologic therapy; biomarker; exacerbation; immune deficiency; inborn errors of immunity.

SUPPLEMENTARY INFO

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Review

Int J Gynaecol Obstet
.
. 2023 Jan 13.
doi: 10.1002/ijgo.14660. Online ahead of print.

Age of the onset of menarche and its complications. A literature review

Mariana Rivas-Paz[1], Blanca Miriam Torres-Mendoza[2,3], Natalia Torres-Castillo[4]
Affiliations expand

- PMID: 36637233

- DOI: 10.1002/ijgo.14660

Abstract

Background: The menarche plays an important role in a woman, since its onset may generate the development of certain pathologies in the future.

Objectives: To review the updated bibliography about risk factors related to the age of onset of menarche.

Search strategy: A systematic search review of PubMed, Scopus, EMBASE, EBSCO-Host, Springer Link and Clinical Key from November 2021 to May 2022.

Data collection and analysis: From each article a descriptive summary organized by first author, year of publication, type of article, characteristics of the study and results were extracted. The results of the different articles were compared before using them in the current literature review.

Main results: A total of 15,824 articles were collected, from which, 33 articles were used following the inclusion and exclusion criteria. It was found that an early estrogen stimulus triggers a predisposing factor for pathologies such as insulin resistance, asthma, and short stature. On the contrary, a late estrogenic stimulus generates low bone mineral density.

Conclusions: The importance of menarche as a protective or triggering factor of pathologies helps us to implement preventive measures to avoid these future pathologies.

Keywords: early menarche; fist menstrual period; late menarche; menarche; puberty; review; review article.

SUPPLEMENTARY INFO

Publication typesexpand
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Curr Opin Allergy Clin Immunol

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. 2023 Jan 13.
doi: 10.1097/ACI.0000000000000892. Online ahead of print.

Applying the new guidelines to asthma management in children

Riccardo Castagnoli[1,2], Ilaria Brambilla[1,2], Michele Miraglia Del Giudice[3], Gian Luigi Marseglia[1,2], Amelia Licari[1,2]
Affiliations expand

- PMID: 36637070

- DOI: 10.1097/ACI.0000000000000892

Abstract

Purpose of review: This review aims to provide paediatricians with novel concepts from scientific evidence applicable to treating children with asthma. The latest guideline updates on paediatric asthma are discussed here, with a focus on the 2022 update of the GINA document.

Recent findings: Mild asthma remains to be an important challenge for the paediatrician, and the introduction of new evidence-based treatment strategies, particularly those symptom-driven, could have a significant impact on the paediatric population. The identification of predictive biomarkers, the definition of biological treatment response, the possible duration of these therapies in this age group, as well as their potential action on airway remodelling are desirable in the short term. As the number of available biological treatment options expands, paediatricians should be supported by further evidence in decision-making.

Summary: There is an urgent need to implement at multiple levels the latest therapeutic strategies proposed for asthma at all severities.

- 40 references

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13

BMC Med Inform Decis Mak

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. 2023 Jan 12;23(1):6.

doi: 10.1186/s12911-022-02080-5.

A parametric model to jointly characterize rate, duration, and severity of exacerbations in episodic diseases

Abdollah Safari[1,2], John Petkau[3], Mark J FitzGerald[4], Mohsen Sadatsafavi[5,4]

Affiliations expand

- PMID: 36635713

- PMCID: PMC9837953

- DOI: 10.1186/s12911-022-02080-5

Abstract

Background: The natural history of many chronic diseases is characterized by periods of increased disease activity, commonly referred to as flare-ups or exacerbations. Accurate characterization of the burden of these exacerbations is an important research objective.

Methods: The purpose of this work was to develop a statistical framework for nuanced characterization of the three main features of exacerbations: their rate, duration, and severity, with interrelationships among these features being a particular focus. We jointly specified a zero-inflated accelerated failure time regression model for the rate, an accelerated failure time regression model for the duration, and a logistic regression model for the severity of exacerbations. Random effects were incorporated into each component to capture heterogeneity beyond the variability attributable to observed characteristics, and to describe the interrelationships among these components.

Results: We used pooled data from two clinical trials in asthma as an exemplary application to illustrate the utility of the joint modeling approach. The model fit clearly indicated the presence of heterogeneity in all three components. A novel finding was that the new therapy reduced not just the rate but also the duration of exacerbations, but did not have a significant impact on their severity. After controlling for covariates, exacerbations among more frequent exacerbators tended to be shorter and less likely to be severe.

Conclusions: We conclude that a joint modeling framework, programmable in available software, can provide novel insights about how the rate, duration, and severity of episodic events interrelate, and enables consistent inference on the effect of treatments on different disease outcomes. Trial registration Ethics approval was obtained from the University of British Columbia Human Ethics Board (H17-00938).

Keywords: Asthma exacerbations; Gap times; Random effect models; Recurrent episodes; Recurrent events; Time-to-event analysis.

Conflict of interest statement

The authors declare that they have no competing interests.

- 42 references
- 3 figures

SUPPLEMENTARY INFO

Grant supportexpand
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J Allergy Clin Immunol

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. 2023 Jan 10;S0091-6749(22)02554-4.
doi: 10.1016/j.jaci.2022.12.806. Online ahead of print.

In lasting tribute: Dr Hans Bisgaard, January 24, 1955, to September 8, 2022

Klaus Bønnelykke[1], Bo Chawes[2], Jakob Stokholm[2], Nilofar V Følsgaard[2], Ann-Marie M Schoos[2], Marianne Mikkelsen[2]
Affiliations expand

- PMID: 36635204

- DOI: 10.1016/j.jaci.2022.12.806

No abstract available
Proceed to details
Cite

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Int J Dev Neurosci

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. 2023 Jan 12.
doi: 10.1002/jdn.10250. Online ahead of print.

