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

1
Review

Curr Opin Support Palliat Care

. 2023 Dec 1;17(4):296-300.

doi: 10.1097/SPC.0000000000000682. Epub 2023 Oct 26.

Recent advances in bronchoscopic lung volume reduction for severe COPD patients

Rein Posthuma[1,2,3], Anouk W Vaes[1], Martijn A Spruit[1,2,3], Lowie E G W Vanfleteren[4]

Affiliations expand

- PMID: 37877448

- DOI: 10.1097/SPC.0000000000000682

Abstract

Purpose of review: Bronchoscopic lung volume reduction (BLVR) is a novel and effective treatment for a specific phenotype of chronic obstructive pulmonary disease (COPD) characterized by advanced emphysema with static lung hyperinflation and severe breathlessness. This review aims to provide an overview of the recent advances made in BLVR.

Recent findings: For achieving optimal outcomes with BLVR, patient selection and target lobe identification is crucial. BLVR has recently also been established to improve pulmonary function, exercise capacity and quality of life in COPD patients falling outside the standard treatment criteria, including patients with moderate hyperinflation, chronic hypercapnic failure or with very low diffusion capacity. In a cluster analysis, target lobe characteristics like emphysema destruction, air trapping and perfusion were found to be important discriminators between responders and non-responders. A potential survival benefit has been demonstrated in BLVR-treated patients when compared to non-treated patients. Long-term outcomes showed sustained outcomes of BLVR; however, effects decline over time, probably due to disease progression.

Summary: BLVR using one-way endobronchial valves has become a guideline treatment offered in specialized intervention centres for a specific subgroup of COPD patients. Recent studies further characterize responders, describe extrapulmonary effects of BLVR and show positive long-term outcomes and a potential survival benefit.

- 37 references

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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2

Curr Opin Pulm Med

. 2023 Oct 27.

doi: 10.1097/MCP.0000000000001025. Online ahead of print.

Supplemental oxygen therapy in chronic obstructive pulmonary disease: is less is more? How much is too much?

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Affiliations expand

- PMID: 37882582

- DOI: 10.1097/MCP.0000000000001025

Abstract

Purpose of review: Currently available evidence supporting the use of supplemental oxygen therapy (SOT) in chronic obstructive pulmonary disease (COPD) is complex, and data on the mortality reduction associated with SOT usage in patients with severe daytime resting hypoxemia have not been updated since the development of other treatments.

Recent findings: No reduction in mortality was found when SOT was used in patients with moderate resting daytime, isolated nocturnal, or exercise-induced hypoxemia. However, some of these patients obtain other significant benefits during SOT, including increased exercise endurance, and a mortality reduction is possible in these 'responders'. The adverse effects of long-term oxygen therapy also need to be considered, such as reduced mobility and social stigma. Furthermore, conservative SOT could improve outcomes in the setting of COPD exacerbations compared with higher concentration oxygen regimens. Compared with usual fixed-dose SOT, automated oxygen administration devices might reduce dyspnea during exercise and COPD exacerbations.

Summary: Current recommendations for SOT need to be revised to focus on patients who respond best and benefit most from this therapy. A conservative approach to SOT can reduce side effects compared with higher concentration oxygen regimens, and automated oxygen administration devices may help to optimize SOT.

- 30 references

3

BMC Pulm Med

. 2023 Oct 26;23(1):405.

doi: 10.1186/s12890-023-02689-w.

Impact of bronchoscopic thermal vapor ablation on lung volume reduction in patients with emphysema: a meta-analysis

Lijia Zhi[1], Liping Liao[2], Zhi Wu[3], Tiezhu Wang[3], Yuming Ye[3], Hao Li[3], Li Lin[3], Jia-Chao Qi[4], Liangji Zhang[5]

Affiliations expand

- PMID: 37884912

- DOI: 10.1186/s12890-023-02689-w

Abstract

Background: Bronchoscopic lung volume reduction (LVR) could significantly improve pulmonary function and quality of life in patients with emphysema. We aimed to assess the

efficacy and safety of bronchoscopic thermal vapor ablation (BTVA) on LVR in patients with emphysema at different stage.

Methods: A systematic search of database including PubMed, Embase and Cochrane library was conducted to determine all the studies about bronchoscopic thermal vapor ablation published through Dec 1, 2022. Related searching terms were "lung volume reduction", "bronchoscopic thermal vapor ablation", "bronchial thermal vapor ablation" "BTVA" and "emphysema", "efficacy" and"safety". We used standardized mean difference (SMD) to analyze the summary estimates for BTVA therapy.

Results: We retrieved 30 records through database search, and 4 trials were selected for meta-analysis, including 112 patients with emphysema. Meta-analysis of the pooled effect showed that levels of forced expiratory volume in 1 s (FEV1), residual volume (RV), total lung capacity (TLC), 6-min walk distance (6MWD) and St George's Respiratory Questionnaire (SGRQ) were significantly improved in patients with emphysema following BTVA treatment between 6 months vs. baseline. Additionally, no significant changes in FEV1, RV, TLC and SGRQ occurred from 3 to 6 months of follow-up except for 6MWD. The magnitude of benefit was higher at 3 months compared to 6 months. The most common complications at 6 months were treatment-related chronic obstructive pulmonary disease (COPD) exacerbations (RR: 12.49; 95% CI: 3.06 to 50.99; $p < 0.001$) and pneumonia (RR: 9.49; 95% CI: 2.27 to 39.69; $p < 0.001$).

Conclusions: Our meta-analysis provided clinically relevant information about the impact and safety of BTVA on predominantly upper lobe emphysema. Particularly, short-term significant improvement of lung function and quality of life occurred especially within the initial 3 months. Further large-scale, well-designed long-term interventional investigations are needed to clarify this issue.

Keywords: Bronchoscopic thermal vapor ablation; Efficacy; Emphysema; Lung volume reduction; Safety.

- 37 references

SUPPLEMENTARY INFO

Grants and fundingexpand

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Cite

4

Eur Respir J

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. 2023 Oct 26:2201606.

doi: 10.1183/13993003.01606-2022. Online ahead of print.

Fibroblast growth factor 10 reverses cigarette smoke- and elastase-induced emphysema and pulmonary hypertension in mice

Stefan Hadzic[1], Cheng-Yu Wu[1], Marija Gredic[1], Oleg Pak[1], Edma Loku[1], Simone Kraut[1], Baktybek Kojonazarov[1 2], Jochen Wilhelm[1 2], Monika Brosien[1], Mariola Bednorz[1], Michael Seimetz[1], Andreas Günther[1], Djuro Kosanovic[1 3], Natascha Sommer[1], David Warburton[4 5], Xiaokun Li[6], Friedrich Grimminger[1], Hossein A Ghofrani[1], Ralph T Schermuly[1], Werner Seeger[1 7], Elie El Agha[1 2], Saverio Bellusci[8 3 9], Norbert Weissmann[10 9]

Affiliations expand

- PMID: 37884305

- DOI: 10.1183/13993003.01606-2022

Abstract

Chronic obstructive pulmonary disease (COPD) is an incurable disease and a leading cause of death worldwide. In mice, fibroblast growth factor (FGF) 10 is essential for lung morphogenesis, and in humans, polymorphisms in the human *FGF10* gene correlate with an increased susceptibility to develop COPD.We analysed FGF10 signalling in human lung sections and isolated cells from healthy donor, smoker, and COPD lungs. The development of emphysema and PH was investigated in *Fgf10*$^{+/-}$ and *Fgfr2b*$^{+/-}$ (FGF receptor 2b) mice upon chronic exposure to cigarette smoke (CS). In addition, we overexpressed FGF10 in mice following elastase- or CS-induced emphysema and pulmonary hypertension (PH).We found impaired FGF10 expression in human lung alveolar walls and in primary interstitial

COPD lung fibroblasts. In contrast, FGF10 expression was increased in large pulmonary vessels in COPD lungs. Consequently, we identified impaired FGF10 signalling in alveolar walls as an integral part of the pathomechanism that leads to emphysema and PH development: Mice with impaired FGF10 signalling (*Fgf10*$^{+/-}$ and *Fgfr2b*$^{+/-}$) spontaneously developed lung emphysema, PH and other typical pathomechanistic features that generally arise in response to CS exposure.In a therapeutic approach, FGF10 overexpression successfully restored lung alveolar and vascular structure in mice with established CS- and elastase-induced emphysema and PH. FGF10 treatment triggered an initial increase in the number of alveolar type 2 cells that gradually returned to the basal level when the FGF10-mediated repair process progressed. Therefore, the application of recombinant FGF10 or stimulation of the downstream signalling cascade might represent a novel therapeutic strategy in the future.

5

Neurogastroenterol Motil

. 2023 Oct 26:e14699.

doi: 10.1111/nmo.14699. Online ahead of print.

Selective dysfunction of the crural diaphragm in patients with chronic restrictive and obstructive lung disease

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Affiliations expand

- PMID: 37882102

- DOI: 10.1111/nmo.14699

Abstract

Background: Gastroesophageal reflux (GER) is known to be associated with chronic lung diseases. The driving force of GER is the transdiaphragmatic pressure (Pdi) generated mainly by costal and crural diaphragm contraction. The latter also enhances the esophagogastric junction (EGJ) pressure to guard against GER.

Methods: The relationship between Pdi and EGJ pressure was determined using high resolution esophageal manometry in patients with interstitial lung disease (ILD, n = 26), obstructive lung disease (OLD, n- = 24), and healthy subjects (n = 20).

Key results: The patient groups did not differ with respect to age, gender, BMI, and pulmonary rehabilitation history. Patients with ILD had significantly higher Pdi but lower EGJ pressures as compared to controls and OLD patients ($p < 0.001$). In control subjects, the increase in EGJ pressure at all-time points during inspiration was greater than Pdi. In contrast, the EGJ pressure during inspiration was less than Pdi in 14 patients with ILD and 7 patients with OLD. The drop in EGJ pressure was usually seen after the peak Pdi in ILD group ($p < 0.0001$) and before the peak Pdi in OLD group, ($p = 0.08$). Nine patients in the ILD group had sliding hiatus hernia, compared to none in control subjects ($p = 0.003$) and two patients in the OLD, ($p = 0.04$).

Conclusions and inferences: A higher Pdi and low EGJ pressure, and dissociation between Pdi and EGJ pressure temporal relationship suggests selective dysfunction of the crural diaphragm in patients with chronic lung diseases and may explain the higher prevalence of GERD in ILD as seen in previous studies.

Keywords: crural diaphragm; esophagogastric junction; gastroesophageal reflux; hiatus hernia; lower esophageal sphincter; transdiaphragmatic pressure gradient.

- 48 references

FULL TEXT LINKS

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Chronic Obstr Pulm Dis

. 2023 Oct 26;10(4):444-449.

doi: 10.15326/jcopdf.2023.0404.

Improving Dyspnea by Targeting Weight Loss in Patients With Chronic Obstructive Lung Disease and Severe Obesity Through Health Coaching and Remote Monitoring

Maria V Benzo[1], Amelia Barwise[1], Matthew M Clark[2], Kara Dupuy-McCauley[1], Madison Roy[1], Roberto P Benzo[1]

Affiliations expand

- PMID: 37606647

- DOI: 10.15326/jcopdf.2023.0404

Free article

No abstract available

Keywords: dyspnea; obesity; quality of life.

7

Chronic Obstr Pulm Dis

. 2023 Oct 26;10(4):400-411.

doi: 10.15326/jcopdf.2023.0417.

The Current Landscape of COPD-Related Clinical Trials Registered on the World Health Organization's International Clinical Trials Registry Platform: A Comprehensive Analysis of Study Characteristics and Publication Status

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Affiliations expand

- PMID: 37603777

- DOI: 10.15326/jcopdf.2023.0417

Free article

Abstract

Background: Despite studies investigating the publication rates and factors influencing publication outcomes of clinical trials in some disease fields, there is a notable lack of research focusing on chronic obstructive pulmonary disease (COPD) clinical trials. This study aims to explore the characteristics of COPD-related clinical trials and identify factors associated with publication status and publication time.

Methods: A systematic search was conducted on the World Health Organization International Clinical Trials Registry Platform on April 28, 2022, to identify completed interventional clinical trials related to COPD. Various trial features were analyzed, and factors influencing publication status and time were examined.

Results: A total of 2577 completed interventional clinical trials focusing on COPD were identified. A total of 42.76% of trials enrolled ≤50 participants. The majority of trials were randomized (81.72%), blind (57.39%), parallel-assignment (59.14%), single-center (51.30%), multi-arm (83.86%), nonindustry funded (52.00%), and conducted for therapeutic purposes (73.11%). The 2-year cumulative publication rate was found to be 27.9%. The median time of study duration, dissemination lag, and publication lag were 17.27, 21.07, and 24.70 months, respectively. Multivariate analysis revealed that sample size, blind design, and study phase significantly influenced the likelihood of publication, while intervention model, primary purpose, study phase, funder, and study duration were significant factors affecting publication time.

Conclusions: The findings highlight the inadequacy of large multi-center interventional clinical trials for COPD and indicate a low 2-year cumulative publication rate. Strengthening collaboration among investigators and adopting scientifically robust designs for larger phase 3 clinical trials are crucial to advancing COPD research and enhancing publication outcomes.

Keywords: COPD; clinical trials; publication rate; publication status; publication time.

8

Chronic Obstr Pulm Dis

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. 2023 Oct 26;10(4):437-443.

doi: 10.15326/jcopdf.2023.0431.

Home Telemonitoring Program in Individuals With COPD During the Coronavirus Disease 2019 Pandemic: A Pilot Study

Michael Rydberg[1], Pete Burkett[2], Erica Johnson[3], M Bradley Drummond[4]

Affiliations expand

- PMID: 37552509

- DOI: 10.15326/jcopdf.2023.0431

Free article

No abstract available

Keywords: COPD; home spirometry; telemonitoring.

