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21-28 May 2023

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

1
Am J Obstet Gynecol
. 2023 May 25;S0002-9378(23)00354-X.
doi: 10.1016/j.ajog.2023.05.025. Online ahead of print.

Statewide geographic variation in hysterectomy approach for pelvic organ prolapse: A county-level analysis

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Affiliations expand

- PMID: 37244455

- DOI: 10.1016/j.ajog.2023.05.025

Abstract

Background: There are no definitive guidelines for surgical treatment of pelvic organ prolapse. Prior data suggests geographic variation in apical repair rates in health systems throughout the United States. Such variation can reflect lack of standardized treatment pathways. An additional area of variation for pelvic organ prolapse repair may be hysterectomy approach which could not only influence concurrent repair procedures, but also healthcare utilization.

Objectives: To examine statewide geographic variation in surgical approach of hysterectomy for prolapse repair and concurrent use of colporrhaphy and colpopexy.

Study design: We conducted a retrospective analysis of Blue Cross Blue Shield, Medicare, and Medicaid fee-for-service insurance claims for hysterectomies performed for prolapse in Michigan between October 2015 and December 2021. Prolapse was identified with International Classification of Disease 10th Revision codes. The primary outcome was variation in surgical approach for hysterectomy as determined by CPT code (vaginal [VH], laparoscopic [LSH], laparoscopic assisted vaginal [LAVH], or abdominal) on a county level. Patient home address zip codes were used to determine county of residence. A hierarchical multivariable logistic regression model with vaginal approach as the dependent variable and county-level random effects was estimated. Patient attributes, including age, comorbidities (diabetes, COPD, CHF, morbid obesity), concurrent gynecologic diagnoses, health insurance type, and social vulnerability index (SVI) were used as fixed effects. To estimate variation between counties in vaginal hysterectomy rates, a median odds ratio (MOR) was calculated RESULTS: There were 6,974 hysterectomies for prolapse representing 78 total counties that met eligibility criteria. Of these, 2,865 (41.1%) underwent VH, 1,119 (16.0%) underwent LAVH, and 2,990 (42.9%) underwent LSH. The proportion of VH across 78 counties ranged from 5.8% to 86.8%. The median odds ratio was 1.86 (95% credible interval 1.33-3.83), consistent with a high level of variation. Thirty seven counties were considered statistical outliers because the observed proportion of VH was outside the predicted range (as defined by confidence intervals of the funnel plot). VH was associated with higher rates of concurrent colporrhaphy than LAVH or LSH (88.5% vs. 65.6% vs. 41.1%, respectively; p<.001) and lower rates of concurrent colpopexy (45.7% vs. 51.7% vs. 80.1%, respectively; p<.001).

Conclusion: This statewide analysis reveals a significant level of variation in the surgical approach for hysterectomies performed for prolapse. The variation in surgical approach for hysterectomy may help account for high rates of variation in concurrent procedures, especially apical suspension procedures. These data highlight how geographical location may influence the surgical procedures a patient undergoes for uterine prolapse.

Keywords: Hysterectomy; geographic variation; healthcare utilization; pelvic organ prolapse.

2
Radiother Oncol
.
. 2023 May 25;109720.
doi: 10.1016/j.radonc.2023.109720. Online ahead of print.

Independent Association of Metabolic Tumor Response on FDG-PET with Pulmonary Toxicity Following Risk-Adaptive Chemoradiation for Unresectable Non-Small Cell Lung Cancer: Inherent Radiosensitivity or Immune Response?

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- PMID: 37244360

- DOI: 10.1016/j.radonc.2023.109720

Abstract

Background: In the context of a phase II trial of risk-adaptive chemoradiation, we evaluated whether tumor metabolic response could serve as a correlate of treatment sensitivity and toxicity.

Methods: Forty-five patients with AJCCv7 stage IIB-IIIB NSCLC enrolled on the FLARE-RT phase II trial (NCT02773238). [18F]fluorodeoxyglucose (FDG) PET-CT images were acquired prior to treatment and after 24 Gy during week 3. Patients with unfavorable on-treatment tumor response received concomitant boosts to 74 Gy total over 30 fractions rather than standard 60 Gy. Metabolic tumor volume and mean standardized uptake value (SUVmean) were calculated semi-automatically. Risk factors of pulmonary toxicity included concurrent chemotherapy regimen, adjuvant anti-PDL1 immunotherapy, and lung dosimetry. Incidence of CTCAE v4 grade 2+ pneumonitis was analyzed using the Fine-Gray method with competing risks of metastasis or death. Peripheral germline DNA microarray sequencing measured predefined candidate genes from distinct pathways: 96 DNA repair, 53 immunology, 38 oncology, 27 lung biology.

Results: Twenty-four patients received proton therapy, 23 received ICI, 26 received carboplatin-paclitaxel, and 17 pneumonitis events were observed. Pneumonitis risk was significantly higher for

patients with COPD (HR 3.78 [1.48,9.60], p=0.005), those treated with immunotherapy (HR 2.82 [1.03,7.71], p=0.043) but not with carboplatin-paclitaxel (HR 1.98 [0.71,5.54], p=0.19). Pneumonitis rates were similar among selected patients receiving 74 Gy radiation vs 60 Gy (p=0.33), proton therapy vs photon (p=0.60), or with higher lung dosimetric V20 (p=0.30). Patients in the upper quartile decrease in SUVmean (>39.7%) were at greater risk for pneumonitis (HR 4.00 [1.54,10.44], p=0.005) and remained significant in multivariable analysis (HR 3.34 [1.12,9.10], p=0.018). Germline DNA gene alterations in immunology pathways were most frequently associated with pneumonitis.

Conclusion: Tumor metabolic response as measured by mean SUV is associated with increased pneumonitis risk in a clinical trial cohort of NSCLC patients independent of treatment factors. This may be partially attributed to patient-specific differences in immunogenicity.

Keywords: Biomarkers, Tumor; Carcinoma, Non-Small-Cell Lung; Metabolic response; PET-CT; Radiation pneumonitis; Radiotherapy Planning, Computer-Assisted; proton therapy.

3

Infect Dis Ther

. 2023 May 27.

doi: 10.1007/s40121-023-00810-4. Online ahead of print.

A Needs Assessment for Infectious Diseases Consultation in Community Hospitals

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- PMID: 37243912

- DOI: 10.1007/s40121-023-00810-4

Abstract

Introduction: Infectious diseases (ID) consultations have been demonstrated to improve patient outcomes in the treatment of severe infections. However, ID consultation is often unavailable to patients that live in rural communities. Little is known regarding the treatment of infections in rural hospitals with no coverage from an ID specialist. We characterized the outcomes of patients cared for in hospitals without coverage from an ID physician.

Methods: Patients aged 18 years or older admitted to eight community hospitals without access to ID consultation during a 6.5-month period were assessed. All patients had received at least three days of continuous antimicrobial therapy. The primary outcome was the need for transfer to a tertiary facility for ID services. The secondary outcome was the characterization of antimicrobials received. Antimicrobial courses were evaluated independently by two board-certified ID physicians.

Results: 3706 encounters were evaluated. Transfers for ID consultation occurred in 0.01% of patients. The ID physician would have made modifications in 68.5% of patients. Areas for improvement included treatment of chronic obstructive pulmonary disease exacerbations, broad-spectrum treatment of skin and soft tissue infection, long courses of azithromycin, and management of Staphylococcus aureus bacteremia, including choice and length of therapy, as well as obtaining echocardiography. Patients evaluated received 22,807 days of antimicrobial therapy.

Conclusions: Patients hospitalized in community hospitals are rarely transferred for ID consultation. Our work demonstrates a need for ID consultation in community hospitals, identifying opportunities to enhance patient care by modifying antimicrobial regimens to improve antimicrobial stewardship and avoid inappropriate antimicrobials. Efforts to expand the ID workforce to include coverage at rural hospitals will likely improve antibiotic utilization.

Keywords: Community hospitals; Consultation; Infectious disease; Needs assessment; Rural health.

- 27 references

J Manag Care Spec Pharm

. 2023 May 27;1-11.

doi: 10.18553/jmcp.2023.22417. Online ahead of print.

Identifying potentially undiagnosed nontuberculous mycobacterial lung disease among patients with chronic obstructive pulmonary disease: Development of a predictive algorithm using claims data

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- PMID: 37243674

- DOI: 10.18553/jmcp.2023.22417

Abstract

BACKGROUND: Nontuberculous mycobacterial lung disease (NTMLD) is a debilitating disease. Chronic obstructive pulmonary disease (COPD) is the leading comorbidity associated with NTMLD in the United States. Their similarities in symptoms and overlapping radiological findings may delay NTMLD diagnosis in patients with COPD. **OBJECTIVE:** To develop a predictive model that identifies potentially undiagnosed NTMLD among patients with COPD. **METHODS:** This retrospective cohort study developed a predictive model of NTMLD using US Medicare beneficiary claims data (2006 - 2017). Patients with COPD with NTMLD were matched 1:3 to patients with COPD without NTMLD by age, sex, and year of COPD diagnosis. The predictive model was developed using logistic regression modeling risk factors such as pulmonary symptoms, comorbidities, and health care resource utilization. The final model was based on model fit statistics and clinical inputs. Model performance was evaluated for both discrimination and generalizability with c-statistics and receiver operating characteristic curves. **RESULTS:** There were 3,756 patients with COPD with NTMLD identified and matched to 11,268 patients with COPD without NTMLD. A higher proportion of patients with COPD with NTMLD, compared with those with COPD without NTMLD, had claims for pulmonary symptoms and conditions, including hemoptysis (12.6% vs 1.4%), cough (63.4% vs 24.7%), dyspnea (72.5% vs 38.2%), pneumonia (59.2% vs 13.4%), chronic bronchitis (40.5% vs 16.3%), emphysema, (36.7% vs 11.1%), and lung cancer (15.7% vs 3.5%). A higher proportion of patients with COPD with NTMLD had pulmonologist and infectious disease (ID) specialist visits than patients with COPD without NTMLD (≥ 1 pulmonologist visit: 81.3% vs 23.6%, respectively; ≥ 1 ID visit: 28.3% vs 4.1%, respectively, $P <$ 0.0001). The final model consists of 10 risk factors (≥ 2 ID specialist visits; ≥ 4 pulmonologist visits; the presence of hemoptysis, cough, emphysema, pneumonia, tuberculosis, lung cancer, or idiopathic interstitial lung disease; and being underweight during a 1-year pre-NTMLD period) predicting NTMLD with high sensitivity and specificity (c-statistic, 0.9). The validation of the model on new testing data demonstrated similar discrimination and showed the model was able to predict NTMLD earlier than the receipt of the first diagnostic claim for NTMLD. **CONCLUSIONS:** This predictive algorithm uses a set of criteria comprising patterns of

health care use, respiratory symptoms, and comorbidities to identify patients with COPD and possibly undiagnosed NTMLD with high sensitivity and specificity. It has potential application in raising timely clinical suspicion of patients with possibly undiagnosed NTMLD, thereby reducing the period of undiagnosed NTMLD. **DISCLOSURES:** Dr Wang and Dr Hassan are employees of Insmed, Inc. Dr Chatterjee was an employee of Insmed, Inc, at the time of this study. Dr Marras is participating in multicenter clinical trials sponsored by Insmed, Inc, has consulted for RedHill Biopharma, and has received a speaker's honorarium from AstraZeneca. Dr Allison is an employee of Statistical Horizons, LLC. This study was funded by Insmed Inc.

Cell Rep

. 2023 May 25;42(6):112525.

doi: 10.1016/j.celrep.2023.112525. Online ahead of print.

Systemic alterations in neutrophils and their precursors in early-stage chronic obstructive pulmonary disease

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- PMID: 37243592

- DOI: 10.1016/j.celrep.2023.112525

Abstract

Systemic inflammation is established as part of late-stage severe lung disease, but molecular, functional, and phenotypic changes in peripheral immune cells in early disease stages remain ill defined. Chronic obstructive pulmonary disease (COPD) is a major respiratory disease characterized by small-airway inflammation, emphysema, and severe breathing difficulties. Using single-cell analyses we demonstrate that blood neutrophils are already increased in early-stage COPD, and changes in molecular and functional neutrophil states correlate with lung function decline. Assessing neutrophils and their bone marrow precursors in a murine cigarette smoke exposure model identified similar molecular changes in blood neutrophils and precursor populations that also occur in the blood and lung. Our study shows that systemic molecular alterations in neutrophils and their precursors are part of early-stage COPD, a finding to be further explored for potential therapeutic targets and biomarkers for early diagnosis and patient stratification.

Keywords: CP: Immunology; blood; bone marrow; chronic obstructive pulmonary disease; granulopoiesis; neutrophil; single-cell transcriptomics.

Conflict of interest statement

Declaration of interests The authors have no competing interests.

J Clin Nurs

. 2023 May 27.

doi: 10.1111/jocn.16771. Online ahead of print.

Physical activity trajectories and their determinants in patients with chronic obstructive pulmonary disease: A cohort study

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- PMID: 37243430

- DOI: 10.1111/jocn.16771

Abstract

Aims and objectives: The aim was to identify latent trajectories in physical activity (PA) and their determinants in adults with chronic obstructive pulmonary disease (COPD) based on the socio-ecological model.

