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

1
Medicine (Baltimore)

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. 2024 Jan 19;103(3):e36609.

doi: 10.1097/MD.0000000000036609.

Risk of adverse reactions associated with inhaled corticosteroids for chronic obstructive pulmonary disease: A meta-analysis

Chenghe Lu[1], Xinghua Mao[2]

Affiliations expand

- PMID: 38241558

- PMCID: PMC10798756

- DOI: 10.1097/MD.0000000000036609

Abstract

Background: In the majority of current therapeutic regimens for chronic obstructive pulmonary disease (COPD), bronchodilators are coupled with inhaled corticosteroids (ICS) to lower the inflammatory response and improve symptoms. This study aims to evaluate the safety of ICS in the treatment of COPD.

Methods: Randomized controlled trials related to ICS for COPD that were eligible up to 1 June 2023 were searched in PubMed, EMBASE, and Cochrane. We searched and screened eligible studies for the occurrence of total adverse events, cardiovascular events, upper respiratory tract infections (URTI), pneumonia, oral Candida infections, and musculoskeletal disorders, and finally analyzed them by Review Manager 5.4.1.

Results: The results showed that ICS increased the incidence of adverse reactions in COPD patients (RR = 1.06, 95% CI: 1.03-1.10, P = .0004); ICS treatment did not increase the risk of cardiovascular events in COPD patients (RR = 0.95, 95% CI: 0.88-1.02, P = .14); ICS increased the incidence of URTI in COPD patients (RR = 1.29, 95% CI: 1.02-1.62, P = .03); ICS increased the incidence of pneumonia in patients with COPD (RR = 2.09, 95% CI: 1.63-2.69, P < .00001); ICS treatment significantly increased the incidence of oral Candida in patients with COPD (RR = 2.96, 95% CI: 1.99-4.41, P < .00001); ICS increased the incidence of musculoskeletal disorders in patients with COPD (RR = 2.87, 95% CI: 1.51-5.45, P = .001).

Conclusion: ICS does not increase the risk of cardiovascular events in patients with COPD, but it does increase the risk of URTI, pneumonia, oral Candida infections, and musculoskeletal disorders in patients with COPD.

Conflict of interest statement

The authors have no funding and conflicts of interest to disclose.

- 58 references
- 8 figures

2

Chronic Obstr Pulm Dis

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. 2024 Jan 19.

doi: 10.15326/jcopdf.2023.0465. Online ahead of print.

Post Hoc Analysis of Lung Function Improvement and Patient-Reported Outcomes with Revefenacin in Adults with Moderate-to-Very Severe COPD and Comorbid Anxiety or Depression

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Affiliations expand

- PMID: 38241514

- DOI: 10.15326/jcopdf.2023.0465

Abstract

Background: Revefenacin, a once-daily, nebulized, long-acting muscarinic antagonist approved in the US for the maintenance of chronic obstructive pulmonary disease (COPD), significantly improves lung function and quality of life versus placebo in patients with moderate-to-very severe COPD. Comorbid anxiety and/or depression may alter patients' symptom perception and response to bronchodilators. The impact of revefenacin in patients with COPD with comorbid anxiety and/or depression has not been previously investigated.

Methods: This post hoc subgroup analysis examined data from two 12-week, randomized, Phase 3 trials in patients with moderate-to-very severe COPD with the following self-reported subgroups: anxiety only (A), depression only (D), anxiety and depression (+A/+D), and neither anxiety nor depression (-A/-D). We assessed change from baseline in trough

forced expiratory volume in 1 second (FEV_1) at Day 85 and health status by the St. George's Respiratory Questionnaire (SGRQ) and COPD Assessment Test (CAT).

Results: Of 812 patients, 90 (11%), 110 (14%), 141 (17%), and 471 (58%) had A, D, +A/+D, and -A/-D. Revefenacin versus placebo significantly improved from baseline trough FEV_1 at Day 85 across all subgroups as well as SGRQ and CAT scores in patients with A, +A/+D, and -A/-D. Revefenacin was well tolerated regardless of A/D status, with a minimal incidence of treatment-emergent antimuscarinic adverse events across subgroups.

Conclusion: In this analysis, revefenacin versus placebo significantly improved health outcomes in patients with moderate-to-very severe COPD with A, +A/+D, and -A/-D, but not in patients with D. The safety profile of revefenacin was not affected by comorbid anxiety/depression status.

Keywords: Anxiety; depression; lung function; patient-reported outcomes; quality of life.

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

3

Chronic Obstr Pulm Dis

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Variations in COPD Health Care Access and Outcomes: A Rapid Review

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Affiliations expand

- PMID: 38241509

- DOI: 10.15326/jcopdf.2023.0441

Abstract

Background: Health inequities among individuals with chronic obstructive pulmonary disease (COPD) are often associated with differential access to healthcare and health outcomes. A greater understanding of the literature concerning such variation is necessary to determine where gaps or inequities exist along the continuum of COPD care.

Methods: A rapid review of the published and grey literature reporting variations in healthcare access and/or health outcomes for individuals with COPD was completed. Variation was defined as differential patterns in access indicators or outcome measures within socio-demographic categories, including age, ethnicity, geography, race, sex, and socio-economic status. Emergent themes were identified from the included literature and synthesized narratively.

Results: Thirty-five articles were included for final review; the majority were retrospective cohort studies. Twenty-five studies assessed variation in access to healthcare. Key indicators included: access to spirometry testing, medication adherence, participation in pulmonary rehabilitation, and contact with general practitioners and/or respiratory specialists. Twenty-one studies assessed variation in health outcomes in COPD and key metrics included: hospital-based resource utilization (length of stay and admissions/readmissions), COPD exacerbations, and mortality. Patients who live in rural environments and those of lower socio-economic status had both poorer access to care and outcomes at the system and patient level. Other sociodemographic variables, including ethnicity, race, age, and sex were associated with variation in healthcare access and outcomes, although these findings were less consistent.

Conclusion: The results of this rapid review suggest that substantial variation in access and outcomes exists for individuals with COPD, highlighting opportunities for targeted interventions and policies.

Keywords: COPD; health care access; outcomes.

SUPPLEMENTARY INFO

4

Ann Am Thorac Soc

. 2024 Jan 19.

doi: 10.1513/AnnalsATS.202307-601OC. Online ahead of print.

Pulmonary Rehabilitation Utilization in Older Adults With Chronic Obstructive Pulmonary Disease, 2013 to 2019

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Affiliations expand

- PMID: 38241014

- DOI: 10.1513/AnnalsATS.202307-601OC

Abstract

Rationale: Pulmonary rehabilitation (PR) is very effective in patients with chronic obstructive pulmonary disease (COPD) for improving exercise tolerance and functional capacity, alleviating dyspnea, and improving respiratory-quality of life. Access to and utilization of PR remains poor.

Objective: To assess the trends in PR utilization and factors associated with its use in adults with COPD.

Methods: We retrospectively analyzed the utilization of PR in adults with COPD using a 20% Medicare beneficiary population from January 1, 2013, to December 31, 2019. Adults with COPD were identified by (1) ≥2 outpatient visits >30 days apart within 1 year with an encounter diagnosis of COPD or (2) hospitalization with COPD as the primary diagnosis or a primary diagnosis of acute respiratory failure with a secondary discharge diagnosis of COPD. PR utilization in each calendar year was identified using current procedural terminology and healthcare common procedure coding system codes. Factors associated with PR utilization were tested in bivariate and multivariable regression logistic models.

Measurements and main results: There was a gradual but modest increase in the percentage of COPD patients utilizing PR; the proportion increased from 2.5% in 2013 to 4.0% in 2019. Overall, the percentage utilizing PR remained low. Factors associated with higher odds of utilizing PR included younger age (66-74 years), White race, higher socioeconomic status, lower comorbidity score, residence in metropolitan urban areas, and sole or co-management by a pulmonologist.

Conclusion: Utilization of PR by Medicare beneficiaries with COPD has not changed meaningfully in the past decade and remains low.

5

Respir Res

. 2024 Jan 18;25(1):36.

doi: 10.1186/s12931-023-02635-8.

Hospitalized acute exacerbation in chronic obstructive pulmonary disease – impact on long-term renal outcomes

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Affiliations expand

- PMID: 38238804
- PMCID: PMC10797933
- DOI: 10.1186/s12931-023-02635-8

Abstract

Introduction: Acute exacerbation of chronic obstructive pulmonary disease (AECOPD) is a common and preventable event in patients with chronic obstructive pulmonary disease (COPD). Data regarding the impact of AECOPD on short- and long-term renal outcomes are lacking.

Methods: We included all COPD patients who were followed at Queen Mary Hospital (QMH) in year 2015 and reviewed their clinical/renal outcomes in subsequent five years. Relationships between AECOPD and adverse renal outcomes were evaluated.

Results: 371 COPD patients were included. 169 patients had hospitalized AECOPD in past one year (HAE group) while 202 patients did not (non-HAE group). 285 patients (76.8%) had renal progression/death and 102 (27.5%) patients developed acute kidney injury (AKI). HAE group showed a more rapid eGFR decline than non-HAE group (-4.64 mL/min/1.73m^2/year vs. -2.40 mL/min/1.73m^2/year, p = 0.025). HAE group had significantly higher risk for renal progression/death at 5 years [adjusted OR (aOR) 2.380 (95% CI = 1.144-4.954), p = 0.020]. The frequency of hospitalized AECOPD in past 3 years, any AECOPD in past 3 years, hospitalized AECOPD in past 3 years were also predictive of renal progression/death at 5 years [aOR were 1.176 (95% CI = 1.038- 1.331), 2.998 (95% CI = 1.438-6.250) and 2.887 (95% CI = 1.409-5.917) respectively; p = 0.011, 0.003 and 0.004]. HAE group also showed significantly higher risk of AKI [adjusted HR (aHR) 2.430; 95% CI = 1.306-4.519, p = 0.005].

Conclusions: AECOPD, in particular HAE, was associated with increased risk of renal progression/death and AKI. Prevention of AECOPD, especially HAE, may potentially improve short- and long-term renal outcomes in COPD patients.

Keywords: Acute exacerbation; Acute kidney injury; Chronic Kidney Disease; Chronic Obstructive Pulmonary Disease.

Conflict of interest statement

The authors declare no competing interests.

- 26 references
- 2 figures

6

Respir Res

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. 2024 Jan 18;25(1):43.

doi: 10.1186/s12931-024-02672-x.

Eligibility of patients with chronic obstructive pulmonary disease for inclusion in randomised control trials

investigating triple therapy: a study using routinely collected data

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Affiliations expand

- PMID: 38238769
- PMCID: PMC10797743
- DOI: 10.1186/s12931-024-02672-x

Abstract

Background: Randomised control trials (RCTs) with strict eligibility criteria can lead to trial populations not commonly seen in clinical practice. We described the proportion of people with chronic obstructive pulmonary disease (COPD) in England eligible for RCTs investigating treatment with triple therapy.

Methods: MEDLINE and Clinicaltrials.gov were searched for RCTs investigating triple therapy and eligibility criteria for each trial were extracted. Using routinely collected primary care data from Clinical Practice Research Datalink Aurum linked with Hospital Episode Statistics, we defined a population of COPD patients registered at a general practice in England, who were ≥ 40 years old, and had a history of smoking. Inclusion date was January 1, 2020. Patients who died earlier or left the general practice were excluded. Eligibility criteria for each RCT was applied to the population of COPD patients and the proportion of patients meeting each trial eligibility criteria were described.

Results: 26 RCTs investigating triple therapy were identified from the literature. The most common eligibility criteria were post-bronchodilator FEV_1% predicted 30-80%, ≥ 2 moderate/≥ 1 severe exacerbations 12-months prior, no moderate exacerbations one-month prior and no severe exacerbations three-months prior, and the use of maintenance therapy or ICS use prior to inclusion. After applying each RCT eligibility criteria to our population of 79,810 COPD patients, a median of 11.2% [interquartile range (IQR) 1.8-17.4] of patients met eligibility criteria. The most discriminatory criteria included the presence exacerbations of COPD and previous COPD related medication use with a median of 67.6% (IQR 8.5-73.4) and 63% (IQR 69.3-38.4) of COPD patients not meeting these criteria, respectively.

Conclusion: Data from these RCTs may not be generalisable to the wider population of people with COPD seen in everyday clinical practice and real-world evidence studies are needed to supplement trials to understand effectiveness in all people with COPD.

Keywords: COPD; RCT; Real world evidence.

Conflict of interest statement

HW reports Grants from BRC outside the submitted work. AT has no competing interests. JQ reports Grants from BHF Data Science Centre, MRCm HDR UK, GSK, Asthma and Lung, AZ, Evidera, and Insemed outside of the submitted work and BI for this submitted work.

- 51 references
- 4 figures

7

Environ Res

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. 2024 Jan 16:118195.

doi: 10.1016/j.envres.2024.118195. Online ahead of print.

Short-term effects of air pollution and weather on physical activity in patients with chronic obstructive pulmonary disease (COPD)

Alícia Josa-Culleré[1], Xavier Basagaña[1], Sarah Koch[1], Ane Arbillaga-Etxarri[2], Eva Balcells[3], Magda Bosch de Basea[1], Nuria Celorrio[4], Maria Foraster[5], Robert Rodriguez-Roisin[6], Alicia Marin[7], Gabriela P Peralta[1], Diego A Rodríguez-Chiaradia[8], Pere Simonet[9], Pere Torán-Monserrat[10], Pere Vall-Casas[11], Judith Garcia-Aymerich[12]

Affiliations expand

- PMID: 38237751

- DOI: 10.1016/j.envres.2024.118195

Abstract

Introduction: Patients with chronic obstructive pulmonary disease (COPD) accumulate low levels of physical activity. How environmental factors affect their physical activity in the short-term is uncertain.

Aim: to assess the short-term effects of air pollution and weather on physical activity levels in COPD patients.

Methods: This multi-center panel study assessed 408 COPD patients from Catalonia (Spain). Daily physical activity (i.e., steps, time in moderate-to-vigorous physical activity (MVPA), locomotion intensity, and sedentary time) was recorded in two 7-day periods, one year apart, using the Dynaport MoveMonitor. Air pollution (nitrogen dioxide (NO_2), particulate matter below 10 µm (PM_{10}) and a marker of black carbon (absorbance of $PM_{2.5}$: $PM_{2.5ABS}$)), and weather (average and maximum temperature, and rainfall) were estimated the same day (lag zero) and up to 5 days prior to each assessment (lags 1-5). Mixed-effect distributed lag linear regression models were adjusted for age, sex weekday, public holidays, greenness, season, and social class, with patient and city as random effects.