Brain network study of attentional cognitive impairment in children with bronchial asthma

Lin Zhu[1], Jing Zhao[1], Yuya Yang[2], Qiuling Shangguan[1], Yi Chen[1], Ye He[1], Jianfeng Wu[1], Congyin Qin[1], Jianxin Xiong[1], Kaihua Jiang[1]
Affiliations expand

- PMID: 36633998

- DOI: 10.1002/jdn.10250

Abstract

Bronchial asthma often causes cognitive impairment, especially attentional deficit, which has a serious impact on children's learning. This study aims to provide objective indicators for the evaluation of attention in asthma children. Thirty-one asthmatic and typically developing children (TDC) were tested by resting-state functional magnetic resonance imaging (rs-fMRI). Brain network-based methods of degree centricity and voxel-mirrored homotopic connectivity (VMHC) methods were used in the study. Compared with the TDC group, asthmatic children had lower DC values in the right superior frontal gyrus (after FDR correction, P<0.05). Meanwhile, VMHC values of bilateral superior frontal gyrus and bilateral superior parietal lobule in asthmatic children were lower than those in TDC group (after FDR correction, P<0.05). There was significant correlation between the correct percentage of CPT and DC value in right superior frontal gyrus, VMHC value in right superior frontal gyrus and right superior parietal lobule. In this study, impaired superior frontal gyrus and parietal lobe function are associated with attentional deficit in asthmatic children, and these brain regions are key brain regions in attention-related networks.

Keywords: Attention; Bronchial asthma; Functional magnetic resonance imaging.

Expert Rev Respir Med

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. 2023 Jan 12.
doi: 10.1080/17476348.2023.2167714. Online ahead of print.

Is mild asthma truly mild? The patients' real-life setting

Gabriella Guarnieri[1], Veronica Batani[2], Gianenrico Senna[2,3], Annarita Dama[3], Andrea Vianello[1], Marco Caminati[2]
Affiliations expand

- PMID: 36633404

- DOI: 10.1080/17476348.2023.2167714

Abstract

Objectives: Asthma exacerbations and more rarely fatal asthma attacks have been reported in mild asthma patients, suggesting poor disease control and awareness of its potential burden. Our study aimed to explore outside the hospital/specialist setting the perspective and disease treatment behaviour of patients self-reporting a mild asthma diagnosis.

Methods: Computed Assisted Personal Interviewing (CAPI) technique was used to investigate the identified study population. Questions about diagnosis, symptoms, comorbidities, treatment strategy, ongoing assessments and quality of life were administered.

Results: Overall, 258 patients were considered for the analysis. As the most relevant results, 22% of them reported severe respiratory symptoms, 52% experienced at least one exacerbation/year and 7% needed Emergency Room care. 66% of the respondents assumed as needed short-acting bronchodilators only. Of note, 22% of patients were using oral steroids (OCS) intermittently and 72% of them considered their quality of life unsatisfying.

Conclusion: Outside the hospital/specialist setting, mild asthma burden is still not negligible and the treatment approach not correct. In particular, the reported OCS use is disproportionate. Our data suggest that mild asthma is other than mild, and efforts to increase disease awareness and overall improve the disease control limiting the OCS abuse are required.

Keywords: asthma control; mild asthma; oral steroids; patients perception; under-treatment.

Expert Rev Respir Med

. 2023 Jan 11.
doi: 10.1080/17476348.2023.2168261. Online ahead of print.

Respiratory comorbidities in severe asthma: focus on the pediatric age

Amelia Licari[1,2], Beatrice Andrenacci[1], Maria Elisa Di Cicco[3], Maddalena Leone[4], Gian Luigi Marseglia[1,2], Mariangela Tosca[5]
Affiliations expand

- PMID: 36631726

- DOI: 10.1080/17476348.2023.2168261

Abstract

Introduction: Asthma comorbidities are a frequent cause of adverse outcomes, such as poor asthma control, frequent asthma attacks, reduced quality of life, and higher healthcare costs. Comorbidities are well-known treatable traits whose proper management can help achieve optimal asthma control. Although multimorbidity is frequent among asthmatics, comorbidities are still a potential cause of misdiagnosis and under or overtreatments, and little is known about their impact on severe pediatric asthma.

Areas covered: We provided a comprehensive, 5-year updated review focusing on the main respiratory comorbidities in severe asthma, particularly in epidemiology, pathogenesis, and current and future therapies.

Expert opinion: Respiratory comorbidities have unique characteristics in childhood. Their management must be multidisciplinary, age-specific, and integrated. Further longitudinal studies are needed to understand better the mutual interrelation and synergistic effect between asthma and its respiratory comorbidities, the identification of common, treatable risk factors leading to potential asthma prevention, the effectiveness of actual and future target-therapies, and the correlation between long-lasting respiratory comorbidities and poor lung function trajectories.

Keywords: Pediatrics; asthma comorbidities; breathing pattern disorders; bronchiectasis; inducible laryngeal obstructions; obstructive sleep apnea; rhinitis; rhinosinusitis; severe asthma; severe asthma with fungal sensitization.

Expert Rev Respir Med

. 2023 Jan 11.
doi: 10.1080/17476348.2023.2167715. Online ahead of print.

Clinical characteristics, treatment patterns and adherence in patients with asthma on multiple inhaler triple therapy: a review of findings

Mario Cazzola[1], Luigino Calzetta[2], Barbara Rinaldi[3], Vito De Novellis[3], Paola Rogliani[1], Maria Gabriella Matera[3]
Affiliations expand

- PMID: 36629483

- DOI: 10.1080/17476348.2023.2167715

Abstract

Introduction: The value of treating asthma with the triple regimen of inhaled corticosteroid (ICS), long-acting β_2-agonist (LABA), and long-acting muscarinic antagonist (LAMA) delivered using multiple inhalers (MITT), or a single inhaler (SITT) is supported by a growing body of evidence, although research is still limited regarding the use of MITT.

Areas covered: Clinical characteristics, treatment patterns, disease burden, and persistence/adherence associated with MITT use in asthma. To identify references, the MEDLINE database was searched from database inception until October 2022.