9

Chronic Obstr Pulm Dis

. 2023 Oct 26;10(4):392-399.

doi: 10.15326/jcopdf.2023.0430.

Augmentation Therapy for Alpha-1 Antitrypsin Deficiency: Patient Experiences With Self-Infusion, Home Providers, and Clinics

Charlie Strange[1,2], Sheri Allison[2], Jean McCathern[2], Robert A Sandhaus[2,3], Kristen E Holm[2,3]

Affiliations expand

- PMID: 37549313

- DOI: 10.15326/jcopdf.2023.0430

Free article

Abstract

Background: Currently approved therapies for individuals with alpha-1 antitrypsin deficiency (AATD) are intravenously infused products. The burdens and demographics of infusion practices in the United States are not well-characterized.

Research question: What is the prevalence of different infusion practices in the United States?

Study design and methods: AlphaNet disease management participants completed a survey that captured current and past infusion practices. Data regarding the reasons for choosing their current infusion practice, problems with past infusion practices, resources required, and support services utilized were collected from February 8, 2022 through July 1, 2022.

Results: Among 5266 individuals, infusions happened at home by health care providers (60.2%), at infusion clinics (30.6%), and by self-infusion (8.1%). Self-infusion prevalence increased with time on therapy and was more prevalent in younger individuals (61.2 ± 10.5 years) compared to users of other infusion practices (64.1 ± 11.0 years), (p<0.001). The perceived benefits of self-infusion included: (1) freedom and flexibility (77.9%), (2) ability to travel (44.5%), (3) avoidance of infusion clinics (41.8%), (4) time-savings (35.9%), (5) less absence from work (26.6%), (6) less exposure to infections (22.1%), and (7) less cost (16.4%). Self-infusion was done through permanent intravenous catheters in 41.2% and peripheral intravenous catheters in 58.3%. Self-infusers were more satisfied (93.1% "very satisfied") than other groups. Among individuals currently infusing with home nurses or in clinics, 21.4% would consider self-infusing in the future.

Interpretation: Self-infusion of alpha-1 antitrypsin is feasible and associated with high satisfaction scores. Recommendations for catheter care, infusion support, and cost management are informed by survey results.

Keywords: AATD; COPD; alpha-1 antitrypsin deficiency; antitrypsin; self-infusion.

10

Chronic Obstr Pulm Dis

. 2023 Oct 26;10(4):422-436.

doi: 10.15326/jcopdf.2023.0387.

Randomized Controlled Trials on Chronic Obstructive Pulmonary Disease in Africa: A Systematic Review

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Affiliations expand

- PMID: 37450850

- DOI: 10.15326/jcopdf.2023.0387

Free article

Abstract

Background: The rising burden of chronic obstructive pulmonary disease (COPD) in African countries is attributed to the growing and aging of the populations, lifestyles, and environmental changes. This systematic review aims to map the available evidence on COPD interventions in Africa.

Methods: We performed a systematic search in 6 databases (including local African databases) and registries with updates through January 2022. We included randomized controlled trials (RCTs) that included patients diagnosed with COPD and were conducted in Africa, studying outcomes on acute respiratory episodes and rates, physical and functional abilities, and adverse events. We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. The study quality was assessed using the Cochrane risk of bias tool. We primarily summarized the results in narrative form.

Results: Out of 1594 identified publications, we included 18 studies with a total of 1504 participants, conducted in Egypt, South Africa, and Tunisia. Eight studies investigated interventions for patients in stable phases treated in outpatient settings, and 10 included patients with acute COPD exacerbations treated in emergency or intensive care settings. The interventions mainly included ventilatory support and pharmacological and rehabilitative interventions. Reported treatment effects were heterogeneous, ranging from no beneficial effects to clinically relevant benefits.

Conclusions: The included studies were conducted in countries with high infrastructural development and half of them were set in intensive care units. Despite the paucity of RCTs on COPD management, research activities have been increasing over the last several years.

Keywords: chronic lung diseases; non-communicable diseases; pulmonology; randomized controlled trials; systematic review.

11

Chronic Obstr Pulm Dis

. 2023 Oct 26;10(4):343-354.

doi: 10.15326/jcopdf.2023.0402.

Clinical Practices Surrounding the Prescription of Home Oxygen in Patients With COPD and Desaturation

Sandra E Zaeh[1], Meredith Case[2], David H Au[3,4], Michele DaSilva[5], Karen Deitemeyer[5], Julie DeLisa[6], Laura C Feemster[3], Lynn B Gerald[6,7], Jerry A Krishnan[6,7], Jennifer Sculley[7], Annette Woodruff[5], Michelle N Eakin[2]

Affiliations expand

- PMID: 37433062

- DOI: 10.15326/jcopdf.2023.0402

Free article

Abstract

Purpose: While home oxygen therapy increases survival in patients with chronic obstructive pulmonary disease (COPD) who have severe resting hypoxemia, recent evidence suggests that there is no survival benefit of home oxygen for patients with COPD

who have isolated exertional desaturation. We aimed to understand clinician practice patterns surrounding the prescription of home oxygen for patients with COPD.

Methods: We conducted semi-structured qualitative interviews via videoconference with 15 physicians and 3 nurse practitioners who provide care for patients with COPD. Clinicians were recruited through the American Lung Association Airways Clinical Research Centers. Interview guides were created with the assistance of patient investigators and included questions regarding clinician practices surrounding the prescription of oxygen for patients with COPD and the use of clinical guidelines. Interviews were recorded, transcribed, and coded for themes.

Results: Of the 18 clinician interviewees, one-third were women, with most participants (n=11) being < 50 years old. Results of the semi-structured interviews suggested research evidence, clinical experience, and patient preferences contributed to clinician decision-making. Most clinicians described a shared decision-making process for prescribing home oxygen for patients, including discussion of risks and benefits, and developing an understanding of patient values and preferences. Clinicians did not use a structured tool to conduct these conversations.

Conclusions: Clinicians consider a number of patient and clinical factors when prescribing home oxygen therapy, often using a shared decision-making process. Tools to support shared decision-making about the use of home oxygen are needed.

Keywords: Qualitative research; obstructive lung disease; patient preferences; shared decision-making.

. 2023 Oct 26;10(4):355-368.

doi: 10.15326/jcopdf.2023.0399.

Deep Learning Integration of Chest Computed Tomography Imaging and Gene Expression Identifies Novel Aspects of COPD

Junxiang Chen[1], Zhonghui Xu[2], Li Sun[1], Ke Yu[1], Craig P Hersh[2,3], Adel Boueiz[2,3], John E Hokanson[4], Frank C Sciurba[5], Edwin K Silverman[2,3], Peter J Castaldi[2,6], Kayhan Batmanghelich[1]

Affiliations expand

- PMID: 37413999

- DOI: 10.15326/jcopdf.2023.0399

Free article

Abstract

Rationale: Chronic obstructive pulmonary disease (COPD) is characterized by pathologic changes in the airways, lung parenchyma, and persistent inflammation, but the links between lung structural changes and blood transcriptome patterns have not been fully described.

Objections: The objective of this study was to identify novel relationships between lung structural changes measured by chest computed tomography (CT) and blood transcriptome patterns measured by blood RNA sequencing (RNA-seq).

Methods: CT scan images and blood RNA-seq gene expression from 1223 participants in the COPD Genetic Epidemiology (COPDGene®) study were jointly analyzed using deep learning to identify shared aspects of inflammation and lung structural changes that we labeled image-expression axes (IEAs). We related IEAs to COPD-related measurements and prospective health outcomes through regression and Cox proportional hazards models and tested them for biological pathway enrichment.

Results: We identified 2 distinct IEAs: IEA_{emph} which captures an emphysema-predominant process with a strong positive correlation to CT emphysema and a negative correlation to forced expiratory volume in 1 second and body mass index (BMI); and IEA_{airway} which captures an airway-predominant process with a positive correlation to BMI and airway wall thickness and a negative correlation to emphysema. Pathway enrichment analysis identified 29 and 13 pathways significantly associated with IEA_{emph} and IEA_{airway}, respectively (adjusted $p<0.001$).

Conclusions: Integration of CT scans and blood RNA-seq data identified 2 IEAs that capture distinct inflammatory processes associated with emphysema and airway-predominant COPD.

Keywords: emphysema; genomics; machine learning.

13

Chronic Obstr Pulm Dis

. 2023 Oct 26;10(4):369-379.

doi: 10.15326/jcopdf.2023.0395.

Disparities in Guideline Concordant Statin Treatment in Individuals With Chronic Obstructive Pulmonary Disease

Jamuna K Krishnan[1], Sonal G Mallya[2,3], Musarrat Nahid[3], Aaron D Baugh[4], MeiLan K Han[5], Kerri I Aronson[1], Parag Goyal[3,6], Laura C Pinheiro[3], Samprit Banerjee[7], Fernando J Martinez[1], Monika M Safford[3]

Affiliations expand

- PMID: 37410623

- DOI: 10.15326/jcopdf.2023.0395

Free article

Abstract

Rationale: Cardiovascular disease (CVD) affects the prognosis of patients with chronic obstructive pulmonary disease (COPD). Black women with COPD have a disproportionate risk of CVD-related mortality, yet disparities in CVD prevention in COPD are unknown.

Objectives: We aimed to identify race-sex differences in the receipt of statin treatment for CVD prevention, and whether these differences were explained by factors influencing health care utilization in the REasons for Geographic And Racial Differences in Stroke (REGARDS) COPD study sub-cohort.

Methods: We conducted a cross-sectional analysis among REGARDS Medicare beneficiaries with COPD. Our primary outcome was the presence of statin on in-home pill bottle review among individuals with an indication. Prevalence ratios (PR) for statin treatment among race-sex groups compared to White men were estimated using Poisson regression with robust variance. We then adjusted for covariates previously shown to impact health care utilization.

Results: Of the 2032 members within the COPD sub-cohort with sufficient data, 1435 participants (19% Black women, 14% Black men, 28% White women, and 39% White men) had a statin indication. All race-sex groups were less likely to receive statins than White men in unadjusted models. After adjusting for covariates that influence health care utilization, Black women (PR 0.76, 95% confidence interval [CI] 0.67 to 0.86) and White women (PR 0.84 95% CI 0.76 to 0.91) remained less likely to be treated compared to White men.

Conclusions: All race-sex groups were less likely to receive statin treatment in the REGARDS COPD sub-cohort compared to White men. This difference persisted in women after controlling for individual health care utilization factors, suggesting structural interventions are needed.

Keywords: COPD; cardiovascular disease; comorbidity; health delivery.

SUPPLEMENTARY INFO

Grants and fundingexpand

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14

Br J Cancer

. 2023 Oct 25.

doi: 10.1038/s41416-023-02467-9. Online ahead of print.

Personalised lung cancer risk stratification and lung cancer screening: do general practice electronic medical records have a role?

Bhautesh Dinesh Jani[1], Michael K Sullivan[2], Peter Hanlon[3], Barbara I Nicholl[3], Jennifer S Lees[2], Lamorna Brown[4], Sara MacDonald[3], Patrick B Mark[2], Frances S Mair[3], Frank M Sullivan[4]

Affiliations expand

- PMID: 37880510

- DOI: 10.1038/s41416-023-02467-9

Abstract

Background: In the United Kingdom (UK), cancer screening invitations are based on general practice (GP) registrations. We hypothesize that GP electronic medical records (EMR) can be utilised to calculate a lung cancer risk score with good accuracy/clinical utility.

Methods: The development cohort was Secure Anonymised Information Linkage-SAIL (2.3 million GP EMR) and the validation cohort was UK Biobank-UKB (N = 211,597 with GP-EMR availability). Fast backward method was applied for variable selection and area under the curve (AUC) evaluated discrimination.

Results: Age 55-75 were included (SAIL: N = 574,196; UKB: N = 137,918). Six-year lung cancer incidence was 1.1% (6430) in SAIL and 0.48% (656) in UKB. The final model included 17/56 variables in SAIL for the EMR-derived score: age, sex, socioeconomic status, smoking status, family history, body mass index (BMI), BMI:smoking interaction, alcohol misuse, chronic obstructive pulmonary disease, coronary heart disease, dementia, hypertension, painful condition, stroke, peripheral vascular disease and history of previous cancer and previous pneumonia. The GP-EMR-derived score had AUC of 80.4% in SAIL and 74.4% in UKB and outperformed ever-smoked criteria (currently the first step in UK lung cancer screening pilots).

Discussion: A GP-EMR-derived score may have a role in UK lung cancer screening by accurately targeting high-risk individuals without requiring patient contact.

- 48 references

15

Randomized Controlled Trial

NPJ Prim Care Respir Med

. 2023 Oct 25;33(1):35.

doi: 10.1038/s41533-023-00353-8.

Implementing psychological interventions delivered by respiratory professionals for people with COPD. A stakeholder interview study

V Wileman[1,2], V Rowland[3], M Kelly[4], L Steed[4], R Sohanpal[4], H Pinnock[5], S J C Taylor[4]

Affiliations expand

- PMID: 37880342

- PMCID: PMC10600190

- DOI: 10.1038/s41533-023-00353-8

Free PMC article

Abstract

Implementing psychological interventions in healthcare services requires an understanding of the organisational context. We conducted an interview study with UK National Health Service stakeholders to understand the barriers and facilitators for implementing psychological interventions for people with chronic obstructive pulmonary disorder (COPD). We used TANDEM as an exemplar intervention; a psychological intervention recently evaluated in a randomised controlled trial. Twenty participants providing care and/or services to people with COPD were purposively sampled from NHS primary/secondary care, and commissioning organisations. Participants were recruited via professional networks and referrals. Verbatim transcripts of semi-structured interviews were analysed using thematic analysis. Four themes were identified: (1) Living with COPD and emotional distress affects engagement with physical and psychological services; (2) Resource limitations affects service provision in COPD; (3) Provision of integrated care is important for patient well-being; and (4) Healthcare communication can be an enabler or a barrier to patient engagement. People need support with physical and psychological symptoms inherent with COPD and healthcare should be provided holistically. Respiratory

healthcare professionals are considered able to provide psychologically informed approaches, but resources must be available for training, staff supervision and service integration. Communication between professionals is vital for clear understanding of an intervention's aims and content, to facilitate referrals and uptake. There was widespread commitment to integrating psychological and physical care, and support of respiratory healthcare professionals' role in delivering psychological interventions but significant barriers to implementation due to concerns around resources and cost efficiency. The current study informs future intervention development and implementation.