Background: PA has been linked to poor long-term outcomes in patients with COPD. However, few studies have explored their PA trajectories and their predictors.

Design: Cohort study.

Methods: We used data from a national cohort and included 215 participants. PA was quantified using a short PA questionnaire, and group-based trajectory modelling was used to explore the PA trajectories. Multinomial logistic regression was conducted to identify the predictors of PA trajectories. Generalised linear mixed models were used to elucidate the associations between predictors and PA during follow-up. A STROBE checklist was used to guide the reporting of this study.

Results: Three PA trajectory patterns were identified among 215 COPD participants with an average age of 60.51 ± 8.87: stable inactive group (66.7%), sharp decline group (25.7%) and stable active group (7.5%). The logistic regression showed that age, sex, income, peak expiratory flow, upper limb capacity, depressive symptoms, the frequency of contact with children were PA predictors. Upper limb capacity weakness and depressive symptoms were found to be associated with a sharp decline in PA during follow-up.

Conclusions: This study revealed three PA trajectories among patients with COPD. In addition to strengthening the physical functions and mental health of patients, support from the family, community and society also play a crucial role in promoting PA of patients with COPD.

Relevance to clinical practice: It is essential to identify distinct PA trajectories in patients with COPD to develop future interventions that promote PA.

No patient or public contribution: A national cohort study was used and no patients or the public were involved in the design and implementation of this study.

Keywords: COPD; physical activity; socio-ecological model; trajectory.

- 44 references

SUPPLEMENTARY INFO

Grant supportexpand

Infect Dis (Lond)

. 2023 May 26;1-10.
doi: 10.1080/23744235.2023.2217904. Online ahead of print.

Airflow obstruction and chronic obstructive pulmonary disease are common in pulmonary tuberculosis even without sequelae findings on chest X-ray

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- PMID: 37243367

- DOI: 10.1080/23744235.2023.2217904

Abstract

Purpose: Pulmonary tuberculosis (TB) is a well-known risk factor for airflow obstruction and chronic obstructive pulmonary disease (COPD). The prognosis of TB without sequelae on chest X-ray (CXR) remains uncertain.

Methods: We used the 2008-2009 Korea National Health and Nutrition Examination Survey (KNHANES) data and 2007-2012 KNHANES-matched Health Insurance Review and Assessment Service cohort data. Airflow obstruction was assessed using a pulmonary function test. COPD was defined using diagnostic codes and the use of COPD medication for 3-year. We classified subjects into three groups based on TB history and sequelae on CXR.

Results: In 4911 subjects, the CXR(-) (no TB sequelae on CXR) post-TB group (*n* = 134) showed similar characteristics and normal lung function compared to that of the control group (*n* = 4,405), while the CXR(+) (TB sequelae on CXR) post-TB group (*n* = 372) showed different characteristics and reduced lung function. The prevalence of airflow obstruction was 9.3%, 13.4%, and 26.6% in control, CXR(-) post-TB, and CXR(+) post-TB groups, respectively. COPD was more common in the post-TB with CXR(+) (6.5%) or without CXR (-) (4.5%) groups, than in the control group (1.8%). Compared to the CXR(-) post-TB group, the control group showed a lower risk for airflow obstruction (OR, 0.774; *p* = .008). The CXR(+) post-TB group showed a higher risk for airflow obstruction (OR, 1.456; *p* = .011). The Control group also showed a lower risk for the development of COPD than the CXR(-) post-TB group (OR, 0.496; *p* = .011).

Conclusions: We need to educate TB patients that airway obstruction and COPD can easily develop, even if TB sequelae are not observed on CXR.

Keywords: COPD; Pulmonary tuberculosis; airflow obstruction.

Medicina (Kaunas)

. 2023 May 22;59(5):998.

doi: 10.3390/medicina59050998.

Aetiopathogenesis of Rotator Cuff Tear in Patients Younger than 50 Years: Medical Conditions Play a Relevant Role

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- PMID: 37241230

- DOI: 10.3390/medicina59050998

Abstract

Background and Objectives: Studies on rotator cuff tears (RCT) in patients younger than 50 years have focused on the post-operative outcomes. Little is known about cuff tear etiopathogenesis, although it is a common belief that most tears are due to trauma. We have retrospectively verified the prevalence of medical conditions, whose role in tendon degeneration development have been widely demonstrated, in a group of patients younger than 50 years with postero-superior RCT. *Materials and Methods*: 64 patients [44M-20F; mean age (SD): 46.90 (2.80)] were enrolled. Personal data, BMI, smoking habit, diseases (diabetes, arterial hypertension, hypercholesterolaemia, thyroid diseases, and chronic obstructive pulmonary disease) were registered. The possible triggering cause and the affected side and tear dimensions were recorded, and statistical analysis was then performed. *Results*: 75% of patients had one or more diseases and/or a smoking habit for more than 10 years. In the remaining 25%, only four patients referred had had a traumatic event, while in the other eight patients, both medical condition and trauma were registered. The presence of two or more diseases did not affect RCT size. *Conclusions*: In our series, three quarters of patients with RCT had a smoking habit or medical conditions predisposing them to a tendon tear; therefore, the role of trauma in RCT onset in patients younger than 50 years is markedly resized. It is plausible that in the remaining 25%, RCT may be due to trauma or to genetic or acquired degeneration. Level of Evidence: IV.

Keywords: comorbidity in rotator cuff tear; obesity and rotator cuff tear; rotator cuff tear etiology; rotator cuff tear in young patients; smoking habit and rotator cuff tear.

Biomolecules

. 2023 May 22;13(5):874.
doi: 10.3390/biom13050874.

Circulating Hsp70 Levels and the Immunophenotype of Peripheral Blood Lymphocytes as Potential

Biomarkers for Advanced Lung Cancer and Therapy Failure after Surgery

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- PMID: 37238744

- DOI: 10.3390/biom13050874

Free article

Abstract

Lung cancer remains a devastating disease with a poor clinical outcome. A biomarker signature which could distinguish lung cancer from metastatic disease and detect therapeutic failure would significantly improve patient management and allow for individualized, risk-adjusted therapeutic decisions. In this study, circulating Hsp70 levels were measured using ELISA, and the immunophenotype of the peripheral blood lymphocytes were measured using multiparameter flow cytometry, to identify a predictive biomarker signature for lung cancer patients pre- and post-operatively, in patients with lung metastases and in patients with COPD as an inflammatory lung disease. The lowest Hsp70 concentrations were found in the healthy controls followed by the patients with advanced COPD. Hsp70 levels sequentially increased with an advancing tumor stage and metastatic disease. In the early-recurrence patients, Hsp70 levels started to increase within the first three months after surgery, but remained unaltered in the recurrence-free patients. An early recurrence was associated with a significant drop in B cells and an increase in Tregs, whereas the recurrence-free patients had elevated T and NK cell levels. We conclude that circulating Hsp70 concentrations might have the potential to distinguish lung cancer from metastatic disease, and might be able to predict an advanced tumor stage and early recurrence in lung cancer patients. Further studies with larger patient cohorts and longer follow-up periods are needed to validate Hsp70 and immunophenotypic profiles as predictive biomarker signatures.

Keywords: advanced COPD; biomarker; circulating Hsp70; early recurrence; immunophenotypic profile; lung cancer; surgery.

Am J Respir Cell Mol Biol
.
. 2023 May 26.
doi: 10.1165/rcmb.2023-0051MA. Online ahead of print.

Deep-Masker: A Deep Learning-Based Tool to Assess Chord Length from Murine Lung Images

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- PMID: 37236629

- DOI: 10.1165/rcmb.2023-0051MA

Abstract

Chord length is an indirect measure of alveolar size and a critical endpoint in animal models of COPD. To assess chord length, the lumens of non-alveolar structures are eliminated from measurement by various methods, including manual masking. However, manual masking is resource-intensive and can introduce variability and bias. We created a fully-automated deep-learning-based tool to mask murine lung images and assess chord length to facilitate mechanistic and therapeutic discovery in COPD called Deep-Masker. We trained the deep-learning algorithm for Deep-Masker using 1217 images from 137 mice from 12 strains exposed to room-air or cigarette-smoke for six months. We validated this algorithm against manual masking. Deep-Masker demonstrated high accuracy with an average difference in chord length compared to manual masking of -0.3 ± 1.4% (rs=0.99) for room-air exposed mice and 0.7 ± 1.9% (rs=0.99) for cigarette-smoke exposed mice. The difference between Deep-Masker and manually masked images for change in chord length due to cigarette-smoke exposure was 6.0 ± 9.2% (rs=0.95). These values exceed published estimates for inter-observer variability for manual masking (rs=0.65) and the accuracy of published algorithms by a significant margin. We validated the performance of Deep-Masker using an independent set of images. Deep-Masker can be an accurate, precise, fully-automated method to standardize chord length measurement in murine models of lung disease (available at http://47.93.0.75:8110/login).

Am J Respir Crit Care Med
.
. 2023 May 26.
doi: 10.1164/rccm.202303-0400SO. Online ahead of print.

Updating the ATS/ERS Task Force Report on Outcomes for COPD Pharmacological Trials

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- PMID: 37236628

- DOI: 10.1164/rccm.202303-0400SO

Abstract

Background: In 2008, a dedicated American Thoracic Society (ATS)/European Respiratory Society (ERS) task force published a paper on the possible use and limitations of clinical outcomes and biomarkers to evaluate the impact of pharmacological therapy in COPD patients. Since then our scientific understanding of COPD has increased considerably since then, there has been a progressive shift from a one-size-fits-all diagnostic/therapeutic approach to a personalized approach, and many new treatments currently in development will require new endpoints to evaluate their efficacy adequately.

Objectives: The emergence of several new relevant outcome measures motivated the authors to review advances in the field and highlight the need to update the content of the original report.

Methods: The authors separately created search strategies for the literature, primarily based on their opinions and assessments supported by carefully chosen references. No centralized examination of the literature or uniform criteria for including or excluding evidence were used.

Results: Endpoints, outcomes and biomarkers have been revisited. The limitations of some of those reported in the ERS/ATS task force document have been highlighted. In addition, new tools that may be useful, especially in evaluating personalized therapy, have been described.

Conclusions: Since the 'label-free' treatable traits approach is becoming an important step toward precision medicine, future clinical trials should focus on highly prevalent treatable traits, which will influence the choice of outcomes and markers to be considered. The use of the new tools, particularly combination endpoints, could help identify better the right patient to be treated with the new drugs.

Keywords: COPD; outcomes; personalized medicine; pharmacological trials.

J Reconstr Microsurg

. 2023 May 26.
doi: 10.1055/a-2102-0147. Online ahead of print.

Does frailty predict outcomes in patients undergoing free or pedicled flap procedures for lower extremity limb salvage? An analysis of the ACS-NSQIP database

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- PMID: 37236241

- DOI: 10.1055/a-2102-0147

Abstract

Background: Older and frailer patients are increasingly undergoing free or pedicled tissue transfer for lower extremity (LE) limb salvage. This novel study examines the impact of frailty on postoperative outcomes in LE limb salvage patients undergoing free or pedicled tissue transfer.

Methods: The ACS-NSQIP database (2010-2020) was queried for free and pedicled tissue transfer to the LE based on CPT and ICD 9/10 codes. Demographic and clinical variables were extracted. The 5-factor modified frailty index (mFI-5) was calculated using functional status, diabetes, chronic obstructive pulmonary disease, congestive heart failure, and hypertension. Patients were stratified by mFI-5 score: no frailty (0), intermediate frailty (1), and high frailty (2+). Univariate analysis and multivariate logistic regression were performed.

Results: 5,196 patients underwent free or pedicled tissue transfer for LE limb salvage. A majority were intermediate (n=1,977) or high (n=1,466) frailty. High frailty patients had greater rates of comorbidities - including those not in the mFI-5 score. Higher frailty was associated with more systemic and all-cause complications. On multivariate analysis, mFI-5 score remained the best predictor of all-cause complications - with high frailty associated with 1.74 increased adjusted odds when compared to no frailty (95% CI 1.47-2.05).

Conclusion: While flap type, age, and diagnosis were independent predictors of outcomes in LE flap reconstruction, frailty (mFI-5) was the strongest predictor on adjusted analysis. This study validates the mFI-5 score for preoperative risk assessment for flap procedures in LE limb salvage. These results highlight the likely importance of prehabilitation and medical optimization prior to limb salvage.

Conflict of interest statement

Rosie Friedman is supported by the 2022 JOBST Lymphatic Research Grant awarded by the Boston Lymphatic Symposium, Inc. The remaining authors have no financial disclosures or conflicts of interest to declare.

Review

J Crit Care

. 2023 May 24;77:154341.

doi: 10.1016/j.jcrc.2023.154341. Online ahead of print.

Factors associated with acute respiratory distress syndrome in brain-injured patients: A systematic review and meta-analysis

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- PMID: 37235919

- DOI: 10.1016/j.jcrc.2023.154341

Abstract

Purpose: Acute respiratory distress syndrome (ARDS) is common in patients with acute brain injury admitted to the ICU. We aimed to identify factors associated with ARDS in this population.