Expert opinion: The use of MITT is not very frequent in asthma patients, although it improves lung function and reduces the incidence of severe exacerbations. This may be due to existing concerns about the effect of using different devices on adherence and persistence to treatment, with a negative influence on outcomes, and to the fear that the patient will discontinue ICS/LABA but not LAMA. Nevertheless, although the current trend favors the SITT approach, some physicians may be induced to prescribe MITT over SITT because it allows the titration of individual components of triple therapy to be increased or decreased. Evidently, there is a need for pragmatic real-life studies to document when to prefer SITT and when MITT should be used.

Keywords: Asthma; adherence; multiple inhalers; persistence; single inhaler; triple therapy.

19
Acta Paediatr
.
. 2023 Jan 10.
doi: 10.1111/apa.16666. Online ahead of print.

Blood eosinophils during bronchiolitis; associations with atopy, asthma, and lung function in young adults

Karen Galta Sørensen[1,2], Knut Øymar[1,2], Ingvild Dalen[3], Thomas Halvorsen[2,4], Ingvild Bruun Mikalsen[1,2]
Affiliations expand

- PMID: 36627486

- DOI: 10.1111/apa.16666

Abstract

Aim: To study if blood eosinophils during bronchiolitis were associated with atopy, asthma, and lung function in young adults, and if these associations differed between respiratory syncytial virus (RSV) bronchiolitis and non-RSV bronchiolitis.

Methods: This historical cohort enrolled 225 subjects. Blood eosinophils were measured during bronchiolitis in infancy, and the subjects were invited to a follow-up at 17-20 years of age including questionnaires for asthma and examinations of lung function and atopy.

Results: The level of eosinophils was positively associated with subsequent atopy in the unadjusted analysis, but not in the adjusted analysis, and not with asthma. There was a negative association between the level of eosinophils and forced vital capacity (FVC) (-0.11; -0.19, -0.02) and forced expiratory volume in first second (FEV_1) (-0.12; -0.21, -0.03) (regression coefficient; 95% confidence interval). The non-RSV group had higher levels of eosinophils during bronchiolitis, but there was no interaction between the level of eosinophils and RSV-status for any outcome.

Conclusions: The level of eosinophils during bronchiolitis was negatively associated with lung function in young adult age, but we found no associations with atopy or asthma. These associations were not different after RSV bronchiolitis compared to non-RSV bronchiolitis.

Keywords: Asthma; Atopy; Bronchiolitis; Eosinophils; Lung function.

Am J Physiol Lung Cell Mol Physiol

. 2023 Jan 10.
doi: 10.1152/ajplung.00331.2022. Online ahead of print.

Diet-Induced Obesity Worsens Allergen-Induced Type 2/Type 17 Inflammation in Airways by Enhancing DUOX1 Activation

Aida Habibovic[1], Milena Hristova[1], Carolyn R Morris[1,2], Miao-Chong Joy Lin[1], Litiele C Cruz[1], Jennifer L Ather[2], Miklos Geizst[3], Vikas Anathy[1], Yvonne M W Janssen-Heininger[1], Matthew E Poynter[2], Anne E Dixon[2], Albert van der Vliet[1]
Affiliations expand

- PMID: 36625485

- DOI: 10.1152/ajplung.00331.2022

Abstract

More than 50% of people with asthma in the US are obese, and obesity often worsens symptoms of allergic asthma and impairs response to treatment. Based on previously established roles of the epithelial NADPH oxidase DUOX1 in allergic airway inflammation, we addressed the potential involvement of DUOX1 in altered allergic inflammation in the context of obesity. Intranasal house dust mite (HDM) allergen challenge of subjects with allergic asthma induced rapid secretion of IL-33, then IL-13, into the nasal lumen, responses that were significantly enhanced in obese asthmatic subjects (BMI >30). Induction of diet-induced obesity (DIO) in mice by high-fat diet (HFD) feeding similarly enhanced acute airway responses to intranasal HDM challenge, particularly with respect to secretion of IL-33 and type 2/type 3 cytokines, and this was associated with enhanced epithelial DUOX1 expression and was avoided in DUOX1-deficient mice. DIO also enhanced DUOX1-dependent features of chronic HDM-induced allergic inflammation. Although DUOX1 did not

affect overall weight gain by HFD feeding, it contributed to glucose intolerance, suggesting a role in glucose metabolism. However, glucose intolerance induced by short-term HFD feeding, in the absence of adiposity, was not sufficient to alter HDM-induced acute airway responses. DIO was associated with enhanced presence of the adipokine leptin in the airways, and leptin enhanced DUOX1-dependent IL-13 and mucin production in airway epithelial cells. In conclusion, augmented inflammatory airway responses to HDM in obesity are attributed to increases in airway epithelial DUOX1, and by increased airway epithelial leptin signaling.

Keywords: Asthma; Glucose; Leptin; NADPH oxidase; Obesity.

Toxicol Appl Pharmacol

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Ozone impairs endogenous compensatory responses in allergic asthma

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Affiliations expand

- PMID: 36502870

- PMCID: PMC9840700

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Free PMC article

Abstract

Asthma is a chronic inflammatory airway disease characterized by acute exacerbations triggered by inhaled allergens, respiratory infections, or air pollution. Ozone (O_3), a major component of air pollution, can damage the lung epithelium in healthy individuals. Despite this association, little is known about the effects of O_3 and its impact on chronic lung disease. Epidemiological data have demonstrated that elevations in ambient O_3 are associated with increased asthma exacerbations. To identify mechanisms by which O_3 exposure leads to asthma exacerbations, we developed a two-hit mouse model where mice were sensitized and challenged with three common allergens (dust mite, ragweed and Aspergillus fumigates, DRA) to induce allergic inflammation prior to exposure to O_3 ($DRAO_3$). Changes in lung physiology, inflammatory cells, and inflammation were measured. Exposure to O_3 following DRA significantly increased airway hyperreactivity (AHR), which was independent of TLR4. DRA exposure resulted in increased BAL eosinophilia while O_3 exposure resulted in neutrophilia. Additionally, O_3 exposure following DRA blunted anti-inflammatory and antioxidant responses. Finally, there were significantly less monocytes and innate lymphoid type 2 cells (ILC2s) in the dual challenged DRA-O_3 group suggesting that the lack of these immune cells may influence O_3-induced AHR in the setting of allergic inflammation. In summary, we developed a mouse model that mirrors some aspects of the clinical course of asthma exacerbations due to air pollution and identified that O_3 exposure in the asthmatic lung leads to impaired endogenous anti-inflammatory and antioxidant responses and alterations inflammatory cell populations.