Conflict of interest statement

S.J.C.T. is the chief investigator or co-investigator on multiple previous and current research grants from the UK National Institute for Health Research and CRC UK. H.P. is Associate Editor of npj Primary Care Respiratory Medicine. H.P. was not involved in the journal's review of, or decisions related to, this manuscript. Co-authors declare no further competing interests.

- 36 references

16

Respirology

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. 2023 Oct 25.

doi: 10.1111/resp.14612. Online ahead of print.

Lung function and exacerbations in patients with COPD escalated to triple therapy: The RETRIEVE real-world study

Stavros Tryfon[1], Efthymia Papadopoulou[1], Maria Bertoli[2], Konstantinos Exarchos[3], Alexandros Ginis[2], Konstantinos Kostikas[3]

Affiliations expand

- PMID: 37879756

- DOI: 10.1111/resp.14612

No abstract available

Keywords: COPD exacerbations; FEV1; chronic obstructive pulmonary disease; open triple therapy; salmeterol-fluticasone fixed-dose combination.

- 9 references

SUPPLEMENTARY INFO

Grants and fundingexpand

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Int Immunol

. 2023 Oct 25:dxad043.

doi: 10.1093/intimm/dxad043. Online ahead of print.

Identification of immune-related gene signatures for chronic obstructive pulmonary disease with metabolic syndrome: evidence from integrated bulk and single-cell RNA sequencing data

Yueren Wu[1,2], Mengyu Ma[1,2], Wenglam Choi[1,2], Weifang Xu[3], Jingcheng Dong[1,2]

Affiliations expand

- PMID: 37878760

- DOI: 10.1093/intimm/dxad043

Abstract

Chronic obstructive pulmonary disease (COPD) is closely related to innate and adaptive inflammatory immune responses. It is increasingly becoming evident that metabolic syndrome (MetS) affects a significant portion of COPD patients. Through this investigation, we identify shared immune-related candidate biological markers. The Weighted Gene Co-Expression Network Analysis (WGCNA) was utilized to reveal the co-expression modules linked to COPD and MetS. The commonly expressed genes in the COPD and MetS were utilized to conduct an enrichment analysis. We adopted machine-learning to screen and validate hub genes. We also assessed the relationship between hub genes and immune cell infiltration in COPD and MetS, respectively. Moreover, associations across hub genes and metabolic pathways were also explored. Finally, we chose a single-cell RNA sequencing (scRNA-seq) dataset to investigate the hub genes and shared mechanisms at the level of the cells. We also applied cell trajectory analysis and cell-cell communication analysis to focus on the vital immune cell we were interested in. As a result, we selected and validated 13 shared hub genes for COPD and MetS. The enrichment analysis and immune infiltration analysis illustrated strong associations between hub genes and immunology; Additionally, we applied metabolic pathway enrichment analysis, indicating the significant role of reactive oxygen species (ROS) in COPD with MetS. Through scRNA-seq analysis, we found that ROS might accumulate the most in the alveolar macrophages. In conclusion, the 13

hub genes related to the immune response and metabolism may serve as diagnostic biomarkers and treatment targets of COPD with MetS.

Keywords: alveolar macrophages; bioinformatics analysis; immune infiltration; machine-learning algorithms; reactive oxygen species.

18

Review

Respirology

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. 2023 Oct 25.

doi: 10.1111/resp.14610. Online ahead of print.

The treatable traits approach to adults with obstructive airways disease in primary and secondary care

Mike Thomas[1], Richard Beasley[2 3]

Affiliations expand

- PMID: 37877554

- DOI: 10.1111/resp.14610

Abstract

The treatable traits approach is based on the recognition that the different clinical phenotypes of asthma and chronic obstructive airways disease (COPD) are a heterogeneous group of conditions with different underlying mechanisms and clinical manifestations, and that the identification and treatment of the specific clinical features or traits facilitates a personalised approach to management. Fundamentally, it recognises two important concepts. Firstly, that treatment for obstructive lung disease can achieve better outcomes if guided by specific clinical characteristics. Secondly, that in patients with a diagnosis of asthma, and/or COPD, poor respiratory health may also be due to numerous overlapping disorders that can present with symptoms that may be indistinguishable from asthma and/or COPD, comorbidities that might require treatment in their own right, and lifestyle or environmental factors that, if addressed, might lead to better control rather than simply increasing airways directed treatment. While these concepts are well accepted, how best to implement this personalised medicine approach in primary and secondary care within existing resource constraints remains uncertain. In this review, we consider the evidence base for this management approach and propose that the priority now is to assess different prototype templates for the identification and management of treatable traits in both asthma and COPD, in primary, secondary and tertiary care, to provide the evidence that will guide their use in clinical practice in different health care systems.

Keywords: COPD; asthma; obstructive airways disease; personalized medicine; primary care; secondary care; treatable traits.

19

Review

Respir Med

. 2023 Oct 23:107439.

doi: 10.1016/j.rmed.2023.107439. Online ahead of print.

Is it preferable to administer a bronchodilator once- or twice-daily when treating COPD?

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Affiliations expand

- PMID: 37879449

- DOI: 10.1016/j.rmed.2023.107439

Abstract

Night-time and early morning symptoms are common and uncomfortable in many patients with COPD, and likely to negatively influence their long-term outcomes. However, it is still debated whether it is preferable to administer long-acting bronchodilators once- or twice-daily to symptomatic COPD patients. The functional link between circadian rhythms of autonomic tone and airway calibre explains why the timing of administration of bronchodilators in chronic airway diseases can induce different effects when taken at different biological (circadian) times. However, the timing also depends on the pharmacological characteristics of the bronchodilator to be used. Because the profile of bronchodilation produced by once-daily vs. twice-daily long-acting bronchodilators differs throughout 24 hours, selecting long-acting bronchodilators may be customized to specific patient preferences based on the need for further bronchodilation in the evening. This is especially helpful for people who experience respiratory symptoms at night or early morning. Compared to placebo, evening bronchodilator administration is consistently

linked with persistent overnight improvements in dynamic respiratory mechanics and inspiratory neural drive. The current evidence indicates that nocturnal and early morning symptoms control is best handled by a LAMA taken in the evening. In contrast, it seems preferable to use a LABA for daytime symptoms. Therefore, it can be speculated that combining a LAMA with a LABA can improve bronchodilation and control symptoms better. Both LAMA and LABA must be rapid in their onset of action. Aclidinium/formoterol, a twice-daily combination, is, among the available LAMA/LABA combinations, the most studied in terms of impact on daytime and night-time symptoms.

Keywords: COPD; LABAs; LAMAs; Once-daily; Symptom variability; Twice-daily.

Conflict of interest statement

Declaration of competing interest Nothing to declare.

20

BMC Public Health

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The association between diet quality and chronic obstructive pulmonary disease: a case-control study

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Affiliations expand

- PMID: 37872531
- PMCID: PMC10591368
- DOI: 10.1186/s12889-023-16586-8

Free PMC article

Abstract

Background: Previous investigations have primarily examined the relationship between various dietary patterns and the risk of chronic obstructive pulmonary disease (COPD); however, there have been limited studies that have evaluated the association between diet quality presented by Healthy Eating Index 2010 (HEI-2010) and COPD. The aim of this study was to investigate this association in Iranian population.

Methods: This case-control study recruited 84 cases and 252 healthy controls who were randomly selected. Diet, smoking, and physical activity were assessed using validated questionnaires. The HEI-2010 score ranged from zero to hundred twenty, with zero indicating an unhealthy diet and hundred twenty indicating a healthy diet. Logistic regression models were utilized to analyze the association between HEI-2010 and the odds of COPD.

Results: Results from logistic regression showed that individuals with higher HEI scores had a significantly lower odds of COPD (OR: 0.34; 95% CI: 0.16-0.72). After adjusting for confounders, individuals with the highest HEI score were 82% less likely to have COPD (OR: 0.18; 95% CI: 0.03-0.96). This association remained significant after adjusting for smoking and physical activity (OR: 0.08; 95% CI: 0.01-0.93) and with additional adjustment for BMI (OR: 0.08; 95% CI: 0.01-0.92).

Conclusions: This study found a significant association between a higher HEI-2010 score and a lower odd of COPD in the Iranian population. These results suggest that a healthy diet may play a crucial role in reducing the odds of COPD and in improving the function of the lungs. However, further prospective studies are warranted to elucidate this relationship.

Keywords: COPD; HEI-2010; Healthy eating.

Conflict of interest statement

The authors declare that they have no competing interests.

- 66 references

21

Ann Am Thorac Soc

. 2023 Oct 23.

doi: 10.1513/AnnalsATS.202301-014OC. Online ahead of print.

Diffusing Capacity as a Predictor of Hospitalizations in a Clinical Cohort of Chronic Obstructive Pulmonary Disease

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Affiliations expand

- PMID: 37870393

- DOI: 10.1513/AnnalsATS.202301-014OC

Abstract

Rationale: Chronic Obstructive Pulmonary Disease(COPD) hospitalizations are a major burden on patients. Diffusing capacity (DLCO) is a potential predictor that has not been studied in large cohorts.

Objective: This study used electronic health record data to evaluate whether clinically-obtained DLCO predicts COPD hospitalizations.

Methods: We performed time-to-event analyses of individuals with COPD and DLCO measurements from the Johns Hopkins COPD Precision Medicine Center of Excellence. Cox proportional hazard methods were used to model time from DLCO measurement to first COPD hospitalization and composite first hospitalization or death, adjusting for age, sex, race, body mass index, smoking status, forced expiratory volume in one second (FEV1), history of prior COPD hospitalization, comorbidities. To identify the utility of including DLCO in risk models, AUC values were calculated for models with and without DLCO. Results were externally validated in a separate analogous cohort.

Results: Of 2793 participants, 368 (13%) had a COPD hospitalization within 3 years. In adjusted analyses, for every 10% decrease in DLCO %predicted, risk of COPD hospitalization increased by 10% (Hazard ratio 1.1, 95% CI 1.1 - 1.2, p<0.001). Similar associations were observed for COPD hospitalizations or death. The model including demographics, comorbidities, FEV1, DLCO, and prior COPD hospitalizations performed well with an AUC of 0.85 and an AUC of 0.84 in an external validation cohort.

Conclusions: Diffusing capacity is a strong predictor of COPD hospitalizations in a clinical cohort of individuals with COPD, independent of airflow obstruction and prior hospitalizations. These findings support incorporation of DLCO in risk assessment of COPD patients.

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PLoS Med

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. 2023 Oct 27;20(10):e1004300.

doi: 10.1371/journal.pmed.1004300. eCollection 2023 Oct.

Ethnic differences in early onset multimorbidity and associations with health service use, long-term prescribing, years of life lost, and mortality: A cross-sectional study using clustering in the UK Clinical Practice Research Datalink

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Affiliations expand

- PMID: 37889900

- DOI: 10.1371/journal.pmed.1004300

Abstract

Background: The population prevalence of multimorbidity (the existence of at least 2 or more long-term conditions [LTCs] in an individual) is increasing among young adults, particularly in minority ethnic groups and individuals living in socioeconomically deprived areas. In this study, we applied a data-driven approach to identify clusters of individuals who had an early onset multimorbidity in an ethnically and socioeconomically diverse population. We identified associations between clusters and a range of health outcomes.

Methods and findings: Using linked primary and secondary care data from the Clinical Practice Research Datalink GOLD (CPRD GOLD), we conducted a cross-sectional study of

837,869 individuals with early onset multimorbidity (aged between 16 and 39 years old when the second LTC was recorded) registered with an English general practice between 2010 and 2020. The study population included 777,906 people of White ethnicity (93%), 33,915 people of South Asian ethnicity (4%), and 26,048 people of Black African/Caribbean ethnicity (3%). A total of 204 LTCs were considered. Latent class analysis stratified by ethnicity identified 4 clusters of multimorbidity in White groups and 3 clusters in South Asian and Black groups. We found that early onset multimorbidity was more common among South Asian (59%, 33,915) and Black (56% 26,048) groups compared to the White population (42%, 777,906). Latent class analysis revealed physical and mental health conditions that were common across all ethnic groups (i.e., hypertension, depression, and painful conditions). However, each ethnic group also presented exclusive LTCs and different sociodemographic profiles: In White groups, the cluster with the highest rates/odds of the outcomes was predominantly male (54%, 44,150) and more socioeconomically deprived than the cluster with the lowest rates/odds of the outcomes. On the other hand, South Asian and Black groups were more socioeconomically deprived than White groups, with a consistent deprivation gradient across all multimorbidity clusters. At the end of the study, 4% (34,922) of the White early onset multimorbidity population had died compared to 2% of the South Asian and Black early onset multimorbidity populations (535 and 570, respectively); however, the latter groups died younger and lost more years of life. The 3 ethnic groups each displayed a cluster of individuals with increased rates of primary care consultations, hospitalisations, long-term prescribing, and odds of mortality. Study limitations include the exclusion of individuals with missing ethnicity information, the age of diagnosis not reflecting the actual age of onset, and the exclusion of people from Mixed, Chinese, and other ethnic groups due to insufficient power to investigate associations between multimorbidity and health-related outcomes in these groups.

Conclusions: These findings emphasise the need to identify, prevent, and manage multimorbidity early in the life course. Our work provides additional insights into the excess burden of early onset multimorbidity in those from socioeconomically deprived and diverse groups who are disproportionately and more severely affected by multimorbidity and highlights the need to ensure healthcare improvements are equitable.