Methods: We searched MEDLINE, Embase, Cochrane Central, Scopus, and Web of Science from inception to January 14, 2022. Three reviewers independently screened articles and selected English-language studies reporting risk factors for ARDS in brain-injured adult patients. Data were extracted on ARDS incidence, adjusted and unadjusted risk factors, and clinical outcomes. Risk of bias was reported using the Quality in Prognostic Studies tool. Certainty of evidence was assessed using GRADE.

Results: We selected 23 studies involving 6,961,284 patients with acute brain injury. The pooled cumulative incidence of ARDS after brain injury was 17.0% (95%CI 10.7-25.8). In adjusted analysis, factors associated with ARDS included sepsis (odds ratio (OR) 4.38, 95%CI 2.37-8.10; high certainty), history of hypertension (OR 3.11, 95%CI 2.31-4.19; high certainty), pneumonia (OR 2.69, 95%CI 2.35-3.10; high certainty), acute kidney injury (OR 1.44, 95%CI 1.30-1.59; moderate certainty), admission hypoxemia (OR 1.67, 95%CI 1.29-2.17; moderate certainty), male sex (OR 1.30, 95%CI 1.06-1.58; moderate certainty), and chronic obstructive pulmonary disease (OR 1.27, 95%CI 1.13-1.44; moderate certainty). Development of ARDS was independently associated with increased odds of in-hospital mortality (OR 3.12, 95% CI 1.39-7.00).

Conclusions: Multiple risk factors are associated with ARDS in brain-injured patients. These findings could be used to develop prognostic models for ARDS or as prognostic enrichment strategies for patient enrolment in future clinical trials.

Keywords: Acute respiratory distress syndrome; Brain injury; Lung injury; Mechanical ventilation; Prognostic factors.

Conflict of interest statement

Declaration of Competing Interest All authors declare they have no competing interests relevant to the submitted work. None of the authors have any financial or non-financial conflicts of interests related to the present manuscript.

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Review

Physiol Int
.
.
.
. 2023 May 26.
doi: 10.1556/2060.2023.00237. Online ahead of print.

Effectiveness and quality of life in lung cancer, pre-, post- and perioperative rehabilitation - A review

Yafet Abidi[1], Mónika Fekete[2], Árpád Farkas[3], Alpár Horváth[4], János Tamás Varga[1,5]
Affiliations expand

- PMID: 37235454

- DOI: 10.1556/2060.2023.00237

Abstract

Functional conditions like lung function and exercise capacity are important limiting factors of chest surgery in lung cancer with co-morbidities (chronic obstructive pulmonary disease (COPD) and other chronic respiratory diseases). Pulmonary rehabilitation has a favourable effect on the cardiovascular system, metabolism, respiratory and peripheral muscles and lung mechanics. Our

aim was to assess the role of pre-, post- and peri-operative pulmonary rehabilitation in lung cancer in this review. We sought to size up the importance of pulmonary rehabilitation in patients undergoing surgery with or without (neo)adjuvant treatment, radiotherapy, chemotherapy, chemoradiotherapy, major physiological impairments and complications. Searches were performed in PubMed and ClinicalTrials.gov databases using the terms "exercise", "rehabilitation", "small cell lung cancer", "non-small cell lung cancer", "exercise capacity", "chest surgery" and "quality of life" from inception to February 7th, 2022. Pulmonary rehabilitation has been recognized as an effective intervention to reduce lung cancer related symptoms and improve the pulmonary function, lung mechanics, chest kinematics, respiratory- and peripheral muscle function, physical activity and quality of life (QoL) of the patients. In conclusion, this review shows positive, highly encouraging and effective results of pulmonary rehabilitation in terms of the patients' lung function, functional mobility and quality of life. The tools for complex pulmonary rehabilitation have evolved considerably over the past two decades, thus this research has been conducted on a variety of studies about this subject and serves as a synthesis of the systematic and meta-analytic reviews.

Keywords: exercise; lung cancer; non-small cell lung cancer; physical activity; physiotherapy; pulmonary rehabilitation; small cell lung cancer.

EuroIntervention

. 2023 May 26;EIJ-D-22-01037.

doi: 10.4244/EIJ-D-22-01037. Online ahead of print.

Clinical outcomes of transcatheter mitral valve replacement: two-year results of the CHOICE-MI Registry

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Goel[29], Neil P Fam[30], Martin Andreas[31], David W Muller[32], Paolo Denti[33], Fabien Praz[34], Ralph Stephan von Bardeleben[35], Juan F Granada[3], Thomas Modine[36], Lenard Conradi[37]
Affiliations expand

- PMID: 37235388

- DOI: 10.4244/EIJ-D-22-01037

Abstract

Background: Transcatheter mitral valve replacement (TMVR) using dedicated devices is an alternative therapy for high-risk patients with symptomatic mitral regurgitation (MR).

Aims: This study aimed to assess the 2-year outcomes and predictors of mortality in patients undergoing TMVR from the multicentre CHOICE-MI Registry.

Methods: The CHOICE-MI Registry included consecutive patients with symptomatic MR treated with 11 different dedicated TMVR devices at 31 international centres. The investigated endpoints included mortality and heart failure hospitalisation rates, procedural complications, residual MR, and functional status. Multivariable Cox regression analysis was applied to identify independent predictors of 2-year mortality.

Results: A total of 400 patients, median age 76 years (interquartile range [IQR] 71, 81), 59.5% male, EuroSCORE II 6.2% (IQR 3.8, 12.0), underwent TMVR. Technical success was achieved in 95.2% of patients. MR reduction to ≤1+ was observed in 95.2% at discharge with durable results at 1 and 2 years. New York Heart Association Functional Class had improved significantly at 1 and 2 years. All-cause mortality was 9.2% at 30 days, 27.9% at 1 year and 38.1% at 2 years after TMVR. Chronic obstructive pulmonary disease, reduced glomerular filtration rate, and low serum albumin were independent predictors of 2-year mortality. Among the 30-day complications, left ventricular outflow tract obstruction, access site and bleeding complications showed the strongest impact on 2-year mortality.

Conclusions: In this real-world registry of patients with symptomatic MR undergoing TMVR, treatment with TMVR was associated with a durable resolution of MR and significant functional improvement at 2 years. Two-year mortality was 38.1%. Optimised patient selection and improved access site management are mandatory to improve outcomes.

Review

Clin Res Cardiol
.
. 2023 May 26.
doi: 10.1007/s00392-023-02217-0. Online ahead of print.

GOLD COPD DOCUMENT 2023: a brief update for practicing cardiologists

Alvar Agusti[1], Michael Böhm[2], Bartolomé Celli[3], Gerard J Criner[4], Ana Garcia-Alvarez[1], Fernando Martinez[5], Don D Sin[6], Claus F Vogelmeier[7]
Affiliations expand

- PMID: 37233751

- DOI: 10.1007/s00392-023-02217-0

Abstract

Many patients seen by cardiologists suffer chronic obstructive pulmonary disease (COPD) in addition to their primary cardiovascular problem. Yet, quite often COPD has not been diagnosed and, consequently, patients have not been treated of their pulmonary disease. Recognizing and treating COPD in patients with CVDs is important because optimal treatment of the COPD carries important benefits on cardiovascular outcomes. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) publishes an annual report that serves as a clinical guideline for the diagnosis and management of COPD around the world and has very recently released the 2023 annual report. Here, we provide a summary of the GOLD 2023 recommendations that highlights those aspects of more interest for practicing cardiologists dealing with patients with CVD who may suffer COPD.

Keywords: Chronic bronchitis; Emphysema; GOLD; Smoking; Tobacco.

- 68 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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17
Pharm Nanotechnol
.
. 2023 May 25.
doi: 10.2174/2211738511666230525151106. Online ahead of print.

Nanomedicines: Impactful Approaches for Targeting Pulmonary Diseases

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Affiliations expand

- PMID: 37231722

- DOI: 10.2174/2211738511666230525151106

Abstract

In both developing and developed nations, pulmonary diseases are the major cause of mortality and disability. There has been a worldwide increase in the incidence of both acute and chronic respiratory illnesses, which poses a serious problem for the healthcare system. Lung cancer seems to be just one form of a parenchymal lung disorder, but there are many others, including chronic obstructive pulmonary disease (COPD), asthma, occupational lung diseases (asbestosis, pneumoconiosis), etc. Notably, chronic respiratory disorders cannot be cured, and acute abnormalities are notoriously difficult to treat. As a result, it is possible that therapeutic objectives could be achieved using nanotechnology in the form of either improved pharmacological efficacy or reduced toxicity. In addition, the incorporation of various nanostructures permits the enhancement of medication bioavailability, transport, and administration. Medicines and diagnostics based on nanotechnology have progressed significantly toward clinical application for the treatment of lung cancers. In recent years, scientists have shifted their focus towards exploring the potential of nanostructures in the treatment of other relevant respiratory illnesses. Micelles and polymeric nanoparticles are the two most studied nanostructures in a wide range of diseases. This study concludes with a summary of recent and pertinent research in drug delivery systems for the treatment of various pulmonary disorders, as well as trends, limitations, significance, and treatment and diagnostics employing nanotechnology, as well as future studies in this domain.

Keywords: Drug delivery.; Nanomaterials; Nanomedicine; Nanotechnology; Nanotheranostics; Pulmonary diseases.

Respir Res

. 2023 May 25;24(1):139.
doi: 10.1186/s12931-023-02433-2.

Ambient fine particulate matter and allergic symptoms in the middle-aged and elderly population: results from the PIFCOPD study

Shanshan Wei[#1], Jiping Liao[#1], Tao Xue[2], Kunyao Yu[1], Xiuhua Fu[3], Ruiying Wang[4], Xiaomin Dang[5], Cheng Zhang[1], Hua Qiao[6], Shujuan Jiang[7], Jianhong Xiao[8], Lixia Dong[9], Jinzhi Yin[10], Xixin Yan[11,12], Weihua Jia[13], Guifang Zhang[14], Rui Chen[3], Bo Zhou[5], Beibei Song[11,12], Jing Li[4], Mengyu Yin[9], Lina Zhang[15], Liping Xie[13], Shaochen Dong[6], Jian Sun[7], Peng Gao[10], Bifang Miao[8], Wei Li[10], Lan He[3], Qian Ning[5], Limin Zhao[16], Hengyi Liu[2], Han Cao[17], Guangfa Wang[18]
Affiliations expand

- PMID: 37231445

- PMCID: PMC10214547

- DOI: 10.1186/s12931-023-02433-2

Free PMC article

Abstract

Background: The associations between short- and long-term exposure to ambient fine particulate matter with an aerodynamic diameter ≤ 2.5 μm ($PM_{2.5}$) and allergic symptoms in middle-aged and elderly populations remain unclear, particularly in China, where most cities have severe air pollution.

Methods: Participants (n = 10,142; age = 40-75 years) were recruited from ten regions in China from 2018 to 2021 for the Predictive Value of Inflammatory Biomarkers and Forced Expiratory Volume in 1 s (FEV_1) for Chronic Obstructive Pulmonary Disease (PIFCOPD) study. Short-term (lag0 and lag0-7 day) and long-term (1-, 3- and 5-year) $PM_{2.5}$ concentrations at residences were extracted from the air pollutant database known as Tracking Air Pollution (TAP) in China. Multivariate logistic regression models were used to estimate associations for short- and long-term $PM_{2.5}$ exposure concentrations and long-term exposure models were additionally adjusted for short-term deviations.

Results: A 10 μg/m^3 increase in $PM_{2.5}$ on the day the allergic symptoms questionnaire was administered (lag0 day) was associated with higher odds of allergic nasal (1.09, 95% CI 1.05, 1.12) and eye symptoms (1.08, 95% CI 1.05, 1.11), worsening dyspnea caused by allergens (1.06, 95% CI 1.02, 1.10), and ≥ 2 allergic symptoms (1.07, 95% CI 1.03, 1.11), which was similar in the lag0-7 day concentrations. A 10 μg/m^3 increase in the 1-year average $PM_{2.5}$ concentration was associated with an increase of 23% for allergic nasal symptoms, 22% for eye symptoms, 20% for worsening dyspnea caused by allergens, and 21% for ≥ 2 allergic symptoms, similar to the 3- and 5-year average $PM_{2.5}$ concentrations. These associations between long-term $PM_{2.5}$ concentration and allergic symptoms were generally unchanged after adjustment for short-term deviations.

Conclusions: Short- and long-term exposure to ambient $PM_{2.5}$ was associated with an increased risk of allergic nasal and eye symptoms, worsening dyspnea caused by allergens, and ≥ 2 allergic symptoms.

Trial registration: Clinical trial ID: NCT03532893 (29 Mar 2018).

Keywords: Allergic symptoms; Ambient fine particulate matter; Short- and long-term exposure.

Conflict of interest statement

The authors declare no competing financial interest.

- 56 references

. 2023 May 25;23(1):355.
doi: 10.1186/s12879-023-08336-3.

First case of bloodstream infection caused by NDM-positive Escherichia hermannii

Bin Lu[1], Bin Wang[2], Xinling Pan[3], Chenxin Liu[1], Chenyuan Jin[1], Yunzhen Shi[4], Yangxiao Zhou[5]
Affiliations expand

- PMID: 37231346
- PMCID: PMC10214694
- DOI: 10.1186/s12879-023-08336-3

Free PMC article

Abstract

Background: Escherichia hermannii (E. hermanni) is always accompanied by other bacterial infections in humans. In previous reports, most E. hermannii-related infections were caused by sensitive strains. Here, for the first time, we report the case of a patient with New Delhi metallo-β-lactamase (NDM)-positive E. hermannii bloodstream infection.