Keywords: Allergic asthma; Eosinophils; Murine model; Ozone.

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.

. 2023 Jan 15;207(2):117-118.
doi: 10.1164/rccm.202210-1953ED.

Gastroesophageal Reflux, Atopic Dermatitis, and Asthma: Finally Evidence for Causal Links?

Meghan D Althoff[1], Sunita Sharma[1]
Affiliations expand

- PMID: 36301927

- DOI: 10.1164/rccm.202210-1953ED

No abstract available

Comment on

- Mendelian Randomization Analysis Reveals a Complex Genetic Interplay among Atopic Dermatitis, Asthma, and Gastroesophageal Reflux Disease.
  Ahn K, Penn RB, Rattan S, Panettieri RA Jr, Voight BF, An SS.Am J Respir Crit Care Med. 2023 Jan 15;207(2):130-137. doi: 10.1164/rccm.202205-0951OC.PMID: 36214830

. 2023 Jan 15;207(2):183-192.
doi: 10.1164/rccm.202202-0294OC.

Health Care Spending on Respiratory Diseases in the United States, 1996–2016

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Affiliations expand

- PMID: 35997678

- DOI: 10.1164/rccm.202202-0294OC

Abstract

Rationale: Respiratory conditions account for a large proportion of health care spending in the United States. A full characterization of spending across multiple conditions and over time has not been performed. **Objectives:** To estimate health care spending in the United States for 11 respiratory conditions from 1996 to 2016, providing detailed trends and an evaluation of factors associated with spending growth. **Methods:** We extracted data from the Institute of Health Metrics and Evaluation's Disease Expenditure Project Database, producing annual estimates in spending for 38 age and sex groups, 7 types of care, and 3 payer types. We performed a decomposition analysis to estimate the change in spending associated with changes in each of five factors (population growth, population aging, disease prevalence, service usage, and service price and intensity). **Measurements and Main Results:** Total spending across all respiratory conditions in 2016 was $170.8 billion (95% confidence interval [CI], $164.2-179.2 billion), increasing by $71.7 billion (95% CI, $63.2-80.8 billion) from 1996. The respiratory conditions with the highest spending in 2016 were asthma and chronic obstructive pulmonary disease, contributing $35.5 billion (95% CI, $32.4-38.2 billion) and $34.3 billion (95% CI, $31.5-37.3 billion), respectively. Increasing service price and intensity were associated with 81.4% (95% CI, 70.3-93.0%) growth from 1996 to 2016. **Conclusions:** U.S. spending on respiratory conditions is high, particularly for chronic conditions like asthma and chronic obstructive pulmonary disease. Our findings suggest that service price and intensity, particularly for pharmaceuticals, should be a key focus of attention for policymakers seeking to reduce health care spending growth.

Keywords: health economics; health expenditures; health policy.

Comment in

- How Much Does the United States Spend on Respiratory Diseases?
  Nurmagambetov TA.Am J Respir Crit Care Med. 2023 Jan 15;207(2):126-127. doi: 10.1164/rccm.202209-1696ED.PMID: 36155100 No abstract available.

SUPPLEMENTARY INFO

Grant supportexpand

J Pediatr Psychol

. 2023 Jan 12;48(1):39-50.
doi: 10.1093/jpepsy/jsac061.

Risk and Protective Factors for Physical Activity Engagement Among Adolescents With Comorbid Asthma and Obesity

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Affiliations expand

- PMID: 35849004

- DOI: 10.1093/jpepsy/jsac061

Abstract

Objective: The current study identifies levels of physical activity (PA) engagement among adolescents with neither asthma nor overweight/obesity (OW/OB), one, or both conditions. Risk and protective factors are examined across groups.

Methods: Data from 8th, 9th, and 11th graders were obtained from the 2019 Minnesota Student Survey (N = 125,164). One-way analysis of variance was used to assess PA levels across risk groups. Linear regressions were used to examine patterns of risk and protective factors for adolescent PA engagement across four groups (neither asthma nor OW/OB, asthma only, OW/OB only, and comorbid asthma + OW/OB). Results were stratified by race/ethnicity.

Results: Adolescents with OW/OB only or asthma + OW/OB had significantly lower PA levels than youth with asthma only or neither condition (M = 3.65-3.67 days/week, SD = 2.20 vs M = 4.15-4.19 days/week, SD = 2.16-2.17, p < .001). The following variables were associated with adolescent PA (p < .001): Adult community care across all risk groups (β ranges = .13-.16), depressive symptoms among those with neither and both asthma + OW/OB (β's = -.10), and extracurriculars among those with asthma + OW/OB (β = .10). Extracurriculars and parent connectedness were protective for Hispanic adolescents.

Conclusions: Adolescents with OW/OB had significantly lower levels of PA compared to those without, regardless of asthma status. Individual and relational factors influenced adolescent PA. Future research investigating factors influencing adolescent PA should consider depressive symptoms, connectedness to adults in the community, non-sport-related extracurricular activity involvement, and address disparities among minoritized youth.

Keywords: adolescents; asthma; health behavior; obesity and weight management.

RHINITIS

1

Nat Microbiol

.

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doi: 10.1038/s41564-022-01301-x. Online ahead of print.

