LIBRA JOURNAL CLUB
23-April-2023-2-May-2023

ANNUAL MEETING LIBRA

FLORENCE 4-5-DECEMBER 2023

Cari Colleghi:

prima di trasmettervi la consueta bibliografia di approfondimento settimanale LIBRA JOURNAL CLUB 27-APRIL-2-MAY-2023), con piacere che vi confermo che il prossimo
International LIBRA Meeting
4 e il 5 dicembre 2023 Hotel Mediterraneo, Firenze.

I principali argomenti che verranno trattati saranno divulgati entro la fine di Giugno 2023, unitamente al programma delle due giornate, programma che verrà finalizzato tenendo conto dei messaggi principali dei Congressi Annuali di AAAAI (Febbraio 2023), ATS (Maggio 2023), e EEACI (Giugno 2023).
In parallelo i gruppi di lavoro prepareranno i programmi delle loro riunioni, che come nelle score opinioni, saranno plenarie, NON parallele.

Un caro saluto e arrivederci,

Leo Fabbri

LIBRA JOURNAL CLUB
23 April 1-May-2023

Our legal office confirmed that articles NOT OPEN ACCESS cannot be distributed to the members of the list. Thus, we will transmit only the titles of articles.
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OPEN ACCESS articles are available by accessing the articles from PubMed using just the PMID for the search (eg PMID: 35514131 without . at the end)

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

1
Technol Health Care
.
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Multidisciplinary diagnosis and treatment model based on a retrospective cohort study: Pulmonary function and prognosis quality of life in severe COPD

Linghua Liu, Ke Hui

- PMID: 37125590
- DOI: 10.3233/THC-230159

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a common chronic respiratory disease worsening airflow limitation.

Objective: To explore pulmonary function rehabilitation, life quality and prognosis in patients with severe COPD.

Methods: Between February 2018 and August 2021, 150 patients with severe COPD cured in our hospital were arbitrarily assigned into the control group (n= 75) and study group (n= 75). The control group received routine treatment and the research group received multidisciplinary diagnosis and treatment. The body mass index, airflow obstruction, dyspnea and exercise (BODE), pulmonary function, the number of acute attacks, 6-minute walking distance (6MWD), Borg score and life quality were compared.

Results: There was no remarkable difference in BODE score before treatment (P> 0.05). During the 2- and 6-month following treatment, the BODE score of the study group was lower (P< 0.05). In the study group, FEV1 percentage of the predicted value, forced expiratory volume in one second (PPO-FEV1) and the percentage of forced expiratory volume in one second/forced vital capacity (FEV1/FVC) in the first second were higher (P< 0.05). In the study group, there were fewer acute attacks (P< 0.05). After treatment, the 6MWD of the study group following 2- and 6-month treatment was higher (P< 0.05). The Borg scores of the study group at 2- and 6-months after treatment were lower (P< 0.05). There were no remarkable differences in the score of life quality before treatment (P> 0.05), however, the symptom score, activity score, influence score and total score of the study group were lower after the treatment (P< 0.05).

Conclusion: The application of multidisciplinary diagnosis and treatment model can promote the rehabilitation of pulmonary function of patients with severe COPD, improve their prognosis, slow down the development of the disease and enhance their life quality.

Keywords: 6-minute walking distance; BODE index; Body mass index; LAMA/LABA; St. George's respiratory questionnaire; jaeger pulmonary function tester.

. 2023 Apr 27;5(2):e220176.
doi: 10.1148/ryct.220176. eCollection 2023 Apr.

MRI Compared with Low-Dose CT for Incidental Lung Nodule Detection in COPD: A Multicenter Trial

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Affiliations expand

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- DOI: 10.1148/ryct.220176

Abstract

Purpose: To investigate morphofunctional chest MRI for the detection and management of incidental pulmonary nodules in participants with chronic obstructive pulmonary disease (COPD).

Materials and methods: In this prospective study, 567 participants (mean age, 66 years ± 9 [SD]; 340 men) underwent same-day contrast-enhanced MRI and nonenhanced low-dose CT (LDCT) in a nationwide multicenter trial (clinicaltrials.gov: NCT01245933). Nodule dimensions, morphologic features, and Lung Imaging Reporting and Data System (Lung-RADS) category were assessed at MRI by two blinded radiologists, and consensual LDCT results served as the reference standard. Comparisons were performed using the Student *t* test, and agreements were assessed using the Cohen weighted κ.

Results: A total of 525 nodules larger than 3 mm in diameter were detected at LDCT in 178 participants, with a mean diameter of 7.2 mm ± 6.1 (range, 3.1-63.1 mm). Nodules were not detected in the remaining 389 participants. Sensitivity and positive predictive values with MRI for readers 1 and 2, respectively, were 63.0% and 84.8% and 60.2% and 83.9% for solid nodules (*n* = 495), 17.6% and 75.0% and 17.6% and 60.0% for part-solid nodules (*n* = 17), and 7.7% and 100% and 7.7% and 50.0% for ground-glass nodules (*n* = 13). For

nodules 6 mm or greater in diameter, sensitivity and positive predictive values were 73.3% and 92.2% for reader 1 and 71.4% and 93.2% for reader 2, respectively. Readers underestimated the long-axis diameter at MRI by 0.5 mm ± 1.7 (reader 1) and 0.5 mm ± 1.5 (reader 2) compared with LDCT (P < .001). For Lung-RADS categorization per nodule using MRI, there was substantial to perfect interreader agreement (κ = 0.75-1.00) and intermethod agreement compared with LDCT (κ = 0.70-1.00 and 0.69-1.00).

Conclusion: In a multicenter setting, morphofunctional MRI showed moderate sensitivity for detection of incidental pulmonary nodules in participants with COPD but high agreement with LDCT for Lung-RADS classification of nodules.Clinical trial registration no. NCT01245933 and NCT02629432**Keywords:** MRI, CT, Thorax, Lung, Chronic Obstructive Pulmonary Disease, Screening *Supplemental material is available for this article.*

Keywords: CT; Chronic Obstructive Pulmonary Disease; Lung; MRI; Screening; Thorax.

Conflict of interest statement

Disclosures of conflicts of interest: Q.L. No relevant relationships. L.Z. No relevant relationships. O.v.S. No relevant relationships. S.M.F.T. No relevant relationships. J.B. Siemens Healthineers helped with MRI protocol design; Bayer provided contrast material used in the study; payment for honorarium for presentation at a workshop from Roche, Boehringer Ingelheim, and Fuji; president of European Society of Thoracic Imaging 2022–2023. O.W. No relevant relationships. M.E. Honoraria to author and institution from Vertex Pharmaceutical. C.F.V. Grants or contracts from German Ministry of Education and Science (BMBF), AstraZeneca, Boehringer Ingelheim, Grifols, GlaxoSmithKline, and Novartis; consulting fees from Aerogen, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Novartis, and Nuvaira; payment or honoraria for lectures/presentations from Aerogen, AstraZeneca, Boehringer Ingelheim, CSL Behring, Chiesi, GlaxoSmithKline, Grifols, Insmed, MedUpdate, Novartis, Roche, and Sanofi; support for attending meetings or travel from Boehringer Ingelheim and Sanofi; participation on a data safety monitoring or advisory board from AstraZeneca and Sanofi; Chair of the Science Committee of GOLD, Chairman of the German Lung Foundation (DLS). R.A.J. No relevant relationships. H.U.K. Bayer provided consumables to the consortium; institution receives payment from Siemens, Philips, and Boehringer Ingelheim; consulting fees to author from Median; payment or honoraria for lectures/presentations to author from Siemens, Philips, Boehringer Ingelheim, MSD, and Sanofi. C.P.H. Grants/contracts from Siemens (2012–2014), Pfizer (2012–2014), MeVis (2012, 2013), Boehringer Ingelheim (2014), and German Center for Lung Research (2011ff); consulting fees from Schering-Plough (2009, 2010), Pfizer (2008–2014), Basilea (2008, 2009, 2010), Boehringer Ingelheim (2010–2014), Novartis (2010, 2012, 2014), Roche (2010), Astellas (2011, 2012), Gilead (2011–2015), MSD (2011–2013), Lilly (2011), Intermune (2013-2014), and Fresenius (2013, 2014); lecture fees from Gilead (2008–2014), Essex (2008, 2009, 2010), Schering-Plough (2008, 2009, 2010), AstraZeneca (2008–2014, 2022), Lilly (2008,

2009, 2012), Roche (2008, 2009), MSD (2009–2014), Pfizer (2010–2014), Bracco (2010, 2011), MEDA Pharma (2011), Intermune (2011–2014), Chiesi (2012), Siemens (2012), Covidien (2012), Pierre Fabre (2012), Boehringer Ingelheim (2012, 2013, 2022), Grifols (2012), Novartis (2013–2016), Basilea (2015, 2016), and Bayer (2016); patent: Method and Device For Representing the Microstructure of the Lungs. IPC8 Class: AA61B5055FI, PAN: 20080208038, Inventors: W Schreiber, U Wolf, AW Scholz, CP Heussel; participation on a data safety monitoring board or advisory board: Schering-Plough (2009, 2010), Pfizer (2008–2014), Basilea (2008, 2009, 2010), Boehringer Ingelheim (2010–2014, 2022ff), Novartis (2010, 2012, 2014), Roche (2010), Astellas (2011, 2012), Gilead (2011–2015), MSD (2011–2013), Lilly (2011), Intermune (2013–2014), Fresenius (2013, 2014); leadership or fiduciary roles: chest working group of the German Roentgen Society (national guidelines: bronchial carcinoma, mesothelioma, COPD, screening for bronchial carcinoma, CT and MRI of the chest, pneumonia); consultant of ECIL-3, ECCMID, EORTC/MSG (guideline for diagnosis of infections in immunocompromised hosts); founding member of the working team in infections in immunocompromised hosts of the German Society of Hematology/Oncology (guideline for diagnosis of infections in immunocompromised hosts); faculty member of European Society of Thoracic Radiology (ESTI), European Respiratory Society (ERS), and member in EIBALL (European Imaging Biomarkers Alliance); editor of Medizinische Klinik, Intensivmedizin und Notfallmedizin at Springer publishing; stock/stock options GSK. B.J.J. No relevant relationships. M.O.W. Bayer provided contrast material for MRI examinations; study grants paid to institution from Vertex Pharmaceuticals and Boehringer Ingelheim; consultancy fees paid to institution from Vertex Pharmaceuticals and Boehringer Ingelheim.

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Cell Signal

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Phosphodiesterase 7 as a therapeutic target – Where are we now?

Alina Zorn[1], George Baillie[2]
Affiliations expand

- PMID: 37120115

- DOI: 10.1016/j.cellsig.2023.110689

Abstract

Cyclic nucleotide phosphodiesterases (PDEs) are a superfamily of enzymes that hydrolyse the intracellular second messengers cAMP and cGMP to their inactive forms 5'AMP and 5'GMP. Some members of the PDE family display specificity towards a single cyclic nucleotide messenger, and PDE4, PDE7, and PDE8 specifically hydrolyse cAMP. While the role of PDE4 and its use as a therapeutic target have been well studied, less is known about PDE7 and PDE8. This review aims to collate the present knowledge on human PDE7 and outline its potential use as a therapeutic target. Human PDE7 exists as two isoforms PDE7A and PDE7B that display different expression patterns but are predominantly found in the central nervous system, immune cells, and lymphoid tissue. As a result, PDE7 is thought to play a role in T cell activation and proliferation, inflammation, and regulate several physiological processes in the central nervous system, such as neurogenesis, synaptogenesis, and long-term memory formation. Increased expression and activity of PDE7 has been detected in several disease states, including neurodegenerative diseases such as Parkinson's, Alzheimer's and Huntington's disease, autoimmune diseases such as multiple sclerosis and COPD, and several types of cancer. Early studies have shown that administration of PDE7 inhibitors may ameliorate the clinical state of these diseases. Targeting PDE7 may therefore provide a novel therapeutic strategy for targeting a broad range of disease and possibly provide a complementary alternative to inhibitors of other cAMP-selective PDEs, such as PDE4, which are severely limited by their side-effects.

Keywords: Drug development; Neurodegenerative disease; PDE7; Phosphodiesterase 7; cAMP; cancer.

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: Alina Zorn reports financial support was provided by Medical Research Council. Professor George Baillie is the Editor in Chief of Cellular Signalling.

BMC Pulm Med
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doi: 10.1186/s12890-023-02436-1.

COPD exacerbations and patient-reported outcomes according to post-bronchodilator FEV_1 – a post-hoc analysis of pooled data

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Affiliations expand

- PMID: 37118725
- PMCID: PMC10148499
- DOI: 10.1186/s12890-023-02436-1

Free PMC article

Abstract

Background: Management strategies of chronic obstructive pulmonary disease (COPD) need to be tailored to the forced expiratory volume in one second (FEV_1), exacerbations, and patient-reported outcomes (PROs) of individual patients. In this study, we analyzed the association and correlation between the FEV_1, exacerbations, and PROs of patients with stable COPD.

Methods: This was a post-hoc analysis of pooled data from two cross-sectional studies that were previously conducted in Malaysia from 2017 to 2019, the results of which had been published separately. The parameters measured included post-bronchodilator FEV_1 (PB-FEV_1), exacerbations, and scores of modified Medical Research Council (mMRC), COPD Assessment Test (CAT), and St George's Respiratory Questionnaire for COPD (SGRQ-c). Descriptive, association, and correlation statistics were used.

Results: Three hundred seventy-four patients were included in the analysis. The PB-FEV_1 predicted was < 30% in 85 (22.7%), 30-49% in 142 (38.0%), 50-79% in 111 (29.7%), and ≥ 80% in 36 (9.6%) patients. Patients with PB-FEV_1 < 30% predicted had significantly more COPD exacerbations than those with PB-FEV_1 30-49% predicted ($p < 0.001$), 50-79% predicted ($p < 0.001$), and ≥ 80% predicted ($p = 0.002$). The scores of mMRC, CAT, and SGRQ-c were not significantly higher in patients with more severe airflow limitation based on PB-FEV_1 ($p = 0.121$-0.271). The PB-FEV_1 predicted had significant weak negative correlations with exacerbations ($r = -0.182$, $p < 0.001$), mMRC ($r = -0.121$, $p = 0.020$), and SGRQ-c scores ($r = -0.114$, $p = 0.028$). There was a moderate positive correlation between COPD exacerbations and scores of mMRC, CAT, and SGRQ-c ($r = 0.407$-0.482, all $p < 0.001$). There were significant strong positive correlations between mMRC score with CAT ($r = 0.727$) and SGRQ-c scores ($r = 0.847$), and CAT score with SGRQ-c score ($r = 0.851$) (all $p < 0.001$).

Conclusions: In COPD patients, different severity of airflow limitation was not associated with significant differences in the mMRC, CAT, and SGRQ-c scores. Exacerbations were significantly more frequent in patients with very severe airflow limitation only. The correlation between airflow limitation with exacerbations, mMRC, and SGRQ-c was weak.

Keywords: COPD Assessment Test (CAT); Chronic obstructive pulmonary disease (COPD); Exacerbations; Forced expiratory volume in one second (FEV1); Modified Medical Research Council (mMRC); St George's respiratory questionnaire for COPD (SGRQ-c).

- 45 references

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

5
Review

Sci Rep
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. 2023 Apr 28;13(1):6990.
doi: 10.1038/s41598-023-34290-w.

Serum levels of erythropoietin in patients with chronic obstructive pulmonary disease and anemia

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Affiliations expand

- PMID: 37117600

- PMCID: PMC10147932

- DOI: 10.1038/s41598-023-34290-w

Free PMC article

Abstract

The important association of erythropoietin (EPO) serum levels and chronic obstructive pulmonary disease (COPD) with anemia has been inadequately studied and remains a controversial issue. We aimed to shed light on this matter by comparing EPO levels in anemic and non-anemic COPD patients, along with a review of published literature. This cross-sectional study was conducted on COPD patients referred to the pulmonary clinic of Shahid Faghihi Hospital and Motahari clinic, Shiraz, Iran, for one year. We measured complete blood count, red blood cell indices, serum iron, TIBC and ferritin levels, serum EPO levels, and body mass index. Among 35 patients in this study, 28 males and 7 females were enrolled with a mean age of 54.57 ± 8.07 years. The average Forced expiratory volume in first second (FEV1) was 37.26 ± 7.33% and FEV1/FVC was 0.46 ± 0.12. Mean EPO

levels were 30.29 ± 2.066 mU/mL. No statistically significant association was observed among erythropoietin levels and Hb, COPD severity, and age. There was no significant difference in EPO levels between anemic and non-anemic patients. EPO level, against the traditional expectation, didn't increase in COPD patients. EPO production also didn't compensate for the anemia of chronic disease which considers as a common comorbid disorder in these patients.

- 42 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

6
Am Heart J
. 2023 Apr 26;S0002-8703(23)00108-4.
doi: 10.1016/j.ahj.2023.04.016. Online ahead of print.

Mortality in patients with chronic obstructive pulmonary disorder undergoing TAVR: the importance of COPD exacerbation

Marie Dam Lauridsen[1], Jan Brink Valentin[2], Jarl Emanuel Strange[3], Peter A Jacobsen[4], Lars Køber[5], Ulla Weinreich[4], Søren Paaske Johnsen[2], Emil Fosbøl[5]
Affiliations expand

- PMID: 37116603

- DOI: 10.1016/j.ahj.2023.04.016

Abstract

Background: Severe chronic obstructive pulmonary disease (COPD) has been associated with futile outcome after transcatheter aortic valve replacement (TAVR). Data on outcomes according to COPD severity are warranted to aid identification of patients who may not benefit from TAVR. We aimed to examine the association between risk of COPD exacerbation and 1-year mortality after TAVR.

Methods: Using Danish nationwide registries we identified patients undergoing first-time TAVR during 2008–2021 by COPD status. COPD severity levels were defined as low or high risk of acute exacerbation of COPD (AE-COPD) and treatment intensity levels (none or short-term, mono/dual, triple therapy, or home oxygen). Kaplan-Meier functions and adjusted Cox regression models were used to assess 1-year mortality comparing COPD severity groups with patients without COPD.

Results: We identified 7,047 patients with TAVR of whom 644 had a history of COPD (low risk of AE-COPD: 439, high risk of AE-COPD: 205). The median age of the TAVR cohort was 81.4 years (IQR: 76.8–85.1) and 55.8% were males. One-year mortality for TAVR patients without COPD was 8.5% (95% CI: 7.8–9.2) and 15.4% (95% CI: 12.5–18.2) for those with COPD (adjusted HR: 1.63 (95% CI: 1.28–2.07)). Patients with low or high risk of AE-COPD had 1-year mortality of 13.1% (95% CI: 9.8–16.3) and 20.2% (95% CI: 14.6–25.8) corresponding to adjusted HRs of 1.31 (95% CI: 0.97–1.78) and 2.44 (95% CI: 1.70–3.50) compared with patients without COPD. Patients with high risk of AE-COPD and no/short term therapy or use of home oxygen represented the subgroups of patients with the highest 1-year mortality (31.6% (95% CI: 14.5–48.7) and 30.9% (95% CI: 10.3–51.6)).

Conclusion: Among patients undergoing TAVR, increasing risk of exacerbation with COPD was associated with increasing 1-year mortality compared with non-COPD patients. Patients with a high risk of exacerbation with COPD not using any guideline recommended COPD medication and those using home oxygen had the highest 1-year mortality.

Keywords: Aortic stenosis; Chronic obstructive pulmonary disease; Epidemiology; Mortality; Transcatheter aortic valve replacement.

Conflict of interest statement

Disclosures Dr. Lauridsen has nothing to declare. Mr. Valentin has nothing to declare. Dr. Strange has nothing to declare. Dr. Jacobsen reports personal fees from AstraZeneca outside the submitted work. Dr. Møller Weinreich reports personal fees from Astra Zeneca,

Chiesi, Novartis, Boehringer Ingelheim, Pfizer, GSK, and Orion pharma outside the submitted work. Dr. Johnsen reports personal fees from BMS and Pfizer, outside the submitted work. Dr. Køber reports personal fees from Novartis, BMS, and AstraZeneca, outside the submitted work. Dr. Fosbøl reports a grant from Novo Nordisk, outside the submitted work.

Editorial

Eur Respir J

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Lung volume reduction in COPD: scope or surgery

Francesca Polverino[1], Frank Sciurba[2]
Affiliations expand

- PMID: 37105590

- DOI: 10.1183/13993003.00353-2023

No abstract available

Conflict of interest statement

Conflict of interest: F. Polverino reports unrestricted grant funds from Boehringer Ingelheim, lecture honoraria from University of California San Francisco and Emory University, travel support from FWO Flanders, holds a leadership role with ATS RCMB executive committee, and is a section editor for the European Respiratory Journal, outside

the submitted work. F. Sciurba reports institutional grant support from Pulmonx, outside the submitted work.

Comment on

- Lung volume reduction surgery *versus* endobronchial valves: a randomised controlled trial.
  Buttery SC, Banya W, Bilancia R, Boyd E, Buckley J, Greening NJ, Housley K, Jordan S, Kemp SV, Kirk AJB, Latimer L, Lau K, Lawson R, Lewis A, Moxham J, Rathinam S, Steiner MC, Tenconi S, Waller D, Shah PL, Hopkinson NS; CELEB investigators.Eur Respir J. 2023 Apr 27;61(4):2202063. doi: 10.1183/13993003.02063-2022. Print 2023 Apr.PMID: 36796833 **Free PMC article.** Clinical Trial.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Am J Respir Crit Care Med
.
. 2023 Apr 27.
doi: 10.1164/rccm.202303-0581RR. Online ahead of print.

Exacerbations in Chronic Obstructive Pulmonary Disease: Clinical, Genetic and Mycobiome Risk Factors

Kenki Matsumoto[1], Nicola Read[2], Keir E J Philip[3], James P Allinson[3]
Affiliations expand

- PMID: 37104845

- DOI: 10.1164/rccm.202303-0581RR

No abstract available

Keywords: COPD; Genetic; Genotype; Infection; Mycobiome.

ERJ Open Res

. 2023 Apr 24;9(2):00597-2022.
doi: 10.1183/23120541.00597-2022. eCollection 2023 Mar.

The national COPD screening programme in China: rationale and design

Jieping Lei[1234], Ke Huang[2345], Jun Pan[6], Wei Li[2345], Hongtao Niu[2345], Xiaoxia Ren[2345], Fen Dong[1234], Yong Li[2347], Baicun Li[2348], Cunbo Jia[2346], Ting Yang[2345], Chen Wang[2345910]
Affiliations expand

- PMID: 37101739

- PMCID: PMC10123511

- DOI: 10.1183/23120541.00597-2022

Free PMC article

Abstract

Background: COPD is the most prevalent chronic respiratory disease in China. It is estimated that there is a large, as-yet undetected, high-risk population who will develop in COPD in future.

Methods and design: In this context, a nationwide COPD screening programme was launched on 9 October 2021. This multistage sequential screening programme incorporates a previously validated questionnaire (*i.e.* COPD Screening Questionnaire) and pre- and post-bronchodilator spirometry to target the COPD high-risk population. The programme plans to recruit 800 000 participants (eligible age 35-75 years) from 160 districts or counties of 31 provinces, autonomous regions or municipalities across China. The filtered COPD high-risk population and early-detected COPD patients will receive integrated management and be followed-up for ≥1 year.

Discussion: This is the first large-scale prospective study to determine the net benefit of mass screening for COPD in China. Whether the smoking cessation rate, morbidity, mortality and health status of individuals at high risk of COPD could be improved along with this systematic screening programme will be observed and validated. Moreover, the diagnostic accuracy, cost-effectiveness and superiority of the screening programme will also be assessed and discussed. The programme marks a remarkable achievement in the management of chronic respiratory disease in China.

Conflict of interest statement

Conflict of interest: The programme is conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

- 58 references
- 2 figures

10

ERJ Open Res

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. 2023 Apr 24;9(2):00458-2022.

doi: 10.1183/23120541.00458-2022. eCollection 2023 Mar.

Clinical impact of routine sleep assessment by peripheral arterial tonometry in patients with COPD

Daniel Hansson[1,2], Anders Andersson[2,3], Lowie E G W Vanfleteren[2,3], Kristina Andelid[3], Ding Zou[4], Jan Hedner[1,4], Ludger Grote[1,4]
Affiliations expand

- PMID: 37101736
- PMCID: PMC10123515
- DOI: 10.1183/23120541.00458-2022

Free PMC article

Abstract

Background: Coexisting obstructive sleep apnoea (OSA) in patients with COPD, defined as overlap syndrome (OVS), is prevalent and underdiagnosed. Routine assessment of OSA is not common practice in COPD care. Our study assessed the clinical impact of sleep assessment by peripheral arterial tonometry (PAT) in COPD patients.

Methods: 105 COPD patients (mean age 68.1±9 years, body mass index (BMI) 28.3±6.0 kg·m^{-2}, 44% males, Global Initiative for Chronic Obstructive Lung Disease (GOLD) stages I to IV in 2%, 40%, 42% and 16%, respectively) underwent assessment at an outpatient COPD clinic including anthropometrics, arterial blood gas (ABG) and spirometry in this clinical cohort study. PAT-based sleep studies were performed. Predictors of OVS and ABG were determined. Rapid eye movement (REM) sleep-related OSA (REM-OSA) was analysed in OVS.

Results: 49 COPD patients (47%) suffered from moderate to severe OSA (OVS group, mean apnoea-hypopnoea index 30.8±18 events·h^{-1}, REM-oxygen desaturation index (REM-ODI) 26.9±17 events·h^{-1}). OVS was more prevalent in males compared to females (59% and 37%, p=0.029, respectively). Age (70.1±8 *versus* 66.3±10 years), BMI (30.0±6 *versus* 26.4±7 kg·m^{-2}) and hypertension prevalence (71% *versus* 45%) were elevated (all p<0.03, respectively), while deep sleep (12.7±7% and 15.4±6%, p=0.029) and mean overnight oxygenation

(90.6±3% and 92.3±2%, p=0.003) were lower in OVS compared to COPD alone. REM-ODI was independently associated with daytime arterial carbon dioxide tension (P_{aCO_2}) (β=0.022, p<0.001). REM-OSA was associated with an elevated prevalence of atrial fibrillation compared to no REM-OSA (25% and 3%, p=0.022).

Conclusions: OVS was highly prevalent, specifically in obese males. REM-related OSA showed strong association with elevated daytime P_{aCO_2} and prevalent cardiovascular disease. PAT was feasible for sleep assessment in COPD.

Conflict of interest statement

Conflict of interest: D. Hansson reports no conflict of interest. Conflict of interest: A. Andersson reports personal fees outside the submitted manuscript for lectures in pulmonary medicine from Chiesi, Teva, AstraZeneca, and Boehringer Ingelheim. Conflict of interest: L.E.G.W. Vanfleteren reports no conflict of interest related to the study. Outside the scope of the study, he reports payment for lectures, advisory boards or consultancy for Resmed, AstraZeneca, GSK, Novartis, Boehringer and Pulmonx. He is an associate editor of this journal. Conflict of interest: K. Andelid reports no conflict of interest. Conflict of interest: D. Zou reports no conflict of interest. Conflict of interest: J. Hedner reports support in terms of equipment from Itamar Medical related to the study. Outside the scope of the current study, he reports lecturing activities for AstraZeneca and Itamar as well as grant support for scientific projects from Desitin and Bayer Pharma. He has a co-ownership of a licensed patent for pharmacological sleep apnoea treatment. Conflict of interest: L. Grote reports support from Itamar Medical related to the study (PAT devices and probes). Outside the scope of the study, he reports lecturing activities for Resmed, Philips, AstraZeneca, Itamar and Lundbeck as well as grant support for scientific projects from Desitin and Bayer. He has a co-ownership in a licensed patent for sleep apnoea treatment.

- 46 references
- 3 figures

. 2023 Apr 26;23(1):144.
doi: 10.1186/s12890-023-02448-x.

Cognitive impairment according to Montreal Cognitive Assessment independently predicts the ability of chronic obstructive pulmonary disease patients to maintain proper inhaler technique

Chonnipha Iamthanaporn[1], Apiradee Wisitsartkul[1], Benjamas Chuaychoo[2]
Affiliations expand

- PMID: 37101175

- PMCID: PMC10131352

- DOI: 10.1186/s12890-023-02448-x

Free PMC article

Abstract

Background: Maintaining correct inhaler technique is crucial in the management of chronic obstructive pulmonary disease (COPD). We aimed to investigate the inhaler technique in patients with COPD, to compare it immediately after and at 1 month after training, and to identify the predictors of incorrect inhaler use at 1 month after training.

Methods: This prospective study was conducted at the COPD clinic of Siriraj Hospital (Bangkok, Thailand). Patients demonstrating improper inhaler use were trained face-to-face by pharmacists. Inhaler technique was re-assessed immediately after and at 1 month after training. The Montreal Cognitive Assessment (MoCA) score, pulmonary function tests, 6-min walk distance (6 MWD), modified Medical Research Council scale score, and COPD Assessment Test (CAT) score were evaluated.

Results: Sixty-six patients with COPD who demonstrated at least one critical error during the use of any controller inhaler were enrolled. The mean age was 73.0 ± 9.0 years, and 75.8% patients had moderate/severe COPD. Immediately after training, all patients used dry powder inhalers correctly and 88.1% used pressurized metered-dose inhalers correctly. At 1 month, the number of patients demonstrating the correct technique decreased across all devices. Multivariable analysis revealed that MoCA score ≤ 16 was independently associated with a critical error at 1 month after training (adjusted odds ratio: 12.7, 95% confidence interval: 1.8-88.2, p = 0.010). At 1 month, CAT score (11.4 ± 8.9 vs. 8.4 ± 5.5, p = 0.018) and 6 MWD (351 ± 93 m vs. 372 ± 92 m, p = 0.009) had significantly improved in patients demonstrating the correct technique, and CAT score met the minimal clinically important difference.

Conclusions: Face-to-face training by pharmacists improved patient performance. However, the number of patients following proper technique had decreased at 1 month after training. Cognitive impairment (MoCA score ≤ 16) independently predicted the ability of COPD patients to maintain proper inhaler technique. Assessment of cognitive function combined with technical re-assessment and repeated training should improve COPD management.

Keywords: Chronic obstructive pulmonary disease; Cognitive impairment; Health status; Incorrect inhaler use; Montreal Cognitive Assessment; Pharmacist.

Conflict of interest statement

The authors declare no competing interests.

- 46 references
- 3 figures

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

. 2023 Apr 25;18(4):e0284800.
doi: 10.1371/journal.pone.0284800. eCollection 2023.

Postural control among individuals with and without chronic obstructive pulmonary disease: A cross-sectional study of motor and sensory systems

Viktor Strandkvist[1], Anne Lindberg[2], Agneta Larsson[1], Mascha Pauelsen[1], Caroline Stridsman[2], Lars Nyberg[1], Helena Backman[3], Ulrik Röijezon[1]
Affiliations expand

- PMID: 37098038

- PMCID: PMC10128989

- DOI: 10.1371/journal.pone.0284800

Free PMC article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is considered a heterogenic syndrome with systemic effects, including muscle dysfunction. There is evidence of postural control impairments among individuals with COPD, partly related to muscle weakness. However, research is scarce regarding the other underlying systems of postural control, such as the visual, somatosensory and vestibular system. The aim was to compare postural control, as well as the motor and sensory systems, between individuals with and without COPD.

Methods: Twenty-two participants with COPD (mean age 74.0 ±6.2 years) and 34 non-obstructive references (mean age 74.9 ±4.9 years) participated in this cross-sectional study. Postural control was assessed with center of pressure trajectory of postural sway in quiet as well as a limits of stability test, calculating mediolateral and anteroposterior amplitudes for each test. Assessment of function in the motor system included maximum hand grip

strength, as well as maximum strength in muscles around the hip, knee and ankle joints. Visual acuity, pressure sensibility, proprioception, vestibular screening, and reaction time were also included. Data was compared between groups, and significant differences in postural control were further analyzed with an orthogonal projection of latent structures regression model.

Results: There was a significantly increased sway amplitude in the mediolateral direction in quiet stance on soft surface with eyes open ($p = 0.014$) as well as a smaller anteroposterior amplitude in the limits of stability test ($p = 0.019$) in the COPD group. Regression models revealed that the mediolateral amplitude was related to visual acuity and the burden of tobacco smoking assessed as pack-years. Further, muscle strength associated with anteroposterior amplitude in limits of stability test in the COPD group, and with age and ankle dorsal flexion strength among the referents. Besides for lower ankle plantar flexion strength in the COPD group, there were however no significant differences in muscle strength.

Conclusions: Individuals with COPD had a decreased postural control and several factors were associated with the impairments. The findings imply that the burden of tobacco smoking and reduced visual acuity relate to increased postural sway in quiet stance, and that muscle weakness is related to decreased limits of stability, among individuals with COPD.

Conflict of interest statement

The authors have declared that no competing interests exist.

- 37 references
- 4 figures

PLoS One
.
. 2023 Apr 25;18(4):e0284731.
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General practice care following acute exacerbations of COPD: A survey of Australian general practitioners

Bianca Perera[1], Chris Barton[2], Christian Osadnik[1,3]
Affiliations expand

- PMID: 37098003
- PMCID: PMC10129000
- DOI: 10.1371/journal.pone.0284731

Free PMC article

Abstract

Acute exacerbations of COPD (AECOPDs) are one of the leading causes of preventable hospital admissions in Australia. Exacerbations are the strongest predictor for future exacerbations. The period immediately following an exacerbation is a high-risk period for recurrence and critical time to intervene. The aim of this study was to identify current general practice care for patients following an AECOPD in Australia and gain insights into knowledge of evidence-based care. A cross-sectional survey was created and disseminated electronically to Australian general practitioners (GPs). Data were analysed descriptively. Comparisons between groups were made using Chi squared tests. From 64 responses, 47% were familiar with the COPD-X Plan. Only 50% described reviewing patients within seven days of discharge mostly related to a lack of awareness of the hospital admission. 50% of surveyed GPs reported hospital discharge summaries did not provide the information they required. Smoking, immunisation and medications were regularly assessed by >90%

respondents at follow-up visits, while referrals to pulmonary rehabilitation, and evaluation of spirometry and oxygen therapy were not prioritised. GPs appear to require support to increase their familiarity with COPD guidelines and inform evidence-based clinical practice. The handover/communication process from hospital to primary care appears an important area for future improvement.

Conflict of interest statement

The authors have declared that no competing interests exist.

- 27 references
- 5 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

14
Pulm Ther
. 2023 Apr 24.
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Effect of Long-Term Oxygen Therapy on Reducing Rehospitalization of Patients with Chronic Obstructive

Pulmonary Disease: A Systematic Review and Meta-Analysis

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Affiliations expand

- PMID: 37093408

- DOI: 10.1007/s41030-023-00221-3

Free article

Abstract

Introduction: The aim of this work is to evaluate whether the addition of home oxygen therapy (HOT) would reduce readmission in chronic obstructive pulmonary disease (COPD) patients.

Methods: PubMed, ScopeMed, Cochrane, Scopus, and Google Scholar databases were searched. The search strategy used the following keywords "chronic obstructive pulmonary disease", the intervention "long-term oxygen therapy", and the outcome "readmission" combined with the AND operator. The Newcastle-Ottawa Scale and Jadad Scale were used for assessing the quality of cohort studies and clinical trials, respectively. A random-effects model was employed in this study after calculating the standard errors by 95% confidence intervals. The I2 statistic and Cochran's Q-test were used to measure heterogeneity. To address heterogeneity, subgroup analyses were carried out according to the length of LTOT, which was classified as "over 8 months" and "under 8 months".

Results: Seven studies were included in the analysis. In the pooled analysis, the RR [CI95%, p value], heterogeneity criteria for readmission reduced by 1.542 [1.284-1.851, < 0.001], I^2 = 60%, and 1.693 [1.645-1.744, < 0.001], I^2 = 60% for patients with a length of LTOT treatment under and above 8 months, respectively. A sensitivity analysis was conducted by systematically omitting each study, and it showed no influential studies. Egger's test indicated no publication bias (p = 0.64).

Conclusions: Based on our results in this systematic review, long-tern oxygen therapy (LTOT) at home was associated with a significantly lower risk ratio of hospital readmission. However, the sample sizes in the studies necessitate larger RCTs to evaluate the effect of LTOT on readmission in COPD patients.

Keywords: COPD; Hospitalization; LTOT; Readmission.

- 35 references

15

Expert Rev Respir Med

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. 2023 Apr 26;1-14.

doi: 10.1080/17476348.2023.2205127. Online ahead of print.

Impact of aging on immune function in the pathogenesis of pulmonary diseases: potential for therapeutic targets

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Affiliations expand

- PMID: 37078192

- DOI: 10.1080/17476348.2023.2205127

Abstract

Introduction: Several immunological alterations that occur during pulmonary diseases often mimic alterations observed in the aged lung. From the molecular perspective, pulmonary diseases and aging partake in familiar mechanisms associated with significant dysregulation of the immune systems. Here, we summarized the findings of how aging

alters immunity to respiratory conditions to identify age-impacted pathways and mechanisms that contribute to the development of pulmonary diseases.

Areas covered: The current review examines the impact of age-related molecular alterations in the aged immune system during various lung diseases, such as COPD, IPF, Asthma, and alongside many others that could possibly improve on current therapeutic interventions. Moreover, our increased understanding of this phenomenon may play a primary role in shaping immunomodulatory strategies to boost outcomes in the elderly. Here, the authors present new insights into the context of lung-related diseases and describe the alterations in the functioning of immune cells during various pulmonary conditions altered with age.

Expert opinion: The expert opinion provided the concepts on how aging alters immunity during pulmonary conditions, and suggests the associated mechanisms during the development of lung diseases. As a result, it becomes important to comprehend the complex mechanism of aging in the immune lung system.

Keywords: Aging; COPD; Cellular senescence; Cytokines; IPF; Immunity; Lymphocytes.

Clin Immunol

. 2023 May;250:109324.
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Reduced quantity and function of pneumococcal antibodies are associated with exacerbations of COPD in SPIROMICS

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Barjaktarevic[8], Robert J Kaner[9], Annette Hastie[10], Wanda K O'Neal[11], David Couper[12], Prescott G Woodruff[13], Jeffrey L Curtis[14], Nadia N Hansel[2], Moon H Nahm[15], Mark T Dransfield[16], Nirupama Putcha[2]; SPIROMICS investigators
Affiliations expand

- PMID: 37030524

- DOI: 10.1016/j.clim.2023.109324

Abstract

While hypogammaglobulinemia is associated with COPD exacerbations, it is unknown whether frequent exacerbators have specific defects in antibody production/function. We hypothesized that reduced quantity/function of serum pneumococcal antibodies correlate with exacerbation risk in the SPIROMICS cohort. We measured total pneumococcal IgG in n = 764 previously vaccinated participants with COPD. In a propensity-matched subset of n = 200 with vaccination within five years (n = 50 without exacerbations in the previous year; n = 75 with one, n = 75 with ≥2), we measured pneumococcal IgG for 23 individual serotypes, and pneumococcal antibody function for 4 serotypes. Higher total pneumococcal IgG, serotype-specific IgG (17/23 serotypes), and antibody function (3/4 serotypes) were independently associated with fewer prior exacerbations. Higher pneumococcal IgG (5/23 serotypes) predicted lower exacerbation risk in the following year. Pneumococcal antibodies are inversely associated with exacerbations, supporting the presence of immune defects in frequent exacerbators. With further study, pneumococcal antibodies may be useful biomarkers for immune dysfunction in COPD.

Keywords: Antibodies; Immunity; Immunoglobulin G; Opsonization; Streptococcus pneumoniae.

17
Chronic Obstr Pulm Dis
.
. 2023 Apr 27;10(2):190-198.
doi: 10.15326/jcopdf.2022.0306.

The Association Between Systemic Arterial Hypertension and Chronic Obstructive Pulmonary Disease. Results from the U.S. National Health and Nutrition Examination Survey 1999-2018: A Cross-sectional Study

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Affiliations expand

- PMID: 36976571

- DOI: 10.15326/jcopdf.2022.0306

Free article

Abstract

Background: Systemic arterial hypertension (HTN) is one of the common comorbidities among patients with chronic obstructive pulmonary disease (COPD). This study aimed to investigate the association between HTN and COPD.

Methods: A total of 46,804 eligible non-pregnant participants aged ≥ 20 years examined in the Mobile Examination Center of the National Health and Nutrition Examination Survey (NHANES) 1999-2018 were included in this cross-sectional study. Participants with invalid data on covariates, HTN, and COPD were excluded. The association between HTN and COPD was studied using logistic regression upon adjusting the potential covariates.

Results: Among the participants, 46.1% (95% confidence interval [CI], 45.3-46.9) had HTN, and 6.8% (95% CI, 6.4-7.2) had self-reported COPD. COPD was associated with HTN (OR

[odds ratio]=1.18, 95% CI [1.05-1.31], *P*<0.01) after adjusting for demographics, socioeconomic factors, smoking, diabetes, body mass index, and medication use, including inhaled corticosteroids and methylxanthines. The association between HTN and COPD was significant among adults younger than 60 years (*P*<0.01). Stratified by smoking status, there was a significant association between HTN and COPD in current heavy smokers (1.25, 95% CI [1.01-1.58]; *P*=0.04).

Conclusions: In this nationwide survey, COPD was associated with HTN. The association was more robust among adults younger than 60 years and current heavy smokers. Future prospective studies are needed to examine the relationship between HTN and COPD.

Keywords: COPD; NHANES; arterial hypertension; heavy smokers; hypertension; smoking.

18

Chronic Obstr Pulm Dis

. 2023 Apr 27;10(2):170-177.
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Physical Activity, Air Pollution Exposure, and Lung Function Interactions Among Adults with COPD

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Affiliations expand

- PMID: 36976544

- DOI: 10.15326/jcopdf.2022.0385

Free article

Abstract

Rationale: Although physical activity is strongly encouraged for patients with chronic obstructive pulmonary disease (COPD), it is unknown if physical activity affects daily exposure to air pollution, or whether it attenuates or exacerbates the effects of pollution on the airways among adults with COPD.

Methods: Thirty former smokers with moderate-to-severe COPD in Boston were followed for 4 non-consecutive months in different seasons. We assessed daily lung function (forced expiratory volume in 1 second [FEV_1] and forced vital capacity [FVC]), prior-day personal pollutant exposure measured by portable air quality monitors (fine particulate matter [$PM_{2.5}$] nitrogen oxide [NO_2], and ozone [O_3]), and daily step count. We constructed multi-level linear mixed-effects models with random intercepts for person and person-observation month, adjusting for demographic/seasonal covariates to test if step count was associated with daily pollution exposure, and if associations between prior-day pollution and lung function differed based on prior-day step count. Where effect modification was found, we performed stratified analyses by tertile of step count.