Case presentation: The patient was a 70-year-old male admitted to our hospital due to a 4-day fever, with a history of malignant tumor, liver cirrhosis, and chronic obstructive pulmonary disease. After admission, his blood culture tested positive for E. hermannii. The drug resistance analysis showed positive for NDM resistance, with susceptibility to aztreonam, levofloxacin, and amikacin. The blood culture turned negative after 8 days of aztreonam treatment. The patient's symptoms improved, and he was discharged after 14 days of hospitalization.

Conclusions: This is the first report of a bloodstream infection caused by an NDM-positive E. hermannii strain. The anti-infection regimen used in this case provides a new reference regimen for clinical practice.

Keywords: Aztreonam; Bloodstream infection; Escherichia hermannii; NDM-positive.

Conflict of interest statement

The authors declare no competing interests.

- 17 references
- 2 figures

World J Microbiol Biotechnol
.
. 2023 May 26;39(8):208.
doi: 10.1007/s11274-023-03655-8.

7-Ethoxycoumarin rescued Caenorhabditis elegans from infection of COPD derived clinical isolate Pseudomonas aeruginosa through virulence and biofilm inhibition via targeting Rhl and Pqs quorum sensing systems

Sukesh Kumar Bajire[1], Ashwini Prabhu[2], Yashodhar P Bhandary[2], K M Irfan[3], Rajesh P Shastry[4]
Affiliations expand

- PMID: 37231227

- DOI: 10.1007/s11274-023-03655-8

Abstract

Pseudomonas aeruginosa is an ambidextrous Gram-negative contagium with density convoluted network defined quorum sensing, which enables the persistent survival within the host environment, contributing to various lung related diseases including Chronic Obstructive Pulmonary Disease

(COPD). It is clear that P. aeruginosa is a powerful, exquisite pathogen that has adopted a variety of virulence properties through quorum sensing (QS) regulated phenomenon and that it dominates both in the development and exacerbations of COPD. Interestingly, 7-Ethoxycoumarin (7-EC), a compound that adequately mimics QS signaling molecule of P. aeruginosa, was introduced as part of the process of developing novel ways to treat the severe exacerbations. The results showed that, introduction of 7-EC significantly decreased exopolysaccharide-mediated biofilm development of strains isolated from COPD sputum, as evidenced by SEM analysis. Furthermore, 7-EC was able to modulate a variety of virulence factors and motility without subjecting planktonic cells to any selection pressure. Bacterial invasion assay revealed the potential activity of the 7-EC in preventing the active entry to A549 cells without causing any damage to the cells and found functionally active in protecting the C. elegans from P. aeruginosa infection and being non-toxic to the worms. Docking analysis was further proved that 7-EC to be the potential anti-QS compound competing specifically with Rhl and Pqs Systems. Therefore, 7-EC in the utilisation against the P. aeruginosa based infections, may open an avenue for the futuristic mechanistic study in chronic respiratory diseases and a initiator for the development of non-antibiotic based antibacterial therapy.

Keywords: Biofilm; C. elegans; Chronic Obstructive Pulmonary Disease; P. aeruginosa; Quorum sensing; Virulence factors.

- 42 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

Review

Semin Cell Dev Biol
. 2023 May 23;S1084-9521(23)00112-X.
doi: 10.1016/j.semcdb.2023.05.003. Online ahead of print.

Epigenetic regulation of pulmonary inflammation

Shama Ahmad[1], Xiao Lu Zhang[1], Aftab Ahmad[2]
Affiliations expand

- PMID: 37230854

- DOI: 10.1016/j.semcdb.2023.05.003

Abstract

Pulmonary disease such as chronic obstructive pulmonary disease (COPD), asthma, pulmonary fibrosis and pulmonary hypertension are the leading cause of deaths. More importantly, lung diseases are on the rise and environmental factors induced epigenetic modifications are major players on this increased prevalence. It has been reported that dysregulation of genes involved in epigenetic regulation such as the histone deacetylase (HDACs) and histone acetyltransferase (HATs) play important role in lung health and pulmonary disease pathogenesis. Inflammation is an essential component of respiratory diseases. Injury and inflammation trigger release of extracellular vesicles that can act as epigenetic modifiers through transfer of epigenetic regulators such as microRNAs (miRNAs), long non-coding RNAs (lncRNAs), proteins and lipids, from one cell to another. The immune dysregulations caused by the cargo contents are important contributors of respiratory disease pathogenesis. N6 methylation of RNA is also emerging to be a critical mechanism of epigenetic alteration and upregulation of immune responses to environmental stressors. Epigenetic changes such as DNA methylation are stable and often long term and cause onset of chronic lung conditions. These epigenetic pathways are also being utilized for therapeutic intervention in several lung conditions.

Keywords: Epigenetics; Exosomes; Lung; Pulmonary disease; Therapies.

Conflict of interest statement

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

22
Life Sci Alliance
. 2023 May 25;6(8):e202201853.
doi: 10.26508/lsa.202201853. Print 2023 Aug.

Modeling fibrotic alveolar transitional cells with pluripotent stem cell-derived alveolar organoids

Victoria Ptasinski[1,2,3,4], Susan J Monkley[5], Karolina Öst[1], Markus Tammia[1], Hani N Alsafadi[2,3,4], Catherine Overed-Sayer[6], Petra Hazon[1], Darcy E Wagner[2,3,4], Lynne A Murray[7]
Affiliations expand

- PMID: 37230801
- PMCID: PMC10213712
- DOI: 10.26508/lsa.202201853

Free PMC article

Abstract

Repeated injury of the lung epithelium is proposed to be the main driver of idiopathic pulmonary fibrosis (IPF). However, available therapies do not specifically target the epithelium and human models of fibrotic epithelial damage with suitability for drug discovery are lacking. We developed a model of the aberrant epithelial reprogramming observed in IPF using alveolar organoids derived from human-induced pluripotent stem cells stimulated with a cocktail of pro-fibrotic and inflammatory cytokines. Deconvolution of RNA-seq data of alveolar organoids indicated that the fibrosis cocktail rapidly increased the proportion of transitional cell types including the *KRT5* $^{-}$ */KRT17* $^{+}$ aberrant basaloid phenotype recently identified in the lungs of IPF patients. We found that epithelial reprogramming and extracellular matrix (ECM) production persisted after removal of the fibrosis cocktail. We evaluated the effect of the two clinically approved compounds for IPF, nintedanib and pirfenidone, and found that they reduced the expression of ECM and pro-fibrotic mediators but did not completely reverse epithelial reprogramming. Thus, our system recapitulates key aspects of IPF and is a promising system for drug discovery.

Conflict of interest statement

AstraZeneca funded this study and participated in the study design, data collection, data analysis and data interpretation. V Ptasinski, SJ Monkley, K Öst, M Tammia, C Overed-Sayer, P Hazon, and LA Murray were full-time employees at AstraZeneca at the time of the study and may own shares in AstraZeneca.

- 75 references
- 24 figures

J Allergy Clin Immunol Pract

. 2023 May 23;S2213-2198(23)00549-4.
doi: 10.1016/j.jaip.2023.05.013. Online ahead of print.

Cluster analyses from the real-world NOVELTY study: six clusters across the asthma-COPD spectrum

Rod Hughes[1], Eleni Rapsomaniki[2], Aruna T Bansal[3], Jørgen Vestbo[4], David Price[5], Alvar Agustí[6], Richard Beasley[7], Malin Fagerås[8], Marianna Alacqua[2], Alberto Papi[9], Hana Müllerová[2], Helen K Reddel[10]; NOVELTY Scientific Community and the NOVELTY study investigators

Affiliations expand

- PMID: 37230383

- DOI: 10.1016/j.jaip.2023.05.013

Abstract

Background: Asthma and chronic obstructive pulmonary disease (COPD) are complex diseases whose definitions overlap.

Objective: To investigate clustering of clinical/physiological features and readily available biomarkers in patients with physician-assigned diagnoses of asthma and/or COPD in NOVELTY (NCT02760329).

Methods: Two approaches were taken to variable selection, using baseline data: approach A was data-driven, hypothesis-free, using Pearson's dissimilarity matrix; approach B used an unsupervised Random Forest guided by clinical input. Cluster analyses were conducted across 100 random resamples using partitioning around medoids, followed by consensus clustering.

Results: Approach A included 3,796 individuals (mean age 59.5 years, 54% female); approach B included 2,934 patients (mean age 60.7 years, 53% female). Each identified six mathematically stable clusters, which had overlapping characteristics. Overall, 67-75% of asthma patients were in three clusters, and ~90% of COPD patients in three clusters. Although traditional features like allergies and current/ex-smoking (respectively) were higher in these clusters, there were differences between clusters and approaches in features such as sex, ethnicity, breathlessness, frequent productive cough and blood cell counts. The strongest predictors of approach A cluster membership were age, weight, childhood onset, pre-bronchodilator FEV_1, duration of dust/fume exposure and number of daily medications.

Conclusion: Cluster analyses in NOVELTY patients with asthma and/or COPD yielded identifiable clusters, with several discriminatory features that differed from conventional diagnostic characteristics. The overlap between clusters suggests that they do not reflect discrete underlying mechanisms, and points to the need for identification of molecular endotypes and potential treatment targets across asthma and/or COPD.

Keywords: Precision medicine; asthma; biomarkers; chronic obstructive pulmonary disease; cluster analysis.

Int J Pharm

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. 2023 May 23;123070.

doi: 10.1016/j.ijpharm.2023.123070. Online ahead of print.

Drug combinations for inhalation: Current products and future development addressing disease control and patient compliance

Heba Banat[1], Rita Ambrus[1], Ildikó Csóka[2]
Affiliations expand

- PMID: 37230369

- DOI: 10.1016/j.ijpharm.2023.123070

Abstract

Pulmonary delivery is an alternative route of administration with numerous advantages over conventional routes of administration. It provides low enzymatic exposure, fewer systemic side effects, no first-pass metabolism, and concentrated drug amounts at the site of the disease, making it an ideal route for the treatment of pulmonary diseases. Owing to the thin alveolar-capillary barrier, and large surface area that facilitates rapid absorption to the bloodstream in the lung, systemic delivery can be achieved as well. Administration of multiple drugs at one time became urgent to control chronic pulmonary diseases such as asthma and COPD, thus, development of drug combinations was proposed. Administration of medications with variable dosages from different inhalers leads to overburdening the patient and may cause low therapeutic intervention. Therefore, products that contain combined drugs to be delivered via a single inhaler have been developed to improve patient compliance, reduce different dose regimens, achieve higher disease control, and boost therapeutic effectiveness in some cases. This comprehensive review aimed to highlight the growth of drug combinations by inhalation over time, obstacles and challenges, and the possible progress to broaden the current options or to cover new indications in the future. Moreover, various pharmaceutical technologies in terms of formulation and device in correlation with inhaled combinations were discussed in this review. Hence, inhaled combination therapy is driven by the need to maintain and improve the quality of life for patients with chronic respiratory diseases; promoting drug combinations by inhalation to a higher level is a necessity.

Keywords: Combination product; Formulation technique; Inhalation; Particle engineering; Patient compliance; Pulmonary delivery; QbD; Respiratory diseases; Synergism.

Conflict of interest statement

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

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

ERJ Open Res
. 2023 May 22;9(3):00694-2022.
doi: 10.1183/23120541.00694-2022. eCollection 2023 May.

Increased expression of miR146a dysregulates TLR2-induced HBD2 in airway epithelial cells from patients with COPD

Hymavathi Reddy-Vari[1], Yerin Kim[1], Charu Rajput[1], Umadevi S Sajjan[1,2]
Affiliations expand

- PMID: 37228294
- PMCID: PMC10204848
- DOI: 10.1183/23120541.00694-2022

Abstract

Background: Airway epithelial cells from patients with COPD show suboptimal innate immune responses to nontypeable *Haemophilus influenzae* (NTHi) and Toll-like receptor (TLR)2 ligands

despite expressing TLR2 similar to normal airway epithelial cells, but the underlying mechanisms are poorly understood.

Methods: Normal or COPD mucociliary-differentiated airway epithelial cells were treated with TLR2 agonists or infected with NTHi and expression of β-defensin (HBD)2 was examined. Interleukin-1 receptor-associated kinase (IRAK)-1 and microRNA (miR)146a were genetically inhibited in normal and COPD airway epithelial cell cultures, respectively, and HBD2 responses to TLR2 ligands were determined. IRAK-1 expression in lung sections was determined by immunofluorescence microscopy.

Results: Compared to normal, COPD airway epithelial cell cultures showed impaired expression of HBD2 in response to TLR2 agonists or NTHi infection. Apical secretions from TLR2 agonist-treated normal, but not COPD, airway epithelial cells efficiently killed NTHi. Knockdown of HBD2 significantly reduced NTHi killing by apical secretions of normal airway epithelial cells. Compared to normal, COPD cells showed significantly reduced expression of IRAK-1 and this was associated with increased expression of miR146a. Inhibition of miR146a increased the expression of IRAK-1, improved the expression of HBD2 in response to TLR2 agonists in COPD cells and enhanced the killing of bacteria by apical secretions obtained from TLR2 agonist-treated COPD cells. Bronchial epithelium of COPD patients showed reduced expression of IRAK-1.