Exacerbation of allergic rhinitis by the commensal bacterium Streptococcus salivarius

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Affiliations expand

- PMID: 36635572

- DOI: 10.1038/s41564-022-01301-x

Abstract

Allergic rhinitis (AR)-commonly called hay fever-is a widespread condition that affects the quality of life of millions of people. The pathophysiology of AR remains incompletely understood. In particular, it is unclear whether members of the colonizing nasal microbiota contribute to AR. Here, using 16S ribosomal RNA sequencing, we show that the nasal microbiome of patients with AR (n = 55) shows distinct differences compared with that from healthy individuals (n = 105), including decreased heterogeneity and the increased abundance of one species, Streptococcus salivarius. Using ex vivo and in vivo models of AR, we demonstrate that this commensal bacterium contributes to AR development, promoting inflammatory cytokine release and morphological changes in the nasal epithelium that are characteristic of AR. Our data indicate that this is due to the ability of S. salivarius to adhere to the nasal epithelium under AR conditions. Our study indicates the potential of targeted antibacterial approaches for AR therapy.

- 64 references

SUPPLEMENTARY INFO

Grant supportexpand
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J Allergy Clin Immunol Pract
. 2023 Jan 9;S2213-2198(23)00010-7.
doi: 10.1016/j.jaip.2022.12.035. Online ahead of print.

Limited health literacy and its associated health outcomes among adults with at least two atopic diseases

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Affiliations expand

- PMID: 36634845

- DOI: 10.1016/j.jaip.2022.12.035

Abstract

Background: Health literacy is essential for patients with multiple atopic diseases to improve their health, given the complexity of their disease and treatment regimens.

Objective: To estimate the proportion of adults with multiple atopic diseases (at least two of atopic dermatitis (AD), asthma, allergic rhinitis, and food allergy) in the Dutch general population, and to evaluate the prevalence of limited health literacy, and its association with socioeconomic status (SES), lifestyle factors, and health-related quality of life (HR-QoL) in this patient population.

Methods: This cross-sectional study was conducted within the Lifelines Cohort Study via sending an add-on digital questionnaire, including (among others) questions on AD, to all adult participants (n=135 950) between February and May in 2020. Data on asthma, allergic rhinitis, lifestyle factors, HR-QoL, and SES were extracted from baseline assessment between 2006 and 2013. Functional, communicative, and critical health literacy was measured by validated items from Chew and the Dutch Functional Communicative and Critical Health Literacy questionnaires between 2012 and 2016. Food allergy was measured by the Food Allergy Questionnaire between 2014 and 2016.

Results: In total, 11.8% of the overall study population reported ever having multiple atopic diseases; of those 23.6% reported having limited functional health literacy, with a

higher prevalence among those with a low SES. Limited functional health literacy showed positive associations with smoking, obesity, chronic stress, a low diet quality, and decreased HR-QoL among subjects with multiple atopic diseases.

Conclusion: We identified a health literacy deficit, and its association with a low SES and poor health outcomes among patients with multiple atopic diseases. Further research is warranted to utilize a more extensive assessment to measure health literacy and include more health outcomes, such as treatment adherence and disease control.

Keywords: Atopic dermatitis; HR-QoL; allergic rhinitis; asthma; food allergy; health literacy; lifestyle factors; multimorbidity; socioeconomic status.

Expert Rev Respir Med

. 2023 Jan 11.
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Respiratory comorbidities in severe asthma: focus on the pediatric age

Amelia Licari[1,2], Beatrice Andrenacci[1], Maria Elisa Di Cicco[3], Maddalena Leone[4], Gian Luigi Marseglia[1,2], Mariangela Tosca[5]
Affiliations expand

- PMID: 36631726

- DOI: 10.1080/17476348.2023.2168261

Abstract

Introduction: Asthma comorbidities are a frequent cause of adverse outcomes, such as poor asthma control, frequent asthma attacks, reduced quality of life, and higher

healthcare costs. Comorbidities are well-known treatable traits whose proper management can help achieve optimal asthma control. Although multimorbidity is frequent among asthmatics, comorbidities are still a potential cause of misdiagnosis and under or overtreatments, and little is known about their impact on severe pediatric asthma.

Areas covered: We provided a comprehensive, 5-year updated review focusing on the main respiratory comorbidities in severe asthma, particularly in epidemiology, pathogenesis, and current and future therapies.

Expert opinion: Respiratory comorbidities have unique characteristics in childhood. Their management must be multidisciplinary, age-specific, and integrated. Further longitudinal studies are needed to understand better the mutual interrelation and synergistic effect between asthma and its respiratory comorbidities, the identification of common, treatable risk factors leading to potential asthma prevention, the effectiveness of actual and future target-therapies, and the correlation between long-lasting respiratory comorbidities and poor lung function trajectories.

Keywords: Pediatrics; asthma comorbidities; breathing pattern disorders; bronchiectasis; inducible laryngeal obstructions; obstructive sleep apnea; rhinitis; rhinosinusitis; severe asthma; severe asthma with fungal sensitization.

Int Arch Allergy Immunol

. 2023 Jan 11;1-9.
doi: 10.1159/000528350. Online ahead of print.

Using a Two-Sample Mendelian Randomization Study Based on Genome-Wide Association Studies to Assess and Demonstrate the Causal

Effects of Allergic Rhinitis on Chronic Lower Respiratory Diseases and Lung Function

Zengxiao Zhang[1,2], Gongfei Li[3], Longgang Yu[4], Jiaxin Jiang[5], Shizhe Zhou[6], Yan Jiang[4,7]
Affiliations expand

- PMID: 36630930

- DOI: 10.1159/000528350

Abstract

Introduction: Observational studies have reported that allergic rhinitis (AR) was associated with chronic lower respiratory diseases (CLRDs) and lung function; however, their causal effects remain elusive. Therefore, to investigate the causal effects of AR on CLRDs and lung function, we conducted the two-sample Mendelian randomization (MR) study.

Methods: The data for AR, asthma, chronic obstructive pulmonary disease (COPD), bronchiectasis, idiopathic pulmonary fibrosis (IPF), and the forced expiratory volume in 1 s (FEV1)/forced vital capacity (FVC) ratio were obtained from genome-wide association studies, which were large sample studies on people of European ancestry. In this study, single-nucleotide polymorphisms associated with AR were considered instrumental variables. We employed the inverse-variance weighted (IVW) method with random effects to evaluate causal effects, and the weighted median and MR-Egger methods were used for sensitivity analyses. Significant causal associations were attempted for replication and meta-analysis.