Results: Patients (85% male) were on average (mean ± SD) 68 ± 9 years old with a post-bronchodilator forced expiratory volume in 1 s (FEV_1) of 57 ± 18% predicted. Higher NO_2, PM_{10} and $PM_{2.5ABS}$ levels at lag four were associated with fewer steps, less time in MVPA, reduced locomotion intensity, and longer sedentary time (e.g., coefficient (95% CI) of -60 (-105, -15) steps per 10 µg/m^3 increase in NO_2). Higher average and maximum temperatures at lag zero were related to more steps and time in MVPA, and less sedentary time (e.g., +85 (15, 154) steps per degree Celsius). Higher rainfall at lag zero was related to fewer steps and more sedentary time.

Conclusion: Air pollution affects the amount and intensity of physical activity performed on the following days in COPD patients, whereas weather affects the amount of physical activity performed on the same day.

Keywords: Air pollution; COPD; Exposure; Physical activity levels; Short-term; Weather.

Conflict of interest statement

Declaration of competing interest The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Robert Rodriguez-Roisin reports a relationship with Chiesi España SA that includes: consulting or advisory and speaking and lecture fees. Judith Garcia-Aymerich reports a relationship with Esteve that includes: speaking and lecture fees. Judith Garcia-Aymerich reports a relationship with Chiesi España SA that includes: speaking and lecture fees. Judith Garcia-Aymerich reports a relationship with AstraZeneca Pharmaceuticals LP that includes: speaking and lecture fees. Judith Garcia-Aymerich reports a relationship with Menarini Laboratories that includes: speaking and lecture fees. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

8

Am J Respir Crit Care Med

. 2024 Jan 18.

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ACO vs. COPD: Comparing Apples and Oranges

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Affiliations expand

- PMID: 38237156

- DOI: 10.1164/rccm.202310-1886LE

No abstract available

Keywords: ACO; COPD.

9

Am J Respir Crit Care Med

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. 2024 Jan 18.

doi: 10.1164/rccm.202311-2068LE. Online ahead of print.

Reply to: ACO vs. COPD: Comparing Apples and Oranges

Emily Gerstein[1], Jared Bierbrier[1], G Alex Whitmore[2], Shawn D Aaron[3]

Affiliations expand

- PMID: 38237154

- DOI: 10.1164/rccm.202311-2068LE

No abstract available

Keywords: COPD, ACO.

10

Eur J Intern Med

. 2024 Jan 16:S0953-6205(24)00010-4.

doi: 10.1016/j.ejim.2024.01.003. Online ahead of print.

Imaging of lung structure destruction for predictive diagnosing acute exacerbation of chronic obstructive lung disease complicated with pulmonary thromboembolism or pulmonary thrombosis in situ

Dawen Wu[1], Shimou Chen[2], Yunchang Pan[3], Rongzhang Liang[4], Chaosheng Deng[5]; COPD and PTE Study Group

Affiliations expand

- PMID: 38233318

- DOI: 10.1016/j.ejim.2024.01.003

No abstract available

Keywords: AECOPD with PTE/PTS; Destruction of lung structure; Lung imaging; Predictive diagnosing.

Conflict of interest statement

Declaration of competing interest The authors declare that they do not have any competing or financial interests.

11

Review

Eur Respir Rev

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. 2024 Jan 17;33(171):230143.

doi: 10.1183/16000617.0143-2023. Print 2024 Jan 31.

From treatable traits to GETomics in airway disease: moving towards clinical practice

Alberto Papi[1], Rosa Faner[2], Ian Pavord[3], Federico Baraldi[4], Vanessa M McDonald[5], Mike Thomas[6], Marc Miravitlles[7], Nicholas Roche[8], Alvar Agustí[9 10]

Affiliations expand

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- PMCID: PMC10792438

- DOI: 10.1183/16000617.0143-2023

Free PMC article

Abstract

The treatable traits approach represents a strategy for patient management. It is based on the identification of characteristics susceptible to treatments or predictive of treatment response in each individual patient. With the objective of accelerating progress in research and clinical practice relating to such a treatable traits approach, the Portraits event was convened in Barcelona, Spain, in November 2022. Here, while reporting the key concepts that emerged from the discussions during the meeting, we review the current state of the art related to treatable traits and chronic respiratory diseases management, and we describe the possible actions that clinicians can take in clinical practice to implement the treatable traits framework. Furthermore, we explore the new concept of GETomics and the new models of research in the field of COPD.

Conflict of interest statement

Conflicts of interest: A Papi reports honoraria from AstraZeneca, Chiesi Farmaceutici, Boehringer Ingelheim, GlaxoSmithKline, Gentili, Pfizer, Novartis, Mundipharma, Novartis, TEVA and Zambon; research grants from AstraZeneca, Chiesi Farmaceutici, Boehringer Ingelheim, GlaxoSmithKline, Menarini, Fondazione Maugeri and Fondazione Chiesi; participation in a company sponsored bureau with AstraZeneca, Boehringer Ingelheim, Chiesi Farmaceutici, Edmondpharma, GlaxoSmithKline, Mundipharma, Novartis, Sanofi/Regeneron, TEVA and Zambon. R. Faner reports honoraria from AstraZeneca and Chiesi, and research grants from GSK, AstraZeneca and Menarini. I. Pavord reports honoraria from AstraZeneca, Boehringer Ingelheim, Aerocrine, Chiesi, Novartis, Sanofi, Regeneron and GSK; research grants from Boehringer Ingelheim, GSK, AstraZeneca, Chiesi and Napp; participation in a company sponsored bureau with Almirall, AstraZeneca, Boehringer Ingelheim, GSK, MSD, Schering-Plough, Novartis, Dey, Napp, Sanofi and Regeneron. F. Baraldi reports no conflicts. V.M. McDonald reports honoraria from GSK and AstraZeneca; research grants from NHMRC and the Medical Reseach Futures Fund; other support or other potential conflict of interest: committee member for the COPD X guideline committee. M. Thomas reports honoraria from GSK, Boehringer Ingelheim and

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- 81 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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. 2024 Jan 16:384:q103.

doi: 10.1136/bmj.q103.

Gabapentinoids can cause severe exacerbation in patients with COPD, research warns

Elisabeth Mahase[1]

Affiliations expand

- PMID: 38228349

- DOI: 10.1136/bmj.q103

No abstract available

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

13

Curr Opin Pulm Med

-
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-

. 2024 Jan 17.

doi: 10.1097/MCP.0000000000001046. Online ahead of print.

The role of chest computed tomography in the evaluation and management of chronic obstructive pulmonary disease

Robert M Burkes[1,2], Muhammad A Zafar[2], Ralph J Panos[1,2]

Affiliations expand

- PMID: 38227648

- DOI: 10.1097/MCP.0000000000001046

Abstract

Purpose of review: The purpose of this review is to compile recent data on the clinical associations of computed tomography (CT) scan findings in the literature and potential avenues for implementation into clinical practice.

Recent findings: Airways dysanapsis, emphysema, chronic bronchitis, and pulmonary vascular metrics have all recently been associated with poor chronic obstructive pulmonary disease (COPD) outcomes when controlled for clinically relevant covariables, including risk of mortality in the case of emphysema and chronic bronchitis. Other authors suggest that CT scan may provide insight into both lung parenchymal damage and other clinically important comorbidities in COPD.

Summary: CT scan findings in COPD relate to clinical outcomes. There is a continued need to develop processes to best implement the results of these studies into clinical practice.

- 33 references

14

ERJ Open Res

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. 2024 Jan 15;10(1):00488-2023.

doi: 10.1183/23120541.00488-2023. eCollection 2024 Jan.

Influence of physical activity on the prognosis of COPD patients: the HADO.2 score – health, activity, dyspnoea and obstruction

Cristóbal Esteban[1,2,3,4], Nere Aguirre[5], Amaia Aramburu[1,2], Javier Moraza[1,2], Leyre Chasco[1,2], Myriam Aburto[1,2], Susana Aizpiri[1,2], Rafael Golpe[6], José M Quintana[3,4,5,7]

Affiliations expand

- PMID: 38226063
- PMCID: PMC10789267
- DOI: 10.1183/23120541.00488-2023

Free PMC article

Abstract

Objective: The aim of this study was to create a prognostic instrument for COPD with a multidimensional perspective that includes physical activity (PA). The score also included health status, dyspnoea and forced expiratory volume in 1 s (HADO.2 score).

Methods: A prospective, observational, non-intervention study was carried out. Patients were recruited from the six outpatient clinics of the respiratory service of a single university hospital. The component variables of the HADO.2 score and BODE index were studied, and PA was measured using an accelerometer. The outcomes for the HADO.2 score were

mortality and hospitalisations during follow-up and an exploration of the correlation with health-related quality of life at the moment of inclusion in the study.

Results: 401 patients were included in the study and followed up for three years. The HADO.2 score showed good predictive capacity for mortality: C-index 0.79 (0.72-0.85). The C-index for hospitalisations was 0.72 (0.66-0.77) and the predictive ability for quality of life, as measured by R2, was 0.63 and 0.53 respectively for the Saint George's Respiratory Questionnaire and COPD Assessment Test.

Conclusions: There was no statistically significant difference between the mortality predictive capacity of the HADO.2 score and the BODE index. Adding PA to the original BODE index significantly improved the predictive capacity of the index. The HADO.2 score, which includes PA as a key variable, showed good predictive capacity for mortality and hospitalisations. There were no differences in the predictive capacity of the HADO.2 score and the BODE index.

Conflict of interest statement

Conflict of interest: No financial, consultative, institutional and other relationships that might lead to bias or a conflict of interest exist for any of the authors of this study.

- 36 references
- 1 figure

15

Ann Intern Med

. 2024 Jan 16.

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Gabapentinoids and Risk for Severe Exacerbation in Chronic Obstructive Pulmonary Disease : A Population–Based Cohort Study

Alvi A Rahman[1], Sophie Dell'Aniello[2], Erica E M Moodie[3], Madeleine Durand[4], Janie Coulombe[5], Jean-François Boivin[1], Samy Suissa[6], Pierre Ernst[6], Christel Renoux[7]

Affiliations expand

- PMID: 38224592

- DOI: 10.7326/M23-0849

Abstract

Background: North American and European health agencies recently warned of severe breathing problems associated with gabapentinoids, including in patients with chronic obstructive pulmonary disease (COPD), although supporting evidence is limited.

Objective: To assess whether gabapentinoid use is associated with severe exacerbation in patients with COPD.

Design: Time-conditional propensity score-matched, new-user cohort study.

Setting: Health insurance databases from the Régie de l'assurance maladie du Québec in Canada.

Patients: Within a base cohort of patients with COPD between 1994 and 2015, patients initiating gabapentinoid therapy with an indication (epilepsy, neuropathic pain, or other chronic pain) were matched 1:1 with nonusers on COPD duration, indication for gabapentinoids, age, sex, calendar year, and time-conditional propensity score.

Measurements: The primary outcome was severe COPD exacerbation requiring hospitalization. Hazard ratios (HRs) associated with gabapentinoid use were estimated in subcohorts according to gabapentinoid indication and in the overall cohort.

Results: The cohort included 356 gabapentinoid users with epilepsy, 9411 with neuropathic pain, and 3737 with other chronic pain, matched 1:1 to nonusers. Compared with nonuse, gabapentinoid use was associated with increased risk for severe COPD exacerbation across the indications of epilepsy (HR, 1.58 [95% CI, 1.08 to 2.30]),

neuropathic pain (HR, 1.35 [CI, 1.24 to 1.48]), and other chronic pain (HR, 1.49 [CI, 1.27 to 1.73]) and overall (HR, 1.39 [CI, 1.29 to 1.50]).

Limitation: Residual confounding, including from lack of smoking information.

Conclusion: In patients with COPD, gabapentinoid use was associated with increased risk for severe exacerbation. This study supports the warnings from regulatory agencies and highlights the importance of considering this potential risk when prescribing gabapentin and pregabalin to patients with COPD.

Primary funding source: Canadian Institutes of Health Research and Canadian Lung Association.

Conflict of interest statement

Disclosures: Disclosures can be viewed at www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M23-0849.

16

Editorial

Am J Respir Crit Care Med

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Are Airway Epithelial p73 Levels a Therapeutic Target to Treat Chronic Obstructive Pulmonary Disease?

Ronald G Crystal[1]

Affiliations expand

- PMID: 38051107

- DOI: 10.1164/rccm.202311-2073ED

No abstract available

Comment on

- Loss of p73 Expression Contributes to Chronic Obstructive Pulmonary Disease. Richmond BW, Marshall CB, Blackburn JB, Tufenkjian TS, Lehmann BD, Han W, Newcomb D, Gutor SS, Hunt RP, Michell DL, Vickers KC, Polosukhin VV, Blackwell TS, Pietenpol JA.Am J Respir Crit Care Med. 2024 Jan 15;209(2):153-163. doi: 10.1164/rccm.202303-0503OC.PMID: 37931077

. 2024 Jan 15;209(2):223-224.

doi: 10.1164/rccm.202307-1143LE.

Inhaled Dual PDE3/4 Inhibitor Ensifentrine for Chronic Obstructive Pulmonary Disease: A Potential Therapeutic Perspective

Qiming Gan[1], Yanjuan Wu[1], Xiaofen Su[1], Jingcun Wang[1], Haojie Zhang[1], Nuofu Zhang[1], Kang Wu[1]

Affiliations expand

- PMID: 37939381

- DOI: 10.1164/rccm.202307-1143LE

No abstract available

18

Am J Respir Crit Care Med

. 2024 Jan 15;209(2):225-226.

doi: 10.1164/rccm.202309-1605LE.

Still Thirsty in COPD!

Armeen D Poor[1]

Affiliations expand

- PMID: 37939380

- DOI: 10.1164/rccm.202309-1605LE

No abstract available

19

Am J Respir Crit Care Med

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. 2024 Jan 15;209(2):224-225.

doi: 10.1164/rccm.202308-1355LE.

Pharmacological Interpretation of the Efficacy of Ensifentrine in Chronic

Obstructive Pulmonary Disease: Insights from ENHANCE Trials

Luigino Calzetta[1], Mario Cazzola[2], Paola Rogliani[2]

Affiliations expand

- PMID: 37939379

- DOI: 10.1164/rccm.202308-1355LE

No abstract available

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

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

Adv Rheumatol

-
-
-

. 2024 Jan 17;64(1):8.

doi: 10.1186/s42358-024-00350-6.

Risk factors for osteoporotic hip fracture among community-dwelling older adults: a real-world evidence study

Daniela Castelo Azevedo[1], Leonardo Santos Hoff[2], Sergio Candido Kowalski[3,4], Carlos Augusto Ferreira de Andrade[5,6], Virgínia Fernandes Moça Trevisani[7,8], Ana Karla Guedes de Melo[9,10]

Affiliations expand

- PMID: 38233892

- DOI: 10.1186/s42358-024-00350-6

Abstract

Background: Hip fractures in the older adults lead to increased morbidity and mortality. Although a low bone mineral density is considered the leading risk factor, it is essential to recognize other factors that could affect the risk of hip fractures. This study aims to evaluate the contribution of clinical characteristics, patient-reported outcomes, and muscle and aerobic capacity for hip fractures in community-dwelling older adults.