Results: Higher daily step count was associated with higher same-day personal exposure to $PM_{2.5}$, and O_3 but not NO_2. Each interquartile range (IQR) increment in step count was associated with 0.97 μg/m^3 (95%CI: 0.30, 1.64) higher exposure to $PM_{2.5}$ and 0.15 parts per billion (95% CI: -0.05, 0.35) higher exposure to O_3 in adjusted models. We observed an interaction between prior-day NO_2 and step count on FEV_1 and FVC ($P_{interaction}$ <0.05) in which the negative associations between NO_2 and lung function were reduced or absent at higher levels of daily activity. For example, FEV_1 was 28.5mL (95%CI: -41.0, -15.9) lower per IQR of NO_2 in the lowest tertile of step count, but there was no association in the highest tertile of step count (-1.6mL, 95% CI: -18.4, 15.2).

Conclusions: Higher physical activity was associated with modestly higher daily exposure to $PM_{2.5}$ and O_3 and may attenuate the association between NO_2 exposure and lung function.

Keywords: COPD; FEV1; FVC; ambient pollution; particulate matter; physical activity.

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

Review

Respir Med

. 2023 May;211:107222.
doi: 10.1016/j.rmed.2023.107222. Epub 2023 Mar 23.

Small airways disease in patients with alpha-1 antitrypsin deficiency

Dimitrios Toumpanakis[1], Omar S Usmani[2]
Affiliations expand

- PMID: 36965591

- DOI: 10.1016/j.rmed.2023.107222

Free article

Abstract

Alpha-1 antitrypsin deficiency (AATD) is a genetic disorder, characterized by panacinar emphysema mainly in the lower lobes, and predisposes to chronic obstructive pulmonary disease (COPD) at a younger age, especially in patients with concomitant cigarette smoking. Alpha-1 antitrypsin (a1-AT) is a serine protease inhibitor that mainly blocks neutrophil elastase and maintains protease/antiprotease balance in the lung and AATD is caused by mutations in the SERPINA1 gene that encodes a1-AT protein. PiZZ is the most common genotype associated with severe AATD, leading to reduced circulating levels of a1-AT. Besides its antiprotease function, a1-AT has anti-inflammatory and antioxidative effects and AATD results in defective innate immunity. Protease/antiprotease imbalance affects not only the lung parenchyma but also the small airways and recent studies have shown that AATD is associated with small airway dysfunction. Alterations in small airways

structure with peripheral ventilation inhomogeneities may precede emphysema formation, providing a unique opportunity to detect early disease. The aim of the present review is to summarize the current evidence for the contribution of small airways disease in AATD-associated lung disease.

Keywords: Alpha-1 antitrypsin; COPD; Emphysema; Small airways.

Conflict of interest statement

Declaration of competing interest DT has received honoraria for presentations from Menarini, Chiesi and ELPEN pharmaceutical company. OSU reports grants and personal fees from Astra Zeneca, Boehringer Ingelheim, Chiesi, Glaxosmithkline, personal fees from Cipla, Covis, Deva, Kamada, Kyorin, Napp, Novartis, Orion, Menarini, Mereobiopharma, Mundipharma, Trudell Medical, UCB, Sandoz, Takeda, grants from Edmond outside the submitted work.

Aging Clin Exp Res

. 2023 May;35(5):953-968.
doi: 10.1007/s40520-023-02381-3. Epub 2023 Mar 23.

Technological advances and digital solutions to improve quality of life in older adults with chronic obstructive pulmonary disease: a systematic review

Lorenzo Lippi[1,2], Alessio Turco[1], Arianna Folli[1], Francesco D'Abrosca[1], Claudio Curci[3], Kamal Mezian[4], Alessandro de Sire[5,6], Marco Invernizzi[1,2]
Affiliations expand

- PMID: 36952118

- PMCID: PMC10034255

- DOI: 10.1007/s40520-023-02381-3

Free PMC article

Abstract

Background: Several technological advances and digital solutions have been proposed in the recent years to face the emerging need for tele-monitoring older adults with Chronic Obstructive Pulmonary Disease (COPD). However, several challenges have negatively influenced an evidence-based approach to improve Health-Related Quality of Life (HR-QoL) in these patients.

Aim: To assess the effects of tele-monitoring devices on HR-QoL in older adults with COPD.

Methods: On November 11, 2022, PubMed, Scopus, Web of Science, and Cochrane were systematically searched for randomized controlled trials (RCTs) consistent with the following PICO model: older people with COPD as participants, tele-monitoring devices as intervention, any comparator, and HR-QoL as the primary outcome. Functional outcomes, sanitary costs, safety, and feasibility were considered secondary outcomes. The quality assessment was performed in accordance with the Jadad scale.

Results: A total of 1845 records were identified and screened for eligibility. As a result, 5 RCTs assessing 584 patients (423 males and 161 females) were included in the systematic review. Tele-monitoring devices were ASTRI telecare system, WeChat social media, Pedometer, SweetAge monitoring system, and CHROMED monitoring platform. No significant improvements in terms of HR-QoL were reported in the included studies. However, positive effects were shown in terms of the number of respiratory events and hospitalization in patients telemonitored by SweetAge system and CHROMED platform.

Discussion: Although a little evidence supports the role of tele-monitoring devices in improving HR-QoL in older patients, positive effects were reported in COPD exacerbation consequences and functional outcomes.

Conclusion: Tele-monitoring solutions might be considered as sustainable strategies to implement HR-QoL in the long-term management of older patients with COPD.

Keywords: Aging; Chronic obstructive pulmonary disease; Frailty; Pulmonary rehabilitation; Quality of life; Telemedicine.

Conflict of interest statement

All the authors declare that they have no conflicts of interest.

- 48 references
- 3 figures

Review

Am J Physiol Lung Cell Mol Physiol

. 2023 May 1;324(5):L652-L665.
doi: 10.1152/ajplung.00192.2022. Epub 2023 Mar 21.

An update in club cell biology and its potential relevance to chronic obstructive pulmonary disease

Jessica B Blackburn[1,2], Ngan Fung Li[3], Nathan W Bartlett[4], Bradley W Richmond[1,2,5]
Affiliations expand

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- PMCID: PMC10110710 (available on 2024-05-01)

- DOI: 10.1152/ajplung.00192.2022

Abstract

Club cells are found in human small airways where they play an important role in immune defense, xenobiotic metabolism, and repair after injury. Over the past few years, data from single-cell RNA sequencing (scRNA-seq) studies has generated new insights into club cell heterogeneity and function. In this review, we integrate findings from scRNA-seq experiments with earlier in vitro, in vivo, and microscopy studies and highlight the many ways club cells contribute to airway homeostasis. We then discuss evidence for loss of club cells or club cell products in the airways of patients with chronic obstructive pulmonary disease (COPD) and discuss potential mechanisms through which this might occur.

Keywords: COPD; club cells; scRNA-seq; secretory cells.

Conflict of interest statement

Nathan Bartlett is an editor of American Journal of Physiology-Lung Cellular and Molecular Physiology and was not involved and did not have access to information regarding the peer-review process or final disposition of this article. An alternate editor oversaw the peer-review and decision-making process for this article. None of the other authors has any conflicts of interest, financial or otherwise, to disclose.

. 2023 May;28(5):428-436.
doi: 10.1111/resp.14489. Epub 2023 Mar 15.

Contemporary Concise Review 2022: Chronic obstructive pulmonary disease

Peter M A Calverley[1], Paul P Walker[2]
Affiliations expand

- PMID: 36922031

- DOI: 10.1111/resp.14489

Free article

Abstract

International respiratory organizations now recommend using lower limit of normal and standardized residuals to diagnose airflow obstruction and COPD though using a fixed ratio <0.7 is simpler and robustly predicts important clinical outcomes. The most common COPD comorbidities are coronary artery calcification, emphysema and bronchiectasis. COPD patients with psychological (high anxiety and depression) and cachectic (underweight and osteoporotic) comorbidity have higher mortality and exacerbate more. Serum eosinophil count remains an important COPD biomarker and we have greater clarity about normal eosinophil levels in COPD and the wider population. Criteria for entry into COPD clinical trials continue to exclude many patients, in particular those at greater risk of exacerbation and death. The effect of hyperinflation on cardiac function impacts COPD mortality and is an important target for successful lung volume reduction procedures.

Keywords: COPD comorbidity; COPD diagnosis; COPD exacerbation; COPD treatment; chronic obstructive pulmonary disease.

- 62 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

Eur J Intern Med

. 2023 May;111:97-104.
doi: 10.1016/j.ejim.2023.02.026. Epub 2023 Mar 12.

The influence of comorbidities on the prognosis after an acute heart failure decompensation and differences according to ejection fraction: Results from the EAHFE and RICA registries

Òscar Miró[1], Alicia Conde-Martel[2], Pere Llorens[3], Prado Salamanca-Bautista[4], Víctor Gil[1], Álvaro González-Franco[5], Javier Jacob[6], Jesús Casado[7], Josep Tost[8], Manuel Montero-Pérez-Barquero[9], Aitor Alquézar-Arbé[10], Joan Carles Trullàs[11]; EAHFE and the RICA research investigators
Affiliations expand

- PMID: 36914535

- DOI: 10.1016/j.ejim.2023.02.026

Abstract

Objective: The role of comorbidities in heart failure (HF) outcome has been previously investigated, although mostly individually. We investigated the individual effect of 13 comorbidities on HF prognosis and looked for differences according to left-ventricular ejection fraction (LVEF), classified as reduced (HFrEF), mildly-reduced (HFmrEF) and preserved (HFpEF).

Methods: We included patients from the EAHFE and RICA registries and analysed the following comorbidities: hypertension, dyslipidaemia, diabetes mellitus (DM), atrial fibrillation (AF), coronary artery disease (CAD), chronic kidney disease (CKD), chronic obstructive pulmonary disease (COPD), heart valve disease (HVD), cerebrovascular disease (CVD), neoplasia, peripheral artery disease (PAD), dementia and liver cirrhosis (LC). Association of each comorbidity with all-cause mortality was assessed by an adjusted Cox regression analysis that included the 13 comorbidities, age, sex, Barthel index, New York Heart Association functional class and LVEF and expressed as adjusted Hazard Ratios (HR) with 95% confidence intervals (95%CI).

Results: We analysed 8,336 patients (82 years-old; 53% women; 66% with HFpEF). Mean follow-up was 1.0 years. Respect to HFrEF, mortality was lower in HFmrEF (HR:0.74;0.64-0.86) and HFpEF (HR:0.75;0.68-0.84). Considering patients all together, eight comorbidities were associated with mortality: LC (HR:1.85;1.42-2.42), HVD (HR:1.63;1.48-1.80), CKD (HR:1.39;1.28-1.52), PAD (HR:1.37;1.21-1.54), neoplasia (HR:1.29;1.15-1.44), DM (HR:1.26;1.15-1.37), dementia (HR:1.17;1.01-1.36) and COPD (HR:1.17;1.06-1.29). Associations were similar in the three LVEF subgroups, with LC, HVD, CKD and DM remaining significant in the three subgroups.

Conclusion: HF comorbidities are associated differently with mortality, LC being the most associated with mortality. For some comorbidities, this association can be significantly different according to the LVEF.

Keywords: Comorbidity; Heart failure; Internal medicine; Liver cirrhosis; Mortality.

Conflict of interest statement

Declaration of Competing Interest The authors state that they have no conflict of interests with the present work. The ICA-SEMES Research Group has received unrestricted support from Orion Pharma, Novartis and Boehringer. The present study has been designed, performed, analysed and written exclusively by the authors independently of these pharmaceutical companies.

Respir Med
.
. 2023 May;211:107172.
doi: 10.1016/j.rmed.2023.107172. Epub 2023 Mar 9.

Efficacy of once-daily, single-inhaler, fixed-dose combination of mometasone/indacaterol/glycopyrronium in patients with asthma with or without persistent airflow limitation: Post hoc analysis from the IRIDIUM study

Richard N Van Zyl-Smit[1], Huib Am Kerstjens[2], Jorge F Maspero[3], Konstantinos Kostikas[4], Motoi Hosoe[5], Ana-Maria Tanase[5], Peter D'Andrea[6], Karen Mezzi[5], Dominic Brittain[5], David Lawrence[5], Kenneth R Chapman[7]
Affiliations expand

- PMID: 36906187

- DOI: 10.1016/j.rmed.2023.107172

Free article

Abstract

Background: A novel, once-daily, fixed-dose combination of mometasone furoate/indacaterol acetate/glycopyrronium bromide (MF/IND/GLY) delivered via Breezhaler® is the first inhaled corticosteroid/long-acting β_2-agonist/long-acting muscarinic antagonist (ICS/LABA/LAMA) therapy approved for the maintenance treatment of asthma in adults inadequately controlled on ICS/LABA combination. In patients with

asthma and persistent airflow limitation (PAL), maximal treatment, especially with combination is suggested. This post hoc analysis of data from the IRIDIUM study assessed the efficacy of MF/IND/GLY in asthma patients with and without PAL.

Methods: Patients with post-bronchodilator FEV_1 ≤80% of predicted and FEV_1/FVC ratio of ≤0.7 were categorised as PAL subgroup and the remaining as the non-PAL subgroup. Lung function parameters (FEV_1, PEF, and $FEF_{25\%-75\%}$) and annualised asthma exacerbations rates were evaluated in both subgroups across the treatment arms: once-daily high-dose MF/IND/GLY (160/150/50 µg), high-dose MF/IND (320/150 µg) and twice-daily high-dose fluticasone/salmeterol (FLU/SAL; 500/50 µg).

Results: Of the 3092 randomised patients, 64% (n = 1981) met the criteria for PAL. Overall, there was no evidence of treatment difference between PAL and non-PAL subgroups (interaction P-value for FEV_1, $FEF_{25\%-75\%}$, PEF, moderate or severe exacerbations, severe exacerbations and all exacerbations were 0.42, 0.08, 0.43 0.29, 0.35 and 0.12, respectively). In the PAL subgroup, high-dose MF/IND/GLY versus high-dose MF/IND and high-dose FLU/SAL improved trough FEV_1 (mean difference: 102 mL [P < 0.0001] and 137 mL [P < 0.0001]) and reduced moderate or severe (16% and 32%), severe (25% and 39%) and all exacerbations (19% and 38%), respectively.

Conclusions: Once-daily fixed-dose MF/IND/GLY was efficacious in asthma patients with and without persistent airflow limitation.

Keywords: Asthma; Efficacy; Exacerbations; Long-acting muscarinic antagonist; Lung function; Persistent airflow limitation.

Conflict of interest statement

Declaration of competing interest RVZS reports personal fees from Aspen/GSK, Pfizer, Roche, MSD, AstraZeneca, Novartis, Glenmark, Boehringer Ingelheim and Cipla, outside the submitted work. HAK reports grants and consultancy/advisory board participation from/for Novartis during the conduct of the study, grants and consultancy/advisory board participation from/for GlaxoSmithKline and Boehringer Ingelheim, and a grant from Chiesi, outside the submitted work. All were paid to his institution. JFM reports personal fees and grants from Novartis during the conduct of the study, personal fees from AstraZeneca, grants and personal fees from Sanofi and personal fees from ImmunoTek. KK reports grants and personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, ELPEN, GSK, Novartis and Menarini; personal fees from Sanofi; and grants from NuvoAir, outside the submitted work, and was an employee of Novartis Pharma AG until October 31, 2018. KRC reports grants and personal fees from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Grifols, Sanofi, Regeneron, Novartis and Takeda; personal fees from CSL Behring, Inhibrx and Kamada; and grants from Vertex, outside the submitted work. MH,

AMT, KM, DB and DL are employees of Novartis Pharma AG. PD is an employee of Novartis Pharmaceutical Corporation.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Review

Respir Med

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. 2023 May;211:107191.
doi: 10.1016/j.rmed.2023.107191. Epub 2023 Mar 6.

Non-pharmacological and non-invasive interventions for chronic pain in people with chronic obstructive pulmonary disease: A systematic review without meta-analysis

Jeanette R Morris[1], Samantha L Harrison[2], Jonathan Robinson[3], Denis Martin[4], Leah Avery[5]
Affiliations expand

- PMID: 36889522

- DOI: 10.1016/j.rmed.2023.107191

Free article

Abstract

Objectives: Chronic Obstructive Pulmonary Disease (COPD) is complicated by chronic pain. People with COPD report higher pain prevalence than the general population. Despite this, chronic pain management is not reflected in current COPD clinical guidelines and pharmacological treatments are often ineffective. We conducted a systematic review that aimed to establish the efficacy of existing non-pharmacological and non-invasive interventions on pain and identify behaviour change techniques (BCTs) associated with effective pain management.

Methods: A systematic review was conducted with reference to Preferred Reporting Items for Systematic Review (PRISMA) [1], Systematic review without Meta analysis (SWIM) standards [2] and Grading of Recommendations Assessment, Development and Evaluation (GRADE) guidelines [3]. We searched 14 electronic databases for controlled trials of non-pharmacological and non-invasive interventions where the outcome measure assessed pain or contained a pain subscale.

Results: Twenty-nine studies were identified involving 3,228 participants. Seven interventions reported a minimally important clinical difference in pain outcomes, although only two of these reached statistical significance ($p < 0.05$). A third study reported statistically significant outcomes, but this was not clinically significant ($p = 0.0273$). Issues with intervention reporting prevented identification of active intervention ingredients (i.e., BCTs).

Conclusions: Pain appears to be a meaningful issue for many individuals with COPD. However, intervention heterogeneity and issues with methodological quality limit certainty about the effectiveness of currently available non-pharmacological interventions. An improvement in reporting is required to enable identification of active intervention ingredients associated with effective pain management.

Keywords: Behavioural change; COPD; Chronic obstructive; Pain; Pain management; Psychosocial; Pulmonary disease.

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 termsexpand

Respir Med

. 2023 May;211:107195.

doi: 10.1016/j.rmed.2023.107195. Epub 2023 Mar 6.

Idiopathic pulmonary fibrosis is more strongly associated with coronary artery disease than chronic obstructive pulmonary disease

Kevin Bray[1], Sandeep Bodduluri[2], Young-Il Kim[3], Vivek Sthanam[2], Hrudaya Nath[4], Surya P Bhatt[5]

Affiliations expand

- PMID: 36889520

- PMCID: PMC10122707 (available on 2024-05-01)

- DOI: 10.1016/j.rmed.2023.107195

Abstract

Introduction: Previous studies have shown that the population attributable risk of low forced expiratory volume in one second (FEV_1) for coronary artery disease (CAD) is substantial. FEV_1 can be low either because of airflow obstruction or ventilatory restriction. It is not known if low FEV_1 arising from spirometric obstruction or restriction are differently associated with CAD.

Methods: We analyzed high resolution computed tomography (CT) scans acquired at full inspiration in lifetime non-smoker adults with no lung disease (controls) and those with chronic obstructive pulmonary disease enrolled in the Genetic Epidemiology of COPD (COPDGene) study. We also analyzed CT scans of adults with idiopathic pulmonary fibrosis (IPF) from a cohort of patients attending a quaternary referral clinic. Participants with IPF were matched 1:1 by FEV_1 %predicted to adults with COPD and 1:1 by age to lifetime non-smokers. Coronary artery calcium (CAC), a surrogate for CAD, was measured by visual quantification on CT using the Weston score. Significant CAC was defined as Weston score ≥7. Multivariable regression models were used to test the association of the presence of COPD or IPF with CAC, with adjustment for age, sex, body-mass-index, smoking status, hypertension, diabetes mellitus, and hyperlipidemia.

Results: We included 732 subjects in the study; 244 with IPF, 244 with COPD, and 244 lifetime non-smokers. The mean (SD) age was 72.6 (8.1), 62.6 (7.4), and 67.3 (6.6) years, and median (IQR) CAC was 6 (6), 2 (6), and 1 (4), in IPF, COPD, and non-smokers, respectively. On multivariable analyses, the presence of COPD was associated with higher CAC compared to non-smokers (adjusted regression coefficient, β = 1.10 ± SE0.51; P = 0.031). The presence of IPF was also associated with higher CAC compared to non-smokers (β = 03.43 ± SE0.41; P < 0.001). The adjusted odds ratio for having significant CAC was 1.3, 95% CI 0.6 to 2.8; P = 0.53 in COPD and 5.6, 95% CI 2.9 to 10.9; P < 0.001 in IPF, compared to non-smokers. In sex stratified analyses, these associations were mainly noted in women.

Conclusion: Adults with IPF displayed higher coronary artery calcium than those with COPD after accounting for age and lung function impairment.

Keywords: Chronic obstructive pulmonary disease; Coronary artery calcium; Idiopathic pulmonary fibrosis.

Respir Med
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. 2023 May;211:107193.
doi: 10.1016/j.rmed.2023.107193. Epub 2023 Mar 6.

A scoping review of co-creation practice in the development of non-pharmacological interventions for people with Chronic Obstructive Pulmonary Disease: A health CASCADE study

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Affiliations expand

- PMID: 36889517

- DOI: 10.1016/j.rmed.2023.107193

Free article

Abstract

Background: Incorporating co-creation processes may improve the quality of outcome interventions. However, there is a lack of synthesis of co-creation practices in the development of Non-Pharmacological Interventions (NPIs) for people with Chronic Obstructive Pulmonary Disease (COPD), that could inform future co-creation practice and research for rigorously improving the quality of care.

Objective: This scoping review aimed to examine the co-creation practice used when developing NPIs for people with COPD.

Methods: This review followed Arksey and O'Malley scoping review framework and was reported according to the PRISMA-ScR framework. The search included PubMed, Scopus, CINAHL, and Web of Science Core Collection. Studies reporting on the process and/or

analysis of applying co-creation practice in developing NPIs for people with COPD were included.

Results: 13 articles complied with the inclusion criteria. Limited creative methods were reported in the studies. Facilitators described in the co-creation practices included administrative preparations, diversity of stakeholders, cultural considerations, employment of creative methods, creation of an appreciative environment, and digital assistance. Challenges around the physical limitations of patients, the absence of key stakeholder opinions, a prolonged process, recruitment, and digital illiteracy of co-creators were listed. Most of the studies did not report including implementation considerations as a discussion point in their co-creation workshops.

Conclusion: Evidence-based co-creation in COPD care is critical for guiding future practice and improving the quality of care delivered by NPIs. This review provides evidence for improving systematic and reproducible co-creation. Future research should focus on systematically planning, conducting, evaluating, and reporting co-creation practices in COPD care.

Keywords: COPD; Co-creation; Creativity; Non-pharmacological interventions; Participation; Stakeholder.

Editorial

Thorax

. 2023 May;78(5):430-431.
doi: 10.1136/thorax-2022-219979. Epub 2023 Mar 2.

ICS/formoterol maintenance and reliever therapy: how far beyond asthma?

Richard Beasley[1], Pepa Bruce[2], Lee Hatter[2]
Affiliations expand

- PMID: 36863775

- DOI: 10.1136/thorax-2022-219979

No abstract available

Keywords: Asthma; COPD Pharmacology.

Conflict of interest statement

Competing interests: RB has received personal fees from AstraZeneca, Avillion, Cipla and Teva Pharmaceuticals; and is Chair of the New Zealand Asthma & Respiratory Foundation Adolescent and Adult Asthma Guidelines Group. The Medical Research Institute of New Zealand has received research funding from AstraZeneca, Cure Kids (NZ), Genentech and the Health Research Council of New Zealand.

Respirology
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. 2023 May;28(5):425-427.

doi: 10.1111/resp.14482. Epub 2023 Mar 1.

FEV1 and pulmonary rehabilitation: Let's get the facts straight

Martijn A Spruit[1 2 3], Frits M E Franssen[1 2 3]
Affiliations expand

- PMID: 36855923

- DOI: 10.1111/resp.14482

Free article

No abstract available

Keywords: COPD; pulmonary rehabilitation; spirometry.

- 33 references

30

Eur Radiol

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. 2023 May;33(5):3115-3123.
doi: 10.1007/s00330-023-09504-4. Epub 2023 Mar 1.

Pulmonary emphysema and coronary artery calcifications at baseline LDCT and long-term mortality in smokers

and former smokers of the ITALUNG screening trial

Mario Mascalchi[1,2,3], Chiara Romei[4], Chiara Marzi[5], Stefano Diciotti[6], Giulia Picozzi[7], Francesco Pistelli[8], Marco Zappa[7], Eugenio Paci[7], Francesca Carozzi[9], Giuseppe Gorini[7], Fabio Falaschi[4], Anna Lisa Deliperi[4], Gianna Camiciottoli[10], Laura Carrozzi[8], Donella Puliti[7]
Affiliations expand

- PMID: 36854875

- PMCID: PMC10121526

- DOI: 10.1007/s00330-023-09504-4

Free PMC article

Abstract

Objectives: Cardiovascular disease (CVD), lung cancer (LC), and respiratory diseases are main causes of death in smokers and former smokers undergoing low-dose computed tomography (LDCT) for LC screening. We assessed whether quantification of pulmonary emphysematous changes at baseline LDCT has a predictive value concerning long-term mortality.

Methods: In this longitudinal study, we assessed pulmonary emphysematous changes with densitometry (volume corrected relative area below - 950 Hounsfield units) and coronary artery calcifications (CAC) with a 0-3 visual scale in baseline LDCT of 524 participants in the ITALUNG trial and analyzed their association with mortality after 13.6 years of follow-up using conventional statistics and a machine learning approach.

Results: Pulmonary emphysematous changes were present in 32.3% of subjects and were mild (6% ≤ RA950 ≤ 9%) in 14.9% and moderate-severe (RA950 > 9%) in 17.4%. CAC were present in 67% of subjects (mild in 34.7%, moderate-severe in 32.2%). In the follow-up, 81 (15.4%) subjects died (20 of LC, 28 of other cancers, 15 of CVD, 4 of respiratory disease, and 14 of other conditions). After adjusting for age, sex, smoking history, and CAC, moderate-severe emphysema was significantly associated with overall (OR 2.22; 95CI 1.34-3.70) and CVD (OR 3.66; 95CI 1.21-11.04) mortality. Machine learning showed that RA950 was the best single feature predictive of overall and CVD mortality.

Conclusions: Moderate-severe pulmonary emphysematous changes are an independent predictor of long-term overall and CVD mortality in subjects participating in LC screening and should be incorporated in the post-test calculation of the individual mortality risk profile.

Key points: • Densitometry allows quantification of pulmonary emphysematous changes in low-dose CT examinations for lung cancer screening. • Emphysematous lung density changes are an independent predictor of long-term overall and cardio-vascular disease mortality in smokers and former smokers undergoing screening. • Emphysematous changes quantification should be included in the post-test calculation of the individual mortality risk profile.

Keywords: Cardiovascular disease; Cause of death; Lung neoplasm; Pulmonary emphysema; Smokers.

Conflict of interest statement

The authors of this manuscript declare no relationships with any companies, whose products or services may be related to the subject matter of the article.

- 43 references
- 1 figure

doi: 10.1136/thorax-2022-219653. Epub 2023 Feb 23.

Cost-effectiveness of home non-invasive ventilation in patients with persistent hypercapnia after an acute exacerbation of COPD in the UK

Patrick Brian Murphy[1,2], Bernd Brueggenjuergen[3], Thomas Reinhold[4], Qing Gu[5], Laura Fusfeld[5], Gerard Criner[6], Thomas F Goss[5], Nicholas Hart[7,2]
Affiliations expand

- PMID: 36823164

- DOI: 10.1136/thorax-2022-219653

Free article

Abstract

Home non-invasive mechanical ventilation (HMV) with home oxygen therapy (HOT) in patients with persistent hypercapnia following an acute exacerbation of chronic obstructive pulmonary disease delays hospital readmission. The economic impact of this treatment is unknown. We evaluated the cost-effectiveness of HMV in the UK healthcare system using data from a previously published efficacy trial. Quality-adjusted life-years (QALYs) were computed from EQ-5D-5L. Accounting for all direct patient costs HOT-HMV was £512 (95%CI £36 to £990) more expensive per patient per year than HOT-alone. This small increase in cost was accompanied by increased quality of life leading to an incremental cost-effectiveness ratio of £10 259 per QALY. HOT-HMV was cost-effective in this clinical population. Trial registration number: NCT00990132.

Keywords: COPD Exacerbations; Health Economist; Non invasive ventilation.

Conflict of interest statement

Competing interests: PBM reports grants and personal fees from Philips, grants and personal fees from ResMed, grants and personal fees from F&P, grants and personal fees from B&D Electromedical, personal fees from Santhera outside the submitted work. BB was

consultant to Boston Healthcare and received consultancy payment from ResMed and Phillips. TR was consultant to Boston Healthcare and received consultancy payment from Resmed and Phillips. QG reports grants from ResMed and grants from Philips Respironics during the conduct of the study. LF reports grants from ResMed and grants from Philips Respironics during the conduct of the study. GC reports grants from Boehringer-Ingelheim, grants from Novartis, grants from Astra Zeneca, grants from Respironics, grants from MedImmune, grants from Actelion, grants from Forest, grants from Pearl grants from Ikaria, grants from Aeris, grants from PneumRx, grants from Pulmonx other from HGE Health Care Solutions, other from Amirall, other from Boehringer-Ingelheim, other from Holaira, outside the submitted work. NH is on the Pulmonary Research Advisory Board for Philips and the funds for this are given to Guy's & St Thomas' NHS Foundation Trust. NH's research group has received unrestricted grants (managed by Guy's & St Thomas' Foundation Trust) from Philips-Respironics, Philips, Resmed, Fisher-Paykel and B&D Electromedical. Philips and Philips-Respironics are contributing to the development of the MYOTRACE technology.

Editorial

Respirology

. 2023 May;28(5):421-422.
doi: 10.1111/resp.14474. Epub 2023 Feb 21.

Is FeNOtyping in COPD the path to precision medicine?

Cara Flynn[1], Chris Brightling[1]
Affiliations expand

- PMID: 36811260

- DOI: 10.1111/resp.14474

Free article

No abstract available

Keywords: COPD; FeNO; asthma; chronic obstructive pulmonary disease; inflammation; precision medicine.

Comment on

- Variability of fractional exhaled nitric oxide is associated with the risk and aetiology of COPD exacerbations.
  Schumann DM, Papakonstantinou E, Kostikas K, Grize L, Tamm M, Stolz D.Respirology. 2023 May;28(5):445-454. doi: 10.1111/resp.14439. Epub 2022 Dec 26.PMID: 36571108

- 14 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

Review

Heart Lung

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. 2023 May-Jun;59:117-127.
doi: 10.1016/j.hrtlng.2023.02.004. Epub 2023 Feb 15.

Barriers and facilitators to the adoption of digital health interventions for COPD management: A scoping review

Hadassah Joann Ramachandran[1], Joo Lin Oh[2], Yue Krystal Cheong[2], Ying Jiang[2], Jun Yi Claire Teo[2], Chuen Wei Alvin Seah[2], Mingming Yu[3], Wenru Wang[2]
Affiliations expand

- PMID: 36801546

- DOI: 10.1016/j.hrtlng.2023.02.004

Abstract

Background: Knowledge of the barriers and facilitators in the adoption of digital health interventions (DHI) is sparse yet crucial to facilitate chronic obstructive pulmonary disease (COPD) management.

Objectives: This scoping review aimed to summarize patient- and healthcare provider-level barriers and facilitators in the adoption of DHIs for COPD management.

Methods: Nine electronic databases were searched from inception up till October 2022 for English language evidence. Inductive content analysis was used.

Results: This review included 27 papers. Frequent patient-level barriers were poor digital literacy (n = 6), impersonal care delivery (n = 4), and fear of being controlled by telemonitoring data (n = 4). Frequent patient-level facilitators were improved disease understanding and management (n = 17), bi-directional communication and contact with healthcare providers (n = 15), and remote monitoring and feedback (n = 14). Frequent healthcare provider-level barriers were increased workload (n = 5), lack of technology interoperability with existing health systems (n = 4), lack of funding (n = 4), and lack of dedicated and trained manpower (n = 4). Frequent healthcare provider-level facilitators were improved efficiency of care delivery (n = 6) and DHI training programmes (n = 5).

Conclusion: DHIs have the potential to facilitate COPD self-management and improve efficiency of care delivery. However, several barriers challenge its successful adoption. Attaining organizational support in developing user centric DHIs that can be integrated and are interoperable with existing health systems is crucial if we are to witness tangible return on investments at the patient-, healthcare provider- and healthcare system-level.

Keywords: Barriers; Chronic obstructive pulmonary disease; Digital health; Facilitators; Telecare; Telehealth.

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.

Randomized Controlled Trial

Eur Respir J

. 2023 Apr 27;61(4):2202063.
doi: 10.1183/13993003.02063-2022. Print 2023 Apr.

Lung volume reduction surgery *versus* endobronchial valves: a randomised controlled trial

Sara C Buttery[1,2], Winston Banya[1], Rocco Bilancia[3], Elizabeth Boyd[3], Julie Buckley[3], Neil J Greening[4,5], Kay Housley[6], Simon Jordan[2], Samuel V Kemp[1], Alan J B Kirk[3], Lorna Latimer[4,5], Kelvin Lau[7], Rod Lawson[6], Adam Lewis[8], John Moxham[9], Sridhar Rathinam[5], Michael C Steiner[4,5], Sara Tenconi[6], David Waller[7], Pallav L Shah[1,2], Nicholas S Hopkinson[10,2]; CELEB investigators

Affiliations expand

- PMID: 36796833

- PMCID: PMC10133584

- DOI: 10.1183/13993003.02063-2022

Free PMC article

Abstract

Background: Lung volume reduction surgery (LVRS) and bronchoscopic lung volume reduction (BLVR) with endobronchial valves can improve outcomes in appropriately selected patients with emphysema. However, no direct comparison data exist to inform clinical decision making in people who appear suitable for both procedures. Our aim was to investigate whether LVRS produces superior health outcomes when compared with BLVR at 12 months.

Methods: This multicentre, single-blind, parallel-group trial randomised patients from five UK hospitals, who were suitable for a targeted lung volume reduction procedure, to either LVRS or BLVR and compared outcomes at 1 year using the i-BODE score. This composite disease severity measure includes body mass index, airflow obstruction, dyspnoea and exercise capacity (incremental shuttle walk test). The researchers responsible for collecting outcomes were masked to treatment allocation. All outcomes were assessed in the intention-to-treat population.

Results: 88 participants (48% female, mean±sd age 64.6±7.7 years, forced expiratory volume in 1 s percent predicted 31.0±7.9%) were recruited at five specialist centres across the UK and randomised to either LVRS (n=41) or BLVR (n=47). At 12 months follow-up, the complete i-BODE was available in 49 participants (21 LVRS/28 BLVR). Neither improvement in the i-BODE score (LVRS -1.10±1.44 *versus* BLVR -0.82±1.61; p=0.54) nor in its individual components differed between groups. Both treatments produced similar improvements in gas trapping (residual volume percent predicted: LVRS -36.1% (95% CI -54.6- -10%) *versus* BLVR -30.1% (95% CI -53.7- -9%); p=0.81). There was one death in each treatment arm.

Conclusion: Our findings do not support the hypothesis that LVRS is a substantially superior treatment to BLVR in individuals who are suitable for both treatments.

Conflict of interest statement

Conflict of interest: D. Waller reports lecture honoraria from PulmonX Ltd, outside the submitted work. N.J. Greening reports grants from GSK, consulting fees from Genentech, lecture honoraria from AstraZeneca and Chiesi, travel support from Chiesi, outside the submitted work. P.L. Shah reports lecture honoraria from PulmonX Ltd, outside the submitted work. R. Bilancia reports lecture honoraria and travel support from Intuitive, outside the submitted work. R. Lawson is a Member of British Thoracic Society COPD Specialist Advisory group, a Member of South Yorkshire Clinical Senate, and a Member of South Yorkshire and Bassetlaw Respiratory Clinical Network, outside the submitted work. All other authors have nothing to disclose.

Comment in

- Lung volume reduction in COPD: scope or surgery.
  Polverino F, Sciurba F.Eur Respir J. 2023 Apr 27;61(4):2300353. doi: 10.1183/13993003.00353-2023. Print 2023 Apr.PMID: 37105590 No abstract available.

- 50 references
- 6 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Observational Study

J Cardiopulm Rehabil Prev
. 2023 May 1;43(3):198-204.
doi: 10.1097/HCR.0000000000000762. Epub 2022 Dec 26.

Characteristics and Predictors of Postural Control Impairment in Patients With COPD Participating in a Pulmonary Rehabilitation Program

Romain Pichon[1], Mathieu Ménard, Diane Haering, Armel Crétual, Marc Beaumont
Affiliations expand

- PMID: 36728886

- DOI: 10.1097/HCR.0000000000000762

Abstract

Purpose: Postural control impairment has been identified as a potential extrarespiratory manifestation in patients with chronic obstructive pulmonary disease (COPD). The aims of this study were to identify clinical factors that characterize patients with reduced postural control, to examine the correlation between clinical factors and postural control and to determine predictors of an impaired postural control among COPD participants enrolled in a pulmonary rehabilitation (PR) program.

Methods: This study is a secondary analysis of an observational study (PARACHUTE). The baseline assessment of the PR program was used for the analysis. Postural control impairment was defined using the Brief BESTest score (BBT).

Results: Participants (n = 73) were included in the analysis, 43 of them were classified in the reduced postural control group. The between-group comparison (non-reduced vs reduced postural control) identified differences for partial pressure in oxygen (Pa O2), Saint George Respiratory Questionnaire (SGRQ) total score and subscores (SGRQ-Symptoms, SGRQ-Activities, and SGRQ-Impact), COPD assessment test (CAT), and anxiety score of the Hospital Anxiety and Depression Scale. The BBT score was significantly correlated with maximal inspiratory pressure (MIP), SGRQ, SGRQ-Symptoms, SGRQ-Impact, Falls Efficacy Scale, modified Medical Research Council Scale, 6-min walk test, and Pa O2 . Logistic regression identified SGRQ-Symptoms, Pa O2 , MIP, and body mass index (BMI) as predictors of the presence of reduced postural control.

Conclusion: Low quality of life (QoL) and Pa O2 and high anxiety seem to be discriminative characteristics of patients with COPD with reduced postural control. Furthermore, QoL, Pa

O2 , inspiratory muscle strength, and BMI seem to be acceptable predictors of the presence of postural control impairment.

Conflict of interest statement

The authors declare no conflicts of interest.

- 54 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Randomized Controlled Trial

Thorax
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. 2023 May;78(5):451-458.
doi: 10.1136/thorax-2022-219620. Epub 2023 Feb 1.

Budesonide/formoterol maintenance and reliever therapy versus fluticasone/salmeterol fixed-dose treatment in patients with COPD

Susan Muiser[1,2], Kai Imkamp[3,2], Dianne Seigers[3], Nynke J Halbersma[3], Judith M Vonk[2,4], Bart H D Luijk[5], Gert-Jan Braunstahl[6], Jan-Willem van den Berg[7], Bart-Jan Kroesen[8], Janwillem W H Kocks[3,2,9,10], Irene H Heijink[3,2,11], Helen K Reddel[12,13], Huib A M Kerstjens[3,2], Maarten van den Berge[3,2]

Affiliations expand

- PMID: 36725331

- DOI: 10.1136/thorax-2022-219620

Abstract

Background: Maintenance and reliever therapy (MART) with inhaled corticosteroid (ICS)/formoterol effectively reduces exacerbations in asthma. We aimed to investigate its efficacy compared with fixed-dose fluticasone/salmeterol in chronic obstructive pulmonary disease (COPD).

Methods: Patients with COPD and ≥1 exacerbation in the previous 2 years were randomly assigned to open-label MART (Spiromax budesonide/formoterol 160/4.5 µg 2 inhalations twice daily+1 prn) or fixed-dose therapy (Diskus fluticasone propionate/salmeterol combination (FSC) 500/50 µg 1 inhalation twice daily+salbutamol 100 µg prn) for 1 year. The primary outcome was rate of moderate/severe exacerbations, defined by treatment with oral prednisolone and/or antibiotics.

Results: In total, 195 patients were randomised (MART Bud/Form n=103; fixed-dose FSC n=92). No significant difference was seen between MART and FSC therapy in exacerbation rates (1.32 vs 1.32 /year, respectively, rate ratio 1.05 (95% CI 0.79 to 1.39); p=0.741). No differences in lung function parameters or health status were observed. Total ICS dose was significantly lower with MART than FSC therapy (budesonide-equivalent 928 µg/day vs 1747 µg/day, respectively, p<0.05). Similar proportions of patients reported adverse events (MART Bud/Form: 73% vs fixed-dose FSC: 68%, p=0.408) and pneumonias (MART: 5% vs FSC: 1%, p=0.216).

Conclusions: This first study of MART in COPD found that budesonide/formoterol MART might be similarly effective to fluticasone/salmeterol fixed-dose therapy in moderate to severe patients with COPD, at a lower daily ICS dosage. Further evidence is needed about long-term safety.

Keywords: COPD Exacerbations; COPD Pharmacology.

Conflict of interest statement

Competing interests: None declared.

37

Heart Lung

. 2023 May-Jun;59:8-15.
doi: 10.1016/j.hrtlng.2023.01.008. Epub 2023 Jan 18.

Reduced Apela/APJ system expression in patients with pulmonary artery hypertension secondary to chronic obstructive pulmonary disease

Yuexin Hu[1], Yani Zong[1], Liangli Jin[1], Jue Zou[2], Zhi Wang[3]
Affiliations expand

- PMID: 36669444

- DOI: 10.1016/j.hrtlng.2023.01.008

Abstract

Background: Pulmonary artery hypertension (PAH) is a common disease that seriously threatens human physical and mental health. Chronic obstructive pulmonary disease (COPD) is the main cause of secondary PAH.

Objectives: This study observed the differential expression of the endogenous Apela/APJ system in COPD patients with or without PAH.

Methods: A total of 69 COPD patients were enrolled, including 31 patients with PAH (COPD+PAH). Lung tissue from healthy controls, COPD patients, and COPD patients with PAH was used for RT-PCR and histological examination.

Results: The serum level of endogenous Apela in COPD+PAH patients was significantly lower than those in the control and COPD groups. Correlation analysis showed that systolic pulmonary artery pressure in COPD+PAH patients was negatively correlated with the serum level of endogenous Apela ($r = -0.3842$, $p < 0.05$). The percentage of intima thickening and muscularization of pulmonary arterioles was increased in COPD+PAH patients, while the expression of Apela/APJ was decreased. Compared with the healthy controls and COPD patients, the expression of endothelial markers vWF and CD34 mRNA in the pulmonary arterioles in COPD+PAH patients decreased, while the expression of interstitial markers α-SMA and vimentin mRNA was up-regulated.

Conclusion: The present study suggests that expression of the Apela/APJ system is decreased in PAH secondary to COPD. The pathological changes involved in PAH secondary to COPD include thickening of the intima and muscularization of the pulmonary arterioles, as well as endothelial-to-mesenchymal transition. Corrective action targeting the diminished Apela/APJ system may be a promising therapeutic strategy for PAH in the future.

Keywords: Apela; Apelin peptide jejunum; Chronic obstructive pulmonary disease; Pulmonary artery hypertension.

Conflict of interest statement

Declaration of Competing Interest The authors declare no any conflicts of interest in this work.

Heart Lung
.
. 2023 May-Jun;59:23-32.
doi: 10.1016/j.hrtlng.2023.01.004. Epub 2023 Jan 19.