Conclusions: These results suggest that reduced levels of IRAK-1 due to increased expression of miR146a may contribute to impaired expression of TLR2-induced HBD2 in COPD airway epithelial cells.

Conflict of interest statement

Conflict of interest: The authors declare that they have no competing interests.

- 40 references
- 8 figures

Review

ERJ Open Res

. 2023 May 22;9(3):00532-2022.

doi: 10.1183/23120541.00532-2022. eCollection 2023 May.

ERS International Congress 2022: highlights from the Respiratory Intensive Care Assembly

Simon Valentin[1,2], Daniel Lopez Padilla[3,4], Santi Nolasco[5], Darjan Ranilović[6], Raquel Guillamat-Prats[7], Toni Marín[8], Sharlene Ho[9], Shannon Tang[10], Efthymia Papadopoulou[11], Joseph Malone[12], Sebastian Leiva Agüero[13], Chloé Cantero[14], Maxime Patout[15], Christoph Fisser[16]
Affiliations expand

- PMID: 37228293

- PMCID: PMC10204864

- DOI: 10.1183/23120541.00532-2022

Abstract

Early Career Members of Assembly 2 (Respiratory Intensive Care) attended the 2022 European Respiratory Society (ERS) International Congress in Barcelona, Spain. The conference covered acute and chronic respiratory failure. Sessions of interest to our Assembly members and to those interested in respiratory critical care included the state-of-the-art session on respiratory critical care, the journal session (ERS/*Lancet*) on acute respiratory distress syndrome (ARDS) phenotyping into precision medicine, and sessions on specificity of coronavirus disease 2019 ARDS and its post-critical care. A symposium on treatment of acute respiratory failure in patients with COPD and innovations in mechanical ventilation either in the intensive care unit or at home were also reported upon. These sessions are summarised in this article.

Conflict of interest statement

Conflict of interest: T. Marín declares payment or honoraria from Fisher & Paykel in the 36 months prior to manuscript submission. S. Tang declares travel and conference fees for the European Respiratory Society International Congress were reimbursed by Queen's University Post-Graduate Medicine Education. M. Patout declares research grants from Fisher & Paykel, Resmed and Asten Santé; consulting fees from Philips Respironics, Resmed, Asten Santé and GlaxoSmithKline; support for attending meetings and/or travel from Asten Santé; participation on a data safety monitoring board or advisory board for Resmed, Philips Respironics and Asten Santé; stock or stock options in Kernel Biomedical; and receipt of equipment, materials, drugs, medical writing, gifts or other services from Philips Respironics, Resmed and Fisher & Paykel, all in the 36 months prior to manuscript submission. C. Fisser declares research grants from the German Heart Research Foundation; and payment or honoraria from CSL Behring, AstraZeneca and Novartis, all in the 36 months prior to manuscript submission; and that they are an Early Career Member Representative

for European Respiratory Society Assembly 2 (Respiratory intensive care). All other authors declare no competing interests.

- 137 references
- 3 figures

SUPPLEMENTARY INFO

Publication typesexpand

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Review

ERJ Open Res

. 2023 May 22;9(3):00034-2023.
doi: 10.1183/23120541.00034-2023. eCollection 2023 May.

ERS International Congress 2022: highlights from the Airway Diseases Assembly

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Affiliations expand

- PMID: 37228280
- PMCID: PMC10204859
- DOI: 10.1183/23120541.00034-2023

Abstract

The European Respiratory Society (ERS) celebrated the return of an in-person meeting in Barcelona, Spain, after 2 years of virtual congresses. The ERS Congress 2022 programme was replete with symposia, skills workshops and abstract presentations from all 14 assemblies, encompassing over 3000 abstracts presented in the form of thematic poster discussion and oral presentations. In this article, highlights from the ERS Congress 2022 (including from thematic poster sessions, oral presentations and symposia from keynote speakers), presented by Assembly 5 (Airway diseases, asthma, COPD and chronic cough), are reviewed by Early Career Members and experts in the field, with the aim of presenting key recent findings in the field.

Conflict of interest statement

Conflict of interest: A. Portacci declares honoraria from AstraZeneca, GlaxoSmithKline, Chiesi and Sanofi. C. Gotera declares payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from AstraZeneca and GlaxoSmithKline. L. Uller reports payment or honoraria from AstraZeneca for lectures, presentations, speakers’ bureaus, manuscript writing or educational events. P. Pobeha declares payment or honoraria for lectures, presentations, speakers’ bureaus, manuscript writing or educational events from AstraZeneca and Angeliny, is secretary of Group 05.02 (monitoring airway disease) of the European Respiratory Society, and a member of steering committees of the Slovak respiratory society and Slovak sleep medicine society. R.J. Snelgrove declares grants from The Wellcome Trust. G-J. Braunstahl reports attending advisory boards for GlaxoSmithKline, Novartis, AstraZeneca, Boehringer Ingelheim and Sanofi, honoraria from Novartis, AstraZeneca, Chiesi, GlaxoSmithKline, Teva and ALK Abello, participating in research with GlaxoSmithKline, Chiesi, AstraZeneca, ALK Abello, Novartis and Teva, and attending international conferences with Novartis and Teva. A. Bossios declares honoraria for advisory board meetings from GSK, AstraZeneca, Teva, Novartis and Sanofi, is a member of the steering committee of SHARP, secretary of Assembly 5 (airway diseases, asthma, COPD and chronic cough) of the European Respiratory Society and vice-chair of the Nordic Severe Asthma Network. O. Usmani reports grants and personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi and GlaxoSmithKline, personal fees from Napp, Mundipharma, from Sandoz and Takeda, grants from Edmond Pharma, and personal fees from Cipla, Covis, Novartis, Mereo Biopharma, Orion, Menarini, UCB, Trudell Medical, Deva, Kamada, Covis and Kyorin, outside the submitted work; and is chair of Assembly 5 (airway diseases, asthma, COPD and chronic cough) of the European Respiratory Society. A. Beech, F.L.M. Ricciardolo, B. Herrero-Cortina, A.G. Mathioudakis and S. Ananth declare no conflicts of interest.

- 110 references

ERJ Open Res
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. 2023 May 22;9(3):00585-2022.
doi: 10.1183/23120541.00585-2022. eCollection 2023 May.

Mood disorder in idiopathic pulmonary fibrosis: response to pulmonary rehabilitation

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Affiliations expand

- PMID: 37228278
- PMCID: PMC10204825
- DOI: 10.1183/23120541.00585-2022

Abstract

Background: Pulmonary rehabilitation improves mood disorder in COPD, but there are limited data in idiopathic pulmonary fibrosis (IPF). The aims of this cohort study were to investigate whether pulmonary rehabilitation reduces mood disorder in IPF, and estimate the minimal important difference (MID) of the Hospital Anxiety and Depression Scale (HADS).

Methods: HADS and core pulmonary rehabilitation outcomes were measured in 166 participants before and after an 8-week, in-person, outpatient pulmonary rehabilitation programme. Anchor- and distribution-based methods were used to calculate the MID of HADS-Anxiety (A) and HADS-Depression (D).

Results: Suggestive or probable anxiety and depression (HADS ≥8) were present in 35% and 37% of participants, respectively, at baseline, and this reduced significantly following pulmonary rehabilitation (post-pulmonary rehabilitation: HADS-A 23%, HADS-D 26%). Overall, there was a significant reduction in HADS-D (mean change -1.1, 95% CI -1.6- -0.5), but not HADS-A (-0.6, -1.3-0.15) with pulmonary rehabilitation. Subgroup analysis of those with HADS ≥8 revealed significant improvements in HADS domains (mean change: HADS-A -4.5, 95% CI -5.7- -3.4;

median change: HADS-D -4.0, interquartile range -6.0- -1.0). The mean (range) MID estimates for HADS-A and HADS-D were -2 (-2.3- -1.7) and -1.2 (-1.9- -0.5), respectively.

Conclusion: In people with IPF and suggestive or probable mood disorder, pulmonary rehabilitation reduces anxiety and depression.

Conflict of interest statement

Conflict of interest: G.D. Edwards, O. Polgar, S. Patel, R.E. Barker, J.A. Walsh and J. Harvey report no competing interests. Conflict of interest: W.D-C. Man reports personal fees from Jazz Pharmaceuticals, Mundipharma and Novartis, grants from Pfizer, nonfinancial support from GSK, and grants from the National Institute for Health Research and British Lung Foundation, outside the submitted work; and is an associate editor of this journal. Conflict of interest: C.M. Nolan reports personal fees from Novartis and consultancy work (not reimbursed) with Vicore Pharma outside the submitted work.

- 40 references
- 4 figures

ERJ Open Res

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. 2023 May 22;9(3):00650-2022.
doi: 10.1183/23120541.00650-2022. eCollection 2023 May.

Occupational exposures and small airway obstruction in the UK Biobank Cohort

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- PMID: 37228277

- PMCID: PMC10204826

- DOI: 10.1183/23120541.00650-2022

Abstract

Background: Small airways obstruction (SAO) is a key feature of both COPD and asthma, which have been associated with workplace exposures. Whether SAO, which may occur early in the development of obstructive lung disease and without symptoms, also associates with occupational exposures is unknown.

Methods: Using UK Biobank data, we derived measurements of SAO from the 65 145 participants with high-quality spirometry and lifetime occupational histories. The ALOHA+ Job Exposure Matrix was used to assign lifetime occupational exposures to each participant. The association between SAO and lifetime occupational exposures was evaluated using a logistic regression model adjusted for potential confounders. A second logistic regression model was also run to account for potential co-exposures.

Results: SAO was present in varying proportions of the population depending on definition used: 5.6% (forced expiratory flow between 25 and 75% of the forced vital capacity (FEF_{25-75}) < lower limit of normal (LLN)) and 21.4% (forced expiratory volume in 3 s (FEV_3)/forced expiratory volume in 6 s (FEV_6) <LLN). After adjustment for confounders and co-exposures, people in the highest category of exposure to pesticides were significantly more likely to have SAO (FEV_3/FEV_6 <LLN: OR 1.24, 95% CI 1.06-1.44). The association between pesticides and SAO showed an exposure-response pattern. SAO was also less likely among people in the highest exposure categories of aromatic solvents (FEV_3/FEV_6 <LLN: OR 0.85, 95% CI 0.73-0.99) and metals (FEV_3/FEV_6 <LLN: OR 0.77, 95% CI 0.62-0.94).

Conclusion: Our findings suggest that occupational exposure to pesticides play a role in the SAO. However, further work is needed to determine causality, and identify the specific component(s) responsible and the underlying mechanisms involved.

Conflict of interest statement

Conflict of interest: None declared.

- 39 references
- 2 figures

ERJ Open Res

. 2023 May 22;9(3):00679-2022.
doi: 10.1183/23120541.00679-2022. eCollection 2023 May.

Interleukin-11 disrupts alveolar epithelial progenitor function

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- PMID: 37228276

- PMCID: PMC10204861

- DOI: 10.1183/23120541.00679-2022

Abstract

Background: Interleukin-11 (IL-11) is linked to the pathogenesis of idiopathic pulmonary fibrosis (IPF), since IL-11 induces myofibroblast differentiation and stimulates their excessive collagen deposition in the lung. In IPF there is disrupted alveolar structural architecture, yet the effect of IL-11 on the dysregulated alveolar repair remains to be elucidated.

Methods: We hypothesised that epithelial-fibroblast communication associated with lung repair is disrupted by IL-11. Thus, we studied whether IL-11 affects the repair responses of alveolar lung epithelium using mouse lung organoids and precision-cut lung slices (PCLS). Additionally, we assessed the anatomical distribution of IL-11 and IL-11 receptor (IL-11R) in human control and IPF lungs using immunohistochemistry.

Results: IL-11 protein was observed in airway epithelium, macrophages and in IPF lungs, also in areas of alveolar type 2 (AT2) cell hyperplasia. IL-11R staining was predominantly present in smooth muscle and macrophages. In mouse organoid co-cultures of epithelial cells with lung fibroblasts, IL-11 decreased organoid number and reduced the fraction of Prosurfactant Protein C-expressing organoids, indicating dysfunctional regeneration initiated by epithelial progenitors. In mouse PCLS exposed to IL-11, ciliated cell markers were increased. The response of primary human fibroblasts to IL-11 on gene expression level was minimal, though bulk RNA-sequencing

revealed IL-11 modulated various processes which are associated with IPF, including unfolded protein response, glycolysis and Notch signalling.

Conclusions: IL-11 disrupts alveolar epithelial regeneration by inhibiting progenitor activation and suppressing the formation of mature alveolar epithelial cells. Evidence for a contribution of dysregulated fibroblast-epithelial communication to this process is limited.

