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

1
BMC Pulm Med

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. 2023 Oct 7;23(1):378.

doi: 10.1186/s12890-023-02665-4.

Effect of Broncho-Vaxom (OM-85) on the frequency of chronic obstructive pulmonary disease (COPD) exacerbations

Joon Young Choi[1], Yong Bum Park[2], Tai Joon An[3], Kwang Ha Yoo[#4], Chin Kook Rhee[#5]

Affiliations expand

- PMID: 37805515

- DOI: 10.1186/s12890-023-02665-4

Abstract

Background: Efforts have been made to reduce the risk of chronic obstructive pulmonary disease (COPD) exacerbations using a variety of measures. Broncho-Vaxom (BV) is an immunomodulating agent that has shown potential benefit by balancing between immune stimulation and regulation in patients with COPD. In this study, we evaluated the clinical efficacy of BV for reducing the risk of COPD exacerbations.

Methods: This study was based on the Korean National Health Insurance database, which contains reimbursement information for almost the entire population of South Korea. We extracted data from 2016 to 2019 for patients started on BV during 2017-2018. We collected baseline data on demographics, comorbidities, inhaler use, hospital type, and insurance type 1 year before starting BV. We also analyzed exacerbation history, starting from the year before BV initiation.

Results: In total, 238 patients were enrolled in this study. Their mean age was 69.2 ± 9.14 years, 79.8% were male, and 45% experienced at least one exacerbation. BV reduced the risk of moderate (odds ratio [OR] = 0.59, 95% confidence interval [CI]: 0.38-0.91) and moderate-to-severe exacerbations compared to pre- and post-BV (OR = 0.571, 95% CI: 0.37-0.89). BV use also reduced the incidence of moderate and moderate-to-severe exacerbations (incidence rate ratio [IRR] = 0.75, p = 0.03; and IRR = 0.77, p = 0.03, respectively). The use of BV was significantly delayed moderate exacerbations (hazard ratio = 0.68, p = 0.02), but not with moderate-to-severe or severe exacerbations.

Conclusion: The use of BV was associated with fewer moderate and moderate-to-severe exacerbations. Additionally, BV was associated with a delay in moderate COPD exacerbations.

Keywords: Broncho-Vaxom; Chronic obstructive pulmonary disease; Exacerbation; HIRA database; OM-85; Oral vaccine.

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- 40 references

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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Chest

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. 2023 Oct 6:S0012-3692(23)05548-4.

doi: 10.1016/j.chest.2023.09.026. Online ahead of print.

Pulmonary rehabilitation is associated with decreased exacerbation and mortality in patients with chronic obstructive pulmonary disease: A nationwide Korean study

Joon Young Choi[1], Ki Uk Kim[2], Deog Kyeom Kim[3], Yu-Il Kim[4], Tae-Hyung Kim[5], Won-Yeon Lee[6], Seong Ju Park[7], Yong Bum Park[8], Jin Woo Song[9], Kyeong-Cheol Shin[10], Soo-Jung Um[11], Kwang Ha Yoo[12], Hyoung Kyu Yoon[13], Chang Youl Lee[14], Ho Sung Lee[15], Ah Young Leem[16], Won-Il Choi[17], Seong Yong Lim[18], Chin Kook Rhee[19]; Korean Pulmonary Rehabilitation Study Group[1]

Affiliations expand

- PMID: 37806492

- DOI: 10.1016/j.chest.2023.09.026

Abstract

Background: Poor uptake to pulmonary rehabilitation (PR) is still challenging around world. There have been few nationwide studies investigating whether PR impact patient's outcome in COPD. We investigated the change of annual PR implementation rate, medical costs, and COPD outcomes including exacerbation rates and mortality between year 2015 to 2019.

Research question: Does PR implementation improve outcomes in patients with COPD in terms of direct cost, exacerbation and mortality?

Study design and methods: Data of patients with COPD extracted from a large Korean Health Insurance Review and Assessment service database (2015-2019) were analyzed to determine the trends of annual PR implementation rate and direct medical costs of PR. Comparison of COPD exacerbation rates between pre- and post-PR, as well as the time to first exacerbation and mortality rate according to PR implementation, were also assessed.

Results: Among all patients with COPD in Korea, only 1.43% received PR. However, the annual PR implementation rate gradually increased from 0.03% to 1.4% during 4 years, especially after health insurance coverage commencement. The direct medical cost was significantly higher in the PR than non-PR group, but the costs in these groups showed decreasing and increasing trends, respectively. Both the incidence rate and frequency of moderate-to-severe and severe exacerbations were lower during the post-PR compared to pre-PR period. The time to the first moderate-to-severe and severe exacerbations was longer in the PR than non-PR group. Finally, PR implementation was associated with a significant decrease in mortality.

Interpretation: We concluded that health insurance coverage increases PR implementation rates. Moreover, PR contributes towards improving outcomes including reducing exacerbation and mortality in patients with COPD. However, despite the well-established benefits of PR, its implementation rate remains suboptimal.

Keywords: HIRA database; chronic obstructive pulmonary disease; exacerbation; mortality; nationwide cohort study; pulmonary rehabilitation.

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Environ Pollut

. 2023 Oct 6:122665.

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Double trouble: The interaction of $PM_{2.5}$ and O_3 on respiratory hospital admissions

Jiachen Li [1], Lirong Liang [2], Baolei Lyu [3], Yutong Samuel Cai [4], Yingting Zuo [5], Jian Su [6], Zhaohui Tong [7]

Affiliations expand

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- DOI: 10.1016/j.envpol.2023.122665

Abstract

The co-occurrence of fine particulate matter ($PM_{2.5}$) and ozone (O_3) pollution during the warm season has become a growing public health concern. The interaction between $PM_{2.5}$ and O_3 and its contribution to disease burden associated with co-pollution has not been thoroughly examined. We collected data on hospital admissions for respiratory diseases from a city-wide hospital discharge database in Beijing between 2013 and 2019. City-wide 24-h mean $PM_{2.5}$ and daily maximum 8-h mean O_3 were averaged from 35 monitoring stations across Beijing. Conditional Poisson regression was employed to estimate the interaction between warm-season $PM_{2.5}$ and O_3 on respiratory admissions. A model incorporating a tensor product term was used to fit the non-linear interaction and estimate the number of respiratory admissions attributable to $PM_{2.5}$ and O_3 pollution. From January 18, 2013 to December 31, 2019, 1,191,308 respiratory admissions were recorded. We observed multiplicative interactions between warm-season $PM_{2.5}$ and O_3 on upper respiratory infections ($P = 0.004$), pneumonia ($P = 0.002$), chronic obstructive pulmonary disease ($P = 0.041$), and total respiratory disease ($P < 0.001$). $PM_{2.5}$-O_3 co-pollution during warm season exhibited a super-additive effect on respiratory admissions, with a relative excess risk due to interaction of 1.65% (95%CI: 0.46%-2.84%). There was a non-linear pattern of the synergistic effect between $PM_{2.5}$ and O_3 on respiratory admissions. Based on the World Health Organization global air quality guidelines, 12,421 respiratory admissions would be reduced if both daily $PM_{2.5}$ and O_3 concentrations had not exceeded the target ($PM_{2.5}$ 15 μg/m^3, O_3 100 μg/m^3). The number of respiratory admissions attributable to either $PM_{2.5}$ or O_3 pollution decreased by 48.7% from 2013 to 2019. Prioritizing O_3 control during the warm season is a cost-effective strategy for Beijing. These findings underscore the significance of concurrently addressing both $PM_{2.5}$ pollution and O_3 pollution during the warm season to alleviate the burden of respiratory diseases.

Keywords: Air pollution; Ozone; Particulate matter; Respiratory hospitalizations.

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Conflict of interest statement

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

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Respir Res

. 2023 Oct 6;24(1):244.

doi: 10.1186/s12931-023-02549-5.

The effect of inhaled extrafine beclometasone dipropionate/formoterol fumarate/glycopyrronium bromide on distal and central airway indices, assessed using Functional Respiratory Imaging in COPD (DARWiIN)

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Affiliations expand

- PMID: 37803368

- PMCID: PMC10559640

- DOI: 10.1186/s12931-023-02549-5

Free PMC article

Abstract

Background: This study, in patients with symptomatic chronic obstructive pulmonary disease (COPD), explored switching therapy from non-extrafine high-dose inhaled corticosteroid/long-acting β_2-agonist (ICS/LABA; fluticasone propionate/salmeterol [FP/SLM]) to extrafine medium-dose beclometasone dipropionate/formoterol fumarate dihydrate/glycopyrronium (BDP/FF/G), both via dry-powder inhaler. Functional Respiratory Imaging, a quantitative computed tomography method with 3D reconstructions of pulmonary anatomy, was used to assess airway geometry and lung function.

Methods: Patients receiving a stable ICS/LABA regimen for ≥ 8 weeks were switched to FP/SLM 500/50 µg, one inhalation twice-daily (high-dose ICS) for 6 weeks. After baseline assessments (Visit 2 [V2]), therapy was switched to BDP/FF/G 100/6/10 µg, two inhalations twice-daily (medium-dose ICS) for 6 weeks, followed by V3. The primary endpoints were percentage changes in specific image-based airway volume (siV_{aw}) and resistance (siR_{aw}) from baseline to predose at V3 (i.e., chronic effects), assessed at total lung capacity (TLC) in central and distal lung regions. Secondary endpoints included siV_{aw} and siR_{aw} changes from pre-dose to post-dose at V2, and from pre-dose to post-dose at V3 at TLC (i.e., acute effects), and chronic and acute changes in siV_{aw} and siR_{aw} at functional residual capacity (FRC). Pre-dose forced expiratory volume in 1 s (FEV_1) and COPD Assessment Test (CAT) were also assessed.

Results: There were no significant changes in pre-dose siV_{aw} or siR_{aw} at TLC from baseline to V3, although at FRC there was a significant decrease in mean siR_{aw} in the distal airways (-63.6%; p = 0.0261). In addition, in the distal airways there were significant acute effects at TLC on mean siV_{aw} and siR_{aw} (siV_{aw}: 39.8% and 62.6%; siR_{aw}: - 51.1% and - 57.2%, V2 and V3, respectively; all p < 0.001) and at FRC at V2 (siV_{aw}: 77.9%; siR_{aw}: - 67.0%; both p < 0.001). At V3, the mean change in pre-dose FEV_1 was 62.2 mL (p = 0.0690), and in CAT total score was - 3.30 (p < 0.0001).

Conclusions: In patients with symptomatic COPD receiving high-dose ICS/LABA, adding a long-acting muscarinic antagonist while decreasing the ICS dose by switching to medium-

dose extrafine BDP/FF/G was associated with improved airway indices, especially in the distal airways, together with improvements in respiratory health status. Trial registration ClinicalTrials.gov (NCT04876677), first posted 6th May 2021.

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Conflict of interest statement

GSS, AG, GG, DG, MC and IP are employees of Chiesi. In addition, DG owns shares in GlaxoSmithKline. BRL is an employee of Fluidda, the company that owns and implements FRI, and that was engaged by Chiesi to conduct the quantitative CT analysis referred to in the manuscript. WDB is a board member of Fluidda. JHTB declares consulting fees from Chiesi within the scope of this manuscript. Outside the scope of the manuscript he declares an NHLBI grant paid to his institution, and stock or stock options from Oscillavent, LLC.

- 14 references
- 4 figures

SUPPLEMENTARY INFO

MeSH terms, Substances, Associated dataexpand

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J Allergy Clin Immunol

. 2023 Oct 5:S0091-6749(23)01247-2.

doi: 10.1016/j.jaci.2023.09.035. Online ahead of print.

Airway wall extracellular matrix changes induced by bronchial thermoplasty in severe asthma

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Affiliations expand

- PMID: 37805024

- DOI: 10.1016/j.jaci.2023.09.035

Abstract

Background: Airway remodeling is a prominent feature of asthma, including increased airway smooth muscle (ASM) mass and altered extracellular matrix (ECM) composition. Bronchial thermoplasty (BT), a bronchoscopic treatment for severe asthma, targets this airway remodeling.

Objective: To investigate the effect of BT on ECM composition and its association with clinical outcomes.

Methods: This is a sub-study of the TASMA trial. Thirty severe asthma patients were BT treated, of which 13 patients prior to BT were treated by six months of standard therapy (control group). Demographic data, clinical data including pulmonary function and bronchial biopsies were collected. Biopsies at BT treated and non-treated locations were analyzed by histological and immune-histochemical staining. Associations between histology and clinical outcomes were explored.

Results: Six months after treatment, reticular basement membrane (RBM) thickness was reduced from 7.28µm to 5.74µm (21% relative reduction) and the percentage area of tissue positive for collagen increased from 26.3% to 29.8% (13% relative increase). Collagen structure analysis revealed a reduction in the curvature frequency of fibers. The percentage area positive for fibulin-1 and fibronectin increased with 2.5% and 5.9% respectively (relative increase of 124% and 15%). No changes were found for elastin. The changes in collagen and fibulin-1 negatively associated with changes in FEV1-reversibility.

Conclusion: Next to ASM reduction, BT impacts RBM thickness and the ECM arrangement characterized by an increase in tissue area occupied by collagen with a less dense fiber organization. Both collagen and fibulin-1 are negatively associated with the change in FEV1-reversibility.

Clinical implication: BT induces ECM reorganization and airway wall stability.

Keywords: FEV1 reversibility; airway remodeling; bronchial thermoplasty; collagen; extracellular matrix; fibronectin; severe asthma.

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Respir Med

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Home high flow nasal cannula for chronic hypercapnic respiratory failure in COPD: A systematic review and meta-analysis

Tyler Pitre[1], Saad Abbasi[2], Johnny Su[3], Jasmine Mah[4], Dena Zeraatkar[5]

Affiliations expand

- PMID: 37804997

- DOI: 10.1016/j.rmed.2023.107420

Abstract

Background: Chronic Obstructive Pulmonary Disease (COPD) with chronic hypercapnia is usually treated with non-invasive ventilation (NIV). High flow nasal cannula (HFNC) may be an appropriate alternative. However, the efficacy of HFNC in COPD patients with chronic hypercapnia is yet to be optimally summarized.

Methods: We conducted a systematic review and meta-analysis using random effects with inverse variance methods. Randomized controlled trials involving adult COPD patients initiated on HFNC for at least one month were included. Outcomes of interest were all-cause mortality, acute exacerbations, hospitalizations, and change in St. George Respiratory Questionnaire (SGRQ). We assessed the risk of bias using ROB 2.0 and assessed the quality of the evidence using GRADE.

Results: We included four randomized trials involving 440 patients. HFNC probably reduces acute exacerbations compared to standard care (RR 0.77 [95 % CI 0.66 to 0.89]; moderate certainty), suggesting 69 fewer acute exacerbations per 1000 patients. HFNC may reduce hospital admissions (RR 0.87 [95 % CI 0.69 to 1.09]; low certainty) and may lower the SGRQ score (MD 8.12 units lower [95 % CI 13.30 to 2.95 lower]; low certainty). However, HFNC may have no effect on mortality (RR 1.22 [95 % CI 0.64 to 2.35]; low certainty).

Conclusion: HFNC probably reduces acute exacerbations and might reduce hospital admissions in COPD patients with chronic hypercapnia. However, its effect on mortality is uncertain. Future larger RCTs with longer follow-up periods are recommended to provide more robust evidence on the efficacy of HFNC in patients with COPD.

Keywords: COPD; HFNC; Meta-analysis; Systematic review.

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Conflict of interest statement

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

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Observational Study

PLoS One

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doi: 10.1371/journal.pone.0277995. eCollection 2023.

The interface between SARS-CoV-2 and non-communicable diseases (NCDs) in a high HIV/TB burden district level hospital setting, Cape Town, South Africa

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Affiliations expand

- PMID: 37796879

- PMCID: PMC10553288

- DOI: 10.1371/journal.pone.0277995

Free PMC article

Abstract

Background: COVID-19 experiences on noncommunicable diseases (NCDs) from district-level hospital settings during waves I and II are scarcely documented. The aim of this study is to investigate the NCDs associated with COVID-19 severity and mortality in a district-level hospital with a high HIV/TB burden.

Methods: This was a retrospective observational study that compared COVID-19 waves I and II at Khayelitsha District Hospital in Cape Town, South Africa. COVID-19 adult patients with a confirmed SARS-CoV-2 polymerase chain reaction (PCR) or positive antigen test were included. In order to compare the inter wave period, clinical and laboratory parameters on hospital admission of noncommunicable diseases, the Student t-test or Mann-Whitney U for continuous data and the X2 test or Fishers' Exact test for categorical data were used. The role of the NCD subpopulation on COVID-19 mortality was determined using latent class analysis (LCA).

Findings: Among 560 patients admitted with COVID-19, patients admitted during wave II were significantly older than those admitted during wave I. The most prevalent comorbidity patterns were hypertension (87%), diabetes mellitus (65%), HIV/AIDS (30%), obesity (19%), Chronic Kidney Disease (CKD) (13%), Congestive Cardiac Failure (CCF) (8.8%), Chronic Obstructive Pulmonary Disease (COPD) (3%), cerebrovascular accidents (CVA)/stroke (3%), with similar prevalence in both waves except HIV status [(23% vs 34% waves II and I, respectively), p = 0.022], obesity [(52% vs 2.5%, waves II and I, respectively), p <0.001], previous stroke [(1% vs 4.1%, waves II and I, respectively), p = 0.046]. In terms of clinical and laboratory findings, our study found that wave I patients had higher haemoglobin and HIV viral loads. Wave II, on the other hand, had statistically significant higher chest radiography abnormalities, fraction of inspired oxygen (FiO2), and uraemia. The adjusted odds ratio for death vs discharge between waves I and II was similar (0.94, 95%CI: 0.84-1.05). Wave I had a longer average survival time (8.0 vs 6.1 days) and a shorter average length of stay among patients discharged alive (9.2 vs 10.7 days). LCA revealed that the cardiovascular phenotype had the highest mortality, followed by diabetes and CKD phenotypes. Only Diabetes and hypertension phenotypes had the lowest mortality.

Conclusion: Even though clinical and laboratory characteristics differed significantly between the two waves, mortality remained constant. According to LCA, the cardiovascular, diabetes, and CKD phenotypes had the highest death probability.

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Conflict of interest statement

The authors received no specific funding for this work.

- 54 references
- 4 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grants and fundingexpand

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Ann Am Thorac Soc

. 2023 Oct 5.

doi: 10.1513/AnnalsATS.202209-751OC. Online ahead of print.

Risk Factors for COPD Exacerbations among Individuals without a History of Recent Exacerbations: A COPDGene Analysis

Michael C Ferrera[1], Camden L Lopez[2], Susan Murray[3], Renu G Jain[4], Wassim W Labaki[5], Barry J Make[6], MeiLan K Han[5]

Affiliations expand

- PMID: 37796613

- DOI: 10.1513/AnnalsATS.202209-751OC

Abstract

Rationale: Acute exacerbations of chronic obstructive pulmonary disease (COPD) are detrimental events in the natural history of COPD, but the risk factors associated with future exacerbations in the absence of a history of recent exacerbations are not fully understood.

Objective: To identify risk factors for COPD exacerbations among participants in the Genetic Epidemiology of COPD Study (COPDGene) without a history of exacerbation in the previous year.

Methods: We identified participants with a smoking history enrolled in COPDGene who had COPD (defined as forced expiratory volume in 1 second (FEV1)/forced vital capacity (FVC) <0.70), no exacerbation in the year prior to their second study site visit, and who completed at least one longitudinal follow-up questionnaire in the following 36 months. We used univariable and multivariable zero-inflated negative binomial regression models to identify risk factors associated with increased rates of exacerbation. Each risk factor's regression coefficient (β) was rounded to the nearest 0.25 and incorporated into a graduated risk score.

Results: Among the 1,528 participants with a smoking history and COPD enrolled in COPDGene without exacerbation in the year before their second study site visit, 508 participants (33.2%) had at least one moderate or severe exacerbation in the 36 months studied. Gastroesophageal reflux disease (GERD), chronic bronchitis, high symptom burden (as measured by Modified Medical Research Council Dyspnea Scale and COPD Assessment Test), and lower FEV1 % predicted were associated with an increased risk of exacerbation. Each 1-point increase in our graduated risk score was associated with a 25-30% increase in exacerbation rate in the 36 months studied.

Conclusion: In COPD patients without a recent history of exacerbations, GERD, chronic bronchitis, high symptom burden, and lower lung function are associated with increased risk of future exacerbation using a simple risk score that can be used in clinical practice.

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Am J Respir Crit Care Med

. 2023 Oct 5.

doi: 10.1164/rccm.202308-1468VP. Online ahead of print.

The COPD–Bronchiectasis Overlap Syndrome: Does My COPD Patient Have Bronchiectasis on CT? Frankly, My Dear, I Don't Give a Damn!

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Affiliations expand

- PMID: 37796579

- DOI: 10.1164/rccm.202308-1468VP

No abstract available

Keywords: Bronchiectasis; COPD; COPD-Bronchiectasis Overlap; Chronic Obstructive Pulmonary Disease.

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. 2023 Oct 4;13(4):e12294.

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The role of vitamin D in chronic obstructive pulmonary disease with pulmonary hypertension

Mengxi Li[1]

Affiliations expand

- PMID: 37808898

- PMCID: PMC10551593

- DOI: 10.1002/pul2.12294

Abstract

Hypoxia pulmonary hypertension (PH) belongs to the third major category in PH classification. Chronic obstructive pulmonary disease (COPD) is a common cause of hypoxia PH. Low serum vitamin D concentration is considered to be a possible risk factor for chronic lung disease; epidemiological studies have found that vitamin D deficiency increases pulmonary artery pressure. Therefore, this study aimed to explore the role of vitamin D levels in COPD and chronic hypoxic PH. This retrospective study selected three groups of people as research subjects, including: Group N: normal control group (people without any chronic lung disease or PH); Group C: patients with COPD, but without PH; Group C + PH: patients with COPD and PH. Vitamin D levels and pulmonary artery pressure were observed in the three groups. Vitamin D levels of the three groups showed statistical differences in every pairwise comparison; the vitamin D level of Group C (20.27 ng/mL) was lower than Group N (23.48 ng/mL), Group C + PH was the lowest (14.92 ng/mL). The levels of vitamin D in the three groups in this study were generally low. Vitamin D is negatively correlated with pulmonary artery systolic blood pressure. Low vitamin D levels may have a certain relationship with the occurrence and development of COPD. Further reductions in vitamin D levels may influence the development of PH in COPD.