Cerebral oxygenation during cardiopulmonary exercise testing in cardiorespiratory diseases: A systematic review

Gabriela Aguiar Mesquita Galdino[1], Patrícia Rehder-Santos[1], Stephanie Nogueira Linares[1], Thomas Beltrame[2], Aparecida Maria Catai[3]
Affiliations expand

- PMID: 36669443

- DOI: 10.1016/j.hrtlng.2023.01.004

Abstract

Background: Cardiopulmonary exercise testing (CPET) is the gold standard for analyzing cardiorespiratory fitness and integrating physiological responses. However, the presence of chronic diseases may compromise cerebral hemodynamic responses during CPET. In addition, the acute response of cerebral oxygenation during incremental CPET may identify abnormal behavior and ensure greater safety for patients with cardiovascular, respiratory, and metabolic diseases.

Objective: To summarize the cerebral oxygenation acute response during CPET of patients with cardiovascular, metabolic, or respiratory diseases.

Methods: From inception to 23rd September 2022, five databases (PubMed, SCOPUS, Web of Science, Embase and CINAHAL) were searched for cross-sectional studies performing incremental CPET and measuring the cerebral oxygenation acute response in cardiovascular, metabolic, or respiratory diseases compared with healthy individuals. The Downs and Black tool assessed the risk of bias of the studies.

Results: We included seven studies with 428 participants (305 men and 123 women), aged 43 to 70 years. Of these, 101 had heart failure NYHA II and III; 77 idiopathic dilated

cardiomyopathy; 33 valvular disease; 25 coronary heart disease; 22 pulmonary arterial hypertension; 15 had severe obstructive sleep apnea (OSA) and 166 were apparently healthy. There was no eligible article with metabolic disease. There was a lower magnitude increase in cerebral oxygenation of cardiovascular patients compared with the healthy individuals during the CPET. Furthermore, pulmonary arterial hypertension patients presented increased cerebral oxygen extraction, differently to those with severe OSA.

Conclusion: Considering the heterogeneity of the included studies, patients with cardiovascular disease may suffer from reduced cerebral oxygen supply, and individuals with OSA presented lower brain oxygen extraction during the CPET. Future studies should aim for strategies to improve cerebral oxygenation to ensure greater safety at CPET of cardiovascular and OSA patients. An acute response pattern for metabolic and other respiratory diseases was not established.

Keywords: Exercise testing; Heart disease; Near infrared spectroscopy; Oxygenation; Respiratory disease; Systematic review.

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

Respirology

. 2023 May;28(5):445-454.
doi: 10.1111/resp.14439. Epub 2022 Dec 26.

Variability of fractional exhaled nitric oxide is associated with the risk and aetiology of COPD exacerbations

Desiree M Schumann[1], Eleni Papakonstantinou[1,2,3], Konstantinos Kostikas[1,4], Leticia Grize[1], Michael Tamm[1], Daiana Stolz[1,2]
Affiliations expand

- PMID: 36571108

- DOI: 10.1111/resp.14439

Abstract

Background and objective: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) are heterogeneous in aetiology and accelerate disease progression. Here, we aimed to investigate the association of fractional exhaled nitric oxide (FeNO) and its variability with AECOPD of different aetiology.

Methods: FeNO was determined in 2157 visits (1697 stable, 133 AECOPD and 327 follow-up) of 421 COPD patients from the PREVENT study, an investigator-initiated, longitudinal and interventional study, who were on daily treatment with inhaled corticosteroids/long-acting β2-agonists.

Results: Longitudinal measurements of FeNO revealed an intra-subject variability of FeNO that was significantly higher in exacerbators compared to non-exacerbators ($p < 0.001$) and positively associated with the number of AECOPD. As FeNO variability increased, the probability of patients to remain AECOPD-free decreased. In patients included in the highest FeNO variability quartile (≥15.0 ppb) the probability to remain free of AECOPD was only 35% as compared to 80% for patients included in the lowest FeNO variability quartile (0.50-4.39 ppb). The change of FeNO from the last stable visit to AECOPD was positively associated with the probability of viral infections and this association was stronger in current smokers than ex-smokers. In contrast, the change in FeNO from the last stable visit to an AECOPD visit was inversely associated with the probability of bacterial infections in ex-smokers but not in current smokers.

Conclusion: FeNO variability was associated with the risk and aetiology of AECOPD differentially in current and ex-smokers.

Keywords: COPD exacerbation; FeNO; aetiology; bacterial infection; fractional exhaled nitric oxide; prevention; viral infection.

Comment in

- Is FeNOtyping in COPD the path to precision medicine?
  Flynn C, Brightling C.Respirology. 2023 May;28(5):421-422. doi: 10.1111/resp.14474. Epub 2023 Feb 21.PMID: 36811260 No abstract available.

- 44 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Associated dataexpand

FULL TEXT LINKS

Review

Postgrad Med
. 2023 May;135(4):327-333.
doi: 10.1080/00325481.2022.2135893. Epub 2022 Oct 19.

Global initiative for chronic obstructive lung disease (GOLD) recommendations: strengths and concerns for future needs

Kostantinos Bartziokas[1], Anastasia Papaporfyriou[2], Georgios Hillas[3], Andriana I Papaioannou[2], Stelios Loukides[2]
Affiliations expand

- PMID: 36226501

- DOI: 10.1080/00325481.2022.2135893

Abstract

Chronic obstructive pulmonary disease (COPD) is already the third leading cause of death worldwide and simultaneously a major cause of morbidity and mortality. Global initiative for Chronic Obstructive Lung Disease (also known as GOLD) committee, has been created in 1997 to increase the awareness regarding the burden of COPD. GOLD recommendations have been contributing to diagnosis, managementz, and therapy of COPD since 2001. Through these years, by reviewing published articles, GOLD aimed to provide state-of-the-art information not only for pulmonologists, but also for non-respiratory physicians, and to encourage research on COPD. From 2011, GOLD annual reports have changed the way of COPD evaluation from based entirely on spirometric parameters to more clinical indices, such as the assessment of symptoms and dyspnea alongside with exacerbations. Moreover, according to recent developments in pathophysiology of COPD, there is a trend in identifying new preclinical stages, contributing to prevention and early COPD treatment. In the field of therapeutic algorithms, changes turn to a more personalized approach. However, it is not clear in what extent this personalized disease management would be feasible and the real challenge for current recommendations is to include more patient characteristics such as comorbidities and multidimensional scores in disease evaluation.

Keywords: COPD; GOLD; comorbidities; personalized medicine.

. 2023 May;81(5):577-579.
doi: 10.1016/j.annemergmed.2022.08.004. Epub 2022 Oct 7.

What Is the Role of Magnesium Sulfate for Acute Exacerbations of Chronic Obstructive Pulmonary Disease?

Michael Gottlieb[1], Eric Moyer[1], Hannah Meissner[1]
Affiliations expand

- PMID: 36210246

- DOI: 10.1016/j.annemergmed.2022.08.004

No abstract available

Acad Radiol

. 2023 May;30(5):900-910.
doi: 10.1016/j.acra.2022.07.016. Epub 2022 Aug 12.

Comparison of Feature Selection Methods and Machine Learning

Classifiers for Predicting Chronic Obstructive Pulmonary Disease Using Texture-Based CT Lung Radiomic Features

Kalysta Makimoto[1], Ryan Au[2], Amir Moslemi[1], James C Hogg[3], Jean Bourbeau[4], Wan C Tan[3], Miranda Kirby[5]
Affiliations expand

- PMID: 35965158

- DOI: 10.1016/j.acra.2022.07.016

Abstract

Rationale: Texture-based radiomics analysis of lung computed tomography (CT) images has been shown to predict chronic obstructive pulmonary disease (COPD) status using machine learning models. However, various approaches are used and it is unclear which provides the best performance.

Objectives: To compare the most commonly used feature selection and classification methods and determine the optimal models for classifying COPD status in a mild, population-based COPD cohort.

Materials and methods: CT images from the multi-center Canadian Cohort Obstructive Lung Disease (CanCOLD) study were pre-processed by resampling the image to a 1mm isotropic voxel volume, segmenting the lung and removing the airways (VIDA Diagnostics Inc.), and applying a threshold of -1000HU-to-0HU. A total of 95 texture features were then extracted from each CT image. Combinations of 17 feature selection methods and 9 classifiers were tested and evaluated. In addition, the role of data cleaning (outlier removal and highly correlated feature removal) was evaluated. The area under the curve (AUC) from the receiver operating characteristic curve was used to evaluate model performance.

Results: A total of 1204 participants were evaluated (n = 602 no COPD, n = 602 COPD). There were no significant differences between the groups for female sex (no COPD = 46.3%; COPD = 38.5%; p = 0.77), or body mass index (no COPD = 27.7 kg/m^2; COPD = 27.4 kg/m^2; p = 0.21). The highest AUC value for predicting COPD status (AUC = 0.78 [0.73, 0.84]) was obtained following data cleaning and feature selection using Elastic Net with the Linear-SVM classifier.

Conclusion: In a population-based cohort, the optimal combination for radiomics-based prediction of COPD status was Elastic Net as the feature selection method and Linear-SVM as the classifier.

Keywords: AI; COPD; CT imaging; Machine learning; Quantitative imaging; Radiomics.

Thorax

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. 2023 May;78(5):496-503.
doi: 10.1136/thoraxjnl-2021-217993. Epub 2022 May 10.

Mendelian randomisation of eosinophils and other cell types in relation to lung function and disease

Anna Guyatt[1], Catherine John[2], Alexander T Williams[1], Nick Shrine[1], Nicola F Reeve[1]; SpiroMeta consortium; Ian Sayers[3,4], Ian Hall[3,4], Louise V Wain[1,5], Nuala Sheehan[1], Frank Dudbridge[1], Martin D Tobin[1,5]
Collaborators, Affiliations expand

- PMID: 35537820

- DOI: 10.1136/thoraxjnl-2021-217993

Free article

Abstract

Rationale: Eosinophils are associated with airway inflammation in respiratory disease. Eosinophil production and survival is controlled partly by interleukin-5: anti-interleukin-5 agents reduce asthma and response correlates with baseline eosinophil counts. However, whether raised eosinophils are causally related to chronic obstructive pulmonary disease (COPD) and other respiratory phenotypes is not well understood.

Objectives: We investigated causality between eosinophils and: lung function, acute exacerbations of COPD, asthma-COPD overlap (ACO), moderate-to-severe asthma and respiratory infections.

Methods: We performed Mendelian randomisation (MR) using 151 variants from genome-wide association studies of blood eosinophils in UK Biobank/INTERVAL, and respiratory traits in UK Biobank/SpiroMeta, using methods relying on different assumptions for validity. We performed multivariable analyses using eight cell types where there was possible evidence of causation by eosinophils.

Measurements and main results: Causal estimates derived from individual variants were highly heterogeneous, which may arise from pleiotropy. The average effect of raising eosinophils was to increase risk of ACO (weighted median OR per SD eosinophils, 1.44 (95%CI 1.19 to 1.74)), and moderate-severe asthma (weighted median OR 1.50 (95%CI 1.23 to 1.83)), and to reduce forced expiratory volume in 1 s (FEV_1)/forced vital capacity (FVC) and FEV_1 (weighted median estimator, SD FEV_1/FVC: -0.054 (95% CI -0.078 to -0.029), effect only prominent in individuals with asthma).

Conclusions: Broad consistency across MR methods may suggest causation by eosinophils (although of uncertain magnitude), yet heterogeneity necessitates caution: other important mechanisms may be responsible for the impairment of respiratory health by these eosinophil-raising variants. These results could suggest that anti-IL5 agents (designed to lower eosinophils) may be valuable in treating other respiratory conditions, including people with overlapping features of asthma and COPD.

Keywords: Asthma Epidemiology; Asthma Genetics; Asthma Mechanisms; COPD epidemiology; COPD exacerbations mechanisms; Eosinophil Biology; Respiratory Infection.

Conflict of interest statement

Competing interests: MDT and LVW receive funding from GSK for collaborative research projects outside of the submitted work. IH has funded research collaborations with GSK, Boehringer Ingelheim and Orion.

- Cited by 1 article

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

Proceed to details

Cite

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44

Randomized Controlled Trial

Thorax

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. 2023 May;78(5):442-450.
doi: 10.1136/thoraxjnl-2021-218338. Epub 2022 Apr 21.

Using a smartphone application maintains physical activity following pulmonary rehabilitation in patients with COPD: a randomised controlled trial

Marc Spielmanns[1,2], Rainer Gloeckl[3,4], Inga Jarosch[3,4], Daniela Leitl[3,4], Tessa Schneeberger[3,4], Tobias Boeselt[5], Stephan Huber[6], Pawandeep Kaur-Bollinger[6], Bernhard Ulm[7], Claudia Mueller[6], Jonas Bjoerklund[6], Sabine Spielmanns[8], Wolfram Windisch[2,9], Anna-Maria Pekacka-Egli[8], Andreas Rembert Koczulla[3,4]
Affiliations expand

- PMID: 35450945

- DOI: 10.1136/thoraxjnl-2021-218338

Free article

Abstract

Background: Evidence suggests that patients with COPD struggle to maintain improved physical activity (PA) after completing pulmonary rehabilitation (PR). Smartphone applications (apps) providing a comprehensive training programme have conferred healthy benefits. This study was conducted to determine whether regular usage of an app maintains PA following PR.

Methods: Patients with stage II-IV COPD were enrolled in a 6-month trial following PR. After the screening period, participants were randomised into the Kaia COPD app group (intervention group (IG)) or the control group (CG). The primary outcome was PA (daily steps), measured using an activity tracker. Secondary outcomes included the COPD Assessment Test (CAT), the Chronic Respiratory Disease Questionnaire (CRQ) and the 1 min Sit-to-Stand Test (STST).

Results: Sixty participants completed the study. The median steps from baseline to 6 months were significantly different between the groups, in favour of the IG (-105.3, IQR -1970.1 to 2105.8, vs CG -1173.0, IQR -3813.1 to -93.8; p=0.007). CAT was significantly decreased in the IG (15.1±8.6 vs 19.7±6.4, p=0.02), whereas the CRQ subdomains for dyspnoea (4.5±1.7 vs 3.7±1.3, p=0.033) and fatigue (4.5±1.4 vs 3.5±1.3, p=0.028) improved significantly in the IG. The STST at 6 months was not significant. Sleep duration and sleep efficiency showed no significant differences between the two groups at any time.

Conclusions: A comprehensive program by using the Kaia app following PR maintained PA and improved symptoms in patients with COPD at 6 months. The app might be an important accessory tool for enhanced COPD care.

Trial registration number: DRKS00017275.

Keywords: COPD Pathology; Exercise; Pulmonary Rehabilitation.

Conflict of interest statement

Competing interests: None declared.

- Cited by 5 articles

SUPPLEMENTARY INFO

Publication types, MeSH terms, Supplementary conceptsexpand

FULL TEXT LINKS

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

1
Digit Health
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. 2023 Apr 25;9:20552076231163797.
doi: 10.1177/20552076231163797. eCollection 2023 Jan-Dec.

Association of multimorbidity with the use of health information technology

Sydney E Manning[1], Hao Wang[2], Nilanjana Dwibedi[3], Chan Shen[4], R Constance Wiener[5], Patricia A Findley[6], Sophie Mitra[7], Usha Sambamoorthi[8]
Affiliations expand

- PMID: 37124332
- PMCID: PMC10134133
- DOI: 10.1177/20552076231163797

Abstract

Objective: To examine the association of multimorbidity with health information technology use among adults in the USA.

Methods: We used cross-sectional study design and data from the Health Information National Trends Survey 5 Cycle 4. Health information technology use was measured with ten variables comprising access, recent use, and healthcare management. Unadjusted and adjusted logistic and multinomial logistic regressions were used to model the associations of multimorbidity with health information technology use.

Results: Among adults with multimorbidity, health information technology use for specific purposes ranged from 37.8% for helping make medical decisions to 51.7% for communicating with healthcare providers. In multivariable regressions, individuals with multimorbidity were more likely to report general use of health information technology (adjusted odds ratios = 1.48, 95% confidence intervals = 1.01-2.15) and more likely to use health information technology to check test results (adjusted odds ratios = 1.85, 95% confidence intervals = 1.33-2.58) compared to adults with only one chronic condition, however, there were no significant differences in other forms of health information technology use. We also observed interactive associations of multimorbidity and age on various components of health information technology use. Compared to younger adults with multimorbidity, older adults (≥ 65 years of age) with multimorbidity were less likely to use almost all aspects of health information technology.

Conclusion: Health information technology use disparities by age and multimorbidity were observed. Education and interventions are needed to promote health information technology use among older adults in general and specifically among older adults with multimorbidity.

Keywords: Multimorbidity; chronic conditions; health information national trends survey; health information technology.

Conflict of interest statement

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

- 39 references
- 1 figure

Br J Gen Pract
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. 2023 Apr 27;73(730):e392-e398.
doi: 10.3399/BJGP.2022.0295. Print 2023 May.

Polypharmacy and antidepressant acceptability in comorbid depression and type 2 diabetes: a cohort study using UK primary care data

Annie Jeffery[1], Cini Bhanu[1], Kate Walters[2], Ian Ck Wong[3], David Osborn[1], Joseph F Hayes[1]
Affiliations expand

- PMID: 37105749
- PMCID: PMC9923766
- DOI: 10.3399/BJGP.2022.0295

Free PMC article

Abstract

Background: Polypharmacy may increase the risk of drug interactions, side effects, and poor adherence; however, the impact of polypharmacy on antidepressant acceptability in individuals with type 2 diabetes (T2DM) is unknown.

Aim: To investigate the association between number of prescribed medications and early antidepressant discontinuation in adults with T2DM.

Design and setting: Cohort study using UK primary care data from the Clinical Practice Research Datalink between 1 January 2000 and 31 December 2018.

Method: Cox regression with penalised B-splines was used to describe the association between the number of concurrently prescribed medications at the time of starting antidepressant treatment and each of the outcomes.

Results: A total of 73 808 individuals with comorbid depression and T2DM starting antidepressant treatment for the first time were identified. A median of 7 concurrent medications were prescribed. Within 32 weeks, 44.26% (*n* = 32 665) of participants discontinued antidepressant treatment altogether, and 11.75% (*n* = 8672) of participants switched antidepressant agents. An inverse relationship between the number of concurrent medications and discontinuing antidepressant treatment altogether was found. The median of 7 concurrent medications was associated with a 65.06% decrease in early antidepressant discontinuation; hazard ratio 0.45, 95% confidence interval = 0.37 to 0.55. No evidence of an association between the number of concurrent medications and switching antidepressant agents was found.

Conclusion: Early discontinuation of antidepressants is common in adults with T2DM; however, individuals with higher levels of concurrent polypharmacy may be more adherent to treatment. These are likely to represent individuals with worse physical or mental health. Individuals with lower levels of concurrent polypharmacy may benefit from adherence support.

Keywords: antidepressants; depression; multimorbidity; polypharmacy; primary care; type 2 diabetes.

Conflict of interest statement

Annie Jeffery reports financial support provided by NIHR. Joseph Hayes reports a relationship with Wellcome Trust that includes funding grants. Ian Wong, David Osborn, and Joseph Hayes report a relationship with NIHR that includes funding grants. David Osborn and Ian Wong report a relationship with NIHR University College London Hospitals Biomedical Research Centre that includes funding grants. Ian Wong reports a relationship with Janssen Pharmaceuticals Inc. that includes funding grants, and speaking and lecture fees. Ian Wong reports relationships with Amgen Inc., BristolMyers Squibb, Pfizer, Bayer Corporation, GSK, Novartis, Hong Kong Research Grants Council, the Food and Health Bureau of the Government of the Hong Kong Special Administrative Region, National Health and Medical Research Council in Australia, European Commission, and Medice that include funding grants. Ian Wong reports a relationship with Jacobson Medical that includes board membership. Cini Bhanu reports a relationship with the Dunhill Medical Trust that includes funding. None of the reported relationships had a role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript.

- 34 references
- 1 figure

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

PLoS Med

. 2023 Apr 24;20(4):e1004162.
doi: 10.1371/journal.pmed.1004162. eCollection 2023 Apr.

Depression and anxiety in people with cognitive impairment and dementia during the COVID-19 pandemic: Analysis of the English Longitudinal Study of Ageing

Brian Beach[1], Andrew Steptoe[2], Paola Zaninotto[1]
Affiliations expand

- PMID: 37093859
- PMCID: PMC10124844
- DOI: 10.1371/journal.pmed.1004162

Free PMC article

Abstract

Background: Some studies have identified declines in mental health during the Coronavirus Disease 2019 (COVID-19) pandemic in different age groups, including older people. As anxiety and depression are common neuropsychiatric symptoms among people with cognitive impairment, the mental health experiences of older people during the pandemic should take cognitive function into consideration, along with assessments made prior to the pandemic. This study addresses evidence gaps to test whether changes in depression and anxiety among older people through the COVID-19 pandemic were associated with cognitive impairment. It also investigates whether associations varied according to key sources of sociodemographic inequality.

Methods and findings: Using data from the English Longitudinal Study of Ageing (ELSA) collected from 2018/2019 to November/December 2020, we estimated changes in depression and anxiety for people aged 50+ in England across 3 cognitive function groups: no impairment, mild cognitive impairment, and dementia. Conditional growth curve models were estimated for continuous measures over 3 time points (N = 5,286), with mixed-effects logistic regression used for binary measures. All models adjusted for demographics (age, gender, ethnicity, and cohabiting partnership), socioeconomics (education, wealth, and employment status), geography (urban/rural and English region), and health (self-rated and the presence of multimorbidity). We found that depression (measured with CES-D score) worsened from 2018/2019 to November/December 2020 for people with mild cognitive impairment (1.39 (95% CI: 1.29 to 1.49) to 2.16 (2.02 to 2.30)) or no impairment (1.17 (95%CI: 1.12 to 1.22) to 2.03 (1.96 to 2.10)). Anxiety, using a single-item rating of 0 to 10 also worsened among those with mild cognitive impairment (2.48 (2.30 to 2.66) to 3.14 (2.95 to 3.33)) or no impairment (2.20 (2.11 to 2.28) to 2.85 (2.77 to 2.95)). No statistically significant increases were found for those with dementia. Using a clinical cutoff for likely depression (CES-D ≥4), we found statistically significant increases in the probability of depression between 2018/2019 and November/December 2020 for those with no impairment (0.110 (0.099 to 0.120) to 0.206 (0.191 to 0.222)) and mild impairment (0.139 (0.120 to 0.159) to 0.234 (0.204 to 0.263)). We also found that differences according to cognitive function that existed before the pandemic were no longer present by June/July 2020, and there were no statistically significant differences in depression or anxiety among cognitive groups in November/December 2020. Wealth and education appeared to be stronger drivers for depression and anxiety, respectively, than cognitive impairment. For example, those with no impairment in the richest two-thirds scored 1.76 (1.69 to 1.82) for depression in June/July, compared to 2.01 (1.91 to 2.12) for those with no impairment in the poorest third and 2.03 (1.87 to 2.19) for those with impairment in the poorest third. Results may be limited by the small number of people with dementia and are generalizable only to people living in the community, not to those in institutional care settings.

Conclusions: Our findings suggest a convergence in mental health across cognitive function groups during the pandemic. This suggests mental health services will need to

meet an increased demand from older adults, especially those not living with cognitive impairment. Further, with little significant change among those with dementia, their existing need for support will remain; policymakers and care practitioners should ensure this group continues to have equitable access to mental health support.

Conflict of interest statement

The authors have declared that no competing interests exist.

- Cited by 1 article
- 65 references
- 5 figures

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

. 2023 May 1;61(5):328-337.
doi: 10.1097/MLR.0000000000001836. Epub 2023 Mar 17.

The Safety of Performing Surgery at Ambulatory Surgery Centers Versus Hospital Outpatient Departments in

Older Patients With or Without Multimorbidity

Jeffrey H Silber[1,2,3,4], Paul R Rosenbaum[2,5], Joseph G Reiter[1], Siddharth Jain[1,2], Omar I Ramadan[2,6], Alexander S Hill[1], Sean Hashemi[1], Rachel R Kelz[2,6], Lee A Fleisher[2,7,8]
Affiliations expand

- PMID: 36929758

- PMCID: PMC10079624 (available on 2024-05-01)

- DOI: 10.1097/MLR.0000000000001836

Abstract

Background: Surgery for older Americans is increasingly being performed at ambulatory surgery centers (ASCs) rather than hospital outpatient departments (HOPDs), while rates of multimorbidity have increased.

Objective: To determine whether there are differential outcomes in older patients undergoing surgical procedures at ASCs versus HOPDs.

Research design: Matched cohort study.

Subjects: Of Medicare patients, 30,958 were treated in 2018 and 2019 at an ASC undergoing herniorrhaphy, cholecystectomy, or open breast procedures, matched to similar HOPD patients, and another 32,702 matched pairs undergoing higher-risk procedures.

Measures: Seven and 30-day revisit and complication rates.

Results: For the same procedures, HOPD patients displayed a higher baseline predicted risk of 30-day revisits than ASC patients (13.09% vs 8.47%, $P < 0.0001$), suggesting the presence of considerable selection on the part of surgeons. In matched Medicare patients with or without multimorbidity, we observed worse outcomes in HOPD patients: 30-day revisit rates were 8.1% in HOPD patients versus 6.2% in ASC patients ($P < 0.0001$), and complication rates were 41.3% versus 28.8%, $P < 0.0001$. Similar patterns were also found for 7-day outcomes and in higher-risk procedures examined in a secondary analysis. Similar patterns were also observed when analyzing patients with and without multimorbidity separately.

Conclusions: The rates of revisits and complications for ASC patients were far lower than for closely matched HOPD patients. The observed initial baseline risk in HOPD patients was much higher than the baseline risk for the same procedures performed at the ASC, suggesting that surgeons are appropriately selecting their riskier patients to be treated at the HOPD rather than the ASC.

Conflict of interest statement

The authors declare no conflict of interest.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

Proceed to details

Cite

Share

5

Med Care

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. 2023 May 1;61(5):268-278.
doi: 10.1097/MLR.0000000000001828. Epub 2023 Mar 15.

Approach to Multimorbidity Burden Classification and Outcomes in Older Adults With Heart Failure

Mayra Tisminetzky[1,2,3], Jerry H Gurwitz[1,2,3], Grace Tabada[4], Kristi Reynolds[5,6], David H Smith[7], Sue Hee Sung[4], Robert Goldberg[1,3], Alan S Go[4,6,8,9]
Affiliations expand

- PMID: 36920167

- PMCID: PMC10079617 (available on 2024-05-01)

- DOI: 10.1097/MLR.0000000000001828

Abstract

Background: The optimal approach to classifying multimorbidity burden in assessing treatment-associated outcomes using real-world data remains uncertain. We assessed whether 2 measurement approaches to characterize multimorbidity influenced observed associations of β-blocker use with outcomes in adults with heart failure (HF).

Methods: We conducted a retrospective study on adults with HF from 4 integrated health care delivery systems. Multimorbidity burden was characterized by either (1) simple counts of chronic conditions or (2) a weighted multiple chronic conditions score using data from electronic health records. We assessed the impact of these 2 approaches to characterizing multimorbidity on associations between exposure to β-blockers and subsequent all-cause death, hospitalization for HF, and hospitalization for any cause.

Results: The study population characterized by a count of chronic conditions included 9988 adults with HF who had a mean (SD) age of 76.4 (12.5) years, with 48.7% women and 24.7% racial/ethnic minorities. The cohort characterized by weighted multiple chronic conditions included 10,082 adults with HF who had a mean (SD) age of 76.4 (12.4) years, 48.9% women, and 25.5% racial/ethnic minorities. The multivariable associations of risks of death or hospitalizations for HF or for any cause associated with incident β-blocker use were similar regardless of how multimorbidity burden was characterized.

Conclusions: Simple counts of chronic conditions performed similarly to a weighted multimorbidity score in predicting outcomes using real-world data to examine clinical outcomes associated with β-blocker therapy in HF. Our findings challenge conventional wisdom that more complex measures of multimorbidity are always necessary to characterize patients in observational studies examining therapy-associated outcomes.

Conflict of interest statement

The authors declare no conflict of interest.

J Am Coll Surg
. 2023 May 1;236(5):1022-1023.
doi: 10.1097/XCS.0000000000000644. Epub 2023 Mar 15.

Invited Commentary: Targeting Many or a Few? A Commentary on Redefining Multimorbidity in Older Surgical Patients

Thaddeus J Puzio[1], Sasha D Adams, Lillian S Kao
Affiliations expand

- PMID: 36919931
- DOI: 10.1097/XCS.0000000000000644

No abstract available

- 7 references

J Epidemiol Community Health
. 2023 May;77(5):285-292.
doi: 10.1136/jech-2022-220034. Epub 2023 Mar 8.

Multimorbidity pattern and risk of dementia in later life: an 11-year follow-up study using a large community cohort and linked electronic health records

Mizanur Khondoker[1], Alexander Macgregor[2], Max O Bachmann[2], Michael Hornberger[2], Chris Fox[2,3], Lee Shepstone[2]
Affiliations expand

- PMID: 36889910

- DOI: 10.1136/jech-2022-220034

Abstract

Background: Several long-term chronic illnesses are known to be associated with an increased risk of dementia independently, but little is known how combinations or clusters of potentially interacting chronic conditions may influence the risk of developing dementia.

Methods: 447 888 dementia-free participants of the UK Biobank cohort at baseline (2006-2010) were followed-up until 31 May 2020 with a median follow-up duration of 11.3 years to identify incident cases of dementia. Latent class analysis (LCA) was used to identify multimorbidity patterns at baseline and covariate adjusted Cox regression was used to investigate their predictive effects on the risk of developing dementia. Potential effect moderations by C reactive protein (CRP) and Apolipoprotein E (APOE) genotype were assessed via statistical interaction.

Results: LCA identified four multimorbidity clusters representing *Mental health*, *Cardiometabolic*, *Inflammatory/autoimmune* and *Cancer*-related pathophysiology, respectively. Estimated HRs suggest that multimorbidity clusters dominated by *Mental health* (HR=2.12, p<0.001, 95% CI 1.88 to 2.39) and *Cardiometabolic* conditions (2.02, p<0.001, 1.87 to 2.19) have the highest risk of developing dementia. Risk level for the *Inflammatory/autoimmune* cluster was intermediate (1.56, p<0.001, 1.37 to 1.78) and that for the *Cancer* cluster was least pronounced (1.36, p<0.001, 1.17 to 1.57). Contrary to expectation, neither CRP nor APOE genotype was found to moderate the effects of multimorbidity clusters on the risk of dementia.

Conclusions: Early identification of older adults at higher risk of accumulating multimorbidity of specific pathophysiology and tailored interventions to prevent or delay the onset of such multimorbidity may help prevention of dementia.

Keywords: CLUSTER ANALYSIS; COHORT STUDIES; DEMENTIA; EPIDEMIOLOGY.

Conflict of interest statement

Competing interests: None declared.

8

J Nerv Ment Dis

. 2023 May 1;211(5):355-361.
doi: 10.1097/NMD.0000000000001625. Epub 2023 Feb 11.

Multimorbidity and Correlates of Comorbid Depression and Generalized Anxiety Disorder in a Nationally Representative US Sample

Oluwole Jegede, Elina A Stefanovics, Taeho Greg Rhee, Robert A Rosenheck

- PMID: 36807207

- DOI: 10.1097/NMD.0000000000001625

Abstract

Generalized anxiety disorder (GAD) and major depressive disorder (MDD) frequently occur together, but sociodemographic, behavioral, and diagnostic correlates of this comorbidity have not been comprehensively studied. Data from the nationally representative US sample surveyed in the National Epidemiologic Survey on Alcohol and Related Conditions-III (N = 36,309) were used to define three groups, individuals with a) both past-year GAD and MDD (n = 909, 16.9%), b) GAD only (n = 999, 18.6%), and c) MDD only (n = 3471, 64.5%). The comorbid group was compared with each single-diagnosis group on sociodemographic, behavioral, and diagnostic characteristics based on effect sizes (risk ratios and Cohen's d) rather than p values because of the large sample sizes. Multivariable-adjusted logistic regression analyses were used to identify factors independently associated with the comorbid group. Bivariate analysis showed that the comorbid group had more parental and childhood adversities, additional psychiatric disorders, and poorer mental health quality of life than both single-disorder groups. Multivariable-adjusted logistic regression of the comorbid group showed that on two of five factors, additional psychiatric diagnoses were significantly more frequent than in the GAD-only group, and that on three of six factors, additional psychiatric diagnoses were significantly more frequent than in the MDD-only group. There is a significantly higher burden of social adjustment problems, comorbid psychiatric disorders, and poorer mental health-related quality of life among individuals with comorbid GAD-MDD than those with single disorders. The adversities associated with this non-SUD psychiatric comorbidity are comparable to those associated with the more extensively studied comorbidity of psychiatric and substance use disorders and deserve further research and treatment.

- 40 references

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

Proceed to details

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9

Review

Epidemiology

. 2023 May 1;34(3):333-344.
doi: 10.1097/EDE.0000000000001597. Epub 2023 Jan 31.

Analysis of Multiple Causes of Death: A Review of Methods and Practices

Karen Bishop[1], Saliu Balogun[1], James Eynstone-Hinkins[2], Lauren Moran[2], Melonie Martin[1], Emily Banks[1], Chalapati Rao[1], Grace Joshy[1]

Affiliations expand

- PMID: 36719759
- PMCID: PMC10069753
- DOI: 10.1097/EDE.0000000000001597

Free PMC article

Abstract

Background: Research and reporting of mortality indicators typically focus on a single underlying cause of death selected from multiple causes recorded on a death certificate. The need to incorporate the multiple causes in mortality statistics-reflecting increasing multimorbidity and complex causation patterns-is recognized internationally. This review aims to identify and appraise relevant analytical methods and practices related to multiple causes.

Methods: We searched Medline, PubMed, Scopus, and Web of Science from their incept ion to December 2020 without language restrictions, supplemented by consultation with international experts. Eligible articles analyzed multiple causes of death from death certificates. The process identified 4,080 items of which we reviewed 434 full-text articles.

Results: Most articles we reviewed (76%, n = 332) were published since 2001. The majority of articles examined mortality by "any- mention" of the cause of death (87%, n = 377) and assessed pairwise combinations of causes (57%, n = 245). Since 2001, applications of methods emerged to group deaths based on common cause patterns using, for example, cluster analysis (2%, n = 9), and application of multiple-cause weights to re-evaluate mortality burden (1%, n = 5). We describe multiple-cause methods applied to specific research objectives for approaches emerging recently.

Conclusion: This review confirms rapidly increasing international interest in the analysis of multiple causes of death and provides the most comprehensive overview, to our knowledge, of methods and practices to date. Available multiple-cause methods are diverse but suit a range of research objectives. With greater availability of data and technology, these could be further developed and applied across a range of settings.

Conflict of interest statement

The authors report no conflicts of interest.

Review

Int J Soc Psychiatry
.
2023 May;69(3):523-531.
doi: 10.1177/00207640221137993. Epub 2022 Dec 13.

The association of physical multimorbidity with suicidal ideation and suicide attempts in England: A mediation analysis of influential factors

Lee Smith[1], Jae Il Shin[2], San Lee[3,4], Jae Won Oh[4], Guillermo F López Sánchez[5], Karel Kostev[6], Louis Jacob[7,8], Mark A Tully[9], Felipe Schuch[10], Daragh T McDermott[11], Damiano Pizzol[12], Nicola Veronese[13,14], Junmin Song[15], Pinar Soysal[16], Ai Koyanagi[7,17]
Affiliations expand

- PMID: 36511141

- DOI: 10.1177/00207640221137993

Abstract

Background: Suicide is one of the most important causes of deaths in the United Kingdom, and the numbers are currently increasing.

Aim: There are numerous identified determinants of suicidality, and physical multimorbidity is potentially important but is currently understudied. Thus, this study aims to investigate the association of physical multimorbidity with suicidality.

Methods: Cross-sectional data from the Adult Psychiatric Morbidity Survey 2007, which was conducted in England between October 2006 and December 2007 by the National

Center for Social Research and Leicester University were analyzed. Respondents were asked about 20 physical health conditions, and suicidal ideation and suicide attempts were assessed.

Results: Out of 7,403 individuals aged 16 years or over, the prevalence of physical multimorbidity, suicidal ideation, and suicide attempts were 35.1%, 4.3%, and 0.7%, respectively. After adjustment for potential confounders, compared to no physical conditions, 1, 2, 3, and ⩾4 conditions were associated with significant 1.79 (95% CI [1.25, 2.57]), 2.39 (95% CI [1.63, 3.51]), 2.88 (95% CI [1.83, 4.55]), and 6.29 (95% CI [4.12, 9.61]) times higher odds for suicidal ideation. Mediation analysis showed that cognitive problems (mediated percentage 39.2%) and disability (37.5%) explained the largest proportion between multimorbidity and suicidal ideation. Pain (38.0%) and cognitive problems (30.7%) explained the largest proportion between multimorbidity and suicide attempts.

Conclusion: In this large sample of UK adults, physical multimorbidity was associated with significantly higher odds for suicidal ideation and suicide attempts. Moreover, several potential mediators were identified, and these may serve as future targets for interventions that aim to prevent suicidality among people with physical multimorbidity.

Keywords: Multimorbidity; United Kingdom; adult; suicidal ideation; suicide; suicide attempt.

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

1
Allergy
.
2023 Apr 29.
doi: 10.1111/all.15755. Online ahead of print.

The One Health approach for allergic diseases and asthma

Marek Jutel[1,2], Giselle S Mosnaim[3], Jonathan A Bernstein[4], Stefano Del Giacco[5], David A Khan[6], Kari C Nadeau[7], Isabella Pali-Schöll[8,9], Maria J Torres[10], Magdalena Zemelka-Wiacek[1], Ioana Agache[11]
Affiliations expand

- PMID: 37119496

- DOI: 10.1111/all.15755

Abstract

The One Health approach is a collaborative and interdisciplinary strategy with focal point human, animal, and environmental health interconnections. One Health can support the advanced management of allergic diseases and asthma, as complex, multifactorial diseases driven by interactions between the resilience response to the exposome. According to the One Health concept allergic diseases and asthma arising from exposures to a wide range of allergens, infectious agents and irritants (such as pollutants) occurring indoors and outdoors can be heavily influenced by environmental health (air, water and soil quality) intermingled with animal health. These are currently heavily impacted by climate change, land use, urbanization, migration, overpopulation and many more. Thus, a coordinated response to address the underlying factors that contribute to the development of allergic diseases and asthma needs to focus on environment, human and animal health altogether. Collaborative efforts across multiple sectors, including public health, veterinary medicine, environmental science, and community engagement are thus needed. A wide range of activities, including monitoring and surveillance of environmental and health data, targeted interventions to reduce exposures to allergens and irritants, and research on the underlying mechanisms that drive the development of allergic diseases and asthma are needed to move the field forward. In this consensus document elaborated by the European Academy of Allergy and Clinical Immunology (EAACI) and American Academy of Allergy, Asthma, and Immunology (AAAAI) under the practical allergy (PRACTALL) series, we provide insights into the One Heath approach aiming to provide a framework for addressing the complex and multifactorial nature of allergic diseases and asthma.

Keywords: One Health; PRACTALL; allergic diseases; asthma; biodiversity; climate change; exposome.

Review

Rambam Maimonides Med J

. 2023 Apr 30;14(2):e0007.
doi: 10.5041/RMMJ.10494.

Dual Biologic Therapy in Patients with Rheumatoid Arthritis and Psoriatic Arthritis

Victoria Furer[1,2], Ori Elkayam[1,2]
Affiliations expand

- PMID: 37116059
- PMCID: PMC10147400
- DOI: 10.5041/RMMJ.10494

Free PMC article

Abstract

Treatment with biological agents has become standard of care in treatment of immune-mediated diseases (IMD), including rheumatoid arthritis and psoriatic arthritis. Yet, a significant proportion of patients experience loss of response to biologics, need treatment escalation, or develop side effects. During the past decade, new biologic agents with

different targeted molecular pathways have been approved for treatment of IMD, introducing the possibility of concomitant dual biologic therapy. The role of dual biologic therapy targeting different inflammatory pathways has become an area of great interest in the field of IMD, addressing the unmet clinical need of patients with refractory diseases and treatment of comorbidities, such as osteoporosis, asthma, atopic dermatitis, and urticaria. Despite the increasing use of biologics as a dual therapy across different indications, there is a paucity of data concerning the safety of the simultaneous use of more than one biological agents. The purpose of this review is to summarize the current literature on the use of dual biologics in patients with rheumatoid arthritis and psoriatic arthritis, addressing the potential adverse effects associated with combination therapy, and highlighting future directions in the use of this novel therapeutic modality.

Conflict of interest statement

Conflict of interest: No potential conflict of interest relevant to this article was reported.

- 43 references

3

J Asthma

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-
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. 2023 Apr 28;1-6.

doi: 10.1080/02770903.2023.2209172. Online ahead of print.

Bronchodilator Responsiveness Testing with Inhaled Budesonide/Formoterol in Asthma

Luis J Nannini[1,2], N Brandan[1], O M Fernández[1]

Affiliations expand

- PMID: 37115806

- DOI: 10.1080/02770903.2023.2209172

Abstract

Background: The choice of bronchodilators for responsiveness testing (BRT) is a clinical decision according to ATS/ERS. Since January 2019 we use budesonide/formoterol for BRT in asthma at our centre in Argentina. The aim was to compare budesonide/formoterol with salbutamol for BRT in stable asthmatic patients that were followed up in a short-acting beta$_2$ agonist (SABA)-free asthma centre.

Methods: From the Hospital database, we found for the same patient at least one BRT using salbutamol 200 µg and another with budesonide/formoterol 320/9 µg.

Results: We found similar BRT between salbutamol and budesonide/formoterol in 101 asthmatic individuals (26 males) aged 38.14 ± 16.1 yrs (mean ± Standard deviation). The absolute response was 0.18 ± 0.21 L in FEV_1 after salbutamol and 0.20 ± 0.22 L in FEV_1 after budesonide/formoterol. Afterwards, we showed 202 patients tested with budesonide/formoterol; the mean absolute response was 0.21 ± 0.22 L in FEV_1. There were no unexpected safety findings.

Conclusions: In asthmatic patients, we demonstrated similar efficacy between Budesonide/formoterol and salbutamol for BRT.

Keywords: Asthma. Bronchodilator Responsiveness. Spirometry. Budesonide/Formoterol. Salbutamol.

. 2023 Apr 25;101765.
doi: 10.1016/j.smim.2023.101765. Online ahead of print.

Mechanisms of climate change and related air pollution on the immune system leading to allergic disease and asthma

Vanitha Sampath[1], Juan Aguilera[2], Mary Prunicki[3], Kari C Nadeau[4]
Affiliations expand

- PMID: 37105834

- DOI: 10.1016/j.smim.2023.101765

Abstract

Climate change is considered the greatest threat to global health. Greenhouse gases as well as global surface temperatures have increased causing more frequent and intense heat and cold waves, wildfires, floods, drought, altered rainfall patterns, hurricanes, thunderstorms, air pollution, and windstorms. These extreme weather events have direct and indirect effects on the immune system, leading to allergic disease due to exposure to pollen, molds, and other environmental pollutants. In this review, we will focus on immune mechanisms associated with allergy and asthma-related health risks induced by climate change events. We will review current understanding of the molecular and cellular mechanisms by which the changing environment mediates these effects.