Results: In the discovery stage, we found that AR exhibited a significant causal effect on asthma (IVW, odds ratio [OR] = 16.91, 95% CI, 8.03-35.65, $p < 0.001$) and a suggestive effect on FEV1/FVC ratio (IVW, OR = 0.82, 95% CI, 0.68-0.99, $p = 0.039$). No causal effect of AR was observed on COPD, bronchiectasis, and IPF. In the replication stage, the causal effect of AR on asthma was replicated (IVW, OR = 11.57, 95% CI, 4.90-27.37, $p < 0.001$). The meta-analysis demonstrated that the combined OR of AR on asthma was 14.37 (IVW, 95% CI, 8.18-25.24, $p < 0.001$).

Conclusions: We demonstrated and measured the causal effects of AR on asthma (OR = 14.37) and FEV1/FVC ratio (OR = 0.82), while there was no evidence to support a causal effect of AR on COPD, bronchiectasis, and IPF. These results suggest that AR tends to have a causal effect on lower airway disease of similar inflammatory types and can provide high-

quality causal evidence for clinical practice as well as the pathogenesis and prevention of AR and asthma.

Keywords: Allergic rhinitis; Causal effect; Chronic lower respiratory diseases; Lung function; Mendelian randomization.

Rev Bras Epidemiol

. 2023 Jan 9;26:e230009.

doi: 10.1590/1980-549720230009.2. eCollection 2023.

Chronic diseases and health conditions in adolescents: Sex inequalities

[Article in Portuguese, English]

Vivian Castro Lemos[1], Marilisa Berti de Azevedo Barros[1], Margareth Guimarães Lima[1]

Affiliations expand

- PMID: 36629621

- DOI: 10.1590/1980-549720230009.2

Free article

Abstract

in English, Portuguese

Objective: To estimate the prevalence of chronic diseases and health conditions in adolescents from Campinas (São Paulo), investigating sex differences according to age group.

Methods: This population-based study analyzed data from the ISACamp 2014/15 health survey, with a total of 1,022 adolescents interviewed. The interviewees consisted of 517 boys and 505 girls; 492 of them in the ten to 14 age group and 530 in the 15 to 19 age group. We verified the associations using the $\chi 2$ test with Rao Scott adjustment and estimated prevalence ratios (PR) with multiple Poisson regression adjusted for age. Analyses were also stratified by age group.

Results: Respiratory diseases, such as rhinitis (25.3%), sinusitis (15.7%), and asthma (10.9%), were the most prevalent among adolescents. Health complaints were high, especially headaches (39.5%), emotional conditions (34.5%), allergies (27.5%), and back pain (21.3%). More than 22.0% of adolescents reported having three or more health conditions. Girls declared a higher number of health conditions (three or more) than boys (PR=2.27).

Conclusion: The study showed that adolescents presented a significant number of health conditions, particularly regarding complaints, indicating the need for clinical care and public policies aimed at controlling and preventing these diseases in this age group.

Randomized Controlled Trial

BMC Pediatr

. 2023 Jan 9;23(1):13.
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Changes in type 2 innate lymphoid cells and serum cytokines in sublingual immunotherapy in pediatric patients with allergic rhinitis

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Affiliations expand

- PMID: 36624390
- PMCID: PMC9827662
- DOI: 10.1186/s12887-022-03788-z

Free PMC article

Abstract

Background: Type 2 innate lymphoid cells (ILC2) are upregulated in childhood allergic rhinitis (AR) and are associated with AR severity. This study aimed to investigate changes in the ILC2 milieu in pediatric patients with AR after sublingual immunotherapy (SLIT).

Methods: Forty- pediatric patients with AR received house dust mite (HDM) allergen extract for SLIT group and thirty pediatric patients received placebo in the study, respectively. The levels of ILC2, ILC2-related cytokines (IL-5/IL-13) and their transcription factors (GATA binding protein 3, retinoic acid-related orphan receptor α) in the circulation were assessed after 1- and 2-year SLIT. Moreover, peripheral blood mononuclear cells (PBMCs) in patients were prepared and stimulated by recombinant thymic stromal lymphopoietin, IL-25, and IL-33 after 2-year SLIT. Subsequently, the levels of ILC2, IL-5, and IL-13 were tested.

Results: The frequency of ILC2 and the levels of their transcription factors in the circulation were significantly decreased after SLIT in the SLIT group. The levels of ILC2-related cytokines in the SLIT group showed the same trend. The frequency of ILC2 was positively correlated with transcription factors and cytokines after SLIT. SLIT was observed to reduce the ability of HDM sensitization to generate the ILC2 milieu in PBMCs.

Conclusions: Changes in the ILC2 milieu may be correlated with the curative effect and immune regulation function of SLIT. Our results suggested that the regulatory effect on ILC2 is part of the therapeutic mechanism of SLIT.

Keywords: Allergic rhinitis; Pediatric patients; Sublingual immunotherapy; Type 2 innate lymphocytes.

Conflict of interest statement

The authors declare no competing of interest.