Methods: This is a retrospective cohort study with real world-data from subjects ≥ 60 years old attending an outpatient clinic in Minas Gerais, Brazil, from May 1, 2019, to August 22, 2022. Data about clinical characteristics (multimorbidity, medications of long-term use, sedative and or tricyclic medications, number of falls), patient-reported outcomes (self-perception of health, self-report of difficulty walking, self-report of vision problems, and self-report of falls) and muscle and aerobic capacity (calf circumference, body mass index, and gait speed) were retrieved from an electronic health record. The association of each potential risk factor and hip fracture was investigated by a multivariable logistic regression analysis adjusted for age and sex.

Results: A total of 7,836 older adults were included with a median age of 80 years (IQR 72-86) and 5,702 (72.7%) were female. Hip fractures occurred in 121 (1.54%) patients. Multimorbidity was associated with an increased risk of hip fracture (OR = 1.12, 95%CI 1.06-1.18) and each episode of fall increased the chance of hip fracture by 1.7-fold (OR = 1.69, 95%CI 1.52-1.80). Patient-reported outcomes associated with increased fracture risk were regular or poor self-perception of health (OR = 1.59, 95%CI 1.06-2.37), self-report of walking difficulty (OR = 3.06, 95%CI 1.93-4.84), and self-report of falls (OR = 2.23, 95%CI 1.47-3.40). Body mass index and calf circumference were inversely associated with hip fractures (OR = 0.91, 95%CI 0.87-0.96 and OR = 0.93, 95%CI 0.88-0.97, respectively), while slow gait speed increased the chance of hip fractures by almost two-fold (OR = 1.80, 95%CI 1.22-2.66).

Conclusion: Our study reinforces the importance of identified risk factors for hip fracture in community-dwelling older adults beyond bone mineral density and available fracture risk assessment tools. Data obtained in primary care can help physicians, other health professionals, and public health policies to identify patients at increased risk of hip fractures.

Keywords: Community-dwelling older adults; Hip fractures; Patient-reported outcomes.

- 29 references

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

2

Published Erratum

Open Heart

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. 2024 Jan 17;11(1):1.

doi: 10.1136/openhrt-2023-002552corr1.

Correction: *Multimorbidity of cardiovascular disease subtypes in a prospective cohort of 1.2 million UK women*

No authors listed

- PMID: 38233044

- DOI: 10.1136/openhrt-2023-002552corr1

Free article

No abstract available

Erratum for

- Multimorbidity of cardiovascular disease subtypes in a prospective cohort of 1.2 million UK women.
  Suh JW, Floud S, Reeves GK, Cairns BJ, Wright FL.Open Heart. 2023 Dec 14;10(2):e002552. doi: 10.1136/openhrt-2023-002552.PMID: 38097361 **Free PMC article.**

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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

1

Ann Am Thorac Soc

-
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. 2024 Jan 19.

doi: 10.1513/AnnalsATS.202306-566OC. Online ahead of print.

Comparative Effectiveness of Mepolizumab, Benralizumab and Dupilumab among Patients with Difficult-to-Control Asthma

Christopher M Kearney[1], Ruchika Sangani[2], Divya Shankar[2], George T O'Connor[3], Anica C Law[4], Allan J Walkey[5], Nicholas A Bosch[6]

Affiliations expand

- PMID: 38241013

- DOI: 10.1513/AnnalsATS.202306-566OC

Abstract

Rationale The comparative effectiveness of biologics used as add-on therapy in the management of difficult-to-control asthma is unclear. Objective To compare the effectiveness of dupilumab, mepolizumab and benralizumab among patients with difficult-to-control asthma. Methods Retrospective multicenter cohort study of adult patients with difficult-to-control asthma started on dupilumab, mepolizumab or benralizumab from a multicenter electronic health record and claims-based database between October 19, 2018 and September 30, 2022. Propensity score matching was used to minimize bias from non-randomized treatment assignment; prespecified alpha level was set at 0.017 to account for three primary comparisons. The exposure of interest was new initiation of dupilumab, benralizumab or mepolizumab. The primary outcome was the rate of asthma exacerbation in the year following initiation of biologic therapy modeled using a negative binomial approach. Results Among 893,668 patients with asthma who were prescribed an inhaled corticosteroid and were at least 12 years old, (65% female, mean age 49), 3,943 started dupilumab, 1,902 started benralizumab, and 2,012 started mepolizumab without an alternative indication for biologic therapy. After matching, there were 1,805 patients in each group for comparisons between dupilumab and benralizumab, 1,865 for comparisons between dupilumab and mepolizumab, and 1,721 for comparisons between mepolizumab and benralizumab. For all pairwise comparisons, covariates were well balanced after matching (all standardized mean differences <0.1). Patients initiating dupilumab had a significantly lower rate of asthma exacerbations (1.07/year) compared to benralizumab (1.47/year) with a rate ratio of 0.73 [95% confidence interval (CI) 0.63-0.85] and also had a significantly lower rate of asthma exacerbations compared to mepolizumab (1.04/year compared to 1.45/year) with a rate ratio of 0.72 [0.62-0.84]. There was no statistically significant difference in the rate of asthma exacerbations between mepolizumab (1.40/year) and benralizumab (1.41/year) with a rate ratio of 1.00 [CI 0.85-1.17]. Conclusions In patients with difficult-to-control asthma newly initiated on biologic therapy, dupilumab was associated with a decreased rate of asthma exacerbations in the year after initiation as compared with mepolizumab or benralizumab.

2

Clin Exp Med

. 2024 Jan 19;24(1):6.

doi: 10.1007/s10238-023-01267-y.

Efficacy of omalizumab in adult patients with allergic bronchopulmonary aspergillosis: a multicentre study in China

Peixv Chen[#1,2], Yali Yu[#3], Li He[#4], Chunyi Zhang[5], Yiting Li[1,2], Di Wu[1,2], Ying Chen[6], Ran Wang[7], Guopeng Xu[8], Chao Cao[9]

Affiliations expand

- PMID: 38240869

- DOI: 10.1007/s10238-023-01267-y

Abstract

Despite conventional glucocorticoid and antifungal therapy, acute exacerbation and hospitalization occur frequently in patients with allergic bronchopulmonary aspergillosis (ABPA). Whether omalizumab is an effective and safe treatment for adult patients with ABPA complicating asthma. Patients with ABPA complicating asthma who were treated with omalizumab from October 2019 to May 2023 were collected from five tertiary hospitals and evaluated. The frequencies of acute exacerbation and hospitalization; the number of eosinophils; the total IgE levels; and the average monthly medical dosages after 3, 6, and 12 months of omalizumab treatment were analysed, and the data before and after treatment (up to one year) were compared. The efficacy and safety of omalizumab treatment were assessed. In total, 26 patients were enrolled. The average monthly

glucocorticoid dosage significantly decreased (median 0 vs. 24 mg/m) after 6 months of omalizumab treatment compared with 3 months; 73.68% of patients discontinued glucocorticoids after ≤ 12 months of treatment. Similarly, the average monthly dosage of antifungal agents was significantly decreased (median 0 vs. 3.49 g/m) after 12 months of treatment compared with 3 months. The average monthly glucocorticoid dosage (median 213.75 vs. 65.42 mg/m, P = 0.002) and the frequency of acute exacerbation (median 0.94 vs. 0.44 events, P = 0.033) were considerably reduced after omalizumab treatment. Omalizumab is effective in reducing the frequency of acute exacerbation and the necessary dosage of glucocorticoids in adult patients with ABPA complicating asthma. Patient age and BMI may affect the efficacy of treatment.

Keywords: Allergic bronchopulmonary aspergillosis; Asthma; Monoclonal anti-IgE; Retrospective study.

- 21 references

3

J Asthma

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. 2024 Jan 19:1-10.

doi: 10.1080/02770903.2024.2303767. Online ahead of print.

Mepolizumab in children and adolescents with severe eosinophilic asthma not eligible for Omalizumab: a single centre experience

Y T Lim, T C Williams, R J Langley, E Weir

- PMID: 38240489

- DOI: 10.1080/02770903.2024.2303767

Abstract

Background Mepolizumab is an anti-interleukin-5 monoclonal antibody shown to reduce asthma exacerbations in adults and adolescents with severe eosinophilic asthma.**Aim** To assess the impact of mepolizumab on children and adolescents over 12 months by examining steroid usage, asthma-related hospitalisations, Asthma Control Test (ACT) scores, fractional exhaled nitric oxide concentration (FeNO), forced expiratory volume in 1 second (FEV_1), mid expiratory flow ($FEF_{25-75\%}$), and blood eosinophil count.**Methods** Retrospective analysis performed between October 2015 and December 2022. Data was reviewed 12 months before and after commencing mepolizumab.Mepolizumab was offered if the patient had severe eosinophilic asthma and were unresponsive to or ineligible for omalizumab.**Results** Sixteen participants (age 7-17, 8 males, 8 females) received subcutaneous mepolizumab monthly with no serious adverse reactions. Incidence of hospital admissions fell significantly (IRR 0.33, p = 0.007). Among the 11 patients receiving daily oral corticosteroids, 3 were weaned off daily oral steroids and 3 patients' daily dose was significantly reduced (mean Δ-0.095 ± 0.071 mg/kg, p = 0.0012). Eosinophil count was decreased (mean Δ-0.85 x 10^9/L, p < 0.001). There was no significant change in mean overall steroid burden per patient (mean Δ-1445.63 ± 1603.18 mg, p = 0.10), ACT scores (mean Δ2.88 ± 6.71, p = 0.17), FEV_1 z-scores (mean Δ-0.99 ± 1.88, p = 0.053), $FEF_{25-75\%}$ z-scores (mean Δ-0.65 ± 1.61, p = 0.13), FeNO (mean Δ-20.09 ± 80.86, p = 0.34), or number of courses of oral steroids given for asthma attacks (IRR 0.71, p = 0.09).**Conclusion** Among children and adolescents with severe eosinophilic asthma ineligible for or not responsive to omalizumab, mepolizumab therapy exhibited significant reduction in rate of asthma-related hospitalisations and significant decrease in daily steroid dosage.

Pediatr Pulmonol

. 2024 Jan 19.

doi: 10.1002/ppul.26840. Online ahead of print.

Asthma prevalence among US 9th-12th graders who report past 30-day cannabis use in 2019

Kevin D Silverman[1], Keely Cheslack-Postava[2,3], Deepa Rastogi[4], Luisa N Borrell[1], Renee D Goodwin[1,5]

Affiliations expand

- PMID: 38240368

- DOI: 10.1002/ppul.26840

Abstract

Introduction: Little is known about the relationship between cannabis use and asthma among youth in the US. The aims of this study were to estimate prevalence of asthma among youth who reported any cannabis use in the past 30 days, relative to those who did not, and to investigate the relationship between frequency of cannabis use and prevalence of asthma, adjusting for demographic characteristics and cigarette use.

Methods: Data were drawn from the 2019 Youth Risk Behavior Surveillance System (YRBSS), a CDC national high school survey, which collects data from students in grades 9-12 across the US bi-annually. Logistic regression was used to examine the prevalence of asthma among youth who reported any past 30-day cannabis use, relative to no use, and by frequency of cannabis use, adjusting for demographic characteristics and cigarette use.

Results: Asthma was more common among youth who reported any cannabis use, relative to youth who reported no use (29.07% vs. 23.62%; AOR = 1.25 (1.20, 1.30)). Asthma was greater among youth who reported more frequent cannabis use; asthma was highest among youth who reported having used cannabis "40 or more times" in the month (31.38%; AOR = 1.35 (1.25, 1.45)) CONCLUSION: Asthma is more common among youth who use cannabis, relative to those who do not, and the prevalence of asthma increases

with frequency of use among 9th-12th graders in the US. More public health and clinical research is needed quickly to produce scientific data that can inform clinical guidelines and public health policy, as well as parents and youth, on the potential relationship between cannabis use and respiratory health among youth.

Keywords: cannabis; epidemiology; respiratory disease; tobacco; youth.

- 7 references

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

5

Case Reports

Respirol Case Rep

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. 2024 Jan 17;12(1):e01279.

doi: 10.1002/rcr2.1279. eCollection 2024 Jan.

Successful discontinuation of corticosteroids through remission induction therapy with benralizumab for chronic eosinophilic pneumonia

Yoshiro Kai[1], Ryosuke Kataoka[1], Kentaro Suzuki[1], Eriko Nakamura[2], Masato Takano[3], Shigeo Muro[2]

Affiliations expand

- PMID: 38239332

- PMCID: PMC10794867

- DOI: 10.1002/rcr2.1279

Abstract

Chronic eosinophilic pneumonia (CEP) is an eosinophilic lung disease. Treatment for CEP includes corticosteroids; however, CEP often recurs. A 53-year-old woman was referred to our hospital because of poorly controlled asthma. She was treated with combination of moderate-dose inhaled corticosteroid (ICS), a long-acting β2-agonist (LABA), and betamethasone/dexchlorpheniramine. She was switched to single-inhaler triple therapy, after which her asthma control improved; thus, betamethasone/dexchlorpheniramine was discontinued. Ten weeks later, she was diagnosed with CEP due to marked eosinophilia and pulmonary eosinophilic infiltrates. Oral corticosteroid treatment was initiated, symptoms improved, and peripheral blood eosinophilia decreased with improved infiltrative shadows. Remission induction therapy was initiated with benralizumab combined with corticosteroid therapy. Eosinophilia and inflammatory responses decreased. After 7 months, corticosteroid was discontinued, and she was treated with benralizumab alone. She remained in remission for 4 months. This case suggests that benralizumab may be useful as a remission induction therapy in patients with CEP.

Keywords: Benralizumab; chronic eosinophilic pneumonia; corticosteroid; remission; severe asthma.

Conflict of interest statement

None declared.

- 7 references
- 2 figures

SUPPLEMENTARY INFO

6

Allergy

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. 2024 Jan 18.

doi: 10.1111/all.16024. Online ahead of print.

Infant lung function and early skin barrier impairment in the development of asthma at age 3 years

Martin Färdig[1,2], Angela Hoyer[1,2], Catarina Almqvist[2,3], Karen Eline S Bains[4,5], Karin C Lødrup Carlsen[4,5], Hrefna Katrín Gudmundsdóttir[4,5], Berit Granum[6], Guttorm Nils Haugen[4,7], Gunilla Hedlin[1,2], Christine Monceyron Jonassen[8,9], Jon R Konradsen[1,2], Anine Lie[4,5], Eva Maria Rehbinder[4,10], Håvard O Skjerven[4,5], Anne Cathrine Staff[4,7], Riyas Vettukattil[4,5], Cilla Söderhäll[1,2], Björn Nordlund[1,2]

Affiliations expand

- PMID: 38239099

- DOI: 10.1111/all.16024

Abstract

Background: Largely unexplored, we investigated if lower lung function, impaired skin barrier function by transepidermal water loss (TEWL), eczema, and filaggrin (FLG) mutations in infancy were associated with asthma in early childhood.