Keywords: Allergy; Asthma; Climate change; Pollen; Pollution; Wildfire.

Conflict of interest statement

Declaration of Competing Interest The authors declare that they have no relevant conflicts of interest.

SUPPLEMENTARY INFO

ERJ Open Res

. 2023 Apr 24;9(2):00571-2022.
doi: 10.1183/23120541.00571-2022. eCollection 2023 Mar.

Short-acting β_2-agonists and exacerbations in children with asthma in England: SABINA Junior

Ann Morgan[1,2], Ekaterina Maslova[3,2], Constantinos Kallis[1,2], Ian Sinha[4,5], Graham Roberts[6,7,8], Trung N Tran[9], Ralf J P van der Valk[3], Jennifer K Quint[1]

Affiliations expand

- PMID: 37101737
- PMCID: PMC10123517
- DOI: 10.1183/23120541.00571-2022

Free PMC article

Abstract

Background: Prescription of three or more short-acting β_2-agonist (SABA) canisters per year in adult and adolescent asthma populations is associated with a risk of severe exacerbations; however, evidence in children aged <12 years is limited.

Methods: This study analysed data on children and adolescents with asthma in three age cohorts: 1–5 years, 6–11 years and 12–17 years from the Clinical Practice Research Datalink Aurum database for the period 1 January 2007 to 31 December 2019. Associations between SABA prescriptions (three or more *versus* fewer than three canisters per year) at baseline, defined as 6 months after an asthma diagnosis as a binary exposure variable, and the rate of future asthma exacerbations, defined as oral corticosteroid burst therapy, an emergency department visit or hospital admission, were assessed by multilevel negative binomial regression, adjusted for relevant demographic and clinical confounders.

Results: Overall 48 560, 110 091 and 111 891 paediatric patients with asthma were aged 1–5, 6–11 and 12–17 years, respectively. During the baseline period, 22 423 (46.2%), 42 137 (38.3%) and 40 288 (36.0%) in these three age cohorts, respectively, were prescribed three or more SABA canisters per year. Across all age ranges, the rate of future asthma exacerbations in those prescribed three or more *versus* fewer than three SABA canisters per year was at least two-fold higher. >30% of patients across all age cohorts were not prescribed inhaled corticosteroids (ICS), and the median proportion of days covered was only 33%, suggesting inadequate prescribing of ICS.

Conclusion: In children, higher SABA prescriptions at baseline were associated with increased future exacerbation rates. These findings highlight the need for monitoring prescription of three or more SABA canisters per year to identify children with asthma at risk of exacerbations.

Conflict of interest statement

Conflict of interest: A. Morgan and C. Kallis have nothing to declare. E. Maslova, T.N. Tran and R.J.P. van der Valk are employees of AstraZeneca and hold AstraZeneca shares. R.J.P. van der Valk holds shares in GlaxoSmithKline. G. Roberts and I. Sinha received consultancy from AstraZeneca to their institutions for this work. J.K. Quint reports grants from AUK-BLF and The Health Foundation; grants and personal fees from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline and Bayer; and grants from Chiesi, outside the submitted work. J.K. Quint's research group received funding from AstraZeneca for this work.

- 38 references
- 4 figures

Editorial

CJEM

. 2023 Apr 26.
doi: 10.1007/s43678-023-00496-0. Online ahead of print.

Single vs two-dose dexamethasone for pediatric asthma exacerbations

Omar Damji[1], Dana Stewart[2], Michael Pierse[1]
Affiliations expand

- PMID: 37098596

- DOI: 10.1007/s43678-023-00496-0

No abstract available

- 2 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

BMC Pulm Med

. 2023 Apr 25;23(1):140.
doi: 10.1186/s12890-023-02413-8.

Occupation and occurrence of respiratory infections among adults with newly diagnosed asthma

Maritta S Jaakkola[1,2], Taina K Lajunen[3], Aino K Rantala[3], Rachel Nadif[4], Jouni J K Jaakkola[3,5]
Affiliations expand

- PMID: 37098524

- PMCID: PMC10127176

- DOI: 10.1186/s12890-023-02413-8

Free PMC article

Abstract

Background: Work environments are potential areas for spreading respiratory infections. We hypothesized that certain occupations increase susceptibility to respiratory infections among adults with asthma. Our objective was to compare the occurrence of respiratory infections among different occupations in adults with newly diagnosed asthma.

Methods: We analysed a study population of 492 working-age adults with newly diagnosed asthma who were living in the geographically defined Pirkanmaa Area in Southern Finland during a population-based Finnish Environment and Asthma Study (FEAS). The determinant of interest was occupation at the time of diagnosis of asthma. We assessed potential relations between occupation and occurrence of both upper and lower respiratory tract infections during the past 12 months. The measures of effect were incidence rate ratio (IRR) and risk ratio (RR) adjusted for age, gender, and smoking habits. Professionals, clerks, and administrative personnel formed the reference group.

Results: The mean number of common colds in the study population was 1.85 (95% CI 1.70, 2.00) infections in the last 12 months. The following occupational groups showed increased risk of common colds: forestry and related workers (aIRR 2.20, 95% CI 1.15-4.23) and construction and mining (aIRR 1.67, 95% CI 1.14-2.44). The risk of lower respiratory tract infections was increased in the following groups: glass, ceramic, and mineral workers

(aRR 3.82, 95% CI 2.54-5.74), fur and leather workers (aRR 2.06, 95% CI 1.01-4.20) and metal workers (aRR 1.80, 95% CI 1.04-3.10).

Conclusions: We provide evidence that the occurrence of respiratory infections is related to certain occupations.

Keywords: Asthma; Occupation; Respiratory infections; Spreading.

Conflict of interest statement

None declared.

- 15 references

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

Observational Study

BMC Pulm Med

. 2023 Apr 25;23(1):138.
doi: 10.1186/s12890-023-02426-3.

In-hospital antibiotic use for severe chronic obstructive pulmonary disease exacerbations: a retrospective observational study

Anna Vanoverschelde[1], Chloë Van Hoey[1], Franky Buyle[2], Nadia Den Blauwen[3], Pieter Depuydt[4,5], Eva Van Braeckel[4,6], Lies Lahousse[7]
Affiliations expand

- PMID: 37098509

- PMCID: PMC10127022

- DOI: 10.1186/s12890-023-02426-3

Free PMC article

Abstract

Background: The use of antibiotics in mild to severe acute exacerbations of chronic obstructive pulmonary disease (COPD) remains controversial.

Aim: To explore in-hospital antibiotic use in severe acute exacerbations of COPD (AECOPD), to analyze determinants of in-hospital antibiotic use, and to investigate its association with hospital length of stay (LOS) and in-hospital mortality.

Methods: A retrospective, observational study was conducted in Ghent University Hospital. Severe AECOPD were defined as hospitalizations for AECOPD (ICD-10 J44.0 and J44.1) discharged between 2016 and 2021. Patients with a concomitant diagnosis of pneumonia or 'pure' asthma were excluded. An alluvial plot was used to describe antibiotic treatment patterns. Logistic regression analyses identified determinants of in-hospital antibiotic use. Cox proportional hazards regression analyses were used to compare time to discharge alive and time to in-hospital death between antibiotic-treated and non-antibiotic-treated AECOPD patients.

Results: In total, 431 AECOPD patients (mean age 70 years, 63% males) were included. More than two-thirds (68%) of patients were treated with antibiotics, mainly amoxicillin-clavulanic acid. In multivariable analysis, several patient-related variables (age, body mass index (BMI), cancer), treatment-related variables (maintenance azithromycin, theophylline), clinical variables (sputum volume and body temperature) and laboratory results (C-reactive protein (CRP) levels) were associated with in-hospital antibiotic use independent of sputum purulence, neutrophil counts, inhaled corticosteroids and intensive care unit of which CRP level was the strongest determinant. The median hospital LOS was significantly longer in antibiotic-treated patients (6 days [4-10]) compared to non-antibiotic-treated patients (4 days [2-7]) ($p < 0.001$, Log rank test). This was indicated by a reduced probability of hospital discharge even after adjustment for age, sputum purulence, BMI, in-hospital

systemic corticosteroid use and forced expiratory volume in one second (FEV_1) (adjusted hazard ratio 0.60; 95% CI 0.43; 0.84). In-hospital antibiotic use was not significantly associated with in-hospital mortality.

Conclusions: In this observational study in a Belgian tertiary hospital, in-hospital antibiotic use among patients with severe AECOPD was determined by the symptom severity of the exacerbation and the underlying COPD severity as recommended by the guidelines, but also by patient-related variables. Moreover, in-hospital antibiotic use was associated with a longer hospital stay, which may be linked to their disease severity, slower response to treatment or 'harm' due to antibiotics.

Trial registration: Number: B670201939030; date of registration: March 5, 2019.

Keywords: Antibiotics; Chronic obstructive pulmonary disease; Severe exacerbations.

Conflict of interest statement

E.V.B. is co-author of the Belgian outpatient and inpatient guidelines for AECOPD. L.L. reports honoraria for a lecture from the Institute for Continuing Study of Pharmacists (IPSA) and a fee for external expert consultation from AstraZeneca, outside the submitted work. A.V. reports a honorarium for a lecture from the Flemish Association of Hospital Pharmacists (VZA), outside the submitted work. The other authors declare no competing interests.

- 40 references
- 3 figures

. 2023 Apr 24;52(1):30.
doi: 10.1186/s40463-023-00626-9.

Canadian multidisciplinary expert consensus on the use of biologics in upper airways: a Delphi study

Andrew V Thamboo[1], Melissa Lee[2], Mohit Bhutani[3], Charles Chan[4], Yvonne Chan[5], Ken R Chapman[4], Christopher J Chin[6], Lori Connors[7], Del Dorscheid[8], Anne K Ellis[9], Richard M Gall[10], Krystelle Godbout[11], Arif Janjua[2], Amin Javer[2], Shaun Kilty[12], Harold Kim[13,14], Gordon Kirkpatrick[15], John M Lee[5], Richard Leigh[16], Catherine Lemiere[17], Eric Monteiro[4], Helen Neighbour[14], Paul K Keith[14], George Philteos[18], Jaclyn Quirt[14], Brian Rotenberg[19], Juan C Ruiz[20], John R Scott[6], Doron D Sommer[21], Leigh Sowerby[19], Marc Tewfik[22], Susan Waserman[14], Ian Witterick[5], Erin D Wright[23], Cory Yamashita[24], Martin Desrosiers[25]
Affiliations expand

- PMID: 37095527

- PMCID: PMC10127402

- DOI: 10.1186/s40463-023-00626-9

Free PMC article

Abstract

Background: Chronic rhinosinusitis with nasal polyposis (CRSwNP) often coexists with lower airway disease. With the overlap between upper and lower airway disease, optimal management of the upper airways is undertaken in conjunction with that of the lower airways. Biologic therapy with targeted activity within the Type 2 inflammatory pathway can improve the clinical signs and symptoms of both upper and lower airway diseases. Knowledge gaps nevertheless exist in how best to approach patient care as a whole. There have been sixteen randomized, double-blind, placebo-controlled trails performed for CRSwNP targeted components of the Type 2 inflammatory pathway, notably interleukin (IL)-4, IL-5 and IL-13, IL- 5R, IL-33, and immunoglobulin (Ig)E. This white paper considers the perspectives of experts in various disciplines such as rhinology, allergy, and respirology

across Canada, all of whom have unique and valuable insights to contribute on how to best approach patients with upper airway disease from a multidisciplinary perspective.

Methods: A Delphi Method process was utilized involving three rounds of questionnaires in which the first two were completed individually online and the third was discussed on a virtual platform with all the panelists. A national multidisciplinary expert panel of 34 certified specialists was created, composed of 16 rhinologists, 7 allergists, and 11 respirologists who evaluated the 20 original statements on a scale of 1-9 and provided comments. All ratings were quantitively reviewed by mean, median, mode, range, standard deviation and inter-rater reliability. Consensus was defined by relative interrater reliability measures-kappa coefficient ([Formula: see text]) value > 0.61.

Results: After three rounds, a total of 22 statements achieved consensus. This white paper only contains the final agreed upon statements and clear rationale and support for the statements regarding the use of biologics in patients with upper airway disease.

Conclusion: This white paper provides guidance to Canadian physicians on the use of biologic therapy for the management of upper airway disease from a multidisciplinary perspective, but the medical and surgical regimen should ultimately be individualized to the patient. As more biologics become available and additional trials are published we will provide updated versions of this white paper every few years.

Keywords: Asthma; Biologics; Chronic rhinosinusitis; Chronic rhinosinusitis with nasal polyposis; Lower airway disease; Type 2 inflammation; Upper airway disease.

Conflict of interest statement

AVT: Speaker Bureaus: Sanofi, Glasko Smith and Kline (GSK), Medexus; Advisory Boards: Sanofi, GSK. Consultant: Starfish Medical. Research Funds: GSK. Minority Owner: Treo. MB: Speaker Bureaus and Advisory Boards: AZ (Astra Zeneca), BI (Boehringer Ingelheim), GSK, Pfizer, Girfols, Voics, Valeo; Research funds: CIHR (Canadian Institute of Health Research), AIHS (Alberta Innovative Health Solutions), AZ, GSK, Mereo Pharm, BI, Alberta Lung Association. YC: Speaker's Bureaus: FSK, Cook Sanofi, Stryker; Advisory Board: Sanofi; Consultant: Olympus. KRC: Speaker Bureaus: AZ, BI, Grifols, GSK, Merck Frosst, Novartis, Regeneron, Sanofi; Consultant: Amgen, AZ, BI, CSL, Behring, GSK, Grifols, InhibRx, Kamada, Merck Frosst, Novartis, Regeneron, Roche, Sanofi, Takeda; Research Funds: Amgen, AZ, Bellus, Behring, Genentech, GSK, Gossamer, Grifols, Kamada, Novartis, Regeneron, Roche, Sanofi. CJC: Advisory Board and Consultant: GSK. LC: Speaker Bureaus and Advisory Boards: AZ, GSK, Sanofi. DD: Speaker's Bureau: Sanofi, Valeo; Speaker's Honoraria: Novartis, Sanofi, GSK, AZ, BI; Consultant/Advisory Board: Novartis, Sanofi, GSK, AZ, Valeo; Research funds: CIHR, BC Lung Association, GSK, AZ. AKE: Advisory Boards: ALK Abello, AZ, Aralez, Bausch Health, LEO Pharma, Merck, Novartis, Pfizer; Speaker Bureaus: ALK Abello, AZ, Miravo, Medexus, Mylan; Research Funds: ALK Abello, Aralez, AZ, Bayer LLC, Medexus, Novartis,

Regeneron; Consultant: Bayer LLC, Regeneron. AJ: Speaker Bureaus: FSK, AZ, Sanofi; Advisory Board: GSK, Sanofi; Research Funds: GSK, AZ, Sanofi. AJ: Speaker Bureaus and Advisory Boards: GSK, Sanofi, Novartis. SK: Speaker Bureaus: Regeneron; Research Funds: CIHR; Consultant: GSK. HK: Speaker Bureaus and Advisory Boards: ALK, AZ, Bausch Health, CSL Behring, GSK, Miravo, Pediapharm, Pfizer, Sanofi, Shire, Takeda. JML: Speaker Bureaus: GSK, Sanofi. RL: Speaker Honoraria and Advisory Boards: AZ, GSK, ICEBM, Sanofi, Valeo; Research funds: AZ, GSK, Novartis, Oncovir, Roche, Sanofi. CL: Speaker Honoraria: Sanofi, AZ; Advisory Board: GSK; Research Funds: GSK. HN: Speaker Honoraria: Novartis, Toronto Knowledge Translation, AZ, GSK; Consultant: Sanofi; Research Funds: National Institute of Health (NIH), AZ, BI, Pearl Therapeutics. PKK: Speaker Honoraria/Consultant: AZ, ALK, Bausch, CSL Behring, GSK, Kaleo, Merck, Medexus, Novartis, Sanofi, Valeo, Takeda; Research funds: CSL Behring, Takeda. GP: Research Funds: Dynamic Drug Advancement. BR: Consultant: Stryker. JCR: Speaker honorarium: Sanofi, Pfizer, Valeo Pharma, Miravo; Advisory Board: Valeo Pharma. DDS: Speaker Bureaus: GSK, Medtronic, Stryker, Miravo; Advisory Board: GSK, Sanofi; Research Funds: GSK, Sanofi; Consultant: Stryker. LS: Speaker Bureaus: GSK, Sanofi; Research Funds: AZ, GSK, Sanofi. MT: Speaker Bureaus and Consultant: GSK, Novartis, Stryker, Pentax, Mylan; Research Funds: AZ, Sanofi. SW: Advisory Boards: AZ, GSK, Sanofi, Novartis. IW: Advisory Boards: FSK, Sanofi, Integra. Ownership: Proteocyte Diagnostics Ltd. EDW: Speaker Bureaus and Consultant: GSK, Sanofi, Alaxo. ML, CC, RMG, KG, GK, EM, JQ, JS, CY, MD: None.

- 119 references

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

10
Wien Klin Wochenschr
. 2023 Apr 24;1-9.
doi: 10.1007/s00508-023-02180-w. Online ahead of print.

Investigating the role of obstructive pulmonary diseases and eosinophil count at admission on all-cause mortality in SARS-CoV-2 patients : A single center registry-based retrospective cohort study

Grgur Salai[1], Hrvoje Vrazic[2,3], Ivona Kovacevic[1], Linda Malnar Janes[1], Ivan Marasovic[1], Darjan Ranilovic[1], Damir Vukoja[1], Marina Zelenika Margeta[1], Ivana Huljev-Sipos[1], Kristina Lalic[1], Marko Spoljaric[1], Jasna Tekavec-Trkanjec[1], Mirna Vergles[1], Marko Lucijanic[4,5], Ivica Luksic[6,5], Divo Ljubicic[7,8]
Affiliations expand

- PMID: 37093279
- PMCID: PMC10124688
- DOI: 10.1007/s00508-023-02180-w

Free PMC article

Abstract

Introduction: The impact of asthma and chronic obstructive pulmonary disease (COPD) in the setting of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection is not clearly defined. Blood eosinophil count is a standard diagnostic test which, according to the previously published literature, might have a potential prognostic role on mortality in patients with SARS-CoV-2 infection.

Aim: To investigate the potential prognostic value of peripheral blood eosinophil count on all-cause mortality of patients hospitalized with SARS-CoV-2 infection, as well as to assess the impact of asthma or COPD premorbidity on all-cause mortality.

Material and methods: We conducted a retrospective registry-based cohort study. Survival analysis was performed by employing the Cox proportional hazards regression

model at 30 days of follow-up. Prognostic value of eosinophil count on all-cause mortality was assessed using receiver-operating characteristic (ROC) curve analysis.

Results: A total of 5653 participants were included in the study. Our model did not reveal that pre-existing asthma or COPD is a statistically significant covariate for all-cause mortality but, indicated that higher eosinophil count at admission might have a protective effect (hazard ratio, HR 0.13 (95% confidence interval, CI 0.06-0.27), p = 0.0001). ROC curve analysis indicates cut-off value of 20 cells/mm^3 (81% specificity; 30.9% sensitivity).

Conclusion: Our results indicate that eosinophil count at hospital admission might have a potential prognostic role for all-cause mortality at 30 days of follow-up; however this was not demonstrated for pre-existing obstructive lung diseases.

Keywords: Asthma; COVID-19; Chronic obstructive pulmonary disease; Eosinophils; Retrospective cohort study.

Conflict of interest statement

G. Salai, H. Vrazic, I. Kovacevic, L.M. Janes, I. Marasovic, D. Ranilovic, D. Vukoja, M. Zelenika Margeta, I. Huljev–Sipos, K. Lalic, M. Spoljaric, J. Tekavec-Trkanjec, M. Vergles, M. Lucijanic, I. Luksic and D. Ljubicic declare that they have no competing interests.

- 62 references
- 4 figures

J Asthma

. 2023 Apr 24;1-16.

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Hyperventilation syndrome in children with asthma

Manon Beauvais[1], Rola Abou Taam[1], Antoine Neuraz[2], Muriel Le Bourgeois[1], Christophe Delacourt[1], Hassan Faour[2], Nicolas Garcelon[2], Guillaume Lezmi[1]
Affiliations expand

- PMID: 37092722

- DOI: 10.1080/02770903.2023.2206903

Abstract

Background: Hyperventilation syndrome (HVS) may be associated with asthma. In the absence of a gold standard diagnosis for children, its impact on asthma has been rarely assessed.

Objective: to assess the impact of HVS, on the symptoms and lung function of children with asthma and determine the diagnostic value of the Nijmegen questionnaire in comparison to a hyperventilation test (HVT).

Methods: Data from asthmatic children followed in the department of Pediatric Pulmonology of Necker Hospital and explored for HVS were retrospectively analyzed. HVS was diagnosed by a positive HVT. Asthma exacerbations, control and lung function were assessed in children with or without a positive HVT. The sensitivity and specificity of the Nijmegen questionnaire were determined relative to the positivity of a HVT. The Nijmegen questionnaire threshold was ≥23.

Results: Data from 112 asthmatic children, median age 13.9 years [11.6-16], were analyzed. Twenty-eight children (25%) had mild or moderate asthma and 84 (75%) severe asthma. The HVT was performed on 108 children and was negative for 34 (31.5%) and positive for 74 (68.5%). The number of asthma exacerbations in the past 12 months, Asthma Control Test (ACT) score, and lung function did not differ between children with a positive HVT and a negative HVT. The Nijmegen questionnaire was administered to 103 children. Its sensitivity was 56.3% and specificity 56.3%.

Conclusion: The symptoms and lung function of adolescents with asthma are not affected by the presence of HVS. The sensitivity and specificity of the Nijmegen questionnaire are low.

Keywords: children; hyperventilation syndrome; hyperventilation test; severe asthma.

Case Reports

Respirol Case Rep
.
. 2023 Apr 17;11(5):e01147.
doi: 10.1002/rcr2.1147. eCollection 2023 May.

Tezepelumab treatment for allergic bronchopulmonary aspergillosis

Hiroaki Ogata[1], Kachi Sha[1], Yasuaki Kotetsu[1], Aimi Enokizu-Ogawa[1], Katsuyuki Katahira[1], Akiko Ishimatsu[1], Kazuhito Taguchi[1], Atsushi Moriwaki[1], Makoto Yoshida[1]
Affiliations expand

- PMID: 37082171
- PMCID: PMC10111631
- DOI: 10.1002/rcr2.1147

Free PMC article

Abstract

An 82-year-old man had been diagnosed with asthma. He experienced repeated exacerbations requiring treatment with a systemic corticosteroid despite being treated with medications including high-dose fluticasone furoate/umeclidinium/vilanterol, montelukast sodium, and theophylline; treatment with mepolizumab was then initiated. The patient had been free from exacerbations for 15 months; however, he suffered from

post-obstructive pneumonia and atelectasis secondary to mucoid impaction in the right middle lobe of the lung, accompanied by a productive cough, wheezing, dyspnea, and right chest pain. In addition to the development of mucus plugs, the levels of serum IgE specific to Aspergillus spp. became positive; a definite diagnosis of allergic bronchopulmonary aspergillosis (ABPA) was established. The patient underwent treatment with tezepelumab. Over 3 months, the mucus plugs and pulmonary opacities diminished gradually in parallel with the improvement in the control of asthmatic symptoms. Tezepelumab might provide a novel steroid-sparing strategy for the management of ABPA, although further studies are required.

Keywords: allergic bronchopulmonary aspergillosis; asthma; mepolizumab; mucoid impaction; tezepelumab.

Conflict of interest statement

None declared.

- 6 references
- 1 figure

J Asthma

. 2023 Apr 23;1-9.
doi: 10.1080/02770903.2023.2200844. Online ahead of print.

A narrative review on asthma and pest sensitization (cockroach, mouse and rat allergens): a social issue besides the medical problem

Gennaro Liccardi[1], Matteo Martini[2,3], Maria Beatrice Bilò[3,4], Manlio Milanese[5], Luigino Calzetta[6], Rossella Laitano[7], Paola Rogliani[1,7]
Affiliations expand

- PMID: 37042228

- DOI: 10.1080/02770903.2023.2200844

Abstract

Objective: Among animals defined as "pests", cockroaches and rodents (mouse and rat) represent the most common cause of airway allergic sensitization and bronchial asthma worldwide. Their frequency of sensitization has been widely assessed in US and other countries but poorly in Western Europe. This narrative review aims to provide a synthesis of data resulting in MEDLINE concerning allergic sensitization/asthma to pests as well as their related environmental/social risk factors, specifically in the European area.

Data sources: We performed a literature research in MEDLINE for clinical trials, randomized controlled trials, systematic reviews and meta-analyses.

Study selections: We selected studies to the following key words: allergic sensitization, allergic rhinitis, bronchial asthma, cockroach, hypersensitivity, integrated pest management, material hardship, medication compliance, mouse, pest, poverty, rat, rodents.

Results: Current evidence indicates that residence in poor and urban areas, exposure to outdoor/indoor pollutants and tobacco smoke, poverty, material hardship, poor-quality housing, differences in health care quality, medication compliance, health care access contribute to increased pest-related allergic sensitization and asthma morbidity.

Conclusion: Further research should be done on many aspects of pest allergy such as a better characterization of allergens and epidemiological aspects. Relevant social actions should be carried out against poverty, healthcare disparities, psycho-social stress, poor compliance to therapy, with economic contributions to improve private and public living environments. Allergic sensitization to pests and pest-allergic respiratory diseases like

asthma are "paradoxical" conditions, as they typically affect the poorest communities but can only be corrected by high-cost (diagnostic and preventive) interventions. We hope that progress can be made in this direction in the future.

Keywords: Allergic sensitization; allergic rhinitis; bronchial asthma; cockroach; hypersensitivity; integrated pest management; material hardship; medication compliance; mouse; pest; poverty; rat; rodents.

J Asthma

. 2023 Apr 23;1-9.
doi: 10.1080/02770903.2023.2200854. Online ahead of print.

One-day systemic corticosteroid administration for asthma and future "short bursts" risk in real clinical practice

Takeshi Matsumoto[1], Akiko Kaneko[1], Takahiro Fujiki[1], Yusuke Kusakabe[1], Emi Nakayama[1], Ayaka Tanaka[1], Naoki Yamamoto[1], Mayuko Tashima[1], Chikara Ito[1], Kensaku Aihara[1], Shinpachi Yamaoka[1], Michiaki Mishima[1]
Affiliations expand

- PMID: 37042221

- DOI: 10.1080/02770903.2023.2200854

Abstract

Objective: Systemic corticosteroid administration, also called short bursts (SB), is harmful for patients with asthma; however, the actual burden of one-day SB remains unsolved. This study aimed to elucidate the characteristics of patients requiring one-day SB against asthma in clinical practice.

Methods: Consecutive patients who regularly visited our hospital for asthma treatment between January 2019 and December 2020 were reviewed and followed for one year. SB was defined as ≥3 days of systemic corticosteroid treatment for an exacerbation. One-day SB was defined as one-day of systemic corticosteroid to treat an exacerbation. The one-day SB group included patients who received only one-day SB but no SB during the preceding year. Frequent SB was defined as that occurring ≥2 times/year.

Results: Data on 229 patients were analyzed. Among them, 2.6% (95% confidence interval 1.2-5.6%) were in the one-day SB group. The one-day SB group was female-dominant, obese, non-eosinophilic, and non-atopic. The median one-day SB was 1.5 times/year and almost half of one-day SB were performed by patients themselves. Independent of the low pulmonary function, high blood eosinophil count, and inhaled corticosteroid dose, one-day SB was associated with future frequent SB (adjusted odds ratio = 18.2, 95% confidence interval 1.1-288, *P* = 0.040, compared to the no SB group).

Conclusions: Although one-day SB was not frequently experienced, even one-day SB without conventional SB was associated with future frequent SB. It is important to grasp the actual condition of one-day SB and to reinforce the treatment used.

Keywords: Exacerbation; conventional short burst; inner-city hospital; one-day short burst; real world.

Meta-Analysis

J Infect Public Health

. 2023 May;16(5):823-830.
doi: 10.1016/j.jiph.2023.03.019. Epub 2023 Mar 21.

The association between inhaled corticosteroid and the risks of SARS-COV-2 infection: A systematic review and meta-analysis

Chao-Hsien Chen[1], Ching-Yi Chen[2], Chih-Cheng Lai[3], Ya-Hui Wang[4], Kuang-Hung Chen[5], Cheng-Yi Wang[6], Yu-Feng Wei[7], Pin-Kuei Fu[8]
Affiliations expand

- PMID: 37003028
- PMCID: PMC10028214
- DOI: 10.1016/j.jiph.2023.03.019

Free PMC article

Abstract

Background: The effect of inhaled corticosteroid (ICS) on the risk of severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) infection is unclear.

Methods: We performed a systematic review and meta-analysis of clinical studies that assessed the association between the use of ICS and the risk of SARS-COV-2 infection. PubMed, Web of Science, Scopus, Cochrane Library and Google Scholar were searched to January 1st, 2023. ROBINS-I was used to assess risk of bias of included studies. The outcome of interest was the risk of SARS-COV-2 infection in patients and odds ratio (OR) with 95% confidence interval (95% CI) were calculated using Comprehensive Meta-analysis software version 3.

Results: Twelve studies involving seven observational cohort studies, three case-control studies, and two cross-sectional studies were included in this meta-analysis. Overall, compared to non-ICS use, the pooled odds ratio (OR) of the risk of SARS-COV-2 infection was 0.997 (95% confidence interval [CI] 0.664-1.499; p = 0.987) for patients with ICS use. Subgroup analyses demonstrated no statistical significance in the increased risk of SARS-COV-2 infection in patients with ICS monotherapy or in combination with bronchodilators (pooled OR=1.408; 95% CI=0.693-2.858; p = 0.344 in ICS monotherapy, and pooled OR=1.225; 95% CI=0.533-2.815; p = 0.633 in ICS combination, respectively). In addition, no

significant association was observed between ICS use and the risk of SARS-COV-2 infection for patients with COPD (pooled OR=0.715; 95% CI=0.415-1.230; p = 0.225) and asthma (pooled OR=1.081; 95% CI=0.970-1.206; p = 0.160).

Conclusions: The use of ICS, either monotherapy or in combination with bronchodilators, does not have impact on the risk of SARS-COV-2 infection.

Keywords: COPD; COVID-19; Inhaled corticosteroid; Risk; SARS-CoV-2.

Conflict of interest statement

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

- 43 references
- 5 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Review

Curr Opin Pulm Med

. 2023 May 1;29(3):209-214.
doi: 10.1097/MCP.0000000000000961.

As-needed inhaled corticosteroids as add-on therapy versus SMART therapy: an evolving understanding of the two

approaches in the management of moderate-to-severe asthma

Justin D Salciccioli[1], Elliot Israel
Affiliations expand

- PMID: 36994505

- DOI: 10.1097/MCP.0000000000000961

Abstract

Purpose of review: Asthma is the most common chronic respiratory disorder, characterized by recurring, reversible airflow obstruction due to inflammation and airway hyperresponsiveness. Although biologics have provided significant advances in the treatment of asthma, they are expensive, and their use remains restricted to more severe asthma. Additional approaches in the management of moderate-to-severe asthma are necessary.

Recent findings: ICS-formoterol as maintenance and reliever therapy in asthma and its effect on improved asthma control has been demonstrated in multiple cohorts of asthma. Although ICS-formoterol as maintenance and reliever therapy has been widely validated, there are significant design considerations including the requirement for exacerbation and bronchodilator response and the lack of evidence for effectiveness in patients who use nebulized reliever therapies, which may limit the use of this therapy in selected populations. More recent trials of as-needed ICS have demonstrated effectiveness in reducing asthma exacerbations and improvements in asthma control and may provide an additional therapeutic strategy for individuals with moderate-to-severe asthma.

Summary: Both ICS-formoterol as a maintenance and a reliever as well as as-needed ICS have demonstrated significant improvements in the control of moderate-to-severe asthma. Future investigational work will be necessary to elucidate whether a strategy of ICS-formoterol as maintenance and reliever therapy or an as-needed ICS strategy demonstrates superiority in asthma control in the context of the cost to individual patients and health systems.

- 26 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Proceed to details

Cite

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17

J Asthma

. 2023 Apr 23;1-13.

doi: 10.1080/02770903.2023.2188556. Online ahead of print.

Open-inhaler versus single-inhaler triple therapy (long-acting muscarinic antagonist, inhaled corticosteroid, and long-acting β_2-agonist) in asthma patients: a narrative review

Michael E Wechsler[1], John J Oppenheimer[2]

Affiliations expand

- PMID: 36964764

- DOI: 10.1080/02770903.2023.2188556

Abstract

Objective: To review the evidence for the use of open-inhaler (inhaled corticosteroid [ICS] plus long-acting β_2-agonist [LABA] with separate add-on long-acting muscarinic antagonist [LAMA]) versus single-inhaler triple therapy (ICS/LABA/LAMA combination) and the merits of add-on LAMA to ICS/LABA in patients with uncontrolled asthma.

Data sources: Original research articles were identified from PubMed using the search term "triple therapy asthma." Information was also retrieved from the ClinicalTrials.gov website.

Study selections: Articles detailing the use of add-on LAMA to ICS plus LABA (open-inhaler triple therapy), and closed triple therapy compared with ICS plus LABA dual therapy, addressing patient symptoms, exacerbations, and health-related quality of life.

Results: Open-inhaler triple therapy was associated with a significantly reduced incidence of hospitalizations and emergency department visits and a decrease in ICS dose, oral corticosteroids use, and antibiotics use. Exacerbations and acute respiratory events were also reduced. Single-inhaler triple therapy showed a greater improvement in lung function, asthma control, and health status and was noninferior to open-inhaler triple therapy for Asthma Quality of Life Questionnaire scores. Single-inhaler triple therapy may also lead to improved therapy adherence.

Conclusion: Add-on LAMA to ICS plus LABA (open- or single-inhaler triple therapy) improves the response in patients who remain symptomatic and provides a reasonable alternative to ICS dose escalation in treatment-refractory patients.

Keywords: Asthma; management; open-inhaler triple therapy; single-inhaler triple therapy.

Respir Med

. 2023 May;211:107216.

doi: 10.1016/j.rmed.2023.107216. Epub 2023 Mar 21.

Evaluation of FEOS score and super-responder criteria in a real-life cohort treated with anti-IL5/IL5R

Daniel Laorden[1], Ester Zamarrón[2], David Romero[2], Javier Domínguez-Ortega[3], Elena Villamañán[4], Itsaso Losantos[5], Francisco Gayá[5], Santiago Quirce[3], Rodolfo Álvarez-Sala[2]
Affiliations expand

- PMID: 36958514

- DOI: 10.1016/j.rmed.2023.107216

No abstract available

Keywords: Anti-IL5; Anti-IL5R; Asthma; Asthma remission; Benralizumab; Biologic treatment; FEOS score; Mepolizumab; Reslizumab; Super-responder.

Conflict of interest statement

Declaration of competing interest None. The authors certify that none of them have any conflicts of interest.

J Asthma

. 2023 Apr 27;1-7.
doi: 10.1080/02770903.2023.2193632. Online ahead of print.

Anxiety, depression and global distress among African American young adults with uncontrolled asthma

Wanda Gibson-Scipio[1], Veronica Dinaj[2], Amy Hall[1], Ashleigh Kormelink[3], Jean-Marie Bruzzese[4], Karen Kolmodin MacDonell[1,2,5]
Affiliations expand

- PMID: 36952598

- DOI: 10.1080/02770903.2023.2193632

Abstract

Background: Anxiety and depression are mental health disorders that are often comorbid with asthma. Urban African American young adults with asthma often experience increased risk of anxiety and depression.

Objective: To explore relationships between symptoms of psychological distress and asthma-related anxiety with asthma outcomes among urban African American young adults with poorly controlled persistent asthma.

Methods: A secondary analysis of baseline data from a larger study of 141 African American young adults with uncontrolled persistent asthma was examined. Participants completed the *Brief Symptom Inventory* (BSI-18), *Youth Asthma-related Anxiety Scale*, *Asthma Control Test* (ACT), a daily diary to assess asthma symptoms; and number of asthma attacks. Spirometry assessed airway obstruction. Generalized linear models tested associations.

Results: In multivariable models testing, higher somatization scores were significantly associated with lower ACT scores (adjusted β = -0.49; 95% CI = -0.69, -0.28; $p < 0.01$), and higher symptoms (adjusted β = 0.39; 95% CI = 0.14, 0.65; $p < 0.01$). After adding asthma-related anxiety to the model, the somatization subscale and asthma-related anxiety were significantly associated with ACT scores (adjusted β = -0.36; 95% CI = -0.57, -0.15; $p < 0.01$), (adjusted β = -0.32; 95% CI = -0.50, -0.14; $p < 0.01$), respectively. Asthma-related anxiety was also significantly associated with asthma attacks (adjusted β = 0.24; 95% CI = 0.05, 0.43; $p < 0.05$).

Conclusion: This study suggests, asthma-related anxiety may differ from general anxiety and be related to poorly controlled asthma among African American young adults.

Keywords: Ethnic minority; asthma outcomes; mental health; urban; young adult.

Respir Med
.
. 2023 May;211:107213.
doi: 10.1016/j.rmed.2023.107213. Epub 2023 Mar 16.

Association between abdominal and general obesity and respiratory symptoms, asthma and COPD. Results from the RHINE study

Marta A Kisiel[1], Oscar Arnfelt[2], Eva Lindberg[2], Oscar Jogi[3], Andrei Malinovschi[4], Ane Johannessen[5], Bryndis Benediktsdottir[6], Karl Franklin[7], Mathias Holm[8], Francisco Gomez Real[9], Torben Sigsgaard[10], Thorarinn Gislason[6], Lars Modig[11], Christer Janson[2]
Affiliations expand

- PMID: 36933674

- DOI: 10.1016/j.rmed.2023.107213

Free article

Abstract

Introduction: Previous studies on the association between abdominal and general obesity and respiratory disease have provided conflicting results.

Aims and objectives: We aimed to explore the associations of abdominal obesity with respiratory symptoms, asthma, and chronic obstructive pulmonary disease independently from general obesity in women and men.

Methods: This cross-sectional study was based on the Respiratory Health in Northern Europe (RHINE) III questionnaire (n = 12 290) conducted in 2010-2012. Abdominal obesity was self-measured waist circumference using a sex-specific standard cut-off point: ≥102

cm in males and ≥88 cm in females. General obesity was defined as self-reported BMI ≥30.0 kg/m^2.

Results: There were 4261 subjects (63% women) with abdominal obesity and 1837 subjects (50% women) with general obesity. Both abdominal and general obesity was independent of each other and associated with respiratory symptoms (odds ratio (OR) from 1.25 to 2.00)). Asthma was significantly associated with abdominal and general obesity in women, OR (95% CI) 1.56 (1.30-1.87) and 1.95 (1.56-2.43), respectively, but not in men, OR 1.22 (0.97-3.17) and 1.28 (0.97-1.68) respectively. A similar sex difference was found for self-reported chronic obstructive pulmonary disease.

Conclusions: General and abdominal obesity were independent factors associated with respiratory symptoms in adults. Asthma and chronic obstructive pulmonary disease were independently linked to abdominal and general obesity in women but not men.

Conflict of interest statement

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

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

Review

Curr Opin Pulm Med

. 2023 May 1;29(3):215-222.
doi: 10.1097/MCP.0000000000000954. Epub 2023 Mar 17.

The association of preexisting severe asthma with COVID-19 outcomes

Paul D Terry[1], R Eric Heidel[2], Rajiv Dhand[1]
Affiliations expand

- PMID: 36928032
- PMCID: PMC10090339
- DOI: 10.1097/MCP.0000000000000954

Free PMC article

Abstract

Purpose of review: Three years after the emergence of coronavirus disease 2019 (COVID-19), many studies have examined the association between asthma and COVID-related morbidity and mortality, with most showing that asthma does not increase risk. However, the U.S. Centers for Disease Control (CDC) currently suggests that patients with severe asthma may, nonetheless, be particularly vulnerable to COVID-19-related morbidity.

Recent findings: With respect to poor COVID-19 outcomes, our search yielded nine studies that quantified associations with severe asthma, seven that considered use of monoclonal antibodies (mAB), and 14 that considered inhaled corticosteroids (ICS) use. mAb and ICS use have been used as measures of severe asthma in several studies. Severe asthma was significantly associated with poor COVID-19 outcomes. The results for mAb and ICS were mixed.

Summary: An increased risk of poor COVID-19 outcomes in patients with severe asthma is possible. However, these studies remain sparse and suffer from several methodological limitations that hinder their interpretation. Additional evidence is needed to provide clear, cogent guidance for health agencies seeking to inform patients with asthma about potential risks due to COVID-19.

Conflict of interest statement

There are no conflicts of interest.

- 57 references
- 4 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Respir Med
. 2023 May;211:107172.
doi: 10.1016/j.rmed.2023.107172. Epub 2023 Mar 9.

Efficacy of once-daily, single-inhaler, fixed-dose combination of mometasone/indacaterol/glycopyrronium in patients with asthma with or without persistent airflow limitation: Post hoc analysis from the IRIDIUM study

Richard N Van Zyl-Smit[1], Huib Am Kerstjens[2], Jorge F Maspero[3], Konstantinos Kostikas[4], Motoi Hosoe[5], Ana-Maria Tanase[5], Peter D'Andrea[6], Karen Mezzi[5], Dominic Brittain[5], David Lawrence[5], Kenneth R Chapman[7]
Affiliations expand

- PMID: 36906187

- DOI: 10.1016/j.rmed.2023.107172

Free article

Abstract

Background: A novel, once-daily, fixed-dose combination of mometasone furoate/indacaterol acetate/glycopyrronium bromide (MF/IND/GLY) delivered via Breezhaler® is the first inhaled corticosteroid/long-acting β_2-agonist/long-acting muscarinic antagonist (ICS/LABA/LAMA) therapy approved for the maintenance treatment of asthma in adults inadequately controlled on ICS/LABA combination. In patients with asthma and persistent airflow limitation (PAL), maximal treatment, especially with combination is suggested. This post hoc analysis of data from the IRIDIUM study assessed the efficacy of MF/IND/GLY in asthma patients with and without PAL.

Methods: Patients with post-bronchodilator FEV_1 ≤80% of predicted and FEV_1/FVC ratio of ≤0.7 were categorised as PAL subgroup and the remaining as the non-PAL subgroup. Lung function parameters (FEV_1, PEF, and $FEF_{25\%-75\%}$) and annualised asthma exacerbations rates were evaluated in both subgroups across the treatment arms: once-daily high-dose MF/IND/GLY (160/150/50 µg), high-dose MF/IND (320/150 µg) and twice-daily high-dose fluticasone/salmeterol (FLU/SAL; 500/50 µg).