Conflict of interest statement

Conflict of interest: R.K. Kortekaas declares funding for the present manuscript from Boehringer Ingelheim (unrestricted research funds to their institute) and an internship contract with Boehringer Ingelheim in the 36 months prior to manuscript submission. K.E. Geillinger-Kästle is an employee of Boehringer Ingelheim. M. Webster is a former employee of Boehringer Ingelheim and a current employee of Newcells Biotech. W. Timens declares consulting fees from Merck Sharp & Dohme and Bristol Myers Squibb in the 36 months prior to manuscript submission; and that they are a board member of the Dutch Society of Pathology, and a member of the Council for Research and Innovation of the Federation of Medical Specialists. J.K. Burgess declares funding for the present manuscript from Boehringer Ingelheim (unrestricted research funds to their institute) and Nederlandse Organisatie voor Wetenschappelijk Onderzoek (Aspasia-premie subsidienummer 015.013.010, paid to their institute). R. Gosens declares funding for the present manuscript from Boehringer Ingelheim (paid to their institute); as well as grants paid to their institution from Aquilo and Sanofi-Genzyme in the 36 months prior to manuscript submission. All other authors declare no competing interests.

- 38 references
- 5 figures

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PLoS One

. 2023 May 25;18(5):e0286064.
doi: 10.1371/journal.pone.0286064. eCollection 2023.

Hierarchical association of COPD to principal genetic components of biological systems

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Affiliations expand

- PMID: 37228113
- PMCID: PMC10212185
- DOI: 10.1371/journal.pone.0286064

Free PMC article

Abstract

Many disease-causing genetic variants converge on common biological functions and pathways. Precisely how to incorporate pathway knowledge in genetic association studies is not yet clear, however. Previous approaches employ a two-step approach, in which a regular association test is first performed to identify variants associated with the disease phenotype, followed by a test for functional enrichment within the genes implicated by those variants. Here we introduce a concise one-step approach, Hierarchical Genetic Analysis (Higana), which directly computes phenotype associations against each function in the large hierarchy of biological functions documented by the Gene Ontology. Using this approach, we identify risk genes and functions for Chronic Obstructive Pulmonary Disease (COPD), highlighting microtubule transport, muscle adaptation, and nicotine receptor signaling pathways. Microtubule transport has not been previously linked to COPD, as it integrates genetic variants spread over numerous genes. All associations validate strongly in a second COPD cohort.

Conflict of interest statement

TI is co-founder of Data4Cure, Inc., is on the Scientific Advisory Board, and has an equity interest. TI is on the Scientific Advisory Board of Ideaya BioSciences, Inc., has an equity interest, and receives sponsored research funding. The terms of these arrangements have been reviewed and approved by the University of California San Diego in accordance with its conflict of interest policies. MC is a consultant for Illumina and AstraZeneca. In the past three years, EKS has received

institutional grant support from GSK and Bayer. This does not alter our adherence to PLOS ONE policies on sharing data and materials.

- 64 references
- 4 figures

SUPPLEMENTARY INFO

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. 2023 May 25;12:e84315.
doi: 10.7554/eLife.84315. Online ahead of print.

A meta-analysis of genome-wide association studies of childhood wheezing phenotypes identifies *ANXA1* as a susceptibility locus for persistent wheezing

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Collaborators, Affiliations expand

- PMID: 37227431

- DOI: 10.7554/eLife.84315

Free article

Abstract

Background: Many genes associated with asthma explain only a fraction of its heritability. Most genome-wide association studies (GWASs) used a broad definition of 'doctor-diagnosed asthma', thereby diluting genetic signals by not considering asthma heterogeneity. The objective of our study was to identify genetic associates of childhood wheezing phenotypes.

Methods: We conducted a novel multivariate GWAS meta-analysis of wheezing phenotypes jointly derived using unbiased analysis of data collected from birth to 18 years in 9,568 individuals from five UK birth-cohorts.

Results: 44 independent SNPs were associated with early-onset persistent, 25 with preschool remitting, 33 with mid-childhood remitting and 32 with late-onset wheeze. We identified a novel locus on chr9q21.13 (close to annexin 1 (*ANXA1*), $p<6.7\times10^{-9}$), associated exclusively with early-onset persistent wheeze. We identified rs75260654 as the most likely causative single nucleotide polymorphism (SNP) using Promoter Capture Hi-C loops, and then showed that the risk allele (T) confers a reduction in *ANXA1* expression. Finally, in a murine model of house dust mite (HDM)-induced allergic airway disease, we demonstrated that anxa1 protein expression increased and anxa1 mRNA was significantly induced in lung tissue following HDM exposure. Using anxa1$^{-/-}$ deficient mice, we showed that loss of anxa1 results in heightened airway hyperreactivity and Th2 inflammation upon allergen challenge.

Conclusions: Targeting this pathway in persistent disease may represent an exciting therapeutic prospect.

Funding: UK Medical Research Council Programme Grant MR/S025340/1 and the Wellcome Trust Strategic Award (108,818/15/Z) provided most of the funding for this study.

Keywords: epidemiology; genetics; genomics; global health; human.

Conflict of interest statement

RG, JC, SH, NK, SM, LG, LY, MT, JH, MP, JV, HA, PC, SF, ST The other authors declare that no competing interests exist. GR Graham C Roberts, MRC grant to my institutionPresident of the British Society of Allergy and Clinical Immunology. GK Gerard H Koppelman, Dutch Lung Foundation, Ubbo Emmius Foundation (Money to insititution)Dutch Lung Foundation, Vertex, TEVA the Netherlands, GSK, ZON-MW (VICI grant), European Union (Money to institution)Astra Zeneca, Pure IMS, GSK (Money to institution)Sanofi, Boehringer Ingelheim (Money to institution). AS Angela Simpson, Medical research council Research grantJP Moulton Charitable Foundation Research grantAsthma UK Research grant. CM Clare S Murray, has received grants from Asthma Uk, the National Institute for Health Research, the Moulton Charitable Foundation and the North West Lung Centre Charity (to the Institution). They received lecture fees from GSK and Novartis, and received a travel grant from Sanofi. The authors has no other competing interests to declare.. CL Clare M Lloyd, Wellcome Trust 107059/Z/15/Z. JH John W Holloway, Medial Research Council grant MR/S025340/1 (to institution)American Academy of Allergy Asthma and Immunology (AAAI) (Support for speaker travel to AAAAI annual congress). AC Adnan

Custovic, MRC (research grants)EPSRC (research grant)Wellcome Trust (research grant)Worg Pharmaceoticals (Personal payment <US$5000)GSK Honorarium for lecture, personal, <US$ 5000AstraZenecaHonorarium for lecture, personal, <US$ 5000Sanofi Honorarium for lecture, personal, <US$ 5000Stallergens-Greer Honorarium for lecture, personal, <US$ 5000WAO (Board of officers, unpaid).

Neurourol Urodyn

. 2023 May 24.
doi: 10.1002/nau.25217. Online ahead of print.

Association between respiratory disease and stress urinary incontinence: An analysis of the 2015-2020 National Health and Nutrition Examination Survey

Michael Zhu[1], Jasper Sim[1], Chihiro Okada[1], Joseph Kim[1], Nitya Abraham[1,2]
Affiliations expand

- PMID: 37226650

- DOI: 10.1002/nau.25217

Abstract

Introduction: There is a logical association between chronic obstructive pulmonary disease (COPD) or asthma with stress urinary incontinence (SUI), given the propensity for coughing which

increases intra-abdominal pressure. However, there are few studies examining the association between COPD or asthma and specifically SUI. We aimed to utilize the National Health and Nutrition Examination Survey (NHANES) data from 2015 to 2020 to measure the association between respiratory diseases like COPD and asthma with SUI.

Methods: Data was collected from NHANES, a database representative of the United States population. Participants were included if they were female, older than 20 years, and completed the incontinence survey question. Self-reported history of asthma and COPD diagnosis from a physician, as well as history of incontinence associated with activities such as coughing, lifting, or exercise, were collected. Characteristics of participants were compared using χ^2 and Student t-tests. Multivariable logistic regression was performed using a multimodel approach to adjust for sociodemographic and health-related covariates.

Results: A total of 9059 women were included in this study. 42.13% reported an episode of SUI in the past year, 6.29% had a COPD diagnosis, and 11.86% had an asthma diagnosis. In the unadjusted analysis, participants with COPD were more likely to report SUI (odds ratio [OR] 3.42, 95% confidence interval [CI] 2.13-5.49, $p < 0.001$); this association persisted on multivariable analysis (OR 2.87, 95% CI 1.46-5.60, $p = 0.003$). There was no significant association between asthma and SUI in the unadjusted (OR 1.15, 95% CI 0.96-1.38, $p = 0.14$) or adjusted model (OR 1.18, 95% CI 0.86-1.60, $p = 0.30$).

Conclusion: Although a strong association between COPD and SUI was observed, an analogous one was not found between asthma and SUI. Chronic cough may be more difficult to control with treatment or more common in those with COPD than asthma, explaining this difference. Future research should continue to explore drivers for SUI in large populations to dispel or affirm historically assumed SUI risk factors.

Keywords: COPD; NHANES; asthma; stress urinary incontinence.

- 25 references

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Eur J Pharm Biopharm

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. 2023 May 22;S0939-6411(23)00139-X.
doi: 10.1016/j.ejpb.2023.05.017. Online ahead of print.

Baicalin/ambroxol hydrochloride combined dry powder inhalation formulation targeting lung delivery for treatment of idiopathic pulmonary fibrosis: fabrication, characterization, pharmacokinetics, and pharmacodynamics

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- PMID: 37224929

- DOI: 10.1016/j.ejpb.2023.05.017

Abstract

Idiopathic pulmonary fibrosis (IPF) is a chronic, progressive, and often fatal lung disease caused by multiple factors. Currently, safe, and effective drugs for the treatment of IPF have been extremely scarce. Baicalin (BA) is used to treat pulmonary fibrosis, IPF, chronic obstructive pulmonary disease, and other lung diseases. Ambroxol hydrochloride (AH), a respiratory tract lubricant and expectorant, is often used to treat chronic respiratory diseases, such as bronchial asthma, emphysema, tuberculosis, and cough. The combination of BA and AH can relieve cough and phlegm, improve lung function, and potentially treat IPF and its symptoms. However, given the extremely low solubility of BA, its bioavailability for oral absorptions is also low. AH, on the other hand, has been associated with certain side effects, such as gastrointestinal tract and acute allergic reactions, which limit its applicability. Therefore, an efficient drug delivery system is urgently needed to address the mentioned problems. This study combined BA and AH as model drugs with L-leucine (L-leu) as the excipient to prepare BA/AH dry powder inhalations (BA/AH DPIs) using the co-spray drying method. We the performed modern pharmaceutical evaluation, which includes particle size, differential scanning calorimetry analysis, X-ray diffraction, scanning electron microscope, hygroscopicity, in vitro aerodynamic analysis, pharmacokinetics, and pharmacodynamics. Notably, BA/AH DPIs were found to be advantageous over BA and AH in treating IPF and had better efficacy in improving lung function than did the positive drug pirfenidone. The BA/AH DPI is a promising preparation for the treatment of IPF given its lung targeting, rapid efficacy, and high lung bioavailability.

Keywords: Ambroxol hydrochloride; Baicalin; Dry powder inhalation; Idiopathic pulmonary fibrosis; Lung targeting; Pharmacokinetic analysis; Pulmonary administration.

Conflict of interest statement

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

Respir Med

. 2023 May 22;215:107265.
doi: 10.1016/j.rmed.2023.107265. Online ahead of print.

The minimal important difference of the constant work rate cycle test in severe COPD

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- PMID: 37224889

- DOI: 10.1016/j.rmed.2023.107265

Abstract

Background: The Constant Work Rate Cycle Test (CWRT) is a commonly used and sensitive test to detect treatment success in patients with Chronic Obstructive Pulmonary Disease (COPD). Earlier, the Minimal Important Difference (MID) of the CWRT was estimated at 101 s (or 34%) change from baseline based on one well executed study. However, this study was performed in a population of patients with mild-to-moderate COPD, and we have learned that MIDs might be quite different in patients with severe COPD. Therefore, we aimed to establish the MID of the CWRT in patients with severe COPD.

Methods: We included 141 patients with severe COPD, who underwent either pulmonary rehabilitation, bronchoscopic lung volume reduction with endobronchial valves, or a sham bronchoscopy as a control group. CWRT workload was set at 75% of the peak work capacity, as determined by an incremental cycle test. We used the change in 6-min walking test (6-MWT), forced expiratory volume in 1s (FEV_1), residual volume (RV), and St. George's Respiratory Questionnaire (SGRQ) total score as anchors to calculate the MID.

Results: All anchors had an association of ≥0.41 with change in CWRT. The MID estimates for the different anchors were: 6-MWT 278 s (95%), FEV_1 273 s (90%), RV 240 s (84%), and SGRQ 208 s (71%). The average of these four MID estimates resulted in an MID of 250 s (or 85%).

Conclusion: We established the MID for CWRT at 250 s (or 85%) change from baseline in patients with severe COPD.

Conflict of interest statement

Declaration of competing interest There is no conflict of interest.

Review

Neurol Ther

. 2023 May 24.
doi: 10.1007/s40120-023-00493-6. Online ahead of print.