Keywords: COPD; hypoxia; pulmonary hypertension; pulmonary systolic pressure (PASP); vitamin D.

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Conflict of interest statement

The author declares no conflict of interest.

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Transplant Proc

. 2023 Oct 4:S0041-1345(23)00580-8.

doi: 10.1016/j.transproceed.2023.08.013. Online ahead of print.

Single vs Bilateral Lung Transplant in the Management of Patients With Chronic Obstructive Pulmonary Disease: A Systematic Review and Meta-Analysis

Rania Mansour[1], Hayato Nakanishi[1], Nader Al Sabbakh[1], Nour El Ghazal[1], Joe Haddad[1], Maamoun Adra[1], Reem H Matar[2], Danijel Tosovic[3], Christian A Than[4], Tae H Song[5]

Affiliations expand

- PMID: 37802744

- DOI: 10.1016/j.transproceed.2023.08.013

Abstract

Background: Lung transplantation is recommended for select patients with end-stage chronic obstructive pulmonary disease (COPD). However, a consensus has not been reached regarding the optimal choice of lung transplantation: single lung transplants (SLTs) vs bilateral lung transplants (BLTs). This meta-analysis aimed to evaluate the safety and efficacy of SLT compared with BLT in managing end-stage COPD.

Methods: Cochrane, Embase, PubMed, and Scopus were searched for articles by 2 independent reviewers using the Preferred Reporting Items for Systematic Reviews and Meta-analysis system. The review was registered prospectively with PROSPERO (CRD42022343408).

Results: Seven studies of 311 screened met the eligibility criteria, with a total of 10,652 patients with end-stage COPD, SLT (n = 6233), or BLT (n = 4419). Overall survival rates of BLT group were more favorable than SLT group at 1 (odds ratio [OR] = 1.29, 95% CI: 1.16, 1.43, I^2 = 0%), 5 (OR = 1.46, 95% CI: 1.35, 1.58, I^2 = 23%), and 10 years (OR = 1.71, 95% CI: 1.57, 1.87, I^2 = 12%) as well as the hazard ratio (HR = 0.73, 95% CI: 0.70, 0.76, I^2 = 40%). Subgroup analysis on survival rates of alpha-1 antitrypsin deficiency also displayed a trend favoring BLT compared with SLT at 1 (OR = 1.60, 95% CI: 1.24, 2.08, I^2 = 28%), 5 (OR = 1.84, 95% CI: 1.50, 2.26, I^2 = 42%), and 10 years (OR = 1.98, 95% CI: 1.59, 2.48, I^2 = 47%) as well as the HR (HR = 0.67, 95% CI: 0.35, 1.28, I^2 = 82%).

Conclusion: Compared with SLT, BLT seems to demonstrate more favorable trends in survival rates for the management of end-stage COPD. Despite the promising results, the groups have significant heterogeneity in baseline characteristics. Further prospective studies with extended follow-up periods are needed to ascertain the efficacy of treatment.

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Conflict of interest statement

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

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Clin Microbiol Infect

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doi: 10.1016/j.cmi.2023.09.018. Online ahead of print.

BF.7: A new Omicron subvariant characterized by rapid transmission

Xiaoyu Gao[1], Furong Wang[2], Huizhao Liu[3], Jun Chai[3], Guangyuan Tian[3], Lili Yao[3], Chen Chen[2], Peng Huo[3], Yingxi Yao[3], Jing Wen[3], Na Zhao[3], Dejun Sun[4]

Affiliations expand

- PMID: 37802303

- DOI: 10.1016/j.cmi.2023.09.018

Abstract

Objectives: BF.7 (BA.5.2.1.7) is a novel sublineage of Omicron BA.5, whose clinical characteristics are not yet established.

Methods: From September 28, 2022, to October 3, 2022, the first 421 patients with BF.7 were assessed in Hohhot China and the clinical data were extracted and analyzed. The basic reproduction number (R0) was estimated using a statistical model calculation method.

Results: The R0 value was determined to be 13.79 (95% CI: 12.44-15.24). The mean age was 33.43 ± 18.78 years. Asymptomatic, mild, moderate, severe and critical patients accounted for 12.35% (52/421), 82.42% (347/421), 4.75% (20/421), 0.24% (1/421) and 0.24% (1/421) proportion, respectively. The main clinical symptoms were fever accounting for 41.09% (173/421), cough accounting for 41.09% (173/421) and throat dryness & soreness accounting for 30.88% (130/421). In the 3-dose vaccination subgroup, 64 (31.22%) cases had a fever, which was significantly lower than 96 cases (51.37%) of the 2-dose vaccination subgroup (P = 0.000). The rate of abnormally increased CRP levels in the

2-dose and 3-dose vaccination subgroups were 10.16% (19/187) and 4.88% (10/205), significantly lower than 66.67% (10/15) of the 1-dose vaccination subgroup (1-dose vs. 2-dose: P = 0.000, 1-dose vs. 3-dose: P = 0.000). Notably, the population with complete 3 doses of vaccination did not exhibit any severe or critical status.

Conclusions: BF.7 exhibited a higher transmission than previously emerged SARS-CoV-2. The vaccine against COVID-19 was found to relieve fever, nausea, and vomiting as well as reduce the abnormal counts of lymphocytes, eosinophils, neutrophils, and the C-reactive protein (CRP) level.

Keywords: BF.7; Coronavirus disease 2019; Omicron; clinical characteristics; vaccine effectiveness.

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Int J Cardiol

. 2023 Oct 4:131414.

doi: 10.1016/j.ijcard.2023.131414. Online ahead of print.

Impact of chronic obstructive pulmonary disease on right ventricular function and remodeling after aortic valve replacement

Rinchyenkhand Myagmardorj[1], Jan Stassen[2], Takeru Nabeta[2], Kensuke Hirasawa[2], Gurpreet K Singh[2], Frank van der Kley[2], Arend de Weger[3], Nina Ajmone Marsan[2], Victoria Delgado[4], Jeroen J Bax[2]

Affiliations expand

- PMID: 37802299

- DOI: 10.1016/j.ijcard.2023.131414

Abstract

Background: Both chronic obstructive pulmonary disease (COPD) and right ventricular (RV) dysfunction are common factors that have been associated with poor prognosis after aortic valve replacement (AVR). Since there is still uncertainty about the impact of COPD on RV function and dilatation in patients undergoing AVR, we sought to explore RV function and remodeling in the presence and absence of COPD as well as their prognostic implications.

Methods: Patients who received surgical or transcatheter AVR due to severe AS were screened for COPD. Demographic and clinical data were collected at baseline while echocardiographic measurements were performed at baseline and 1 year after AVR. The study end-point was all-cause mortality.

Results: In total 275 patients were included, with 90 (33%) patients having COPD. At 1-year follow-up, mild worsening of tricuspid annular planar systolic excursion and RV dilatation were observed in patients without COPD, while there were significant improvements in RV longitudinal strain, RV wall thickness but dilatation of RV outflow tract distal dimension in the COPD group compared to the baseline. On multivariable analysis, the presence of COPD provided significant incremental prognostic value over RV dysfunction and remodeling.

Conclusions: At 1-year after AVR, RV function and dimensions mildly deteriorated in non-COPD group whereas COPD group received significant benefit of AVR in terms of RV function and hypertrophy. COPD was independently associated with >2-fold all-cause mortality and had incremental prognostic value over RV dysfunction and remodeling.

Keywords: Aortic valve replacement; Chronic obstructive pulmonary disease; Right ventricular function; Right ventricular remodeling.

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Oral Dis

. 2023 Oct 4.

doi: 10.1111/odi.14755. Online ahead of print.

Severe chronic obstructive pulmonary disease is associated with reduced oral health conditions

Antonio Ciardo[1], Marlinde M Simon[1], Ralf Eberhardt[2,3], Judith Maria Brock[2], Alexander Ritz[4,5], Ti-Sun Kim[1]

Affiliations expand

- PMID: 37794640

- DOI: 10.1111/odi.14755

Abstract

Objectives: This study aimed to investigate the association of explicitly severe chronic obstructive pulmonary disease (COPD) with oral conditions considering in-depth shared risk factors.

Methods: A case-control study was conducted with 104 participants, 52 with severe COPD and 52 matched controls without COPD. Dental and periodontal status were clinically assessed and oral health-related quality of life (OHRQoL) by OHIP-G14-questionnaire.

Results: Between COPD- and control-group, there were no statistically significant differences regarding age (66.02 ± 7.30), sex (female: 52 [50%]), smoking history (44.69 ± 23.23 pack years) and number of systemic diseases (2.60 ± 1.38). COPD patients demonstrated significantly fewer remaining teeth (12.58 ± 9.67 vs. 18.85 ± 6.24, p < 0.001) besides higher DMFT (decayed, missing and filled teeth) index (21.12 ± 5.83 vs. 19.10 ± 3.91, p = 0.036). They had significantly greater probing pocket depths (PPD: 3.24 mm ± 0.71 mm vs. 2.7 mm ± 0.37 mm, p < 0.001) and bleeding on probing (BOP: 34.52% ± 22.03% vs. 22.85% ± 17.94%, p = 0.003) compared to controls, but showed no significant difference in clinical attachment level or staging of periodontitis. The OHIP-G14 sum score was significantly higher in COPD patients (7.40 ± 7.28 vs. 3.63 ± 4.85, p = 0.002). Common risk factors such as educational status, physical activity, dentist visit frequency, oral hygiene regimens and dietary habits were less favourable in patients with COPD.

Conclusions: COPD was significantly associated with higher tooth loss, PPD, BOP and DMFT besides lower OHRQoL.

Keywords: chronic obstructive pulmonary disease; dental caries; periodontitis; preventive medicine; quality of life; systemic diseases.

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Am J Respir Crit Care Med

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. 2023 Oct 4.

doi: 10.1164/rccm.202309-1611ED. Online ahead of print.

Uncovering the Complexities of Interleukin-33 Signalling in COPD

Felicity A Easton[1], David J Cousins[2]

Affiliations expand

- PMID: 37792423

- DOI: 10.1164/rccm.202309-1611ED

No abstract available

Keywords: COPD; IL-33.

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16

Am J Respir Crit Care Med

. 2023 Oct 3.

doi: 10.1164/rccm.202303-0395OC. Online ahead of print.

Clonal Somatic Mutations in Chronic Lung Diseases Are Associated with Reduced Lung Function

Jeong H Yun[1], M A Wasay Khan[2], Auyon Ghosh[3], Brian D Hobbs[4 5], Peter J Castaldi[4], Craig P Hersh[6], Peter G Miller[7], Carlyne D Cool[8], Frank Sciurba[9], Lucas Barwick[10], Andrew H Limper[11], Kevin Flaherty[12], Gerard J Criner[13], Kevin Brown[14], Robert Wise[15], Fernando J Martinez[16], Edwin K Silverman[17], Dawn DeMeo[18], Michael H Cho[19], Alexander G Bick[2]; NHLBI Trans-Omics for Precision Medicine (TOPMed) Consortium

Affiliations expand

- PMID: 37788444

- DOI: 10.1164/rccm.202303-0395OC

Abstract

Rationale: Constantly exposed to the external environment and mutagens such as tobacco smoke, human lungs have one of the highest somatic mutation rates among all human organs. However, the relationship of these mutations to lung disease and function is not known.

Objectives: To identify the prevalence and significance of clonal somatic mutations in chronic lung diseases.

Methods: We analyzed the clonal somatic mutations from 1,251 samples of normal and diseased non-cancerous lung tissue RNA-seq with paired whole genome sequencing from the Lung Tissue Research Consortium. We examined the association of somatic mutations with lung function, disease status and computationally deconvoluted cell types in the two of the most common diseases represented in our dataset, chronic obstructive pulmonary disease (COPD, 29%) and idiopathic pulmonary fibrosis (IPF, 13%).

Measurements and main results: Clonal somatic mutational burden was associated with reduced lung function in both COPD and IPF. We identified an increased prevalence of clonal somatic mutations in IPF compared to normal controls and COPD independent of age and smoking status. IPF clonal somatic mutations were enriched in disease-related and airway epithelial expressed genes such as MUC5B in IPF. Patients with MUC5B risk variant carrier had increased odds of developing somatic mutations of MUC5B that was explained by increased expression of MUC5B.

Conclusions: Our identification of an increased prevalence of clonal somatic mutation in diseased lungs that correlates with airway epithelial gene expression and disease severity highlights for the first time the role of somatic mutational processes in lung disease genetics.

Keywords: COPD; IPF; somatic mutation.

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JAMA

. 2023 Oct 3;330(13):1286-1287.

doi: 10.1001/jama.2023.14832.

Mucus Plugs and Mortality in Patients With COPD

Nin-Chieh Hsu[1], Hugo You-Hsien Lin[2], Chia-Hao Hsu[3]

Affiliations expand

- PMID: 37787801

- DOI: 10.1001/jama.2023.14832

No abstract available

Comment in

- Mucus Plugs and Mortality in Patients With COPD-Reply.
  Diaz AA, Washko GR, San José Estépar R.JAMA. 2023 Oct 3;330(13):1287-1288. doi: 10.1001/jama.2023.14835.PMID: 37787798 No abstract available.

Comment on

- Airway-Occluding Mucus Plugs and Mortality in Patients With Chronic Obstructive Pulmonary Disease.
  Diaz AA, Orejas JL, Grumley S, Nath HP, Wang W, Dolliver WR, Yen A, Kligerman SJ, Jacobs K, Manapragada PP, Abozeed M, Aziz MU, Zahid M, Ahmed AN, Terry NL, San José Estépar R, Kim V, Make BJ, Han MK, Sonavane S, Washko GR, Cho M, San José Estépar R.JAMA. 2023 Jun 6;329(21):1832-1839. doi: 10.1001/jama.2023.2065.PMID: 37210745

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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JAMA

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. 2023 Oct 3;330(13):1287-1288.

doi: 10.1001/jama.2023.14835.

Mucus Plugs and Mortality in Patients With COPD–Reply

Alejandro A Diaz[1], George R Washko[1], Raul San José Estépar[2]

Affiliations expand

- PMID: 37787798

- DOI: 10.1001/jama.2023.14835

No abstract available

Comment on

- Mucus Plugs and Mortality in Patients With COPD.
  Hsu NC, Lin HY, Hsu CH.JAMA. 2023 Oct 3;330(13):1286-1287. doi: 10.1001/jama.2023.14832.PMID: 37787801 No abstract available.

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Publication types, MeSH termsexpand

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JAMA

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. 2023 Oct 3;330(13):1255-1265.

doi: 10.1001/jama.2023.17465.

Adherence to CPAP Treatment and the Risk of Recurrent Cardiovascular Events: A Meta-Analysis

Manuel Sánchez-de-la-Torre[1,2], Esther Gracia-Lavedan[2,3], Ivan D Benitez[1,2], Alicia Sánchez-de-la-Torre[1,2], Anna Moncusí-Moix[2,3], Gerard Torres[1,2], Kelly Loffler[4], Richard Woodman[4], Robert Adams[4], Gonzalo Labarca[5,6], Jorge Dreyse[7], Christine Eulenburg[8], Erik Thunström[9], Helena Glantz[10], Yüksel Peker[6,9,11,12,13], Craig Anderson[14], Doug McEvoy[4], Ferran Barbé[2,3]

Affiliations expand

- PMID: 37787793

- PMCID: PMC10548300 (available on 2024-04-03)

- DOI: 10.1001/jama.2023.17465

Abstract

Importance: The effect of continuous positive airway pressure (CPAP) on secondary cardiovascular disease prevention is highly debated.

Objective: To assess the effect of CPAP treatment for obstructive sleep apnea (OSA) on the risk of adverse cardiovascular events in randomized clinical trials.

Data sources: PubMed (MEDLINE), EMBASE, Current Controlled Trials: metaRegister of Controlled Trials, ISRCTN Registry, European Union clinical trials database, CENTRAL (Cochrane Central Register of Controlled Trials), and ClinicalTrials.gov databases were systematically searched through June 22, 2023.

Study selection: For qualitative and individual participant data (IPD) meta-analysis, randomized clinical trials addressing the therapeutic effect of CPAP on cardiovascular outcomes and mortality in adults with cardiovascular disease and OSA were included.

Data extraction and synthesis: Two reviewers independently screened records, evaluated potentially eligible primary studies in full text, extracted data, and cross-checked errors. IPD were requested from authors of the selected studies (SAVE [NCT00738179], ISAACC [NCT01335087], and RICCADSA [NCT00519597]).

Main outcomes and measures: One-stage and 2-stage IPD meta-analyses were completed to estimate the effect of CPAP treatment on risk of recurrent major adverse cardiac and cerebrovascular events (MACCEs) using mixed-effect Cox regression models. Additionally, an on-treatment analysis with marginal structural Cox models using inverse probability of treatment weighting was fitted to assess the effect of good adherence to CPAP (≥4 hours per day).

Results: A total of 4186 individual participants were evaluated (82.1% men; mean [SD] body mass index, 28.9 [4.5]; mean [SD] age, 61.2 [8.7] years; mean [SD] apnea-hypopnea index, 31.2 [17] events per hour; 71% with hypertension; 50.1% receiving CPAP [mean {SD} adherence, 3.1 {2.4} hours per day]; 49.9% not receiving CPAP [usual care], mean [SD] follow-up, 3.25 [1.8] years). The main outcome was defined as the first MACCE, which was similar for the CPAP and no CPAP groups (hazard ratio, 1.01 [95% CI, 0.87-1.17]). However, an on-treatment analysis by marginal structural model revealed a reduced risk of MACCEs associated with good adherence to CPAP (hazard ratio, 0.69 [95% CI, 0.52-0.92]).

Conclusions and relevance: Adherence to CPAP was associated with a reduced MACCE recurrence risk, suggesting that treatment adherence is a key factor in secondary cardiovascular prevention in patients with OSA.

Conflict of interest statement

Conflict of Interest Disclosures: Dr Adams reported receiving grants from the National Health and Medical Research Institute during the conduct of the study and grants from the National Health and Medical Research Institute, ResMed Foundation, The Hospital Research Foundation, and Flinders Foundation; nonfinancial support from Philips Equipment; and personal fees from SomnoMed outside the submitted work. Dr Labarca reported receiving grants from the National Institutes of Health/National Heart, Lung, and Blood Institute, CHEST Foundation, Sleep Research Society, ResMed Foundation, and American Academy of Sleep Medicine outside the submitted work. Dr Thunström reported receiving lecture fees from ResMed. Dr Peker reported receiving grants from ResMed Foundation for the RICCADSA trial outside the submitted work. Dr Anderson reported receiving grants from National Health and Medical Research Council of Australia and fellowships to his institution during the conduct of the study and grants from Medical Research Council of UK, Penumbra, and Takeda paid to his institution outside the submitted work. Dr McEvoy reported receiving grants from the National Health and Medical Research Council during the conduct of the study. Dr Barbé reported receiving grants from ResMed, the Health Research Fund, Spanish Ministry of Health, Sociedad Española de Neumología y Cirugía Torácica, Societat Catalana de Pneumologia, Esteve Teijin (Spain), Oxigen Salud (Spain), and ALLER during the conduct of the study. No other disclosures were reported.

SUPPLEMENTARY INFO

Associated dataexpand

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Am J Respir Crit Care Med

. 2023 Oct 3.

doi: 10.1164/rccm.202309-1640ED. Online ahead of print.

Role of Community Health Workers (CHWs) in COPD Care in Low- and Middle-Income Countries (LMICs)

Sundeep Salvi[1,2], Deesha Ghorpade[3]

Affiliations expand

- PMID: 37787613

- DOI: 10.1164/rccm.202309-1640ED

No abstract available

Keywords: COPD.

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21

ESC Heart Fail

. 2023 Oct 3.

doi: 10.1002/ehf2.14497. Online ahead of print.

Epidemiology and treatment of heart failure with chronic obstructive pulmonary disease in Canadian primary care

Nathaniel M Hawkins[1,2], Sandra Peterson[2], Samaneh Salimian[1], Catherine Demers[3], Karim Keshavjee[4], Sean A Virani[1], G B John Mancini[1], Sabrina T Wong[2,5]

Affiliations expand

- PMID: 37786365

- DOI: 10.1002/ehf2.14497

Free article

Abstract

Aims: Heart failure (HF) and chronic obstructive pulmonary disease (COPD) are largely managed in primary care, but their intersection in terms of disease burden, healthcare utilization, and treatment is ill-defined.

Methods and results: We examined a retrospective cohort including all patients with HF or COPD in the Canadian Primary Care Sentinel Surveillance Network from 2010 to 2018. The population size in 2018 with HF, COPD, and HF with COPD was 15 778, 27 927, and 4768 patients, respectively. While disease incidence declined, age-sex-standardized prevalence per 100 population increased for HF alone from 2.33 to 3.63, COPD alone from 3.44 to 5.96, and COPD with HF from 12.70 to 15.67. Annual visit rates were high and stable around 8 for COPD alone but declined significantly over time for HF alone (9.3-8.1, P = 0.04) or for patients with both conditions (14.3-11.9, P = 0.006). For HF alone, cardiovascular visits were common (29.4%), while respiratory visits were infrequent (3.5%), with the majority of visits being non-cardiorespiratory. For COPD alone, respiratory and cardiovascular visits were common (16.4% and 11.3%) and the majority were again non-

cardiorespiratory. For concurrent disease, 39.0% of visits were cardiorespiratory. The commonest non-cardiorespiratory visit reasons were non-specific symptoms or signs, endocrine, musculoskeletal, and mental health. In patients with HF with and without COPD, angiotensin-converting enzyme inhibitor/angiotensin receptor blocker/angiotensin receptor-neprilysin inhibitor use was similar, while mineralocorticoid receptor antagonist use was marginally higher with concurrent COPD. Beta-blocker use was initially lower with concurrent COPD compared with HF alone (69.3% vs. 74.0%), but this progressively declined by 2018 (74.5% vs. 73.5%).

Conclusions: The prevalence of HF and COPD continues to rise. Although patients with either or both conditions are high utilizers of primary care, the majority of visits relate to non-cardiorespiratory comorbidities. Medical therapy for HF was similar and the initially lower beta-blocker utilization disappeared over time.