Results: Of the 3092 randomised patients, 64% (n = 1981) met the criteria for PAL. Overall, there was no evidence of treatment difference between PAL and non-PAL subgroups (interaction P-value for FEV_1, $FEF_{25\%-75\%}$, PEF, moderate or severe exacerbations, severe exacerbations and all exacerbations were 0.42, 0.08, 0.43 0.29, 0.35 and 0.12, respectively). In the PAL subgroup, high-dose MF/IND/GLY versus high-dose MF/IND and high-dose FLU/SAL improved trough FEV_1 (mean difference: 102 mL [P < 0.0001] and 137 mL [P < 0.0001]) and reduced moderate or severe (16% and 32%), severe (25% and 39%) and all exacerbations (19% and 38%), respectively.

Conclusions: Once-daily fixed-dose MF/IND/GLY was efficacious in asthma patients with and without persistent airflow limitation.

Keywords: Asthma; Efficacy; Exacerbations; Long-acting muscarinic antagonist; Lung function; Persistent airflow limitation.

Conflict of interest statement

Declaration of competing interest RVZS reports personal fees from Aspen/GSK, Pfizer, Roche, MSD, AstraZeneca, Novartis, Glenmark, Boehringer Ingelheim and Cipla, outside the submitted work. HAK reports grants and consultancy/advisory board participation from/for Novartis during the conduct of the study, grants and consultancy/advisory board

participation from/for GlaxoSmithKline and Boehringer Ingelheim, and a grant from Chiesi, outside the submitted work. All were paid to his institution. JFM reports personal fees and grants from Novartis during the conduct of the study, personal fees from AstraZeneca, grants and personal fees from Sanofi and personal fees from ImmunoTek. KK reports grants and personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi, ELPEN, GSK, Novartis and Menarini; personal fees from Sanofi; and grants from NuvoAir, outside the submitted work, and was an employee of Novartis Pharma AG until October 31, 2018. KRC reports grants and personal fees from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Grifols, Sanofi, Regeneron, Novartis and Takeda; personal fees from CSL Behring, Inhibrx and Kamada; and grants from Vertex, outside the submitted work. MH, AMT, KM, DB and DL are employees of Novartis Pharma AG. PD is an employee of Novartis Pharmaceutical Corporation.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Am J Otolaryngol

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doi: 10.1016/j.amjoto.2023.103814. Epub 2023 Feb 25.

Rethinking the relationships between chronic rhinosinusitis and asthma severity

Sapideh Gilani[1], Neil Bhattacharyya[2]
Affiliations expand

- PMID: 36898220

- DOI: 10.1016/j.amjoto.2023.103814

Free article

Abstract

Background: Previous authors have endorsed the need for prospective studies on the effect of treatment of chronic rhinosinusitis on asthma outcomes. Although common pathophysiology for asthma and chronic rhinosinusitis (CRS) has been suggested with the unified airway theory, there is limited data to support the claim and our study does not support the theory.

Methods: This case-control study involved adult patients with a primary diagnosis of asthma in 2019 who were identified from the electronic medical records and divided into those with and without an associated CRS diagnosis. For each asthma encounter, the asthma severity classification, oral corticosteroid (OCS) use and oxygen saturation scores were tabulated and compared between asthma patients with CRS versus control patients after 1:1 matching on age and sex. We determined the association between asthma and chronic rhinosinusitis when evaluating proxies for disease severity: oral corticosteroid use, average oxygen saturation and minimum oxygen saturation. We identified 1321 clinical encounters for asthma associated with CRS and 1321 control encounters for asthma without CRS.

Results: OCS prescription rates at the asthma encounter were not statistically different between the groups (15.3 % and 14.6 %, respectively; $p = 0.623$). Asthma severity classification was higher in those with CRS versus those without (38.9 % and 25.7 % classified as severe, respectively; $p < 0.001$). We identified 637 asthma with CRS and 637 matched control patients. There was no significant difference in mean recorded O2 saturations between asthma patients with CRS versus control patients (mean O2 saturations, 97.2 % and 97.3 %, respectively; $p = 0.816$) nor in minimum oxygen saturation (96.8 % and 97.0 %, respectively; $p = 0.115$).

Conclusion: Among patients with a primary diagnosis of asthma an increasing severity of asthma classification was significantly associated with an associated diagnosis of CRS. In contradistinction, the presence of CRS comorbidity in asthma patients was not associated with increased OCS use for asthma. Similarly, average oxygen saturation and minimum oxygen saturation did not seem differ according to CRS comorbidity. Our study does not support the unified airway theory that suggests a causative relationship between the upper and lower airway.

Keywords: Adult; Airway; Asthma; Chronic rhinosinusitis; Clinic; Inflammation; Lungs; Medication; Otolaryngology; Oxygen; Pharmacology; Pulmonary; Saturation; Sinus; Steroids; Treatment; Unified Airway Theory.

Conflict of interest statement

Declaration of competing interest Dr. Bhattacharyya serves as a consultant for Sanofi, Inc.

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

J Exp Med

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-

. 2023 May 1;220(5):e20221755.
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Human germline heterozygous gain-of-function STAT6 variants cause severe allergic disease

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Shahrooei[45], Andrea Finocchi[5,7], Paolo Rossi[5,46], Beatrice Rivalta[5,6,7], Cristina Cifaldi[7], Antonio Novelli[47], Chiara Passarelli[47], Stefania Arasi[48], Dominique Bullens[49,50], Kate Sauer[51,52], Tania Claeys[53], Catherine M Biggs[1], Emma C Morris[12,13], Sergio D Rosenzweig[32], John J O'Shea[27], Wyeth W Wasserman[18], H Melanie Bedford[26,54], Clara D M van Karnebeek[18,55], Paolo Palma[5,6], Siobhan O Burns[#12,13], Isabelle Meyts[#10,11], Jean-Laurent Casanova[#3,4,56,57,44], Jonathan J Lyons[#8], Nima Parvaneh[#58], Anh Thi Van Nguyen[#59], Caterina Cancrini[#5,7], Jennifer Heimall[#28], Hanan Ahmed[#60], Margaret L McKinnon[#19], Yu Lung Lau[#2], Vivien Béziat[#3,4,44], Stuart E Turvey[#1]
Affiliations expand

- PMID: 36884218

- PMCID: PMC10037107

- DOI: 10.1084/jem.20221755

Free PMC article

Abstract

STAT6 (signal transducer and activator of transcription 6) is a transcription factor that plays a central role in the pathophysiology of allergic inflammation. We have identified 16 patients from 10 families spanning three continents with a profound phenotype of early-life onset allergic immune dysregulation, widespread treatment-resistant atopic dermatitis, hypereosinophilia with esosinophilic gastrointestinal disease, asthma, elevated serum IgE, IgE-mediated food allergies, and anaphylaxis. The cases were either sporadic (seven kindreds) or followed an autosomal dominant inheritance pattern (three kindreds). All patients carried monoallelic rare variants in STAT6 and functional studies established their gain-of-function (GOF) phenotype with sustained STAT6 phosphorylation, increased STAT6 target gene expression, and TH2 skewing. Precision treatment with the anti-IL-4Rα antibody, dupilumab, was highly effective improving both clinical manifestations and immunological biomarkers. This study identifies heterozygous GOF variants in STAT6 as a novel autosomal dominant allergic disorder. We anticipate that our discovery of multiple kindreds with germline STAT6 GOF variants will facilitate the recognition of more affected individuals and the full definition of this new primary atopic disorder.

Conflict of interest statement

Disclosures: S. Delafontaine is supported by the Personal Research Foundation Flanders grant 11F4421N. T.F. Brown-Whitehorn reported grants from DBV Technology, “other” from DBV Technology, and grants from Regeneron outside the submitted work. J.R. Treat reported personal fees from Sanofi/Regeneron outside the submitted work. D. Bullens reported grants from Research Foundation Flanders and Sanofi Genzyme outside the submitted work. E.C. Morris reported personal fees from Quell Therapeutics Limited outside the submitted work. J.J. O’Shea reported a patent for Janus kinase inhibitors with royalties paid (National Institutes of Health). P. Palma reported grants from the ViiV Foundation and Chiesi Foundation outside the submitted work. S.O. Burns has received grant support from CSL Behring and personal fees or travel expenses from CSL Behring, Baxalta US Inc, Glaxo Smith Kline, and Biotest. I. Meyts reported grants from CSLBehring (paid to institution) and “other” from Boehringer-Ingelheim SAB (paid to institution) outside the submitted work. J. Heimall reported grants from Regeneron, CSL Behring, Enzyvant, and ADMA; and personal fees from CSL Behring, UpToDate, Enzyvant, ADMA, and CIRM outside the submitted work. No other disclosures were reported.

Review

Curr Opin Pulm Med

. 2023 May 1;29(3):202-208.
doi: 10.1097/MCP.0000000000000951. Epub 2023 Mar 3.

Eosinophilic respiratory disorders and the impact of biologics

Joshua S Bernstein[1], Michael E Wechsler
Affiliations expand

- PMID: 36866734

- DOI: 10.1097/MCP.0000000000000951

Abstract

Purpose of review: Eosinophils are involved in combating parasitic, bacterial, viral infections as well as certain malignancies. However, they are also implicated in an array of upper and lower respiratory disease states. Through a deeper understanding of disease pathogenesis, targeted biologic therapies have revolutionized glucocorticoid sparing treatment of eosinophilic respiratory diseases. This review will focus on the impact of novel biologics on the management of asthma, eosinophilic granulomatosis with polyangiitis, allergic bronchopulmonary aspergillosis (ABPA), hypereosinophilic syndrome (HES) and chronic rhinosinusitis with nasal polyposis (CRSwNP).

Recent findings: Key immunologic pathways affecting Type 2 inflammation through immunoglobulin E (IgE), interleukin (IL-4), IL-5, IL-13, and upstream alarmins such as thymic stromal lymphopoietin (TSLP), have led to novel drug developments. We explore the mechanism of action for Omalizumab, Mepolizumab, Benralizumab, Reslizumab, Dupilumab, and Tezepelumab, their respective Food and Drug Administration (FDA) indications, and biomarkers affecting treatment decisions. We also highlight investigational therapeutics that are likely to impact the future management of eosinophilic respiratory diseases.

Summary: Insight into the biology of eosinophilic respiratory diseases has been critical for understanding disease pathogenesis and has contributed to the development of effective eosinophil-targeted biologic interventions.

- 56 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

Editorial

Thorax

. 2023 May;78(5):430-431.
doi: 10.1136/thorax-2022-219979. Epub 2023 Mar 2.

ICS/formoterol maintenance and reliever therapy: how far beyond asthma?

Richard Beasley[1], Pepa Bruce[2], Lee Hatter[2]
Affiliations expand

- PMID: 36863775

- DOI: 10.1136/thorax-2022-219979

No abstract available

Keywords: Asthma; COPD Pharmacology.

Conflict of interest statement

Competing interests: RB has received personal fees from AstraZeneca, Avillion, Cipla and Teva Pharmaceuticals; and is Chair of the New Zealand Asthma & Respiratory Foundation Adolescent and Adult Asthma Guidelines Group. The Medical Research Institute of New Zealand has received research funding from AstraZeneca, Cure Kids (NZ), Genentech and the Health Research Council of New Zealand.

Editorial

Respirology

. 2023 May;28(5):421-422.
doi: 10.1111/resp.14474. Epub 2023 Feb 21.

Is FeNOtyping in COPD the path to precision medicine?

Cara Flynn[1], Chris Brightling[1]
Affiliations expand

- PMID: 36811260

- DOI: 10.1111/resp.14474

Free article

No abstract available

Keywords: COPD; FeNO; asthma; chronic obstructive pulmonary disease; inflammation; precision medicine.

Comment on

- Variability of fractional exhaled nitric oxide is associated with the risk and aetiology of COPD exacerbations.

Schumann DM, Papakonstantinou E, Kostikas K, Grize L, Tamm M, Stolz D.Respirology. 2023 May;28(5):445-454. doi: 10.1111/resp.14439. Epub 2022 Dec 26.PMID: 36571108

- 14 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

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Review

Allergy

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. 2023 May;78(5):1169-1203.
doi: 10.1111/all.15679. Epub 2023 Apr 10.

Rhinitis associated with asthma is distinct from rhinitis alone: The ARIA-MeDALL hypothesis

J Bousquet[1 2 3 4], E Melén[5 6], T Haahtela[7], G H Koppelman[8], A Togias[9], R Valenta[10], C A Akdis[11], W Czarlewski[12 13], M Rothenberg[14], A Valiulis[15 16], M Wickman[17], M Akdis[11], D Aguilar[18], A Bedbrook[13 19], C Bindslev-Jensen[20 21], S Bosnic-Anticevich[22 23 24], L P Boulet[25], C E Brightling[26], L Brussino[27 28], E Burte[4 29], M Bustamante[30 31 32], G W Canonica[33 34], L Cecchi[35], J C Celedon[36], C Chaves Loureiro[37], E Costa[38], A A Cruz[39], M Erhola[40], B Gemicioglu[41], W J Fokkens[42], J Garcia-Aymerich[30 31], S Guerra[43], J Heinrich[44], J C Ivancevich[45], T Keil[46 47 48], L Klimek[49 50], P Kuna[51], M Kupczyk[51], V Kvedariene[52 53], D E Larenas-Linnemann[54], N Lemonnier[55], K C Lodrup Carlsen[56], R Louis[57 58], M Makela[7], M Makris[59], M Maurer[1 2], I Momas[60 61], M Morais-Almeida[62], J Mullol[63 64], R N Naclerio[65], K Nadeau[66], R Nadif[4 29], M Niedoszytko[67], Y Okamoto[68 69], M Ollert[20 21 70], N G Papadopoulos[71], G Passalacqua[72], V

Patella[73,74,75], R Pawankar[76], N Pham-Thi[77,78,79], O Pfaar[80], F S Regateiro[81,82,83], J Ring[84,85], P W Rouadi[86,87], B Samolinski[88], J Sastre[89], M Savouré[4,29,90], N Scichilone[91], M H Shamji[92,93], A Sheikh[94], V Siroux[95], B Sousa-Pinto[96,97], M Standl[98,99], J Sunyer[30,31,32,100], L Taborda-Barata[101,102], S Toppila-Salmi[7], M J Torres[103], I Tsiligianni[104,105], E Valovirta[106], O Vandenplas[107,108], M T Ventura[109,110], S Weiss[111], A Yorgancioglu[112], L Zhang[113], A H Abdul Latiff[114], W Aberer[115], I Agache[116], M Al-Ahmad[117], I Alobid[118,119], I J Ansotegui[120], S H Arshad[121,122], E Asayag[123], C Barbara[124], A Baharudin[125], L Battur[126], K S Bennoor[127], E C Berghea[128], K C Bergmann[1,2], D Bernstein[129], M Bewick[130], H Blain[131], M Bonini[132,133,134], F Braido[135,136], R Buhl[137], R S Bumbacea[138], A Bush[139], M Calderon[140], M Calvo-Gil[141], P Camargos[142], L Caraballo[143], V Cardona[144,145], W Carr[146], P Carreiro-Martins[147,148], T Casale[149], A M Cepeda Sarabia[150,151], R Chandrasekharan[152], D Charpin[153], Y Z Chen[154], I Cherrez-Ojeda[155,156], T Chivato[157], E Chkhartishvili[158], G Christoff[159], D K Chu[160], C Cingi[161], J Correia de Sousa[162], C Corrigan[163], A Custovic[164], G D'Amato[165], S Del Giacco[166], F De Blay[167,168], P Devillier[169], A Didier[170], M do Ceu Teixeira[171,172], D Dokic[173], H Douagui[174], M Doulaptsi[175], S Durham[176], M Dykewicz[177], T Eiwegger[178], Z A El-Sayed[179], R Emuzyte[180], A Fiocchi[181], N Fyhrquist[182], R M Gomez[183], M Gotua[184], M A Guzman[185], J Hagemann[49], S Hamamah[186], S Halken[187], D M G Halpin[188], M Hofmann[1,189], E Hossny[179], M Hrubiško[190], C Irani[191], Z Ispayeva[192], E Jares[193], T Jartti[194], E Jassem[195], K Julge[196], J Just[197], M Jutel[198,199], I Kaidashev[200], O Kalayci[201], A F Kalyoncu[202], P Kardas[203], B Kirenga[204], H Kraxner[205], I Kull[5,6], M Kulus[206], S La Grutta[207], S Lau[208], L Le Tuyet Thi[209], M Levin[210], B Lipworth[211], O Lourenço[212], B Mahboub[213], E Martinez-Infante[214], P Matricardi[215], N Miculinic[216], N Migueres[167], F Mihaltan[217], Y Mohammad[218,219], M Moniuszko[220], S Montefort[221], H Neffen[222], K Nekam[223], E Nunes[224], D Nyembue Tshipukane[225], R O'Hehir[226], I Ogulur[11], K Ohta[227], K Okubo[228], S Ouedraogo[229], H Olze[230,189], I Pali-Schöll[231], O Palomares[232], K Palosuo[233], C Panaitescu[234], P Panzner[235], H S Park[236], C Pitsios[237], D Plavec[238,239], T A Popov[240], F Puggioni[241], S Quirce[242], M Recto[243], M S Repka-Ramirez[244], C Robalo Cordeiro[37], N Roche[245,246], M Rodriguez-Gonzalez[247], J Romantowski[67], N Rosario Filho[248], M Rottem[249], H Sagara[250], F S Serpa[251], Z Sayah[252], S Scheire[253], P Schmid-Grendelmeier[254], J C Sisul[255], D Sole[256], M Soto-Martinez[257], M Sova[258], A Sperl[50], O Spranger[259], R Stelmach[260], C Suppli Ulrik[261,262], M Thomas[263], T To[264], A Todo-Bom[265], P V Tomazic[266], M Urrutia-Pereira[267], M Valentin-Rostan[268], E Van Ganse[269], M van Hage[270,271], T Vasankari[272,273], P Vichyanond[274], G Viegi[275], D Wallace[276], D Y Wang[277], S Williams[278], M Worm[279], P Yiallouros[237], O Yusuf[280], F Zaitoun[281], M Zernotti[282], M Zidarn[283,284], J Zuberbier[230,189], J A Fonseca[96,97], T Zuberbier[1,2], J M Anto[30,31,32]

Affiliations expand

- PMID: 36799120

- DOI: 10.1111/all.15679

Abstract

Asthma, rhinitis, and atopic dermatitis (AD) are interrelated clinical phenotypes that partly overlap in the human interactome. The concept of "one-airway-one-disease," coined over 20 years ago, is a simplistic approach of the links between upper- and lower-airway allergic diseases. With new data, it is time to reassess the concept. This article reviews (i) the clinical observations that led to Allergic Rhinitis and its Impact on Asthma (ARIA), (ii) new insights into polysensitization and multimorbidity, (iii) advances in mHealth for novel phenotype definitions, (iv) confirmation in canonical epidemiologic studies, (v) genomic findings, (vi) treatment approaches, and (vii) novel concepts on the onset of rhinitis and multimorbidity. One recent concept, bringing together upper- and lower-airway allergic diseases with skin, gut, and neuropsychiatric multimorbidities, is the "Epithelial Barrier Hypothesis." This review determined that the "one-airway-one-disease" concept does not always hold true and that several phenotypes of disease can be defined. These phenotypes include an extreme "allergic" (asthma) phenotype combining asthma, rhinitis, and conjunctivitis. Rhinitis alone and rhinitis and asthma multimorbidity represent two distinct diseases with the following differences: (i) genomic and transcriptomic background (Toll-Like Receptors and IL-17 for rhinitis alone as a local disease; IL-33 and IL-5 for allergic and non-allergic multimorbidity as a systemic disease), (ii) allergen sensitization patterns (mono- or pauci-sensitization versus polysensitization), (iii) severity of symptoms, and (iv) treatment response. In conclusion, rhinitis alone (local disease) and rhinitis with asthma multimorbidity (systemic disease) should be considered as two distinct diseases, possibly modulated by the microbiome, and may be a model for understanding the epidemics of chronic and autoimmune diseases.

Keywords: IL-33; Toll-like receptors; asthma; multimorbidity; rhinitis.

- 299 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

. 2023 May;112(5):1124-1125.
doi: 10.1111/apa.16710. Epub 2023 Feb 23.

Blood eosinophils during bronchiolitis were not associated with adult asthma in a Norwegian cohort study

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

- PMID: 36794990

- DOI: 10.1111/apa.16710

No abstract available

- 4 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

30

Pediatr Pulmonol

. 2023 May;58(5):1551-1561.
doi: 10.1002/ppul.26358. Epub 2023 Feb 21.

Validation of an outpatient questionnaire for bronchopulmonary dysplasia control

Joseph M Collaco[1], Yun Li[2,3], Lawrence M Rhein[4], Michael C Tracy[5], Catherine A Sheils[6], Jessica L Rice[3], Antonia P Popova[7], Paul E Moore[8], Winston M Manimtim[9], Khanh Lai[10], Jacob A Kaslow[8], Lystra P Hayden[6], Manvi Bansal[11], Eric D Austin[8], Brianna Aoyama[1], Stamatia Alexiou[3], Amit Agarwal[12], Natalie Villafranco[13], Roopa Siddaiah[14], Joanne M Lagatta[15], Sara K Dawson[15], A Ioana Cristea[16], Sarah E Bauer[16], Christopher D Baker[17], Sharon A McGrath-Morrow[3]
Affiliations expand

- PMID: 36793145

- PMCID: PMC10121946 (available on 2024-05-01)

- DOI: 10.1002/ppul.26358

Abstract

Introduction: Despite bronchopulmonary dysplasia (BPD) being a common morbidity of preterm birth, there is no validated objective tool to assess outpatient respiratory symptom control for clinical and research purposes.

Methods: Data were obtained from 1049 preterm infants and children seen in outpatient BPD clinics of 13 US tertiary care centers from 2018 to 2022. A new standardized instrument was modified from an asthma control test questionnaire and administered at the time of clinic visits. External measures of acute care use were also collected. The questionnaire for BPD control was validated in the entire population and selected subgroups using standard methodology for internal reliability, construct validity, and discriminative properties.

Results: Based on the scores from BPD control questionnaire, the majority of caregivers (86.2%) felt their child's symptoms were under control, which did not differ by BPD severity ($p = 0.30$) or a history of pulmonary hypertension ($p = 0.42$). Across the entire population and selected subgroups, the BPD control questionnaire was internally reliable, suggestive of construct validity (albeit correlation coefficients were -0.2 to -0.4.), and discriminated

control well. Control categories (controlled, partially controlled, and uncontrolled) were also predictive of sick visits, emergency department visits, and hospital readmissions.

Conclusion: Our study provides a tool for assessing respiratory control in children with BPD for clinical care and research studies. Further work is needed to identify modifiable predictors of disease control and link scores from the BPD control questionnaire to other measures of respiratory health such as lung function testing.

Keywords: bronchopulmonary dysplasia; outpatient; questionnaire; symptoms; validation.

Conflict of interest statement

Conflicts of Interest: No conflict of interest declared.

Multicenter Study

Environ Res

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doi: 10.1016/j.envres.2023.115455. Epub 2023 Feb 13.

Relationship of long-term air pollution exposure with asthma and rhinitis in Italy: an innovative multipollutant approach

Sara Maio[1], Salvatore Fasola[2], Alessandro Marcon[3], Anna Angino[4], Sandra Baldacci[4], Maria Beatrice Bilò[5], Roberto Bono[6], Stefania La Grutta[2], Pierpaolo Marchetti[3], Giuseppe Sarno[4], Giulia Squillacioti[6], Ilaria Stanisci[4], Pietro Pirina[7], Sofia Tagliaferro[4], Giuseppe Verlato[3], Simona Villani[8], Claudio Gariazzo[9], Massimo Stafoggia[10], Giovanni Viegi[4]; BIGEPI group
Affiliations expand

- PMID: 36791835

- DOI: 10.1016/j.envres.2023.115455

Free article

Abstract

Background: air pollution is a complex mixture; novel multipollutant approaches could help understanding the health effects of multiple concomitant exposures to air pollutants.

Aim: to assess the relationship of long-term air pollution exposure with the prevalence of respiratory/allergic symptoms and diseases in an Italian multicenter study using single and multipollutant approaches.

Methods: 14420 adults living in 6 Italian cities (Ancona, Pavia, Pisa, Sassari, Turin, Verona) were investigated in 2005-2011 within 11 different study cohorts. Questionnaire information about risk factors and health outcomes was collected. Machine learning derived mean annual concentrations of PM_{10}, $PM_{2.5}$, NO_2 and mean summer concentrations of O_3 (μg/m³) at residential level (1-km resolution) were used for the period 2013-2015. The associations between the four pollutants and respiratory/allergic symptoms/diseases were assessed using two approaches: a) logistic regression models (single-pollutant models), b) principal component logistic regression models (multipollutant models). All the models were adjusted for age, sex, education level, smoking habits, season of interview, climatic index and included a random intercept for cohorts.

Results: the three-year average (± standard deviation) pollutants concentrations at residential level were: 20.3 ± 6.8 μg/m³ for $PM_{2.5}$, 29.2 ± 7.0 μg/m³ for PM_{10}, 28.0 ± 11.2 μg/m³ for NO_2, and 70.9 ± 4.3 μg/m³ for summer O_3. Through the multipollutant models the following associations emerged: PM_{10} and $PM_{2.5}$ were related to 14-25% increased odds of rhinitis, 23-34% of asthma and 30-33% of night awakening; NO_2 was related to 6-9% increased odds of rhinitis, 7-8% of asthma and 12% of night awakening; O_3 was associated with 37% increased odds of asthma attacks. Overall, the Odds Ratios estimated through the multipollutant models were attenuated when compared to those of the single-pollutant models.

Conclusions: this study enabled to obtain new information about the health effects of air pollution on respiratory/allergic outcomes in adults, applying innovative methods for exposure assessment and multipollutant analyses.

Keywords: Adults; Air pollutants; Asthma; Multipollutant approach; Observational study; Rhinitis.

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: Maria Beatrice Bilò had speaking and lecture fees supported by Astra Zeneca, GSK, Novartis, Sanofi. The other authors have no competing financial interests or personal relationships to disclose.

Thorax

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. 2023 May;78(5):451-458.
doi: 10.1136/thorax-2022-219620. Epub 2023 Feb 1.

Budesonide/formoterol maintenance and reliever therapy versus

fluticasone/salmeterol fixed-dose treatment in patients with COPD

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Affiliations expand

- PMID: 36725331

- DOI: 10.1136/thorax-2022-219620

Abstract

Background: Maintenance and reliever therapy (MART) with inhaled corticosteroid (ICS)/formoterol effectively reduces exacerbations in asthma. We aimed to investigate its efficacy compared with fixed-dose fluticasone/salmeterol in chronic obstructive pulmonary disease (COPD).

Methods: Patients with COPD and ≥1 exacerbation in the previous 2 years were randomly assigned to open-label MART (Spiromax budesonide/formoterol 160/4.5 µg 2 inhalations twice daily+1 prn) or fixed-dose therapy (Diskus fluticasone propionate/salmeterol combination (FSC) 500/50 µg 1 inhalation twice daily+salbutamol 100 µg prn) for 1 year. The primary outcome was rate of moderate/severe exacerbations, defined by treatment with oral prednisolone and/or antibiotics.

Results: In total, 195 patients were randomised (MART Bud/Form n=103; fixed-dose FSC n=92). No significant difference was seen between MART and FSC therapy in exacerbation rates (1.32 vs 1.32 /year, respectively, rate ratio 1.05 (95% CI 0.79 to 1.39); p=0.741). No differences in lung function parameters or health status were observed. Total ICS dose was significantly lower with MART than FSC therapy (budesonide-equivalent 928 µg/day vs 1747 µg/day, respectively, p<0.05). Similar proportions of patients reported adverse events (MART Bud/Form: 73% vs fixed-dose FSC: 68%, p=0.408) and pneumonias (MART: 5% vs FSC: 1%, p=0.216).

Conclusions: This first study of MART in COPD found that budesonide/formoterol MART might be similarly effective to fluticasone/salmeterol fixed-dose therapy in moderate to severe patients with COPD, at a lower daily ICS dosage. Further evidence is needed about long-term safety.

Keywords: COPD Exacerbations; COPD Pharmacology.

Conflict of interest statement

Competing interests: None declared.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Review

Pediatr Pulmonol

. 2023 May;58(5):1322-1336.
doi: 10.1002/ppul.26342. Epub 2023 Feb 8.

Validity of the Childhood Asthma Control Test in diverse populations: A systematic review

Francesca Chu[1], Nicole Kappel[1], Mary Akel[1], Valerie G Press[1,2], Jason T Alexander[1], Anna Volerman[1,2]
Affiliations expand

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- PMCID: PMC10121871 (available on 2024-05-01)

- DOI: 10.1002/ppul.26342

Abstract

Purpose: We examined the validity of the Childhood Asthma Control Test (C-ACT) and identified recommended thresholds for uncontrolled asthma in children from varying backgrounds.

Methods: A systematic literature review was performed utilizing PubMed, Ovid Medline, SCOPUS, CINAHL, and conference proceedings. Studies were included if they enrolled children, had a primary outcome of asthma control, examined test validity or psychometrics, and utilized the C-ACT. Along with study design and demographic data, we extracted all outcomes and comparisons used to validate the C-ACT. We evaluated risk of bias using the COSMIN Risk of Bias tool. Our protocol was registered with PROSPERO (CRD42020211119).

Results: Of 4924 records screened, 28 studies were included. Studies were conducted internationally and published between 2007 and 2018. Average number of enrolled participants was 193 (SD = 155, range = 22-671). Ten studies calculated Cronbach's α (mean [SD] = 0.78(0.05), range = 0.677-0.83). Thirteen studies recommended cut-offs for uncontrolled asthma (≤18-≤24). Nine studies found significant agreement or correlation between C-ACT and Global Initiative for Asthma guidelines/physician assessment of asthma control (correlation coefficients range = 0.219-0.65). Correlation coefficients between C-ACT and spirometry were <0.6 in five of six studies that included spirometry. Kappa values for C-ACT and various spirometry measurements ranged 0.00-0.34.

Conclusions: The C-ACT showed good internal consistency and mixed levels of agreement and correlation with various clinical asthma measures. Recommended cut-offs for asthma control varied and had no consistent relationship with nationality, race, ethnicity, or language. Few studies examined cross-cultural validity and multiple populations remain under-studied.

Keywords: Childhood Asthma Control Test; asthma; pediatric; validity.

Conflict of interest statement

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National Heart Lung and Blood Institute (R01HL146644), Agency for Healthcare Research and Quality (R01HS027804), and American Lung Association. VG Press discloses consultant fees from Vizient Inc. and Humana. The other authors have no conflicts of interest related to this work.

Pediatr Pulmonol

. 2023 May;58(5):1411-1416.
doi: 10.1002/ppul.26333. Epub 2023 Feb 7.

Impulse oscillometry in preschool children with persistent asthma can predict spirometry at school age

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Affiliations expand

- PMID: 36704870

- DOI: 10.1002/ppul.26333

Abstract

Background: Lung function in children with persistent asthma may be impaired during preschool and school ages. The aim of this study was to describe if some preschool impulse oscillometry (IOS) parameters are related to spirometry alterations on reaching school age.

Methods: In 66 diagnosed with persistent asthma, an IOS was performed at entrance and followed-up to school age where a spirometry was done.

Results: The mean age was 4.9 years at the first evaluation and 7.9 years at the second evaluation, and 59.1% were male. During preschool, R5, R20, Fres, AX, and D5-20 were found to have diagnostic accuracy (area under the curve > 0.7) for predicting abnormal spirometry during school age (defined as FEV1 and/or FEV/FVC and/or FVC values below the lower limit of normality according to Quanjer predictive values). AX, D5-20, and R5 had the best LR+ to increase the probability of abnormal spirometry (50, 10, and 7.1, respectively). R20, R5, and AX was the best IOS parameters for discriminating bronchodilator response (BDR) in schoolchildren (LR+ = 3.4, 2.9, and 2.8, respectively).

Conclusion: The findings of this study indicate that some IOS parameters between 3 and 5 years of age are useful for predicting abnormal spirometry and BDR at school age.

Keywords: IOS; asthma; preschoolers; pulmonary function testing; schoolchildren; spirometry.

- 35 references

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

Am J Respir Crit Care Med
. 2023 May 1;207(9):1134-1144.
doi: 10.1164/rccm.202209-1795CI.

Differential Diagnosis of Suspected Chronic Obstructive Pulmonary Disease Exacerbations in the Acute Care Setting: Best Practice

Bartolome R Celli[1], Leonardo M Fabbri[2], Shawn D Aaron[3], Alvar Agusti[4,5,6,7], Robert D Brook[8], Gerard J Criner[9], Frits M E Franssen[10,11], Marc Humbert[12,13], John R Hurst[14], Maria Montes de Oca[15], Leonardo Pantoni[16], Alberto Papi[17,18], Roberto Rodriguez-Roisin[4,5], Sanjay Sethi[19], Daiana Stolz[20,21,22], Antoni Torres[4,5,6,23], Claus F Vogelmeier[24], Jadwiga A Wedzicha[25]
Affiliations expand

- PMID: 36701677

- DOI: 10.1164/rccm.202209-1795CI

Abstract

Patients with chronic obstructive pulmonary disease (COPD) may suffer from acute episodes of worsening dyspnea, often associated with increased cough, sputum, and/or sputum purulence. These exacerbations of COPD (ECOPDs) impact health status, accelerate lung function decline, and increase the risk of hospitalization. Importantly, close to 20% of patients are readmitted within 30 days after hospital discharge, with great cost to the person and society. Approximately 25% and 65% of patients hospitalized for an ECOPD die within 1 and 5 years, respectively. Patients with COPD are usually older and frequently have concomitant chronic diseases, including heart failure, coronary artery disease, arrhythmias, interstitial lung diseases, bronchiectasis, asthma, anxiety, and depression, and are also at increased risk of developing pneumonia, pulmonary embolism, and pneumothorax. All of these morbidities not only increase the risk of subsequent ECOPDs but can also mimic or aggravate them. Importantly, close to 70% of readmissions after an ECOPD hospitalization result from decompensation of other morbidities. These observations suggest that in patients with COPD with worsening dyspnea but without the other classic characteristics of ECOPD, a careful search for these morbidities can help detect them and allow appropriate treatment. For most morbidities, a thorough clinical evaluation supplemented by appropriate clinical investigations can guide the healthcare provider to make a precise diagnosis. This perspective integrates the currently dispersed information available and provides a practical approach to patients with COPD complaining of worsening respiratory symptoms, particularly dyspnea. A systematic approach should help improve outcomes and the personal and societal cost of ECOPDs.

Keywords: COPD; algorithms; differential diagnosis; symptom flare-up.

Qual Life Res

. 2023 May;32(5):1507-1520.
doi: 10.1007/s11136-022-03339-0. Epub 2023 Jan 3.

Predictors of change in asthma-related quality of life: a longitudinal real-life study in adult asthmatics

Gilles Louis[1], Benoit Pétré[2], Florence Schleich[3], Halehsadat Nekoee Zahrei[4], Anne-Françoise Donneau[4], Monique Henket[3], Virginie Paulus[3], Françoise Guissard[3], Michèle Guillaume[2], Renaud Louis[3]

Affiliations expand

- PMID: 36595128
- PMCID: PMC10123047
- DOI: 10.1007/s11136-022-03339-0

Abstract

Purpose: Asthma negatively impacts health-related quality of life (HRQL). The objective is to investigate the longitudinal relationship between HRQL in asthma and disease control, demographic and clinical objective parameters in an adult population in real-life settings.

Methods: We conducted a longitudinal study on adult asthmatics recruited from Liege University Hospital Asthma Clinic (Belgium) between 2011 and 2019. We selected those who had two visits and completed two patient-reported outcome measures (PROMs), the asthma control test (ACT) and the mini asthma quality of life questionnaire (AQLQ) (n = 290). AQLQ was the dependent variable. Demographic, functional and inflammatory characteristics, asthma control, and exacerbations were the independent variables. We applied generalized linear mixed models to identify the factors associated with change in AQLQ and its dimensions.

Results: Median (IQR) time interval between the two visits was 7 (5-19) months. Overall, median (IQR) global AQLQ increased from 4.1 (3-5.1) to 4.6 (3.4-5.9) ($p < 0.0001$). All AQLQ dimensions significantly improved, apart the environmental one. AQLQ improved in patients who had both step-up and step-down pharmacological treatment as well as in patients reporting no change between the two visits. The fitted models indicated that change in ACT was the main predictor of change in AQLQ ($p < 0.0001$). A rise in 3 units in ACT predicted an improvement of 0.5 AQLQ (AUC-ROC = 0.85; $p < 0.0001$). Change in BMI inversely impacted global AQLQ ($p < 0.01$) and its activity dimension ($p < 0.0001$).

Conclusion: Asthma control and BMI are key predictors of asthma quality of life acting in an opposite direction. AQLQ may improve without step-up in the pharmacological treatment.

Keywords: Asthma control; Asthma-related quality of life; BMI; Longitudinal study.

Conflict of interest statement

Outside of this submitted work, RL received unrestricted research grants from GSK, AstraZeneca, Novartis, and Chiesi and lecture or adboard fees from GSK, AZ, Novartis, and Sonafi. Outside of this submitted work, FS received lecture or adboard fees from Chiesi, AZ, GSK, and Novartis. The rest of the authors declare that they have no relevant conflicts of interest.

- 48 references
- 3 figures

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

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Observational Study

J Clin Pharmacol

. 2023 May;63(5):544-550.
doi: 10.1002/jcph.2194. Epub 2023 Jan 12.

What Is the Role of Sex-Related Differences in the Effectiveness and Safety of Biological Drugs Used in Patients With Severe Asthma?

Corrado Pelaia[1], Alessandro Casarella[1], Giulia Pelaia[1], Gianmarco Marcianò[1], Vincenzo Rania[1], Lucia Muraca[2], Erika Cione[3,4,5], Luigi Bianco[6], Caterina Palleria[6], Bruno D'Agostino[7], Daniela Mazzuca[1], Giovambattista De Sarro[1,5,8], Giulio Di Mizio[9], Luca Gallelli[1,4,5,6,8]

Affiliations expand

- PMID: 36524322

- DOI: 10.1002/jcph.2194

Abstract

Biological drugs are used to treat severe asthma with an improvement of clinical symptoms. Data on sex difference of these drugs in patients with severe asthma are sparse. This study aimed to assess the effects of sex-related differences on biological drugs in

patients with severe asthma. In this observational, open-label, prospective, noncontrolled, single-center cohort pilot study, we enrolled adult patients aged >18 years diagnosed with severe asthma and not previously treated with biological drugs. The first clinical end point was the statistical difference (P < .05) in the efficacy of biological drugs evaluated using the asthma control test and spirometry between sexes. The first safety end point was the statistical difference (P < .05) in developing adverse drug reactions between sexes. We enrolled 74 patients with severe asthma (48 women and 26 men) with a mean age of 59.4 (standard deviation, 11.8) years. The mean forced expiratory volume in 1 second was 6.9 (standard deviation, 13.9) for women and 9.4 (standard deviation, 10.7) for men and improved significantly after the treatment (P < .01), with no significant differences in sex (P = .8). Similarly, the asthma control test improved 12 months after the beginning of the treatment without significant differences between men and women (P = .5). The most common drug used was omalizumab (45.9% of the patients; P < .01) without significant differences between sex (P > .05). We did not observe the development of adverse drug reactions during the study. In conclusion, in asthmatic patients, sex does not have a role in either the effectiveness or safety of biological drugs.

Keywords: biological drugs; efficacy; safety; severe asthma; sex.

- 20 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

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Scand J Med Sci Sports

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. 2023 May;33(5):651-659.
doi: 10.1111/sms.14286. Epub 2022 Dec 21.

Adjusted incidence, remission, and relapse of self-reported physician-diagnosed asthma and asthma medication usage in endurance athletes

Nikolai Stenfors[1], Tommie Irewall[1], Anne Lindberg[1]
Affiliations expand

- PMID: 36514895

- DOI: 10.1111/sms.14286

Abstract

Longitudinal studies are needed to increase our knowledge of the natural history of asthma in athletes. Our aims were to estimate the incidence, remission, and relapse, of self-reported asthma among endurance athletes. A postal questionnaire on self-reported physician-diagnosed asthma, asthma medication, allergy, and respiratory symptoms was sent annually 2011-2015 to 666 Swedish elite athletes competing in cross-country skiing, biathlon, ski orienteering, or orienteering. Athletes at risk for (1) incident asthma were those without previous self-reported asthma, use of asthma medication, or asthma-like symptoms, (2) remission those who discontinued asthma medication usage and (3) relapse those who resumed asthma medication usage during the observation period. The population at risk was used as denominator in the calculations of subsequent event rate. At baseline, 89% responded, the median age was 17 years and 47% were females. Of the 373 athletes with never asthma nor use of asthma medication/asthma-like symptoms at baseline, 31 (8%) reported physician-diagnosed asthma during follow-up, giving an adjusted incidence rate of asthma of 42/1000 person years. Among the 110 athletes with self-reported asthma and use of asthma medication at baseline, 26 (24%) discontinued use of asthma medication during the follow-up, giving a remission rate of 142/1000 person years. Of the 31 athletes with previous asthma and no use of asthma medication at baseline, 9 (29%) resumed use of asthma medication during follow-up, giving a relapse rate was 148/1000 person years. Elite endurance athletes have a high incidence of self-reported physician-diagnosed asthma. The remission and relapse of self-reported asthma medication usage in endurance athletes appear similar to that of the general population.

Keywords: asthma; athlete; incidence; relapse; remission; risk factors; sport.

- 35 references

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

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WILEY Full Text Article UNIMORE

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Allergy

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. 2023 May;78(5):1234-1244.
doi: 10.1111/all.15598. Epub 2022 Dec 11.

Prepregnancy body mass index and risk of childhood asthma

Natalie A Rosenquist[1], Megan Richards[1], Jeannette R Ferber[2], De-Kun Li[2], So Young Ryu[1], Heather Burkin[3], Matthew J Strickland[1], Lyndsey A Darrow[1]
Affiliations expand

- PMID: 36435989

- DOI: 10.1111/all.15598

Abstract

Background: Growing evidence suggests that maternal obesity may affect the intrauterine environment and increase a child's risk of developing asthma. We aim to investigate the relationship between prepregnancy obesity and childhood asthma risk.

Methods: Cohorts of children enrolled in Kaiser Permanente Northern California integrated healthcare system were followed from birth (2005-2014) to age 4 (n = 104,467), 6 (n = 63,084), or 8 (n = 31,006) using electronic medical records. Child's asthma was defined using ICD codes and asthma-related prescription medication dispensing. Risk ratios (RR) and 95% confidence intervals (95% CIs) for child's asthma were estimated using Poisson regression with robust error variance for (1) prepregnancy BMI categories (underweight [<18.5], normal [18.5-24.9], overweight [25-29.9], obese 1 [30-34.9], and obese 2/3 [≥35]) and (2) continuous prepregnancy BMI modeled using cubic splines with knots at BMI category boundaries. Models were adjusted for maternal age, education, race, asthma, allergies, smoking, gestational weight gain, child's birth year, parity, infant sex, gestational age, and child's BMI.