Conflict of interest statement

FE receive salary for this work by MRC (MR/S027297/1). SF and RM receive salary contributions for their work on the Genes & Health programme, by a Life Sciences Consortium that includes Astra Zeneca PLC, Bristol-Myers Squibb Company, GlaxoSmithKline Research and Development Limited, Maze Therapeutics Inc, Merck Sharp & Dohme LLC, Novo Nordisk A/S, Pfizer Inc, Takeda Development Centre Americas Inc. RM

is supported by Barts Charity (MGU0504). RM has received consulting fees from AMGEN unrelated to this work. RHM has received fees from American Center for Psychiatry & Neurology United Arab Emirates, British Association for Psychopharmacology, European College of Neuropsychopharmacology, International Society for Affective Disorders, Janssen, LivaNova, Lundbeck, My Tomorrows, OCM Comunicaziona s.n.c., Pfizer, Qatar International Mental Health Conference, Sunovion, Syntropharma, UK Medical Research Council and Wiley; grant support from National Institute for Health Research Efficacy and Mechanism Evaluation Panel and Health Technology Assessment Panel; and non-financial support from COMPASS Pathways and Magstim. PM is funded by the National Institute for Health Research (NIHR) Newcastle Biomedical Research Centre, by NIHR AIM AI-MULTIPLY, and by NIHR ADMISSION (MR/V033654/1). NJR is funded by the National Institute for Health Research (NIHR) Newcastle Biomedical Research Centre, by the NIHR Newcastle In Vitro Diagnostics Co-operative and NIHR AIM AI-MULTIPLY. N.J.R. is also a NIHR Senior Investigator, (Senior Investigator Award) NIHR200168. NJR reports grants from PSORT industrial partners as listed (http://www.psort.org.uk/); other research grants from GSK Stiefel and Novartis. MRB is funded by the National Institute for Health Research (NIHR) AIM AI-MULTIPLY Consortium (NIHR203982). MRB reports research grants from Benevolent AI, Janssen and Novartis. TA is funded by the NIHR Applied Research Collaboration North Thames Award (NIHR 200163). AA is funded by the NIHR (31672 AI-MULTIPLY, 2022-2025). RH is funded by the Health Data Research UK (grant ref: LOND1).

2

J Gerontol A Biol Sci Med Sci

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Cross-sectional association between plasma biomarkers and multimorbidity patterns in older adults

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Affiliations expand

- PMID: 37886823

- DOI: 10.1093/gerona/glad249

Abstract

Multimorbidity is the simultaneous presence of two or more chronic conditions. Metabolomics could identify biomarkers potentially related to multimorbidity. We aimed to identify groups of biomarkers and their association with different multimorbidity patterns. Cross-sectional analyses were conducted within the Seniors-ENRICA-2 cohort in Spain, with information from 700 individuals aged ≥65 years. Biological samples were analyzed using high-throughput proton nuclear magnetic resonance metabolomics. Biomarkers groups were identified with exploratory factor analysis, and multimorbidity was classified into three types: cardiometabolic, neuropsychiatric, and musculoskeletal. Logistic regression was used to estimate the association between biomarkers groups and multimorbidity patterns, after adjusting for potential confounders including sociodemographics, lifestyle, and body mass index. Three factors were identified: the "lipid metabolism" mainly reflected biomarkers related to lipid metabolism, such as very-low-density lipoprotein and low-density lipoprotein cholesterol; the "high-density lipoprotein cholesterol" mainly included high-density lipoprotein cholesterol subclasses and other lipids not included in the first factor; and the "amino acid/glycolysis/ketogenesis", composed of some amino acids, glycolysis-related metabolites and ketone bodies. Higher scores in the "lipid metabolism" factor were associated with a higher likelihood of cardiometabolic multimorbidity, odds ratio for tertile 3 vs. tertile 1 was 1.79 (95% confidence interval: 1.17-2.76). The "high-density lipoprotein cholesterol" factor was associated with lower odds of cardiometabolic multimorbidity [0.51 (0.32-0.82)], and the "amino acid/glycolysis/ketogenesis" factor was associated with more frequent cardiometabolic multimorbidity [1.85 (1.18-2.90)]. Different metabolomic biomarkers are associated with different multimorbidity patterns, therefore multiple biomarker measurements are needed for a complete picture of the molecular mechanisms of multimorbidity.

Keywords: biomarkers; chronic disease; metabolomics; multimorbidity.

3

PLoS One

. 2023 Oct 26;18(10):e0293314.

doi: 10.1371/journal.pone.0293314. eCollection 2023.

Comorbidity clusters and in-hospital outcomes in patients admitted with acute myocardial infarction in the USA: A national population-based study

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Affiliations expand

- PMID: 37883354

- PMCID: PMC10602297

- DOI: 10.1371/journal.pone.0293314

Free PMC article

Abstract

Background: The prevalence of multimorbidity in patients with acute myocardial infarction (AMI) is increasing. It is unclear whether comorbidities cluster into distinct phenogroups and whether are associated with clinical trajectories.

Methods: Survey-weighted analysis of the United States Nationwide Inpatient Sample (NIS) for patients admitted with a primary diagnosis of AMI in 2018. In-hospital outcomes included mortality, stroke, bleeding, and coronary revascularisation. Latent class analysis of 21 chronic conditions was used to identify comorbidity classes. Multivariable logistic and linear regressions were fitted for associations between comorbidity classes and outcomes.

Results: Among 416,655 AMI admissions included in the analysis, mean (±SD) age was 67 (±13) years, 38% were females, and 76% White ethnicity. Overall, hypertension, coronary heart disease (CHD), dyslipidaemia, and diabetes were common comorbidities, but each of the identified five classes (C) included ≥1 predominant comorbidities defining distinct phenogroups: cancer/coagulopathy/liver disease class (C1); least burdened (C2); CHD/dyslipidaemia (largest/referent group, (C3)); pulmonary/valvular/peripheral vascular disease (C4); diabetes/kidney disease/heart failure class (C5). Odds ratio (95% confidence interval [CI]) for mortality ranged between 2.11 (1.89-2.37) in C2 to 5.57 (4.99-6.21) in C1. For major bleeding, OR for C1 was 4.48 (3.78; 5.31); for acute stroke, ORs ranged between 0.75 (0.60; 0.94) in C2 to 2.76 (2.27; 3.35) in C1; for coronary revascularization, ORs ranged between 0.34 (0.32; 0.36) in C1 to 1.41 (1.30; 1.53) in C4.

Conclusions: We identified distinct comorbidity phenogroups that predicted in-hospital outcomes in patients admitted with AMI. Some conditions overlapped across classes, driven by the high comorbidity burden. Our findings demonstrate the predictive value and potential clinical utility of identifying patients with AMI with specific comorbidity clustering.

Conflict of interest statement

SSZ, LYS, EK, MKR, DS, DMA MAM, MR declare no competing interests. SW is a currently an employee of GSK. This does not alter our adherence to PLOS ONE policies on sharing data and materials.

- 60 references
- 3 figures

4

Fam Pract

. 2023 Oct 25:cmad100.

doi: 10.1093/fampra/cmad100. Online ahead of print.

Measurement of treatment burden in patients with multimorbidity in the Netherlands: translation and validation of the Multimorbidity Treatment Burden Questionnaire (NL-MTBQ)

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Affiliations expand

- PMID: 37878729

- DOI: 10.1093/fampra/cmad100

Abstract

Background: Multimorbidity is a growing problem. The number and complexity of (non-)pharmaceutical treatments create a great burden for patients. Treatment burden refers to the perception of the weight of these treatments, and is associated with multimorbidity. Measurement of treatment burden is of great value for optimizing treatment and health-related outcomes.

Objective: We aim to translate and validate the Multimorbidity Treatment Burden Questionnaire (MTBQ) for use in the Dutch population with multimorbidity and explore the level of treatment burden.

Methods: Translating the MTBQ into Dutch included forward-backward translation, piloting, and cognitive interviewing (n = 8). Psychometric properties of the questionnaire were assessed in a cross-sectional study of patients with multimorbidity recruited from a panel in the Netherlands (n = 959). We examined item properties, dimensionality, internal consistency reliability, and construct validity. The level of treatment burden in the population was assessed.

Results: The mean age among 959 participants with multimorbidity was 69.9 (17-96) years. Median global NL-MTBQ score was 3.85 (interquartile range 0-9.62), representing low treatment burden. Significant floor effects were found for all 13 items of the instrument. Factor analysis supported a single-factor structure. The NL-MTBQ had high internal consistency (α = 0.845), and provided good evidence on the construct validity of the scale.

Conclusion: The Dutch version of the 13-item MTBQ is a single-structured, valid, and compact patient-reported outcome measure to assess treatment burden in primary care patients with multimorbidity. It could identify patients experiencing high treatment burden, with great potential to enhance shared decision-making and offer additional support.

Keywords: multimorbidity; patient-reported outcome measure; polypharmacy; psychometrics; quality of life; shared decision-making.

Diabetol Metab Syndr

. 2023 Oct 24;15(1):208.

doi: 10.1186/s13098-023-01186-8.

Association of cardiometabolic multimorbidity and adherence to a healthy lifestyle with incident dementia: a large prospective cohort study

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Affiliations expand

- PMID: 37876001

- PMCID: PMC10594816

- DOI: 10.1186/s13098-023-01186-8

Free PMC article

Abstract

Background: The co-occurrence of cardiometabolic diseases (CMDs) is increasingly prevalent and has been associated with an additive risk of dementia in older adults, but the extent to which this risk can be offset by a healthy lifestyle is unknown. We aimed to examine the associations of cardiometabolic multimorbidity and lifestyle with incident dementia and related brain structural changes.

Methods: This prospective study extracted health and lifestyle data from 171 538 UK Biobank participants aged 60 years or older without dementia at baseline between 2006 and 2010 and followed up until July 2021, as well as brain structural data in a nested imaging subsample of 11 972 participants. Cardiometabolic multimorbidity was defined as

the presence of two or more CMDs among type 2 diabetes, coronary heart disease, stroke, and hypertension. Lifestyle patterns were determined based on 7 modifiable lifestyle factors including smoking, alcohol consumption, physical activity, diet, sleep duration, sedentary behavior, and social contact.

Results: Over a median follow-up of 12.3 years, 4479 (2.6%) participants developed dementia. The presence of CMDs was dose-dependently associated with an increased risk of dementia. Compared with participants with no CMDs and a favourable lifestyle, those with ≥ 3 CMDs and an unfavourable lifestyle had a five times greater risk of developing dementia (HR 5.33, 95% CI 4.26-6.66). A significant interaction was found between CMD status and lifestyle ($P_{interaction}$=0.001). The absolute difference in incidence rates of dementia per 1000 person years comparing favourable versus unfavourable lifestyle was - 0.65 (95% CI - 1.02 to - 0.27) among participants with no CMDs and - 5.64 (- 8.11 to - 3.17) among participants with ≥ 3 CMDs, corresponding to a HR of 0.71 (0.58-0.88) and 0.42 (0.28-0.63), respectively. In the imaging subsample, a favourable lifestyle was associated with larger total brain, grey matter, and hippocampus volumes across CMD status.

Conclusion: Our findings suggest that adherence to a healthy lifestyle might substantially attenuate dementia risk and adverse brain structural changes associated with cardiometabolic multimorbidity.

Keywords: Brain volume; Cardiometabolic Disease; Dementia; Lifestyle; Multimorbidity.

Conflict of interest statement

The authors declare that they have no competing interests.

- 40 references
- 2 figures

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

6

Acta Oncol

. 2023 Oct 24:1-8.

doi: 10.1080/0284186X.2023.2270145. Online ahead of print.

Impact of multimorbidity and polypharmacy on mortality after cancer: a nationwide registry-based cohort study in Denmark 2005-2017

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Affiliations expand

- PMID: 37874076

- DOI: 10.1080/0284186X.2023.2270145

Abstract

Background: Concurrent chronic diseases and treatment hereof in patients with cancer may increase mortality. In this population-based study we examined the individual and combined impact of multimorbidity and polypharmacy on mortality, across 20 cancers and with 13-years follow-up in Denmark.**Materials and Methods:** This nationwide study included all Danish residents with a first primary cancer diagnosed between 1 January 2005 and 31 December 2015, and followed until the end of 2017. We defined multimorbidity as having one or more of 20 chronic conditions in addition to cancer, registered in the five years preceding diagnosis, and polypharmacy as five or more redeemed medications 2-12 months prior to cancer diagnosis. Cox regression analyses were used to estimate the effects of multimorbidity and polypharmacy, as well as the combined effect on mortality.**Results:** A total of 261,745 cancer patients were included. We found that patients diagnosed with breast, prostate, colon, rectal, oropharynx, bladder, uterine and cervical

cancer, malignant melanoma, Non-Hodgkin lymphoma, and leukemia had higher mortality when the cancer diagnosis was accompanied by multimorbidity and polypharmacy, while in patients with cancer of the lung, esophagus, stomach, liver, pancreas, kidney, ovarian and brain & central nervous system, these factors had less impact on mortality.**Conclusion:** We found that multimorbidity and polypharmacy was associated with higher mortality in patients diagnosed with cancer types that typically have a favorable prognosis compared with patients without multimorbidity and polypharmacy. Multimorbidity and polypharmacy had less impact on mortality in cancers that typically have a poor prognosis.

Keywords: Mortality; multimorbidity; polypharmacy; prognosis.

BMC Geriatr

. 2023 Oct 24;23(1):687.

doi: 10.1186/s12877-023-04403-1.

The stroke transitional care intervention for older adults with stroke and multimorbidity: a multisite pragmatic randomized controlled trial

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Hajas[6], Barbara Koetsier[6], Robert Mahony[6], Chris Pollard[12], Jim Prescott[6], Tammy Rooke[13], Carly Whitmore[5,6,7]

Affiliations expand

- PMID: 37872479

- PMCID: PMC10594728

- DOI: 10.1186/s12877-023-04403-1

Free PMC article

Abstract

Background: This study aimed to test, in real-world clinical practice, the effectiveness of a Transitional Care Stroke Intervention (TCSI) compared to usual care on health outcomes, self-management, patient experience, and health and social service use costs in older adults (≥ 55 years) with stroke and multimorbidity (≥ 2 chronic conditions).