Keywords: Chronic obstructive pulmonary disease; Epidemiology; Heart failure; Primary care.

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- 33 references

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Ann Intern Med

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. 2023 Oct 3.

doi: 10.7326/M23-1125. Online ahead of print.

Suspected Bronchiectasis and Mortality in Adults With a History of Smoking Who Have Normal and Impaired Lung Function : A Cohort Study

Alejandro A Diaz[1], Wei Wang[2], Jose L Orejas[1], Rim Elalami[1], Wojciech R Dolliver[1], Pietro Nardelli[3], Ruben San José Estépar[3], Bina Choi[1], Carrie L Pistenmaa[1], James C Ross[3], Diego J Maselli[4], Andrew Yen[5], Kendra A Young[6], Gregory L Kinney[6], Michael H Cho[7], Raul San José Estépar[3]

Affiliations expand

- PMID: 37782931

- DOI: 10.7326/M23-1125

Abstract

Background: Bronchiectasis in adults with chronic obstructive pulmonary disease (COPD) is associated with greater mortality. However, whether suspected bronchiectasis-defined as incidental bronchiectasis on computed tomography (CT) images plus clinical manifestation-is associated with increased mortality in adults with a history of smoking with normal spirometry and preserved ratio impaired spirometry (PRISm) is unknown.

Objective: To determine the association between suspected bronchiectasis and mortality in adults with normal spirometry, PRISm, and obstructive spirometry.

Design: Prospective, observational cohort.

Setting: The COPDGene (Genetic Epidemiology of Chronic Obstructive Pulmonary Disease) study.

Participants: 7662 non-Hispanic Black or White adults, aged 45 to 80 years, with 10 or more pack-years of smoking history. Participants who were former and current smokers were stratified into normal spirometry (n = 3277), PRISm (n = 986), and obstructive spirometry (n = 3399).

Measurements: Bronchiectasis identified by CT was ascertained using artificial intelligence-based measurements of an airway-to-artery ratio (AAR) greater than 1 (AAR >1), a measure of bronchial dilatation. The primary outcome of "suspected bronchiectasis"

was defined as an AAR >1 of greater than 1% plus 2 of the following: cough, phlegm, dyspnea, and history of 2 or more exacerbations.

Results: Among the 7662 participants (mean age, 60 years; 52% women), 1352 (17.6%) had suspected bronchiectasis. During a median follow-up of 11 years, 2095 (27.3%) died. Ten-year mortality risk was higher in participants with suspected bronchiectasis, compared with those without suspected bronchiectasis (normal spirometry: difference in mortality probability [Pr], 0.15 [95% CI, 0.09 to 0.21]; PRISm: Pr, 0.07 [CI, -0.003 to 0.15]; obstructive spirometry: Pr, 0.06 [CI, 0.03 to 0.09]). When only CT was used to identify bronchiectasis, the differences were attenuated in the normal spirometry (Pr, 0.04 [CI, -0.001 to 0.08]).

Limitations: Only 2 racial groups were studied. Only 1 measurement was used to define bronchiectasis on CT. Symptoms of suspected bronchiectasis were nonspecific.

Conclusion: Suspected bronchiectasis was associated with a heightened risk for mortality in adults with normal and obstructive spirometry.

Primary funding source: National Heart, Lung, and Blood Institute.

Conflict of interest statement

Disclosures: Disclosures can be viewed at www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M23-1125.

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EClinicalMedicine

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. 2023 Oct 2:64:102215.

doi: 10.1016/j.eclinm.2023.102215. eCollection 2023 Oct.

Burden and risk factors of chronic obstructive pulmonary disease in Sub-Saharan African countries, 1990–2019: a systematic analysis for the Global Burden of disease study 2019

Mulubirhan Assefa Alemayohu [1,2,3], Maria Elisabetta Zanolin [1], Lucia Cazzoletti [1], Peter Nyasulu [4], Vanessa Garcia-Larsen [5]; GBD 2019 Sub-Saharan COPD Collaborators

Collaborators, Affiliations expand

- PMID: 37799614
- PMCID: PMC10550520
- DOI: 10.1016/j.eclinm.2023.102215

Free PMC article

Abstract

Background: Sub-Saharan Africa (SSA) has experienced a surge of non-communicable diseases (NCDs) including chronic obstructive pulmonary disease (COPD) over the past two decades. Using data from the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD), in this study we have estimated the burden and attributable risk factors of COPD across SSA countries between 1990 and 2019.

Methods: COPD burden and its attributable risk factors were estimated using data from the 2019 GBD. Percentage change was estimated to show the trend of COPD estimates from 1990 to 2019. COPD estimates attributable by risk factors were also reported to ascertain the risk factor that brings the greatest burden by sex and locations (at country and regions level).

Findings: In 2019, all-age prevalent cases of COPD in SSA were estimated to be 10.3 million (95% Uncertainty Intervals (UI) 9.7 million to 10.9 million) showing an increase of 117% compared with the number of all-age COPD cases in 1990. From 1990 to 2019, SSA underwent an increased percentage change in all-age YLDs due to COPD ranging from 41% in Lesotho to 203% in Equatorial Guinea. The largest premature mortality due to

COPD was reported from Central SSA accounting for 729 subjects (95% UI, 509-1078). The highest rate of DALYs attributable to COPD was observed in Lesotho. Household air pollution from solid fuel was the primary contributor of the age standardized YLDs, death rate, and DALYs rate per 100,000 population.

Interpretation: The prevalence of COPD in SSA has had a steady increase over the past three decades and has progressively become a major public health burden across the region. Household air pollution from solid fuel is the primary contributor to COPD related burden, and its percentage contribution showed a similar trend to the reduction of COPD attributed age-standardized DALY rate. The methodological limitations of surveys and datapoints included in the GBD need to be considered when interpreting these associations.

Funding: There are no specific fundings received for this study. The Global Burden of Disease study was supported by funding from the Bill & Melinda Gates Foundation.

Keywords: Burden; COPD; Chronic respiratory diseases; DALYs; Global burden of disease; Risk factors.

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Conflict of interest statement

All authors in the writing team declare no competing interests.

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J Thorac Cardiovasc Surg

. 2023 Oct 2:S0022-5223(23)00893-0.

doi: 10.1016/j.jtcvs.2023.09.067. Online ahead of print.

The severity of chronic obstructive pulmonary disease is associated with adverse outcomes after open thoracoabdominal aortic aneurysm repair

Vicente Orozco-Sevilla[1], Christopher T Ryan[2], Kimberly R Rebello[2], Lynna H Nguyen[3], Ian O Cook[2], Ginger M Etheridge[3], Susan Y Green[3], Thomas Bini[2], Subhasis Chatterjee[1], Marc R Moon[1], Scott A LeMaire[4], Joseph S Coselli[1]

Affiliations expand

- PMID: 37793566

- DOI: 10.1016/j.jtcvs.2023.09.067

Abstract

Objective: We assessed associations between outcomes after open thoracoabdominal aortic aneurysm (TAAA) repair and preoperative airflow limitation stratified by the Global Initiative for Chronic Obstructive Lung Disease (GOLD) spirometric classification of chronic obstructive pulmonary disease (COPD) severity.

Methods: Among 2368 open elective TAAA repairs in patients with spirometric data, 1735 patients had COPD and 633 did not. Those with COPD were stratified by preoperative respiratory dysfunction as GOLD 1 ($FEV_1 \geq 80\%$ of predicted; n=228), GOLD 2 ($50\% \leq FEV_1 < 80\%$ of predicted; n=1215), GOLD 3 ($30\% \leq FEV_1 < 50\%$ of predicted; n=260), or GOLD 4 ($FEV_1 < 30\%$ of predicted; n=32). Early outcomes included operative mortality and adverse event (operative death or persistent stroke, spinal cord deficit, or renal failure requiring dialysis); associations of outcomes were determined using logistic regression models. Kaplan-Meier analysis compared late survival by the log-rank test.

Results: Pulmonary complications occurred in 38.4% of patients with COPD versus 30.0% without COPD (P<.001). Operative mortality and adverse events were more frequent in patients with COPD than without COPD (7.9% vs 3.8% [P<.001] and 14.9% vs 9.8% [P=.001], respectively). Worsening GOLD severity independently associated with operative death and adverse event. Survival was poorer in patients with COPD than in those without (61.9%±1.2% vs 73.6%±1.8% at 5 years; P<.001), particularly in patients with increasing

GOLD severity (68.7%±3.2% vs 63.7%±1.4% vs 51.4%±3.2% vs 31.3%±8.2% at 5 years; P<.001).

Conclusions: Patients with COPD are at elevated risk for operative death and adverse events. Staging by GOLD severity aids preoperative risk stratification. Patients with airflow limitations may benefit from optimization before TAAA repair.

Keywords: aortic aneurysm; chronic obstructive pulmonary disease; operative risk factors; pulmonary function tests; thoracoabdominal aorta.

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Review

JMIR Rehabil Assist Technol

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. 2023 Oct 2:10:e47114.

doi: 10.2196/47114.

Virtual Reality for Pulmonary Rehabilitation: Comprehensive Review

Melpo Pittara[1], Maria Matsangidou[2], Constantinos S Pattichis[3 4 5]

Affiliations expand

- PMID: 37782529

- DOI: 10.2196/47114

Free article

Abstract

Background: Pulmonary rehabilitation is a vital component of comprehensive care for patients with respiratory conditions, such as lung cancer, chronic obstructive pulmonary disease, and asthma, and those recovering from respiratory diseases like COVID-19. It aims to enhance patients' functional ability and quality of life, and reduce symptoms, such as stress, anxiety, and chronic pain. Virtual reality is a novel technology that offers new opportunities for customized implementation and self-control of pulmonary rehabilitation through patient engagement.

Objective: This review focused on all types of virtual reality technologies (nonimmersive, semi-immersive, and fully immersive) that witnessed significant development and were released in the field of pulmonary rehabilitation, including breathing exercises, biofeedback systems, virtual environments for exercise, and educational models.

Methods: The review screened 7 electronic libraries from 2010 to 2023. The libraries were ACM Digital Library, Google Scholar, IEEE Xplore, MEDLINE, PubMed, Sage, and ScienceDirect. Thematic analysis was used as an additional methodology to classify our findings based on themes. The themes were virtual reality training, interaction, types of virtual environments, effectiveness, feasibility, design strategies, limitations, and future directions.

Results: A total of 2319 articles were identified, and after a detailed screening process, 32 studies were reviewed. Based on the findings of all the studies that were reviewed (29 with a positive label and 3 with a neutral label), virtual reality can be an effective solution for pulmonary rehabilitation in patients with lung cancer, chronic obstructive pulmonary disease, and asthma, and in individuals and children who are dealing with mental health-related disorders, such as anxiety. The outcomes indicated that virtual reality is a reliable and feasible solution for pulmonary rehabilitation. Interventions can provide immersive experiences to patients and offer tailored and engaging rehabilitation that promotes improved functional outcomes of pulmonary rehabilitation, breathing body awareness, and relaxation breathing techniques.

Conclusions: The identified studies on virtual reality in pulmonary rehabilitation showed that virtual reality holds great promise for improving the outcomes and experiences of patients. The immersive and interactive nature of virtual reality interventions offers a new dimension to traditional rehabilitation approaches, providing personalized exercises and addressing psychological well-being. However, additional research is needed to establish standardized protocols, identify the most effective strategies, and evaluate long-term

benefits. As virtual reality technology continues to advance, it has the potential to revolutionize pulmonary rehabilitation and significantly improve the lives of patients with chronic lung diseases.

Keywords: breathing exercise; breathing exercise gaming; pulmonary rehabilitation; respiratory biofeedback; virtual reality.

©Melpo Pittara, Maria Matsangidou, Constantinos S Pattichis. Originally published in JMIR Rehabilitation and Assistive Technology (https://rehab.jmir.org), 02.10.2023.

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J Appl Clin Med Phys

. 2023 Oct 2:e14171.

doi: 10.1002/acm2.14171. Online ahead of print.

Development of machine learning model to predict pulmonary function with low-dose CT-derived parameter response mapping in a community-based chest screening cohort

Xiuxiu Zhou[1], Yu Pu[1], Di Zhang[1], Yu Guan[1], Yang Lu[2], Weidong Zhang[2], Chi-Cheng Fu[2], Qu Fang[2], Hanxiao Zhang[1], Shiyuan Liu[1], Li Fan[1]

Affiliations expand

- PMID: 37782241

- DOI: 10.1002/acm2.14171

Abstract

Purpose: To construct and evaluate the performance of a machine learning-based low dose computed tomography (LDCT)-derived parametric response mapping (PRM) model for predicting pulmonary function test (PFT) results.

Materials and methods: A total of 615 subjects from a community-based screening population (40-74 years old) with PFT parameters, including the ratio of the first second forced expiratory volume to forced vital capacity (FEV1/FVC), the percentage of forced expiratory volume in the one second predicted (FEV1%), and registered inspiration-to-expiration chest CT scanning were enrolled retrospectively. Subjects were classified into a normal, high risk, and COPD group based on PFT. Data of 72 PRM-derived quantitative parameters were collected, including volume and volume percentage of emphysema, functional-small airways disease, and normal lung tissue. A machine-learning with random forest regression model and a multilayer perceptron (MLP) model were constructed and tested on PFT prediction, which was followed by evaluation of classification performance based on the PFT predictions.

Results: The machine-learning model based on PRM parameters showed better performance for predicting PFT than MLP, with a coefficient of determination (R^2) of 0.749 and 0.792 for FEV1/FVC and FEV1%, respectively. The Mean Squared Errors (MSE) for FEV1/FVC and FEV1% are 0.0030 and 0.0097 for the random forest model, respectively. The Root Mean Squared Errors (RMSE) for FEV1/FVC and FEV1% are 0.055 and 0.098, respectively. The sensitivity, specificity, and accuracy for differentiating between the normal group and high-risk group were 34/40 (85%), 65/72 (90%), and 99/112 (88%), respectively. For differentiating between the non-COPD group and COPD group, the sensitivity, specificity, and accuracy were 8/9 (89%), 112/112 (100%), 120/121 (99%), respectively.

Conclusions: The machine learning-based random forest model predicts PFT results in a community screening population based on PRM, and it identifies high risk COPD from normal populations with high sensitivity and reliably predicts of high-risk COPD.

Keywords: X-ray computed; chronic obstructive; pulmonary disease; pulmonary function test; quantitative imaging; tomography.

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- 30 references

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Review

Immunotherapy

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. 2023 Oct 2.

doi: 10.2217/imt-2023-0136. Online ahead of print.

What role will ensifentrine play in the future treatment of chronic obstructive pulmonary disease patients? Implications from recent clinical trials

Mario Cazzola[1], Clive Page[2], Luigino Calzetta[3], Dave Singh[4], Paola Rogliani[1], Maria Gabriella Matera[5]

Affiliations expand

- PMID: 37779474

- DOI: 10.2217/imt-2023-0136

Abstract

Data from the phase III ENHANCE clinical trials provide compelling evidence that ensifentrine, an inhaled 'bifunctional' dual phosphodiesterase 3/4 inhibitor, can provide additional benefit to existing treatments in patients with chronic obstructive pulmonary disease and represents a 'first-in-class' drug having bifunctional bronchodilator and anti-inflammatory activity in a single molecule. Ensifentrine, generally well tolerated, can provide additional bronchodilation when added to muscarinic receptor antagonists or β_2-agonists and reduce the exacerbation risk. This information allows us to consider better the possible inclusion of ensifentrine in the future treatment of chronic obstructive pulmonary disease. However, there is less information on whether it provides additional benefit when added to inhaled corticosteroid or 'triple therapy' and, therefore, when this drug is best utilized in clinical practice.

Keywords: COPD; anti-inflammatory activity; bronchodilation; combination therapy; ensifentrine; pivotal RCTs.

Plain language summary

Chronic obstructive pulmonary disease (COPD) is the name for a group of lung conditions that cause breathing difficulties/airflow limitations. The airflow limitation is not completely reversible and is associated with a state of chronic inflammation of lung tissue. Treatment of the disease is still heavily dependent on the use of medications called bronchodilators and corticosteroids. However, corticosteroids have little-to-no impact on the underlying inflammation in most COPD patients. Therefore, innovative anti-inflammatory approaches are required. In this context, single molecules that are capable of simultaneously inducing bronchodilation, relaxing the muscles in the lungs and widening the airways (bronchi), and anti-inflammatory activity are a highly intriguing possibility for treating COPD. One approach is to develop drugs that can simultaneously inhibit enzymes called phosphodiesterase (PDE)3 and PDE4. Enzymes are proteins that help speed up metabolism, or the chemical reactions in our bodies. PDE4 inhibitors are intracellular enzymes (work inside the cell) expressed in most inflammatory cells, even in neutrophils (a type of white blood cells), which are involved in the pathogenesis of COPD, where an infection turns into a disease. However, its inhibition does not produce severe bronchodilator effects, which is instead obtained by inhibiting PDE3, the PDE isoenzyme (a different form of the same enzyme) that is predominantly expressed in airway smooth muscle cells. A treatment called ensifentrine is a dual PDE3/4 inhibitor (inhibits both PDE3 and PDE4). Two recent phase III studies (ENHANCE-1 and ENHANCE-2) have shown that it induces significant bronchodilation and reduces the risk of COPD worsening, exerting an anti-inflammatory effect. Data from the ENHANCE studies also showed the benefit of adding ensifentrine to treatment with bronchodilators. Certainly, the drug represents a useful therapeutic option, but further clinical studies are needed to be able to correctly position ensifentrine in the context of regular COPD treatment.

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"Multimorbidity"[Mesh Terms] OR Multimorbidity[Text Word]

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1

Review

Pharmacol Res

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. 2023 Oct 5:197:106953.

doi: 10.1016/j.phrs.2023.106953. Online ahead of print.

Targeting endothelial cells with golden spice curcumin: A promising therapy for cardiometabolic multimorbidity

Fei Tang[1], Dong Liu[2], Li Zhang[3], Li-Yue Xu[4], Jing-Nan Zhang[5], Xiao-Lan Zhao[6], Hui Ao[7], Cheng Peng[8]

Affiliations expand

- PMID: 37804925

- DOI: 10.1016/j.phrs.2023.106953

Abstract

Cardiometabolic multimorbidity (CMM) is an increasingly significant global public health concern. It encompasses the coexistence of multiple cardiometabolic diseases, including hypertension, stroke, heart disease, atherosclerosis, and T2DM. A crucial component to the development of CMM is the disruption of endothelial homeostasis. Therefore, therapies targeting endothelial cells through multi-targeted and multi-pathway approaches hold promise for preventing and treatment of CMM. Curcumin, a widely used dietary supplement derived from the golden spice Carcuma longa, has demonstrated remarkable potential in treatment of CMM through its interaction with endothelial cells. Numerous studies have identified various molecular targets of curcumin (such as NF-κB/PI3K/AKT, MAPK/NF-κB/IL-1β, HO-1, NOs, VEGF, ICAM-1 and ROS). These findings highlight the efficacy of curcumin as a therapeutic agent against CMM through the regulation of endothelial function. It is worth noting that there is a close relationship between the progression of CMM and endothelial damage, characterized by oxidative stress, inflammation, abnormal NO bioavailability and cell adhesion. This paper provides a comprehensive review of curcumin, including its availability, pharmacokinetics, pharmaceutics, and therapeutic application in treatment of CMM, as well as the challenges and future prospects for its clinical translation. In summary, curcumin shows promise as a potential treatment option for CMM, particularly due to its ability to target endothelial cells. It represents a novel and natural lead compound that may offer significant therapeutic benefits in the management of CMM.

Keywords: Cardiometabolic multimorbidity; Cardiovascular disease; Curcumin; Endothelial cells; Metabolic diseases.

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Conflict of interest statement

Declaration of Competing Interest All authors declare no conflict of interest regarding the present work and they have no involvements that might raise the question of bias in the work reported or in the conclusions, implications or opinions stated.

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Sci Rep

. 2023 Oct 3;13(1):16629.

doi: 10.1038/s41598-023-43545-5.

Multimorbidity and complex multimorbidity in Brazilians with severe obesity

Ana Paula Dos Santos Rodrigues[1], Sandro Rogério Rodrigues Batista[2,3], Annelisa Silva E Alves Santos[4], Andrea Batista de Sousa Canheta[5], Bruno Pereira Nunes[6], Andréa Toledo de Oliveira Rezende[4], Cesar de Oliveira[7], Erika Aparecida Silveira[2,8]

Affiliations expand

- PMID: 37789121

- PMCID: PMC10547747

- DOI: 10.1038/s41598-023-43545-5

Free PMC article

Abstract

To investigate the prevalence of multimorbidity and complex multimorbidity and their association with sociodemographic and health variables in individuals with severe obesity. This is a baseline data analysis of 150 individuals with severe obesity (body mass index ≥ 35.0 kg/m²) aged 18-65 years. The outcomes were multimorbidity and complex multimorbidity. Sociodemographic, lifestyle, anthropometric and self-perceived health data were collected. Poisson multiple regression was conducted to identify multimorbidity risk factors. The frequency of two or more morbidities was 90.7%, three or more morbidities was 76.7%, and complex multimorbidity was 72.0%. Living with four or more household residents was associated with ≥ 3 morbidities and complex multimorbidity. Fair and very poor self-perceived health was associated with ≥ 2 morbidities, ≥ 3 morbidities and complex multimorbidity. A higher BMI range (45.0-65.0 kg/m²) was associated with ≥ 2 morbidities and ≥ 3 morbidities. Anxiety (82.7%), varicose veins of lower limbs (58.7%), hypertension (56.0%) were the most frequent morbidities, as well as the pairs and triads including them. The prevalence of multimorbidity and complex multimorbidity in individuals with severe obesity was higher and the risk for multimorbidity and complex multimorbidity increased in individuals living in households of four or more residents, with fair or poor/very poor self-perceived health and with a higher BMI.

Trial registration: ClinicalTrials.gov NCT02463435.

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Conflict of interest statement

The authors declare no competing interests.

- 52 references
- 1 figure

SUPPLEMENTARY INFO

Publication types, MeSH terms, Associated dataexpand

FULL TEXT LINKS

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

1
Int Forum Allergy Rhinol

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. 2023 Oct 8.

doi: 10.1002/alr.23282. Online ahead of print.