Results: Relative to normal BMI, RRs (95%CIs) for asthma at ages 4, 6, and 8 were 0.91 (0.75, 1.11), 0.95 (0.78, 1.16), and 0.97 (0.75, 1.27) for underweight, 1.06 (0.99, 1.14), 1.08 (1.01, 1.16), and 1.03 (0.94, 1.14) for overweight, 1.09 (1.00, 1.19), 1.12 (1.03, 1.23), 1.03 (0.91, 1.17) for obese 1, and 1.10 (0.99, 1.21), 1.13 (1.02, 1.25), 1.14 (0.99, 1.31) for obese 2/3. When continuous prepregnancy BMI was modeled with splines, child's asthma risk generally increased linearly with increasing prepregnancy BMI.

Conclusions: Higher prepregnancy BMI is associated with modestly increased childhood asthma risk.

Keywords: asthma; gestational weight gain; maternal obesity; pregnancy.

- 38 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

WILEY Full Text Article UNIMORE

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Immunology

. 2023 May;169(1):96-101.
doi: 10.1111/imm.13613. Epub 2022 Dec 18.

Exploration of the efficacy of anti-immunoglobulin E monoclonal antibodies in the treatment of allergic asthma

Xue-Jiao Qian[1], Xiao-Tian Hu[2], Ping Jiang[1]
Affiliations expand

- PMID: 36424828

- DOI: 10.1111/imm.13613

Abstract

The present study aims to evaluate the efficacy of an anti-immunoglobulin E monoclonal antibody (omalizumab) in the treatment of allergic asthma (AS). A total of 34 patients with moderate-to-severe bronchial asthma admitted to the Respiratory Department of Tianjin First Central Hospital between September 2019 and September 2021 were enrolled in this study. The patients were treated with omalizumab in addition to conventional inhaled corticosteroids + long-acting β2 agonist treatment. The therapeutic effects before and after the addition of omalizumab were compared. The lung function indicators (ratio of the forced expiratory volume [FEV] in the first second to the forced vital capacity, FEV in the first second, forced expiratory flow [FEF] at 50% of vital capacity, FEF at 75% of vital capacity, and maximum mid-expiratory flow), fractionated exhaled nitric oxide values, asthma control test scores, rhinoconjunctivitis quality of life questionnaire scores, and urticaria control test scores were significantly different after 4 months of the regular administration of omalizumab ($p < 0.05$) compared with before administration. The use of omalizumab had a significant efficacy in the treatment of patients with AS, and the effects were obvious in the subgroups of patients with a combination of AS and atopic dermatitis, chronic urticaria, and allergic rhinitis. These results indicate that the treatment is worthy of clinical promotion.

Keywords: allergic asthma; allergic rhinitis; atopic dermatitis; chronic urticaria; dynamic lung function; omalizumab.

- 26 references

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

J Asthma
. 2023 May;60(5):1031-1037.
doi: 10.1080/02770903.2022.2123742. Epub 2022 Dec 1.

Physical activity and quality of life in children with well-controlled asthma

Pauline Peftoulidou[1], Maria Gioulvanidou[1], Elissavet-Anna Chrysochoou[1], Elpis Hatziagorou[1]
Affiliations expand

- PMID: 36094169

- DOI: 10.1080/02770903.2022.2123742

Abstract

Background: Asthma is the most common disease in childhood. Appropriate management and programs encouraging exercise enable children to enjoy a good quality of life (QoL).

Objective: To assess the association between lung function, physical activity (PA), and QoL in children with well-controlled asthma.

Methods: Fifty-four children aged 7-14 years attending a Pediatric Asthma Clinic were included. All children underwent spirometry and completed three self-administered validated questionnaires: The Godin Leisure-Time Exercise Questionnaire (GLTEQ), the ACT (Asthma Control Test), and the DISABKIDS for QoL.

Results: Mean age of the study population was 11.43(±2.1), BMI, kg/m^2 (20.8 ± 3.9), FVCpp (97.1% ±12.4), and FEV1pp (99.7% ±12.43), ACT (23.4 ± 3). The GLTEQ revealed that only 3% of the studied population presented satisfactory activity, while 86% were sedentary. Both FEV1pp, and PA were significantly correlated to the children's QoL ((r^2: 0.55, *p*:0.0001), and (r^2:0.45, *p*:0.003), respectively).

Conclusions: Despite reasonable asthma control, the children exhibited low physical activity levels, which negatively correlated to their QoL. Families of asthmatic children should be educated to highlight the benefits of exercise and increase the PA of their children.

Keywords: asthma; physical activity; quality of life; questionnaire.

J Asthma

. 2023 May;60(5):1024-1030.
doi: 10.1080/02770903.2022.2123741. Epub 2022 Sep 29.

Reduced forced expiratory flow between 25% and 75% of vital capacity in children with allergic rhinitis without asthmatic symptoms

Jue Seong Lee[1], Sang Hyun Park[1], Han Ho Kim[1], So Hyun Ahn[2], Eunji Kim[2], Seunghyun Kim[2], Wonsuck Yoon[2], Young Yoo[1,2]
Affiliations expand

- PMID: 36093643

- DOI: 10.1080/02770903.2022.2123741

Abstract

Allergic rhinitis (AR) and asthma are closely associated in children. Reduced $FEF_{25\%-75\%}$ which reflects small airway airflow limitation is frequently observed in asthma. This study aimed to examine the proportion of small airway dysfunction in children with AR and to determine its associated factors.**Methods:** The medical records of 144 aged 6-18-year children with AR without overt asthmatic symptoms were retrospectively reviewed. Subjects were divided into 2 groups according to the $FEF_{25\%-75\%}$ values; normal $FEF_{25\%-75\%}$ group (n = 129) and reduced $FEF_{25\%-75\%}$ group (n = 15). Clinical data, allergen sensitization profile, exhaled nitric oxide, spirometry, and methacholine provocation test results were compared between the two groups.**Results:** The mean FEV_1 and $FEF_{25\%-75\%}$ values in the reduced $FEF_{25\%-75\%}$ group (73.5 ± 9.4%pred and 56.0 ± 7.7%pred, respectively) were significantly lower than in the normal $FEF_{25\%-75\%}$ group (87.0 ± 12.5%pred and 99.1 ± 21.4%pred, respectively). The mean disease duration was significantly longer in the reduced $FEF_{25\%-75\%}$ group than in the normal $FEF_{25\%-75\%}$ group (5.39 ± 1.85 y vs 3.14 ± 1.80 y, $p < 0.001$). Subjects with positive bronchial hyperresponsiveness ($MChPC_{20}$<16 mg/mL) were more frequently detected in the reduced $FEF_{25\%-75\%}$ group than in the normal $FEF_{25\%-75\%}$ group (26.7% vs 8.52%, $p = 0.013$). Long disease duration and severity of AR were significantly associated with impaired $FEF_{25\%-75\%}$ values.**Conclusions:** Subjects with AR alone may have impaired $FEF_{25\%-75\%}$ values which is considered as a marker of early bronchial involvement. Longer disease duration and severity of AR are important risk factors for progressive declines in small airway function. Physicians should be aware of need for the measurement of $FEF_{25\%-75\%}$ values for early detection of small airway dysfunction, particularly in children with severe long-lasting allergic rhinitis.

Keywords: Children; allergy; asthma; pulmonary function; rhinitis.

J Asthma
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. 2023 May;60(5):1016-1023.
doi: 10.1080/02770903.2022.2121719. Epub 2022 Sep 14.

Exercise induced bronchodilation: a phenomenon more common, greater magnitude and more prolonged in older adults than in adolescents

Ryan Welch[1,2], Mandy Lardenoye[1], John Kolbe[1,2], Kevin Ellyett[1,2]
Affiliations expand

- PMID: 36066117

- DOI: 10.1080/02770903.2022.2121719

Abstract

Objective: There are few studies in clinically healthy subjects describing and quantifying exercise-induced bronchodilation (EIB_d). This study aimed to describe and compare the magnitude and time course changes in post-exercise forced expired volume at the first second (FEV_1) in healthy adolescents, younger adults, and older adults.

Methods: Adolescent (*n* = 73, aged 10-17 years), younger adult (*n* = 35, aged 18-25 years), and older adult (*n* = 25, aged 35-66 years) subjects with normal spirometry z-scores completed a maximal cardiopulmonary exercise test using the standardized exponential exercise test protocol on a cycle ergometer performed at stable temperature and humidity. Spirometry was performed pre-exercise and at 1-, 3-, 5-, and 10-minutes post-exercise to determine the percentage change in FEV_1 compared to baseline. EIB_d was defined as *a* ≥ 5% increase in post-exercise FEV_1.

Results: Increases in FEV_1 at one-minute post-exercise were observed in the adolescents (1.3%) and young adults (6.0%) with FEV_1 returning to baseline after ten minutes. Compared to the adolescents, the older adults showed significantly greater and sustained increases in FEV_1 at 1-, 3-, 5-, and 10-minutes post-exercise (6.4, 4.6, 4.7, and 3.8%, $p < 0.05$). At 1-minute post exercise a significantly greater proportion of younger adults (54%, $p < 0.01$) and older adults (64%, $p < 0.01$) demonstrated EIB_d compared to the adolescent group (15%).

Conclusion: Healthy older adults had a higher prevalence, greater magnitude and more prolonged EIB_d compared to healthy adolescent and young adult subjects.

Keywords: Exercise; bronchodilation; physiology; respiratory; spirometry.

J Asthma

. 2023 May;60(5):1009-1015.
doi: 10.1080/02770903.2022.2120403. Epub 2022 Sep 21.

Tiotropium for children and adolescents with severe asthma

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Affiliations expand

- PMID: 36047659

- DOI: 10.1080/02770903.2022.2120403

Abstract

Introduction: An important proportion of asthma patients remain uncontrolled despite using inhaled corticosteroids and long-acting beta-agonists. Some add-on therapies, such as tiotropium bromide has been recommended for this subgroup of patients. The purpose of this study was to assess the cost-effectiveness of tiotropium as add-on therapies to ICS + LABA for children and adolescents with uncontrolled allergic asthma.

Methods: A probabilistic Markov model was created to estimate the cost and quality-adjusted life-years (QALYs) of patients with severe asthma in Colombia. Total costs and QALYS of two interventions including standard therapy (ICS + LABA), and add-on therapy with tiotropium, were calculated over a time horizon from 6 to 18 years. Probability sensitivity analyses were conducted.

Results: For a patient with severe asthma, our Markov model showed that compared to standard therapy, add-on therapy with tiotropium was associated with higher treatment costs and QALY. The incremental cost-effectiveness ratio estimated was US$2,017 in the probabilistic model after Monte-Carlo simulation. Our base-case results were robust to variations in all assumptions and parameters. The incremental net monetary benefit of US$327 with a 95% credible interval of US$396 to US425.

Conclusion: Add-on therapy with tiotropium was cost-effective when added to usual care in children and adolescents with severe asthma who remained uncontrolled despite treatment with medium or high-dose ICS/LABA. Our study provides evidence that should be used by decision-makers to improve clinical practice guidelines and should be replicated to validate their results in other middle-income countries.

Keywords: Markov model; Tiotropium; cost-effectiveness analysis; decision analysis; uncontrolled asthma.

. 2023 May;60(5):1000-1008.
doi: 10.1080/02770903.2022.2119865. Epub 2022 Sep 14.

Pediatric and adult asthma clinical phenotypes: a real world, big data study based on acute exacerbations

Jie Xu[1], Jiang Bian[1], Jennifer N Fishe[2,3]
Affiliations expand

- PMID: 36039465

- PMCID: PMC10011007 (available on 2024-05-01)

- DOI: 10.1080/02770903.2022.2119865

Abstract

Introduction: Asthma is a heterogeneous disease with a range of observable phenotypes. To date, the characterization of asthma phenotypes is mostly limited to allergic versus non-allergic disease. Therefore, the aim of this big data study was to computationally derive asthma subtypes from the OneFlorida Clinical Research Consortium.

Methods: We obtained data from 2012-2020 from the OneFlorida Clinical Research Consortium. Longitudinal data for patients greater than two years of age who met inclusion criteria for an asthma exacerbation based on International Classification of Diseases codes. We used matrix factorization to extract information and K-means clustering to derive subtypes. The distributions of demographics, comorbidities, and medications were compared using Chi-square statistics.

Results: A total of 39,807 pediatric patients and 23,883 adult patients met inclusion criteria. We identified five distinct pediatric subtypes and four distinct adult subtypes. Pediatric subtype P1 had the highest proportion of black patients, but the lowest use of inhaled corticosteroids and allergy medications. Subtype P2 had a predominance of patients with gastroesophageal reflux disease, whereas P3 had a predominance of patients with allergic disorders. Adult subtype A2 was the most severe and all patients were on biologic agents. Most of subtype A3 patients were not taking controller medications,

whereas most patients (>90%) in subtypes A2 and A4 were taking corticosteroids and allergy medications.

Conclusion: We found five distinct pediatric asthma subtypes and four distinct adult asthma subtypes. Future work should externally validate these subtypes and characterize response to treatment by subtype to better guide clinical treatment of asthma.

Keywords: K-means clustering; allergy; asthma; computational phenotypes; subtypes.

Conflict of interest statement

Conflict of Interest: No authors have conflicts of interest or financial disclosures.

J Asthma

. 2023 May;60(5):1054-1055.
doi: 10.1080/02770903.2022.2114085. Epub 2022 Sep 14.

Autonomic nervous system alterations in patients with mild-to-moderate asthma: do not forget airflow obstruction! a lesson from COPD

Alberto Fantin[1], Vincenzo Patruno[1], Giulia Sartori[2], Ernesto Crisafulli[2]
Affiliations expand

- PMID: 35972058

- DOI: 10.1080/02770903.2022.2114085

No abstract available

Comment on

- Heart rate variability as a marker of autonomic nervous system activity in young people with eosinophilic and non-eosinophilic asthma.
  Ali H, Brooks C, Tzeng YC, Crane J, Beasley R, Gibson P, Pattemore P, Stanley T, Pearce N, Douwes J.J Asthma. 2023 Mar;60(3):534-542. doi: 10.1080/02770903.2022.2070763. Epub 2022 May 5.PMID: 35468039

Observational Study

J Asthma
.
. 2023 May;60(5):960-968.
doi: 10.1080/02770903.2022.2111686. Epub 2022 Sep 21.

Initial emergency department vital signs may predict PICU admission in pediatric patients presenting with asthma exacerbation

Michael S Freedman[1,2], Erick Forno[3,4]
Affiliations expand

- PMID: 35943201

- PMCID: PMC10027615 (available on 2024-05-01)

- DOI: 10.1080/02770903.2022.2111686

Abstract

Objective: Severe asthma exacerbations account for a large share of asthma morbidity, mortality, and costs. Here, we aim to identify early predictive factors associated with pediatric intensive care unit (PICU) admission.

Methods: We performed a retrospective observational study of 5,185 emergency department (ED) encounters at a large children's hospital, including 86 (1.7%) resulting in PICU admission between 10/1/2015 and 8/7/2018 with ICD9/ICD10 codes for "asthma," "bronchospasm," or "wheezing." Vital signs and demographic information were obtained from electronic health record data and analyzed for each encounter. Predictive factors were identified using adjusted regression models, and our primary outcome was PICU admission.

Results: Higher mean heart rates (HRs) and respiratory rates (RRs), and lower SpO2 within the first hour of ED presentation were independently associated with PICU admission. Odds of PICU admission increased 70% for each 10 beats/min higher HR, 125% for each 10 breaths/min higher RR, and 34% for each 5% lower SpO2. A binary predictive index using 1-h vitals yielded OR 13.4 (95% CI 8.1-22.1) for PICU admission, area under receiver operator characteristic (AUROC) curve 0.84 and overall accuracy of 80.1%. Results were largely unchanged (AUROC 0.84-0.88) after adjusting for surrogates of asthma severity and initial ED management. In combination with a secondary standardized clinical asthma distress score, positive predictive value increased by sevenfold (6.1%-46%).

Conclusions: A predictive index using HR, RR, and SpO2 within the first hour of ED presentation accurately predicted PICU admission in this cohort. Automated vital signs trend analysis may help identify vulnerable patients quickly upon presentation.

Keywords: Asthma; emergency department; hospital; hospitalization; intensive care units; length of stay; pediatric; vital signs.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

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Observational Study

J Asthma

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. 2023 May;60(5):938-945.
doi: 10.1080/02770903.2022.2109166. Epub 2022 Sep 15.

Predictors of outpatient follow-up care after adult emergency department asthma visits and association with 30-day outcomes

Ethan E Abbott[1], Carmen Vargas-Torres[1], Sophie Karwoska Kligler[1], Sophia Spadafore[1], Michelle P Lin[1,2,3]

Affiliations expand

- PMID: 35938828

- PMCID: PMC10014489 (available on 2024-05-01)

- DOI: 10.1080/02770903.2022.2109166

Abstract

Objective: Guidelines recommend outpatient follow-up after emergency department visits for asthma, but factors related to rates of follow-up among the adult population are understudied. We sought to describe patient and community-level predictors of outpatient follow-up after an index ED visit for asthma and evaluate the association between outpatient follow-up visits and subsequent ED revisits.**Methods:** We conducted a retrospective observational cohort study of adult patients with emergency departments visits for asthma. The primary predictor was time to outpatient follow-up visit within 30 days of the index ED visit. The primary outcome was all-cause ED revisit within 30 days of the index ED visit. Cox proportional hazards regression was utilized to test the association between time to outpatient follow-up and hazard of ED revisit within 30 days.**Results:** Time to outpatient follow-up visit within 30 days was not significantly associated with hazard of 30-day ED revisit for asthma (HR 1.05; 95% CI 0.69-1.61). However, male patients (HR 1.45; 95% C 1.11-1.89) and smokers (HR 1.67; 95% CI 1.22-2.29) were significantly more likely to have an ED revisit.**Conclusion:** Younger, Black patients with Medicaid were less likely to receive follow-up care relative to older patients insured by Medicare. While follow-up visits were not associated with 30-day revisit rates, differences by age, race, and insurance status suggest disproportionate barriers to accessing care. Future research may target these subgroups to improve transitions of care after an ED visit for asthma.

Keywords: Asthma; emergency department; outpatient follow-up; transitions of care.

J Asthma

. 2023 May;60(5):946-950.
doi: 10.1080/02770903.2022.2109167. Epub 2022 Sep 14.

Effectiveness of a community-driven, asthma intervention: project asthma in-home response

Nathaniel Mattison[1], Aislinn C Rookwood[2], Sophia A Quintero[3], Jeffrey Cooper[4]
Affiliations expand

- PMID: 35913367

- DOI: 10.1080/02770903.2022.2109167

Abstract

Objectives: Project Asthma In-home Response (AIR) is a multilevel, home-based intervention to address childhood asthma. This study aims to assess the effectiveness of the community-driven, multilevel Project AIR intervention. We hypothesize that children participating in the Project AIR intervention will have reduced asthma-related emergency room visits, hospitalizations, and asthma exacerbations. **Methods:** Seventy-Five participants of an in-home asthma intervention were surveyed at the onset of intervention and six months after the intervention. **Results:** The mean age of clients in the sample population was ten years. Most clients in the sample population were 11-15 years old (34.7%), followed by 6-10 years old (29.3%) and 3-5 years (26.0%). Participation in the Project AIR intervention resulted in significant reductions in asthma attacks (*p*-value 0.0003), asthma-related emergency room visits (*p*-value > 0.0001), and asthma-related hospitalizations (*p*-value 0.008).**Conclusion:** The results of this study support that in-home environmental asthma programs are an efficient method of treating asthma in a smaller metro area. Our findings reinforce prior studies in larger metropolitan areas such as New York and Boston.

Keywords: asthma; asthma morbidity; children; community; healthy homes; pediatric.

Case Reports

J Asthma
.
. 2023 May;60(5):1050-1053.
doi: 10.1080/02770903.2022.2109162. Epub 2022 Sep 13.

Long-term outcomes of combination biologic therapy in uncontrolled severe asthma: a case study

Andrea Baccelli[1], Marcelina Koćwin[2], Elena M Parazzini[1], Rocco F Rinaldo[1], Stefano Centanni[1]
Affiliations expand

- PMID: 35913268

- DOI: 10.1080/02770903.2022.2109162

Abstract

Introduction: Treatment with biologics has significantly reduced the social and economic burden of severe asthma. However, some patients may still feature a suboptimal control of their symptoms while on therapy. In this subset of asthmatic patients, a benefit from a dual biologic therapy has sporadically been reported in literature. Our aim is to add our experience to the limited body of evidence supporting combination biologic therapies.

Case study: Here we present the case of a 68-year-old nonsmoker female, with an allergic and eosinophilic corticosteroid-dependent severe asthma. She displayed well controlled comorbidities and good adherence to the inhaled therapy. Omalizumab was started in 2008 with an initial remarkable clinical improvement. After nine years of biologic therapy, she reported a gradual worsening of her symptoms and exacerbations. Mepolizumab was then added in 2019.

Results: The addition of Mepolizumab resulted in a meaningful amelioration of her quality of life, asthma control, number of exacerbations and 6-minute-walking-distance at 3-year follow-up. The average Prednisone dosage was tapered from 25 mg to 20 mg daily. No adverse events were observed since the introduction of the second biologic.

Conclusion: Our experience indicates that Mepolizumab may be beneficial and safe as an add-on biologic in a patient whose allergic and eosinophilic asthma remains uncontrolled despite treatment with an anti-IgE strategy. Further studies on a larger number of patients are required to demonstrate whether the positive outcomes published so far are replicable on a larger scale.

Keywords: Severe asthma; allergic asthma; biologic therapy; eosinophilic asthma; uncontrolled asthma.

Observational Study

J Asthma
.
. 2023 May;60(5):890-899.
doi: 10.1080/02770903.2022.2103428. Epub 2022 Aug 2.

Clinical burden related to oral corticosteroid treatment of severe asthma in Spain: LEVANTE study

Xavier Muñoz Gall[1], Javier Domínguez-Ortega[2], Silvia Pascual[3], Carlos Cabrera López[4], Gustavo Resler[5], Javier Nuevo[6], Gema Monteagudo[5]
Affiliations expand

- PMID: 35862653

- DOI: 10.1080/02770903.2022.2103428

Abstract

Background: Severe asthma treatment with oral corticosteroids (OCS) added to inhaled corticosteroids and a long-acting β2-agonist (ICS-LABA) may result in more treatment burden and increased adverse effects.

Objective and methods: This ambispective multicenter observational study aimed at describing the clinical burden in patients with severe asthma on stable high-dose ICS-LABA who received OCS during ≥6 months (maintenance group) or ≥2 cycles in the previous 12 months (bursts group). Data collection comprised a retrospective 12-month baseline period and 2 follow-up visits at 3 and 6 months.

Results: Eighty-nine patients were evaluable (30 on maintenance, 59 on bursts). At baseline, mean (SD) daily prednisone equivalent exposure in the total population was 24.6 (14.7) mg: 13.8 (9.4) mg on maintenance and 29.9 (14.3) mg on bursts. During the 6-month follow-up period, mean (SD) daily dose in the total cohort was 22.5 (18.8) mg: 17.2 (18.6) mg on maintenance and 28.4 (20.6) mg on bursts. The overall annual severe exacerbations rate during the 12-month baseline period was 2.05 per patient-year and 1.5 per patient-year over the 6-month follow-up, and frequency of hospitalizations and emergency department visits were similar on both maintenance and bursts use.

Conclusions: Results show a suboptimal control of severe asthma despite such high doses of OCS and persistence of disease burden regardless of the prescribing pattern in maintenance or bursts. There is therapeutic inertia to continue using OCS despite the increased risk of adverse effects and the availability of biologics.

Keywords: Real-world; bursts; clinical burden; maintenance; oral steroids regimen; severe asthma; therapeutic inertia.

J Asthma
.
. 2023 May;60(5):881-889.
doi: 10.1080/02770903.2022.2103427. Epub 2022 Aug 11.

Severe non-atopic asthma: omalizumab can reduce severe asthma exacerbations

Lise Melscoet[1], Naji Khayath[1,2], Nicolas Migueres[1], Marc-André Goltzene[3], Nicolas Meyer[3], Frédéric de Blay[1,2]
Affiliations expand

- PMID: 35862624

- DOI: 10.1080/02770903.2022.2103427

Abstract

Introduction: Humanized monoclonal anti-IgE antibody (omalizumab) has demonstrated efficacy in severe atopic asthma. However, few studies have assessed its efficacy in non-atopic and even less in T2-low severe asthma. The objective was to determinate the omalizumab response according to atopic status.

Methods: This retrospective, real-world study was performed in the Chest Diseases Department of Strasbourg University Hospital from January 1, 2006, to June 30, 2017. The response to omalizumab was assessed in 139 patients 4, 6, and 12 months after treatment and compared to data collected prior to omalizumab initiation.

Results: Forty-four patients (31.7%) had severe non-atopic asthma and 95 (68.3%) had a severe atopic asthma. In the non-atopic group, omalizumab significantly reduced the severe exacerbation rate by 44% (95% CI 18-64%, $p < 0.05$), 43% (CI 95% 20-60%, $p < 0.05$), and 54% (CI 95% 36-67%, $p < 0.05$), at 4, 6 and 12 months, respectively. A trend toward improvement in FEV1, asthma control and oral corticosteroid use was also observed. These results were not significantly different from those obtained in atopic asthmatics except a more effective oral corticosteroid sparing in atopic group ($p < 0.05$).

Similar reduction of severe exacerbation rates were observed in T2-low asthma subgroup (non-atopic, non-eosinophilic).

Conclusion: Omalizumab was effective in severe asthma, regardless of atopic status.

Keywords: Severe asthma; T2 inflammation; atopy; eosinophil; omalizumab.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

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J Asthma

. 2023 May;60(5):845-855.
doi: 10.1080/02770903.2022.2103429. Epub 2022 Aug 5.

Effects of aerobic exercise on asthma control and quality of life in adults: a systematic review

Joshua Ang[1], Ray Moussa[1], Safiya Shaikh[2], Sandra Mele[1]
Affiliations expand

- PMID: 35862617

- DOI: 10.1080/02770903.2022.2103429

Abstract

Objective: The aim of this study is to review the effects of aerobic exercise on asthma control and quality of life in adult patient populations.

Data sources: Randomized controlled trials and prospective studies published between January 2012 and April 2022 were searched in Scopus, Web of Science, and PubMed databases.

Study selections: We followed pre-specified inclusion criteria and excluded manuscripts that studied pediatric populations and those that did not study asthma control or quality of life. We included ten randomized controlled trials and four prospective studies from a combined 2286 search results.

Results: Of the included studies, all but three studies found significant improvement in asthma control and quality of life after aerobic intervention. The method of measuring aerobic intervention varied among the studies. Statistical significance was consistent among studies that used maximal heart rate and peak power output to measure intervention.

Conclusion: Aerobic exercise intervention can improve asthma control and quality of life in both the acute and chronic response phase. Aerobic activity can be measured by various methods, but in this review, there were no significant adverse events with activity. Higher quality studies are necessary to confirm these results.

Keywords: Asthma; aerobic; exacerbations; exercise.

Thorax

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. 2023 May;78(5):432-441.

doi: 10.1136/thoraxjnl-2021-217674. Epub 2022 May 2.

Novel genetic variants associated with inhaled corticosteroid treatment response in older adults with asthma

Alberta L Wang[1,2], Lies Lahousse[3,4], Amber Dahlin[2], Ahmed Edris[4], Michael McGeachie[2], Sharon M Lutz[5], Joanne E Sordillo[5], Guy Brusselle[3,6,7], Jessica Lasky-Su[2], Scott T Weiss[2], Carlos Iribarren[8], Meng X Lu[8], Kelan G Tantisira[9], Ann C Wu[5]
Affiliations expand

- PMID: 35501119

- PMCID: PMC9810110 (available on 2024-05-01)

- DOI: 10.1136/thoraxjnl-2021-217674

Abstract

Introduction: Older adults have the greatest burden of asthma and poorest outcomes. The pharmacogenetics of inhaled corticosteroid (ICS) treatment response is not well studied in older adults.

Methods: A genome-wide association study of ICS response was performed in asthmatics of European ancestry in Genetic Epidemiology Research on Adult Health and Aging (GERA) by fitting Cox proportional hazards regression models, followed by validation in the Mass General Brigham (MGB) Biobank and Rotterdam Study. ICS response was measured using two definitions in asthmatics on ICS treatment: (1) absence of oral corticosteroid (OCS) bursts using prescription records and (2) absence of asthma-related exacerbations using diagnosis codes. A fixed-effect meta-analysis was performed for each outcome. The validated single-nucleotide polymorphisms (SNPs) were functionally annotated to standard databases.

Results: In 5710 subjects in GERA, 676 subjects in MGB Biobank, and 465 subjects in the Rotterdam Study, four novel SNPs on chromosome six near *PTCHD4* validated across all cohorts and met genome-wide significance on meta-analysis for the OCS burst outcome. In 4541 subjects in GERA and 505 subjects in MGB Biobank, 152 SNPs with $p < 5 \times 10^{-5}$ were validated across these two cohorts for the asthma-related exacerbation outcome. The validated SNPs included methylation and expression quantitative trait loci

for *CPED1*, *CRADD* and *DST* for the OCS burst outcome
and *GM2A*, *SNW1*, *CACNA1C*, *DPH1*, and *RPS10* for the asthma-related exacerbation outcome.

Conclusions: Multiple novel SNPs associated with ICS response were identified in older adult asthmatics. Several SNPs annotated to genes previously associated with asthma and other airway or allergic diseases, including *PTCHD4*.

Keywords: asthma; asthma genetics.

Conflict of interest statement

Competing interests: None declared.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

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

24 results

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Review

J Otolaryngol Head Neck Surg

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. 2023 Apr 29;52(1):37.
doi: 10.1186/s40463-023-00645-6.

Cryoablation for the treatment of chronic rhinitis: a systematic review

Veeral Desai[1], Gianluca Sampieri[2], Amirpouyan Namavarian[2], John M Lee[3,4]
Affiliations expand

- PMID: 37120607
- PMCID: PMC10148426
- DOI: 10.1186/s40463-023-00645-6

Free PMC article

Abstract

Background: ClariFix is a novel intranasal cryotherapy device developed for clinic-based cryosurgical ablation of the posterior nasal nerves region. As a relatively new technology, there is a paucity of studies within the literature assessing the efficacy and safety profile of ClariFix for chronic rhinitis.

Methods: A systematic review was completed in accordance with PRISMA guidelines. Databases searched included: Ovid Medline, Ovid EMBASE, Pubmed, Cochrane and Web of Science. Inclusion criteria consisted of studies investigating the use of ClariFix in chronic rhinitis (i.e., allergic and non-allergic rhinitis) in patients of all ages.

Results: The initial search identified 1110 studies. Final analysis consisted of 8 articles, evaluating a total of 472 patients. The data showed a significant reduction in scores post-treatment across all studies based on validated outcome measures. In all studies, at all time intervals, there was a significant improvement in outcome scores from baseline. Minor adverse effects included post-procedural pain and discomfort, headache and palate numbness. No major adverse events were identified.

Conclusion: ClariFix is a novel intranasal cryotherapy device that was introduced in Canada in 2021. This is the first systematic review evaluating its efficacy and safety profile. Across all studies, there was a significant reduction in validated outcome scores at multiple time intervals. Further, the treatment is safe with only minor adverse effects reported by patients. Overall, the consensus from this study highlights an apparent benefit in using this intervention for chronic rhinitis that is refractory to medical management.

Keywords: Chronic disease; Endoscopic sinus surgery; Rhinitis.

Conflict of interest statement

The authors have no competing interests to declare.

- 29 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

J Otolaryngol Head Neck Surg
. 2023 Apr 24;52(1):30.
doi: 10.1186/s40463-023-00626-9.

Canadian multidisciplinary expert consensus on the use of biologics in upper airways: a Delphi study

Andrew V Thamboo[1], Melissa Lee[2], Mohit Bhutani[3], Charles Chan[4], Yvonne Chan[5], Ken R Chapman[4], Christopher J Chin[6], Lori Connors[7], Del Dorscheid[8], Anne K Ellis[9], Richard M Gall[10], Krystelle Godbout[11], Arif Janjua[2], Amin Javer[2], Shaun Kilty[12], Harold Kim[13,14], Gordon Kirkpatrick[15], John M Lee[5], Richard Leigh[16], Catherine Lemiere[17], Eric Monteiro[4], Helen Neighbour[14], Paul K Keith[14], George Philteos[18], Jaclyn Quirt[14], Brian Rotenberg[19], Juan C Ruiz[20], John R Scott[6], Doron D Sommer[21], Leigh Sowerby[19], Marc Tewfik[22], Susan Waserman[14], Ian Witterick[5], Erin D Wright[23], Cory Yamashita[24], Martin Desrosiers[25]
Affiliations expand

- PMID: 37095527

- PMCID: PMC10127402

- DOI: 10.1186/s40463-023-00626-9

Free PMC article

Abstract

Background: Chronic rhinosinusitis with nasal polyposis (CRSwNP) often coexists with lower airway disease. With the overlap between upper and lower airway disease, optimal management of the upper airways is undertaken in conjunction with that of the lower airways. Biologic therapy with targeted activity within the Type 2 inflammatory pathway can improve the clinical signs and symptoms of both upper and lower airway diseases. Knowledge gaps nevertheless exist in how best to approach patient care as a whole. There have been sixteen randomized, double-blind, placebo-controlled trails performed for CRSwNP targeted components of the Type 2 inflammatory pathway, notably interleukin (IL)-4, IL-5 and IL-13, IL- 5R, IL-33, and immunoglobulin (Ig)E. This white paper considers the perspectives of experts in various disciplines such as rhinology, allergy, and respirology across Canada, all of whom have unique and valuable insights to contribute on how to best approach patients with upper airway disease from a multidisciplinary perspective.

Methods: A Delphi Method process was utilized involving three rounds of questionnaires in which the first two were completed individually online and the third was discussed on a virtual platform with all the panelists. A national multidisciplinary expert panel of 34 certified specialists was created, composed of 16 rhinologists, 7 allergists, and 11 respirologists who evaluated the 20 original statements on a scale of 1-9 and provided comments. All ratings were quantitively reviewed by mean, median, mode, range, standard deviation and inter-rater reliability. Consensus was defined by relative interrater reliability measures-kappa coefficient ([Formula: see text]) value > 0.61.

Results: After three rounds, a total of 22 statements achieved consensus. This white paper only contains the final agreed upon statements and clear rationale and support for the statements regarding the use of biologics in patients with upper airway disease.

Conclusion: This white paper provides guidance to Canadian physicians on the use of biologic therapy for the management of upper airway disease from a multidisciplinary perspective, but the medical and surgical regimen should ultimately be individualized to the patient. As more biologics become available and additional trials are published we will provide updated versions of this white paper every few years.

Keywords: Asthma; Biologics; Chronic rhinosinusitis; Chronic rhinosinusitis with nasal polyposis; Lower airway disease; Type 2 inflammation; Upper airway disease.

Conflict of interest statement

AVT: Speaker Bureaus: Sanofi, Glasko Smith and Kline (GSK), Medexus; Advisory Boards: Sanofi, GSK. Consultant: Starfish Medical. Research Funds: GSK. Minority Owner: Treo. MB: Speaker Bureaus and Advisory Boards: AZ (Astra Zeneca), BI (Boehringer Ingelheim), GSK, Pfizer, Girfols, Voics, Valeo; Research funds: CIHR (Canadian Institute of Health Research), AIHS (Alberta Innovative Health Solutions), AZ, GSK, Mereo Pharm, BI, Alberta Lung Association. YC: Speaker's Bureaus: FSK, Cook Sanofi, Stryker; Advisory Board: Sanofi; Consultant: Olympus. KRC: Speaker Bureaus: AZ, BI, Grifols, GSK, Merck Frosst, Novartis, Regeneron, Sanofi; Consultant: Amgen, AZ, BI, CSL, Behring, GSK, Grifols, InhibRx, Kamada, Merck Frosst, Novartis, Regeneron, Roche, Sanofi, Takeda; Research Funds: Amgen, AZ, Bellus, Behring, Genentech, GSK, Gossamer, Grifols, Kamada, Novartis, Regeneron, Roche, Sanofi. CJC: Advisory Board and Consultant: GSK. LC: Speaker Bureaus and Advisory Boards: AZ, GSK, Sanofi. DD: Speaker's Bureau: Sanofi, Valeo; Speaker's Honoraria: Novartis, Sanofi, GSK, AZ, BI; Consultant/Advisory Board: Novartis, Sanofi, GSK, AZ, Valeo; Research funds: CIHR, BC Lung Association, GSK, AZ. AKE: Advisory Boards: ALK Abello, AZ, Aralez, Bausch Health, LEO Pharma, Merck, Novartis, Pfizer; Speaker Bureaus: ALK Abello, AZ, Miravo, Medexus, Mylan; Research Funds: ALK Abello, Aralez, AZ, Bayer LLC, Medexus, Novartis, Regeneron; Consultant: Bayer LLC, Regeneron. AJ: Speaker Bureaus: FSK, AZ, Sanofi; Advisory Board: GSK, Sanofi; Research Funds: GSK, AZ, Sanofi. AJ: Speaker Bureaus and Advisory Boards: GSK, Sanofi, Novartis. SK: Speaker Bureaus: Regeneron; Research Funds: CIHR; Consultant: GSK. HK: Speaker Bureaus and Advisory Boards: ALK, AZ, Bausch Health, CSL Behring, GSK, Miravo, Pediapharm, Pfizer, Sanofi, Shire, Takeda. JML: Speaker Bureaus: GSK, Sanofi. RL: Speaker Honoraria and Advisory Boards: AZ, GSK, ICEBM, Sanofi, Valeo; Research funds: AZ, GSK, Novartis, Oncovir, Roche, Sanofi. CL: Speaker Honoraria: Sanofi, AZ; Advisory Board: GSK; Research Funds: GSK. HN: Speaker Honoraria: Novartis, Toronto Knowledge Translation, AZ, GSK; Consultant: Sanofi; Research Funds: National Institute of Health (NIH), AZ, BI, Pearl Therapeutics. PKK: Speaker Honoraria/Consultant: AZ, ALK, Bausch, CSL Behring, GSK, Kaleo, Merck, Medexus, Novartis, Sanofi, Valeo, Takeda; Research funds: CSL Behring, Takeda. GP: Research Funds: Dynamic Drug Advancement. BR: Consultant: Stryker. JCR: Speaker honorarium: Sanofi, Pfizer, Valeo Pharma, Miravo; Advisory Board: Valeo Pharma. DDS: Speaker Bureaus: GSK, Medtronic, Stryker, Miravo; Advisory Board: GSK, Sanofi; Research Funds: GSK, Sanofi; Consultant: Stryker. LS: Speaker Bureaus: GSK, Sanofi; Research Funds: AZ, GSK, Sanofi. MT: Speaker Bureaus and Consultant: GSK, Novartis, Stryker, Pentax, Mylan; Research Funds: AZ, Sanofi. SW: Advisory Boards: AZ, GSK, Sanofi, Novartis. IW: Advisory Boards: FSK, Sanofi, Integra. Ownership: Proteocyte Diagnostics Ltd. EDW: Speaker Bureaus and Consultant: GSK, Sanofi, Alaxo. ML, CC, RMG, KG, GK, EM, JQ, JS, CY, MD: None.

- 119 references

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

3
Review

HNO
.
2023 May;71(5):337-346.
doi: 10.1007/s00106-023-01292-z. Epub 2023 Apr 11.

[Neuroimmunology of allergic rhinitis : Part 1: Cellular and humoral basic principles]

[Article in German]
L Klimek[1], P Werminghaus[2], C Bergmann[3], J Hagemann[4], T Huppertz[4], F Bärhold[5], F Klimek[6], K Dziadziulia[6], I Casper[6], M-L Polk[7], M Cuevas[7], M Gröger[8], S Becker[5]
Affiliations expand

- PMID: 37041304

- DOI: 10.1007/s00106-023-01292-z

Abstract

in English, German

Allergic rhinitis (AR) is a very common disease with a high prevalence worldwide. It is an IgE-mediated type 2 inflammatory disease following exposure to inhalant allergens. A multitude of different neuropeptides including substance P, vasoactive intestinal peptide (VIP), calcitonin gene-related peptide (CGRP), nerve growth factor (NGF), and neuromedin U (NMU) can be released via peripheral axon or central reflexes, interact with immune cells, and thus contribute to neurogenic inflammation which causes the nasal hyperreactivity (NHR) characteristic of AR. Independent production of neuroendocrine hormones and neuropeptides by immune cells has also been demonstrated. Neuro-immune cell units arise when immune and neuronal cells colocalize, for which typical anatomic regions are, e.g., the mast cell-nerve functional unit. The focus of this review is the elucidation of neuroimmune communication mechanisms in AR.

Keywords: Allergy and immunology; Intracellular signaling peptides and proteins; Ion channels; Neurotransmitter; Rhinorrhea.

- 61 references

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Randomized Controlled Trial

Am J Otolaryngol
. 2023 May-Jun;44(3):103808.
doi: 10.1016/j.amjoto.2023.103808. Epub 2023 Mar 4.

The submucosal approach influences long-term outcomes of refractory obstructive rhinitis: A prospective study and a STROBE analysis

Antonino Maniaci[1], Salvatore Cocuzza[2], Paolo Marco Riela[3], Jerome R Lechien[4], Christian Calvo-Henriquez[5], Alberto Maria Saibene[6], Justin Michel[7], Thomas Radulesco[8], Nicolas Fakhry[8], Ignazio La Mantia[2]
Affiliations expand

- PMID: 36905914

- DOI: 10.1016/j.amjoto.2023.103808

Abstract

Objective: The surgical approach to refractory hypertrophy of the inferior turbinates is the main therapeutic choice in the management of its symptoms. Although submucosal approaches have demonstrated efficacy, long-term results are debated in the literature and show variable stability.

Therefore, we compared the long-term outcomes of three submucosal turbinoplasty methods with regard to the efficacy and stability managing the respiratory disorders.

Design: Multicenter prospective controlled study. A computer-generated table was used to allocate participants to the treatment.

Setting: Two teaching and university medical centers.

Methods: We used the EQUATOR network for guidelines describing design, conduct, and reporting of studies and searched the references of these guidelines to identify further relevant publications reporting adequate study protocols. Patients with persistent bilateral nasal obstruction due to lower turbinate hypertrophy were prospectively recruited from our ENT units. Participants were randomly assigned to each treatment and then underwent symptom assessment by visual analog scales, endoscopic assessment at baseline and 12, 24 and 36 months after treatment.

Results: Of the 189 patients with bilateral persistent nasal obstruction initially assessed, 105 met the study requirements; 35 were located in the MAT group, 35 in the CAT group and 35 in the RAT group. Nasal discomfort was significantly reduced after 12 months with all the methods. The MAT group presented better outcomes for all VAS scores at the 1-year follow-up, greater stability at the 3-year follow-up for VAS results ($p < 0.001$ in all cases) and lower disease recurrence (5/35; 14.28 %). At the 3-year follow-up intergroup analysis, a statistically significant difference was confirmed except for RAA scores ($H = 2.88$; $p = 0.236$). Rhinorrhea ($r = -0.400$; $p < 0.001$) was demonstrated as a predictive factor of 3-year recurrence, while sneezing ($r = -0.25$; $p = 0.011$), and operative time needed ($r = -0.23$; $p = 0.016$) did not reach statistical significance.