- 24 references
- 5 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

7
Biochem Biophys Res Commun
. 2023 Jan 15;640:32-39.
doi: 10.1016/j.bbrc.2022.11.095. Epub 2022 Nov 29.

Intranasal administration of nucleus-deliverable GATA3-TMD alleviates the symptoms of allergic asthma

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Affiliations expand

- PMID: 36502629

- DOI: 10.1016/j.bbrc.2022.11.095

Free article

Abstract

Although the T helper 2 (Th2) subset is a critical player in the humoral immune response to extracellular parasites and suppression of Th1-mediated inflammation, Th2 cells have been implicated in allergic inflammatory diseases such as asthma, allergic rhinitis, and atopic dermatitis. GATA binding protein 3 (GATA3) is a primary transcription factor that mediates Th2 differentiation and secretion of Th2 cytokines, including IL-4, IL-5, and IL-13. Here, a nucleus-deliverable form of GATA3-transcription modulation domain (TMD) (ndG3-TMD) was generated using Hph-1 human protein transduction domain (PTD) to modulate the transcriptional function of endogenous GATA3 without genetic manipulation. ndG3-TMD was shown to be efficiently delivered into the cell nucleus quickly without affecting cell viability or intracellular signaling events for T cell activation. ndG3-TMD exhibited a specific inhibitory function for the endogenous GATA3-mediated transcription, such as Th2 cell differentiation and Th2-type cytokine production. Intranasal administration of ndG3-TMD significantly alleviated airway hyperresponsiveness, infiltration of immune cells, and serum IgE level in an OVA-induced mouse model of asthma. Also, Th2 cytokine secretion by the splenocytes isolated from the ndG3-TMD-treated mice substantially decreased. Our results suggest that ndG3-TMD can be a new therapeutic reagent to suppress Th2-mediated allergic diseases through intranasal delivery.

Keywords: Asthma; GATA3; Intranasal administration; Intranuclear delivery; Protein transduction domain; T helper type 2 cells.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests. Su-Hyeon Lee reports financial support was provided by Good T Cells, Inc. Sang-Kyou Lee reports financial support was provided by Good T Cells, Inc. Jung-Ho Kim reports was provided by Good T Cells, Inc. Sang-Kyou Lee has patent pending to Sang-Kyou Lee.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

CHRONIC COUGH

Can J Public Health

. 2023 Jan 9.
doi: 10.17269/s41997-022-00722-9. Online ahead of print.

Respiratory health and its determinants among Nunavimmiut: results from the Qanuilirpitaa? 2017 Nunavik Health Survey

Philippe Robert[1 2 3], Benoît Lévesque[1 2 3], Jean Bourbeau[4 5], Faiz Ahmad Khan[4 5 6], Louis-Philippe Boulet[7 8], Marc-André Dubé[1], Jean-François Proulx[9], Pierre Ayotte[10 11 12]
Affiliations expand

- PMID: 36624337

- DOI: 10.17269/s41997-022-00722-9

Abstract

in English, French

Objectives: Respiratory diseases are the leading cause of hospitalization in Nunavik (northern Québec, Canada) and contribute to disparities in life expectancy with the rest of Canada. As part of Qanuilirpitaa? 2017, a cross-sectional population-based health survey, we sought to describe the prevalence of respiratory health indicators, including the first estimate of airway obstruction based on spirometry in an Inuit population, and explore their associated characteristics.

Methods: We analyzed data from 1296 participants aged 16 years and older, using multivariate logistic regression to assess characteristics associated with spirometry-determined airway obstruction and self-reported respiratory symptoms, i.e., wheezing in the last year and chronic cough during at least 3 months.

Results: In this relatively young population (83% aged 16 to 54), the prevalences of wheezing, chronic cough, and airway obstruction were, respectively, 27% (95% CI 24-30), 21% (18-23), and 17% (14-20). These estimates are prone to biases due to the relatively low participation rate (about 37%). The most consistent associations were with smoking (≥ 15 pack-years; odds ratio [OR] 3.13, 3.39, and 2.86 for the three indicators, respectively) and food security (OR 0.55 with wheezing and OR 0.26 with chronic cough), as defined in the Household Food Security Survey Module. Wheezing was also associated with allergic sensitization to dogs (2.60) and obesity (2.18). Chronic cough was associated with respiratory infections during childhood (2.12), housing in need of major repairs (1.72), and housing crowding (1.50), and was negatively associated with participation to traditional activities (0.62) and going on the land (0.64). Airway obstruction was associated with being underweight (3.84) and post-secondary education (0.40). Among young adults and women, wheezing was also associated with any inhalation of solvents for recreational purposes during their lifetime (2.62 and 1.56, respectively), while airway obstruction was associated with regular marijuana use (2.22 and 1.84, respectively).

Conclusion: Smoking and food insecurity are both highly prevalent and strongly associated with respiratory symptoms in Nunavik. Together with essential smoking prevention and cessation programs, our findings suggest that solving food security and housing crises, improving socioeconomic conditions, and promoting traditional lifestyle may improve respiratory health in Nunavik.

Keywords: Airway obstruction; Asthma; Indigenous peoples; Inuit; Lung disease; Pulmonary disease, chronic obstructive.

- 53 references

. 2023 Jan 12;61(1):2200469.
doi: 10.1183/13993003.00469-2022. Print 2023 Jan.

Association of respiratory symptoms and lung function with occupation in the multinational Burden of Obstructive Lung Disease (BOLD) study

Jate Ratanachina[1,2,3], Andre F S Amaral[4], Sara De Matteis[1,5], Herve Lawin[6], Kevin Mortimer[7,8], Daniel O Obaseki[9], Imed Harrabi[10], Meriam Denguezli[10], Emiel F M Wouters[11,12], Christer Janson[13], Rune Nielsen[14], Amund Gulsvik[14], Hamid Hacene Cherkaski[15], Filip Mejza[16], Padukudru Anand Mahesh[17], Asma Elsony[18], Rana Ahmed[18], Wan Tan[19], Li Cher Loh[20], Abdul Rashid[20], Michael Studnicka[21], Asaad A Nafees[22], Terence Seemungal[23], Althea Aquart-Stewart[24], Mohammed Al Ghobain[25], Jinping Zheng[26], Sanjay Juvekar[27], Sundeep Salvi[28], Rain Jogi[29], David Mannino[30], Thorarinn Gislason[31,32], A Sonia Buist[33], Paul Cullinan[1], Peter Burney[1]; BOLD Collaborative Research Group
Affiliations expand

- PMID: 36028253

- DOI: 10.1183/13993003.00469-2022

Free article

Abstract

Background: Chronic obstructive pulmonary disease has been associated with exposures in the workplace. We aimed to assess the association of respiratory symptoms and lung function with occupation in the Burden of Obstructive Lung Disease study.