Comparison Between Burden of Care Partners of Individuals with Alzheimer's Disease Versus Individuals with Other Chronic Diseases

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Affiliations expand

- PMID: 37222859

- DOI: 10.1007/s40120-023-00493-6

Abstract

Background: Caregiving in Alzheimer's disease (AD) is often provided by informal care partners, who spend more hours per week on average than care partners of individuals with conditions other than AD. However, the burden of care in partners of individuals with AD has not been systematically compared to that of other chronic diseases.

Objective: The current study therefore aims to compare the care partner burden of AD to that of other chronic diseases through a systematic literature review.

Methods: Data was collected from journal articles published in the last 10 years, using two unique search strings in PubMed and analysed using pre-defined patient-reported outcome measures (PROMs) including the EQ-5D-5L, GAD-7, GHQ-12, PHQ-9, WPAI and the ZBI. The data was grouped according to the included PROMs and the diseases studied. The number of participants in the studies reporting burden of caregiving in AD was adjusted to reflect the number of participants in studies reporting care partner burden in other chronic diseases.

Results: All results in this study are reported as a mean value and standard deviation (SD). The ZBI measurement was the most frequently used PROM to collect care partner burden (15 studies) and showed a moderate burden (mean 36.80, SD 18.35) on care partners of individuals with AD, higher than most of the other included diseases except for those characterized by psychiatric symptoms (mean scores 55.92 and 59.11). Other PROMs such as PHQ-9 (six studies) and GHQ-12 (four studies) showed a greater burden on care partners of individuals with other chronic diseases such as heart failure, haematopoietic cell transplantations, cancer and depression compared to AD. Likewise, GAD-7 and EQ-5D-5L measurements showed a lesser burden on care partners of individuals with AD compared to care partners of individuals with anxiety, cancer, asthma and chronic obstructive pulmonary disease. The current study suggests that care partners of individuals with AD experience a moderate burden, but with some variations depending on the PROMs used.

Conclusion: The results of this study were mixed with some PROMs indicating a greater burden for care partners of individuals with AD versus other chronic diseases, and other PROMs showing a greater burden for care partners of individuals with other chronic diseases. Psychiatric disorders imposed a greater burden on care partners compared to AD, while somatic diseases in the musculoskeletal system resulted in a significantly smaller burden on care partners compared to AD.

Keywords: Alzheimer’s disease; Care partner burden; Chronic diseases; Patient-reported outcome measure.

- 94 references

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. 2023 May 24;31348231173934.
doi: 10.1177/00031348231173934. Online ahead of print.

The Impact of Smoking History on Outcomes and Morbidity After Robotic Hepatectomy

Iswanto Sucandy[1], Sharona Ross[1], Niritta Patel[2], Samantha App[1], Joshua Ignatius[1], Cameron Syblis[1], Kaitlyn Crespo[1], Vincent Butano[2], Alexander Rosemurgy[1]
Affiliations expand

- PMID: 37222271

- DOI: 10.1177/00031348231173934

Abstract

Introduction: The detrimental effects that smoking has on patient health and postoperative morbidity are well documented. However, literature on the impact that smoking history has on robotic surgery, specifically robotic hepatectomy, is scarce. This study was undertaken to determine whether smoking history impacts the postoperative course of patients undergoing robotic hepatectomy.

Methods: We prospectively followed 353 patients that underwent robotic hepatectomy. 125 patients had an apposite history of smoking (ie, smokers) and 228 patients were classified as non-smokers. Data were presented as median (mean ± SD). Patients were then propensity-score matched based on patient and tumor characteristics.

Results: Prior to the matching, the MELD score and cirrhosis status in patients who smoke were found to be significantly higher when compared to those who do not (mean MELD score 9 vs 8 and cirrhosis in 25% vs 13% of patients, respectively). Both smokers and non-smokers have similar BMIs, number of previous abdominal operations, ASA physical status classifications, and Child-Pugh scores. Six percent smokers vs one percent non-smokers experienced pulmonary complications (pneumonia, pneumothorax, and COPD exacerbation) (P = .02). No differences were found for postoperative complications of Clavien-Dindo score ≥ III, 30-day mortality, or 30-day readmissions. After the matching, no differences were found between the smokers and the non-smokers.

Conclusion: After a propensity-score match analysis, smoking did not appear to negatively affect the intra- and postoperative outcomes after robotic liver resections. We believe that the robotic approach as the most modern minimally invasive technique in liver resection may have the potential to mitigate the known adverse effects of smoking.

Keywords: minimally invasive liver surgery; robotic hepatectomy; robotic liver surgery; tobacco use.

Respir Res

. 2023 May 23;24(1):137.

doi: 10.1186/s12931-023-02450-1.

The association of spirometric small airways obstruction with respiratory symptoms, cardiometabolic diseases, and quality of life: results from the Burden of Obstructive Lung Disease (BOLD) study

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Affiliations expand

- PMID: 37221593

- PMCID: PMC10207810

- DOI: 10.1186/s12931-023-02450-1

Free PMC article

Abstract

Background: Spirometric small airways obstruction (SAO) is common in the general population. Whether spirometric SAO is associated with respiratory symptoms, cardiometabolic diseases, and quality of life (QoL) is unknown.

Methods: Using data from the Burden of Obstructive Lung Disease study (N = 21,594), we defined spirometric SAO as the mean forced expiratory flow rate between 25 and 75% of the FVC (FEF_{25-75}) less than the lower limit of normal (LLN) or the forced expiratory volume in 3 s to FVC ratio (FEV_3/FVC) less than the LLN. We analysed data on respiratory symptoms, cardiometabolic diseases, and QoL collected using standardised questionnaires. We assessed the associations with spirometric SAO using multivariable regression models, and pooled site estimates using random effects meta-analysis. We conducted identical analyses for isolated spirometric SAO (i.e. with FEV_1/FVC ≥ LLN).

Results: Almost a fifth of the participants had spirometric SAO (19% for FEF_{25-75}; 17% for FEV_3/FVC). Using $FEF_{25-75,}$ spirometric SAO was associated with dyspnoea (OR = 2.16, 95% CI 1.77-2.70), chronic cough (OR = 2.56, 95% CI 2.08-3.15), chronic phlegm (OR = 2.29, 95% CI 1.77-4.05), wheeze (OR = 2.87, 95% CI 2.50-3.40) and cardiovascular disease (OR = 1.30, 95% CI 1.11-1.52), but not hypertension or diabetes. Spirometric SAO was associated with worse physical and mental QoL. These associations were similar for FEV_3/FVC. Isolated spirometric SAO (10% for FEF_{25-75}; 6% for FEV_3/FVC), was also associated with respiratory symptoms and cardiovascular disease.

Conclusion: Spirometric SAO is associated with respiratory symptoms, cardiovascular disease, and QoL. Consideration should be given to the measurement of FEF_{25-75} and FEV_3/FVC, in addition to traditional spirometry parameters.

Keywords: Cardiovascular disease; Quality of life; Small airways obstruction; Spirometry; Symptoms.

Conflict of interest statement

Outside of the submitted work: DM declares being a consultant to GlaxoSmithKline, AstraZeneca, COPD Foundation. Royalties—Up to Date. Expert Witness-Schlesinger Law Firm. All other authors declare no competing interests.

- 37 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

39

Eur J Med Res

. 2023 May 23;28(1):178.
doi: 10.1186/s40001-023-01136-0.

The impact of the duration of the integrated disease management program on COPD-related outcomes

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Affiliations expand

- PMID: 37221574
- PMCID: PMC10204265

- DOI: 10.1186/s40001-023-01136-0

Free PMC article

Abstract

Background: The aim of this study is to assess the impact of the duration of the integrated disease management (IDM) program on COPD-related outcomes in real-world setting.

Methods: A retrospective cohort study among 3771 patients with COPD who had regularly completed 4 visits of IDM program within 1 year between April 1, 2017 and December 31, 2018. CAT score as the primary outcome used to investigate the association between IDM intervention duration and improvement in CAT score. Change in CAT score from baseline to each follow-up visit determined by using least-squares means (LSMeans) approach. The cut-off value of IDM duration for improving the CAT score was determined by the Youden index. Logistic regression was used to analyze the relationship between IDM intervention duration and MCID (the minimal clinically important difference) improvement in CAT score and the factor associated CAT improvement. Risks of COPD exacerbation events (COPD-related ED visit and COPD-related hospitalization) were estimated by using the cumulative incidence curve and Cox proportional hazards models.

Result: Among 3771 enrolled COPD patients, the majority of the study cohort were males (91.51%) and 42.7% of patients had CAT score of ≥ 10 at baseline. The mean of age was 71.47 years and the mean CAT at baseline were 10.49. The mean change from baseline in CAT score was - 0.87, - 1.19, - 1.23 and - 1.40 at 3-, 6-, 9- and 12 month follow-up ($p < 0.0001$ for all visits), respectively. Statistically significantly lower likelihood of achieving MCID improvement in CAT were observed at 3- and 6 month compared to 9 month (at 3 month: OR: 0.720, 95% CI 0.655-0.791; at 6 month: OR: 0.905, 95% CI 0.825-0.922). And only a modest increase likelihood of achieving MCID improvement in CAT at 12 month (OR: 1.097, 95% CI 1.001-1.201) compared with 9-month follow-up. In logistic regression on the entire cohort, CAT MCID improvement was most associated with baseline CAT scores ≥ 10, followed by frequent exacerbation in previous year (> 2 episodes/year), wheezing, and GOLD B or D at baseline. In baseline CAT ≥ 10 group, patients were more likely to achieve CAT MCID improvement and had greater decreases from baseline in CAT score observed at 3-, 6-, 9-, and 12 month compared with baseline CAT score < 10 group (all $p < 0.0001$). Moreover, in CAT ≥ 10 groups, patients who achieved CAT MCID improvement had lower risk of subsequent COPD exacerbation events (COPD-related ED visit: aHR: 1.196, 95% CI 0.985-1.453, $p = 0.0713$; COPD-related hospitalization: aHR: 1.529, 95% CI 1.215-1.924, $p = 0.0003$) when compared to those without.

Conclusion: This is the first real-world study indicating the association between COPD IDM intervention duration and COPD-related outcomes. From 3 to 12 month follow-up results showed that continued improvement over time in COPD-specific health status, particularly in patients with baseline CAT score of ≥ 10. Furthermore, a reduction of the risk of subsequent COPD exacerbations were observed in patients with CAT MCID improvement.

Keywords: COPD; Exacerbation; Integrated care model; Intervention duration; MCID improvement for CAT.

Conflict of interest statement

The authors declare no conflicts of interest.

- 22 references
- 5 figures

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

40

Drugs Aging

. 2023 May 23.
doi: 10.1007/s40266-023-01029-1. Online ahead of print.

Benzodiazepine Receptor Agonists Use and Cessation Among Multimorbid Older Adults with Polypharmacy: Secondary Analysis from the OPERAM Trial

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Affiliations expand

- PMID: 37221407

- DOI: 10.1007/s40266-023-01029-1

Abstract

Background: Benzodiazepine receptor agonists (BZRAs) are commonly prescribed in older adults despite an unfavorable risk-benefit ratio. Hospitalizations may provide a unique opportunity to initiate BZRA cessation, yet little is known about cessation during and after hospitalization. We aimed to measure the prevalence of BZRA use before hospitalization and the rate of cessation 6 months later, and to identify factors associated with these outcomes.

Methods: We conducted a secondary analysis of a cluster randomized controlled trial (OPtimising thERapy to prevent Avoidable hospital admissions in the Multimorbid elderly [OPERAM]), comparing usual care and in-hospital pharmacotherapy optimization in adults aged 70 years or over with multimorbidity and polypharmacy in four European countries. BZRA cessation was defined as taking one or more BZRA before hospitalization and not taking any BZRA at the 6-month follow-up. Multivariable logistic regression was performed to identify factors associated with BZRA use before hospitalization and with cessation at 6 months.

Results: Among 1601 participants with complete 6-month follow-up data, 378 (23.6%) were BZRA users before hospitalization. Female sex (odds ratio [OR] 1.52 [95% confidence interval 1.18-1.96]), a higher reported level of depression/anxiety (OR up to 2.45 [1.54-3.89]), a higher number of daily drugs (OR 1.08 [1.05-1.12]), use of an antidepressant (OR 1.74 [1.31-2.31]) or an antiepileptic (OR 1.46 [1.02-2.07]), and trial site were associated with BZRA use. Diabetes mellitus (OR 0.60 [0.44-0.80]) was associated with a lower probability of BZRA use. BZRA cessation occurred in 86 BZRA users (22.8%). Antidepressant use (OR 1.74 [1.06-2.86]) and a history of falling in the previous 12 months (OR 1.75 [1.10-2.78]) were associated with higher BZRA cessation, and chronic obstructive pulmonary disease (COPD) (OR 0.45 [0.20-0.91]) with lower BZRA cessation.

Conclusion: BZRA prevalence was high among included multimorbid older adults, and BZRA cessation occurred in almost a quarter of them within 6 months after hospitalization. Targeted BZRA deprescribing programs could further enhance cessation. Specific attention is needed for females, central nervous system-acting co-medication, and COPD co-morbidity.

Registration: ClinicalTrials.gov identifier: NCT02986425. December 8, 2016.