Conclusions: Long-term symptomatic stability varies depending on the turbinoplasty method used. MAT demonstrated greater efficacy in controlling nasal symptoms, presenting better stability in reducing turbinate size and nasal symptoms. In contrast, radiofrequency techniques presented a higher rate of disease recurrence both symptomatically and endoscopically.

Keywords: Inferior turbinate hypertrophy; Microdebrider assisted turbinoplasty; Radiofrequency assisted turbinoplasty; Refractory rhinitis; Turbinate surgery.

. 2023 May-Jun;44(3):103814.
doi: 10.1016/j.amjoto.2023.103814. Epub 2023 Feb 25.

Rethinking the relationships between chronic rhinosinusitis and asthma severity

Sapideh Gilani[1], Neil Bhattacharyya[2]
Affiliations expand

- PMID: 36898220

- DOI: 10.1016/j.amjoto.2023.103814

Free article

Abstract

Background: Previous authors have endorsed the need for prospective studies on the effect of treatment of chronic rhinosinusitis on asthma outcomes. Although common pathophysiology for asthma and chronic rhinosinusitis (CRS) has been suggested with the unified airway theory, there is limited data to support the claim and our study does not support the theory.

Methods: This case-control study involved adult patients with a primary diagnosis of asthma in 2019 who were identified from the electronic medical records and divided into those with and without an associated CRS diagnosis. For each asthma encounter, the asthma severity classification, oral corticosteroid (OCS) use and oxygen saturation scores were tabulated and compared between asthma patients with CRS versus control patients after 1:1 matching on age and sex. We determined the association between asthma and chronic rhinosinusitis when evaluating proxies for disease severity: oral corticosteroid use, average oxygen saturation and minimum oxygen saturation. We identified 1321 clinical encounters for asthma associated with CRS and 1321 control encounters for asthma without CRS.

Results: OCS prescription rates at the asthma encounter were not statistically different between the groups (15.3 % and 14.6 %, respectively; $p = 0.623$). Asthma severity classification was higher in those with CRS versus those without (38.9 % and 25.7 % classified as severe, respectively; $p < 0.001$). We identified 637 asthma with CRS and 637 matched control patients. There was no significant difference in mean recorded O2 saturations between asthma patients with CRS versus control patients (mean O2 saturations, 97.2 % and 97.3 %, respectively; $p = 0.816$) nor in minimum oxygen saturation (96.8 % and 97.0 %, respectively; $p = 0.115$).

Conclusion: Among patients with a primary diagnosis of asthma an increasing severity of asthma classification was significantly associated with an associated diagnosis of CRS. In contradistinction,

the presence of CRS comorbidity in asthma patients was not associated with increased OCS use for asthma. Similarly, average oxygen saturation and minimum oxygen saturation did not seem differ according to CRS comorbidity. Our study does not support the unified airway theory that suggests a causative relationship between the upper and lower airway.

Keywords: Adult; Airway; Asthma; Chronic rhinosinusitis; Clinic; Inflammation; Lungs; Medication; Otolaryngology; Oxygen; Pharmacology; Pulmonary; Saturation; Sinus; Steroids; Treatment; Unified Airway Theory.

Conflict of interest statement

Declaration of competing interest Dr. Bhattacharyya serves as a consultant for Sanofi, Inc.

Review

Allergy

. 2023 May;78(5):1169-1203.
doi: 10.1111/all.15679. Epub 2023 Apr 10.

Rhinitis associated with asthma is distinct from rhinitis alone: The ARIA-MeDALL hypothesis

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Kupczyk[51], V Kvedariene[52,53], D E Larenas-Linnemann[54], N Lemonnier[55], K C Lodrup Carlsen[56], R Louis[57,58], M Makela[7], M Makris[59], M Maurer[1,2], I Momas[60,61], M Morais-Almeida[62], J Mullol[63,64], R N Naclerio[65], K Nadeau[66], R Nadif[4,29], M Niedoszytko[67], Y Okamoto[68,69], M Ollert[20,21,70], N G Papadopoulos[71], G Passalacqua[72], V Patella[73,74,75], R Pawankar[76], N Pham-Thi[77,78,79], O Pfaar[80], F S Regateiro[81,82,83], J Ring[84,85], P W Rouadi[86,87], B Samolinski[88], J Sastre[89], M Savouré[4,29,90], N Scichilone[91], M H Shamji[92,93], A Sheikh[94], V Siroux[95], B Sousa-Pinto[96,97], M Standl[98,99], J Sunyer[30,31,32,100], L Taborda-Barata[101,102], S Toppila-Salmi[7], M J Torres[103], I Tsiligianni[104,105], E Valovirta[106], O Vandenplas[107,108], M T Ventura[109,110], S Weiss[111], A Yorgancioglu[112], L Zhang[113], A H Abdul Latiff[114], W Aberer[115], I Agache[116], M Al-Ahmad[117], I Alobid[118,119], I J Ansotegui[120], S H Arshad[121,122], E Asayag[123], C Barbara[124], A Baharudin[125], L Battur[126], K S Bennoor[127], E C Berghea[128], K C Bergmann[1,2], D Bernstein[129], M Bewick[130], H Blain[131], M Bonini[132,133,134], F Braido[135,136], R Buhl[137], R S Bumbacea[138], A Bush[139], M Calderon[140], M Calvo-Gil[141], P Camargos[142], L Caraballo[143], V Cardona[144,145], W Carr[146], P Carreiro-Martins[147,148], T Casale[149], A M Cepeda Sarabia[150,151], R Chandrasekharan[152], D Charpin[153], Y Z Chen[154], I Cherrez-Ojeda[155,156], T Chivato[157], E Chkhartishvili[158], G Christoff[159], D K Chu[160], C Cingi[161], J Correia de Sousa[162], C Corrigan[163], A Custovic[164], G D'Amato[165], S Del Giacco[166], F De Blay[167,168], P Devillier[169], A Didier[170], M do Ceu Teixeira[171,172], D Dokic[173], H Douagui[174], M Doulaptsi[175], S Durham[176], M Dykewicz[177], T Eiwegger[178], Z A El-Sayed[179], R Emuzyte[180], A Fiocchi[181], N Fyhrquist[182], R M Gomez[183], M Gotua[184], M A Guzman[185], J Hagemann[49], S Hamamah[186], S Halken[187], D M G Halpin[188], M Hofmann[1,189], E Hossny[179], M Hrubiško[190], C Irani[191], Z Ispayeva[192], E Jares[193], T Jartti[194], E Jassem[195], K Julge[196], J Just[197], M Jutel[198,199], I Kaidashev[200], O Kalayci[201], A F Kalyoncu[202], P Kardas[203], B Kirenga[204], H Kraxner[205], I Kull[5,6], M Kulus[206], S La Grutta[207], S Lau[208], L Le Tuyet Thi[209], M Levin[210], B Lipworth[211], O Lourenço[212], B Mahboub[213], E Martinez-Infante[214], P Matricardi[215], N Miculinic[216], N Migueres[167], F Mihaltan[217], Y Mohammad[218,219], M Moniuszko[220], S Montefort[221], H Neffen[222], K Nekam[223], E Nunes[224], D Nyembue Tshipukane[225], R O'Hehir[226], I Ogulur[11], K Ohta[227], K Okubo[228], S Ouedraogo[229], H Olze[230,189], I Pali-Schöll[231], O Palomares[232], K Palosuo[233], C Panaitescu[234], P Panzner[235], H S Park[236], C Pitsios[237], D Plavec[238,239], T A Popov[240], F Puggioni[241], S Quirce[242], M Recto[243], M S Repka-Ramirez[244], C Robalo Cordeiro[37], N Roche[245,246], M Rodriguez-Gonzalez[247], J Romantowski[67], N Rosario Filho[248], M Rottem[249], H Sagara[250], F S Serpa[251], Z Sayah[252], S Scheire[253], P Schmid-Grendelmeier[254], J C Sisul[255], D Sole[256], M Soto-Martinez[257], M Sova[258], A Sperl[50], O Spranger[259], R Stelmach[260], C Suppli Ulrik[261,262], M Thomas[263], T To[264], A Todo-Bom[265], P V Tomazic[266], M Urrutia-Pereira[267], M Valentin-Rostan[268], E Van Ganse[269], M van Hage[270,271], T Vasankari[272,273], P Vichyanond[274], G Viegi[275], D Wallace[276], D Y Wang[277], S Williams[278], M Worm[279], P Yiallouros[237], O Yusuf[280], F Zaitoun[281], M Zernotti[282], M Zidarn[283,284], J Zuberbier[230,189], J A Fonseca[96,97], T Zuberbier[1,2], J M Anto[30,31,32]

Affiliations expand

- PMID: 36799120

- DOI: 10.1111/all.15679

Abstract

Asthma, rhinitis, and atopic dermatitis (AD) are interrelated clinical phenotypes that partly overlap in the human interactome. The concept of "one-airway-one-disease," coined over 20 years ago, is a simplistic approach of the links between upper- and lower-airway allergic diseases. With new data, it is time to reassess the concept. This article reviews (i) the clinical observations that led to Allergic Rhinitis and its Impact on Asthma (ARIA), (ii) new insights into polysensitization and

multimorbidity, (iii) advances in mHealth for novel phenotype definitions, (iv) confirmation in canonical epidemiologic studies, (v) genomic findings, (vi) treatment approaches, and (vii) novel concepts on the onset of rhinitis and multimorbidity. One recent concept, bringing together upper- and lower-airway allergic diseases with skin, gut, and neuropsychiatric multimorbidities, is the "Epithelial Barrier Hypothesis." This review determined that the "one-airway-one-disease" concept does not always hold true and that several phenotypes of disease can be defined. These phenotypes include an extreme "allergic" (asthma) phenotype combining asthma, rhinitis, and conjunctivitis. Rhinitis alone and rhinitis and asthma multimorbidity represent two distinct diseases with the following differences: (i) genomic and transcriptomic background (Toll-Like Receptors and IL-17 for rhinitis alone as a local disease; IL-33 and IL-5 for allergic and non-allergic multimorbidity as a systemic disease), (ii) allergen sensitization patterns (mono- or pauci-sensitization versus polysensitization), (iii) severity of symptoms, and (iv) treatment response. In conclusion, rhinitis alone (local disease) and rhinitis with asthma multimorbidity (systemic disease) should be considered as two distinct diseases, possibly modulated by the microbiome, and may be a model for understanding the epidemics of chronic and autoimmune diseases.

Keywords: IL-33; Toll-like receptors; asthma; multimorbidity; rhinitis.

- 299 references

SUPPLEMENTARY INFO

Publication typesexpand

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Multicenter Study

Environ Res

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. 2023 May 1;224:115455.
doi: 10.1016/j.envres.2023.115455. Epub 2023 Feb 13.

Relationship of long-term air pollution exposure with asthma and rhinitis in

Italy: an innovative multipollutant approach

Sara Maio[1], Salvatore Fasola[2], Alessandro Marcon[3], Anna Angino[4], Sandra Baldacci[4], Maria Beatrice Bilò[5], Roberto Bono[6], Stefania La Grutta[2], Pierpaolo Marchetti[3], Giuseppe Sarno[4], Giulia Squillacioti[6], Ilaria Stanisci[4], Pietro Pirina[7], Sofia Tagliaferro[4], Giuseppe Verlato[3], Simona Villani[8], Claudio Gariazzo[9], Massimo Stafoggia[10], Giovanni Viegi[4]; BIGEPI group
Affiliations expand

- PMID: 36791835

- DOI: 10.1016/j.envres.2023.115455

Free article

Abstract

Background: air pollution is a complex mixture; novel multipollutant approaches could help understanding the health effects of multiple concomitant exposures to air pollutants.

Aim: to assess the relationship of long-term air pollution exposure with the prevalence of respiratory/allergic symptoms and diseases in an Italian multicenter study using single and multipollutant approaches.

Methods: 14420 adults living in 6 Italian cities (Ancona, Pavia, Pisa, Sassari, Turin, Verona) were investigated in 2005-2011 within 11 different study cohorts. Questionnaire information about risk factors and health outcomes was collected. Machine learning derived mean annual concentrations of PM_{10}, $PM_{2.5}$, NO_2 and mean summer concentrations of O_3 ($\mu g/m^3$) at residential level (1-km resolution) were used for the period 2013-2015. The associations between the four pollutants and respiratory/allergic symptoms/diseases were assessed using two approaches: a) logistic regression models (single-pollutant models), b) principal component logistic regression models (multipollutant models). All the models were adjusted for age, sex, education level, smoking habits, season of interview, climatic index and included a random intercept for cohorts.

Results: the three-year average (± standard deviation) pollutants concentrations at residential level were: 20.3 ± 6.8 $\mu g/m^3$ for $PM_{2.5}$, 29.2 ± 7.0 $\mu g/m^3$ for PM_{10}, 28.0 ± 11.2 $\mu g/m^3$ for NO_2, and 70.9 ± 4.3 $\mu g/m^3$ for summer O_3. Through the multipollutant models the following associations emerged: PM_{10} and $PM_{2.5}$ were related to 14-25% increased odds of rhinitis, 23-34% of asthma and 30-33% of night awakening; NO_2 was related to 6-9% increased odds of rhinitis, 7-8% of asthma and 12% of night awakening; O_3 was associated with 37% increased odds of asthma attacks. Overall, the Odds Ratios estimated through the multipollutant models were attenuated when compared to those of the single-pollutant models.

Conclusions: this study enabled to obtain new information about the health effects of air pollution on respiratory/allergic outcomes in adults, applying innovative methods for exposure assessment and multipollutant analyses.

Keywords: Adults; Air pollutants; Asthma; Multipollutant approach; Observational study; Rhinitis.

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: Maria Beatrice Bilò had speaking and lecture fees supported by Astra Zeneca, GSK, Novartis, Sanofi. The other authors have no competing financial interests or personal relationships to disclose.

Review

Am J Rhinol Allergy

. 2023 May;37(3):360-368.
doi: 10.1177/19458924221149267. Epub 2023 Feb 5.

Allergic Rhinitis in Preschoolers: A Systematic Review of Diagnostics

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Affiliations expand

- PMID: 36740859

- DOI: 10.1177/19458924221149267

Abstract

Background: Most studies that seek to analyze the prevalence of allergic rhinitis do not include preschool children and the diagnosis in this age group is difficult.

Objective: Identify complementary tests to the diagnosis of allergic rhinitis in preschool children and verify if there is scientific robustness to propose a diagnostic algorithm for this condition in this age group.

Methods: Systematic review of the literature in four databases: SCIELO, PubMed/MEDLINE, LILACS and SCOPUS. Each article was initially chosen by title, abstract and by the keywords "allergic rhinitis," "diagnosis" and "preschool." Those articles selected entered the complete reading and data extraction phase. The study was registered in the International Prospective Register of Systematic Reviews under number CRD42020207053.

Results: Fourteen articles were suitable for analysis. In the assessment using *Quality Assessment of Diagnostic Accuracy Studies* - 2, all studies had at least one domain considered "high risk" or "undetermined risk." Seven reports of nasal cytology, seven of specific IgE, four of immediate hypersensitivity skin test, one of nasal nitric oxide, three of total IgE and one of urinary leukotriene E4 were found. Eight articles evaluated more than one diagnostic test.

Conclusion: There are no defined criteria for the diagnosis of allergic rhinitis in preschool children. Nasal cytology, serum specific IgE and immediate hypersensitivity skin test were the most used tests. A reliable diagnostic criterion in this age group is necessary so that in the future it is possible to propose a diagnostic algorithm for allergic rhinitis in preschool children.

Keywords: allergic rhinitis; complementary tests; diagnosis; diagnostic algorithm; immediate hypersensitivity skin test; nasal cytology; nasal nitric oxide; specific IgE; total IgE and preschool.

Allergy

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. 2023 May;78(5):1393-1394.
doi: 10.1111/all.15648. Epub 2023 Jan 31.

Legends of allergy and immunology: Kurt Blaser and major contributions to deciphering the role of T cells in allergic disease

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Affiliations expand

- PMID: 36718675

- DOI: 10.1111/all.15648

No abstract available

Keywords: ENT (rhinitis, sinusitis, nasal polyps…); asthma; atopic dermatitis.

- 11 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

10
Int Forum Allergy Rhinol
. 2023 May;13(5):865-876.
doi: 10.1002/alr.23128. Epub 2023 Jan 16.

Climate change, the environment, and rhinologic disease

Jean Kim[1], Darryn W Waugh[2], Benjamin F Zaitchik[2], Amber Luong[3], Regan Bergmark[4], Kent Lam[5], Lauren Roland[6], Joshua Levy[7], Jivianne T Lee[8], Do-Yeon Cho[9], Murugappan Ramanathan[1], Fuad Baroody[10], Mas Takashima[11], Daniel O'Brien[12], Sandra Y Lin[13], Stephanie Joe[14], Mohamad R Chaaban[15], Anna Butrymowicz[16], Stephanie Smith[17], Warren Mullings[18]
Affiliations expand

- PMID: 36575965

- DOI: 10.1002/alr.23128

Abstract

Background: The escalating negative impact of climate change on our environment has the potential to result in significant morbidity of rhinologic diseases.

Methods: Evidence based review of examples of rhinologic diseases including allergic and nonallergic rhinitis, chronic rhinosinusitis, and allergic fungal rhinosinusitis was performed.

Results: The lower socioeconomic population, including historically oppressed groups, will be disproportionately affected.

Conclusions: We need a systematic approach to improve healthcare database infrastructure and funding to promote diverse scientific collaboration to address these healthcare needs.

Keywords: air pollution; allergic fungal rhinosinusitis; allergic rhinitis; chronic rhinosinusitis; climate change; health disparities; nonallergic rhinitis.

- 108 references

SUPPLEMENTARY INFO

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Am J Rhinol Allergy

. 2023 May;37(3):307-312.
doi: 10.1177/19458924221145084. Epub 2022 Dec 20.

Diagnostic Value and Clinical Application of Nasal Fractional Exhaled Nitric Oxide in Subjects with Allergic Rhinitis

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Affiliations expand

- PMID: 36537140

- DOI: 10.1177/19458924221145084

Abstract

Purpose: Nitric oxide (NO) is a potential marker in the diagnosis and monitoring of treatment for the management of patients with allergic rhinitis (AR). The study aimed to determine the value of nasal fractional exhaled nitric oxide (FeNO) in the diagnosis and treatment response of AR patients.

Methods: The participants were divided into control and allergic rhinitis groups based on the clinical symptoms and skin prick tests. The AR group was treated with intranasal corticosteroid after the diagnosis. The nasal fractional exhaled nitric oxide (FENO) levels were compared between control and AR groups. In the AR group, the visual analogue scale (VAS), Nasal Obstruction Symptoms Evaluation (NOSE) questionnaire, and nasal fractional exhaled nitric oxide (FeNO) were assessed pre- and post-treatment.

Results: One hundred ten adults were enrolled. The nasal FeNO level was significantly higher in AR compared to control ($p < 0.001$). Both the subjective (VAS and NOSE), both ($p < 0.01$) and objective (nasal FeNO, $p < 0.001$) assessments showed significant different pre- and post-treatment. The threshold level of nasal FeNO in the diagnosis of AR was 390.0 ppb (sensitivity of 73% and specificity of 80%) based on the receiver operator characteristic curve.

Conclusion: Nasal FeNO level is significantly higher in AR compared to control group with significant difference pre- and post-treatment. The findings suggest nasal FeNO can serve as an adjunct diagnostic tool together with the monitoring of treatment response in AR.

Keywords: adult; allergic rhinitis; breath test; control group; fractional exhaled nitric oxide testing; nasal obstruction; nitric oxide; perennial; questionnaires; visual analogue scale.

Clin Otolaryngol

. 2023 May;48(3):414-422.
doi: 10.1111/coa.14013. Epub 2023 Jan 11.

Tobacco use increases the risk of chronic rhinosinusitis among patients undergoing endoscopic sinus surgery

Amarbir S Gill[1,2], Huong Meeks[3], Karen Curtin[3,4], Kerry Kelly[5,6], Jeremiah A Alt[1]
Affiliations expand

- PMID: 36461170

- DOI: 10.1111/coa.14013

Abstract

Background: Although it has been postulated that tobacco use, as well as other environmental exposures, may contribute to chronic rhinosinusitis (CRS), the data remain limited. Here, we utilised a large state population database to assess the association between tobacco use and CRS prevalence among patients undergoing endoscopic sinus surgery (ESS).

Methods: Employing a case-control study design, the Utah Population Database was queried for patients age >18 with a diagnosis of CRS and tobacco use who underwent ESS between 1996 and 2018. Smoking status was compared between patients with CRS (n = 34 350) and random population controls matched 5:1 on sex, birth year, birthplace, time residing in Utah, and pedigree (i.e., familial) information (n = 166 020). Conditional logistic regression models were used for comparisons between CRS patients and their matched controls. All analyses were repeated,

additionally adjusting for race, ethnicity, tobacco use, asthma history, and interaction between tobacco use and asthma history.

Results: A total of 200 370 patients were included in the final analysis. Patients with CRS were significantly more likely to demonstrate a history of tobacco use than controls (19.6% vs. 15.0%; $p < .001$), with an adjusted odds ratio (aOR) of 1.42, 95% confidence interval 1.37-1.47; $p < .001$. More patients with CRS and comorbid asthma used tobacco (19.5%) than controls with asthma (15.0%; $p < .001$).

Conclusion: History of tobacco use may portend increased risk for the development of CRS among patients undergoing ESS compared to healthy controls.

Keywords: chronic rhinosinusitis; endoscopic sinus surgery; smoking; tobacco.

- 25 references

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

Eur Arch Otorhinolaryngol

. 2023 May;280(5):2309-2316.
doi: 10.1007/s00405-022-07762-4. Epub 2022 Dec 1.

Chronic rhinosinusitis with nasal polyps management in the biologic therapy era: an international YO-IFOS survey

Juan Maza-Solano[#1], Ameen Biadsee[#2,3], Leigh J Sowerby[4], Christian Calvo-Hernández[5], Manuel Tucciarone[6], Taciano Rocha[4], Antonino Maniaci[7], Alberto Maria Saibene[8], Carlos M Chiesa-

Estomba[9], Thomas Radulesco[10], Osama Metwaly[11], Jerome R Lechien[12], Isam Alobid[13], Luca Giovanni Locatello[14]
Affiliations expand

- PMID: 36454385

- DOI: 10.1007/s00405-022-07762-4

Abstract

Purpose: To investigate the consistency between the international guidelines recommendations and worldwide standard practices regarding diagnostic work-up and follow-up strategies for managing patients with Chronic Rhinosinusitis with Nasal Polyps (CRSwNP) in the era of monoclonal antibodies.

Methods: A questionnaire developed by the Rhinology section of the Young Otolaryngologists of the International Federation of Oto-rhino-laryngological Societies (Yo-IFOS) included items regarding the management of CRSwNP patients, monoclonal prescription, surgical and follow-up procedures, awareness of biologicals availability, and other relevant clinical practices. The online survey was directed to otolaryngologists and distributed in Europe, North America, South America, and the Middle East through otolaryngological and/or rhinological societies.

Results: A total of 202 responses were analyzed; the mean participants' age was 45 ± 11 (73% men and 27% women), and 31% were from the United States, Canada 19%, Europe 45%, Middle East and South America 5%. Only 60% of the respondents declared using validated symptoms and endoscopic score systems in their clinical practice. Several practice discrepancies emerged in our cohort, including preferred surgical approach, prescription of preoperative oral steroids, and perioperative antibiotics (59% and 58%, respectively), as well as divergent awareness levels of available biologics for CRSwNP worldwide.

Conclusions: CRSwNP needs a complex and time-consuming assessment, according to the latest guidelines. There seems to be a gap between these recommendations and the real-world data, which should draw more attention to bringing them into uniform clinical practice in the near future.

Keywords: Biological drugs; Biologics; Guidelines; Nasal polyps; Rhinology; Rhinosinusitis.

- 41 references

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

Immunology
. 2023 May;169(1):96-101.
doi: 10.1111/imm.13613. Epub 2022 Dec 18.

Exploration of the efficacy of anti-immunoglobulin E monoclonal antibodies in the treatment of allergic asthma

Xue-Jiao Qian[1], Xiao-Tian Hu[2], Ping Jiang[1]
Affiliations expand

- PMID: 36424828

- DOI: 10.1111/imm.13613

Abstract

The present study aims to evaluate the efficacy of an anti-immunoglobulin E monoclonal antibody (omalizumab) in the treatment of allergic asthma (AS). A total of 34 patients with moderate-to-severe bronchial asthma admitted to the Respiratory Department of Tianjin First Central Hospital between September 2019 and September 2021 were enrolled in this study. The patients were treated with omalizumab in addition to conventional inhaled corticosteroids + long-acting β2 agonist treatment. The therapeutic effects before and after the addition of omalizumab were compared. The lung function indicators (ratio of the forced expiratory volume [FEV] in the first second to the forced vital capacity, FEV in the first second, forced expiratory flow [FEF] at 50% of vital capacity, FEF at 75% of vital capacity, and maximum mid-expiratory flow), fractionated exhaled nitric oxide values, asthma control test scores, rhinoconjunctivitis quality of life questionnaire scores, and urticaria control test scores were significantly different after 4 months of the regular administration of omalizumab ($p < 0.05$) compared with before administration. The use of omalizumab had a significant efficacy in the treatment of patients with AS, and the effects were obvious in the subgroups of patients with a combination of AS and atopic dermatitis, chronic urticaria, and allergic rhinitis. These results indicate that the treatment is worthy of clinical promotion.

Keywords: allergic asthma; allergic rhinitis; atopic dermatitis; chronic urticaria; dynamic lung function; omalizumab.

- 26 references

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

Eur Arch Otorhinolaryngol
. 2023 May;280(5):2283-2291.
doi: 10.1007/s00405-022-07746-4. Epub 2022 Nov 18.

Diagnostic value of serum and tissue eosinophil in diagnosis of asthma among patients with chronic rhinosinusitis

Che Mohd Hilmi Che Mat[1,2], Norasnieda Md Shukri[3], Sakinah Mohamad[1], Sharifah Emilia Tuan Sharif[4], Rosdi Ramli[2], Murni Hartini Jais[5], Mat Zuki Mat Jaeb[6], Najib Majdi Yaacob[7], Mohd Yusran Yusoff[8], Siti Muhamad Nur Husna[9], Baharudin Abdullah[1]
Affiliations expand

- PMID: 36401099

- DOI: 10.1007/s00405-022-07746-4

Abstract

Background: Chronic rhinosinusitis (CRS) is one of the most common chronic inflammatory diseases of sinonasal mucosa. Asthma among CRS patients is often underdiagnosed which makes the management of CRS more challenging. Therefore, using serum and tissue eosinophil as an indicator and predictor of asthma in CRS patients is vital for further preventing recurrent and increasing the effectiveness of treatment for CRS.

Objective: To determine the association and diagnostic ability of serum and tissue eosinophils in the diagnosis of asthma among CRS patients.

Methods: A cross-sectional study was conducted involving 24 CRS patients with asthma and without asthma, respectively, from the Otorhinolaryngology clinic of two tertiary hospitals located on the East Coast of Peninsular Malaysia. Serum and tissue eosinophils (obtained from nasal polyp) levels between both groups were compared. Association between serum and tissue eosinophils with asthma was evaluated using logistic regression analysis, adjusting for important sociodemographic characteristics. The diagnostic ability of serum and tissue eosinophil was then evaluated by assessing the receiver operating characteristic curve.

Results: A total of 48 CRS patients with a mean [SD] age of 47.50 [14.99] years were included. Patients with asthma had significantly higher serum [0.48 vs 0.35 × 10^9/L] and tissue eosinophil [100 vs 8.5 per HPF] levels. Tissue eosinophils were found to be an independent predictor of asthma with adjusted OR 1.05, $p < 0.001$, after adjusting for age and serum eosinophils. The area under the receiver operating characteristic curve for serum eosinophil was 69.0%. At optimal cut-off value (0.375 × 10^9/L), the sensitivity and specificity for serum eosinophil was 75.0% and 70.8%. The area under the receiver operating characteristic curve for tissue eosinophil was 93.4%. At the optimal cut-off value (58.0 per HPF), the sensitivity and specificity for tissue eosinophils were 79.2% and 91.7%, respectively.

Conclusion: This study indicates a significantly higher level of serum and tissue eosinophils in CRS with asthma. However, there was no correlation between serum and tissue eosinophils in both group. Based on this study, the CRS patient needs to be screened for asthma if the level of serum eosinophil is > 0.375 × 10^9/L and tissue eosinophil > 58 per HPF.

Keywords: Asthma; Chronic rhinosinusitis; Endoscopic; Nasal polyp; Serum eosinophil; Tissue eosinophil.

- 36 references

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

Review

Ann Pharmacother
.
. 2023 May;57(5):570-578.
doi: 10.1177/10600280221124230. Epub 2022 Sep 19.

Intranasal Olopatadine–Mometasone in the Treatment of Seasonal Allergic Rhinitis

Lauren Lim[1], Melissa Lipari[2], Pramodini Kale-Pradhan[3]
Affiliations expand

- PMID: 36123818

- DOI: 10.1177/10600280221124230

Abstract

Objective: To review the pharmacology, efficacy, and safety of intranasal olopatadine hydrochloride-mometasone furoate (OM) combination in the treatment of seasonal allergic rhinitis (SAR).

Data sources: The PubMed database and ClinicalTrials.gov were searched using the following terms: mometasone + olopatadine, GSP301, mometasone furoate, and olopatadine hydrochloride.

Study selection and data extraction: Articles published in English between January 1987 and August 2022 related to pharmacology, safety, and clinical trials were assessed.

Data synthesis: In 2 phase II clinical trials, twice-daily (BID) and once-daily (QDay) intranasal OM demonstrated significant improvements in reflective total nasal symptom score (rTNSS) (BID $P < 0.001$ and QDay $P < 0.001$) and instantaneous total nasal symptom score (iTNSS) (BID $P < 0.001$ and $P < 0.0001$; QDay $P < 0.001$ and $P < 0.0001$). In 2 phase III clinical trials, BID OM showed significant improvements in rTNSS vs. placebo ($P < 0.001$), olopatadine monotherapy ($P = 0.03$ and $P = 0.003$), and mometasone monotherapy ($P = 0.02$ and $P = 0.059$).

Relevance to patient care and clinical practice: OM is indicated for treatment of SAR symptoms. Caution with use must be considered for certain high-risk patients, existing tuberculosis; fungal, bacterial, viral, or parasitic infections; or ocular herpes simplex. Due to its quick and sustained

onset of action, OM may be an ideal agent for initial treatment of moderate-severe SAR for patients 12 years and older.

Conclusion: OM significantly improves SAR symptoms and is a viable treatment option in short-term SAR.

Keywords: GSP301; Ryaltris; SAR; mometasone; olopatadine.

J Asthma

. 2023 May;60(5):1024-1030.
doi: 10.1080/02770903.2022.2123741. Epub 2022 Sep 29.

Reduced forced expiratory flow between 25% and 75% of vital capacity in children with allergic rhinitis without asthmatic symptoms

Jue Seong Lee[1], Sang Hyun Park[1], Han Ho Kim[1], So Hyun Ahn[2], Eunji Kim[2], Seunghyun Kim[2], Wonsuck Yoon[2], Young Yoo[1,2]
Affiliations expand

- PMID: 36093643

- DOI: 10.1080/02770903.2022.2123741

Abstract

Allergic rhinitis (AR) and asthma are closely associated in children. Reduced $FEF_{25\%-75\%}$ which reflects small airway airflow limitation is frequently observed in asthma. This study aimed to examine the proportion of small airway dysfunction in children with AR and to determine its associated factors.**Methods:** The medical records of 144 aged 6-18-year children with AR without overt asthmatic symptoms were retrospectively reviewed. Subjects were divided into 2 groups according to the $FEF_{25\%-75\%}$ values; normal $FEF_{25\%-75\%}$ group (n = 129) and reduced $FEF_{25\%-75\%}$ group (n = 15). Clinical data, allergen sensitization profile, exhaled nitric oxide, spirometry, and methacholine provocation test results were compared between the two groups.**Results:** The mean FEV_1 and $FEF_{25\%-75\%}$ values in the reduced $FEF_{25\%-75\%}$ group (73.5 ± 9.4%pred and 56.0 ± 7.7%pred, respectively) were significantly lower than in the normal $FEF_{25\%-75\%}$ group (87.0 ± 12.5%pred and 99.1 ± 21.4%pred, respectively). The mean disease duration was significantly longer in the reduced $FEF_{25\%-75\%}$ group than in the normal $FEF_{25\%-75\%}$ group (5.39 ± 1.85 y vs 3.14 ± 1.80 y, $p < 0.001$). Subjects with positive bronchial hyperresponsiveness ($MChPC_{20}$<16 mg/mL) were more frequently detected in the reduced $FEF_{25\%-75\%}$ group than in the normal $FEF_{25\%-75\%}$ group (26.7% vs 8.52%, p = 0.013). Long disease duration and severity of AR were significantly associated with impaired $FEF_{25\%-75\%}$ values.**Conclusions:** Subjects with AR alone may have impaired $FEF_{25\%-75\%}$ values which is considered as a marker of early bronchial involvement. Longer disease duration and severity of AR are important risk factors for progressive declines in small airway function. Physicians should be aware of need for the measurement of $FEF_{25\%-75\%}$ values for early detection of small airway dysfunction, particularly in children with severe long-lasting allergic rhinitis.

Keywords: Children; allergy; asthma; pulmonary function; rhinitis.

Randomized Controlled Trial

Int Forum Allergy Rhinol

. 2023 May;13(5):899-909.

doi: 10.1002/alr.23085. Epub 2022 Sep 26.

Short-term postoperative efficacy of steroid-eluting stents for eosinophilic

chronic rhinosinusitis with nasal polyps: A randomized clinical trial

Chengshuo Wang[1,2], Longgang Yu[1,3], Xiaohan Chu[1,2], Kuiji Wang[1,2], Jian Li[4], Yinyan Lai[4], Cuida Meng[5], Weiping Wen[4], Dongdong Zhu[5], Yuan Zhang[1,2,6], Luo Zhang[1,2,6]
Affiliations expand

- PMID: 36086876

- DOI: 10.1002/alr.23085

Abstract

Background: Eosinophilic chronic rhinosinusitis with nasal polyps (ECRSwNP) is a refractory clinical phenotype with a high symptom burden and relapse rate. Steroid-eluting stents are safe and effective for reducing polyp size, symptom burden, and the need for revision sinus surgery. In this study we aimed to evaluate the efficacy and safety of steroid-eluting stent implantation on the surgical outcomes of patients with ECRSwNP.

Methods: This prospective, multicenter, randomized, intrapatient-controlled trial recruited patients 18 to 65 years of age with ECRSwNP who required surgery. Ninety-eight patients were enrolled and randomly implanted with absorbable steroid-eluting stents containing mometasone furoate in one sinus at the end of surgery. All patients received standard postoperative care and follow-up. The primary outcome was the Lund-Kennedy endoscopic score within 12 weeks postsurgery. Secondary outcomes included nasal symptoms scores, nasal resistance, acoustic rhinometry, nasal nitric oxide levels, 3-dimensional volumetric computed tomography scores, and eosinophil counts in the ethmoid mucosa.

Results: Ninety-five patients completed the trial. At postoperative weeks 4, 8, and 12, the Lund-Kennedy scores were significantly lower on the treatment side than on the control side (all $p < 0.01$). Compared with the treatment side, the control side exhibited higher tissue eosinophilia at week 4 and higher volumetric, nasal obstruction, and total nasal symptom scores at postoperative week 8 ($p = 0.011$, $p = 0.011$, $p < 0.01$, and $p = 0.001$, respectively). No adrenal cortical suppression or serious side effects were observed.

Conclusion: Steroid-eluting stents reduce postoperative sinus mucosal edema, and eosinophilic inflammation, with persistent effects after stent disintegration, and are a good supplementary postsurgical treatment in patients with ECRSwNP.

Keywords: corticosteroid; endoscopic sinus surgery; eosinophilic chronic rhinosinusitis; nasal polyps; stent.

- Cited by 1 article
- 41 references

Review

Int Forum Allergy Rhinol
.
. 2023 May;13(5):924-941.
doi: 10.1002/alr.23086. Epub 2022 Sep 21.

Sublingual immunotherapy persistence and adherence in real-world settings: A systematic review

Michelle Park[1], Shrey Kapoor[1], Julie Yi[1,2], Nanki Hura[1,3], Sandra Y Lin[1,4]
Affiliations expand

- PMID: 36083179

- DOI: 10.1002/alr.23086

Abstract

Background: Sublingual immunotherapy (SLIT) adherence in the literature is often evaluated in closely monitored trials that may impact patient behavior; real-world SLIT adherence is relatively unknown. This systematic review intends to assess SLIT adherence in studies that reflect real-world settings.

Methods: A literature search of PubMed, Embase, Cochrane, Web of Science, and Scopus for real-world studies examining SLIT adherence was performed. Monitored clinical trials were excluded. Paired investigators independently reviewed all articles. For this review, "persistence" was defined as continuing therapy and not being lost to follow-up and "adherence" as persistence in accordance

with prescribed SLIT dose, dosing schedule, and duration. Article quality was assessed using a modified Newcastle-Ottawa scale and then converted to AHRQ standards (good, fair, and poor).

Results: The search yielded 1596 nonduplicate abstracts, from which 32 articles (n = 63,683 patients) met criteria. Twenty-six (81%) studies reported persistence rates ranging from 7.0% to 88.7%, and 18 (56%) reported adherence rates ranging from 9.6% to 97.0%. Twenty-one (66%) studies surveyed reasons for discontinuing SLIT. All studies were Oxford level of evidence 2b and of good (n = 12) to fair (n = 20) quality.

Conclusion: Reported rates of real-world SLIT persistence and adherence varied widely by study methodology (e.g., follow-up duration, objective vs. subjective assessment). Studies with longer follow-up generally reported lower rates; 3-year persistence ranged from 7% to 59.0% and 3-year adherence from 9.6% to 49.0%. Future studies of SLIT adherence would benefit from following concordant definitions of persistence/adherence and standardized reporting metrics.

Keywords: SLIT; adherence; allergen immunotherapy; allergic rhinitis; compliance; persistence; sublingual immunotherapy.

Review

J Laryngol Otol

. 2023 May;137(5):474-483.
doi: 10.1017/S0022215122001803. Epub 2022 Aug 3.

A systematic review and meta-analysis of the role of doxycycline in chronic rhinosinusitis

D Chan[1], E Ooi[1], O Khalid[1]
Affiliations expand

- PMID: 35919933

- DOI: 10.1017/S0022215122001803

Abstract

Objective: The objective of this systematic review and meta-analysis was to evaluate the role of doxycycline in the management of chronic rhinosinusitis.

Method: This was a systematic review using Ovid Medline, Cinahl, Scopus and Cochrane and was limited to meta-analyses, systematic reviews and randomised, clinical trials. A combination of the following search terms was used: 'sinusitis', 'nasal polyps', 'doxycycline' and 'tetracycline'. Raw means and standard deviations were extracted from the included studies. The meta-analysis was performed using mean differences of pre- versus post-doxycycline treatment.

Results: A total of 279 studies were screened, of which 5 studies met the criteria (all randomised, controlled trials published between 2010 and 2021). The interventions, endpoints and measured outcomes varied across all studies. Meta-analysis performed on pre- versus post-doxycycline treatment for Sino-Nasal Outcome Test-22, nasal polyp scores and symptom scores did not yield statistically significant results.

Conclusion: This review identified a small number of high-quality studies on the use of doxycycline in chronic rhinosinusitis. There does not seem to be convincing evidence for the routine use of doxycycline in patients with chronic rhinosinusitis. Further research may try to identify certain phenotypes of chronic rhinosinusitis that may better respond to doxycycline.

Keywords: Nasal Polyps; Sinusitis; Tetracycline.

J Laryngol Otol
.
2023 May;137(5):524-531.
doi: 10.1017/S0022215122001633. Epub 2022 Jul 6.

Predictors of olfactory improvement after endoscopic sinus surgery in chronic rhinosinusitis with nasal polyps

A K Hernandez[1], O Wendler[2], S Mayr[2], H Iro[2], T Hummel[1], S K Mueller[2]
Affiliations expand

- PMID: 35791849

- DOI: 10.1017/S0022215122001633

Abstract

Objective: This study aimed to determine the predictors of olfactory improvement after endoscopic sinus surgery among patients with chronic rhinosinusitis with nasal polyps.

Method: This prospective cohort study included patients admitted to a university hospital between 2006 and 2012. Assessment using odour identification testing, a sinonasal symptom questionnaire, the Rhinosinusitis Disability Index and mucus biomarker levels was performed at various time points. Correlation of variables with identification score differences at six post-operative time points and at baseline was performed, followed by multiple linear regression to determine significant predictors at each of the six post-operative time points.

Results: Baseline absence of acute sinusitis, elevated serpin F2 and anterior rhinorrhoea predict early olfactory improvement, whereas baseline allergic rhinitis predicts late olfactory improvement. Baseline odour identification score was the strongest predictor across all time points.

Conclusion: Patients with chronic rhinosinusitis and nasal polyps with worse disease or baseline olfactory function may benefit more from endoscopic sinus surgery in terms of olfactory improvement.

Keywords: Nasal Polyps; Natural Orifice Endoscopic Surgery; Rhinitis; Sinusitis; Smell.

Review

Ann Otol Rhinol Laryngol

. 2023 May;132(5):578-588.
doi: 10.1177/00034894221104939. Epub 2022 Jun 15.

Balloon Sinus Dilation Versus Functional Endoscopic Sinus Surgery for Chronic Rhinosinusitis: Systematic Review and Meta-Analysis

Parul Sinha[1], Theresa Tharakan[1], Spencer Payne[2], Jay F Piccirillo[1]
Affiliations expand

- PMID: 35703383

- DOI: 10.1177/00034894221104939

Abstract

Objective: To determine the efficacy of balloon sinus dilation (BSD) compared to functional endoscopic sinus surgery (FESS) or medical management for chronic rhinosinusitis (CRS).

Methods: A qualified medical librarian conducted a literature search for relevant publications that evaluate efficacy of BSD. Studies were assessed independently by 2 reviewers for inclusion in the systematic review and meta-analysis.

Results: From 315 abstracts reviewed, 18 studies were included in qualitative review, and 7 were included in meta-analysis. Quantitative analysis included 4 randomized clinical trials (RCTs) and 3 cohort studies comparing baseline and post-operative Sinonasal Outcome Test (SNOT)-20 scores in BSD and FESS. A meta-analysis restricted to the studies reporting SD for changes from baseline (2 RCTs, 1 cohort) showed the pooled difference in means to be 0.435, less than a clinically meaningful difference of 0.8. A separate sensitivity analysis of the studies including 4 additional studies with imputed values of SD for changes from baseline showed the pooled difference of means to be 0.237 assuming the highest level of correlation (*Corr* .8) between the pre- and post-intervention scores.