Predictors of persistent disease in biologic treated type 2 diffuse/eosinophilic chronic rhinosinusitis undergoing surgery

Lu Hui Png[1,2,3], Larry Kalish[1,4,5], Raewyn G Campbell[1,3,6], Kachorn Seresirikachorn[1,3,7,8,9], Tobias Albrecht[10], Nelufer Raji[1], Christine Choy[1], Janet Rimmer[1,11,12], Peter Earls[1,13], Raymond Sacks[1,3,4], Richard J Harvey[1,3]

Affiliations expand

- PMID: 37805956

- DOI: 10.1002/alr.23282

Abstract

Background: Biologic therapy targeting type 2 chronic rhinosinusitis with nasal polyps (CRSwNP) has greatly improved disease control but nonresponders exist in a proportion of patients in phase 3 trials and clinical practice. This study explores the serum and histologic changes in biologic treated CRSwNP that predict disease control.

Methods: A cross-sectional study was performed of patients with CRSwNP on biologics for their asthma, who underwent endoscopic sinus surgery while on biologic therapy. At the 6-month postoperative assessment, patients with poorly controlled CRSwNP while on biologic therapy were compared to patients who were controlled. Blood and mucosal samples taken at the time of surgery 6 months prior were assessed to predict disease control.

Results: A total of 37 patients were included (age 47.8 ± 12.4 years, 43.2% female). Those with poorly controlled disease had reduced tissue eosinophils (% >100 cells/high-powered field: 8.3% vs. 50.0%, $p < 0.001$) and increased serum neutrophils (5.2 ± 2.7 vs. 3.7 ± 1.1 × 10^9 cells/L, $p = 0.02$). Logistic regression analysis demonstrated that reduced tissue eosinophil was predictive for poorly controlled disease (OR = 0.21, 95% CI [0.05, 0.83], $p = 0.03$). Receiver-operating characteristic analysis showed that need for rescue systemic corticosteroid was predicted at a serum neutrophil cut-off level of 5.75 × 10^9 cells/L (sensitivity = 80.0%, specificity = 96.9%, AUC = 0.938, $p = 0.002$).

Conclusion: Low tissue eosinophils and increased serum neutrophils while on biologics predict for poor response in the biological treatment of with CRSwNP. A serum neutrophil level of ≥5.75 × 10^9 cells/L predicts for poor response to current biologic therapy.

Keywords: biologics; biomarkers; nasal polyps; resident eosinophils; sinusitis; therapeutic response; type 2 inflammation.

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- 44 references

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Published Erratum

Adv Ther

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. 2023 Oct 7.

doi: 10.1007/s12325-023-02645-4. Online ahead of print.

Correction to: Assessing the Effects of Changing Patterns of Inhaled Corticosteroid Dosing and Adherence with Fluticasone Furoate and Budesonide on Asthma Management

Peter Daley-Yates[1], Dave Singh[2], Juan M Igea[3], Luigi Macchia[4], Manish Verma[5], Norbert Berend[6], Maximilian Plank[7][8]

Affiliations expand

- PMID: 37804476

- DOI: 10.1007/s12325-023-02645-4

No abstract available

Erratum for

- Assessing the Effects of Changing Patterns of Inhaled Corticosteroid Dosing and Adherence with Fluticasone Furoate and Budesonide on Asthma Management.
  Daley-Yates P, Singh D, Igea JM, Macchia L, Verma M, Berend N, Plank M.Adv Ther. 2023 Sep;40(9):4042-4059. doi: 10.1007/s12325-023-02585-z. Epub 2023 Jul 12.PMID: 37438554 **Free PMC article.** Review.

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Clin Exp Allergy

. 2023 Oct 7.

doi: 10.1111/cea.14410. Online ahead of print.

Does vitamin D supplementation reduce risk of asthma exacerbation and improve asthma control?

Joseph Withers Green[1], Dilini Vasanthakumar[1]

Affiliations expand

- PMID: 37804101

- DOI: 10.1111/cea.14410

No abstract available

Keywords: anaphylaxis; asthma; drug allergy; food allergy; pharmacology and pharmacogenomics.

- 6 references

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Environ Res

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. 2023 Oct 6:117296.

doi: 10.1016/j.envres.2023.117296. Online ahead of print.

Fungal diversity in homes and asthma morbidity among school-age children in New York City

Samuel J Cochran[1], Luis Acosta[2], Adnan Divjan[2], Angela R Lemons[3], Andrew G Rundle[4], Rachel L Miller[5], Edward Sobek[6], Brett J Green[7], Matthew S Perzanowski[2], Karen C Dannemiller[8]

Affiliations expand

- PMID: 37806477

- DOI: 10.1016/j.envres.2023.117296

Abstract

Background: Asthma development has been inversely associated with exposure to fungal diversity. However, the influence of fungi on measures of asthma morbidity is not well understood.

Objectives: This study aimed to test the hypothesis that fungal diversity is inversely associated with neighborhood asthma prevalence and identify specific fungal species associated with asthma morbidity.

Methods: Children aged 7-8 years (n = 347) living in higher (11-18%) and lower (3-9%) asthma prevalence neighborhoods were recruited within an asthma case-control study. Fungal communities were analyzed from floor dust using high-throughput DNA sequencing. A subset of asthmatic children (n = 140) was followed to age 10-11 to determine asthma persistence.

Results: Neighborhood asthma prevalence was inversely associated with fungal species richness (P = 0.010) and Shannon diversity (P = 0.059). Associations between neighborhood asthma prevalence and diversity indices were driven by differences in building type and presence of bedroom carpet. Among children with asthma at age 7-8 years, Shannon fungal diversity was inversely associated with frequent asthma symptoms at that age (OR 0.57, P = 0.025) and with asthma persistence to age 10-11 (OR 0.48, P = 0.043). Analyses of individual fungal species did not show significant associations with asthma outcomes when adjusted for false discovery rates.

Discussion: Lower fungal diversity was associated with asthma symptoms in this urban setting. Individual fungal species associated with asthma morbidity were not detected.

Further research is warranted into building type, carpeting, and other environmental characteristics which influence fungal exposures in homes.

Keywords: Asthma; Built-environment; DNA; Fungi; House-dust; Mycobiome.

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Conflict of interest statement

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

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J Allergy Clin Immunol Pract

. 2023 Oct 6:S2213-2198(23)01075-9.

doi: 10.1016/j.jaip.2023.09.041. Online ahead of print.

Factors Influencing Asthma Exacerbations in Children Following COVID-19 Infection

Jennifer Barrows[1], Tricia Morphew[2], Louis Ehwerhemuepha[3], Stanley Paul Galant[4]

Affiliations expand

- PMID: 37806437

- DOI: 10.1016/j.jaip.2023.09.041

No abstract available

Keywords: COVID-19; SARS-CoV-2; asthma; children; respiratory viral infection.

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Editorial

J Allergy Clin Immunol

. 2023 Oct 6:S0091-6749(23)01250-2.

doi: 10.1016/j.jaci.2023.09.037. Online ahead of print.

The Chicken or the Egg: the role of IL-6 in pediatric obese and allergen exposed asthma

Kathryn E Kyler[1], Bridgette L Jones[2]

Affiliations expand

- PMID: 37806322

- DOI: 10.1016/j.jaci.2023.09.037

No abstract available

Keywords: IL-6; Severe asthma; children; inflammation; metabolic dysfunction; obesity.

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Eur Respir J

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. 2023 Oct 6:2300714.

doi: 10.1183/13993003.00714-2023. Online ahead of print.

Novel insights into the whole blood DNA methylome of asthma in ethnically diverse children and youth

Esther Herrera-Luis[1,2], Carlos de la Rosa-Baez[1], Scott Huntsman[3], Celeste Eng[3], Kenneth B Beckman[4], Michael A Lenoir[5], Jose Rodriguez-Santana[6], Jesús Villar[7,8,9], Catherine Laprise[10,11], Luisa N Borrell[12], Elad Ziv[13], Esteban G Burchard[3,14,15], Maria Pino-Yanes[16,8,17,15]

Affiliations expand

- PMID: 37802634

- DOI: 10.1183/13993003.00714-2023

Abstract

Rationale: The epigenetic mechanisms of asthma remain largely understudied in African Americans and Hispanics/Latinos, two populations disproportionately affected by asthma. We aimed to identify markers, regions, and processes with differential patterns of DNA methylation (DNAm) in whole blood by asthma status in ethnically diverse children and youth, and to assess their functional consequences.

Methods: DNAm levels were profiled with the Infinium EPIC or the HumanMethylation450 BeadChip arrays among 1226 African Americans or Hispanics/Latinos and assessed for differential methylation per asthma status at the CpG or region (DMR) level. Novel associations were validated in blood and/or nasal epithelium from ethnically diverse children and youth. The functional and biological implications of the markers identified were investigated by combining epigenomics with transcriptomics from study participants.

Results: 128 CpGs and 196 DMRs were differentially methylated after multiple testing corrections, including 92.3% and 92.8% novel associations, respectively. Forty-one CpGs were replicated in other Hispanics/Latinos, prioritizing cg17647904 (*NCOR2*) and cg16412914 (*AXIN1*) as asthma DNAm markers. Significant DNAm markers were enriched in previous associations for asthma, fractional exhaled nitric oxide, bacterial infections, immune regulation, or eosinophilia. Functional annotation highlighted epigenetically-regulated gene networks involved in corticosteroid response, host defense, and immune regulation. Several implicated genes are targets for approved or experimental drugs, including *TNNC1* and *NDUFA12*. Many differentially methylated loci previously associated with asthma were validated in our study.

Conclusions: We report novel whole-blood DNAm markers for asthma underlying key processes of the disease pathophysiology and confirm the transferability of previous asthma DNAm associations to ethnically diverse populations.

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8

J Occup Environ Med

. 2023 Oct 6.

doi: 10.1097/JOM.0000000000002990. Online ahead of print.

Cleaning Tasks and Products and Asthma Among Healthcare Professionals

Jenil Patel, David Gimeno Ruiz de Porras, Laura E Mitchell[1], Arch Carson[2], Lawrence W Whitehead[2], Inkyu Han[3], Lisa Pompeii[4], Sadie Conway[5], Jan-Paul Zock[6], Paul K Henneberger[7], Riddhi Patel[1], Joy De Los Reyes[8], George L Delclos

Affiliations expand

- PMID: 37801602

- DOI: 10.1097/JOM.0000000000002990

Abstract

Objective: Healthcare workers (HCWs) are at risk for work-related asthma, which may be affected by changes in cleaning practices. We examined associations of cleaning tasks and products with work-related asthma in HCWs in 2016, comparing them to prior results from 2003.

Methods: We estimated asthma prevalence by professional group, and explored associations of self-reported asthma with job-exposure matrix-based cleaning tasks/products in a representative Texas sample of 9914 physicians, nurses, respiratory/occupational therapists, and nurse aides.

Results: Response rate was 34.8%(n = 2,421). The weighted prevalences of physician-diagnosed(15.3%), work-exacerbated (4.1%), and new-onset asthma(NOA) (6.7%), and bronchial hyperresponsiveness symptoms(31.1%) were similar to 2003. NOA was associated with building surface cleaning(OR = 1.91; 95%CI:1.10-3.33), use of orthophthalaldehyde(OR = 1.77; 95%CI:1.15-2.72), bleach/quaternary compounds(OR = 1.91; 95%CI:1.10-3.33), and sprays(OR = 1.97; 95%CI:1.12-3.47).

Conclusion: Prevalence of asthma/BHR appears unchanged, whereas associations of NOA with exposures to surface cleaning remained, and decreased for instrument cleaning.

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Conflict of interest statement

Conflicts of Interest: None declared.

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J Asthma

. 2023 Oct 6:1-10.

doi: 10.1080/02770903.2023.2263072. Online ahead of print.

Tropical high altitude and severe asthma in adults: house dust mite sensitization and phenotypic distribution

Carlos A Torres-Duque[1,2], Abraham Alí-Munive[1,2], Diego Severiche-Bueno[1,2], Mauricio Durán-Silva[1,2], Carlos E Aguirre-Franco[1,2], Angélica González-Florez[1], María José Pareja-Zabala[1], Libardo Jiménez-Maldonado[1,2], Mauricio Gonzalez-Garcia[1,2]

Affiliations expand

- PMID: 37801283

- DOI: 10.1080/02770903.2023.2263072

Abstract

Background: There is a lack of information on house dust mite (HDM) sensitization and phenotype distribution in patients with severe asthma (SA) living permanently at high-altitude (HA) in tropical regions, which may be different.

Objective: The aim of this study was to characterize adults with SA in a tropical high altitude city (2,640 m): Bogotá, Colombia.

Material and methods: This observational cross-sectional study included severe asthmatic outpatients (n = 129) referred to the ASMAIRE program of the Fundación Neumológica Colombiana in Bogotá (2,640 m). Clinical history, spirometry, total IgE, blood eosinophils, and skin prick test (SPT), including HDM allergens, were performed. Phenotype definitions: Allergic/atopic (AA): IgE ≥100 IU/mL and/or at least one positive SPT; eosinophilic (EOS): blood eosinophils ≥300 cells/µL; type 2-high: AA and/or EOS phenotype; type 2-low: non-AA/non-EOS phenotype (IgE <100 IU/mL, negative SPT, and blood eosinophils <300 cells/µL).

Results: A total of 129 adults with SA were included, 79.8% female. Phenotype distribution: AA: 61.2%; EOS: 37.2%; type 2-high: 72.1%; type 2-low: 27.9%. Among AA patients, HDM sensitization was present in 87% and 34.9% were non-eosinophilic. There was a significant overlap between the phenotypes.

Conclusions: In contrast to non-tropical high-altitude regions, we found a high frequency of HDM sensitization in patients with AA phenotype living in a tropical high-altitude city. We also found a discrete lower frequency of EOS phenotype with no other significant differences in the phenotypic distribution compared to that described at low altitudes. We propose that tropical location may modify the effect of high altitude on HDM concentrations and allergenicity.

Keywords: Severe asthma; eosinophilic phenotype; high altitude; house dust mite; sensitization; tropical country.

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J Allergy Clin Immunol

. 2023 Oct 5:S0091-6749(23)01247-2.

doi: 10.1016/j.jaci.2023.09.035. Online ahead of print.

Airway wall extracellular matrix changes induced by bronchial thermoplasty in severe asthma

Pieta C Wijsman[1], Annika W M Goorsenberg[2], Noa Keijzer[3], Julia N S d'Hooghe[2], Nick H T Ten Hacken[4], Pallav L Shah[5], Els J M Weersink[2], Jôse Mara de Brito[6], Natalia de Souza Xavier Costa[6], Thais Mauad[6], Martijn C Nawijn[7], Judith M Vonk[8], Jouke T Annema[2], Janette K Burgess[7], Peter I Bonta[1]

Affiliations expand

- PMID: 37805024

- DOI: 10.1016/j.jaci.2023.09.035

Abstract

Background: Airway remodeling is a prominent feature of asthma, including increased airway smooth muscle (ASM) mass and altered extracellular matrix (ECM) composition. Bronchial thermoplasty (BT), a bronchoscopic treatment for severe asthma, targets this airway remodeling.

Objective: To investigate the effect of BT on ECM composition and its association with clinical outcomes.

Methods: This is a sub-study of the TASMA trial. Thirty severe asthma patients were BT treated, of which 13 patients prior to BT were treated by six months of standard therapy (control group). Demographic data, clinical data including pulmonary function and bronchial biopsies were collected. Biopsies at BT treated and non-treated locations were analyzed by histological and immune-histochemical staining. Associations between histology and clinical outcomes were explored.

Results: Six months after treatment, reticular basement membrane (RBM) thickness was reduced from 7.28µm to 5.74µm (21% relative reduction) and the percentage area of tissue positive for collagen increased from 26.3% to 29.8% (13% relative increase). Collagen structure analysis revealed a reduction in the curvature frequency of fibers. The percentage area positive for fibulin-1 and fibronectin increased with 2.5% and 5.9% respectively (relative increase of 124% and 15%). No changes were found for elastin. The changes in collagen and fibulin-1 negatively associated with changes in FEV1-reversibility.

Conclusion: Next to ASM reduction, BT impacts RBM thickness and the ECM arrangement characterized by an increase in tissue area occupied by collagen with a less dense fiber organization. Both collagen and fibulin-1 are negatively associated with the change in FEV1-reversibility.

Clinical implication: BT induces ECM reorganization and airway wall stability.

Keywords: FEV1 reversibility; airway remodeling; bronchial thermoplasty; collagen; extracellular matrix; fibronectin; severe asthma.

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J Manag Care Spec Pharm

. 2023 Oct 5:1-12.

doi: 10.18553/jmcp.2023.23034. Online ahead of print.

A cost comparison of benralizumab, mepolizumab, and dupilumab in

patients with severe asthma: A US third-party payer perspective

Xiao Xu[1,2], Caroline Schaefer[3], Agota Szende[4], Eduardo Genofre[5], Rohit Katial[2], Yen Chung[5]

Affiliations expand

- PMID: 37796731

- DOI: 10.18553/jmcp.2023.23034

Abstract

BACKGROUND: Clinical trials and real-world evidence (RWE) studies of biologics have demonstrated reduced exacerbations, decreased use of oral corticosteroids (OCS), and improvements in daily symptoms and health-related quality of life in patients with severe eosinophilic asthma (SEA). **OBJECTIVE:** To compare direct health care costs associated with biologic use for the treatment of SEA from a US third-party payer perspective. **METHODS:** We developed a cost-minimization model to compare costs and cost offsets associated with 3 biologics-benralizumab, mepolizumab, and dupilumab-for 2- and 4-year periods. The model relied on longitudinal data from clinical trials to inform the primary (base case) analysis cost comparison and RWE study data, in a separate scenario, to compare costs in nonclinical trial settings. Primary model outcomes included exacerbations (including hospitalizations), OCS-dependent years (including associated complications), and total direct health care biologic costs. Results were calculated at the per patient and population level (per 1,000 patients). Sensitivity analyses with key model parameters were performed. **RESULTS:** Benralizumab had the lowest total biologic costs per patient for both the 2- and 4-year periods. Over 4 years, the marginal cost difference in total biologic costs per patient was $23,061 lower for benralizumab vs mepolizumab and $17,242 lower for benralizumab vs dupilumab. The 4-year population level analysis of benralizumab vs mepolizumab revealed $4.8 million in marginal cost offsets due to 582 fewer exacerbations and 153 fewer OCS-dependent years and a marginal total cost savings of $27.9 million per 1,000 patients for benralizumab. The 4-year population level analysis of benralizumab vs dupilumab revealed $2.3 million in marginal cost offsets due to 291 fewer exacerbations and 64 fewer OCS-dependent years and marginal total cost savings of $19.5 million per 1,000 patients for benralizumab. RWE data were available for a 2-year cost comparison scenario of benralizumab vs mepolizumab, which showed similar results to the base case analysis. Sensitivity analyses varying assumptions on key model parameter estimates confirmed results, with benralizumab having lower total direct health care costs in all scenarios tested, and showed that model results were most sensitive to changes in biologic costs and exacerbation reduction rates. **CONCLUSIONS:** Patients receiving benralizumab had higher nonbiologic cost offsets because of reductions in exacerbations

and OCS-dependent years, leading to greater cost savings for third-party payers compared with patients receiving mepolizumab or dupilumab. Taken together with biologic costs, benralizumab presents greater savings in health care costs for payers than patients with SEA who use mepolizumab or dupilumab. **DISCLOSURES:** This study was funded by AstraZeneca (Cambridge, UK). Drs Xu, Chung, Genofre, and Katial are or were AstraZeneca employees at the time this research was conducted and may be shareholders of AstraZeneca. Ms Schaefer and Dr Szende are employees of Labcorp Drug Development, which received funding from AstraZeneca to perform this research.

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Expert Rev Respir Med

. 2023 Oct 5:1-9.

doi: 10.1080/17476348.2023.2265819. Online ahead of print.

Is there cardiac autonomic dysfunction in children and adolescents with exercise-induced bronchospasm?

Polyanna Guerra Chaves Quirino[1], José Ângelo Rizzo[2], Steve Hunter[3], Edil de Albuquerque Rodrigues Filho[2], Emanuel Sarinho[2], Camila Matias de Almeida Santos[1], Decio Medeiros[2], Emilia Chagas Costa[4], Alexandre Sérgio Silva[1], Breno Quintella Farah[5], Marco Aurélio de Valois Correia Júnior[1,2,6]

Affiliations expand

- PMID: 37795708

- DOI: 10.1080/17476348.2023.2265819

Abstract

Background: The pulmonary impairment in patients with bronchoconstriction induced by eucapnic voluntary hyperpnea(EVH) goes beyond the respiratory system, also impairing autonomic nervous modulation. This study aimed to evaluate the behavior of cardiac autonomic modulation in young asthmatics with and without EIB after the EVH test.

Research design and methods: A cross-sectional study design using 54 asthmatics(51.9% female), aged between 10 and 19 years, investigated with the EVH test. Forced expiratory volume in one second(FEV_1) was measured at 5, 10, 15, and 30 min after EVH. Heart rate variability(HRV) measures of time were assessed pre and 30 min-post EVH. The diagnosis of Exercise-Induced bronchoconstriction with underlying clinical asthma(EIB_A) was confirmed by a fall in FEV_1 ≥10% compared to baseline.

Results: Thirty(55.5%) asthmatics had EIB_A. Subjects with EIB_A have reduced mean of the R-R intervals in relation to baseline until 15 minutes after EVH. Individuals without EIB_A had increased parasympathetic activity compared to baseline(rMSSD) from 5 min after EVH($p < 0.05$). This parasympathetic activity increase in relation to baseline was seen in individuals with EIB_A after 25 minutes (rMSSD = 49.9 ± 5.3 *vs* 63.5 ± 7.2, $p < 0.05$).

Conclusion: Young asthmatics with EIB_A present a delay in the increase of the parasympathetic component after EVH when compared to asthmatics without EIB_A.

Keywords: Exercise-induced bronchoconstriction; adolescent; asthma; eucapnic voluntary hyperpnea; heart rate variability.

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. 2023 Oct 4:S0091-6749(23)01243-5.

doi: 10.1016/j.jaci.2023.09.031. Online ahead of print.