Methods: From the factorially designed randomized controlled intervention study PreventADALL, we evaluated 1337/2394 children from all randomization groups with information on asthma at age 3 years, and at age 3 months either lung function, TEWL, eczema, and/or FLG mutations. Lower lung function was defined as the time to peak tidal expiratory flow to expiratory time (t_{PTEF} /t_E) <0.25, and skin barrier impairment as a high TEWL >9.50 g/m^2 /h. Eczema was clinically observed, and DNA genotyped for FLG mutations. Asthma was defined as asthma-like symptoms (≥3 episodes of bronchial obstruction) between age 2-3 years as well as a history of doctor-diagnosed asthma and/or asthma medication use. Associations were analyzed in logistic regression models, presented with adjusted ORs (aOR) and 95% confidence intervals (CI).

Results: Lower lung function and skin barrier impairment were associated with asthma in general; aOR (95% CI) 5.4 (2.1, 13.7) and 1.6 (1.1, 2.5), while eczema and FLG mutations were associated with asthma in children with atopic dermatitis or allergic sensitization only. Stratifying for sex, the risk of asthma was only increased in boys with lower lung function; aOR (95% CI) 7.7 (2.5, 23.6), and in girls with FLG mutations; aOR (95% CI) 3.5 (1.5, 8.2).

Conclusion: Lower lung function and impaired skin barrier function in infancy may increase the risk of asthma at age 3 years.

Keywords: PreventADALL; asthma; infants; lung function; skin barrier function.

- 59 references

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

UNIMORE

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Cite

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7

Editorial

Eur Respir J

. 2024 Jan 18;63(1):2302187.

doi: 10.1183/13993003.02187-2023. Print 2024 Jan.

Early-life airway microbiome and childhood asthma development

Zhaozhong Zhu[1]

Affiliations expand

- PMID: 38238000

- DOI: 10.1183/13993003.02187-2023

No abstract available

Conflict of interest statement

Conflict of interest: Z. Zhu reports grants from the National Institutes of Health, the American Lung Association and Harvard University, during the conduct of the study.

Comment on

- Bacterial colonisation of the airway in neonates and risk of asthma and allergy until age 18 years.
  Sunde RB, Thorsen J, Kim M, Schoos AM, Stokholm J, Bønnelykke K, Bisgaard H, Chawes B.Eur Respir J. 2024 Jan 18;63(1):2300471. doi: 10.1183/13993003.00471-2023. Print 2024 Jan.PMID: 38097209

SUPPLEMENTARY INFO

Publication typesexpand

Review

J Allergy Clin Immunol Pract

. 2024 Jan 16:S2213-2198(24)00063-1.

doi: 10.1016/j.jaip.2024.01.011. Online ahead of print.

The Role of ICS-containing Rescue Therapy versus SABA Alone in Asthma Management Today

James G Krings [1], Richard Beasley [2]

Affiliations expand

- PMID: 38237858

- DOI: 10.1016/j.jaip.2024.01.011

Abstract

The Global Initiative of Asthma (GINA) recommends that short-acting beta$_2$-agonist (SABA) monotherapy should no longer be prescribed, and that as-needed combination inhaled corticosteroid (ICS)-formoterol is the preferred reliever therapy in adults and adolescents with mild asthma. These recommendations are based on the risks of SABA monotherapy,

the evidence that ICS-formoterol reliever therapy markedly decreases the occurrence of severe asthma exacerbations when compared to SABA reliever therapy alone, and because ICS-formoterol reliever therapy has a favourable risk/benefit profile when compared with maintenance ICS plus SABA reliever therapy. Data supporting the use of combination ICS-albuterol reliever therapy in mild asthma are more limited, but there are studies that inform its use in this population. In this review, we compare, using a pros and cons format, the: (1) long-term safety and efficacy of ICS-formoterol reliever therapy vs. SABA reliever therapy alone, (2) long-term safety and efficacy of ICS-albuterol reliever therapy vs. SABA reliever therapy alone, (3) immediate bronchodilator effects of ICS-formoterol vs. SABA alone, and (4) clinical and regulatory factors that may inform reliever therapy prescription decisions. By presenting the evidence of these reliever inhaler options, we hope to inform the reader, while also calling for necessary future effectiveness and implementation research.

9

Ann Allergy Asthma Immunol

. 2024 Jan 16:S1081-1206(24)00002-4.

doi: 10.1016/j.anai.2024.01.001. Online ahead of print.

Azithromycin therapy in infants hospitalized for RSV bronchiolitis:

airway MMP-9 levels and subsequent recurrent wheeze

Avraham Beigelman[1], Charles W Goss[2], Jinli Wang[2], Mythili Srinivasan[3], Jonathan Boomer[4], Yanjiao Zhou[5], Sarah Bram[3], Timothy J Casper[6], Andrea M Coverstone[3], Watcharoot Kanchongkittiphon[7], Cadence Kuklinski[3], Gregory A Storch[3], Kenneth B Schechtman[2], Mario Castro[4], Leonard B Bacharier[8]

Affiliations expand

- PMID: 38237675

- DOI: 10.1016/j.anai.2024.01.001

Abstract

Background: Early-life RSV bronchiolitis is a significant risk factor for childhood asthma. In-vitro and in-vivo studies suggested that decreasing airway matrix metalloprotease (MMP)-9 during RSV bronchiolitis may be associated with clinical benefits.

Objective: We aimed to investigate if azithromycin therapy during severe RSV bronchiolitis reduces upper airway MMP-9 levels, if upper airway MMP-9 levels correlate with upper airway IL-8 levels, and whether MMP-9 levels reduction is associated with reduced post-RSV recurrent wheeze (RW).

Methods: Two hundred otherwise healthy 1-18 month-old infants hospitalized with RSV bronchiolitis were randomized into a double-blind, placebo-controlled trial of oral azithromycin (10mg/kg daily for seven days followed by 5mg/kg daily for seven days) or placebo. Infants were followed for 2-4 years for the outcome of RW (3 or more wheezing episodes). Nasal lavage samples for MMP-9 levels were obtained at baseline, day 14 (end of study treatment), and six months later.

Results: Upper airway MMP-9 levels were highly correlated with IL-8 levels at all three-time points: randomization, day 14, and six months (r=0.80; p<0.0001 for all time points). MMP-9 levels were similar between treatment groups at randomization, were lower on day 14 among children treated with azithromycin (p=0.0085), but no longer different six months later. MMP-9 levels at baseline and change from baseline to day 14 were not associated with the development of RW (p=0.49, 0.39, respectively).

Conclusion: Azithromycin therapy in children hospitalized with RSV bronchiolitis had a short-term anti-inflammatory effect in reducing upper airway MMP-9 levels. However, the reduction in MMP-9 levels did not relate to subsequent RW post-RSV.

Keywords: MMP-9; Matrix metalloproteinases; RSV; Respiratory syncytial virus; Wheezing; azithromycin.

10

Infection

.

. 2024 Jan 18.

doi: 10.1007/s15010-023-02156-y. Online ahead of print.

Risk factors for herpes zoster infections: a systematic review and meta-analysis unveiling common trends and heterogeneity patterns

Maren Steinmann[1], David Lampe[2], John Grosser[2], Juliana Schmidt[2], Marla Louise Hohoff[2], Anita Fischer[2], Wolfgang Greiner[2]

Affiliations expand

- PMID: 38236326

- DOI: 10.1007/s15010-023-02156-y

Abstract

Purpose: The burden of herpes zoster (HZ) is substantial and numerous chronic underlying conditions are known as predisposing risk factors for HZ onset. Thus, a comprehensive study is needed to synthesize existing evidence. This study aims to comprehensively identify these risk factors.

Methods: A systematic literature search was done using MEDLINE via PubMed, EMBASE and Web of Science for studies published from January 1, 2003 to January 1, 2023. A random-effects model was used to estimate pooled Odds Ratios (OR). Heterogeneity was assessed using the I^2 statistic. For sensitivity analyses basic outlier removal, leave-one-out validation and Graphic Display of Heterogeneity (GOSH) plots with different algorithms were employed to further analyze heterogeneity patterns. Finally, a multiple meta-regression was conducted.

Results: Of 6392 considered records, 80 were included in the meta-analysis. 21 different conditions were identified as potential risk factors for HZ: asthma, autoimmune disorders, cancer, cardiovascular disorders, chronic heart failure (CHF), chronic obstructive pulmonary disorder (COPD), depression, diabetes, digestive disorders, endocrine and metabolic disorders, hematological disorders, HIV, inflammatory bowel disease (IBD), mental health conditions, musculoskeletal disorders, neurological disorders, psoriasis, renal disorders, rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and transplantation. Transplantation was associated with the highest risk of HZ (OR = 4.51 (95% CI [1.9-10.7])). Other risk factors ranged from OR = 1.17-2.87, indicating an increased risk for all underlying conditions. Heterogeneity was substantial in all provided analyses. Sensitivity analyses showed comparable results regarding the pooled effects and heterogeneity.

Conclusions: This study showed an increased risk of HZ infections for all identified factors.

Keywords: Herpes zoster; Meta-analysis; Meta-regression; Random-effects model; Risk factors; Systematic review.

- 132 references

Ann Allergy Asthma Immunol

. 2024 Jan 15:S1081-1206(24)00012-7.

doi: 10.1016/j.anai.2024.01.010. Online ahead of print.

Corticosteroid-Sparing Effect of Biologics in Patients with Allergic Bronchopulmonary Aspergillosis

Keara Darragh[1], Praveen Akuthota[2]

Affiliations expand

- PMID: 38232815

- DOI: 10.1016/j.anai.2024.01.010

No abstract available

Keywords: ABPA; Allergic Bronchopulmonary Aspergillosis; Biologic; asthma; benralizumab; corticosteroid; dupilumab; fungal; mepolizumab; omalizumab.

12

J Bras Pneumol

. 2024 Jan 15;49(6):e20230092.

doi: 10.36416/1806-3756/e20230092. eCollection 2024.

The role of IL10 and IL17 gene polymorphisms in treatment response in children and adolescents with severe asthma

[Article in English, Portuguese]

Mariana Isadora Ribeiro Vieira[1], Mônica Versiani Nunes Pinheiro de Queiroz[2], Maria Borges Rabelo de Santana[3], Hatilla Dos Santos Silva[3], Almirane Oliveira[3], Camila Alexandrina Viana Figueiredo[3], Eduardo Martín Tarazona Santos[4], Ryan Dos Santos Costa[3], Laura Maria de Lima Belizário Facury Lasmar[1,3]

Affiliations expand

- PMID: 38232251
- PMCID: PMC10769478
- DOI: 10.36416/1806-3756/e20230092

Free PMC article

Abstract

in English, Portuguese

Objective: To determine whether polymorphisms of the IL10 and IL17 genes are associated with severe asthma control and bronchodilator reversibility in children and adolescents with severe asthma.

Methods: This was a cross-sectional study, nested within a prospective cohort study of patients with severe asthma. Two outcomes were evaluated: asthma control and bronchodilator reversibility. We extracted DNA from peripheral blood and genotyped three single nucleotide polymorphisms: rs3819024 and rs2275913 in the IL17A gene; and rs3024498 in the IL10 gene. For the association analyses, we performed logistic regression in three genetic models (allelic, additive, and dominant).

Results: The rs3024498 C allele in the IL10 gene was associated with failure to achieve asthma control despite regular treatment (p = 0.02). However, the G allele of the IL17A rs3819024 polymorphism was associated with failure to respond to stimulation with a b2 agonist. The rs2275913 polymorphism of the IL17A gene showed no relationship with asthma control or bronchodilator reversibility.

Conclusions: In pediatric patients with severe asthma, the IL10 polymorphism appears to be associated with failure to achieve clinical control, whereas the IL17A polymorphism appears to be associated with a worse bronchodilator response. Knowledge of the involvement of these polymorphisms opens future directions for pharmacogenetic studies and for the implementation of individualized therapeutic management of severe asthma in pediatric patients.

Conflict of interest statement

CONFLICTS OF INTEREST: None declared.

- 30 references
- 2 figures

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

13

Rev Mal Respir

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. 2024 Jan 15:S0761-8425(24)00001-9.

doi: 10.1016/j.rmr.2024.01.001. Online ahead of print.

[Written action plans for asthma control: How are they used by pulmonologists in France?]

[Article in French]

T Soumagne[1], C Chenivesse[2], A Didier[3], L Giovannini-Chami[4], A Magnan[5], C Taillé[6]; et les investigateurs du groupe d'étude PAE

Affiliations expand

- PMID: 38228440

- DOI: 10.1016/j.rmr.2024.01.001

Abstract

Introduction: Despite evidence of the benefits of the written asthma action plans (WAP) in asthma control, they remain poorly applied. The aim of our study was to assess the practices of French-speaking pulmonologists and paediatricians in their use of WAP for asthma control and to analyse the contents of several WAPs routinely consulted in treatment of asthma patients.

Methods: Members of three French medical societies (SPLF, G2A, SP2A) were requested to share their WAPs for asthma patients and to participate in an online survey about the possible influence of these documents on their practices.

Results: Most (95%) of the 41 WAPs taken into consideration were symptom-based and 34% included peak expiratory flow measurement. All of these action plans were in full compliance with current guidelines. Among the 110 survey respondents, while 65% systematically provided a WAP to their asthma patients, only 30% often or always supplemented the written document with therapeutic education sessions. In almost every case, it was the doctor who presented the WAP to the patient, generally devoting to less than 10minutes to explanation of what they were handing out.

Conclusions: In France, WAPs are generally presented to the patient by the physician, which probably limits the time devoted to explanation of their contents. Furthermore, WAPs are rarely reinforced with therapeutic education. The current study suggests ways of improving the utilization of WAPs in asthma care and treatment.

Keywords: Action plan; Asthma; Asthme; Education; Plan d'action; Éducation.

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Proceed to details

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14

J Asthma

. 2024 Jan 16:1-13.

doi: 10.1080/02770903.2024.2306925. Online ahead of print.

The Effect of Online Peer and Adult Education Given to Adolescents with Allergic Asthma on Their Quality of Life, Self-Efficacy, Anxiety, and Disease Knowledge and Management: A Randomized Controlled Study

Pelin Karatas[1], Husniye Calisir[1]

Affiliations expand

- PMID: 38226864

- DOI: 10.1080/02770903.2024.2306925

Abstract

Objective: To examine the effect of interactive online education given by peers or adults on anxiety, self-efficacy, quality of life, disease knowledge and management in adolescents with allergic asthma.