Conclusions: There is limited high-quality evidence that assesses the efficacy of BSD versus FESS in the management of CRS patients. To better inform CRS management, future studies should compare BSD with endoscopic sinus surgery, hybrid procedures, and/or medical management alone using validated objective and patient-reported outcome measures.

Keywords: balloon sinuplasty; chronic rhinosinusitis; endoscopic sinus surgery; sinus ostial dilation.

Comment in

- Chronische Rhinosinusitis: Ballondilatation versus endoskopische Sinuschirurgie.
  [No authors listed]Laryngorhinootologie. 2023 Mar;102(3):160. doi: 10.1055/a-1965-6303. Epub 2023 Mar 1.PMID: 36858052 German. No abstract available.

Laryngoscope

. 2023 May;133(5):1052-1058.
doi: 10.1002/lary.30232. Epub 2022 May 31.

Quality of Life Measurement for Adolescent Patients with Sinonasal Symptoms

Chadi A Makary[1], Parker Tumlin[1], Fatima Asad[2], Kareem Wasef[2], Hassan H Ramadan[1]
Affiliations expand

- PMID: 35638256

- DOI: 10.1002/lary.30232

Abstract

Objectives: To validate each of the sino-nasal outcome test (SNOT-22) and the sinus and nasal quality of life (SN5) surveys for the adolescent population defined as 12 to 18 years old, and to determine if they correlate in regard to reports of sinonasal symptoms and quality of life.

Study design: Cross-sectional study.

Methods: Adolescent patients, age 12 to 18 years old, presenting to our otolaryngology clinic between August 2020 and June 2021 were asked to fill both the SNOT-22 and the SN5 forms. Demographics and comorbidities were reviewed. Patients recruited were then divided into a sinonasal cohort (those with chronic sinonasal symptoms) and a control cohort (those who did not have any sinonasal disorders at time of visit).

Results: One hundred fifteen patients completed both surveys, 80 patients in the sinonasal cohort and 35 patients in the control cohort. Average age was 14.9 years, and 49.6% were female. Mean SNOT-22 and SN5 scores were significantly higher in the sinonasal cohort as compared with the control cohort which confirmed validity of both surveys for the adolescents. Good test-retest reliability for both surveys was obtained ($r = 0.76$ for SNOT-22, and $r = 0.64$ for SN5). SNOT-22 and SN5 scores correlated well in both the sinonasal cohort ($r = 0.63$, $p < 0.0001$) and the control cohort ($r = 0.61$, $p = 0.0003$). Both surveys strongly predicted chronic sinonasal disorders with an odds ratio of 2.5 for SNOT-22 and 2.2 for SN5.

Conclusion: Both instruments can be used to study the outcome of treatment for sinonasal disorders in adolescent patients.

Level of evidence: 4 Laryngoscope, 133:1052-1058, 2023.

Keywords: SN5; SNOT-22; chronic rhinosinusitis; quality of life; sinonasal symptoms.

- Cited by 1 article
- 14 references

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

Laryngoscope
.
. 2023 May;133(5):1044-1051.
doi: 10.1002/lary.30162. Epub 2022 May 19.

Associations Between Chronic Rhinosinusitis and Cancers: A Nationwide Population-Based Cohort Study

Yung Jin Jeon[1,2], Yeon-Hee Joo[2,3], Hyun-Jin Cho[1,2], Sang-Wook Kim[1,2], Bumjung Park[4], Hyo Geun Choi[4]
Affiliations expand

- PMID: 35587128

- DOI: 10.1002/lary.30162

Abstract

Objective: Chronic rhinosinusitis (CRS) is one of the most common chronic inflammatory diseases. The effect of chronic inflammation caused by CRS on the occurrence of various cancers has not been thoroughly evaluated. This study aimed to investigate the increased incidences of 10 types of cancers among CRS patients with/without nasal polyps (NP) using a national population-based database from the Korean Health Insurance Review and Assessment Service.

Study design: A case-control cohort study.

Methods: We compared the prevalence of various comorbidities between CRS and control participants from a national cohort dataset of the Korean Health Insurance Review and Assessment Service.

Methods: CRS participants (n = 6,919) and non-CRS (n = 27,676) participants were selected from among the 514,866 participants from 2002 to 2015. A stratified Cox proportional hazards model was utilized to assess the hazard ratio (HR) of CRS for 10 types of cancers.

Results: A stratified Cox proportional hazard model demonstrated that the adjusted HR for hematologic malignancy was significantly higher in the CRS patients than in the controls regardless of the presence of NP (2.90 for total CRS; 2.15 for CRS with NP; 4.48 for CRS without NP). The HR for thyroid cancer was significantly higher in the CRS patients without NP but not in those with NP (1.50 for total CRS; 1.78 for CRS without NP).

Conclusion: This study showed that CRS participants had a significantly higher prevalence of hematologic malignancy and thyroid cancer.

Level of evidence: 4 Laryngoscope, 133:1044-1051, 2023.

Keywords: cancer; chronic inflammation; chronic rhinosinusitis; nasal polyp.

- 45 references

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

Chronic cough

1
Randomized Controlled Trial

BMC Pulm Med

-
-
-

. 2023 Apr 28;23(1):148.
doi: 10.1186/s12890-023-02423-6.

Cough desensitization treatment for patients with refractory chronic cough: results of a second pilot randomized control trial

Laurie J Slovarp[1], Jane E Reynolds[2], Sophia Tolbert[2], Sarah Campbell[2], Shannon Welby[2], Paige Morkrid[2]
Affiliations expand

- PMID: 37118696

- PMCID: PMC10141869

- DOI: 10.1186/s12890-023-02423-6

Free PMC article

Abstract

Objective: The purpose of this study was to collect pilot efficacy data on a novel treatment for refractory chronic cough (RCC), which we call cough desensitization treatment (CDT).

Design and methods: In this parallel cohort, sham-controlled, randomized controlled trial, 21 adults with RCC were randomly assigned to 12 sessions of either CDT (progressive doses of aerosolized capsaicin while behaviorally suppressing cough; n = 11) or a sham treatment (repeated exposure to aerosolized saline; n = 9). The Leicester Cough Questionnaire (LCQ) was the primary outcome measure. Perceived cough severity with a visual analogue scale and cough challenge testing (for measuring cough-reflex sensitivity) were secondary outcome measures. Data were analyzed with mixed effects linear regression and follow-up contrasts.

Results: Results on all measures favored CDT. Excluding one sham participant, whose baseline LCQ scores were deemed unreliable, mean change in LCQ at 3-weeks post treatment was 6.35 and 2.17 in the CDT and sham groups, respectively. There was moderate to strong evidence of a greater improvement in the CDT group in total LCQ score ($p = .058$) and LCQ Psychological domain ($p = .026$) and Physical domain ($p = .045$) scores. Strong evidence was found for a greater reduction in urge-to-cough during CCT in the CDT group ($p = .037$) and marginal for a reduction in the capsaicin cough-reflex sensitivity ($p = .094$). There was weak evidence of a greater reduction in cough severity in the CDT group ($p = .103$).

Discussion: Although the study is limited due to the small sample size, the data provide additional evidence supporting further research on CDT. CDT resulted in a greater change in the primary efficacy measure (LCQ) than both pharmaceutical and behavioral treatments currently found in the literature.

Trial registration: This trial (NCT05226299) was registered on Clinicaltrials.gov on 07/02/2022.

Keywords: Capsaicin; Chronic cough; Cough hypersensitivity; Cough suppression; Desensitization; Leicester Cough Questionnaire; Refractory chronic cough.

Conflict of interest statement

The authors declare no competing interests.

- 71 references
- 4 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Associated data, Grant supportexpand

FULL TEXT LINKS

2
Am J Respir Crit Care Med
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Reply to: What the Placebo Tells Us about Chronic Cough

Surinder S Birring[1], Alyn H Morice[2], Peter V Dicpinigaitis[3], Lorcan P McGarvey[4], Ian D Pavord[5], Stuart A Green[6], George Philip[6], Jaclyn A Smith[7][8]
Affiliations expand

- PMID: 37104844

- DOI: 10.1164/rccm.202304-0709LE

No abstract available

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Am J Respir Crit Care Med

. 2023 Apr 27.

doi: 10.1164/rccm.202304-0643LE. Online ahead of print.

What the Placebo Tells Us about Chronic Cough

Miles Weinberger[1,2]

Affiliations expand

- PMID: 37104843

- DOI: 10.1164/rccm.202304-0643LE

No abstract available

Keywords: cough; gefapilxant; placebo.

FULL TEXT LINKS

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Cite

ERJ Open Res
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Does hiatal hernia impact gastro-oesophageal reflux-related chronic cough?

Olga Truba[1], Joanna Żuchowska[2], Elżbieta M Grabczak[1], Katarzyna Białek-Gosk[1], Aleksandra Rybka-Frączek[1], Rafał Krenke[1], Marta Dąbrowska[1]
Affiliations expand

- PMID: 37101735
- PMCID: PMC10123510
- DOI: 10.1183/23120541.00669-2022

Free PMC article

Abstract

Background: Hiatal hernia may coexist with gastro-oesophageal reflux (GOR)-related chronic cough. This study aimed to evaluate whether the presence of hiatal hernia was related to chronic cough severity and the response to antireflux therapy.

Methods: This was a retrospective analysis of data on adults with GOR-related chronic cough managed in our cough centre between 2017 and 2021. Patients who had undergone chest computed tomography (CT) and in whom follow-up data were available were included. The presence and size of hiatal hernia were assessed based on thorax CT scanning. Patients were treated with modification of diet and proton pump inhibitors. The response to treatment was assessed by the change in quality of life (QOL) measured by

Leicester Cough Questionnaire (LCQ) and cough severity was measured by 100-mm visual analogue scale.

Results: 45 adults (28 female, 17 male) were included. Hiatal hernia was demonstrated in 12 (26.6%) patients. Patients with hiatal hernia did not differ from those without hiatal hernia in clinical characteristics, cough duration and severity and cough-related QOL. We found moderate positive correlations between maximal sagittal diameter of hiatal hernia and cough severity (ρ=0.692, p=0.013) and duration (ρ=0.720, p=0.008). Patients without hiatal hernia responded better to antireflux therapy, with significant LCQ improvement. A strong negative correlation between sagittal diameter of hiatal hernia gate and increase in LCQ (ρ= -0.764, p=0.004) was demonstrated.

Conclusion: The presence of hiatal hernia identified in chest CT may impact cough severity, duration and response to antireflux treatment in patients with GOR-related chronic cough. Further prospective studies are justified to confirm significance of hiatal hernia in the management of chronic cough.

Conflict of interest statement

Conflict of interest: We declare that M. Dąbrowska has received fees from Merck for consultations and lectures on chronic cough, outside the submitted work. E.M. Grabczak has received honoraria for lectures on chronic cough from Merck and Polpharma, outside the submitted work. A. Rybka-Frączek has received fee from Polpharma for attendance of the ERS International Congress (2019), outside the submitted work. R. Krenke has received honoraria for lectures from Chiesi, AstraZeneca and Polpharma, outside the submitted work; Boehringer Ingelheim, Chiesi and AstraZeneca have covered his fee and travel expenses for ERS International Congresses (2018 and 2019) and ATS Conferences (2018 and 2019), outside the submitted work. Conflict of interest: O. Truba, J. Żuchowska and K. Białek-Gosk declare no conflict of interest. Conflict of interest: The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the study apart from those disclosed.

- 35 references
- 3 figures

5
Expert Opin Emerg Drugs
.
. 2023 Apr 24;1-11.
doi: 10.1080/14728214.2023.2203912. Online ahead of print.

Emerging drugs in the treatment of chronic cough

Danica Brister[1], Mustafaa Wahab[1], Moaaz Rashad[1], Nermin Diab[1], Martin Kolb[1,2], Imran Satia[1,2]
Affiliations expand

- PMID: 37060576

- DOI: 10.1080/14728214.2023.2203912

Abstract

Introduction: Chronic cough is a debilitating condition that is among the most common reasons for seeking medical attention yet remains challenging to manage. Identifying an underlying respiratory, nasal, or upper gastrointestinal disease triggering cough is the first step in assessment, but once this has been ruled out or adequately treated, many patients remain troubled with chronic cough.

Areas covered: This narrative review discusses the role of existing treatments and describes the current research landscape for the development of new therapies for chronic cough greater than 8 weeks that is refractory (RCC) or unexplained (UCC). The literature search includes published studies found on pubmed and conference abstracts until 2023.

Expert opinion: RCC/UCC can occur due to neuronal dysregulation of the vagus nerve or central nervous system. Hence, novel anti-tussives have targeted ion channels involved in the neuronal signaling which triggers cough. Although some therapies targeting receptors such as TRPV1 have failed to show efficacy, P2X3 antagonists have emerged as the most promising therapy for patients impacted by chronic cough. Disease-specific therapies such as for idiopathic pulmonary fibrosis are in early development.

Keywords: Chronic cough; P2X3 antagonist; neuromodulator; novel therapy; refractory chronic cough.

Review

Respir Med

. 2023 May;211:107217.
doi: 10.1016/j.rmed.2023.107217. Epub 2023 Mar 16.

Towards development of evidence to inform recommendations for the evaluation and management of bronchiectasis

Patrick A Flume[1], Ashwin Basavaraj[2], Bryan Garcia[3], Kevin Winthrop[4], Emily Di Mango[5], Charles L Daley[6], Julie V Philley[7], Emily Henkle[8], Anne E O'Donnell[9], Mark Metersky[10]
Affiliations expand

- PMID: 36931575

- DOI: 10.1016/j.rmed.2023.107217

Free article

Abstract

Bronchiectasis (BE) is a chronic condition characterized by airway dilation as a consequence of a variety of pathogenic processes. It is often associated with persistent airway infection and an inflammatory response resulting in cough productive of purulent sputum, which has an adverse impact on quality of life. The prevalence of BE is increasing worldwide.

Treatment guidelines exist for managing BE, but they are generally informed by a paucity of high-quality evidence. This review presents the findings of a scientific advisory board of experts held in the United States in November 2020. The main focus of the meeting was to identify unmet needs in BE and propose ways to identify research priorities for the management of BE, with a view to developing evidence-based treatment recommendations. Key issues identified include diagnosis, patient evaluation, promoting airway clearance and appropriate use of antimicrobials. Unmet needs include effective pharmacological agents to promote airway clearance and reduce inflammation, control of chronic infection, clinical endpoints to be used in the design of BE clinical trials, and more accurate classification of patients using phenotypes and endotypes to better guide treatment decisions and improve outcomes.

Keywords: Antimicrobials; Bronchiectasis; Clinical trials; Evidence-based treatment; Health-related quality of life; Unmet needs.

Conflict of interest statement

Declaration of competing interest Patrick A. Flume has received grant support from Abbvie, Armata, AstraZeneca, Corbus Pharmaceuticals, Cystic Fibrosis Foundation Therapeutics, Insmed, Janssen, Merck, National Institutes of Health, Novartis, Novoteris, Novovax, Proteostasis Therapeutics, Savara, Sound Pharmaceuticals, Inc. and Vertex Pharmaceuticals, Inc., and consultancy fees from Arrevus, Chiesi, Corbus Pharmaceuticals, Eloxx Pharmaceuticals, Hill-Rom, Insmed, Ionis Pharmaceuticals, Janssen Research and Development, McKesson, Merck, Novartis, Polyphor, Proteostasis Therapeutics, Santhera, Savara and Vertex Pharmaceuticals, Inc. Ashwin Basavaraj has acted as a consultant and advisory board participant for Insmed, Hill-Rom, Dymedso, Physioassist and Zambon, is a principal investigator in a clinical trial with Hill-Rom, and has received grant support from Insmed. Bryan Garcia has received grant support from the Cystic Fibrosis Foundation, CHEST Foundation, and consulting honoraria from Zambon, Insmed, Synspira and Resbiotic. Kevin Winthrop has received grant support from Pfizer, BMS, Insmed and the Cystic Fibrosis Foundation, and consulting honoraria from Novartis, Zambon, Insmed, Janssen, Redhills Biopharma, Paratek and Bayer. Emily Di Mango reports receiving advisory board fees from Zambon in 2019 and from Contrafect Pharmaceuticals in 2021. Charles L. Daley has received grant support from the Cystic Fibrosis Foundation, Insmed, Spero, Paratek and BugWorks, and consulted with AstraZeneca, Genentech, Pfizer, Insmed, Spero, Paratek, Beyond Air, AN2, Matinas and Zambon. Julie V. Philley has received grant support from Insmed, AN2, Paratek, Redhill, Electromed, Zambon and Hill Rom, and has been a consultant for Insmed, Paratek, AN2 and Electromed. Emily Henkle has been an advisory board participant for Zambon. Anne E. O'Donnell has received grant support from Insmed, Paratek, Redhill, Zambon, Janssen, and Astra Zeneca and has received consulting honoraria from Insmed, Paratek, Zambon, Boehringer Ingelheim, Astra Zeneca and Electromed. Mark Metersky has been a consultant for Savara, Insmed, International Biophysics, Zambon and Boehringer Ingelheim, and received clinical trial funding from Insmed.

Meta-Analysis

Am J Otolaryngol

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doi: 10.1016/j.amjoto.2023.103815. Epub 2023 Feb 25.

A systematic review and meta-analysis of neuromodulators to treat chronic airway hypersensitivity

Rafael Amador[1], Russell Goebel[2], Jacob Pieter Noordzij[3], Neel K Bhatt[4], Seth Cohen[5], Kadesh Daniels[6], Lauren Tracy[3], Masanao Yajima[2], Gintas P Krisciunas[7]

Affiliations expand

- PMID: 36870112

- DOI: 10.1016/j.amjoto.2023.103815

Abstract

Objectives: Chronic laryngitis can present with numerous symptoms, including chronic cough. Patients who do not respond to standard treatment are sometimes diagnosed with chronic airway hypersensitivity (CAH). In many centers, neuromodulators are prescribed off-label despite limited evidence of efficacy. A previous meta-analysis suggested neuromodulator therapy improved cough-related quality-of-life (QoL). This current

updated and expanded meta-analysis examined whether neuromodulators reduced cough frequency, reduced cough severity, and/or improved QoL in CAH patients.

Data sources: PubMed, Embase, Medline, Cochrane Review, and publication bibliographies were searched from 01/01/2000 to 07/31/2021 using MESH terms.

Review methods: PRISMA guidelines were followed. 999 abstracts were identified/screened, 28 studies were fully reviewed, and 3 met inclusion criteria. Only randomized controlled trials (RCT) investigating CAH patients with comparable cough-related outcomes were included. Three authors reviewed potentially eligible papers. Fixed-effect models and calculated pooled estimates using the Inverse-Variance method were used.

Results: The estimated difference in change in log coughs per hour (from baseline to intervention end) between treatment and control groups was -0.46, 95%CI [-0.97; 0.05]. Estimated change-from-baseline in VAS scores was -12.24, 95 % CI [-17.84; -6.65] lower for patients who received treatment vs placebo. Estimated change-from-baseline for LCQ scores was 2.15, 95 % CI [1.49-2.80] higher for patients who receive treatment vs placebo. Only change in LCQ score was clinically significant.

Conclusions: This study tentatively suggests that neuromodulators have the potential to reduce cough symptoms associated with CAH. However, high-quality evidence is lacking. This could be due to limited treatment effect or significant limitations in the design and comparability of existing trials. A well-designed and properly powered RCT is needed to authoritatively test the efficacy of neuromodulators for the treatment of CAH.

Level of evidence: Level I, evidence from a systematic review or meta-analysis of all relevant RCTs (randomized controlled trial) or evidence-based clinical practice guidelines based on systematic reviews of RCTs or three or more RCTs of good quality that have similar results.

Keywords: Chronic airway hypersensitivity; Chronic cough; Laryngitis; Meta-analysis; Neuromodulators.

Am J Respir Crit Care Med
.
. 2023 May 1;207(9):1134-1144.
doi: 10.1164/rccm.202209-1795CI.

Differential Diagnosis of Suspected Chronic Obstructive Pulmonary Disease Exacerbations in the Acute Care Setting: Best Practice

Bartolome R Celli[1], Leonardo M Fabbri[2], Shawn D Aaron[3], Alvar Agusti[4,5,6,7], Robert D Brook[8], Gerard J Criner[9], Frits M E Franssen[10,11], Marc Humbert[12,13], John R Hurst[14], Maria Montes de Oca[15], Leonardo Pantoni[16], Alberto Papi[17,18], Roberto Rodriguez-Roisin[4,5], Sanjay Sethi[19], Daiana Stolz[20,21,22], Antoni Torres[4,5,6,23], Claus F Vogelmeier[24], Jadwiga A Wedzicha[25]
Affiliations expand

- PMID: 36701677

- DOI: 10.1164/rccm.202209-1795CI

Abstract

Patients with chronic obstructive pulmonary disease (COPD) may suffer from acute episodes of worsening dyspnea, often associated with increased cough, sputum, and/or sputum purulence. These exacerbations of COPD (ECOPDs) impact health status, accelerate lung function decline, and increase the risk of hospitalization. Importantly, close to 20% of patients are readmitted within 30 days after hospital discharge, with great cost to the person and society. Approximately 25% and 65% of patients hospitalized for an ECOPD die within 1 and 5 years, respectively. Patients with COPD are usually older and frequently have concomitant chronic diseases, including heart failure, coronary artery disease, arrhythmias, interstitial lung diseases, bronchiectasis, asthma, anxiety, and depression, and are also at increased risk of developing pneumonia, pulmonary embolism, and pneumothorax. All of these morbidities not only increase the risk of subsequent ECOPDs but can also mimic or aggravate them. Importantly, close to 70% of readmissions after an ECOPD hospitalization

result from decompensation of other morbidities. These observations suggest that in patients with COPD with worsening dyspnea but without the other classic characteristics of ECOPD, a careful search for these morbidities can help detect them and allow appropriate treatment. For most morbidities, a thorough clinical evaluation supplemented by appropriate clinical investigations can guide the healthcare provider to make a precise diagnosis. This perspective integrates the currently dispersed information available and provides a practical approach to patients with COPD complaining of worsening respiratory symptoms, particularly dyspnea. A systematic approach should help improve outcomes and the personal and societal cost of ECOPDs.

Keywords: COPD; algorithms; differential diagnosis; symptom flare-up.

9

Ann Otol Rhinol Laryngol

. 2023 May;132(5):545-550.
doi: 10.1177/00034894221100025. Epub 2022 Jun 11.

Laryngopharyngeal Reflux: Effect of Race and Insurance Status on Symptomology

Eleni A Varelas[1], Thomas K Houser[1,2], Inna A Husain[1]
Affiliations expand

- PMID: 35695133

- DOI: 10.1177/00034894221100025

Abstract

Objectives: Laryngopharyngeal reflux (LPR) is an extraesophageal variant of gastroesophageal reflux disease associated with intermittent dysphonia, throat-clearing, and chronic cough. This study aims to evaluate the impact of race and insurance status on symptoms often attributable to LPR.

Methods: Retrospective review of all patients with suspected LPR from 2017 to 2019 was performed at a tertiary care center. The diagnostic criteria comprised evaluation by a fellowship trained laryngologist and Reflux Symptom Index (RSI) scores. Demographics, patient history, and insurance status were recorded. Descriptive statistics were calculated for each parameter using SPSS version 22.

Results: A total of 170 patients (96 White, 44 Black, 26 Latinx, 4 Asian) were included in this study. About 57.1% had private insurance, 30.6% had Medicare, and 11.8% had Medicaid. Black and Latinx patients demonstrated higher RSI scores (26.67 ± 8.61, P = .017) when compared to their White and Asian counterparts. RSI scores between all 3 insurance types also varied significantly (P = .035). Medicaid patients reported higher RSI scores (28.65 ± 10.09, P = .028), while private insurance patients reported significantly lower scores (23.75 ± 7.88, P = .03). Controlling for insurance type eliminates the statistically significant association between RSI scores and Black and Latinx patients. Particularly, within the Medicaid group, Black, Latinx, and White patients did not have statistically different RSI scores.

Conclusions: Black and Latinx patients presented with higher RSI scores than White and Asian patients. Similarly, Medicaid patients reported higher RSI scores than the Non-Medicaid cohort. These findings suggest that access to appropriate healthcare, due to varied insurance coverage and socioeconomic, may potentially influence symptoms attributed to LPR.

Keywords: insurance; laryngopharyngeal reflux; race.

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

1
BMC Pulm Med
.
. 2023 Apr 29;23(1):151.
doi: 10.1186/s12890-023-02444-1.

The effect of azithromycin on sputum inflammatory markers in bronchiectasis

L C Terpstra[1], J Altenburg[2], H J Doodeman[3], Y S Sabogal Piñeros[4], R Lutter[4], H G M Heijerman[5], W G Boersma[6]
Affiliations expand

- PMID: 37118704
- PMCID: PMC10148509
- DOI: 10.1186/s12890-023-02444-1

Free PMC article

Abstract

Background: Long term macrolide treatment has been found beneficial in bronchiectasis (BE) -pathogical bronchial dilatation- possibly due to a combined anti-bacterial and immunomodulatory effect. The exact mechanism of inflammatory response is unknown. Here, we investigated the effect of maintenance macrolide treatment on the inflammatory response in BE. In addition, we assessed the inflammatory profile in BE in relation to disease severity.

Methods: During the BAT randomized controlled trial (investigating the effect of 1 year of azithromycin (AZM) in 83 BE patients), data on BE severity, lung function and sputum microbiology was collected. For the current study, a wide range of inflammatory markers were analysed in 3- monthly sputum samples in all participants.

Results: At baseline, marked neutrophilic but also eosinophilic inflammation was present in both groups, which remained stable throughout the study and was not affected by AZM treatment. Significant upregulation of pro-inflammatory markers correlated with FEV_1 < 50% (TNFα, ECP, IL-21, IL-1, p = 0.01- 0.05), H. influenzae (HI) colonization (MPO, ECP, MIP-1, TNFα, IL-21, Il-8, IL-1, IL-1α, p < 0.001 - 0.04) and number of exacerbations (MPO, ECP, VEGF, MMP-9, p = 0.003 - 0.01). Surprisingly, colonization with P. aeruginosa (PA) was found to correlate with an attenuated inflammatory response compared to non-PA colonized. In placebo-treated patients, presence of an infectious exacerbation was reflected by a significant excessive increase in inflammation as compared to a non-significant upregulation in the AZM-treated patients.

Conclusion: One year of AZM treatment did not result in attenuation of the inflammatory response in BE. Increasing disease severity and the presence of an exacerbation were reflected by upregulation of pro-inflammatory markers.

Keywords: Azithromycin (AZM); Bronchiectasis; Inflammation; Inflammatory markers.

Conflict of interest statement

RL reported grants paid to his institution from Foresee, Nutrileads, Longfonds, Chiesi and AstraZeneca. WGB reported grants paid to his institution from GlaxoSmithKline and reported consulting fee for adviesraad 2021 SOBI. JA reported grants paid to her institution from Longfonds. HH, LCT, HJD, YSP have nothing to disclose.

- 33 references
- 4 figures

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

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2
Lancet Respir Med
. 2023 Apr 24;S2213-2600(23)00136-4.
doi: 10.1016/S2213-2600(23)00136-4. Online ahead of print.

Bronchiectasis: a global disease necessitating global solutions

Sanjay H Chotirmall[1], Raja Dhar[2], P J McShane[3], Anne B Chang[4]
Affiliations expand

- PMID: 37105207
- DOI: 10.1016/S2213-2600(23)00136-4

No abstract available

Conflict of interest statement

SHC has received research grants from the Singapore Ministry of Health's National Medical Research Council and National Research Foundation and is on advisory boards for CSL Behring, Pneumagen, and Boehringer Ingelheim, has served on Data and Monitoring Boards (DSMB) for Inovio Pharmaceuticals, and has received personal fees from AstraZeneca and Chiesi Farmaceutici, all outside of the submitted work. RD has received grants from Glenmark and CIPLA, consulting fees from CIPLA, LUPIN, and Pfizer and personal fees from CIPLA, LUPIN, Glenmark, SUN Pharma, Pfizer, Glaxo Smith Kline, Sanofi, Zydus, and German Remedies, outside of the submitted work. PJM is primary site investigator for clinical trials sponsored by Insmed and Boehringer Ingelheim and has received consulting fees from Boehringer Ingelheim. ABC has received grants from the Australian National Health and Medical Research Council, royalties from UptoDate, support from the European Respiratory Society for travel, and served on DSMB for AstraZeneca, Glaxo Smith Kline, and Moderna.

Lancet Respir Med
.
. 2023 Apr 24;S2213-2600(23)00093-0.
doi: 10.1016/S2213-2600(23)00093-0. Online ahead of print.

Bronchiectasis in Europe: data on disease characteristics from the European Bronchiectasis registry (EMBARC)

James D Chalmers[1], Eva Polverino[2], Megan L Crichton[3], Felix C Ringshausen[4], Anthony De Soyza[5], Montserrat Vendrell[6], Pierre Régis Burgel[7], Charles S Haworth[8], Michael R Loebinger[9], Katerina Dimakou[10], Marlene Murris[11], Robert Wilson[9], Adam T Hill[12], Rosario Menendez[13], Antoni Torres[14], Tobias Welte[4], Francesco Blasi[15], Josje Altenburg[16], Michal Shteinberg[17], Wim Boersma[18], J Stuart Elborn[19], Pieter C Goeminne[20], Stefano Aliberti[21]; EMBARC Registry Investigators
Affiliations expand

- PMID: 37105206

- DOI: 10.1016/S2213-2600(23)00093-0

Abstract

Background: Bronchiectasis is a heterogeneous, neglected disease with few multicentre studies exploring the causes, severity, microbiology, and treatment of the disease across Europe. This aim of this study was to describe the clinical characteristics of bronchiectasis and compare between different European countries.

Methods: EMBARC is an international clinical research network for bronchiectasis. We report on a multicentre, prospective, observational, non-interventional, cohort study (the EMBARC registry) conducted across 27 European countries and Israel. Comprehensive clinical data were collected from adult patients (aged ≥18 years) at baseline and annual follow-up visits using electronic case report form. Data from individual countries were

grouped into four regions (the UK, northern and western Europe, southern Europe, and central and eastern Europe according to modified EU EuroVoc classification). Follow-up data were used to explore differences in exacerbation frequency between regions using a negative binomial regression model.

Findings: Between Jan 12, 2015, and April 12, 2022, 16 963 individuals were enrolled. Median age was 67 years (IQR 57-74), 10 335 (60·9%) participants were female and 6628 (39·1%) were male. The most common cause of bronchiectasis in all 16 963 participants was post-infective disease in 3600 (21·2%); 6466 individuals (38·1%) were classified as idiopathic. Individuals with bronchiectasis experienced a median of two exacerbations (IQR 1-4) per year and 4483 (26·4%) patients had a hospitalisation for exacerbation in the previous year. When examining the percentage of all isolated bacteria, marked differences in microbiology were seen between countries, with a higher frequency of Pseudomonas aeruginosa and lower Haemophilus influenzae frequency in southern Europe, compared with higher H influenzae in the UK and northern and western Europe. Compared with other regions, patients in central and eastern Europe had more severe bronchiectasis measured by the Bronchiectasis Severity Index (51·3% vs 35·1% in the overall cohort) and more exacerbations leading to hospitalisations (57·9% vs 26·4% in the overall cohort). Overall, patients in central and eastern Europe had an increased frequency of exacerbations (adjusted rate ratio [RR] 1·12, 95% CI 1·01-1·25) and a higher frequency of exacerbations leading to hospitalisations (adjusted RR 1·71, 1·44-2·02) compared with patients in other regions. Treatment of bronchiectasis was highly heterogeneous between regions.

Interpretation: Bronchiectasis shows important geographical variation in causes, microbiology, severity, and outcomes across Europe.

Funding: European Union-European Federation of Pharmaceutical Industries and Associations Innovative Medicines Initiative.

Translations: For the Arabic, French, German, Greek, Hebrew, Irish, Russian and Spanish translations of the abstract see Supplementary Materials section.

Conflict of interest statement

Declaration of interests JC reports grants or contracts from Grifols; consulting fees from Antabio, AstraZeneca, Boehringer Ingelheim, Chiesi, Glaxosmithkline, Grifols, Insmed, Janssen, Novartis, Pfizer, and Zambon; and leadership or fiduciary roles as Chair of European Respiratory Society (ERS) Bronchiectasis Guideline Task Force, Chief Editor of European Respiratory Journal, and Chair of EMBARC Clinical Research Collaboration. EP reports grants or contracts from Grifols; consulting fees from Bayer, Zambon, Pfizer, Chiesi, Shire, Shionogi, Insmed, Moderna, and Pfizer; payment for expert testimony from Chiesi; leadership or fiduciary roles as ERS Task Force for Bronchiectasis Guidelines, co-chair of

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Does asthma-bronchiectasis overlap syndrome (ABOS) really exist?

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Affiliations expand

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Abstract

Objective: To analyze the relationship between asthma and bronchiectasis, as well as the necessary conditions that this connection must meet for this group of patients to be considered a special phenotype.

Data sources: We performed a PubMed search using the MeSH terms "asthma" and "bronchiectasis." The literature research was limited to clinical trials, meta-analyses, randomized controlled trials, cohort studies, and systematic reviews, involving adult patients, published until November 30th, 2022.

Study selections: Selected papers were initially evaluated by the Authors, to assess their eligibility in contributing to the statements.

Results: The prevalence of bronchiectasis is higher than expected in patients with asthma, particularly in those with more severe disease, and in some patients, between 1.4% and 7% of them, asthma alone could be the cause of bronchiectasis. Both diseases share etiopathogenic mechanisms, such as neutrophilic and eosinophilic inflammation, altered airway microbiota, mucus hypersecretion, allergen sensitization, immune dysfunction,

altered microRNA, dysfunctional neutrophilic activity, and variants of the HLA system. Besides that, they also share comorbidities, such as gastroesophageal reflux disease and psychiatric illnesses. The clinical presentation of asthma is very similar to patients with bronchiectasis, which could cause mistakes with diagnoses and delays in being prescribed the correct treatment. The coexistence of asthma and bronchiectasis also poses difficulties for the therapeutic focus.

Conclusions: The evidence available seems to support that the asthma-bronchiectasis phenotype really exists although longitudinal studies which consistently demonstrate that asthma is the cause of bronchiectasis are still lacking.

Keywords: Asthma; bronchiectasis; comorbidities; eosinophils; exacerbation; overlap; prognosis.

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Evaluation of otorhinolaryngological manifestations in patients with primary ciliary dyskinesia

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Abstract

Objectives: Primary ciliary dyskinesia (PCD) is a genetic disease characterized by congenital impairment of mucociliary clearance causing recurrent respiratory tract infections. Pulmonary manifestations of PCD are well-known whereas adequate data on otorhinolaryngological complications is lacking. The aim of this study was to investigate clinical features, course and related factors of otorhinolaryngologic domains in PCD patients.

Methods: Patients with a diagnosis of PCD who were on follow-up in the ear-nose-throat (ENT) department of our center between 2000 and 2021 were enrolled. Demographic and clinical data, frequency of sinonasal and otological complaints, examination findings and possible risk factors associated with otorhinolaryngological diseases were obtained via electronic medical charts retrospectively.

Results: Of the 121 patients, 53% were male, median age at PCD diagnosis was 7 years (1 month - 20 yrs). The most common ENT manifestation was otitis media with effusion (OME) (66.1%, n = 80), followed by acute otitis media (43.8%, n = 53), acute rhinosinusitis (ARS) (28.9%, n = 35), chronic rhinosinusitis (CRS) (27.3%, n = 33) and chronic otitis media (10.7%, n = 13). Patients with ARS and CRS were significantly older than patients who did not have ARS and CRS ($p = 0.045$ and $p = 0.028$, respectively). The annual number of ARS attacks also correlated with age of patients positively ($r = 0.170$, $p = 0.06$). Of the 45 patients with pure-tone audiometry, most common finding was conductive hearing loss (CHL) in 57,8% (n = 26). Presence of OME significantly increased tympanic membrane injury which was observed as sclerosis, perforation, retraction or changes due to ventilation tube insertion (VTI). (OR: 8.6, 95% CI: 3.6-20.3, $p < 0.001$).

Conclusions: Otorhinolaryngologic diseases are common, variable and complicated in PCD patients, consequently ENT physicians' awareness should be improved through shared experiences. ARS and CRS seem to appear in older PCD patients. Presence of OME is the most important risk factor for tympanic membrane damage.

Keywords: Hearing loss; Otitis media; Otorhinolaryngologic findings; Primary ciliary dyskinesia; Rhinosinusitis.

Conflict of interest statement

Declaration of competing interest The authors declare that they have no conflict of interest.

SUPPLEMENTARY INFO

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Review

Respir Med

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Towards development of evidence to inform recommendations for the evaluation and management of bronchiectasis

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Affiliations expand

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Free article

Abstract

Bronchiectasis (BE) is a chronic condition characterized by airway dilation as a consequence of a variety of pathogenic processes. It is often associated with persistent airway infection and an inflammatory response resulting in cough productive of purulent sputum, which has an adverse impact on quality of life. The prevalence of BE is increasing worldwide.

Treatment guidelines exist for managing BE, but they are generally informed by a paucity of high-quality evidence. This review presents the findings of a scientific advisory board of experts held in the United States in November 2020. The main focus of the meeting was to identify unmet needs in BE and propose ways to identify research priorities for the management of BE, with a view to developing evidence-based treatment recommendations. Key issues identified include diagnosis, patient evaluation, promoting airway clearance and appropriate use of antimicrobials. Unmet needs include effective pharmacological agents to promote airway clearance and reduce inflammation, control of chronic infection, clinical endpoints to be used in the design of BE clinical trials, and more accurate classification of patients using phenotypes and endotypes to better guide treatment decisions and improve outcomes.

Keywords: Antimicrobials; Bronchiectasis; Clinical trials; Evidence-based treatment; Health-related quality of life; Unmet needs.

Conflict of interest statement

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Review

Respirology

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Contemporary Concise Review 2022: Chronic obstructive pulmonary disease

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Affiliations expand

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Free article

Abstract

International respiratory organizations now recommend using lower limit of normal and standardized residuals to diagnose airflow obstruction and COPD though using a fixed ratio <0.7 is simpler and robustly predicts important clinical outcomes. The most common COPD comorbidities are coronary artery calcification, emphysema and bronchiectasis. COPD patients with psychological (high anxiety and depression) and cachectic (underweight and osteoporotic) comorbidity have higher mortality and exacerbate more.

Serum eosinophil count remains an important COPD biomarker and we have greater clarity about normal eosinophil levels in COPD and the wider population. Criteria for entry into COPD clinical trials continue to exclude many patients, in particular those at greater risk of exacerbation and death. The effect of hyperinflation on cardiac function impacts COPD mortality and is an important target for successful lung volume reduction procedures.

Keywords: COPD comorbidity; COPD diagnosis; COPD exacerbation; COPD treatment; chronic obstructive pulmonary disease.

- 62 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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Am J Respir Crit Care Med

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Differential Diagnosis of Suspected Chronic Obstructive Pulmonary Disease Exacerbations in the Acute Care Setting: Best Practice

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Abstract

Patients with chronic obstructive pulmonary disease (COPD) may suffer from acute episodes of worsening dyspnea, often associated with increased cough, sputum, and/or sputum purulence. These exacerbations of COPD (ECOPDs) impact health status, accelerate lung function decline, and increase the risk of hospitalization. Importantly, close to 20% of patients are readmitted within 30 days after hospital discharge, with great cost to the person and society. Approximately 25% and 65% of patients hospitalized for an ECOPD die within 1 and 5 years, respectively. Patients with COPD are usually older and frequently have concomitant chronic diseases, including heart failure, coronary artery disease, arrhythmias, interstitial lung diseases, bronchiectasis, asthma, anxiety, and depression, and are also at increased risk of developing pneumonia, pulmonary embolism, and pneumothorax. All of these morbidities not only increase the risk of subsequent ECOPDs but can also mimic or aggravate them. Importantly, close to 70% of readmissions after an ECOPD hospitalization result from decompensation of other morbidities. These observations suggest that in patients with COPD with worsening dyspnea but without the other classic characteristics of ECOPD, a careful search for these morbidities can help detect them and allow appropriate treatment. For most morbidities, a thorough clinical evaluation supplemented by appropriate clinical investigations can guide the healthcare provider to make a precise diagnosis. This perspective integrates the currently dispersed information available and provides a practical approach to patients with COPD complaining of worsening respiratory symptoms, particularly dyspnea. A systematic approach should help improve outcomes and the personal and societal cost of ECOPDs.

Keywords: COPD; algorithms; differential diagnosis; symptom flare-up.

SUPPLEMENTARY INFO

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Clinimetric Properties of Outcome Measures in Bronchiectasis

Judy M Bradley[1,2], Kathryn Ferguson[3], Andrew Bailey[4], Katherine O'Neill[1], Rebecca H McLeese[2], Adam T Hill[5,6], Michael R Loebinger[7], Mary Carroll[8], James D Chalmers[9], Timothy Gatheral[10], Christopher Johnson[11], Anthony De Soyza[12], John R Hurst[13], Damian G Downey[1], J Stuart Elborn[1,7]
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Abstract

Rationale: There is a lack of outcome measures with robust clinimetric properties in bronchiectasis. **Objectives:** To determine the clinimetric properties (reliability over 1 year during clinical stability and responsiveness over the course of antibiotics for pulmonary exacerbation) of objective and patient-reported outcome measures. **Methods:** This multicenter cohort study included adults with bronchiectasis from seven hospitals in the United Kingdom. Participants attended four visits, 4 months apart over 1 year while clinically stable and at the beginning and end of exacerbation and completed lung function (spirometry and multiple breath washout), provided a blood sample for C-reactive protein (CRP) measurement, and completed health-related quality of life (HRQoL) questionnaires (Quality of Life-Bronchiectasis, St. George's Respiratory Questionnaire, and EuroQoL 5-Dimensions 5-Levels). **Results:** Participants (n = 132) had a mean (standard deviation) age of 66 (11) years, and 64% were female. Lung function parameters (forced expiratory volume in one second [FEV_1], standard lung clearance index [$LCI^{2.5}$]) were reliable over time [coefficient of variation (CV): <10%]). Regarding responsiveness, FEV_1 demonstrated better properties than $LCI^{2.5}$; therefore, a clear justification for the use of $LCI^{2.5}$ in future trials is needed. CRP was less reliable (CV > 20%) over time than FEV_1 and $LCI^{2.5}$, and whereas CRP had a large mean change between the start and end of an

exacerbation, this may have been driven by a small number of patients having a large change in CRP. Reliability of HRQoL questionnaires and questionnaire domains ranged from acceptable (CV: 20-30%) to good (CV: 10-20%), and HRQoL were responsive to treatment of exacerbations. Considering the specific questionnaire domain relevant to the intervention and its associated clinimetric properties is important. Additional statistics will support future power and/or sample size analysis. **Conclusions:** This information on the clinimetric properties of lung function parameters, CRP, and HRQoL parameters should be used to inform the choice of outcome measures used in future bronchiectasis trials.

Keywords: bronchiectasis; clinimetrics; outcome measures.