Methods: This pragmatic randomized controlled trial (RCT) included older adults discharged from hospital to community with stroke and multimorbidity using outpatient stroke rehabilitation services in two communities in Ontario, Canada. Participants were randomized 1:1 to usual care (control group) or usual care plus the 6-month TCSI (intervention group). The TCSI was delivered virtually by an interprofessional (IP) team, and included care coordination/system navigation support, phone/video visits, monthly IP team conferences, and an online resource to support system navigation. The primary outcome was risk of hospital readmission (all cause) after six-months. Secondary outcomes included physical and mental functioning, stroke self-management, patient experience, and health and social service use costs. The intention-to-treat principle was used to conduct the primary and secondary analyses.

Results: Ninety participants were enrolled (44 intervention, 46 control); 11 (12%) participants were lost to follow-up, leaving 79 (39 intervention, 40 control). No significant between-group differences were seen for baseline to six-month risk of hospital readmission. Differences favouring the intervention group were seen in the following secondary outcomes: physical functioning (SF-12 PCS mean difference: 5.10; 95% CI: 1.58-8.62, p = 0.005), stroke self-management (Southampton Stroke Self-Management Questionnaire mean difference: 6.00; 95% CI: 0.51-11.50, p = 0.03), and patient experience (Person-Centred Coordinated Care Experiences Questionnaire mean difference: 2.64, 95% CI: 0.81, 4.47, p = 0.005). No between-group differences were found in total healthcare costs or other secondary outcomes.

Conclusions: Although participation in the TCSI did not impact hospital readmissions, there were improvements in physical functioning, stroke self-management and patient experience in older adults with stroke and multimorbidity without increasing total healthcare costs. Challenges associated with the COVID-19 pandemic, including the shift from in-person to virtual delivery, and re-deployment of interventionists could have influenced the results. A larger pragmatic RCT is needed to determine intervention effectiveness in diverse geographic settings and ethno-cultural populations and examine intervention scalability.

Trial registration: ClinicalTrials.gov Identifier: NCT04278794 . Registered May 2, 2020.

Keywords: Community-based care; Costs; Effectiveness; Healthcare intervention; Multimorbidity; Older adults; Stroke rehabilitation; Transitions.

Conflict of interest statement

The authors declare no competing interests.

- 128 references
- 3 figures

doi: 10.1093/rheumatology/kead246.

The Multimorbidity Web in rheumatoid arthritis

Bryant R England[1]

Affiliations expand

- PMID: 37871922

- DOI: 10.1093/rheumatology/kead246

Abstract

Multimorbidity, the presence of multiple chronic conditions, is highly prevalent in people with RA. An essential characteristic of multimorbidity is the interrelatedness of the different conditions that may develop in a multimorbid person. Recent studies have begun to identify and describe the Multimorbidity Web by elucidating unique multimorbidity patterns in people with RA. The primary multimorbidity patterns in this web are cardiopulmonary, cardiometabolic, and mental health and chronic pain multimorbidity. Once caught in the Multimorbidity Web, the consequences can be devastating, with reduced quality of life, physical function, survival, and treatment responses observed in multimorbid RA persons. The development of effective management and preventive approaches for multimorbidity in people with RA is in its infancy. Determining how best to assess, intervene, and prevent multimorbidity in RA is crucial to optimize long-term outcomes in people with RA.

Keywords: RA; chronic condition; chronic disease; comorbidity; multimorbidity.

9

Rheumatology (Oxford)

. 2023 Oct 23;62(SI3):SI260-SI270.

doi: 10.1093/rheumatology/kead489.

Multimorbidity in rheumatoid arthritis: common mechanistic links and impact and challenges in routine clinical practice

Sanggeeta Surandran[1], Saad Ahmed[1], Tom Walton[1], Elena Nikiphorou[2 3], Mrinalini Dey[4 5]

Affiliations expand

- PMID: 37871920

- DOI: 10.1093/rheumatology/kead489

Abstract

Early identification and management of multimorbidity in patients with rheumatic and musculoskeletal diseases (RMDs), such as RA, is an integral, but often neglected, aspect of care. The prevalence and incidence of conditions such as osteoporosis, cardiovascular disease, pulmonary disease and malignancies, often co-existing with RA, continues to have significant implications for the management of this patient group. Multimorbidity in RMDs can be associated with inflammatory disease activity and target organ damage. Lifestyle factors, such as smoking and inactivity, further contribute to the burden of disease. Inflammation is the underlying factor, not just in RA but also many comorbidities. The current framework of a treat-to-target approach focuses on achieving early remission and inflammatory activity suppression. We describe how the comorbidity burden in people with RMDs impacts on disease outcome and treatment response. The importance of addressing

comorbidity at an early stage and adopting a patient centred approach is critical in modern practice.

Keywords: comorbidity; inflammation; inflammatory arthritis; multimorbidity; rheumatoid arthritis.

10

Rheumatology (Oxford)

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. 2023 Oct 23;62(SI3):SI282-SI285.

doi: 10.1093/rheumatology/kead436.

Viewpoint: how to measure comorbidities in patients with rheumatoid arthritis – clinical and academic value

Helga Radner[1]

Affiliations expand

- PMID: 37871917

- DOI: 10.1093/rheumatology/kead436

Abstract

Given the high prevalence and the enormous impact on key outcomes, comorbidities are important to consider, especially in patients with RA. Comorbidity indices are tools to quantify the impact of the overall burden of coexisting diseases on a specific outcome of interest. Until now, no gold standard exists on how to measure comorbidities. A large variety of indices have been developed using different settings and therefore leading to conceptual differences. Choosing the right tool clearly depends on the intention (clinical or research purpose) and the specific research question. The current article will address the purpose and challenge of measuring comorbidities in RA patients.

Keywords: burden of disease; comorbidity; multimorbidity; rheumatoid arthritis.

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

1
JAMA Ophthalmol

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. 2023 Oct 26.

doi: 10.1001/jamaophthalmol.2023.4787. Online ahead of print.

Neurodevelopmental Outcomes in Infants Screened for Retinopathy of Prematurity

Reem Karmouta[1], Jason C Strawbridge[1], Seth Langston[2], Marie Altendahl[3], Monica Khitri[1], Alison Chu[3], Irena Tsui[1]

Affiliations expand

- PMID: 37883103

- DOI: 10.1001/jamaophthalmol.2023.4787

Abstract

Importance: Preterm infants screened for retinopathy of prematurity (ROP) are at risk for heterogenous neurodevelopment outcomes that are difficult to predict.

Objective: To characterize the potential association between socioeconomic and clinical risk factors and neurodevelopmental outcomes in a diverse, multicenter cohort of premature neonates screened for ROP.

Design, setting, and participants: This was a retrospective cohort study using electronic medical records and US Census Bureau income data. This study was performed at academic (University of California, Los Angeles [UCLA] Mattel Children's Hospital and UCLA Santa Monica Hospital), community (Cedars-Sinai Medical Center), and LA county (Harbor-UCLA Medical Center) neonatal intensive care units. Participants included infants who met American Academy of Pediatrics guidelines for ROP screening and had records from at least 1 Bayley Scales of Infant and Toddler Development (BSID) neurodevelopment assessment between 0 and 36 months of adjusted age. Data analyses were conducted from January 1, 2011, to September 1, 2022.

Exposures: Demographic and clinical information, proxy household income, and health insurance type were collected as risk factors.

Main outcomes and measures: Neurodevelopmental outcomes in the cognitive, language, and motor domains measured via BSID were the primary outcomes.

Results: A total of 706 infants (mean [SD] age, 28.6 [2.4] weeks; 375 male [53.1%]) met inclusion criteria. In a multivariable model, which included adjustments for birth weight, sex, insurance type, intraventricular hemorrhage (IVH), and age at assessment, public

health insurance was associated with a 4-fold increased risk of moderate to severe neurodevelopmental impairment (NDI) in cognitive and language domains (cognitive, odds ratio [OR], 3.65; 95% CI, 2.28-5.86; P = 8.1 × 10-8; language, OR, 3.96; 95% CI, 2.61-6.02; P = 1.0 × 10-10) and a 3-fold increased risk in the motor domain (motor, OR, 2.60; 95% CI, 1.59-4.24; P = 1.4 × 10-4). In this adjusted model, clinical factors that were associated with an increased risk of moderate to severe NDI included lower birth weight, diagnosis of IVH, male sex, and older age at time of Bayley assessment. In unadjusted analyses, infants who received either laser or anti-VEGF treatment, compared with infants without treatment-requiring ROP, had lower BSID scores in multiple domains at 0 to 12 months, 12 to 24 months, and 24 to 36 months (DATA). In the multivariable model, treatment type was no longer associated with worse neurodevelopmental outcomes in any domain.

Conclusions and relevance: Study results suggest an association between public insurance type and NDI in a diverse population screened for ROP, indicating the complexities of neurodevelopment. This study also supports the early neurodevelopmental safety of anti-VEGF treatment, as anti-VEGF therapy was not found to be independently associated with worse NDI in any domain.

2

Chest

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. 2023 Oct 23:S0012-3692(23)05665-9.

doi: 10.1016/j.chest.2023.10.020. Online ahead of print.

"Exploring the Association of Male Sex with Adverse Outcomes in Severe Bronchopulmonary Dysplasia: A

Retrospective, Multi-Center Cohort Study"

J D Hammond 2nd[1], Matthew J Kielt[2], Sara Conroy[2], Krithika Lingappan[3], Eric D Austin[4], Laurie C Eldredge[5], William E Truog[6], Steven H Abman[7], Leif D Nelin[2], Milenka Cuevas Guaman[8]

Affiliations expand

- PMID: 37879559

- DOI: 10.1016/j.chest.2023.10.020

Abstract

Background and objective: Bronchopulmonary dysplasia (BPD) is a significant contributor to morbidity and mortality in infants born premature. Male sex is an independent risk factor for the development of BPD. However, whether male sex is associated with adverse outcomes occurring after formal diagnosis of severe BPD prior to hospital discharge remains unclear.

Research question: Is male sex associated with a higher risk of adverse outcomes in infants with established severe BPD?

Study design and methods: A retrospective, multi-center cohort study of infants enrolled in the BPD Collaborative Registry from January 1, 2015, to June 29th, 2022 was performed. Demographics, clinical characteristics, and outcomes were stratified by sex (i.e., male vs. female). Regression modeling was used to estimate the association of sex with the primary composite outcome of death or tracheostomy at hospital discharge.

Results: We identified 1156 infants with severe BPD, defined at 36 weeks' postmenstrual age (PMA) by the National Institutes of Health 2001 consensus definition. The cohort was predominantly male (59% males, 41% females). However, rates of mechanical ventilation at 36 weeks' PMA (i.e. type 2 severe BPD) did not differ by sex. Overall mortality within the cohort was low (5.3% males, 3.6 % females). The odds ratio of death or tracheostomy for males to females was 1.0 (95%CI: 0.7, 1.5).

Interpretation: Our results lead us to speculate that while sex is an important variable contributing to the development and pathogenesis of severe BPD, it does not appear to be associated with adverse outcomes in this cohort of infants with established disease. The surprising results raise important questions surrounding the temporal role of biological sex in developing severe BPD and its progression during the NICU stay. As we explore the

phenotypes and endotypes of BPD, it is imperative to consider how sex modulates the disease from birth through hospital discharge.

Keywords: BPD; Bronchopulmonary Dysplasia; Neonatal Lung Disease; Prematurity; Preterm Infant; Severe BPD; Sexual Dimorphism.

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

1

Eur Respir J

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. 2023 Oct 26;62(4):23E6204.

doi: 10.1183/13993003.E6204-2023. Print 2023 Oct.

October Podcast: ERS short guidelines for the use of as-needed ICS/formoterol in mild asthma

No authors listed

- PMID: 37884292

- DOI: 10.1183/13993003.E6204-2023

No abstract available

2

Pediatr Pulmonol

. 2023 Oct 26.

doi: 10.1002/ppul.26733. Online ahead of print.

Trajectories of psychosocial environmental factors and their associations with asthma symptom trajectories among children in Australia

K M Shahunja[1,2,3], Peter D Sly[4], Abdullah Mamun[1,2,3]

Affiliations expand

- PMID: 37882548

- DOI: 10.1002/ppul.26733

Abstract

Introduction: Several psychosocial factors, such as maternal mental health and parents' financial hardship, are associated with asthma symptoms among children. So, we aim to investigate the changing patterns of important psychosocial environmental factors and their associations with asthma symptom trajectories among children in Australia.

Methods: We considered asthma symptoms as wheezing (outcome) and psychosocial environmental factors (exposures) from 0/1 year to 14/15 years of the participants from the "Longitudinal Study of Australian Children (LSAC)" for this study. We used group-based trajectory modeling to identify the trajectory groups for both exposure and outcome

variables. Associations between psychosocial factors and three distinct asthma symptom trajectories were assessed by multivariable logistic regression.

Results: We included 3917 children from the LSAC birth cohort in our study. We identified distinct trajectories for maternal depression, parents' financial hardship, parents' stressful life events and parents' availability to their children from birth to 14/15 years of age. Compared to the "low/no" asthma symptom trajectory group, children exposed to a "moderate & increasing" maternal depression, "moderate & declining" parents' financial hardship, and "moderate & increasing" parents' stressful life events were significantly associated (relative risk ratio [RRR]: 1.55, 95% confidence interval [CI]: 1.27, 1.91; RRR: 1.40, 95%; CI: 1.15, 1.70; RRR: 1.77, 95%; CI: 1.45, 2.16) with "persistent high" asthma symptom trajectory.