Methods: This was a randomized controlled trial. The study sample consisted of 84 adolescents divided into experimental groups **(peer education group, adult education group)** and a control group. **Peer and adult groups who received training were also compared with each other.** The adolescents in the peer or adult education groups were given online interactive education. Data were collected from the adolescents before and immediately after education, **one and three months after education.**Results: The study was completed by 41 adolescents. The anxiety scores of the adolescents in the experimental groups were lower immediately and one month after education than those of the control group ($p = 0.006$;$p = 0.012$, respectively). The self-efficacy, disease knowledge and management scores of the adolescents in the experimental groups immediately after education and **one and three months after education** were higher than those in the control group ($p < 0.001$;$p < 0.001$;$p = 0.015$, respectively). **There was no difference between the groups in terms of quality of life** ($p > 0.05$)**. No difference was found between the peer and adult groups in terms of anxiety, self-efficacy, quality of life, disease knowledge and management.**Conclusion: Based on our results, peer or adult education **reduced** adolescents' anxiety, increased self-efficacy, and disease knowledge and management, **but there was no effect on quality of life. There was no difference in measured values between the peer and adult education groups.**

Keywords: Adolescent; anxiety; asthma; knowledge; quality of life; self-efficacy.

. 2024 Jan 15;10(1):00121-2023.

doi: 10.1183/23120541.00121-2023. eCollection 2024 Jan.

Children with severe asthma have substantial structural airway changes on computed tomography

Wytse B van den Bosch[1,2], Qianting Lv[1,2], Eleni-Rosalina Andrinopoulou[3,4], Mariëlle W H Pijnenburg[1], Pierluigi Ciet[1,2,5], Hettie M Janssens[1], Harm A W M Tiddens[1,2,6]

Affiliations expand

- PMID: 38226065

- PMCID: PMC10789264

- DOI: 10.1183/23120541.00121-2023

Free PMC article

Abstract

Background: In adults with severe asthma (SA) bronchial wall thickening, bronchiectasis and low attenuation regions (LAR) have been described on chest computed tomography (CT) scans. The extent to which these structural abnormalities are present in children with SA is largely unknown. Our aim was to study the presence and extent of airway abnormalities on chest CT of children with SA.

Methods: 161 inspiratory and expiratory CT scans, either spirometer-controlled or technician-controlled, obtained in 131 children with SA (mean±SD age 11.0±3.8 years) were collected retrospectively. Inspiratory scans were analysed manually using a semi-quantitative score and automatically using LungQ (v2.1.0.1; Thirona B.V., Nijmegen, the Netherlands). LungQ segments the bronchial tree, identifies the generation for each bronchus-artery (BA) pair and measures the following BA dimensions: outer bronchial wall diameter (B_{out}), adjacent artery diameter (A) and bronchial wall thickness (B_{wt}). Bronchiectasis was defined as $B_{out}/A \geq 1.1$, bronchial wall thickening as $B_{wt}/A \geq 0.14$. LAR, reflecting small airways disease (SAD), was measured automatically on inspiratory and

expiratory scans and manually on expiratory scans. Functional SAD was defined as FEF_{25-75} and/or FEF_{75} z-scores <-1.645. Results are shown as median and interquartile range.

Results: Bronchiectasis was present on 95.8% and bronchial wall thickening on all CTs using the automated method. Bronchiectasis was present on 28% and bronchial wall thickening on 88.8% of the CTs using the manual semi-quantitative analysis. The percentage of BA pairs defined as bronchiectasis was 24.62% (12.7-39.3%) and bronchial wall thickening was 41.7% (24.0-79.8%) per CT using the automated method. LAR was observed on all CTs using the automatic analysis and on 82.9% using the manual semi-quantitative analysis. Patients with LAR or functional SAD had more thickened bronchi than patients without.

Conclusion: Despite a large discrepancy between the automated and the manual semi-quantitative analysis, bronchiectasis and bronchial wall thickening are present on most CT scans of children with SA. SAD is related to bronchial wall thickening.

Conflict of interest statement

Conflict of interest: W.B. van den Bosch reports an unconditional research grant for a PhD from Vectura Group PLC during the conduct of the study (contract was signed in 2018 for the duration of 4 years). Conflict of interest: Q. Lv and E-R. Andrinopoulou have nothing to disclose. Conflict of interest: M.W.H. Pijnenburg reports support from Sanofi and Novartis outside the submitted work. Conflict of interest: P. Ciet reports personal fees from Vertex, Chiesi Pharmaceuticals BV and Editamed SRL, and grants from the Dutch Research Council, outside the submitted work. Conflict of interest: H.M. Janssens reports grants and other support from Vertex Pharmaceuticals outside the submitted work. Conflict of interest: H.A.W.M. Tiddens reports personal fees from Thirona BV during the conduct of the study; and grants and other support from Novartis, personal fees from Vertex and Insmed, and grants from Vectura Group PLC, outside the submitted work. In addition, H.A.W.M. Tiddens has a patent for the PRAGMA-CF scoring system licensed and Sophia Research BV of the Erasmus MC–Sophia Children's Hospital has, in the past 3 years received unconditional research grants from Novartis and Vectura Group PLC, research grants from IMI, CFF, ECFS and the Sophia Foundation, and honoraria and travel expenses for lectures and participation on expert panels from Novartis, Insmed and Vertex. He heads the Erasmus MC core laboratory LungAnalysis which is a not-for-profit core image analysis laboratory. The financial aspects of the laboratory are handled by Erasmus MC.

- 41 references
- 5 figures

FULL TEXT LINKS

Editorial

ERJ Open Res

. 2024 Jan 15;10(1):00763-2023.

doi: 10.1183/23120541.00763-2023. eCollection 2024 Jan.

A new approach to computed tomography measurement of airway remodelling in paediatric asthma

Sean B Fain[1], Marrissa J McIntosh[1]

Affiliations expand

- PMID: 38226062
- PMCID: PMC10789253
- DOI: 10.1183/23120541.00763-2023

Free PMC article

Abstract

Internal normalisation to reference structures on quantitative chest CT imaging (*e.g.* lung airway dimensions to adjacent vascular dimensions) provides a potential way to standardise image measurements to population characteristics https://bit.ly/3Rh9pnW.

Conflict of interest statement

Conflict of interest: S.B. Fain serves as a scientific advisor for Polarean LLC; and receives research funding from Polarean LLC, Siemens Healthineers Inc and GE Healthcare Inc for development of pulmonary computed tomography and magnetic resonance imaging methods. Conflict of interest: M.J. McIntosh has no conflicts.

- 20 references

17

Nat Med

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. 2024 Jan 15.

doi: 10.1038/s41591-023-02747-0. Online ahead of print.

Beyond bacteria: early-life gut virome link with childhood asthma development

No authors listed

- PMID: 38225366

- DOI: 10.1038/s41591-023-02747-0

No abstract available

- 3 references

18

Eur Ann Allergy Clin Immunol

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. 2024 Jan 15.

doi: 10.23822/EurAnnACI.1764-1489.323. Online ahead of print.

Anti-IL5/5R in the treatment of chronic eosinophilic pneumonia and severe asthma

M Colque-Bayona[1], D Laorden[2], D Romero[2], S Quirce[1,3,4], J Domínguez-Ortega[1,3,4]

Affiliations expand

- PMID: 38223977

- DOI: 10.23822/EurAnnACI.1764-1489.323

Free article
No abstract available

Keywords: Benralizumab; chronic eosinophilic pneumonia; mepolizumab; reslizumab; severe asthma.

19

Eur Ann Allergy Clin Immunol

. 2024 Jan 15.

doi: 10.23822/EurAnnACI.1764-1489.324. Online ahead of print.

Obstructive Sleep Apnea: a risk for uncontrolled and more severe asthma in adults that we should keep an eye on

G Martins Dos Santos[1,2], P Simão Coelho[1,2], J Gaspar Marques[1,2,3], S Serranho[1,2], S Santos[1,2], A Brito[1,2], P Carreiro Martins[1,2,3], P Leiria Pinto[1,2,3]

Affiliations expand

- PMID: 38223952

- DOI: 10.23822/EurAnnACI.1764-1489.324

Free article

Abstract

Background. Asthma control can be influenced by several factors, including obstructive sleep apnea (OSA). The literature reports variable prevalence and magnitude of OSA impact on asthma outcomes. The aim of our study is to analyze the frequency of high-risk for OSA in asthma patients and its impact on disease severity and control. **Methods.** We conducted a cross-sectional study at an Allergy Department with adult asthma patients recruited while undergoing routine lung function tests. Data on sex, age, body mass index, allergen sensitization, smoking habits, risk of OSA (using the Berlin questionnaire), rhinitis control (through CARAT), asthma severity (based on GINA 2023), asthma control (using the ACT), adherence to asthma treatment (through Treatment Adherence Measure) and pulmonary function test results were collected. **Results.** We included 216 patients, predominantly women (70.4%), with a median (P25-P75) age of 29.0 (21.0-45.0) years, of whom 28.2% were on GINA treatment levels 4-5. In 75.5% of cases asthma was controlled. High-risk for OSA was identified in 21.8% of patients. Asthma patients with high-risk for OSA were more likely to have uncontrolled [(47.8%; n = 22) *vs* (15.8%; n = 26); p less than 0.001] and more severe disease [(44.7%; n = 21) *vs* (23.7%; n = 40), p = 0.006]. In multivariable analysis, high-risk for OSA (OR 2.81 [95%CI 1.1.28-6.17], p = 0.010), sex (women) (OR 5.21 [95% CI 1.70-15.96], p = 0.004), uncontrolled rhinitis (OR 3.65 [95%CI 1.38-9.64], p = 0.009) and GINA asthma treatment steps 4-5 (OR 2.46 [95%CI 1.15-5.26], p = 0.020) were associated with uncontrolled asthma. **Conclusions.** It is crucial to actively investigate OSA, especially in patients with uncontrolled and more severe forms of asthma.

Keywords: Asthma; comorbidity; obesity; respiratory function tests; sleep apnea syndromes.

20

Intern Med

. 2024 Jan 15;63(2):179-187.

doi: 10.2169/internalmedicine.1808-23. Epub 2023 May 24.

Low Serum IL-18 Levels May Predict the Effectiveness of Dupilumab in Severe Asthma

Shizuka Watanabe[1,2], Maho Suzukawa[1,3], Hiroyuki Tashimo[3], Nobuharu Ohshima[4], Isao Asari[1], Kazufumi Takada[1,5], Sahoko Imoto[1,2], Takahide Nagase[2], Ken Ohta[2,6]

Affiliations expand

- PMID: 37225484

- DOI: 10.2169/internalmedicine.1808-23

Free article

Abstract

Objective Dupilumab, a monoclonal antibody specific for the human interleukin (IL)-4 receptor α, is used to treat severe asthma, especially in patients with elevated blood eosinophil counts and fractional exhaled nitric oxide (FeNO). The therapeutic response to dupilumab is highly variable. In this study, we explored new serum biomarkers to accurately predict the effect of dupilumab and examine the effect of dupilumab based on changes in the clinical parameters and cytokine levels. Methods Seventeen patients with severe asthma treated with dupilumab were enrolled. Responders, defined as those with a >0.5-point decrease in the Asthma Control Questionnaire (ACQ) score after 6 months of treatment, were included. Results There were 10 responders and 7 non-responders. Serum type 2 cytokines were equivalent between responders and non-responders; the baseline serum IL-18 level was significantly lower in responders than in non-responders (responders, 194.9±51.0 pg/mL; non-responders, 323.4±122.7 pg/mL, p=0.013). The cut-off value of IL-18 at 230.5 pg/mL could be used to distinguish non-responders from responders (sensitivity 71.4, specificity 80.0, p=0.032). Conclusion A low baseline serum IL-

18 level may be a useful predictor of an unfavorable response to dupilumab in terms of the ACQ-6.

Keywords: IL-18; anti-IL-4 receptor alpha monoclonal antibody; asthma; biomarker; cytokine; dupilumab.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

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

1
J Allergy Clin Immunol

. 2024 Jan 17:S0091-6749(24)00032-0.

doi: 10.1016/j.jaci.2023.12.024. Online ahead of print.

Allergic rhinitis phenotypes with distinct transcriptome profiles in children: a birth cohort

Youn Ho Shin[1], Jeong-Hyun Kim[2], Si-Hyeon Lee[2], So-Yeon Lee[3], Yoon Mee Park[2], Eum Ji Choi[3], Eun Young Paek[4], Kun-Baek Song[5], Min Ji Park[6], Sungsu Jung[7], Jisun Yoon[8], Dong In Suh[9], Kyung Won Kim[10], Kangmo Ahn[11], Soo-Jong Hong[12]

Affiliations expand

- PMID: 38242217

- DOI: 10.1016/j.jaci.2023.12.024

Abstract

Background: Allergic rhinitis (AR) phenotypes in childhood are unclear.

Objective: To determine AR phenotypes and investigate their natural course and clinical and transcriptomic characteristics.

Methods: Latent class trajectory analysis was used for phenotyping AR in 1050 children from birth through 12 years using a birth cohort study. Blood transcriptome analyses were performed to define the underlying mechanisms of each phenotype.

Results: Five AR phenotypes were identified: early-onset (n=88, 8.4%), intermediate transient (n=110, 10.5%), late-onset (n=209, 19.9%), very late-onset (n=187, 17.8%), and never/infrequent (n=456, 43.4%). Children with early-onset AR were associated with higher AR severity and sensitizations to foods at age 1 and inhalants at age 3 and asthma symptoms, but not with bronchial hyperresponsiveness (BHR). Children with late-onset AR phenotype associated with sensitizations to various foods at age 1, but not from age 3, and to inhalants from age 7 and with asthma with BHR. Children with very late-onset AR phenotype associated with sensitizations to foods throughout preschool age and to inhalants at ages 7 and 9 and with asthma with BHR. Transcriptome analysis showed that early-onset AR was associated with viral/bacterial infection-related defense response, whereas late-onset AR was associated with T cell-related immune response.

Conclusions: Early-onset AR phenotype was associated with sensitization to foods and inhalants at an early age and asthma symptoms, but not with BHR, whereas very late- and late-onset AR phenotypes were positively associated with sensitization to inhalants and asthma with BHR. Transcriptomic analyses indicated that early- and late-onset AR phenotypes had distinct underlying mechanisms related to AR as well.

Keywords: allergic rhinitis; children; comorbidity; phenotype; trajectory; transcriptome.

. 2024 Jan 18.

doi: 10.1021/acs.est.3c05532. Online ahead of print.