NETs: Important players in asthma?

Darko Stojkov[1], Shida Yousefi[1], Hans-Uwe Simon[2]

Affiliations expand

- PMID: 37802473

- DOI: 10.1016/j.jaci.2023.09.031

No abstract available

Keywords: asthma; corticosteroid resistance; neutrophil extracellular traps.

SUPPLEMENTARY INFO

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J Allergy Clin Immunol Pract

. 2023 Oct 4:S2213-2198(23)01072-3.

doi: 10.1016/j.jaip.2023.09.040. Online ahead of print.

Clinical commentary review for Women's Health in Allergy/Immunology theme Asthma and rhinitis through the lifespan of non-pregnant women

Christine Jenkins[1], Dave Singh[2], Francine M Ducharme[3], Chantal Raherison[4], Kim Lavoie[5]

Affiliations expand

- PMID: 37802256

- DOI: 10.1016/j.jaip.2023.09.040

Abstract

Increasingly, clinical practice guidelines advocate a precision medicine-based approach to care for asthma. This focus requires not only knowledge of different asthma phenotypes and their associated biomarkers, but also of sex and gender differences through the lifespan. Evidence continues to build in favour of different lifetime prevalence, clinical presentations, responses to management and long-term prognosis of asthma. Women transition through many biological and psychosocial phases in their lives, all of which may interact with, and influence, their health and wellbeing. Historically, explanations have focused on hormonal effects on asthma in reproductive life, but a greater understanding of mechanisms starting before birth and changing over a lifetime is now possible, with immunologic, inflammatory and hormonal factors playing a role. This paper describes the evidence for the differences in asthma and rhinitis between men and women at different stages of life, the potential underlying mechanisms that contribute to this, and the implications for management and research. Future research studies should systematically report sex differences in asthma so that this knowledge can be used to develop a personalised approach to care, in order to achieve best possible outcomes for all.

Keywords: Asthma; Rhinitis.

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J Allergy Clin Immunol Pract

. 2023 Oct 4:S2213-2198(23)01067-X.

doi: 10.1016/j.jaip.2023.09.035. Online ahead of print.

Lack of Awareness and Knowledge of NHLBI 2020 Asthma Focused Updates

Jenny J Lee[1], Alan P Baptist[2], Kathryn V Blake[3]

Affiliations expand

- PMID: 37802252

- DOI: 10.1016/j.jaip.2023.09.035

Abstract

The study highlights a significant knowledge gap among clinicians regarding the key points of the 2020 Asthma Focused Updates, emphasizing the need for targeted efforts to enhance awareness and integration of the guidelines into clinical practice for improved asthma care.

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BMC Pulm Med

. 2023 Oct 4;23(1):372.

doi: 10.1186/s12890-023-02679-y.

Biomarker-guided withdrawal of inhaled corticosteroids in asthma patients with a non-T2 inflammatory phenotype - a randomized controlled trial study protocol

Christiane Hammershaimb Mosbech[1], Nina Skavlan Godtfredsen[2,3], Charlotte Suppli Ulrik[2,3], Christian Grabow Westergaard[2]

Affiliations expand

- PMID: 37794472

- PMCID: PMC10552380

- DOI: 10.1186/s12890-023-02679-y

Free PMC article

Abstract

Background: Non-T2 asthma is characterized by the absence of elevated type 2 inflammatory biomarkers such as blood-eosinophils, total and allergen-specific Immunoglobulin E and Fractional exhaled Nitric Oxide (FeNO). According to guidelines, inhaled corticosteroids (ICS) are the cornerstone of asthma management. However, ICS

treatment is associated with a risk of local side effects, including hoarseness and thrush, and long-term high-dose therapy may cause systemic adverse effects. Furthermore, whereas treatment with ICS is highly effective in T2 asthma, studies have shown a markedly reduced ICS efficacy in patients with a lower degree of T2 inflammation, thus posing a clinical challenge in this subgroup of patients. Hence, owing to the ICS dosage step-up approach in current clinical guidelines, patients with low T2 biomarkers are at risk of being exposed to high doses of ICS, and by that at risk of side effects. Thus, an ICS-treatment regime guided by biomarkers that reflects the inflammatory phenotype is warranted in order to reduce the corticosteroid burden in patients with non-T2 asthma. This study combines a panel of non-T2 inflammatory markers (low periostin, low blood-eosinophils, and low FeNO), to determine if this group of patients can maintain asthma control during ICS withdrawal.

Methods: This is an ongoing prospective multicenter open-label randomized, controlled trial aiming to assess if ICS can be safely tapered in patients with non-T2 asthma. The patients are randomized 1:1 to either standard of care or an ICS tapering regimen (n = 55 in each group) where the initial ICS dose is reduced by 50% for 8 weeks followed by total ICS removal. The primary endpoint is change in asthma control questionnaire (ACQ) from baseline to post-tapered ICS. The secondary endpoints are time from baseline to drop-out caused by loss of asthma control, changes in serum-periostin, blood-eosinophils, FeNO, Forced Expiratory Volume in 1 s (FEV1) and in sputum-eosinophils.

Discussion: This study aims to provide data on ICS tapering in non-T2 asthma patients and to contribute to a more individualized and corticosteroid-sparing treatment regime in this group of patients.

Trial registration: Clinicaltrials.gov Identifier: NCT03141424. Registration date: May 5th, 2017.

Keywords: Asthma; Asthma control questionnaire; Biomarker-guided therapy; ICS tapering; Non-T2; Periostin; Randomized controlled trial.

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Conflict of interest statement

The authors declare no competing interests.

- 40 references
- 1 figure

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Clin Respir J

. 2023 Oct 4.

doi: 10.1111/crj.13706. Online ahead of print.

Development of a nomogram to estimate the risk of community-acquired pneumonia in adults with acute asthma exacerbations

Yufan Duan[1], Dilixiati Nafeisa[1], Mengyu Lian[1], Jie Song[1], Jingjing Yang[1], Ziliang Hou[1], Jinxiang Wang[1]

Affiliations expand

- PMID: 37793902

- DOI: 10.1111/crj.13706

Abstract

Objective: The aim of this study is to investigate the clinical characteristics of acute asthma exacerbations (AEs) with community-acquired pneumonia (CAP) in adults and establish a CAP prediction model for hospitalized patients with AEs.

Methods: We retrospectively collected clinical data from 308 patients admitted to Beijing Luhe Hospital, Capital Medical University, for AEs from December 2017 to August 2021. The patients were divided into CAP and non-CAP groups based on whether they had CAP. We used the Lasso regression technique and multivariate logistic regression analysis to select optimal predictors. We then developed a predictive nomogram based on the optimal predictors. The bootstrap method was used for internal validation. We used the area under the receiver operating characteristic curve (AUC), calibration curve, and decision curve analysis (DCA) to assess the nomogram's discrimination, accuracy, and clinical practicability.

Results: The prevalence of CAP was 21% (65/308) among 308 patients hospitalized for AEs. Independent predictors of CAP in patients hospitalized with an AE ($P < 0.05$) were C-reactive protein > 10 mg/L, fibrinogen > 4 g/L, leukocytes > 10×10^9 /L, fever, use of systemic corticosteroids before admission, and early-onset asthma. The AUC of the nomogram was 0.813 (95% CI: 0.753-0.872). The concordance index of internal validation was 0.794. The calibration curve was satisfactorily consistent with the diagonal line. The DCA indicated that the nomogram provided a higher clinical net benefit when the threshold probability of patients was 3% to 89%.

Conclusions: The nomogram performed well in predicting the risk of CAP in hospitalized patients with AEs, thereby providing rapid guidance for clinical decision-making.

Keywords: asthma exacerbations; clinical features; community-acquired pneumonia; nomogram.

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- 50 references

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Editorial

BMJ

. 2023 Oct 4:383:p2144.

doi: 10.1136/bmj.p2144.

Air pollution and asthma: "Going out for a walk can be a bit of a gamble"

Olivia Fulton

- PMID: 37793691

- DOI: 10.1136/bmj.p2144

No abstract available

Conflict of interest statement

Competing interests: OF is patient chair of SHARP (Severe Heterogenous Research collaboration - patient centred), which is a European Respiratory Society clinical research collaboration. It also has funding from various pharma companies but OF is not paid in her role. She is involved in charities for asthma on a voluntary basis. She is a member of the expert patient panel at Asthma + Lung UK; a Respiratory Voices group member at Asthma + Lung UK; a member of the Lung Health Cross Party Group at the Scottish Parliament; a member of the editorial advisory board at BMJ Open Respiratory Research; a member of the Astra Zeneca Patient Partnership Program; and founder and facilitator of Severe Asthma Peer Support Group.

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19

Pediatr Obes

. 2023 Oct 4:e13078.

doi: 10.1111/ijpo.13078. Online ahead of print.

Immune profile of adipose tissue from youth with obesity and asthma

Anna Reichenbach[1], Wade O'Brien[1], Sarai Duran[1], Kayla J Authelet[2], Robert J Freishtat[1,2], Evan P Nadler[1,2,3], Deepa Rastogi[4]

Affiliations expand

- PMID: 37793645

- DOI: 10.1111/ijpo.13078

Abstract

Background: Obesity is a risk factor for paediatric asthma. Obesity-mediated systemic inflammation correlates with metabolic dysregulation; both are associated with asthma burden. However, adipose tissue inflammation is not defined in obesity-related asthma.

Objective: Define adipose tissue inflammation and its association with metabolic measures in paediatric obesity-related asthma.

Methods: Cellular profile of stromal vascular fraction from visceral adipose tissue (VAT) from youth with obesity-related asthma (n = 14) and obesity without asthma (n = 23) was analyzed using flow cytometry and correlated with metabolic measures.

Results: Compared to youth without asthma, VAT from youth with obesity-related asthma was enriched for leukocytes and macrophages, including M1 and dual M1M2 cells, but did not differ for $CD4^+$ lymphocytes, and endothelial cells, their progenitors, and preadipocytes. M1 macrophage counts positively correlated with glucose, while M1M2 cells, $CD4^+$ lymphocytes, and their subsets negatively correlated with high-density

lipoprotein, in youth with obesity without asthma, but not among those with obesity-related asthma.

Conclusions: Enrichment of macrophage-mediated inflammation in VAT from youth with obesity-related asthma supports its role in systemic inflammation linked with asthma morbidity. Lack of correlation of VAT cells with metabolic dysregulation in youth with obesity-related asthma identifies a need to define distinguishing factors associated with VAT inflammation in obesity-related asthma.

Keywords: adipose tissue; asthma; children; immune profile; obesity.

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- 39 references

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Am J Respir Crit Care Med

-
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. 2023 Oct 4.

doi: 10.1164/rccm.202307-1264OC. Online ahead of print.

Impact of Undiagnosed COPD and Asthma on Symptoms, Quality of Life,

Healthcare Utilization and Work Productivity

Emily Gerstein[1], Jared Bierbrier[1], G A Whitmore[2], Katherine L Vandemheen[3], Celine Bergeron[4], Louis-Philippe Boulet[5], Andreanne Cote[6], Stephen K Field[7], Erika Penz[8], R Andrew McIvor[9], Catherine Lemière[10], Samir Gupta[11], Paul Hernandez[12], Irvin Mayers[13], Mohit Bhutani[14], M Diane Lougheed[15], Christopher J Licskai[16], Tanweer Azher[17], Nicole Ezer[18,19], Martha Ainslie[20], Gonzalo G Alvarez[21], Sunita Mulpuru[22,23], Shawn D Aaron[24]

Affiliations expand

- PMID: 37792953

- DOI: 10.1164/rccm.202307-1264OC

Abstract

Rationale: A significant proportion of individuals with COPD and asthma remain undiagnosed.

Objective: The objective of this study was to evaluate symptoms, quality of life, healthcare utilization and work productivity in subjects with undiagnosed COPD or asthma compared to those previously diagnosed, as well as healthy controls.

Methods: This multi-center population-based case-finding study randomly recruited adults with respiratory symptoms who had no previous history of diagnosed lung disease from 17 Canadian centers using random digit-dialing. Participants who exceeded symptom thresholds on The Asthma Screening Questionnaire or the COPD Diagnostic Questionnaire underwent pre- and post-bronchodilator spirometry to determine if they met diagnostic criteria for COPD or asthma. Two control groups, a healthy group without respiratory symptoms and a symptomatic group with previously diagnosed COPD or asthma, were similarly recruited.

Measurements and main results: 26,905 symptomatic individuals were interviewed, and 4,272 subjects were eligible. Of these, 2,857 completed pre and post bronchodilator spirometry and 595 (21%) met diagnostic criteria for COPD or asthma. Individuals with undiagnosed COPD or asthma reported greater impact of symptoms on health status and daily activities, worse disease-specific and general quality of life, greater healthcare utilization and poorer work productivity compared to healthy controls. Individuals with undiagnosed asthma had similar symptoms, quality of life, and healthcare utilization burden compared to those with previously diagnosed asthma, while subjects with

undiagnosed COPD were less disabled compared to those with previously diagnosed COPD.

Conclusions: Undiagnosed COPD or asthma impose important, unmeasured burdens on the healthcare system and are associated with poor health status and negative effects on work productivity.

Keywords: COPD; asthma; case finding; early diagnosis.

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PLoS One

. 2023 Oct 4;18(10):e0291483.

doi: 10.1371/journal.pone.0291483. eCollection 2023.

Association between pertussis vaccination in infancy and childhood asthma: A population-based record linkage cohort study

Gladymar Pérez Chacón[1,2], Parveen Fathima[1,3], Mark Jones[3], Marie J Estcourt[3], Heather F Gidding[4,5,6,7], Hannah C Moore[1,2], Peter C Richmond[1,8], Tom Snelling[1,2,3]

Affiliations expand

- PMID: 37792889

- PMCID: PMC10550153

- DOI: 10.1371/journal.pone.0291483

Free PMC article

Abstract

Background: Asthma is among the commonest noncommunicable diseases of childhood and often occurs with other atopic comorbidities. A previous case-control study found evidence that compared to children who received acellular pertussis (aP) vaccines in early infancy, children who received one or more doses of whole-cell pertussis (wP) vaccine had lower risk of developing IgE-mediated food allergy. We hypothesized that wP vaccination in early infancy might protect against atopic asthma in childhood.

Methods: Retrospective record-linkage cohort study of children between 5 and < 15 years old and born between January 1997, and December 1999, in the Australian states of Western Australia (WA) and New South Wales (NSW), receiving wP versus aP vaccine as the first pertussis vaccine dose. The main outcome and measures were first and recurrent hospitalizations for asthma; hazard ratios (HRs) and 95% confidence intervals (CIs) were computed by means of Cox and Andersen and Gill models.

Results: 274,405 children aged between 5 and < 15 years old (78.4% NSW-born) received a first dose of either wP (67.8%) or aP vaccine before 4 months old. During the follow-up period, there were 5,905 hospitalizations for asthma among 3,955 children. The incidence rate for first hospitalization was 1.5 (95% CI 1.4-1.5) per 1,000 child-years among children receiving wP vaccine as a first dose, and 1.5 (95% CI 1.4-1.6) among those vaccinated with aP vaccine as a first dose. The adjusted HRs for those who received wP vaccine versus aP vaccine as the first dose were 1.02 (95% CI 0.94-1.12) for first hospitalizations and 1.07 (95% CI 0.95-1.2) for recurrent hospitalizations for asthma.

Conclusions: We found no convincing evidence of a clinically relevant association between receipt of wP versus aP vaccines in early infancy and hospital presentations for asthma in childhood.

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Conflict of interest statement

"I have read the journal's policy and the authors of this manuscript have the following competing interests: No funding was received from commercial sources for this work. Associate Professor Moore is in receipt of research funds from Merck Sharp and Dohme (MSD) and Sanofi unrelated to the work presented in this paper. Associate Professor Moore has also received institutional honoraria for participating in advisory committees (Pfizer, MSD, Sanofi), also unrelated to the work presented in this paper. Associate Professor Gidding has received honoraria for participating in a Seqirus advisory committee unrelated to the work presented in this paper. Professor Richmond has served on pertussis vaccine scientific advisory boards for GlaxoSmithKline and Sanofi on behalf of his institution. He also participated in multicenter vaccine trials of pertussis vaccines sponsored by industry, also unrelated to the work presented in this paper. He has received no personal remuneration for these activities. No other disclosures were reported. This does not alter our adherence to PLOS ONE policies on sharing data and materials"

Update of

- Pertussis immunisation in infancy and atopic outcomes: A protocol for a population-based cohort study using linked administrative data.
  Pérez Chacón G, Fathima P, Jones M, Barnes R, Richmond PC, Gidding HF, Moore HC, Snelling TL.PLoS One. 2021 Dec 7;16(12):e0260388. doi: 10.1371/journal.pone.0260388. eCollection 2021.PMID: 34874968 **Free PMC article. Updated.**

- 41 references
- 4 figures

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MeSH terms, Substances, Grants and fundingexpand

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Allergy

-

. 2023 Oct 4.

doi: 10.1111/all.15909. Online ahead of print.

Blood CD62L^{low} inflammatory eosinophils are related to the severity of asthma and reduced by mepolizumab

Alessandra Vultaggio[1], Matteo Accinno[1], Emanuele Vivarelli[2], Valentina Mecheri[1], Giandomenico Maggiore[3], Lorenzo Cosmi[1], Paola Parronchi[1], Olivero Rossi[4], Enrico Maggi[5], Oreste Gallo[3], Andrea Matucci[4]

Affiliations expand

- PMID: 37792721

- DOI: 10.1111/all.15909

Abstract

Background: Eosinophils have been divided into different subpopulations with distinct phenotypes based on CD62L expression. No data are available regarding the correlation between eosinophils subphenotypes and clinical severity of asthma, as well as the effect of anti-IL-5 therapy on these cells. The study investigates the correlation between blood CD62L^{low} inflammatory eosinophils (iEos) and clinical severity of severe eosinophilic asthma (SEA) and evaluates the impact of mepolizumab on iEos.

Methods: 112 patients were screened and were divided in two groups: biological-naive (n = 51) and biological-treated patients (n = 61). The Biological-naive patients were analyzed before treatment (Group A) and 19 out of 51 patients, were longitudinally analyzed before and after treatment with mepolizumab 100 mg s.c/4 weeks (Group B); 32 patients were excluded because they were being treated with other biological therapies. Blood eosinophils were analyzed by FACS and correlated with clinical scores. In vitro effect of IL-5 and mepolizumab on CD62L expression was assessed.

Results: A significant correlation between blood CD62L^{low} cells and clinical scores of asthma and nasal polyps, as well as the number of asthma exacerbations in the last year was shown in untreated patients. In longitudinally studied patients we observed a marked reduction of CD62L^{low} cells paralleled by an increase in the proportion of CD62L^{bright} cells,

associated with clinical improvement of asthma control. In vitro, CD62L expression on eosinophils is modulated by IL-5 and anti-IL-5.

Conclusion: A positive correlation between CD62L^{low} iEos and the baseline clinical features of SEA with CRSwNP was shown. Furthermore mepolizumab restores the healthy balance among eosinophils sub-phenotypes in SEA patients.

Keywords: CD62L; IL-5; eosinophils; inflammatory eosinophils; mepolizumab; nasal polyps; severe asthma.

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J Asthma Allergy

. 2023 Oct 3:16:1065-1075.

doi: 10.2147/JAA.S428623. eCollection 2023.

Prevalence of Poorly Controlled Asthma and Factors Associated with Specialist Referral in Those with Poorly Controlled Asthma in a Paediatric Asthma Population

Constantinos Kallis[#1,2], Ann Morgan[#1,2], Louise Fleming[1], Jennifer K Quint[1,2]

Affiliations expand

- PMID: 37808460
- PMCID: PMC10559784
- DOI: 10.2147/JAA.S428623

Abstract

Background: Significant morbidity and mortality are associated with poor asthma control. The aim of this study was to determine factors associated with poor control and referral to specialist secondary care services.

Methods: We used primary care data from the Clinical Practice Research Datalink Aurum (CPRD) linked with Hospital Episode Statistics (HES) records from 1st January 2007 to 31st December 2019. We selected patients aged 6-17 years old. Poor control was defined as six or more prescriptions of short-acting beta-agonist (SABA) inhalers, two or more courses of oral corticosteroids (OCS), an Asthma Control test (ACT) or childhood ACT <20, one hospital admission for asthma, or one visit to Accident & Emergency (A&E) department for asthma-related episodes in the 12 months following asthma diagnosis. Asthma severity was defined following GINA guidelines 2021.

Results: About 17.6% of children aged between 6 and 17 years with active asthma had poor control. Severe asthma, eczema, food allergies, increased BMI and living in deprived areas were identified as risk factors for poor control. Among those with poor control, referral rates to specialist care were extremely low, only 2% overall. Those with severe asthma were three-times more likely to be referred than those with mild-to-moderate asthma [HR_{crude} = 4.04 (95% CI, 3.35-4.87); HR_{adj} = 2.72 (95% CI: 2.13-3.49)]. Other factors associated with referral were food allergy and living in a more deprived area.

Conclusion: Around 1 in 6 children and adolescents with active asthma are not achieving adequate control of their symptoms. Among the subset of 6-17-year olds with poorly controlled asthma, timely referral for specialist advice in secondary care is rare, especially in those with so-called mild asthma who nevertheless are at significant risk for poor asthma outcomes.

Keywords: asthma; poor control; referral to specialist.

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Conflict of interest statement

AM and CK have nothing to declare. JKQ reports grants from AUK-BLF, Asthma+Lung UK, MRC, The Health Foundation, Health Data Research UK; grants and personal fees from AZ, BI, GSK, Bayer, grants from Chiesi, outside the submitted work. LF reports grants from AUK, NIHR and personal fees from AZ, Sanofi, Novartis and GSK outside the submitted work. The authors report no other conflicts of interest in this work.

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J Allergy Clin Immunol Pract

. 2023 Oct 3:S2213-2198(23)01066-8.

doi: 10.1016/j.jaip.2023.09.034. Online ahead of print.