Conclusion: Several psychosocial factors that are potential stressors for mental health increase the risk of having an adverse asthma symptom trajectory during childhood. Further attention should be given to reducing exposure to maternal depression, parents' financial hardship, and parents' stressful live events for long-term asthma control in children.

Keywords: Australia; asthma; children; psychosocial environment; trajectory.

- 58 references

FULL TEXT LINKS

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3

Curr Opin Allergy Clin Immunol

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. 2023 Oct 26.

doi: 10.1097/ACI.0000000000000953. Online ahead of print.

Moderate asthma: burden, mechanisms and therapeutic perspectives

Laura De Ferrari[1,2], Anna Maria Riccio[1,2], Fulvio Braido[1,2]

Affiliations expand

- PMID: 37877372

- DOI: 10.1097/ACI.0000000000000953

Abstract

Purpose of review: Global Initiative for Asthma (GINA) document provides a classification of asthma severity according with the current level of treatment required to achieve diseases control and underlines the limitations of this approach. In this review, we will provide an overview of recent investigations that have analyzed clinical and molecular features of moderate asthma.

Recent findings: Moderate asthma is heterogeneous in terms of response to inhaled treatment and pathogenetic mechanisms underlying the clinical features. Analysis of inflammatory pathways in patients who do not achieve disease remission allows identification of patient subgroups that may benefit from specific biological treatments.

Summary: Scientific progress makes increasingly clear that there are biological mechanisms capable of identifying and justifying the degree of severity of asthma. The identification of these, combined with the development of new pharmacological treatments, will be the cornerstones of improving the management of asthma in its degrees of severity.

- 21 references

4

Scand J Med Sci Sports

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. 2023 Oct 25.

doi: 10.1111/sms.14500. Online ahead of print.

Inhaled beta$_2$ -agonist, formoterol, enhances intense exercise performance, and sprint ability in elite cyclists

Jan S Jeppesen[1], Søren Jessen[1], Martin Thomassen[1], Vibeke Backer[2], Jens Bangsbo[1], Morten Hostrup[1]

Affiliations expand

- PMID: 37880916

- DOI: 10.1111/sms.14500

Abstract

Purpose: Many athletes use long-acting beta$_2$ -agonist formoterol in treatment of asthma. However, studies in non-athlete cohorts demonstrate that inhaled formoterol can enhance sprint performance calling into question whether its use in competitive sports should be restricted. We investigated whether formoterol at upper recommended inhaled doses (54 µg) would enhance sprint ability and intense exercise performance in elite cyclists.

Methods: Twenty-one male cyclists ($\dot{V}O_{2max}$: 70.4 ± 4.3 mL × min^{-1} × kg^{-1} , mean ± SD) completed two 6-s all-out sprints followed by 4-min all-out cycling after inhaling either 54 µg formoterol or placebo. We also assessed cyclists' leg muscle mass by dual-energy X-ray absorptiometry and muscle fiber type distribution of vastus lateralis biopsies.

Results: Peak and mean power output during the 6-s sprint was 32 W (95% CI, 19-44 W, p < 0.001) and 36 W (95% CI, 24-48 W, p < 0.001) higher with formoterol than placebo,

corresponding to an enhancing effect of around 3%. Power output during 4-min all-out cycling was 9 W (95% CI, 2-16 W, p = 0.01) greater with formoterol than placebo, corresponding to an enhancing effect of 2.3%. Performance changes in response to formoterol were unrelated to cyclists' VO_{2max} and leg lean mass, whereas muscle fiber Type I distribution correlated with change in sprinting peak power in response to formoterol (r^2 = 0.314, p = 0.012).

Conclusion: Our findings demonstrate that an inhaled one-off dose of 54 µg formoterol has a performance-enhancing potential on sprint ability and short intense performance in elite male cyclists, which is irrespective of training status but partly related to muscle fiber type distribution for sprint ability.

Keywords: LABA; SABA; anti-doping; beta-agonists; ergogenic; intense exercise capacity; performance; sprinting ability.

- 40 references

SUPPLEMENTARY INFO

Grants and fundingexpand

FULL TEXT LINKS

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5

Respir Res

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. 2023 Oct 25;24(1):255.

doi: 10.1186/s12931-023-02550-y.

MUC1 attenuates neutrophilic airway inflammation in asthma by reducing NLRP3 inflammasome-mediated pyroptosis through the inhibition of the TLR4/MyD88/NF-κB pathway

Lu Liu[#1,2,3], Ling Zhou[#1], Lingling Wang[1], Zhenyu Mao[1], Pengdou Zheng[1], Fengqin Zhang[1], Huojun Zhang[4], Huiguo Liu[5]

Affiliations expand

- PMID: 37880668
- PMCID: PMC10601133
- DOI: 10.1186/s12931-023-02550-y

Free PMC article

Abstract

Background: Neutrophilic airway inflammation is a challenge in asthma management and is associated with poor patient prognosis. Mucin 1 (MUC1), which contains a cytoplasmic tail (MUC1-CT), has been found to mediate glucocorticoid sensitivity in asthma; however, its role in modulating neutrophilic airway inflammation in asthma remains unknown.

Methods: Human-induced sputum cells were collected from healthy participants (n = 12), patients with mild-to-moderate asthma (n = 34), and those with severe asthma (n = 18). In vitro human lung bronchial 1 epithelial cell line (BEAS-2B) was transfected with small interfering RNA against MUC1 (MUC1-siRNA) and then stimulated by lipopolysaccharide (LPS), where some cells were pretreated with a TLR4 inhibitor (TAK-242). In vivo mouse model of asthmatic neutrophil airway inflammation was induced by ovalbumin (OVA)/LPS. Some groups were intraperitoneally injected with MUC1-CT inhibitor (GO-203) and/or TAK-242 .

Results: The mRNA expression of MUC1 was downregulated in the induced sputum of patients with asthma and correlated with asthmatic neutrophilic airway inflammation. The mRNA expressions of TLR4, MyD88, nucleotide-binding oligomerization domain-like pyrin

domain-containing protein 3 (NLRP3), caspase-1, interleukin (IL)-18, and IL-1β in induced sputum cells of patients with asthma were upregulated and related to the mRNA expression of MUC1. LPS activated the TLR4 pathway and NLRP3-mediated pyroptosis in BEAS-2B cells in vitro, which were significantly aggravated after MUC1-siRNA transfection. Furthermore, MUCl-CT interacted with TLR4, and the interaction between TLR4 and MyD88 was significantly increased after MUCl-siRNA transfection. Moreover, TAK-242 ameliorated TLR4/MyD88/nuclear factor kappa B (NF-κB) pathway activation, NLRP3 inflammasome-mediated pyroptosis, and neutrophilic inflammation exacerbated by MUC1 downregulation. GO-203 exacerbated TLR4/MyD88/NF-κB pathway activation in vivo, and NLRP3 inflammasome-mediated pyroptosis reduced in a mouse model of asthmatic neutrophil airway inflammation induced by OVA/LPS; these pathological changes were partially alleviated after TAK-242 application.

Conclusion: This study revealed that MUC1 downregulation plays an important role in asthmatic neutrophilic airway inflammation. MUC1-CT reduces NLRP3 inflammasome-mediated pyroptosis by inhibiting the activation of the TLR4/MyD88/NF-κB pathway, thereby attenuating neutrophil airway inflammation in patients with asthma.

Keywords: Asthma; Inflammation; MUC1; Pyroptosis.

Conflict of interest statement

The authors declare no competing interests.

- 51 references
- 8 figures

J Asthma

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. 2023 Oct 25:1-9.

doi: 10.1080/02770903.2023.2272816. Online ahead of print.

Comparison of extrafine beclomethasone dipropionate/formoterol fumarate dry powder inhaler and pressurized metered-dose inhaler in Chinese patients with asthma: The FORTUNE study

Jinping Zheng[1], Jianyong Zhang[2], Xiuhua Fu[3], Lin Changqing[4], Xinri Zhang[5], Xiaodong Mei[6], Corradi Massimo[7], Glauco Cappellini[8], Emanuele Calabro[8], Cissy Zhu[9], Eva Topole[8]

Affiliations expand

- PMID: 37878325

- DOI: 10.1080/02770903.2023.2272816

Abstract

ObjectiveWhen selecting inhaled therapies, it is important to consider both the active molecules and the device. Extrafine formulation beclomethasone dipropionate plus formoterol fumarate (BDP/FF) has been available for some years delivered via pressurized metered-dose inhaler (pMDI). More recently, a breath-activated, multi-dose dry-powder inhaler (DPI), the NEXThaler, has been approved. The current study aimed to demonstrate the non-inferiority of BDP/FF delivered via the DPI vs. via the pMDI, in Chinese adults with asthma.MethodsAfter a 4-week run-in period, when all patients received BDP/FF pMDI 100/6 µg, two inhalations twice daily (BID), patients were randomized equally to BDP/FF pMDI or DPI, both 100/6 µg, two inhalations BID for 12 weeks. The primary objective was to demonstrate non-inferiority of BDP/FF DPI vs. BDP/FF pMDI in terms of average pre-dose morning peak expiratory flow (PEF) over the entire treatment period.ResultsOf 252

and 242 patients in the DPI and pMDI groups, respectively, 88.5% and 88.8% completed the study. The primary objective was met, with no statistically significant difference between the treatments in average pre-dose morning PEF, and with the lower limit of the 95% CI above the -15 L/min non-inferiority margin (adjusted mean difference: 5.25 L/min [95% CI: -0.56, 11.06]). Adverse events were reported by 48.4% and 49.6% patients in the DPI and pMDI groups, respectively, most mild or moderate.ConclusionsThe NEXThaler DPI is a similarly effective device to the pMDI for the administration of BDP/FF in adults, so extending the options available for the management of asthma.

Keywords: China; asthma; efficacy; extrafine non-inferiority; inhaled corticosteroid; long-acting beta2-agonist.

7

Rev Med Suisse

. 2023 Oct 25;19(847):1974-1977.

doi: 10.53738/REVMED.2023.19.847.1974.

[Diagnosis of asthma: new developments in general internal medicine]

[Article in French]

Anthony Pittet[#1], Nadège Lambert[#2], Florian Charbonnier[3], Radhika Sood[4], Jacques Serratrice[4,5], Nicolas Garin[4,6,5], Pierre-Olivier Bridevaux[2,3,6,5]

Affiliations expand

- PMID: 37878096

- DOI: 10.53738/REVMED.2023.19.847.1974

Abstract

in English, French

Asthma, a chronic inflammatory lung disease affecting about 10 % of the population, involves both the general internist and the pulmonologist. The risk of over and underdiagnosis generates significant health costs and evitable clinical consequences. Improved screening through dedicated anamneses and questionnaires, as well as use of fractional exhaled nitric oxide (FeNO) may improve the diagnosis of asthma in general internal medicine.

Conflict of interest statement

Les auteurs n'ont déclaré aucun conflit d'intérêts en relation avec cet article.

8

Review

Respirology

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. 2023 Oct 25.

doi: 10.1111/resp.14610. Online ahead of print.

The treatable traits approach to adults with obstructive airways disease in primary and secondary care

Mike Thomas[1], Richard Beasley[2 3]

Affiliations expand

- PMID: 37877554

- DOI: 10.1111/resp.14610

Abstract

The treatable traits approach is based on the recognition that the different clinical phenotypes of asthma and chronic obstructive airways disease (COPD) are a heterogeneous group of conditions with different underlying mechanisms and clinical manifestations, and that the identification and treatment of the specific clinical features or traits facilitates a personalised approach to management. Fundamentally, it recognises two important concepts. Firstly, that treatment for obstructive lung disease can achieve better outcomes if guided by specific clinical characteristics. Secondly, that in patients with a diagnosis of asthma, and/or COPD, poor respiratory health may also be due to numerous overlapping disorders that can present with symptoms that may be indistinguishable from asthma and/or COPD, comorbidities that might require treatment in their own right, and lifestyle or environmental factors that, if addressed, might lead to better control rather than simply increasing airways directed treatment. While these concepts are well accepted, how best to implement this personalised medicine approach in primary and secondary care within existing resource constraints remains uncertain. In this review, we consider the evidence base for this management approach and propose that the priority now is to assess different prototype templates for the identification and management of treatable traits in both asthma and COPD, in primary, secondary and tertiary care, to provide the evidence that will guide their use in clinical practice in different health care systems.

Keywords: COPD; asthma; obstructive airways disease; personalized medicine; primary care; secondary care; treatable traits.

- 111 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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Review

Life Sci

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. 2023 Oct 24:122208.

doi: 10.1016/j.lfs.2023.122208. Online ahead of print.

Development of lung tissue models and their applications

Nalinrat Petpiroon[1], Woranan Netkueakul[1], Kanokwan Sukrak[1], Chen Wang[2], Yin Liang[2], Mengxue Wang[2], Yun Liu[2], Qiang Li[2], Rumaisa Kamran[2], Keiji Naruse[2], Sasitorn Aueviriyavit[3], Ken Takahashi[4]

Affiliations expand

- PMID: 37884207

- DOI: 10.1016/j.lfs.2023.122208

Abstract

The lungs are important organs that play a critical role in the development of specific diseases, as well as responding to the effects of drugs, chemicals, and environmental pollutants. Due to the ethical concerns around animal testing, alternative methods have been sought which are more time-effective, do not pose ethical issues for animals, do not involve species differences, and provide easy investigation of the pathobiology of lung diseases. Several national and international organizations are working to accelerate the development and implementation of structurally and functionally complex tissue models as alternatives to animal testing, particularly for the lung. Unfortunately, to date, there is no lung tissue model that has been accepted by regulatory agencies for use in inhalation toxicology. This review discusses the challenges involved in developing a relevant lung tissue model derived from human cells such as cell lines, primary cells, and pluripotent stem cells. It also introduces examples of two-dimensional (2D) air-liquid interface and monocultured and co-cultured three-dimensional (3D) culture techniques, particularly organoid culture and 3D bioprinting. Furthermore, it reviews development of the lung on a chip model to mimic the microenvironment and physiological performance. The applications of lung tissue models in various studies, especially disease modeling, viral respiratory infection, and environmental toxicology will be also introduced. The development of a relevant lung tissue model is extremely important for standardizing and validation the in vitro models for inhalation toxicity and other studies in the future.