Modification of Food Allergy on the Associations between Early Life Exposure to Size-Specific Particulate Matter and Childhood Allergic Rhinitis

Chuansha Wu[1,2], Haoran Tang[1,2], Jing Wei[3], Hao Chen[1,2], Zhuohui Zhao[4], Dan Norbäck[5], Xin Zhang[6], Chan Lu[7], Wei Yu[8], Tingting Wang[9], Xiaohong Zheng[10], Rui Li[11], Yunquan Zhang[2,12], Ling Zhang[1,2]

Affiliations expand

- PMID: 38237043

- DOI: 10.1021/acs.est.3c05532

Abstract

Previous studies have reported the association between particulate matter (PM) and childhood allergic rhinitis (AR). However, it is unclear whether food allergy (FA) modifies the PM-AR association. We aimed at evaluating the effect of the modification of FA on PM-AR association in preschool children. We adopted a cross-sectional study and conducted a questionnaire survey among preschool children aged 3-6 years in 7 cities in China from June 2019 to June 2020 to collect information on AR and FA. We used a combination of multilevel logistic regression and restricted cubic spline functions to quantitatively assess whether FA modifies the associations between size-specific PM exposure (1 × 1 km) and the risk of AR. The adjusted odds ratios (ORs) for AR among the children with FA as per a 10 μg/m^3 increase in early life PM_1, $PM_{2.5}$, and PM_{10} were significantly higher than the corresponding ORs among the children without FA [e.g., OR: 1.58, 95% CI: (1.32, 1.90) vs 1.29, 95% CI: (1.18, 1.41), per 10 μg/m^3 increase in PM_1]. The interactions between FA and size-specific PM exposure and their effects on AR were statistically significant (all *p*-int < 0.001). FA, as an important part of the allergic disease progression, may modify the PM-AR association in preschool children.

Keywords: PM1; PM2.5; allergic rhinitis; food allergy; modification.

3

Review

Expert Rev Clin Immunol

. 2024 Jan 18.

doi: 10.1080/1744666X.2024.2306885. Online ahead of print.

Comparison of high- and low-molecular-weight sensitizing agents causing occupational asthma: an evidence-based insight

Virginie Doyen[1], Denyse Gautrin[2], Olivier Vandenplas[1], Jean-Luc Malo[2]

Affiliations expand

- PMID: 38235552

- DOI: 10.1080/1744666X.2024.2306885

Abstract

Introduction: The many substances used at the workplace that can cause sensitizer-induced occupational asthma are conventionally categorized into high-molecular-weight

(HMW) agents and low-molecular-weight (LMW) agents, implying implicitly that these two categories of agents are associated with distinct phenotypic profiles and pathophysiological mechanisms.

Areas covered: The authors conducted an evidence-based review of available data in order to identify the similarities and differences between HMW and LMW sensitizing agents. A PubMed search was performed using the keywords 'occupational asthma' AND 'molecular weight' up to 31 August 2023 and was supplemented by additional specific searches in the authors' personal digital bibliographic libraries.

Expert opinion: Compared with LMW agents, HMW agents are associated with a few distinct clinical features (i.e. concomitant work-related rhinitis, incidence of immediate asthmatic reactions and increase in fractional exhaled nitric oxide upon exposure) and risk factors (i.e. atopy and smoking). However, some LMW agents may exhibit 'HMW-like' phenotypic characteristics, indicating that LMW agents are a heterogeneous group of agents and that pooling them into a single group may be misleading. Regardless of the presence of detectable specific IgE antibodies, both HMW and LMW agents are associated with a mixed Th1/Th2 immune response and a predominantly eosinophilic pattern of airway inflammation. Large-scale multicenter studies are needed that use objective diagnostic criteria and assessment of airway inflammatory biomarkers to identify the pathobiological pathways involved in OA caused by the various non-protein agents.

Keywords: Occupational asthma; high molecular weight agents; low molecular weight agents.

4

Heliyon

. 2023 Dec 17;10(1):e23673.

doi: 10.1016/j.heliyon.2023.e23673. eCollection 2024 Jan 15.

Association of polymorphisms of vitamin D gene in children with asthma and allergic rhinitis – Hospital based study

Narmada Ashok[1], Radha Saraswathy[1]

Affiliations expand

- PMID: 38223709

- PMCID: PMC10784161

- DOI: 10.1016/j.heliyon.2023.e23673

Free PMC article

Abstract

Vitamin D gene polymorphisms are known to be associated with asthma and allergic rhinitis in children. However, the genetic association of the same in South Indian children with above condition is still unknown. The present study was designed with the objective to analyze the association of polymorphisms of vitamin D receptor gene (VDR) (rs797532, rs154410, rs2258470, rs731236) and transport gene of vitamin D (rs7041) in children with asthma and allergic rhinitis in South India. Children (1-18years) presenting with symptoms suggestive of asthma and allergic rhinitis to hospital based outpatient department, in Vellore, South India were recruited as cases and children presenting with minor illness without respiratory complaints were enrolled as controls during January 2018 to September 2021. Polymorphisms were genotyped using tetra-arms PCR. Significant increase in levels of absolute eosinophil counts and serum IgE levels with decrease in vitamin D levels was seen among the cases. Significant association between levels of vitamin D and serum IgE was also observed. Analysis of polymorphisms showed that, in comparison to homozygous major allele the odds of having heterozygous (OR0.55 (0.3, 0.99) and homozygous minor form (OR0.52 (0.28, 0.97) of rs7975232, homozygous minor (OR 0.51 (0.34, 0.76)) and alternate allele (OR 0.7 (0.53, 0.93)) of rs154410 and homozygous

minor form (OR 0.57 (0.37, 0.88) of rs731236 was significantly lesser among the cases. Genotypic model of rs154410 (p0.023) and allele form of rs7041 (p 0.041) were significantly associated with vitamin D levels however no association of gene blocks with cases was seen in haplotype analysis. There was an apparent gene pool difference noted in comparative analysis between Indian studies. The study is the first in south India to analyze levels of serum IgE, Vitamin D levels, association of VDR polymorphisms, and rs7041 in children with asthma.

Keywords: Asthma and allergic rhinitis; Indian children; Polymorphisms; Vitamin pathway-related genes.

Conflict of interest statement

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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iScience

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. 2023 Dec 10;27(1):108615.

doi: 10.1016/j.isci.2023.108615. eCollection 2024 Jan 19.

Undersized telomeres in regulatory T cells link to the pathogenesis of allergic rhinitis

Jinmei Xue[1], Zhizhen Liu[2], Yun Liao[3,4], Xiwen Zhang[3,4], Yu Liu[5], Lihua Mo[4,5], Rui Dong[1], Qiang Li[1], Xizhuo Sun[5], Jun Xie[2], Pingchang Yang[4]

Affiliations expand

- PMID: 38205251
- PMCID: PMC10777067
- DOI: 10.1016/j.isci.2023.108615

Free PMC article

Abstract

Telomeres are an important biomarker in the cell destiny. The relationship between telomeres and regulatory T cells (Tregs) has not yet been investigated. The objective of this study is to evaluate the link between Tregs' telomere length and allergic rhinitis (AR)'s pathogenesis. Here, we report that low telomerase activity and high endoplasmic reticulum stress status were observed in Tregs from AR patients, as shown in the results. Immune regulatory molecules levels were correlated with the length of Tregs' telomeres. The immune-suppressive functions of Tregs were associated with the telomere length/Telomerase reverse transcriptase/Telomerase protein component 1 status in Tregs. The levels of telomere length/telomerase in airway Tregs were reduced by sensitization. Endoplasmic reticulum stress signaling pathway of proline-rich receptor-like protein kinase-eukaryotic translation initiation factor 2A (eIF2a) was associated with the regulation of telomerase. Inhibiting eIF2a had an effect on upregulating telomerase activity in Tregs and mitigating experimental AR.

Keywords: cell biology; immunology.

Conflict of interest statement

The authors declare no competing interests.

- 29 references
- 7 figures

FULL TEXT LINKS

Proceed to details

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6

Heliyon

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. 2023 Nov 28;10(1):e22924.

doi: 10.1016/j.heliyon.2023.e22924. eCollection 2024 Jan 15.

Comparison of the efficacy of combined budesonide and fexofenadine versus combined fluticasone propionate and fexofenadine on the expression of class-4 semaphorins and their receptors in the peripheral blood cells of patients with allergic rhinitis

Gelayol Asadi[1,2], Parisa Feizollahi[2], Misagh Rajabinejad[3,4], Sara Falahi[1,2], Fatemeh Rezaei Varmaziar[1,2], Elham Faryadi[1,2], Ali Gorgin Karaji[2], Farhad Salari[2], Alireza Rezaiemanesh[2]

Affiliations expand

- PMID: 38148815

- PMCID: PMC10750067

- DOI: 10.1016/j.heliyon.2023.e22924

Free PMC article

Abstract

Background: Allergic rhinitis (AR) is a common immunoglobulin (Ig) E-mediated disease. This study aimed to evaluate the gene expression levels of class 4 semaphorins and their receptors in AR patients before and after treatment with budesonide and fexofenadine (B/F) compared to fluticasone propionate and fexofenadine (FP/F).

Methods: In this study, 29 AR patients (age 34.4 ± 1.2 years, 18 men and 11 women) were treated with B/F, and 24 AR patients (age 32.8 ± 1.9 years, 15 men and 9 women) were treated with FP/F for one month. Before and after treatment, peripheral blood samples were taken from patients. The expression levels of *SEMA4A*, *SEMA4C*, *SEMA4D*, *Plexin-B2*, and *Plexin-D1* genes were measured using the qPCR method. In addition, the serum levels of IgE were measured using an enzyme-linked immunosorbent assay (ELISA).

Results: The expression levels of *SEMA4A* (P = 0.011), 4C (P = 0.017), *Plexin-B2* (P = 0.0005), and *Plexin-D1* (P = 0.008) remarkably increased in AR patients treated with B/F. Our results show a significant reduction in the gene expression levels of *SEMA4A* (P = 0.002), 4C (P = 0.014), 4D (P = 0.003), *Plexin-B2* (P = 0.033), and *Plexin-D1* (P = 0.035) after treatment with FP/F. The serum levels of IgE increased in FP/F treated group (P = 0.017) and conversely decreased in the treated group with B/F (P = 0.019). Moreover, the percentages of eosinophils were reduced in both FP/F and B/F groups (P = 0.015 and P = 0.0001, respectively).

Conclusion: In conclusion, concomitant use of fexofenadine and fluticasone propionate reduced *SEMA4A*, 4C, 4D, *Plexin-B2*, and *Plexin-D1*, while the *SEMA4A*, 4C, *Plexin-B2*, and *Plexin-D1* gene expression levels were increased in the patient group treated with B/F.

Keywords: Allergic rhinitis; Budesonide; Class 4 semaphorins; Fexofenadine; Fluticasone propionate; Plexin.

Conflict of interest statement

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.

- 47 references
- 4 figures

7

JAMA

. 2024 Jan 16;331(3):268.

doi: 10.1001/jama.2023.20171.

Nonprescription Medications for Adults With Allergic Rhinitis

Sarah E Vordenberg[1]

Affiliations expand

- PMID: 38127357

- DOI: 10.1001/jama.2023.20171

No abstract available

Plain language summary

This JAMA Patient Page describes the types of nonprescription medications for allergic rhinitis and how to use them.

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

Multicenter Study

Sci Total Environ

. 2024 Jan 20:909:168601.

doi: 10.1016/j.scitotenv.2023.168601. Epub 2023 Nov 17.

Air pollution and oxidative stress in adults suffering from airway diseases. Insights from the Gene Environment Interactions in Respiratory Diseases (GEIRD) multi-case control study

Giulia Squillacioti[1], Valeria Bellisario[2], Federica Ghelli[3], Alessandro Marcon[4], Pierpaolo Marchetti[5], Angelo G Corsico[6], Pietro Pirina[7], Sara Maio[8], Massimo Stafoggia[9], Giuseppe Verlato[10], Roberto Bono[11]

Affiliations expand

- PMID: 37977381

- DOI: 10.1016/j.scitotenv.2023.168601

Free article

Abstract

Air pollution is a leading risk factor for global mortality and morbidity. Oxidative stress is a key mechanism underlying air-pollution-mediated health effects, especially in the pathogenesis/exacerbation of airway impairments. However, evidence lacks on subgroups at higher risk of developing more severe outcomes in response to air pollution. This multi-centre study aims to evaluate the association between air pollution and oxidative stress in healthy adults and in patients affected by airway diseases from the Italian GEIRD (Gene Environment Interactions in Respiratory Diseases) multi-case control study. Overall, 1841 adults (49 % females, 20-83 years) were included from four Italian centres: Pavia, Sassari, Turin, and Verona. Following a 2-stage screening process, we identified 1273 cases of asthma, chronic bronchitis, rhinitis, or COPD and 568 controls. Systemic oxidative stress was quantified by urinary 8-isoprostane and 8-OH-dG. Individual residential exposures to NO_2, PM_{10}, $PM_{2.5}$, and O_3 were derived using an innovative five-stage machine-learning-based approach. Linear mixed regression models tested the association between oxidative stress biomarkers and air pollution tertiles, adjusting by age, sex, BMI, smoking, education and season, with recruiting centres as random intercept. Only cases exhibited higher levels of log-transformed 8-isoprostane and 8-OH-dG in association with NO_2 (β: 0.30 95 % CI: 0.08-0.52 and 0.20 95 % CI: 0.03-0.37), PM_{10} (0.34 95 % CI: 0.12-0.55 and 0.21 95 % CI: 0.05-0.37) and $PM_{2.5}$ (0.27 95 % CI: 0.09-0.49 and 0.18 95 % CI: 0.02-0.34) as compared to the first tertile of exposure. No significant associations were observed for summer O_3. Our findings suggest that exposure to air pollution may increase systemic oxidative stress levels in people suffering from airway diseases. This introduces a potential novel approach available for future epidemiological studies and Public Health for effective prevention strategies oriented at the quantification of early biological effects in susceptible people, whose additional risk level might be currently underrated. Air-pollution-mediated exacerbations, driven by oxidative stress, still deserve our attention.

Keywords: Air pollution; Asthma; COPD; Chronic bronchitis; Oxidative stress biomarkers; Rhinitis.

Conflict of interest statement

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

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

chronic cough

1
BMJ Open Respir Res

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. 2024 Jan 19;11(1):e001888.

doi: 10.1136/bmjresp-2023-001888.

Patient preferences for the treatment of chronic cough: a discrete choice experiment

Aparna C Swaminathan[1 2], Jui-Chen Yang[3], Helen Ding[4], Kiran Grover[5], Theresa Coles[6], Jonathan Schelfhout[4], F Reed Johnson[3 6]

Affiliations expand

- PMID: 38242716

- DOI: 10.1136/bmjresp-2023-001888

Abstract

Background: Chronic cough is common, negatively affects quality of life and has limited treatment options. Inhibition of purinergic signalling is a promising therapeutic approach

but is associated with taste-related adverse effects. Little is known about treatment preferences from the perspective of patients with chronic cough, such as trade-offs between efficacy and side effect.

Methods: Patients with chronic cough completed an online discrete choice experiment survey in which they answered a series of questions requiring a choice between two constructed treatment options characterised by varying attribute levels. Selection of cough and taste-related attributes was informed by qualitative interviews and clinical trial data. Logit-based models were used to analyse resulting choice data.