Comorbidity burden in severe and non-severe asthma: a nationwide observational study (FINASTHMA)

Hannu Kankaanranta[1], Arja Viinanen[2], Pinja Ilmarinen[3], Hanna Hisinger-Mölkänen[4], Juha Mehtälä[5], Tero Ylisaukko-Oja[5], Juhana J Idänpään-Heikkilä[3], Lauri Lehtimäki[6]

Affiliations expand

- PMID: 37797715

- DOI: 10.1016/j.jaip.2023.09.034

Abstract

Background: Asthma, affecting more than 330 million people worldwide, is associated with a high level of morbidity, mortality, and socioeconomic costs.

Objective: In this cross-sectional study, we analyzed the comorbidity burden in patients with severe asthma compared to non-severe asthma and investigated the role of corticosteroid use on the risk of comorbidities.

Methods: All adults (≥18 years) with a diagnosis of asthma (International Classification of Diseases - 10th revision code J45.x) between 2014 and 2017 were identified and data were collected until 2018 from Finnish nationwide registers. Asthma was defined as continuously or transiently severe or non-severe based on annual dispensed inhaled corticosteroids, oral corticosteroids, and hospitalizations.

Results: Of 193,730 adult identified patients diagnosed with asthma, 86.3% had non-severe, 8.1% transiently severe, and 5.6% continuously severe asthma. Excess prevalence of pneumonia was observed in continuously (22%) and transiently severe (14%) compared with non-severe patients after adjusting for age and sex. Cataract, osteoporosis, obesity, heart failure, and atrial fibrillation were also more frequent in severe asthma patients. Inhaled and/or oral corticosteroid use contributed to the risk of several comorbidities in a dose-dependent manner, particularly pneumonia, osteoporosis, obesity, heart failure, and atrial fibrillation. High oral corticosteroid use and the presence of comorbidities were associated with increased healthcare resource use.

Conclusion: Patients with severe asthma have a high burden of comorbidities, especially pneumonia. Many of the comorbidities have a strong dose-dependent association with inhaled and oral corticosteroid treatment, suggesting that corticosteroid doses should be carefully evaluated in clinical practice.

Keywords: Severe Asthma; cardiac disease; cataract; comorbidities; corticosteroids; healthcare resource use; osteoporosis; pneumonia; type 2 diabetes.

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Review

Clin Mol Allergy

. 2023 Oct 3;21(1):8.

doi: 10.1186/s12948-023-00189-0.

Breast feeding, obesity, and asthma association: clinical and molecular views

Naghmeh Kian[1,2,3], Alireza Bagheri[2,3,4], Fardis Salmanpour[2,3,5], Afsaneh Soltani[1,2,3], Zahra Mohajer[1,2,3], Noosha Samieefar[1,2,3], Behzad Barekatain[6], Roya Kelishadi[7,8,9]

Affiliations expand

- PMID: 37789370

- PMCID: PMC10546753

- DOI: 10.1186/s12948-023-00189-0

Free PMC article

Abstract

Asthma is a chronic condition that affects children worldwide. Accumulating number of studies reported that the prevalence of pediatric obesity and asthma might be altered through breastfeeding. It has been proposed that Leptin, which exists in human milk, is oppositely associated with weight increase in newborns. It may also influence peripheral immune system by promoting TH1 responses and suppressing TH2 cytokines. Leptin influences body weight and immune responses through complex signaling pathways at molecular level. Although previous studies provide explanations for the protective role of breastfeeding against both obesity and asthma, other factors such as duration of breastfeeding, parental, and prenatal factors may confound this relationship which requires further research.

Keywords: Asthma; Breast milk; Breastfeeding; Obesity; Overweight.

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Conflict of interest statement

The authors have no relevant financial or non-financial interests to disclose.

- 202 references
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Acad Emerg Med

. 2023 Oct 3.

doi: 10.1111/acem.14813. Online ahead of print.

Early Administration of Steroids in the Ambulance Setting: An Observational Design Trial (EASI-AS-ODT)

Jennifer N Fishe[1,2], Gerard Garvan[2], Andrew Bertrand[1], Shannon Burcham[3], Phyllis Hendry[1], Manish Shah[4], Kathryn Kothari[4], David W Ashby[4], Daniel Ostermeyer[5], Lauren Riney[6], Olga

Semenova[6], Benjamin Abo[7,8], Benjamin Abes[7], Nichole Shimko[9], Emily Myers[10], Marshall Frank[8,10], Tim Turner[11], Mac Kemp[12], Kim Landry[12], Greg Roland[13], Kathryn V Blake[14]

Affiliations expand

- PMID: 37786991

- DOI: 10.1111/acem.14813

Abstract

Background: In the emergency department (ED), prompt administration of systemic corticosteroids for pediatric asthma exacerbations decreases hospital admission rates. However, there is sparse evidence for whether earlier administration of systemic corticosteroids by EMS clinicians, prior to ED arrival, further improves pediatric asthma outcomes.

Methods: Early Administration of Steroids in the Ambulance Setting: An Observational Design Trial is a multicenter, observational, non-randomized stepped-wedge design study with seven participating EMS agencies who adopted an oral systemic corticosteroid (OCS) into their protocols for pediatric asthma treatment. Using univariate analyses and multivariable mixed effects models, we compared hospital admission rates for pediatric asthma patients ages 2 - 18 years before and after the introduction of a prehospital OCS, and for those who did and did not receive a systemic corticosteroid from EMS.

Results: A total of 834 patients were included, 21% of whom received a systemic corticosteroid from EMS. EMS administration of systemic corticosteroids increased after the introduction of an OCS from 14.7% to 28.1% (p-value < 0.001). However, there was no significant difference between hospital admission rates and ED LOS before and after the introduction of OCS, or between patients who did and did not receive a systemic corticosteroid from EMS. Mixed effects models revealed that age 14 - 18 years (coefficient -0.83, p-value = 0.002), EMS administration of magnesium (coefficient 1.22, p-value = 0.04), and initial EMS respiratory severity score (coefficient 0.40, p-value < 0.001) were significantly associated with hospital admission.

Conclusions: In this multicenter study, the addition of an OCS into EMS agency protocols for pediatric asthma exacerbations significantly increased systemic corticosteroid administration but did not significantly decrease hospital admission rates. As overall EMS systemic corticosteroid administration rates were low, further work is required to understand optimal implementation of EMS protocol changes to better assess potential benefits to patients.

Keywords: Asthma; Emergency Medical Services; Pediatric Asthma; Pediatric Emergency Medicine; Systemic Corticosteroids.

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Bioinformatics

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. 2023 Oct 3;39(10):btad582.

doi: 10.1093/bioinformatics/btad582.

GOAT: Gene-level biomarker discovery from multi-Omics data using graph ATtention neural network for eosinophilic asthma subtype

Dabin Jeong[1], Bonil Koo[1,2], Minsik Oh[3], Tae-Bum Kim[4], Sun Kim[1,2,5,6]

Affiliations expand

- PMID: 37740295

- PMCID: PMC10547929

- DOI: 10.1093/bioinformatics/btad582

Free PMC article

Abstract

Motivation: Asthma is a heterogeneous disease where various subtypes are established and molecular biomarkers of the subtypes are yet to be discovered. Recent availability of multi-omics data paved a way to discover molecular biomarkers for the subtypes. However, multi-omics biomarker discovery is challenging because of the complex interplay between different omics layers.

Results: We propose a deep attention model named Gene-level biomarker discovery from multi-Omics data using graph ATtention neural network (GOAT) for identifying molecular biomarkers for eosinophilic asthma subtypes with multi-omics data. GOAT identifies genes that discriminate subtypes using a graph neural network by modeling complex interactions among genes as the attention mechanism in the deep learning model. In experiments with multi-omics profiles of the COREA (Cohort for Reality and Evolution of Adult Asthma in Korea) asthma cohort of 300 patients, GOAT outperforms existing models and suggests interpretable biological mechanisms underlying asthma subtypes. Importantly, GOAT identified genes that are distinct only in terms of relationship with other genes through attention. To better understand the role of biomarkers, we further investigated two transcription factors, CTNNB1 and JUN, captured by GOAT. We were successful in showing the role of the transcription factors in eosinophilic asthma pathophysiology in a network propagation and transcriptional network analysis, which were not distinct in terms of gene expression level differences.

Availability and implementation: Source code is available https://github.com/DabinJeong/Multi-omics_biomarker. The preprocessed data underlying this article is accessible in data folder of the github repository. Raw data are available in Multi-Omics Platform at http://203.252.206.90:5566/, and it can be accessible when requested.

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Conflict of interest statement

None declared.

- 42 references
- 4 figures

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Review

J Toxicol Environ Health B Crit Rev

. 2023 Oct 3;26(7):387-415.

doi: 10.1080/10937404.2023.2236548. Epub 2023 Jul 19.

Continent-based systematic review of the short-term health impacts of wildfire emissions

Bela Barros[1], Marta Oliveira[1], Simone Morais[1]

Affiliations expand

- PMID: 37469022

- DOI: 10.1080/10937404.2023.2236548

Abstract

This review systematically gathers and provides an analysis of pollutants levels emitted from wildfire (WF) and their impact on short-term health effects of affected populations. The available literature was searched according to Population, Exposure, Comparator, Outcome, and Study design (PECOS) database defined by the World Health Organization (WHO) and a meta-analysis was conducted whenever possible. Data obtained through PECOS characterized information from the USA, Europe, Australia, and some Asian

countries; South American countries were seldom characterized, and no data were available for Africa and Russia. Extremely high levels of pollutants, mostly of fine fraction of particulate matter (PM) and ozone, were associated with intense WF emissions in North America, Oceania, and Asia and reported to exceed several-fold the WHO guidelines. Adverse health outcomes include emergency department visits and hospital admissions for cardiorespiratory diseases as well as mortality. Despite the heterogeneity among exposure and health assessment methods, all-cause mortality, and specific-cause mortality were significantly associated with WF emissions in most of the reports. Globally, a significant association was found for all-cause respiratory outcomes including asthma, but mixed results were noted for cardiovascular-related effects. For the latter, estimates were only significant several days after WF emissions, suggesting a more delayed impact on the heart. Different research gaps are presented, including the need for the application of standardized protocols for assessment of both exposure and adverse health risks. Mitigation actions also need to be strengthened, including dedicated efforts to communicate with the affected populations, to engage them for adoption of protective behaviors and measures.

Keywords: Climate changes; air pollution; forest fires; general population; particulate matter; public health.

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J Infect Dis

. 2023 Oct 3;228(7):840-850.

doi: 10.1093/infdis/jiad093.

Bronchiolitis, Regardless of Its Etiology and Severity, Is Associated With Increased Risk of Asthma: A Population-Based Study

Cintia Muñoz-Quiles[1,2], Mónica López-Lacort[1,2], Javier Díez-Domingo[1,2,3], Alejandro Orrico-Sánchez[1,2,3]

Affiliations expand

- PMID: 37015894
- PMCID: PMC10547461
- DOI: 10.1093/infdis/jiad093

Free PMC article

Abstract

An association exists between severe respiratory syncytial virus (RSV)-bronchiolitis and a subsequent increased risk of recurrent wheezing (RW) and asthma. However, a causal relationship remains unproven. Using a retrospective population-based cohort study (339 814 children), bronchiolitis during the first 2 years of life (regardless of etiology and severity) was associated with at least a 3-fold increased risk of RW/asthma at 2-4 years and an increased prevalence of asthma at ≥5 years of age. The risk was similar in children with mild bronchiolitis as in those with hospitalized RSV-bronchiolitis and was higher in children with hospitalized non-RSV-bronchiolitis. The rate of RW/asthma was higher when bronchiolitis occurred after the first 6 months of life. Our results seem to support the hypothesis of a shared predisposition to bronchiolitis (irrespective of etiology) and RW/asthma. However, 60% of hospitalized bronchiolitis cases in our setting are due to RSV, which should be paramount in decision-making on imminent RSV prevention strategies.

Keywords: RSV; asthma / recurrent wheezing; bronchiolitis; laboratory confirmation; respiratory syncytial virus; retrospective cohort study.

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Conflict of interest statement

Potential conflicts of interest. C. M.-Q., M. L.-L., J. D.-D., and A. O.-S. have attended several congresses whose registration, travel, and accommodation costs were covered by MSD, GSK, and SP (Sanofi Pasteur). J. D.-D. and his institution have received research grants from SP and GSK related to respiratory syncytial virus preventive strategies. A. O.-S. and J. D.-D. acted as advisors for these immunization strategies to SP. All other authors report no potential conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

- 50 references
- 3 figures

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Observational Study

Rheumatology (Oxford)

. 2023 Oct 3;62(10):3350-3357.

doi: 10.1093/rheumatology/kead077.

Clinico-radiological correlation and prognostic value of baseline chest

computed tomography in eosinophilic granulomatosis with polyangiitis

Florence Delestre[1,2], Anne-Laure Brun[3], Benjamin Thoreau[1,2], Camille Taillé[2,4], Nicolas Limal[5], Xavier Puéchal[1,2], Luc Mouthon[1,2], Loïc Guillevin[1,2], Marie-Pierre Revel[2,6], Benjamin Terrier[1,2]

Affiliations expand

- PMID: 36790066

- DOI: 10.1093/rheumatology/kead077

Abstract

Objectives: While chest high-resolution CT (HRCT) is correlated to severity and prognosis in asthma, it has not been studied in eosinophilic granulomatosis with polyangiitis (EGPA). Our objective is to study the prognostic value of baseline HRCT in EGPA patients.

Methods: Retrospective, multicentre observational study in three French hospitals, including EGPA patients with available chest HRCT before any systemic treatment. Two experienced radiologists blinded to clinical data evaluated HRCT images using semi-quantitative scoring. HRCT characteristics were correlated with clinical features and outcome.

Results: Among 46 patients, 38 (82.6%) had abnormal parenchymal findings on HRCT, including bronchial wall thickening (69.6%), mosaic perfusion (63.0%), ground-glass opacities (32.6%), bronchiectasis (30.4%), mucous plugging (21.7%) and consolidations (17.4%). Patients were clustered into three groups depending on HRCT features: ground-glass pattern, i.e. with ground-glass opacities with or without bronchial abnormalities (group 1, 28.3%), bronchial pattern (group 2, 41.3%) and extra-pulmonary pattern with no significant abnormality (group 3, 30.4%). Group 2 showed less frequent cardiac involvement (31.6 vs 46.2 and 42.9% in groups 1 and 3), more frequent positive ANCA (52.6 vs 0.0 and 14.3%) and higher eosinophil count (median 7510 vs 4000 and 4250/mm3). Group 1 showed worse prognosis with more frequent steroid-dependency (58.3 vs 11.1 and 28.6%) and requirement for mepolizumab (25.0 vs 11.1 and 7.1%). Conversely, group 2 showed a better outcome with higher rates of remission (88.9 vs 41.6 and 71.4%).

Conclusion: Chest HRCT at diagnosis of EGPA may have prognostic value and help clinicians better manage these patients.

Keywords: asthma; eosinophilic granulomatosis with polyangiitis; high resolution CT; mepolizumab.

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Open Forum Infect Dis

. 2023 Oct 2;10(10):ofad450.

doi: 10.1093/ofid/ofad450. eCollection 2023 Oct.

Factors Predicting Secondary Respiratory Morbidity Following Early-Life Respiratory Syncytial Virus Infections: Population-Based Cohort Study

Mohinder Sarna[1,2], Amanuel Gebremedhin[1,2], Peter C Richmond[1,3,4], Kathryn Glass[1,5], Avram Levy[6,7], Hannah C Moore[1,2]

Affiliations expand

- PMID: 37790944
- PMCID: PMC10544950
- DOI: 10.1093/ofid/ofad450

Free PMC article

Abstract

Background: The association between early-life respiratory syncytial virus (RSV) infections and later respiratory morbidity is well established. However, there is limited evidence on factors that influence this risk. We examined sociodemographic and perinatal factors associated with later childhood respiratory morbidity requiring secondary care following exposure to a laboratory-confirmed RSV episode in the first 2 years.

Methods: We used a probabilistically linked whole-of-population-based birth cohort including 252 287 children born in Western Australia between 2000 and 2009 with follow-up to the end of 2012. Cox proportional hazards models estimated adjusted hazard ratios (aHRs) of the association of various risk factors with the first respiratory episode for asthma, wheezing, and unspecified acute lower respiratory infection beyond the age of 2 years.

Results: The analytic cohort included 4151 children with a confirmed RSV test before age 2 years. The incidence of subsequent respiratory morbidity following early-life RSV infection decreased with child age at outcome (highest incidence in 2-<4-year-olds: 41.8 per 1000 child-years; 95% CI, 37.5-46.6), increased with age at RSV infection (6-<12-month-olds: 23.6/1000 child-years; 95% CI, 19.9-27.8; 12-<24-month-olds: 22.4/1000 child-years; 95% CI, 18.2-22.7) and decreasing gestational age (50.8/1000 child-years; 95% CI, 33.5-77.2 for children born extremely preterm, <28 weeks gestation). Risk factors included age at first RSV episode (6-<12 months: aHR, 1.42; 95% CI, 1.06-1.90), extreme prematurity (<28 weeks: aHR, 2.22; 95% CI, 1.40-3.53), maternal history of asthma (aHR, 1.33; 95% CI, 1.04-1.70), and low socioeconomic index (aHR, 1.76; 95% CI, 1.03-3.00).

Conclusions: Our results suggest that in addition to preterm and young infants, children aged 12-<24 months could also be potential target groups for RSV prevention to reduce the burden of later respiratory morbidities associated with RSV.

Keywords: age at RSV infection; asthma; linked data; respiratory morbidity; respiratory syncytial virus; wheeze.

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- 40 references
- 2 figures

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

Review

Int Immunopharmacol

. 2023 Oct 6;124(Pt B):111003.

doi: 10.1016/j.intimp.2023.111003. Online ahead of print.

Effect of mesenchymal stem cell therapy in animal models of allergic rhinitis: A systematic review and meta-analysis

Dongdong Hong[1], Zhen Hu[1], Juanling Weng[1], Long Yang[1], Yalan Xiong[1], Yuanxian Liu[2]

Affiliations expand

- PMID: 37806104

- DOI: 10.1016/j.intimp.2023.111003

Abstract

Background: Allergic rhinitis (AR) is a worldwide problem that affects people of all ages, impairing patients' physical and mental health and causing great social expenditure. Animal studies have suggested the potential efficacy of mesenchymal stem cell (MSC) therapy in treating AR. Our meta-analysis was performed to evaluate the effect of MSC therapy in animal models of AR by pooling animal studies.

Methods: The search was executed in PubMed, Embase, Web of Science, OVID, and the Cochrane Library for relevant studies up to February 2023. The applicable data were extracted from the eligible studies, and the risk of bias was assessed for each study. The meta-analysis was conducted using Review Manager (version 5.4.1) and Stata (version 15.1).

Results: A total of 12 studies were included in the final analysis. Compared to the model control group, the MSC therapy group presented lower frequency of sneezing [(Standardized mean difference (SMD) -1.87, 95% CI -2.30 to -1.43)], nasal scratching (SMD -1.41, 95% CI -1.83 to -0.99), and overall nasal symptoms (SMD -1.88, 95% CI -3.22 to -0.54). There were also remarkable reductions after transplantation with MSCs in the levels of total immunoglobulin E (IgE) (SMD -1.25, 95% CI -1.72 to -0.79), allergen-specific IgE (SMD -1.79, 95% CI -2.25 to -1.32), and allergen-specific immunoglobulin G1 (SMD -1.29, 95% CI -2.03) in serum, as well as the count of eosinophils (EOS) in nasal mucosa (SMD -3.48, 95% CI -4.48 to -2.49). In terms of cytokines, MSC therapy significantly decreased both protein and mRNA levels of T helper cell 2 (Th2)-related cytokines, including interleukin (IL)-4, IL-5, IL-10, and IL-13.

Conclusion: MSC therapy has the potential to be an effective clinical treatment for AR patients by attenuating Th2 immune responses, reducing secretion of IgE and nasal infiltration of EOS, and consequently alleviating nasal symptoms.

Keywords: Allergic rhinitis; Animal study; Mesenchymal stem cells; Meta-analysis.

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Conflict of interest statement

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

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J Allergy Clin Immunol Pract

. 2023 Oct 4:S2213-2198(23)01072-3.

doi: 10.1016/j.jaip.2023.09.040. Online ahead of print.

Clinical commentary review for Women's Health in Allergy/Immunology theme Asthma and rhinitis through the lifespan of non-pregnant women

Christine Jenkins[1], Dave Singh[2], Francine M Ducharme[3], Chantal Raherison[4], Kim Lavoie[5]

Affiliations expand

- PMID: 37802256

- DOI: 10.1016/j.jaip.2023.09.040

Abstract

Increasingly, clinical practice guidelines advocate a precision medicine-based approach to care for asthma. This focus requires not only knowledge of different asthma phenotypes and their associated biomarkers, but also of sex and gender differences through the lifespan. Evidence continues to build in favour of different lifetime prevalence, clinical presentations, responses to management and long-term prognosis of asthma. Women transition through many biological and psychosocial phases in their lives, all of which may interact with, and influence, their health and wellbeing. Historically, explanations have

focused on hormonal effects on asthma in reproductive life, but a greater understanding of mechanisms starting before birth and changing over a lifetime is now possible, with immunologic, inflammatory and hormonal factors playing a role. This paper describes the evidence for the differences in asthma and rhinitis between men and women at different stages of life, the potential underlying mechanisms that contribute to this, and the implications for management and research. Future research studies should systematically report sex differences in asthma so that this knowledge can be used to develop a personalised approach to care, in order to achieve best possible outcomes for all.

Keywords: Asthma; Rhinitis.

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Review

Semin Immunol

. 2023 Oct 4:70:101846.

doi: 10.1016/j.smim.2023.101846. Online ahead of print.