Keywords: 3D bioprinting; Airborne pollutants; Asthma; Chronic obstructive pulmonary disease (COPD); Organ-on-a-chip; Organoids; Particulate matter (PM); Pluripotent stem cells; Pulmonary fibrosis (PF); SARS-CoV-2; cancer.

Conflict of interest statement

Declaration of competing interest This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

10

Occup Environ Med

. 2023 Oct 24:oemed-2022-108682.

doi: 10.1136/oemed-2022-108682. Online ahead of print.

Effect of cold winters on the risk of new asthma: a case-crossover study in Finland

Abate Bekele Belachew[1,2], Aino K Rantala[1], Maritta S Jaakkola[1], Timo T Hugg[1], Reija Ruuhela[3], Jaakko Kukkonen[3,4], Jouni J K Jaakkola[5,3]

Affiliations expand

- PMID: 37875370

- DOI: 10.1136/oemed-2022-108682

Free article

Abstract

Background: Cold weather increases respiratory symptoms and provokes exacerbations of asthma, but there are no previous studies on its role in the aetiology of asthma.

Objective: We tested the hypothesis that a cold winter increases the risk of developing asthma during the following 1 to 2 years.

Methods: We conducted a case-crossover study of 315 newly diagnosed cases of asthma from the population-based Espoo Cohort Study from birth to the age of 27 years. The hazard period constituted 3 winter months preceding the onset of asthma and bidirectional reference periods of 1 year before hazard period and 1 year after onset of asthma. Exposure constituted average ambient temperature during the winter months of December, January and February. The outcome of interest was new doctor-diagnosed asthma. The measure of effect was OR of asthma estimated by conditional logistic regression analysis.

Results: The average winter temperature for the study period from winter 1983 to 2010 was -4.4°C (range -10.7 to 0.4). A 1°C decrease in the average winter temperature predicted a 7% increase in the risk of new asthma (OR=1.07, 95% CI 1.02 to 1.13). A cold winter with an average temperature below the climate normal value (-4.5°C; period 1981-2010) increased the risk of new asthma by 41% during the following year (OR: 1.41; 95% CI 1.04 to 1.90).

Conclusions: This case-crossover study provides original evidence that a cold winter with below normal average temperatures increases the risk of developing new asthma during the following 1 to 2 years.

Keywords: Allergy and Immunology; Asthma; Climate; Epidemiology; Public health.

Conflict of interest statement

Competing interests: None declared.

11

Allergy

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. 2023 Oct 24.

doi: 10.1111/all.15915. Online ahead of print.

Sputum alarmins delineate distinct T2 cytokine pathways and unique subtypes of patients with asthma

Samir Gautam[1], Jen-Hwa Chu[1,2], Avi J Cohen[1], Ravdeep Kaur[3], Seohyuk Lee[1], Gabriella Wilson[1], Qing Liu[1], Jose Gomez[1], Haseena Rajaveen[4], Xiting Yan[1,2], Lauren Cohn[1], Brian J Clark[1], Geoffrey L Chupp[1]

Affiliations expand

- PMID: 37874609

- DOI: 10.1111/all.15915

No abstract available

- 6 references

SUPPLEMENTARY INFO

Grants and fundingexpand

12

Comment

JAMA

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. 2023 Oct 24;330(16):1588.

doi: 10.1001/jama.2023.15279.

Diagnosis and Management of Asthma in Pregnancy

Kay Choong See[1]

Affiliations expand

- PMID: 37874578

- DOI: 10.1001/jama.2023.15279

No abstract available

Comment in

- Diagnosis and Management of Asthma in Pregnancy-Reply.
  Huang J, Namazy J.JAMA. 2023 Oct 24;330(16):1589. doi: 10.1001/jama.2023.15282.PMID: 37874576 No abstract available.

Comment on

- Asthma in pregnancy.
  Bravo-Solarte DC, Garcia-Guaqueta DP, Chiarella SE.Allergy Asthma Proc. 2023 Jan 1;44(1):24-34. doi: 10.2500/aap.2023.44.220077.PMID: 36719688 **Free PMC article.** Review.

Comment

JAMA

. 2023 Oct 24;330(16):1589.

doi: 10.1001/jama.2023.15282.

Diagnosis and Management of Asthma in Pregnancy-Reply

Jenny Huang[1], Jennifer Namazy[1]

Affiliations expand

- PMID: 37874576

- DOI: 10.1001/jama.2023.15282

No abstract available

Comment on

- Diagnosis and Management of Asthma in Pregnancy.
  See KC.JAMA. 2023 Oct 24;330(16):1588. doi: 10.1001/jama.2023.15279.PMID: 37874578 No abstract available.

Int J Mol Med

. 2023 Dec;52(6):117.

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Role of dendritic cell-derived exosomes in allergic rhinitis (Review)

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Affiliations expand

- PMID: 37888754

- DOI: 10.3892/ijmm.2023.5320

Abstract

Allergic rhinitis (AR) is a common pathological condition in otorhinolaryngology. Its prevalence has been increasing worldwide and is becoming a major burden to the world population. Dendritic cells (DCs) are typically activated and matured after capturing, phagocytosing, and processing allergens during the immunopathogenesis of AR. In addition, the process of DC activation and maturation is accompanied by the production of exosomes, which are cell-derived extracellular vesicles (EVs) that can carry proteins, lipids, nucleic acids, and other cargoes involved in intercellular communication and material transfer. In particular, DC-derived exosomes (Dex) can participate in allergic immune responses, where the biological substances carried by them can have potentially important implications for both the pathogenesis and treatment of AR. Dex can also be exploited to carry anti-allergy agents to effectively treat AR. This provides a novel method to explore the pathogenesis of and treatment strategies for AR further. Therefore, the present review focuses on the origin, composition, function, and biological characteristics of DCs, exosomes, and Dex, in addition to the possible relationship between Dex and AR.

Keywords: allergic rhinitis; dendritic cells; exosomes; extracellular vesicles; intercellular communication.

2

Environ Sci Pollut Res Int

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Associations of allergy-related outcomes with depression in the US adults

Tenglong Yan [#1], Xin Song [#2], Xiaowen Ding [1], Ziyi Guan [3], Dongsheng Niu [1], Jue Li [1], Mengyang Wang [4], Minghui Wang [5]

Affiliations expand

- PMID: 37884722

- DOI: 10.1007/s11356-023-30559-9

Abstract

Evidences showed the link between allergy and depression, while the relationships of depression with allergy-related outcomes is insufficient. The objective of this study is to evaluate and compare the relationship of depression with allergy-related outcomes assessed using two different outcome indicators, in a population-based study. A cross-sectional study was performed of 1094 participants in the 2005-2006 National Health and Nutrition Examination Survey (NHANES). The self-reported allergic symptoms of allergic

rhinitis (AR) status and immunoglobulin E (IgE) were used to evaluate the allergy-related outcomes. The depression disorder was defined as the ≥ 10 points on the Patient Health Questionnaire-9. Logistic and linear regression models were performed to illustrate the associations of depression and allergy-related outcomes. The prevalence of AR and depression was 34.2% and 6.8%, respectively. The odds of depression were 8.6% higher in participants with AR patients compared those without AR [odds ratio (OR) = 1.739, 95% confidence interval (CI): (1.034, 2.933)], while the odds of depression in participants with allergic sensitization and without allergic sensitization were not found significant difference. Allergy is positively associated with depression disorder, and patients with allergy-related outcomes, such as AR, may be at higher risk of depression, while the IgE level was not founded to be related with depression. In the treatment of AR patients with depression symptoms, early detection and management of mental problems are of importance.

Keywords: Allergic rhinitis (AR); Allergic sensitization; Allergy-related outcomes; Depression.

- 39 references

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Meta-Analysis

Dermatology

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. 2023 Oct 26.

doi: 10.1159/000534660. Online ahead of print.

Comorbidities of chronic prurigo: A systematic review and meta-analysis

Mengting Yin, Chener Yang, Yang Guo, Xu Yang, Xia Dou

- PMID: 37883943

- DOI: 10.1159/000534660

Abstract

Background: Chronic prurigo (CPG) is an inflammatory skin disease. Comorbidities including dermatological, cardiovascular, and psychiatric diseases have been reported in patients with CPG, however, the evidence has not been systematically evaluated. We aim to summarize the comorbidities, discuss underlying pathogenesis, and highlight the evaluation of CPG patients.

Methods: We performed a systematic search using PubMed, Embase, and Web of Science databases for all articles reporting possible associated diseases with CPG. Pooled random-effects odds ratios (OR) with 95% CI were calculated.

Results: A total of 17 studies were included in this systematic review. Statistically significant association($P<0.05$) with CPG has been demonstrated with atopic diseases: atopic dermatitis (pooled OR, 10.91; 95% CI, 3.65-32.67), allergic rhinitis (2.66;1.12-6.27), asthma (3.23;1.55-6.74); infectious diseases: hepatitis B (pooled OR, 2.15; 95% CI, 1.11-4.14); endocrine diseases: diabetes (pooled OR, 4.93; 95% CI, 1.13-21.56), type 1 diabetes 2.46;2.16-2.81), type 2 diabetes (1.89;1.34-2.68), hyperlipoproteinemia (2.90; 1.61-5.22); cardiovascular diseases: heart failure (pooled OR, 4.13; 95% CI, 1.15-14.91), hypertension (3.17;1.56-6.45); respiratory system diseases: chronic obstructive pulmonary disease (pooled OR, 3.19; 95% CI, 1.42-7.16); urinary system diseases: chronic kidney disease (pooled OR, 4.16; 95% CI, 1.79-9.66); digestive system disease: inflammatory bowel disease (pooled OR, 2.06; 95% CI, 1.26-3.36); and others: osteoporosis (pooled OR, 3.08; 95% CI, 1.70-5.59), thyroid disease (1.70;1.17-2.47).

Conclusion: CPG is associated with various systemic disorders. Recognition of comorbidities is critical to the appropriate management of affected patients.

4

Environ Sci Technol

. 2023 Oct 24;57(42):15835-15845.

doi: 10.1021/acs.est.3c04527. Epub 2023 Oct 13.

Air Pollution and Allergic Rhinitis: Findings from a Prospective Cohort Study

Peiyang Luo[1], Jiacheng Ying[1], Jiayu Li[2], Zongming Yang[3], Xiaohui Sun[2], Ding Ye[2], Cuiqing Liu[2], Jianbing Wang[3], Yingying Mao[2]

Affiliations expand

- PMID: 37831419

- DOI: 10.1021/acs.est.3c04527

Abstract

To investigate the association of long-term exposure to ambient air pollution with the risk of allergic rhinitis (AR), we performed a longitudinal analysis of 379,488 participants (47.4%

women) free of AR at baseline in the UK Biobank. The annual average concentrations of $PM_{2.5}$, PM_{coarse}, PM_{10}, NO_2, and NO_x were estimated by land use regression models. Cox proportional hazard models were used to calculate hazard ratios (HRs) and 95% confidence intervals (CIs). A weighted polygenic risk score was constructed. During a median follow-up period of 12.5 years, 3095 AR cases were identified. We observed significant associations between the risk of AR and $PM_{2.5}$ (HR: 1.51, 95% CI: 1.27-1.79, per 5 μg/m³), PM_{coarse} (HR: 1.28, 95% CI: 1.06-1.55, per 5 μg/m³), PM_{10} (HR: 1.45, 95% CI: 1.20-1.74, per 10 μg/m³), NO_2 (HR: 1.14, 95% CI: 1.09-1.19, per 10 μg/m³), and NO_x (HR: 1.10, 95% CI: 1.05-1.15, per 20 μg/m³). Moreover, participants with high air pollution combined with high genetic risk showed the highest risk of AR, although no multiplicative or additive interaction was observed. In conclusion, long-term exposure to air pollutants was associated with an elevated risk of AR, particularly in high-genetic-risk populations, emphasizing the urgent need to improve air quality.

Keywords: UK Biobank; air pollution; allergic rhinitis; cohort study; genetic risk.

5

Int Arch Otorhinolaryngol

. 2023 Oct 23;27(4):e723-e732.

doi: 10.1055/s-0043-1775581. eCollection 2023 Oct.

Perivascular Innervation in the Nasal Mucosa and Clinical Findings in Patients with Allergic Rhinitis and Idiopathic Rhinitis

Thiago Carvalho[1], João Ferreira de Mello Jr[1,2], Elia Tamaso Espin Garcia Caldini[1,3], Daniel Calduro Salgado[1], Nicole Mary Garcia de Carvalho[1], Nilsa Regina Damaceno-Rodrigues[1,4], Richard Louis Voegels[1,5]

Affiliations expand

- PMID: 37876708

- PMCID: PMC10593529

- DOI: 10.1055/s-0043-1775581

Free PMC article

Abstract

Introduction The nonspecific hyperreactivity of rhinitis has been attributed to neurotrophins activating sensory nerves and inflammatory cells. The relationship between these markers and the intensity of the symptoms is not well established and few studies have evaluated individuals with idiopathic rhinitis. **Objective** The present study aims to evaluate whether perivascular innervation and nerve growth factor (NGF) are related to the intensity of the clinical conditions in allergic rhinitis (AR) and idiopathic rhinitis (IR). **Methods** A total of 15 patients with AR and 15 patients with IR with the indication for inferior turbinectomy (associated or not with septoplasty) were selected. The patients received a score according to their signs and symptoms. After the surgery, we quantified eosinophils, mast cells, NGF, and nerve fibers in the nasal turbinate. **Results** The score of the signs and symptoms was higher in the AR group. Nerve growth factor was found in the cytoplasm of inflammatory cells in the submucosa in greater quantity in the AR group. The nerve fibers were distributed throughout the tissue, mainly in the subepithelial, glandular, and vascular regions, and there was no difference between the groups. Greater perivascular innervation was associated with a higher signs and symptoms score. **Conclusions** We concluded that these findings suggest that the NGF produced by submucosal inflammatory cells stimulates increased perivascular innervation in rhinitis, thus directly reflecting in more intense clinical conditions, especially in AR.