Results: The discrete choice experiment survey was completed by 472 participants with chronic cough. Among study attributes, frequency of intense cough attacks was the most important to participants, followed by taste change, frequency of night-time coughing and frequency of daytime coughing. To accept the least preferred taste disturbance of a bitter, metallic, chalky or oily taste change, participants required either: (1) elimination of night-time cough along with a slight reduction in daytime cough; (2) elimination of daytime cough along with a pronounced reduction in night-time or (3) reduction in intense cough attacks from 7 to 2 times per week. Two distinct preference patterns were identified, each placing different importance on efficacy versus side effect trade-offs.

Conclusions: Participants with chronic cough were willing to accept some taste disturbances in exchange for improved efficacy of chronic cough treatments. Knowledge of patient preferences can facilitate shared decision-making.

Keywords: Cough/Mechanisms/Pharmacology.

Conflict of interest statement

Competing interests: JS and HD were employees of Merck & Co. at the time this work was completed. No other authors have conflicts of interest.

Respir Investig

. 2024 Jan 18;62(2):247-251.

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Leukemic pulmonary infiltrates in chronic lymphocytic leukemia: Clinical and imaging features

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Affiliations expand

- PMID: 38241957

- DOI: 10.1016/j.resinv.2023.12.011

Abstract

Background: Chronic lymphocytic leukemia (CLL) is the most common type of leukemia in Western countries. Although various patterns of lung involvement with CLL have been reported, data on clinicoradiologic presentation are sparse.

Methods: A computer-assisted search was conducted to identify patients encountered at Mayo Clinic from 1998 to 2022 and had leukemic pulmonary infiltrates (LPI) with CLL demonstrated on lung biopsy. Medical records and chest imaging studies were reviewed to identify clinical and radiologic features.

Results: Among 13 patients, median age was 77 years (range: 60-88) and included 10 men (77 %). All patients were known to have CLL with a median duration of 96 months (range: 50-408), and none were on treatment. Most common symptoms were dyspnea (62 %), cough (54 %), and fatigue (46 %); 2 patients (15 %) were asymptomatic. Dominant abnormality on CT consisted of single or multiple nodular/mass-like opacities in 10 patients (77 %), while diffuse centrilobular nodules, pleural mass, and diffuse bronchial wall thickening were each seen in one patient, respectively; intrathoracic lymphadenopathy was present in all. After diagnosis of LPI, treatment for CLL was administered to 7 patients (54 %); 6 patients (86 %) exhibited improvement. During follow-up (median 41 months), 8 (62 %) patients died. Causes of death included progressive CLL or treatment-related

complications (2 patients), pneumonia (1 patient), unrelated causes (3 patients), and unknown in 2 patients.

Conclusions: LPI in CLL is generally encountered in patients with known untreated CLL. The main imaging feature is single mass-like opacity or multiple nodular/mass-like opacities, associated with intrathoracic lymphadenopathy.

Keywords: Chronic lymphocytic leukemia; Computed tomography; Leukemic pulmonary infiltrates; Lung disease.

Conflict of interest statement

Declaration of competing interest The authors have no conflicts of interest.

3

Case Reports

J Ayurveda Integr Med

. 2024 Jan 18;15(1):100862.

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Ayurveda and Yoga management of chronic alcoholism sequelae – A case report

Aqsa Zarin Khan [1], Jibi Varghese [2], Shweta Kodre [2], Mohini Niware [2], Snehal Pansare [2], Shreya Bhatia [2], Samkit Shah [2], Manna Mathew [3]

Affiliations expand

- PMID: 38241882

- DOI: 10.1016/j.jaim.2023.100862

Abstract

Alcohol has always been a component in the dietary pattern of human civilization. It is widely used in society for celebration and socialization. Alcohol abuse is among the most serious problems in public health characterized by uncontrolled drinking which causes physical and emotional dependence on alcohol. Chronic alcoholics are at a higher risk of developing vitamin B1 deficiency due to malabsorption, poor diet, and an increased demand for nutrition. Vitamin B1(Thiamine) is an essential nutrient required for the body's energy metabolism and proper functioning of the nervous system. A person who excessively consumes madya (alcohol) and then abruptly discontinues drinking and takes recourse to drinking excess madya once again, suffers from Madatyaya Upadrava(chronic alcoholism) that is Vikshay. Here is a case report of an alcoholic patient who ceased drinking and then resumed alcohol in large amounts. He presented with symptoms of generalized weakness, body ache, aphasia, confusion, fever (on and off), thirst, cough, headache, and numbness. The patient underwent a two-month treatment regimen that combined Satvavajay Chikitsa, Yoga, and Shaman Chikitsa involving Rasayana medications and procedures including snehan (Oleation), swedan (fomentation), nabhi puran (filling oil with navel), nasya (nasal administration), shirodhara (continuous flow of liquid on head) and basti (medicated enema). The intervention outcome showed relief from the aforementioned symptoms and improvement in both symptoms and GCS(Glasgow coma scale) score. This treatment approach aimed to promote vitality, longevity, and an overall sense of balance and well-being. There are not many corroborating cases being reported and managed with Ayurveda. This case report highlights transforming health through the cumulative effects of Rasayana medicines, panchakarma, and yoga.

Keywords: Ayurveda; Chronic alcoholism; Rasayana; Thiamine deficiency; Vikshay; Yoga.

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.

4

BMJ Open

. 2024 Jan 18;14(1):e074655.

doi: 10.1136/bmjopen-2023-074655.

Protocol for the air purification for eosinophilic COPD study (APECS): a randomised controlled trial of home air filtration by HEPA

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Affiliations expand

- PMID: 38238060

- DOI: 10.1136/bmjopen-2023-074655

Free article

Abstract

Introduction: Exposure to particulate matter (PM) pollution has been associated with lower lung function in adults with chronic obstructive pulmonary disease (COPD). Patients with eosinophilic COPD have been found to have higher levels of airway inflammation, greater responsiveness to anti-inflammatory steroid inhalers and a greater lung function response to PM pollution exposure compared with those with lower eosinophil levels. This study will evaluate if reducing home PM exposure by high-efficiency particulate air (HEPA) air filtration improves respiratory health in eosinophilic COPD.

Methods and analysis: The Air Purification for Eosinophilic COPD Study (APECS) is a double-blinded randomised placebo-controlled trial that will enrol 160 participants with eosinophilic COPD living in the area of Boston, Massachusetts. Real and sham air purifiers will be placed in the bedroom and living rooms of the participants in the intervention and control group, respectively, for 12 months. The primary trial outcome will be the change in forced expiratory volume in 1 s (FEV_1). Lung function will be assessed twice preintervention and three times during the intervention phase (at 7 days, 6 months and 12 months postrandomisation). Secondary trial outcomes include changes in (1) health status by St. George's Respiratory Questionnaire; (2) respiratory symptoms by Breathlessness, Cough and Sputum Scale (BCSS); and (3) 6-Minute Walk Test (6MWT). Inflammatory mediators were measured in the nasal epithelial lining fluid (NELF). Indoor PM will be measured in the home for the week preceding each study visit. The data will be analysed to contrast changes in outcomes in the intervention and control groups using a repeated measures framework.

Ethics and dissemination: Ethical approval was obtained from the Institutional Review Board of Beth Israel Deaconess Medical Centre (protocol #2019P0001129). The results of the APECS trial will be presented at scientific conferences and published in peer-reviewed journals.

Trial registration: NCT04252235. Version: October 2023.

Keywords: Pulmonary Disease, Chronic Obstructive; Randomized Controlled Trial; Thoracic medicine.

Conflict of interest statement

Competing interests: MBR, WP, MER, IJ, BAC and PK report research grant funding from the NIH. MBR reports receiving expert testimony fees from the Conservation Law Foundation. BAC and PK report research funding from the US EPA outside the submitted work. WP reports receiving consulting fees from Regeneron, Sanofi, Novartis, Genentech,

AstraZeneca and GlaxoSmithKline, all outside the submitted work. No other disclosures were reported.

SUPPLEMENTARY INFO

Associated dataexpand

FULL TEXT LINKS

5

PLOS Glob Public Health

. 2024 Jan 17;4(1):e0002018.

doi: 10.1371/journal.pgph.0002018. eCollection 2024.

Iterative evaluation of mobile computer-assisted digital chest x-ray screening for TB improves efficiency, yield, and outcomes in Nigeria

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Affiliations expand

- PMID: 38232129

- PMCID: PMC10793917

- DOI: 10.1371/journal.pgph.0002018

Abstract

Wellness on Wheels (WoW) is a model of mobile systematic tuberculosis (TB) screening of high-risk populations combining digital chest radiography with computer-aided automated detection (CAD) and chronic cough screening to identify presumptive TB clients in communities, health facilities, and prisons in Nigeria. The model evolves to address technical, political, and sustainability challenges. Screening methods were iteratively refined to balance TB yield and feasibility across heterogeneous populations. Performance metrics were compared over time. Screening volumes, risk mix, number needed to screen (NNS), number needed to test (NNT), sample loss, TB treatment initiation and outcomes. Efforts to mitigate losses along the diagnostic cascade were tracked. Persons with high CAD4TB score (≥80), who tested negative on a single spot GeneXpert were followed-up to assess TB status at six months. An experimental calibration method achieved a viable CAD threshold for testing. High risk groups and key stakeholders were engaged. Operations evolved in real time to fix problems. Incremental improvements in mean client volumes (128 to 140/day), target group inclusion (92% to 93%), on-site testing (84% to 86%), TB treatment initiation (87% to 91%), and TB treatment success (71% to 85%) were recorded. Attention to those as highest risk boosted efficiency (the NNT declined from 8.2 ± SD8.2 to 7.6 ± SD7.7). Clinical diagnosis was added after follow-up among those with ≥ 80 CAD scores and initially spot -sputum negative found 11 additional TB cases (6.3%) after 121 person-years of follow-up. Iterative adaptation in response to performance metrics foster feasible, acceptable, and efficient TB case-finding in Nigeria. High CAD scores can identify subclinical TB and those at risk of progression to bacteriologically-confirmed TB disease in the near term.

Conflict of interest statement

RE and DN are now employed by the funder, but at the time of the study RE worked for KNCV TB Foundation. The funder had a limited role in the review of the manuscript.

- 56 references
- 2 figures

6

Heliyon

. 2023 Dec 7;10(1):e23413.

doi: 10.1016/j.heliyon.2023.e23413. eCollection 2024 Jan 15.

Association of chronic cough with exposure to polycyclic aromatic hydrocarbons in the US population

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Affiliations expand

- PMID: 38173475
- PMCID: PMC10761574
- DOI: 10.1016/j.heliyon.2023.e23413

Free PMC article

Abstract

Polycyclic aromatic hydrocarbons (PAHs) are environmental pollutants formed during the incomplete combustion of organic substances, such as coal and oil. PAHs exposure is known to increase the incidence of respiratory diseases; however, limited research has focused on their impact on chronic cough. In this study, we utilized data from the National Health and Nutritional Examination Surveys (NHANES) from 2003 to 2012. Chronic cough was defined as 'coughing most days for three consecutive months or more'. Employing survey-weighted multivariate logistic regression models, we identified positive associations between all six PAHs metabolites (1-NAP, 2-NAP, 3-FLU, 2-FLU, 1-PHE, and 1-PYR) found in urine and the presence of chronic cough. Furthermore, results from restricted cubic spline modeling revealed a nonlinear relationship between urinary levels of 1-NAP, 2-NAP, 3-FLU, 2-FLU, and 1-PYR and the risk of chronic cough. Co-exposure modeling unveiled the combined effects of multiple exposures and the relative contributions of each PAHs. Notably, co-exposure to PAHs was positively associated with an increased risk of chronic cough, where 2-FLU emerged as the primary contributor to this association. These findings were particularly pronounced in individuals with high cotinine exposure (≥0.05 ng/mL). In conclusion, this study presents epidemiological evidence linking PAHs exposure to an elevated risk of chronic cough. Further prospective investigations are warranted to corroborate these findings.

Keywords: Chronic cough; Cotinine; Exposure; NHANES; Polycyclic aromatic hydrocarbons.

Conflict of interest statement

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.

Med J Aust

. 2024 Jan 15;220(1):35-45.

doi: 10.5694/mja2.52157. Epub 2023 Nov 19.

Cough in Children and Adults: Diagnosis, Assessment and Management (CICADA). Summary of an updated position statement on chronic cough in Australia

Julie M Marchant[1,2], Anne B Chang[1,2,3], Emma Kennedy[4], David King[5], Jennifer L Perret[6], Andre Schultz[7,8], Maree R Toombs[9], Lesley Versteegh[3], Shyamali C Dharmage[6], Rebecca Dingle[10], Naomi Fitzerlakey[10], Johnson George[11], Anne Holland[12,13,14], Debbie Rigby[5,15], Jennifer Mann[14,16], Stuart Mazzone[17], Mearon O'Brien[10], Kerry-Ann O'Grady[1], Helen L Petsky[18], Jonathan Pham[12], Sheree Ms Smith[19], Danielle F Wurzel[20], Anne E Vertigan[21,22], Peter Wark[21,22]

Affiliations expand

- PMID: 37982357

- DOI: 10.5694/mja2.52157

Abstract

Introduction: Cough is the most common symptom leading to medical consultation. Chronic cough results in significant health care costs, impairs quality of life, and may indicate the presence of a serious underlying condition. Here, we present a summary of an updated position statement on cough management in the clinical consultation.

Main recommendations: Assessment of children and adults requires a focused history of chronic cough to identify any red flag cough pointers that may indicate an underlying disease. Further assessment with examination should include a chest x-ray and spirometry (when age > 6 years). Separate paediatric and adult diagnostic management algorithms should be followed. Management of the underlying condition(s) should follow specific disease guidelines, as well as address adverse environmental exposures and patient/carer concerns. First Nations adults and children should be considered a high risk group. The full

statement from the Thoracic Society of Australia and New Zealand and Lung Foundation Australia for managing chronic cough is available at https://lungfoundation.com.au/resources/cicada-full-position-statement.

Changes in management as a result of this statement: Algorithms for assessment and diagnosis of adult and paediatric chronic cough are recommended. High quality evidence supports the use of child-specific chronic cough management algorithms to improve clinical outcomes, but none exist in adults. Red flags that indicate serious underlying conditions requiring investigation or referral should be identified. Early and effective treatment of chronic wet/productive cough in children is critical. Culturally specific strategies for facilitating the management of chronic cough in First Nations populations should be adopted. If the chronic cough does not resolve or is unexplained, the patient should be referred to a respiratory specialist or cough clinic.

Keywords: Evidence-based medicine; General practice; Guidelines as topic; Pediatrics.

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

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Surg Case Rep

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. 2024 Jan 19;10(1):24.

doi: 10.1186/s40792-024-01812-1.