The epithelial barrier: The gateway to allergic, autoimmune, and metabolic diseases and chronic neuropsychiatric conditions

Duygu Yazici[1], Ismail Ogulur[1], Yagiz Pat[1], Huseyn Babayev[1], Elena Barletta[2], Sena Ardicli[1], Manal Bel Imam[1], Mengting Huang[1], Jana Koch[2], Manru Li[1], Debbie Maurer[1], Urszula Radzikowska[3], Pattraporn Satitsuksanoa[1], Stephan R Schneider[1], Na Sun[4], Stephan Traidl[5], Alexandra Wallimann[1], Sebastian Wawrocki[1], Damir Zhakparov[1], Danielle Fehr[6], Reihane Ziadlou[6], Yasutaka Mitamura[1], Marie-Charlotte Brüggen[6], Willem van de Veen[3], Milena Sokolowska[3], Katja Baerenfaller[2], Kari Nadeau[7], Mubeccel Akdis[1], Cezmi A Akdis[8]

Affiliations expand

- PMID: 37801907

- DOI: 10.1016/j.smim.2023.101846

Abstract

Since the 1960 s, our health has been compromised by exposure to over 350,000 newly introduced toxic substances, contributing to the current pandemic in allergic, autoimmune and metabolic diseases. The "Epithelial Barrier Theory" postulates that these diseases are exacerbated by persistent periepithelial inflammation (epithelitis) triggered by exposure to a wide range of epithelial barrier-damaging substances as well as genetic susceptibility. The epithelial barrier serves as the body's primary physical, chemical, and immunological barrier against external stimuli. A leaky epithelial barrier facilitates the translocation of the microbiome from the surface of the afflicted tissues to interepithelial and even deeper subepithelial locations. In turn, opportunistic bacterial colonization, microbiota dysbiosis, local inflammation and impaired tissue regeneration and remodelling follow. Migration of inflammatory cells to susceptible tissues contributes to damage and inflammation, initiating and aggravating many chronic inflammatory diseases. The objective of this review is to highlight and evaluate recent studies on epithelial physiology and its role in the pathogenesis of chronic diseases in light of the epithelial barrier theory.

Keywords: Allergy; Autoimmune diseases; Barrier dysfunction; Epithelial barrier theory; Epithelitis; Lungs; Metabolic diseases; Microbiota; Rhinitis; Sinusitis; Skin; Type 2 immunity.

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Conflict of interest statement

Declaration of Competing Interest CA has received research grants from the Swiss National Science Foundation, Christine Kühne-Center for Allergy Research and Education, European Commission Horizon's 2020 Framework Programme "CURE", Novartis Research Institutes, GlaxoSmithKline and AstraZeneca; served in the advisory board and received research grants from GlaxoSmithKline, Sanofi/Regeneron, SciBase, Seed-Health and Novartis; appointed as Editor-in-Chief of Allergy. YM and WV report grants from Novartis. MS reports grants from the Swiss National Science Foundation, GSK and Novartis. KN reports

grants from National Institute of Allergy and Infectious Diseases (United States), National Heart, Lung, and Blood Institute (United States), National Institute of Environmental Health Sciences (United States), and Food Allergy Research & Education (United States); stock options from IgGenix, Seed Health, ClostraBio, and ImmuneID (United States). All other authors have no conflicts of interest to disclose.

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Clin Exp Allergy

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. 2023 Oct 4.

doi: 10.1111/cea.14406. Online ahead of print.

Evaluation of the reproducibility of responses to nasal allergen challenge and effects of inhaled nasal corticosteroids

Rebecca N Bauer[1], Yanqing Xie[2,3], Suzanne Beaudin[2], Lesley Wiltshire[2], Jennifer Wattie[2], Caroline Muñoz[2], Nadia Alsaji[2], John Paul Oliveria[1,2], Xiaotian Ju[2], Jonathan MacLean[4], Doron D Sommer[4], Paul K Keith[2], Imran Satia[2], Ruth P Cusack[2], Paul M O'Byrne[2], Gizette Sperinde[1], Martha Hokom[1], Olga Li[1], Prajna Banerjee[1], Chen Chen[1], Tracy Staton[1], Roma Sehmi[2], Gail M Gauvreau[2]

Affiliations expand

- PMID: 37794659

- DOI: 10.1111/cea.14406

Abstract

Background: Similar immune responses in the nasal and bronchial mucosa implies that nasal allergen challenge (NAC) is a suitable early phase experimental model for drug development targeting allergic rhinitis (AR) and asthma. We assessed NAC reproducibility and the effects of intranasal corticosteroids (INCS) on symptoms, physiology, and inflammatory mediators.

Methods: 20 participants with mild atopic asthma and AR underwent three single blinded nasal challenges each separated by three weeks (NCT03431961). Cohort A (n = 10) underwent a control saline challenge, followed by two allergen challenges. Cohort B (n = 10) underwent a NAC with no treatment intervention, followed by NAC with 14 days pre-treatment with saline nasal spray (placebo), then NAC with 14 days pre-treatment with INCS (220 μg triamcinolone acetonide twice daily). Nasosorption, nasal lavage, blood samples, forced expiratory volume 1 (FEV1), total nasal symptom score (TNSS), peak nasal inspiratory flow (PNIF) were collected up to 24 h after NAC. Total and active tryptase were measured as early-phase allergy biomarkers (≤30 min) and IL-13 and eosinophil cell counts as late-phase allergy biomarkers (3-7 h) in serum and nasal samples. Period-period reproducibility was assessed by intraclass correlation coefficients (ICC), and sample size estimates were performed using effect sizes measured after INCS.

Results: NAC significantly induced acute increases in nasosorption tryptase and TNSS and reduced PNIF, and induced late increases in nasosorption IL-13 with sustained reductions in PNIF. Reproducibility across NACs varied for symptoms and biomarkers, with total tryptase 5 min post NAC having the highest reproducibility (ICC = 0.91). Treatment with INCS inhibited NAC-induced IL-13 while blunting changes in TNSS and PNIF. For a similar crossover study, 7 participants per treatment arm are needed to detect treatment effects comparable to INCS for TNSS.

Conclusion: NAC-induced biomarkers and symptoms are reproducible and responsive to INCS. NAC is suitable for assessing pharmacodynamic activity and proof of mechanism for drugs targeting allergic inflammation.

Keywords: allergy; asthma; biomarkers; drug development; nasal allergen challenge; nasosorption.

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- 57 references

SUPPLEMENTARY INFO

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J Pharm Policy Pract

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. 2023 Oct 4;16(1):116.

doi: 10.1186/s40545-023-00625-1.

Development and validation of a pharmacist-led education model in allergic rhinitis management: a multi-phase study

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Affiliations expand

- PMID: 37794504

- PMCID: PMC10548631

- DOI: 10.1186/s40545-023-00625-1

Free PMC article

Abstract

Background: Patient education is identified as one of the core and fundamental management strategies in the management of allergic rhinitis. The Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines developed guidance for the management of allergic respiratory disease, and the guidelines are applicable to the international context. The ARIA guidelines for the pharmacy have specifically encouraged the creation of local pharmacist-led intervention in allergic rhinitis management. This study aims to develop a pharmacist-led educational model using a multi-phase study approach.

Method: In phase one, we conducted a literature review using four databases to extract relevant articles and clinical practice guidelines published between 2017 and 2022. The information was structured into a questionnaire consisting of patient education material (10 domains with 130 items) and pharmacist counseling scopes (15 domains with 43 items), with each item having a rating scale ranging from 1 (lowest) to 9 (highest) level of agreement. Fifty-two panellists, including otorhinolaryngologists and pharmacists, were invited to complete the questionnaire. A consensus agreement was considered when at least 70% of panellists scored 7 to 9 (critically important). A two-round survey was conducted, and descriptive analysis, inter-rater reliability (≥ 0.5-1 indicate moderate to excellent reliability), variation in the relative interquartile (VRIR < 0.3 indicate good stability), and variation in the coefficient of variation (VCV < 40% considered consensus achieved) were performed. In phase two, patient education material was developed into audio-visual format, and in phase three, patients rated its understandability and actionability using a validated Patient Education Materials Assessment Tool.

Results: In the round one Delphi survey, 43 panellists responded, with 171 out of 173 items achieving "consensus agreement" (75.4-100%). In the second survey, 32 out of 43 panellists responded, with most items (171 out of 173 items) stable across rounds and all items had acceptable internal consistency (VCV: - 12.21-15.81). Two items did not achieve "consensus agreement" (64%) but improved in round two (92.9%), however, instability was observed (VRIR: 0.36). These two items were retained in the model due to achieving the minimum level of agreement and internal consistency (VCV = 15.81). Inter-rater reliability was 0.608 and 0.970 in the respective rounds. Patients rated the educational material as understandable (81.8-100%) and actionable (100%).

Conclusion: The validated pharmacist-led education model, with its educational materials tested on end-users, provides structured patient education and pharmaceutical care in assisting patients with allergic rhinitis. The educational material allows the delivery of standardized information by the healthcare providers to the patients. Further research on the effectiveness of this model in improving patients' symptom control and quality of life is warranted.

Keywords: Allergic; Education; Pharmaceutical services; Pharmacist; Rhinitis.

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Conflict of interest statement

The authors declared no conflict of interest.

- 62 references
- 2 figures

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J Clin Rheumatol

-
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. 2023 Oct 2.

doi: 10.1097/RHU.0000000000002033. Online ahead of print.

Characteristics and Disease Burden of Patients With Eosinophilic Granulomatosis With Polyangiitis Initiating Mepolizumab in the United States

Jared Silver[1], Arijita Deb[2], Elizabeth Packnett[3], Donna McMorrow[3], Cynthia Morrow[3], Michael Bogart[1]

Affiliations expand

- PMID: 37779234

- DOI: 10.1097/RHU.0000000000002033

Abstract

Background/objective: Although the high disease burden associated with eosinophilic granulomatosis with polyangiitis (EGPA) has been established, the disease burden in patients initiating mepolizumab in real-world practice is poorly understood. This study aimed to assess characteristics and burden of real-world patients with EGPA initiating mepolizumab.

Methods: This was a database study (GSK study ID: 214156) of US patients (≥12 years old) with EGPA and ≥1 mepolizumab claim (index date) identified from the Merative MarketScan Commercial and Medicare Supplemental Databases (November 1, 2015, to March 31, 2020). Outcomes assessed in the 12-month baseline period before index (inclusive) included patient characteristics, treatment use, EGPA relapses, asthma exacerbations, health care resource utilization, and costs.

Results: In the 103 patients included (mean age, 51.1 years; 63.1% female), the most common manifestations were asthma (89.3%), chronic sinusitis (57.3%), and allergic rhinitis (43.7%). In total, 91.3% of patients had ≥1 oral corticosteroid (OCS) claim (median dose, 7.4 mg/d prednisone-equivalent), 45.6% were chronic OCS users (≥10 mg/d during the 90 days preindex), 99.0% had ≥1 EGPA-related relapse, and 62.1% ≥1 asthma exacerbation. During the baseline period, 26.2% and 97.1% of patients had EGPA-related inpatient admissions and office visits, respectively. Median all-cause total health care costs per patient were $33,298, with total outpatient costs ($16,452) representing the largest driver.

Conclusions: Before initiating mepolizumab, a substantial real-world EGPA disease burden is evident for patients, with resulting impact on health care systems, and indicative of unmet medical needs. Mepolizumab treatment, with a demonstrated positive clinical benefit-risk profile may represent a useful treatment option for reducing EGPA disease burden.

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- 33 references

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

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

1
Pulmonology

. 2023 Oct 7:S2531-0437(23)00164-2.

doi: 10.1016/j.pulmoe.2023.09.001. Online ahead of print.

Bronchiectasis as long-term complication of acute fire smoke inhalation?

S Rizzato[1], M Tacconi[1], D Andrisani[2], F Luppi[3], E Clini[1], S Cerri[4]

Affiliations expand

- PMID: 37806920

- DOI: 10.1016/j.pulmoe.2023.09.001

No abstract available

Conflict of interest statement

Conflicts of interest The authors have no conflicts of interest to declare.

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Eur Respir J

. 2023 Oct 6:2300533.

doi: 10.1183/13993003.00533-2023. Online ahead of print.

ERS/ESTS/ESTRO/ESR/ESTI/EFOMP statement on management of incidental findings from low dose CT screening for lung cancer

Emma L O'Dowd[1,2], Ilona Tietzova[3], Emily Bartlett[4], Anand Devaraj[4], Jürgen Biederer[5,6,7,8], Marco Brambilla[9], Alessandro Brunelli[10], Joanna Chorostowska[11], Herbert Decaluwe[12], Dirk Deruysscher[13], Walter De Wever[14], Matthew Donoghue[15], Aurelie Fabre[16], Mina Gaga[17], Wouter van Geffen[18,19], Georgia Hardavella[20], Hans-Ulrich Kauczor[5,6], Anna Kerpel-Fronius[21], Jan van Meerbeeck[22], Blin Nagavci[23], Ursula Nestle[24], Nuria Novoa[25], Helmut Prosch[26], Mathias Prokop[27], Paul Martin Putora[28,29], Janette Rawlinson[30], Marie-Pierre Revel[31,32], Annemiek Snoeckx[33], Giulia Veronesi[34], Rozemarijn Vliegenthart[35], Sabine Weckbach[36,37], Torsten G Blum[38], David R Baldwin[39,40]

Affiliations expand

- PMID: 37802631

- DOI: 10.1183/13993003.00533-2023

Abstract

Background: Screening for lung cancer with low radiation dose computed tomography has a strong evidence base, is being introduced in several European countries and is recommended as a new targeted cancer screening programme. The imperative now is to ensure that implementation follows an evidence-based process that will ensure clinical and cost effectiveness. This European Respiratory Society (ERS) task force was formed to provide an expert consensus for the management of incidental findings which can be adapted and followed during implementation.

Methods: A multi-European society collaborative group was convened. 23 topics were identified, primarily from an ERS statement on lung cancer screening, and a systematic review of the literature was conducted according to ERS standards. Initial review of abstracts was completed and full text was provided to members of the group for each topic. Sections were edited and the final document approved by all members and the ERS Science Council.

Results: Nine topics considered most important and frequent were reviewed as standalone topics (interstitial lung abnormalities, emphysema, bronchiectasis, consolidation, coronary calcification, aortic valve disease, mediastinal mass, mediastinal lymph nodes and thyroid abnormalities). Other topics considered of lower importance or infrequent were grouped into generic categories, suitable for general statements.

Conclusions: This European collaborative group has produced an incidental findings statement that can be followed during lung cancer screening. It will ensure that an evidence-based approach is used for reporting and managing incidental findings, which will mean that harms are minimised and any programme is as cost-effective as possible.

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Conflict of interest statement

Conflict of interest: All declarations are outside the submitted work. Unless otherwise stated, authors do not make any relevant disclosures. A. Brunelli declares honoraria from AstraZeneca, Ethicon, Medtronic, MSD and Roche. J. Chorostowska declares honoraria from AstraZeneca, MSD, Pfizer, Takeda, Amgen, Grifols, CSL Behring, Novartis, Chiesi, Celon Pharma, Adamed and Mero Biopharma. A. Devaraj declares consulting fees from Boehringer Ingelheim, Roche, Vicore and Brainomix, and personal stock/options in Brainomix. D. Deruysscher declares grants/honoraria from AstraZeneca, BMS, Beigne and Philips. H. Prosch declares grants and honoraria from Boehringer Ingelheim, AstraZeneca, Siemens and MSD. A. Kerpel-Fronius declares honoraria from MSD and Boehringer Ingelheim, and conference expenses from Roche and Bracco. W. van Geffen is local PI for

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Am J Respir Crit Care Med

. 2023 Oct 5.

doi: 10.1164/rccm.202308-1468VP. Online ahead of print.

The COPD–Bronchiectasis Overlap Syndrome: Does My COPD Patient Have Bronchiectasis on CT? Frankly, My Dear, I Don't Give a Damn!

Mark L Metersky[1], Mark T Dransfield[2]

Affiliations expand

- PMID: 37796579

- DOI: 10.1164/rccm.202308-1468VP

No abstract available

Keywords: Bronchiectasis; COPD; COPD-Bronchiectasis Overlap; Chronic Obstructive Pulmonary Disease.

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Microbiol Spectr

. 2023 Oct 5:e0221323.

doi: 10.1128/spectrum.02213-23. Online ahead of print.

Airway microbiota correlated with pulmonary exacerbation in primary ciliary dyskinesia patients

Weitao Zhou[#1], Zhuoyao Guo[#1], Jinglong Chen[1], Yao Chen[1], Chen He[1], Aizhen Lu[1], Liling Qian[1]

Affiliations expand

- PMID: 37796006

- DOI: 10.1128/spectrum.02213-23

Free article

Abstract

Primary ciliary dyskinesia (PCD) is characterized by symptoms such as productive cough, rhinitis, and recurrent infections in both the upper and lower airways, which can lead to chronic infection, bronchiectasis, and decreased pulmonary function. Our study aimed to analyze the diversity and composition of the microbiota in the respiratory tract and investigate the correlation of the microbiota with pulmonary exacerbation in PCD patients. This study employed 16S rRNA amplicon sequencing to explore the microbiota present in both bronchoalveolar lavage fluid (BALF) and sputum samples collected from PCD patients. Eighty-five airway samples (17 BALF and 68 sputum samples) were collected from 72 patients aged 2 months to 60 years. Significantly lower sputum microbiota diversity and richness were found in the pulmonary exacerbation group than in the pulmonary stabilization group; additionally, the relative abundance of *Pseudomonas* increased when pulmonary exacerbation occurred. There was a positive correlation between pulmonary exacerbation and the relative abundance of *Pseudomonas*, while *Streptococcus*, *Moraxella*, and *Haemophilus* showed a negative correlation. Although there was no significant difference in the sputum microbiota diversity and composition in children aged 6-18 years with pulmonary exacerbation, *Pseudomonas* increased during pulmonary exacerbation. BALF samples of pediatric patients with pulmonary exacerbation had a lower microbiota diversity and richness; furthermore, *Pseudomonas* had a higher abundance and a moderate distinguishing effect. We found that microbiota beta diversity and dominance were decreased during pulmonary exacerbation. Additionally, *Pseudomonas* had a higher abundance and moderate distinguishing effect in pediatric patients with pulmonary exacerbation. IMPORTANCE PCD is a rare disease characterized by productive cough, rhinitis, and recurrent infections of the upper and lower airways. Because the diagnosis of PCD is often delayed, patients receive more antibiotics, experience a heavier financial burden, and have a worse prognosis; thus, it is very important to identify the pathogeny and use the correct antibiotic. In this large single-center study of PCD microbiota, we identified an outline of the bacterial microbes from the respiratory tract; furthermore, we found that the microbiota diversity in pediatric sputum was richer than that in pediatric BALF through sequencing, indicating a heterogeneous community structure. The microbiota diversity and richness were lower during pulmonary exacerbation than during pulmonary stabilization. A significantly higher abundance of *Pseudomonas* had a moderate distinguishing effect for lung exacerbation, which attracted more attention for the study of *Pseudomonas* therapy in pediatric patients with PCD.

Keywords: airway microbiota; microbiota diversity; primary ciliary dyskinesia; pulmonary exacerbation.

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Review

Eur J Cardiothorac Surg

. 2023 Oct 4;64(4):ezad302.

doi: 10.1093/ejcts/ezad302.

ERS/ESTS/ESTRO/ESR/ESTI/EFOMP statement on management of incidental findings from low dose CT screening for lung cancer

Emma L O'Dowd[1,2], Ilona Tietzova[3], Emily Bartlett[4], Anand Devaraj[4], Jürgen Biederer[5,6,7,8], Marco Brambilla[9], Alessandro Brunelli[10], Joanna Chorostowska[11], Herbert Decaluwe[12], Dirk Deruysscher[13], Walter De Wever[14], Matthew Donoghue[15], Aurelie Fabre[16], Mina Gaga[17], Wouter van Geffen[18,19], Georgia Hardavella[20], Hans-Ulrich Kauczor[5,6], Anna Kerpel-Fronius[21], Jan van Meerbeeck[22], Blin Nagavci[23], Ursula Nestle[24], Nuria Novoa[25], Helmut Prosch[26], Mathias Prokop[27], Paul Martin Putora[28,29], Janette Rawlinson[30], Marie-Pierre Revel[31,32], Annemiek Snoeckx[33], Giulia Veronesi[34], Rozemarijn Vliegenthart[35], Sabine Weckbach[36,37], Torsten G Blum[38], David R Baldwin[2,39]

Affiliations expand

- PMID: 37804174

- DOI: 10.1093/ejcts/ezad302

Abstract

Background: Screening for lung cancer with low radiation dose computed tomography has a strong evidence base, is being introduced in several European countries and is recommended as a new targeted cancer screening programme. The imperative now is to ensure that implementation follows an evidence-based process that will ensure clinical and cost effectiveness. This European Respiratory Society (ERS) task force was formed to provide an expert consensus for the management of incidental findings which can be adapted and followed during implementation.

Methods: A multi-European society collaborative group was convened. 23 topics were identified, primarily from an ERS statement on lung cancer screening, and a systematic review of the literature was conducted according to ERS standards. Initial review of abstracts was completed and full text was provided to members of the group for each topic. Sections were edited and the final document approved by all members and the ERS Science Council.

Results: Nine topics considered most important and frequent were reviewed as standalone topics (interstitial lung abnormalities, emphysema, bronchiectasis, consolidation, coronary calcification, aortic valve disease, mediastinal mass, mediastinal lymph nodes and thyroid abnormalities). Other topics considered of lower importance or infrequent were grouped into generic categories, suitable for general statements.

Conclusions: This European collaborative group has produced an incidental findings statement that can be followed during lung cancer screening. It will ensure that an evidence-based approach is used for reporting and managing incidental findings, which will mean that harms are minimised and any programme is as cost-effective as possible.

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SUPPLEMENTARY INFO

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Ann Intern Med

. 2023 Oct 3.

doi: 10.7326/M23-1125. Online ahead of print.

Suspected Bronchiectasis and Mortality in Adults With a History of Smoking Who Have Normal and Impaired Lung Function : A Cohort Study

Alejandro A Diaz[1], Wei Wang[2], Jose L Orejas[1], Rim Elalami[1], Wojciech R Dolliver[1], Pietro Nardelli[3], Ruben San José Estépar[3], Bina Choi[1], Carrie L Pistenmaa[1], James C Ross[3], Diego J Maselli[4], Andrew Yen[5], Kendra A Young[6], Gregory L Kinney[6], Michael H Cho[7], Raul San José Estépar[3]

Affiliations expand

- PMID: 37782931

- DOI: 10.7326/M23-1125

Abstract

Background: Bronchiectasis in adults with chronic obstructive pulmonary disease (COPD) is associated with greater mortality. However, whether suspected bronchiectasis-defined as incidental bronchiectasis on computed tomography (CT) images plus clinical manifestation-is associated with increased mortality in adults with a history of smoking with normal spirometry and preserved ratio impaired spirometry (PRISm) is unknown.