Keywords: allergic rhinitis; hyperreactivity; innervation; nerve growth factor; neurotrophins.

Conflict of interest statement

Conflict of Interests The authors have no conflict of interests to declare.

- 25 references
- 6 figures

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Asian Pac J Allergy Immunol

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. 2023 Oct 23.

doi: 10.12932/AP-070823-1669. Online ahead of print.

Meta-analysis and cost-effectiveness analysis of intranasal corticosteroid treatment in allergic rhinitis with ocular symptoms

Chadakan Yan[1], Phichayut Phinyo[2 3 4], Bussakorn Mahakkanukrauh[1], Torsak Bunupuradah[1], Manish Verma[5], Abhay Phansalkar[6], Bhumika Aggarwal[6]

Affiliations expand

- PMID: 37874315

- DOI: 10.12932/AP-070823-1669

Abstract

Background: Intranasal corticosteroid (INCS) has a beneficial effect on ocular symptoms in allergic rhinitis (AR). To our knowledge, the cost-effectiveness of available INCS for AR with ocular symptoms is yet to be demonstrated.

Objective: To evaluate the cost-effectiveness of INCSs including Budesonide (BANS), Mometasone furoate (MFNS), Triamcinolone (TANS), and Fluticasone furoate (FFNS) on ocular symptoms associated with AR in the Thai context.

Methods: The percentage of effectiveness in improving total ocular symptoms score (TOSS) was derived from the result of a meta-analysis that estimated the SMD of each INCS treatment compared to placebo as clinical input parameters. A cost-effectiveness analysis based on a decision-tree model to assess one-year costs and outcomes from a Thai societal perspective. The outcomes were to compare incremental cost-effectiveness ratio (ICER). Probabilistic sensitivity analyses (PSA) were also conducted to capture parameter uncertainties.

Results: 13 eligible RCTs with a total of 3,722 patients with SAR were included in the analysis. The percentage of effectiveness of FFNS, MFNS, TANS, and BANS was 59.89%, 45.60%, 24.89%, and 16.00%, respectively. The ICER of FFNS, MFNS, and TANS is THB-6,539.92, 4,593.83, and 1,401.24 compared to BANS. CECA result showed the probability of using FFNS is considered cost-effective in 87.50% of cases from zero value followed by MFNS (0.80%), TANS (5.40%), and BANS (6.30%). With a threshold greater than THB20,000, FFNS is considered a cost-effective strategy.

Conclusions: FFNS is a cost-effective option compared to alternative INCSs in Thailand for treating AR with ocular symptoms.

Clin Exp Otorhinolaryngol

. 2023 Oct 23.

doi: 10.21053/ceo.2023.01214. Online ahead of print.

Comparative Effectiveness of Cryotherapy and Radiofrequency Ablation for Chronic Rhinitis: A Systemic Review and Meta-analysis

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Affiliations expand

- PMID: 37871904

- DOI: 10.21053/ceo.2023.01214

Free article

Abstract

Objective: Multiple minimally invasive techniques for chronic rhinitis treatment focus on posterior nasal nerve ablation. We analyzed the efficacy of cryotherapy and radiofrequency ablation in alleviating symptoms in allergic and nonallergic rhinitis patients.

Methods: We retrieved studies from PubMed, SCOPUS, Embase, Web of Science, and Cochrane Database up to July 2023. The impact on quality of life and symptom ratings of rhinitis were evaluated and extracted.

Results: Analysis of 12 studies involving 788 patients analyzed significant improvements in the quality of life and rhinitis-related symptoms (nasal obstruction, itching, rhinorrhea, and sneezing) of patients treated with cryotherapy or radiofrequency ablation (symptom score 24 months/quality score 3 months). However, radiofrequency ablation had a more positive effect on nasal symptoms after 3 months compared to cryotherapy. Nonallergic rhinitis patients responded more favorably to posterior nerve ablation. Both techniques enhanced disease-specific quality of life during the initial 3 months of treatment (cryotherapy 84.6% and radiofrequency 81.6%, p = 0.5636). After 3 months of treatment, clinical improvement

in all nasal symptoms (minimal clinically important difference in the total nasal symptom score > 1.0 points) was seen in 81.8% and 91.9% in patients with cryotherapy and radiofrequency, respectively (p = 0.0048), suggesting that radiofrequency may achieve greater clinical improvement.

Conclusion: Rhinitis-associated subjective symptom scores and quality of life may be improved by both cryotherapy and radiofrequency ablation. The ablation was more efficacious for nasal symptoms in patients with nonallergic rhinitis. To corroborate these findings, further randomized controlled studies directly comparing two techniques are warranted.

Keywords: Cryotherapy; Nose; Radiofrequency ablation; Rhinitis; Rhinitis, Allergic; Vidian Nerve.

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

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Chronic Obstr Pulm Dis

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. 2023 Oct 26;10(4):450-516.

doi: 10.15326/jcopdf.2023.0464.

The 6th World Bronchiectasis and Nontuberculous Mycobacteria Conference Abstract Presentations

Timothy R Aksamit[1], Elizabeth J Emery[2], Ashwin Basavaraj[2], Mark L Metersky[3], Anne E O'Donnell[4], Doreen J Addrizzo-Harris[2]

Affiliations expand

- PMID: 37879732

- DOI: 10.15326/jcopdf.2023.0464

Free article
No abstract available

Keywords: 6th World Bronchiectasis and NTM Conference; bronchiectasis; nontuberculous mycobacteria.

2

Chest

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. 2023 Oct 23:S0012-3692(23)05666-0.

doi: 10.1016/j.chest.2023.10.021. Online ahead of print.

HRCT Fibrotic Patterns in Stage 4 Pulmonary Sarcoidosis: Impact on Pulmonary Function and Survival

Ogugua Ndili Obi[1], Shehabaldin Alqalyoobi[2], Veeranna Maddipati[3], Elyse E Lower[4], Robert P Baughman[4]

Affiliations expand

- PMID: 37879560

- DOI: 10.1016/j.chest.2023.10.021

Abstract

Background: Different patterns of fibrosis on high resolution computer tomography scans (HRCT) have been associated with reduced survival in some interstitial lung diseases. Nothing is known about HRCT patterns and survival in sarcoidosis.

Research question: Will a detailed description of the extent and pattern of HRCT fibrosis in patients with Stage IV pulmonary sarcoidosis impact pulmonary function and survival ?

Study design and methods: 240 stage IV sarcoidosis patients at two large tertiary institutions were studied. The earliest HRCT with fibrosis was reviewed for extent of fibrosis (<10%, 10-20% and >20%) and presence of bronchiectasis, upper lobe fibrocystic changes, basal subpleural honeycombing, ground glass opacities (GGOs), large bullae and mycetomas. Presence of sarcoidosis associated pulmonary hypertension (SAPH) and PFTs performed within one year of HRCT were recorded. Patients were followed until last clinic visit, death, or lung transplant (LT).

Results: The mean age was 58.4 years. 74% were African American, 63% were female, and mean follow-up was 7.4 years. Death or LT occurred in 53 patients (22%). 31% had >20% fibrosis, 25% had 10-20% fibrosis and 44% had <10% fibrosis. The most common HRCT abnormalities were bronchiectasis (76%), upper lobe fibrocystic changes (36%), and GGOs (28%). 12% had basal subpleural honeycombing and 32% had SAPH. Patients with >20% fibrosis had more severe pulmonary impairment, were more likely to have SAPH(53%) and had worse survival (44% mortality; $p<0.001$). Upper lobe fibrocystic changes, basal subpleural honeycombing, and large bullae were associated with worse pulmonary function and worse survival. Patients with basal subpleural honeycombing had the worst pulmonary function and survival (55% mortality, $p<0.001$). GGOs were associated with worse pulmonary function but not worse survival while mycetomas were associated with worse survival but not worse pulmonary function. A Cox-proportional hazards model revealed that basal subpleural honeycombing (HR 7.95), DLCO<40% (HR 5.67) and White Race (HR 2.61) were independent predictors of reduced survival.

Interpretation: HRCT features of fibrotic pulmonary sarcoidosis had an impact on pulmonary function and survival. Presence of >20% fibrosis and basal subpleural honeycombing are predictive of worse pulmonary function and worse survival in patients with stage IV pulmonary sarcoidosis.

Keywords: Fibrotic pulmonary sarcoidosis; HRCT; Idiopathic pulmonary fibrosis (IPF); Interstitial lung disease (ILD); Stage IV Sarcoidosis; fibrosis; mortality; pulmonary function; subpleural honeycombing; survival; upper lobe fibrocystic changes.

3

Arthritis Res Ther

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Systemic sclerosis and risk of bronchiectasis: a nationwide longitudinal cohort study

Bumhee Yang[#1], Bo-Guen Kim[#2], Kyungdo Han[#3], Jin-Hyung Jung[4], Ji Hyoun Kim[5], Dong Won Park[2], Sang-Heon Kim[2], Eung-Gook Kim[6], Jang Won Sohn[2], Ho Joo Yoon[2], Hayoung Choi[#7], Hyun Lee[#8]

Affiliations expand

- PMID: 37872606

- PMCID: PMC10591419

- DOI: 10.1186/s13075-023-03189-2

Free PMC article

Abstract

Background: The association between systemic sclerosis and the development of bronchiectasis is unclear. This study aimed to compare the risk of bronchiectasis between individuals with systemic sclerosis and those without using a nationwide longitudinal dataset.

Methods: Using the Korean National Health Insurance Service dataset between 2010 and 2017, we identified 4845 individuals aged ≥ 20 years with systemic sclerosis and 24,225 without systemic sclerosis who were matched 1:5 by age and sex. They were followed up until the date of a bronchiectasis diagnosis, death, or December 31, 2019, whichever came first.

Results: During a median follow-up period of 6.0 (interquartile range, 3.2-8.7) years, 5.3% of the systemic sclerosis cohort and 1.9% of the matched cohort developed bronchiectasis, with incidence rates of 9.99 and 3.23 per 1000 person-years, respectively. Even after adjusting for potential confounders, the risk of incident bronchiectasis was significantly higher in the systemic sclerosis cohort than in the matched cohort (adjusted hazard ratio 2.63, 95% confidence interval 2.22-3.12). A subgroup analysis of individuals with systemic sclerosis revealed that the risk of incident bronchiectasis was notably higher in younger individuals aged 20-39 years (P for interaction = 0.048) and in those without other coexisting connective tissue diseases (P for interaction = 0.006) than in their counterparts.

Conclusions: The risk of incident bronchiectasis is higher in individuals with systemic sclerosis than those without. Bronchiectasis should be considered one of the pulmonary manifestations related to systemic sclerosis.

Keywords: Bronchiectasis; Epidemiology; Risk; Systemic sclerosis.

Conflict of interest statement

The authors declare no competing interests.

- 36 references
- 2 figures

. 2023 Oct 23;62(SI3):SI286-SI295.

doi: 10.1093/rheumatology/kead277.

Prevalence and mortality associations of interstitial lung abnormalities in rheumatoid arthritis within a multicentre prospective cohort of smokers

Gregory C McDermott[1,2], Keigo Hayashi[1], Kazuki Yoshida[1,2], Matthew Moll[2,3,4,5], Michael H Cho[2,3,4], Tracy J Doyle[2,3], Gregory L Kinney[6], Paul F Dellaripa[1,2], Rachel K Putman[2,3], Raul San Jose Estepar[2,7], Akinori Hata[8], Takuya Hino[9], Tomoyuki Hida[9], Masahiro Yanagawa[8], Mizuki Nishino[7], George Washko[2,3], Elizabeth A Regan[10], Hiroto Hatabu[2,7], Gary M Hunninghake[2,3], Edwin K Silverman[2,3,4], Jeffrey A Sparks[1,2]

Affiliations expand

- PMID: 37871923

- PMCID: PMC10593512 (available on 2024-10-23)

- DOI: 10.1093/rheumatology/kead277

Abstract

Objective: To investigate the prevalence and mortality impact of interstitial lung abnormalities (ILAs) in RA and non-RA comparators.

Methods: We analysed associations between ILAs, RA, and mortality in COPDGene, a multicentre prospective cohort study of current and past smokers, excluding known interstitial lung disease (ILD) or bronchiectasis. All participants had research chest high-resolution CT (HRCT) reviewed by a sequential reading method to classify ILA as present, indeterminate or absent. RA cases were identified by self-report RA and DMARD use; non-RA comparators had neither an RA diagnosis nor used DMARDs. We examined the

association and mortality risk of RA and ILA using multivariable logistic regression and Cox regression.

Results: We identified 83 RA cases and 8725 non-RA comparators with HRCT performed for research purposes. ILA prevalence was 16.9% in RA cases and 5.0% in non-RA comparators. After adjusting for potential confounders, including genetics, current/past smoking and other lifestyle factors, ILAs were more common among those with RA compared with non-RA [odds ratio 4.76 (95% CI 2.54, 8.92)]. RA with ILAs or indeterminate for ILAs was associated with higher all-cause mortality compared with non-RA without ILAs [hazard ratio (HR) 3.16 (95% CI 2.11, 4.74)] and RA cases without ILA [HR 3.02 (95% CI 1.36, 6.75)].

Conclusions: In this cohort of smokers, RA was associated with ILAs and this persisted after adjustment for current/past smoking and genetic/lifestyle risk factors. RA with ILAs in smokers had a 3-fold increased all-cause mortality, emphasizing the importance of further screening and treatment strategies for preclinical ILD in RA.

Keywords: RA; interstitial lung abnormalities; interstitial lung disease; screening; smoking.

- 47 references

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