Methods: We analysed cross-sectional data from 28 823 adults (≥40 years) in 34 countries. We considered 11 occupations and grouped them by likelihood of exposure to organic dusts, inorganic dusts and fumes. The association of chronic cough, chronic phlegm, wheeze, dyspnoea, forced vital capacity (FVC) and forced expiratory volume in 1 s (FEV_1)/FVC with occupation was assessed, per study site, using multivariable regression. These estimates were then meta-analysed. Sensitivity analyses explored differences between sexes and gross national income.

Results: Overall, working in settings with potentially high exposure to dusts or fumes was associated with respiratory symptoms but not lung function differences. The most common occupation was farming. Compared to people not working in any of the 11 considered occupations, those who were farmers for ≥20 years were more likely to have chronic cough (OR 1.52, 95% CI 1.19-1.94), wheeze (OR 1.37, 95% CI 1.16-1.63) and dyspnoea (OR 1.83, 95% CI 1.53-2.20), but not lower FVC (β=0.02 L, 95% CI -0.02-0.06 L) or lower FEV_1/FVC (β=0.04%, 95% CI -0.49-0.58%). Some findings differed by sex and gross national income.

Conclusion: At a population level, the occupational exposures considered in this study do not appear to be major determinants of differences in lung function, although they are associated with more respiratory symptoms. Because not all work settings were included in this study, respiratory surveillance should still be encouraged among high-risk dusty and fume job workers, especially in low- and middle-income countries.

Conflict of interest statement

Conflict of interest: J. Ratanachina, A.F.S. Amaral, S. De Matteis, H. Lawin, K. Mortimer, D.O. Obaseki, I. Harrabi, M. Denguezli, E.F.M. Wouters, C. Janson, A. Gulsvik, H.H. Cherkaski, F. Mejza, P.A. Mahesh, A. Elsony, R. Ahmed, W. Tan, L.C. Loh, A. Rashid, M. Studnicka, A.A. Nafees, T. Seemungal, A. Aquart-Stewart, M. Al Ghobain, J. Zheng, S. Juvekar, S. Salvi, R. Jogi, T. Gislason, A.S. Buist, P. Cullinan and P. Burney have no conflict of interest to disclose. R. Nielsen reports grants from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline and Novartis, and receipt of equipment/material/services from ResMed Norway; and is President of the Norwegian Respiratory Society. D. Mannino reports royalties from Up to Date; personal fees from GlaxoSmithKline, AstraZeneca and Schlesinger Law Firm; honoraria from American Association of Respiratory Care; and stock in GlaxoSmithKline; and is the Medical Director of the COPD Foundation.

BRONCHIECTASIS

Rrespir Res

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. 2023 Jan 13;24(1):15.
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Recognising the importance of chronic lung disease: a consensus statement from the Global Alliance for Chronic Diseases (Lung Diseases group)

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Affiliations expand

- PMID: 36639661

- DOI: 10.1186/s12931-022-02297-y

Abstract

Background: Chronic respiratory diseases are disorders of the airways and other structures of the lung, and include chronic obstructive pulmonary disease (COPD), lung cancer, asthma, bronchiectasis, interstitial lung diseases, occupational lung diseases and pulmonary hypertension. Through this article we take a broad view of chronic lung disease while highlighting (1) the complex interactions of lung diseases with environmental factors (e.g. climate change, smoking and vaping) and multimorbidity and (2) proposed areas to strengthen for better global patient outcomes.

Conclusion: We suggest new directions for the research agenda in high-priority populations and those experiencing health disparities. We call for lung disease to be made a research priority with greater funding allocation globally.

- 69 references

SUPPLEMENTARY INFO

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Expert Rev Respir Med
.
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Respiratory comorbidities in severe asthma: focus on the pediatric age

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Affiliations expand

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Abstract

Introduction: Asthma comorbidities are a frequent cause of adverse outcomes, such as poor asthma control, frequent asthma attacks, reduced quality of life, and higher healthcare costs. Comorbidities are well-known treatable traits whose proper management can help achieve optimal asthma control. Although multimorbidity is frequent among asthmatics, comorbidities are still a potential cause of misdiagnosis and under or overtreatments, and little is known about their impact on severe pediatric asthma.

Areas covered: We provided a comprehensive, 5-year updated review focusing on the main respiratory comorbidities in severe asthma, particularly in epidemiology, pathogenesis, and current and future therapies.

Expert opinion: Respiratory comorbidities have unique characteristics in childhood. Their management must be multidisciplinary, age-specific, and integrated. Further longitudinal studies are needed to understand better the mutual interrelation and synergistic effect between asthma and its respiratory comorbidities, the identification of common, treatable risk factors leading to potential asthma prevention, the effectiveness of actual and future target-therapies, and the correlation between long-lasting respiratory comorbidities and poor lung function trajectories.

Keywords: Pediatrics; asthma comorbidities; breathing pattern disorders; bronchiectasis; inducible laryngeal obstructions; obstructive sleep apnea; rhinitis; rhinosinusitis; severe asthma; severe asthma with fungal sensitization.

Clin Infect Dis

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Treatment of Nontuberculous Mycobacterial (NTM) Pulmonary Infection in the US Bronchiectasis and NTM Registry: Treatment Patterns, Adverse Events, and Adherence to American Thoracic Society/Infectious Disease Society of America Treatment Guidelines

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Abstract

Among 1038 participants with pulmonary Mycobacterium avium complex and 120 with Mycobacterium abscessus enrolled in the US Bronchiectasis and NTM Research Registry, less than half received antibiotic therapy in the 24 months before registry enrollment, of which less than half were guideline based. Adverse effects occurred in 21% of therapy recipients, of whom 33% discontinued therapy.

Keywords: Mycobacterium abscessus; Mycobacterium avium complex; adverse effects; antibiotic treatment; nontuberculous mycobacterial infection.

SUPPLEMENTARY INFO

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