Objective: To determine the association between suspected bronchiectasis and mortality in adults with normal spirometry, PRISm, and obstructive spirometry.

Design: Prospective, observational cohort.

Setting: The COPDGene (Genetic Epidemiology of Chronic Obstructive Pulmonary Disease) study.

Participants: 7662 non-Hispanic Black or White adults, aged 45 to 80 years, with 10 or more pack-years of smoking history. Participants who were former and current smokers were stratified into normal spirometry (*n* = 3277), PRISm (*n* = 986), and obstructive spirometry (*n* = 3399).

Measurements: Bronchiectasis identified by CT was ascertained using artificial intelligence-based measurements of an airway-to-artery ratio (AAR) greater than 1 (AAR >1), a measure of bronchial dilatation. The primary outcome of "suspected bronchiectasis" was defined as an AAR >1 of greater than 1% plus 2 of the following: cough, phlegm, dyspnea, and history of 2 or more exacerbations.

Results: Among the 7662 participants (mean age, 60 years; 52% women), 1352 (17.6%) had suspected bronchiectasis. During a median follow-up of 11 years, 2095 (27.3%) died. Ten-year mortality risk was higher in participants with suspected bronchiectasis, compared with those without suspected bronchiectasis (normal spirometry: difference in mortality probability [Pr], 0.15 [95% CI, 0.09 to 0.21]; PRISm: Pr, 0.07 [CI, -0.003 to 0.15]; obstructive spirometry: Pr, 0.06 [CI, 0.03 to 0.09]). When only CT was used to identify bronchiectasis, the differences were attenuated in the normal spirometry (Pr, 0.04 [CI, -0.001 to 0.08]).

Limitations: Only 2 racial groups were studied. Only 1 measurement was used to define bronchiectasis on CT. Symptoms of suspected bronchiectasis were nonspecific.

Conclusion: Suspected bronchiectasis was associated with a heightened risk for mortality in adults with normal and obstructive spirometry.

Primary funding source: National Heart, Lung, and Blood Institute.

Conflict of interest statement

Disclosures: Disclosures can be viewed at www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M23-1125.

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Observational Study

Rheumatology (Oxford)

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. 2023 Oct 3;62(10):3350-3357.

doi: 10.1093/rheumatology/kead077.

Clinico-radiological correlation and prognostic value of baseline chest computed tomography in eosinophilic granulomatosis with polyangiitis

Florence Delestre[1,2], Anne-Laure Brun[3], Benjamin Thoreau[1,2], Camille Taillé[2,4], Nicolas Limal[5], Xavier Puéchal[1,2], Luc Mouthon[1,2], Loïc Guillevin[1,2], Marie-Pierre Revel[2,6], Benjamin Terrier[1,2]

Affiliations expand

- PMID: 36790066

- DOI: 10.1093/rheumatology/kead077

Abstract

Objectives: While chest high-resolution CT (HRCT) is correlated to severity and prognosis in asthma, it has not been studied in eosinophilic granulomatosis with polyangiitis (EGPA). Our objective is to study the prognostic value of baseline HRCT in EGPA patients.

Methods: Retrospective, multicentre observational study in three French hospitals, including EGPA patients with available chest HRCT before any systemic treatment. Two experienced radiologists blinded to clinical data evaluated HRCT images using semi-quantitative scoring. HRCT characteristics were correlated with clinical features and outcome.

Results: Among 46 patients, 38 (82.6%) had abnormal parenchymal findings on HRCT, including bronchial wall thickening (69.6%), mosaic perfusion (63.0%), ground-glass opacities (32.6%), bronchiectasis (30.4%), mucous plugging (21.7%) and consolidations (17.4%). Patients were clustered into three groups depending on HRCT features: ground-glass pattern, i.e. with ground-glass opacities with or without bronchial abnormalities (group 1, 28.3%), bronchial pattern (group 2, 41.3%) and extra-pulmonary pattern with no significant abnormality (group 3, 30.4%). Group 2 showed less frequent cardiac involvement (31.6 vs 46.2 and 42.9% in groups 1 and 3), more frequent positive ANCA (52.6 vs 0.0 and 14.3%) and higher eosinophil count (median 7510 vs 4000 and 4250/mm3). Group 1 showed worse prognosis with more frequent steroid-dependency (58.3 vs 11.1 and 28.6%) and requirement for mepolizumab (25.0 vs 11.1 and 7.1%). Conversely, group 2 showed a better outcome with higher rates of remission (88.9 vs 41.6 and 71.4%).

Conclusion: Chest HRCT at diagnosis of EGPA may have prognostic value and help clinicians better manage these patients.

Keywords: asthma; eosinophilic granulomatosis with polyangiitis; high resolution CT; mepolizumab.

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SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

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1
Review

Eur Respir Rev

. 2023 Aug 9;32(169):220253.
doi: 10.1183/16000617.0253-2022. Print 2023 Sep 30.

Post-COVID-19 dyspnoea and pulmonary imaging: a systematic review and meta-analysis

Elizabeth Guinto[1], Firoozeh V Gerayeli[1], Rachel L Eddy[1,2], Hyun Lee[1,3], Stephen Milne[1,2,4], Don D Sin[5,2]
Affiliations expand

- PMID: 37558261
- PMCID: PMC10410398
- DOI: 10.1183/16000617.0253-2022

Free PMC article

Abstract

Background: A proportion of coronavirus disease 2019 (COVID-19) survivors experience persistent dyspnoea without measurable impairments in lung function. We performed a systematic review and meta-analysis to determine relationships between dyspnoea and imaging abnormalities over time in post-COVID-19 patients.

Methods: Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, we analysed studies published prior to 15 September 2022 and indexed by Google Scholar, PubMed and LitCOVID which assessed chest imaging in adults ≥3 months after COVID-19. Demographic, chest imaging, spirometric and post-COVID-19 symptom data were extracted. The relationships between imaging abnormalities and dyspnoea, sex and age were determined using a random effects model and meta-regression.

Results: 47 studies were included in the meta-analysis (n=3557). The most prevalent computed tomography (CT) imaging abnormality was ground-glass opacities (GGOs) (44.9% (95% CI 37.0-52.9%) at any follow-up time-point). Occurrence of reticulations significantly decreased between early and late follow-up (p=0.01). The prevalence of imaging abnormalities was related to the proportion of patients with dyspnoea (p=0.012). The proportion of females was negatively correlated with the presence of reticulations (p=0.001), bronchiectasis (p=0.001) and consolidations (p=0.025). Age was positively correlated with imaging abnormalities across all modalities (p=0.002) and imaging

abnormalities present only on CT (p=0.001) (GGOs (p=0.004) and reticulations (p=0.001)). Spirometric values improved during follow-up but remained within the normal range at all time-points.

Conclusions: Imaging abnormalities were common 3 months after COVID-19 and their occurrence was significantly related to the presence of dyspnoea. This suggests that CT imaging is a sensitive tool for detecting pulmonary abnormalities in patients with dyspnoea, even in the presence of normal spirometric measurements.

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Conflict of interest statement

Conflict of interest: R.L. Eddy receives personal consulting fees from VIDA Diagnostics Inc., and lecture honoraria from AstraZeneca, outside the submitted work. S. Milne reports grants from British Columbia Lung Association, CHEST Foundation, Genome British Columbia, Mitacs and Michael Smith Health Research BC, and financial support from Chiesi Australia, outside the submitted work. D.D. Sin has received an honorarium for speaking engagements for COPD from GSK, AstraZeneca and Boehringer Ingelheim, and chairs a DSMB for an NHLBI-sponsored clinical trial in COPD, outside the submitted work. E. Guinto, F.V. Gerayeli and H. Lee do not declare any conflicts of interest.

- 88 references
- 4 figures

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BMJ Open
. 2023 Aug 10;13(8):e071906.
doi: 10.1136/bmjopen-2023-071906.

Dual bronchodilators in Bronchiectasis study (DIBS): protocol for a pragmatic, multicentre, placebo-controlled, three-arm, double-blinded, randomised controlled trial studying bronchodilators in preventing exacerbations of bronchiectasis

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Affiliations expand

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Abstract

Introduction: Bronchiectasis is a long-term lung condition, with dilated bronchi, chronic inflammation, chronic infection and acute exacerbations. Recurrent exacerbations are associated with poorer clinical outcomes such as increased severity of lung disease, further exacerbations, hospitalisations, reduced quality of life and increased risk of death. Despite an increasing prevalence of bronchiectasis, there is a critical lack of high-quality studies into the disease and no treatments specifically approved for its treatment. This trial aims to establish whether inhaled dual bronchodilators (long acting beta agonist (LABA) and long acting muscarinic antagonist (LAMA)) taken as either a stand-alone therapy or in combination with inhaled corticosteroid (ICS) reduce the number of exacerbations of bronchiectasis requiring treatment with antibiotics during a 12 month treatment period.

Methods: This is a multicentre, pragmatic, double-blind, randomised controlled trial, incorporating an internal pilot and embedded economic evaluation. 600 adult patients (≥18 years) with CT confirmed bronchiectasis will be recruited and randomised to either inhaled dual therapy (LABA+LAMA), triple therapy (LABA+LAMA+ICS) or matched placebo,

in a 2:2:1 ratio (respectively). The primary outcome is the number of protocol defined exacerbations requiring treatment with antibiotics during the 12 month treatment period.

Ethics and dissemination: Favourable ethical opinion was received from the North East-Newcastle and North Tyneside 2 Research Ethics Committee (reference: 21/NE/0020). Results will be disseminated in peer-reviewed publications, at national and international conferences, in the NIHR *Health Technology Assessments* journal and to participants and the public (using lay language).

Trial registration number: ISRCTN15988757.

Keywords: Adult thoracic medicine; Clinical trials; RESPIRATORY MEDICINE (see Thoracic Medicine).

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Conflict of interest statement

Competing interests: ADS has received speakers fees or advisory board fees from AstraZeneca, Bayer, GSK, Insmed, Novartis, Gilead and Zambon and has received grants from AstraZeneca, GSK, Novartis and the US COPD Foundation.

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Hum Mol Genet

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Defective airway intraflagellar transport underlies a combined motile and primary ciliopathy syndrome caused by IFT74 mutations

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Affiliations expand

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- DOI: 10.1093/hmg/ddad132

Abstract

Ciliopathies are inherited disorders caused by defective cilia. Mutations affecting motile cilia usually cause the chronic muco-obstructive sinopulmonary disease primary ciliary dyskinesia (PCD) and are associated with laterality defects, while a broad spectrum of early developmental as well as degenerative syndromes arise from mutations affecting signalling of primary (non-motile) cilia. Cilia assembly and functioning requires intraflagellar transport of cargos assisted by IFT-B and IFT-A adaptor complexes. Within IFT-B, the N-termini of partner proteins IFT74 and IFT81 govern tubulin transport to build the ciliary microtubular cytoskeleton. We detected a homozygous 3 kb intragenic IFT74 deletion removing the exon 2 initiation codon and 40 N-terminal amino acids in two affected siblings. Both had clinical features of PCD with bronchiectasis, but no laterality defects. They also had retinal dysplasia and abnormal bone growth, with a narrowed thorax and short ribs, shortened long bones and digits and abnormal skull shape. This resembles short-rib thoracic dysplasia, a skeletal ciliopathy previously linked to IFT defects in primary cilia, not motile cilia. Ciliated nasal epithelial cells collected from affected individuals had reduced numbers of shortened motile cilia with disarranged microtubules, some mis-orientation of the basal feet, and disrupted cilia structural and IFT protein distributions. No full length IFT74 was expressed, only truncated forms that were consistent with N-terminal deletion and inframe translation from downstream initiation codons. In affinity purification mass spectrometry, exon 2-deleted IFT74 initiated from the nearest inframe downstream methionine 41 still interacts as part of the IFT-B complex, but only with reduced interaction levels and not with all its usual IFT-B partners. We propose that this is a hypomorphic mutation with some residual protein function retained, that gives rise to a non-lethal primary skeletal ciliopathy combined with defective motile cilia and PCD.

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Mycoses
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Long-term follow-up of allergic bronchopulmonary aspergillosis treated with glucocorticoids: A study of 182 subjects

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Affiliations expand

- PMID: 37555291

- DOI: 10.1111/myc.13640

Abstract

Background: The long-term outcomes of allergic bronchopulmonary aspergillosis (ABPA) are poorly characterised.

Methods: We retrospectively included treatment-naïve subjects of acute stage ABPA-complicating asthma from three randomised trials. All the subjects received oral prednisolone for 4 months and were monitored every 6 weeks for 6 months and then every 6 months. Our primary objective was to estimate the incidence rate and the frequency of subjects experiencing ABPA exacerbation. The key secondary objectives were to evaluate the factors predicting ABPA exacerbation and the changes in serum total IgE seen during treatment.

Results: We included 182 subjects. Eighty-one (44.5%) patients experienced 120 exacerbations during 512 patient-years of follow-up. The incidence rate of ABPA

exacerbations was 234/1000 patient-years. Most (73/81, 90.1%) subjects experienced ABPA exacerbation within three years of stopping therapy. On multivariate logistic regression analysis, peripheral blood eosinophil count ≥1000 cells/μL (adjusted odds ratio [aOR] 2.43; 95% confidence interval (CI), 1.26-4.67), the extent of bronchiectasis (aOR 1.10; 95% CI, 1.03-1.18), age (aOR 0.97; 95% CI, 0.94-0.99), and female sex (aOR 2.16; 95% CI, 1.10-4.24) independently predicted ABPA exacerbation after adjusting for serum total IgE and high-attenuation mucus. The best cut-off for serum total IgE after 6 weeks for identifying treatment response and ABPA exacerbations was a 20% decline and a 50% increase, respectively.

Conclusions: ABPA exacerbations were common within 3 years of stopping treatment. Age, female sex, peripheral blood eosinophilia and the extent of bronchiectasis predicted ABPA exacerbations. The optimal serum total IgE cut-off for defining ABPA response and exacerbations is a 20% decline and a 50% increase, respectively.

Keywords: ABPM; allergic bronchopulmonary mycosis; allergic fungal airway disease; aspergillus; bronchiectasis; fungal asthma.

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Review

Med Clin (Barc)

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. 2023 Aug 7;S0025-7753(23)00362-7.
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Cystic fibrosis: Epidemiology, clinical manifestations, diagnosis and treatment

[Article in English, Spanish]
Layla Diab Cáceres[1], Ester Zamarrón de Lucas[2]
Affiliations expand

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- DOI: 10.1016/j.medcli.2023.06.006

Abstract

Cystic fibrosis is a genetic and multisystemic disease. The main comorbidity in adulthood is respiratory involvement, with the presence of bronchiectasis, chronic bronchial infection and airflow obstruction. Until a decade ago, treatments were aimed at favoring secretion drainage, reducing respiratory exacerbations, controlling chronic bronchial infection and slowing functional deterioration, but with the advent of cystic fibrosis transmembrane conductance regulator (CFTR) modulators, the cystic fibrosis paradigm has changed. This novel treatment goes a step further in the management of this disease, it is able to improve the production of defective CFTR protein and increase its expression on the cell surface, thus achieving a better functioning of ion exchange, fluidizing respiratory secretions and reducing airflow obstruction. In addition, there are currently different lines of research aimed at correcting the genetic defect that causes cystic fibrosis.

Keywords: Antibióticos nebulizados; Bronchiectasis; Bronquiectasias; CFTR modulators; Cystic fibrosis; Fibrosis quística; Fisioterapia respiratoria; Moduladores del CFTR; Nebulized antibiotics; Pseudomonas aeruginosa; Respiratory physiotherapy.

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Respirology

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doi: 10.1111/resp.14568. Online ahead of print.

Safety and efficacy of bronchial thermoplasty in Australia 5 years post-procedure

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Affiliations expand

- PMID: 37550800

- DOI: 10.1111/resp.14568

Abstract

Background and objective: Outside clinical trials, there is limited long-term data following bronchial thermoplasty (BT). In a cohort of real-world severe asthmatics in an era of biological therapy, we sought to evaluate the safety and efficacy of BT 5 years post-treatment.

Methods: Every patient treated with BT at two Australian tertiary centres were recalled at 5 years, and evaluated by interview and record review, Asthma Control Questionnaire (ACQ), spirometry and high-resolution CT Chest. CT scans were interpreted using the modified Reiff and BRICS CT scoring systems for bronchiectasis.

Results: Fifty-one patients were evaluated. At baseline, this cohort had a mean age of 59.0 ± 11.8 years, mean ACQ of 3.0 ± 1.0, mean FEV1 of 55.5 ± 18.8% predicted, and 53% were receiving maintenance oral steroids in addition to triple inhaler therapy. At 5 years, there was a sustained improvement in ACQ scores to 1.8 ± 1.0 ($p < 0.001$). Steroid requiring exacerbation frequency was reduced from 3.8 ± 3.6 to 1.0 ± 1.6 exacerbations per annum ($p < 0.001$). 44% of patients had been weaned off oral steroids. No change in spirometry was observed. CT scanning identified minor degrees of localized radiological bronchiectasis in 23/47 patients with the modified Reiff score increasing from 0.6 ± 2.6 at baseline to 1.3 ± 2.5 ($p < 0.001$). However, no patients exhibited clinical features of bronchiectasis, such as recurrent bacterial infection.

Conclusion: Sustained clinical benefit from BT at 5 years was demonstrated in this cohort of very severe asthmatics. Mild, localized radiological bronchiectasis was identified in a portion of patients without clinical features of bronchiectasis.

Keywords: BT; asthma; bronchial thermoplasty; bronchoscopy and interventional techniques; cohort study; radiological bronchiectasis.

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J Med Imaging Radiat Oncol

. 2023 Aug 7.
doi: 10.1111/1754-9485.13569. Online ahead of print.

Significance and prognostication of mediastinal lymph node enlargement on chest computed tomography among adult Indigenous Australians

Arockia X Doss[1,2], Timothy P Howarth[3,4], Lai Ng[5], Shibi A Doss[6], Subash Shanthakumar Heraganahally[4,5,7]
Affiliations expand

- PMID: 37549958

- DOI: 10.1111/1754-9485.13569

Abstract

Introduction: There is a lack of data on chest computed tomography (CT) findings on mediastinal lymph node enlargement (MLE), including normal size threshold of less than 10 or 15 mm for MLE among Indigenous Australians. In this study, we assessed the significance and the applicability of the current guidelines for the threshold for abnormal MLE among adult Indigenous Australians.

Methods: Patients who underwent chest CT between 2012 and 2020 among those referred to undergo lung function test (spirometry) were assessed for the presence of MLE which were classified as Group A (no measurable nodes), Group B (<10 mm), Group C (≥10 to 14.99 mm) and Group D (≥15 mm).

Results: Of the total 67 patients identified to have MLE, 49 patients had at least two CT scans available for assessment over a median follow-up period of 101.3 weeks (IQR: 62.4, 235.6) and were included in the analysis. Evidence of chronic lung disease was common, with a significant proportion demonstrating either COPD or bronchiectasis and a high proportion with smoking history (93%). During the first CT scan, 34/49 (69%) had >10 mm nodes, of which 12/34 (35%) reduced in size, 22/34 (65%) remained stable, and 3/34 (9%) had malignancy on follow-up.

Conclusion: Despite most patients demonstrating the presence of significant MLE with varying size and in most >10 mm, the majority remain stable or benign in nature and only a minor proportion showed evidence of lung malignancy. Further prospective studies are needed in the characterisation of MLE among Indigenous patients.

Keywords: Aboriginal; lung cancer; lymph node; malignancy; radiology.

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J Clin Immunol

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Common and Uncommon CT Findings in CVID-Related GL-ILD: Correlations with Clinical Parameters, Therapeutic Decisions and Potential Implications in the Differential Diagnosis

Riccardo Scarpa[1,2], Francesco Cinetto[1,2], Cinzia Milito[3], Sabrina Gianese[1,2], Valentina Soccodato[4], Helena Buso[1,2], Giulia Garzi[4], Maria Carrabba[5], Emanuele Messina[6], Valeria Panebianco[6], Carlo Catalano[6], Giovanni Morana[7], Vassilios Lougaris[8,9], Nicholas Landini[6], Maria Pia Bondioni[10]
Affiliations expand

- PMID: 37548814

- DOI: 10.1007/s10875-023-01552-1

Abstract

Purpose: To investigate computed tomography (CT) findings of Granulomatous Lymphocytic Interstitial Lung Disease (GL-ILD) in Common Variable Immunodeficiency (CVID), also in comparison with non-GL-ILD abnormalities, correlating GL-ILD features with functional/immunological parameters and looking for GL-ILD therapy predictive elements.

Methods: CT features of 38 GL-ILD and 38 matched non-GL-ILD subjects were retrospectively described. Correlations of GL-ILD features with functional/immunological features were assessed. A logistic regression was performed to find a predictive model of GL-ILD therapeutic decisions.

Results: Most common GL-ILD CT findings were bronchiectasis, non-perilymphatic nodules, consolidations, Ground Glass Opacities (GGO), bands and enlarged lymphnodes. GL-ILD was usually predominant in lower fields. Multiple small nodules (≤10 mm), consolidations, reticulations and fibrotic ILD are more indicative of GL-ILD. Bronchiectasis, GGO, Reticulations and fibrotic ILD correlated with decreased lung performance.

Bronchiectasis, GGO and fibrotic ILD were associated with low IgA levels, whereas high CD4+ T cells percentage was related to GGO. Twenty out of 38 patients underwent GL-ILD therapy. A model combining Marginal Zone (MZ) B cells percentage, IgA levels, lower field consolidations and lymphnodes enlargement showed a good discriminatory capacity with regards to GL-ILD treatment.

Conclusions: GL-ILD is a lower field predominant disease, commonly characterized by bronchiectasis, non-perilymphatic small nodules, consolidations, GGO and bands. Multiple small nodules, consolidations, reticulations and fibrotic ILD may suggest the presence of GL-ILD in CVID. MZ B cells percentage, IgA levels at diagnosis, lower field consolidations and mediastinal lymphnodes enlargement may predict the need of a specific GL-ILD therapy.

Keywords: CVID; Chest CT; GL-ILD; airway disease; bronchiectasis; interstitial lung disease.

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