Unveiling the complexities of lung transplantation in situs inversus

Chitaru Kurihara[1], Taisuke Kaiho[2], Ankit Bharat[2,3]

Affiliations expand

- PMID: 38240878

- DOI: 10.1186/s40792-024-01812-1

Abstract

Background: Lung transplantation for situs inverse is considered technically challenging because of the reverse positioning of the organs. By providing a detailed description of the surgical procedure, perioperative care, and post-transplant follow-up, we aim to contribute valuable information to the existing knowledge base. We presented two cases of successful bilateral sequential lung transplantation in situs inverse patients.

Case presentation: Our first patient was a 28-year-old, non-smoking woman with Kartagener syndrome and advanced bronchiectasis that developed into pneumonia and required repeated hospital admissions. She underwent double lung transplantation. During the lung transplant procedure, venoarterial extracorporeal membrane oxygenation (VA ECMO) support was provided. The recipient's morphologically right (anatomically left) lung was explanted. The right main bronchus was anastomosed, followed by the pulmonary artery and left atrial anastomoses. Afterward, we proceeded with the left side. Similar to the right side, left pneumonectomy and implantation were performed using the same methods. The duration of VA ECMO support was 147 min with a 328-min ischemic time. Because of the significant size mismatch, nonanatomic lung volume reduction over the right middle and left upper lobes was necessary. The patient had no complications postoperatively and was discharged on post-operative day (POD) 12. Our second patient was a 51-year- old man with scleroderma-associated interstitial lung disease with situs inversus. Bilateral sequential lung transplantation was performed. Similar to case 1, a clamshell incision was made at the fourth intercostal space entry. The patient then received VA ECMO support identical to that in case 1. The total VA ECMO support time was 155 min with 295 min of ischemic time. The patient recovered uneventfully and was discharged on POD 13.

Conclusions: Lung transplantation for situs inverse can be a viable treatment option without modifying established transplantation procedures.

Keywords: Lung transplant; Respiratory failure; Situs inversus.

- 7 references

FULL TEXT LINKS

Proceed to details

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2

Lung

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. 2024 Jan 16.

doi: 10.1007/s00408-023-00668-w. Online ahead of print.

Elevated Eosinophil Counts in Acute Exacerbations of Bronchiectasis: Unveiling a Distinct Clinical Phenotype

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Affiliations expand

- PMID: 38228883

- DOI: 10.1007/s00408-023-00668-w

Abstract

Background: Non-cystic fibrosis bronchiectasis is a chronic respiratory disease characterized by bronchial dilation. However, the significance of elevated eosinophil counts in acute exacerbations of bronchiectasis remains unclear.

Methods: This retrospective case-control study included 169 hospitalized patients with acute exacerbations of non-cystic fibrosis bronchiectasis. Based on blood eosinophil levels, patients were categorized into eosinophilic and non-eosinophilic bronchiectasis groups. Various clinical variables, including lung function, comorbidities and clinical features were collected for analysis. The study aimed to examine the differences between these groups and their clinical phenotypes.

Results: Eosinophilic bronchiectasis (EB) was present in approximately 22% of all hospitalized patients with bronchiectasis, and it was more prevalent among male smokers ($P < 0.01$). EB exhibited greater severity of bronchiectasis, including worse airway obstruction, higher scores in the E-FACED (FACED combined with exacerbations) and bronchiectasis severity index (BSI), a high glucocorticoids medication possession ratio, and increased hospitalization cost ($P < 0.05$ or $P < 0.01$). Furthermore, we observed a significant positive correlation between blood eosinophil count and both sputum eosinophils ($r = 0.49$, $P < 0.01$) and serum total immunoglobulin E levels ($r = 0.21$, $P < 0.05$). Additional analysis revealed that patients with EB had a higher frequency of shortness of breath ($P < 0.05$), were more likely to have comorbid sinusitis ($P < 0.01$), and exhibited a greater number of lung segments affected by bronchiectasis ($P < 0.01$).

Conclusions: These findings suggest that EB presents a distinct pattern of bronchiectasis features, confirming the notion that it is a specific phenotype.

Keywords: Bronchiectasis; Clinical features; Eosinophils; Phenotype.

- 30 references

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

Proceed to details

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3

Review

Signal Transduct Target Ther

. 2024 Jan 17;9(1):19.

doi: 10.1038/s41392-023-01722-y.

Lung microbiome: new insights into the pathogenesis of respiratory diseases

Ruomeng Li[1,2], Jing Li[3], Xikun Zhou[4]

Affiliations expand

- PMID: 38228603

- PMCID: PMC10791971

- DOI: 10.1038/s41392-023-01722-y

Free PMC article

Abstract

The lungs were long thought to be sterile until technical advances uncovered the presence of the lung microbial community. The microbiome of healthy lungs is mainly derived from the upper respiratory tract (URT) microbiome but also has its own characteristic flora. The selection mechanisms in the lung, including clearance by coughing, pulmonary macrophages, the oscillation of respiratory cilia, and bacterial inhibition by alveolar surfactant, keep the microbiome transient and mobile, which is different from the microbiome in other organs. The pulmonary bacteriome has been intensively studied recently, but relatively little research has focused on the mycobiome and virome. This up-to-date review retrospectively summarizes the lung microbiome's history, composition, and function. We focus on the interaction of the lung microbiome with the oropharynx and gut microbiome and emphasize the role it plays in the innate and adaptive immune responses. More importantly, we focus on multiple respiratory diseases, including asthma,

chronic obstructive pulmonary disease (COPD), fibrosis, bronchiectasis, and pneumonia. The impact of the lung microbiome on coronavirus disease 2019 (COVID-19) and lung cancer has also been comprehensively studied. Furthermore, by summarizing the therapeutic potential of the lung microbiome in lung diseases and examining the shortcomings of the field, we propose an outlook of the direction of lung microbiome research.

Conflict of interest statement

The authors declare no competing interests.

- 442 references
- 5 figures

4

ERJ Open Res

. 2024 Jan 15;10(1):00121-2023.

doi: 10.1183/23120541.00121-2023. eCollection 2024 Jan.

Children with severe asthma have substantial structural airway changes on computed tomography

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Affiliations expand

- PMID: 38226065

- PMCID: PMC10789264

- DOI: 10.1183/23120541.00121-2023

Free PMC article

Abstract

Background: In adults with severe asthma (SA) bronchial wall thickening, bronchiectasis and low attenuation regions (LAR) have been described on chest computed tomography (CT) scans. The extent to which these structural abnormalities are present in children with SA is largely unknown. Our aim was to study the presence and extent of airway abnormalities on chest CT of children with SA.

Methods: 161 inspiratory and expiratory CT scans, either spirometer-controlled or technician-controlled, obtained in 131 children with SA (mean±SD age 11.0±3.8 years) were collected retrospectively. Inspiratory scans were analysed manually using a semi-quantitative score and automatically using LungQ (v2.1.0.1; Thirona B.V., Nijmegen, the Netherlands). LungQ segments the bronchial tree, identifies the generation for each bronchus-artery (BA) pair and measures the following BA dimensions: outer bronchial wall diameter (B_{out}), adjacent artery diameter (A) and bronchial wall thickness (B_{wt}). Bronchiectasis was defined as $B_{out}/A \geq 1.1$, bronchial wall thickening as $B_{wt}/A \geq 0.14$. LAR, reflecting small airways disease (SAD), was measured automatically on inspiratory and expiratory scans and manually on expiratory scans. Functional SAD was defined as FEF_{25-75} and/or FEF_{75} z-scores <-1.645. Results are shown as median and interquartile range.

Results: Bronchiectasis was present on 95.8% and bronchial wall thickening on all CTs using the automated method. Bronchiectasis was present on 28% and bronchial wall thickening on 88.8% of the CTs using the manual semi-quantitative analysis. The

percentage of BA pairs defined as bronchiectasis was 24.62% (12.7-39.3%) and bronchial wall thickening was 41.7% (24.0-79.8%) per CT using the automated method. LAR was observed on all CTs using the automatic analysis and on 82.9% using the manual semi-quantitative analysis. Patients with LAR or functional SAD had more thickened bronchi than patients without.

Conclusion: Despite a large discrepancy between the automated and the manual semi-quantitative analysis, bronchiectasis and bronchial wall thickening are present on most CT scans of children with SA. SAD is related to bronchial wall thickening.

Conflict of interest statement

Conflict of interest: W.B. van den Bosch reports an unconditional research grant for a PhD from Vectura Group PLC during the conduct of the study (contract was signed in 2018 for the duration of 4 years). Conflict of interest: Q. Lv and E-R. Andrinopoulou have nothing to disclose. Conflict of interest: M.W.H. Pijnenburg reports support from Sanofi and Novartis outside the submitted work. Conflict of interest: P. Ciet reports personal fees from Vertex, Chiesi Pharmaceuticals BV and Editamed SRL, and grants from the Dutch Research Council, outside the submitted work. Conflict of interest: H.M. Janssens reports grants and other support from Vertex Pharmaceuticals outside the submitted work. Conflict of interest: H.A.W.M. Tiddens reports personal fees from Thirona BV during the conduct of the study; and grants and other support from Novartis, personal fees from Vertex and Insmed, and grants from Vectura Group PLC, outside the submitted work. In addition, H.A.W.M. Tiddens has a patent for the PRAGMA-CF scoring system licensed and Sophia Research BV of the Erasmus MC–Sophia Children's Hospital has, in the past 3 years received unconditional research grants from Novartis and Vectura Group PLC, research grants from IMI, CFF, ECFS and the Sophia Foundation, and honoraria and travel expenses for lectures and participation on expert panels from Novartis, Insmed and Vertex. He heads the Erasmus MC core laboratory LungAnalysis which is a not-for-profit core image analysis laboratory. The financial aspects of the laboratory are handled by Erasmus MC.

- 41 references
- 5 figures

5

ERJ Open Res

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. 2024 Jan 15;10(1):00724-2023.

doi: 10.1183/23120541.00724-2023. eCollection 2024 Jan.

Prescribing preferences and availability of nebulisers and inhalers for inhaled medications in bronchiectasis: results of a specialist survey

Michal Shteinberg[1,2], Arietta Spinou[3,4], Pieter Goeminne[5], Megan Crichton[6], Charles Haworth[7], James D Chalmers[6]

Affiliations expand

- PMID: 38226061

- PMCID: PMC10789251

- DOI: 10.1183/23120541.00724-2023

Free PMC article

Abstract

Specialists caring for people with bronchiectasis recommend specialised nebulisers for inhaled antibiotics, but are often limited by availability and cost of nebulisation devices https://bit.ly/40FvFdZ.

Conflict of interest statement

Conflict of interest: M. Shteinberg reports grants or contracts from GSK, Trudell Medical International and Tel Aviv League for Lung Diseases, outside the submitted work; personal payments for consultations from AstraZeneca, Boehringer Ingelheim, Dexcel, Kamada, Synchrony Medical, Trumed and Zambon, outside the submitted work; payment for lectures, presentations, speakers' bureaus, manuscript writing or educational events from AstraZeneca, Boehringer Ingelheim, Kamada, Sanofi and Insmed, outside the submitted work; support for attending meetings and/or travel from Boehringer Ingelheim Israel, Astra Zeneca Israel, Kamada, Rafa and GSK Israel, outside the submitted work; participation on a data safety monitoring or advisory board for Bonus Biotherapeutics, Boehringer Ingelheim and AstraZeneca, outside the submitted work; is an American Journal of Respiratory and Critical Care Medicine Associate Editor, a management board member of the Israeli Pulmonology Society, the Israeli Society for Tuberculosis and Mycobacterial Diseases, and EMBARC, and editorial board member of the European Respiratory Journal and Chest, and a member of the European Respiratory Society task force on bronchiectasis guidelines, disclosures made outside the submitted work; and receipt of oPEP devices for clinical trial from Trudell medical international, outside the submitted work. Conflict of interest: A. Spinou has nothing to disclose. Conflict of interest: P. Goeminne reports lectures fees from Insmed, RMEI and GSK, outside the submitted work; support to attend conference from Chiesi outside the submitted work; and participation on a data safety monitoring board or advisory board for Boehringer, GSK and Pfizer, outside the submitted work. Conflict of interest: M. Crichton reports consulting fees from Boxer Capital LLC, outside the submitted work. Conflict of interest: C. Haworth reports consulting fees from 30 Technology, Aradigm, CSL Behring, Chiesi, Gilead, Grifols, GSK, Insmed, Janssen, LifeArc, Meiji, Mylan, Novartis, Pneumagen, Shionogi, Teva, Vertex and Zambon, outside the submitted work; and payment for lectures, presentations, speakers' bureaus, manuscript writing or educational events from Chiesi and Insmed, outside the submitted work. Conflict of interest: J.D. Chalmers reports grants or contracts from AstraZeneca, Genentech, Gilead Sciences, GlaxoSmithKline, Insmed, Grifols, Novartis and Boehringer Ingelheim, outside the submitted work; consulting fees from AstraZeneca, Chiesi, GlaxoSmithKline, Insmed, Grifols, Novartis, Boehringer Ingelheim, Pfizer, Janssen, Antabio and Zambon, outside the submitted work; and is an associate editor of this journal.

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Comparative effectiveness and safety of inhaled corticosteroid plus long-acting β_2-agonist fixed-dose combinations vs. long-acting muscarinic antagonist in bronchiectasis

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Abstract

Background: This study aimed to evaluate the effectiveness and safety of fixed-dose combination (FDC) inhaled corticosteroids/long-acting β2-agonists (ICS/LABA) in bronchiectasis.

Research design and methods: A retrospective cohort study analyzed electronic medical records of bronchiectasis patients initiating ICS/LABA FDC or LAMA between 2007 and 2021. All bronchiectasis diagnoses were made by radiologists using high-resolution computed tomography.

Results: Of the 1,736 patients, 1,281 took ICS/LABA FDC and 455 LAMA. Among the 694 propensity score matched patients, ICS/LABA FDC had comparable outcomes to LAMA, with HRs of 1.22 (95% CI 0.81-1.83) for hospitalized respiratory infection, 1.06 (95% CI 0.84-1.33) for acute exacerbation, and 1.06 (95% CI 0.66-1.02) for all-cause hospitalization.

Beclomethasone/formoterol (BEC/FOR) or budesonide/formoterol (BUD/FOR) led to a lower risk of acute exacerbation compared to fluticasone/salmeterol (FLU/SAL) (BEC/FOR HR 0.59, 95% CI 0.43-0.81; BUD/FOR HR 0.68, 95% CI 0.50-0.93). BEC/FOR resulted in lower risks of hospitalized respiratory infection (HR 0.48, 95% 0.26-0.86) and all-cause hospitalization (HR 0.55, 95% 0.37-0.80) compared to FLU/SAL.

Conclusion: Our findings provide important evidence on the effectiveness and safety of ICS/LABA FDC compared with LAMA for bronchiectasis. BEC/FOR and BUD/FOR were associated with better outcomes than FLU/SAL.

Keywords: Bronchiectasis; bronchodilators; inhaled corticosteroids; long-acting beta2-agonists; long-acting muscarinic antagonists.