- 50 references

SUPPLEMENTARY INFO

Associated data, Grant supportexpand

FULL TEXT LINKS

41
Funct Integr Genomics
. 2023 May 24;23(2):175.
doi: 10.1007/s10142-023-01091-3.

Using system biology and bioinformatics to identify the influences of COVID-19 co-infection with influenza virus on COPD

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Affiliations expand

- PMID: 37221323
- PMCID: PMC10205564
- DOI: 10.1007/s10142-023-01091-3

Free PMC article

Abstract

Coronavirus disease 2019 (COVID-19) has speedily increased mortality globally. Although they are risk factors for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), less is known about the common molecular mechanisms behind COVID-19, influenza virus A (IAV), and chronic obstructive pulmonary disease (COPD). This research used bioinformatics and systems biology to find possible medications for treating COVID-19, IAV, and COPD via identifying differentially expressed genes (DEGs) from gene expression datasets (GSE171110, GSE76925, GSE106986, and GSE185576). A total of 78 DEGs were subjected to functional enrichment, pathway analysis, protein-protein interaction (PPI) network construct, hub gene extraction, and other potentially relevant disorders. Then, DEGs were discovered in networks including transcription factor (TF)-gene connections, protein-drug interactions, and DEG-microRNA (miRNA) coregulatory networks by using NetworkAnalyst. The top 12 hub genes were MPO, MMP9, CD8A, HP, ELANE, CD5, CR2, PLA2G7, PIK3R1, SLAMF1, PEX3, and TNFRSF17. We found that 44 TFs-genes, as well as 118 miRNAs, are directly linked to hub genes. Additionally, we searched the Drug Signatures Database (DSigDB) and identified 10 drugs that could potentially treat COVID-19, IAV, and COPD. Therefore, we evaluated the top 12 hub genes that could be promising DEGs for targeted

therapy for SARS-CoV-2 and identified several prospective medications that may benefit COPD patients with COVID-19 and IAV co-infection.

Keywords: COPD; COVID-19; Differentially expressed genes; Drug molecule; Hub genes; Influenza viruses.

Conflict of interest statement

The authors declare no competing interests.

- 97 references
- 8 figures

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

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Respir Care

. 2023 May 23;respcare.10464.
doi: 10.4187/respcare.10464. Online ahead of print.

Validity, Reproducibility, and Minimal Detectable Difference of the Functional Upper Extremity Function Test - Simplified Version - for Adults With Moderate-Severe Asthma and COPD

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Affiliations expand

- PMID: 37221086

- DOI: 10.4187/respcare.10464

Abstract

Background: Upper-limbs (ULs) functional tests which are valid and reliable for individuals with chronic respiratory disease (CRD) are scarce. The aim of this study was to investigate the intra-rater reproducibility, validity, minimal detectable difference (MDD), and learning effect of the Upper Extremity Function Test - simplified version (UEFT_S) functional test and to characterize its performance for adults with moderate-severe asthma and COPD.

Methods: The UEFT_S was performed twice, and the number of elbow flexions in 20 s was the outcome. In addition, spirometry, 6-min walk test (6MWT), handgrip dynamometry (HGD), and usual and maximum timed-up-and-go tests (TUG_usual and TUG_max) were also performed.

Results: Eighty-four individuals with moderate-severe CRD and 84 control individuals matched by anthropometric data were analyzed. Individuals with CRD presented better performance in the UEFT_S than controls (P = .023). UEFT_S correlated significantly with HGD, TUG_usual, TUG_max, and 6MWT (P < .047 for all). The test-retest intraclass correlation coefficient was 0.91 [0.86-0.94], and the MDD was 0.4%.

Conclusions: The UEFT_S is a valid and reproducible tool to assess the functionality of the ULs in people with moderate-severe asthma and COPD. When applied in the modified form, the test can be considered simple, fast, and inexpensive, with an easy outcome to interpret.

Keywords: COPD; asthma; upper extremity; validation study.

. 2023 May 21;102953.
doi: 10.1016/j.ctim.2023.102953. Online ahead of print.

Efficacy of Traditional Chinese exercise (Baduanjin) on patients with stable COPD: A Systematic review and Meta-analysis

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Affiliations expand

- PMID: 37220858

- DOI: 10.1016/j.ctim.2023.102953

Abstract

Background: COPD is a prevalent and intractable chronic airway disease. At present, COPD is one of the diseases with the highest morbidity and mortality in the world; and causes a significant economic burden to patients and society. As a traditional exercise, the Baduanjin exercise has been inherited in China for hundreds of years. However, the treatment effects of Baduanjin exercise are controversial. This systematic review was designed to evaluate the efficacy of Baduanjin exercise in patients with stable chronic obstructive pulmonary disease.

Methods: Published articles were searched in nine English and Chinese databases from inception to December, 2022. Two investigators conducted study selection and data extraction independently. Review Manager software 5.4 were implemented for data synthesis and analysis. Quality assessment for each study was based on the modified PEDro scale.

Results: This review included 41 studies with 3,835 participants with stable COPD. Compared with the control group, the pooled data of Baduanjin exercise group showed significant improvements in the following outcomes (mean difference, 95% confidence interval): FVC (0.29, 0.25-0.33), FEV1 (0.27, 0.22-0.33), FEV1% (5.38, 4.38-6.39), FEV1/FVC (5.16, 4.48-5.84), 6MWD (38.57, 35.63-41.51), CAT (-2.30, -2.89 to -1.70), mMRC (-0.57, -0.66 to -0.48), SGRQ (-8.80, -12.75 to -4.86), HAMA (-7.39, -8.77 to -6.01), HAMD (-7.80, -9.24 to -6.37), SF-36 (8.63, 6.31-10.95).

Conclusions: Baduanjin exercise may have the potential to enhance lung function, exercise capacity, health status, mental status, and quality of life for patients with stable COPD.

Ethic and dissemination: This study is a systematic review and it does not involve harming the rights of participants. Ethical approval will not be required for this study. The research results may be published in a peer-reviewed journal.

Keywords: Baduanjin exercise; chronic obstructive pulmonary disease; clinical effcacy; lung function; meta-analysis; pulmonary rehabilitation.

Conflict of interest statement

Declaration of Competing Interest The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Am J Med Sci

. 2023 May 21;S0002-9629(23)01201-6.
doi: 10.1016/j.amjms.2023.05.008. Online ahead of print.

Factors affecting hospital discharge outcomes in patients with community-acquired pneumonia: a retrospective epidemiological study (2014-2021)

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Affiliations expand

- PMID: 37220846

- DOI: 10.1016/j.amjms.2023.05.008

Abstract

Background: In patients with community-acquired pneumonia (CAP), the risk and protective factors influencing discharge outcomes have not been fully elucidated. Therefore, we aimed to investigate the factors affecting discharge outcomes and provide a theoretical basis for improving the cure rate of patients with CAP.

Methods: We describe a retrospective epidemiological study of patients with CAP conducted from 2014 to 2021. We used age, sex, co-morbidities, multilobar involvement, severe pneumonia, the main abnormal symptoms present on admission, and pathogen-targeted therapy as variables that may affect discharge outcomes. These variables were included in subsequent logistic regression analyses. Discharge outcomes were divided into remission and cure.

Results: Of a total of 1008 patients with CAP, 247 patients were discharged as remission. The results of multivariate logistic regression analyses showed that age >65 years, smoking history, co-morbidity of chronic obstructive pulmonary disease, co-morbidity of chronic heart disease, co-morbidity of diabetes, co-morbidity of malignancy, co-morbidity of cerebrovascular disease, pleural effusion, hypoxemia, respiratory failure, electrolyte disturbances, and severe pneumonia were independently associated with poor discharge outcomes (all $P < 0.05$), while pathogen-targeted therapy (odds ratio: 0.32, 95% confidence interval: 0.16-0.62) was found as a protective factor.

Conclusions: Age > 65 years, the presence of co-morbidities, the presence of admission symptoms such as electrolyte disturbances, and severe pneumonia are associated with a poor discharge outcome, while pathogen-targeted therapy is associated with a good discharge outcome. Patients with CAP with a defined pathogen are more likely to be cured. Our results suggest that accurate and efficient pathogen testing is essential for CAP inpatients.

Keywords: co-morbidities; community-acquired pneumonia; discharge outcomes; risk prediction.

Conflict of interest statement

Declaration of Competing Interest The authors declare that they have no competing interests.

Am J Respir Crit Care Med

. 2023 May 23.
doi: 10.1164/rccm.202303-0610ED. Online ahead of print.

CEACAM6: A Novel Marker of COPD Susceptibility?

Alexandra C Racanelli[1], Augustine M K Choi[2]
Affiliations expand

- PMID: 37219336

- DOI: 10.1164/rccm.202303-0610ED

No abstract available

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Am J Respir Crit Care Med

. 2023 May 23.
doi: 10.1164/rccm.202208-1603OC. Online ahead of print.

CEACAM6 as a Novel Therapeutic Target to Boost HO-1-mediated Antioxidant Defense in COPD

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Affiliations expand

- PMID: 37219322

- DOI: 10.1164/rccm.202208-1603OC

Abstract

Rationale: Tobacco smoking and air pollution are primary causes of chronic obstructive pulmonary disease (COPD). However, only a minority of smokers develop COPD. The mechanisms underlying the defense against nitrosative/oxidative stress in non-susceptible smokers to COPD remain largely unresolved.

Objectives: To investigate the defense mechanisms against nitrosative/oxidative stress that possibly prevent COPD development or progression.

Methods: Four cohorts were investigated: (1) sputum samples (healthy, n=4; COPD, n=37), (2) lung tissue samples (healthy, n=13; smokers without COPD, n=10; smoker+COPD, n=17), (3) pulmonary lobectomy tissue samples (no/mild emphysema, n=6) and (4) blood samples (healthy, n=6; COPD, n=18). We screened 3-nitrotyrosine (3-NT) levels, as indication of nitrosative/oxidative stress, in human samples. We established a novel in vitro model of a cigarette smoke extract (CSE)-resistant cell line and studied 3-NT formation, antioxidant capacity, and transcriptomic profiles. Results were validated in lung tissue, isolated primary cells and an ex vivo model using adeno-associated virus-mediated gene transduction and human precision-cut lung slices (hPCLS).

Measurements and main results: 3-NT levels correlate with COPD severity of patients. In CSE-resistant cells, nitrosative/oxidative stress upon CSE was attenuated, paralleled by profound upregulation of heme-oxygenase-1 (HO-1). We identified carcinoembryonic-antigen-related-cell-adhesion-molecule-6 (CEACAM6) as a negative regulator of HO-1-mediated nitrosative/oxidative stress defense in human alveolar type 2 epithelial cells (hAEC2). Consistently, inhibition of HO-1 activity in hAEC2 increased the susceptibility towards CSE-induced damage. Epithelium-specific CEACAM6 overexpression increased nitrosative/oxidative stress and cell death in hPCLS upon CSE treatment.

Conclusions: CEACAM6 expression determines the hAEC2 sensitivity to nitrosative/oxidative stress triggering emphysema development/progression in susceptible smokers.

Keywords: 3-nitrotyrosine; Antioxidant defense; COPD; Gene-environment interaction; Lung emphysema.

Bratisl Lek Listy

. 2023 May 23.

doi: 10.4149/BLL_2023_080. Online ahead of print.

Obesity, Charlson comorbidity index, and neutrophil-to-lymphocyte ratio in chronic obstructive pulmonary disease: relationship to disease severity

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- PMID: 37218479

- DOI: 10.4149/BLL_2023_080

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is a common chronic inflammatory lung disease with high mortality and morbidity rates. Obesity, various comorbid diseases, and inflammation often coexist in chronic obstructive pulmonary disease (COPD), exhibiting a complex interaction with disease severity. The aim of the study was to examine the relationship between COPD markers and obesity, the Charlson Comorbidity Index (CCI), and neutrophil/lymphocyte ratio (NLR).

Methods: Eighty male patients with stable COPD admitted to the pulmonology unit were included in the study. The presence of comorbidities was investigated in obese and non-obese individuals with COPD. Pulmonary function tests and the mMRC dyspnea scale were examined, and CCI scores were calculated.

Results: 60.9 % with mild/moderate COPD, and 64.7 % with severe COPD had a comorbid disease. The incidence of hypertension and diabetes was significantly higher in obese patients. The obesity rate was 41.3 % in patients with mild/moderate COPD (FEV1 ≥ 50) and 26.5 % in those with severe COPD (FEV1 < 50). There was a positive and significant correlation between CCI value and BMI and mMRC dyspnea scale. NLR was significantly higher in patients with FEV1 < 50 and mMRC ≥ 2.

Conclusions: As a result, it is essential to screen obese patients with COPD, who are among the groups with the highest incidence of comorbidities, in terms of such diseases that exacerbate the symptoms of their disease. Findings may support the potential applicability of simple blood count indices (such as NLR) in the clinical assessment of disease in stable COPD patients (Tab. 4, Fig. 1, Ref. 46).

Keywords: COPD; Charlson comorbidity index; inflammation neutrophil-to-lymphocyte ratio.; obesity.

Randomized Controlled Trial

BMC Health Serv Res
.
. 2023 May 23;23(1):515.
doi: 10.1186/s12913-023-09492-7.

Application of the RE-AIM framework to evaluate the implementation of telehealth pulmonary rehabilitation in a randomized controlled trial among African-American and Hispanic patients with advanced stage Chronic Obstructive Pulmonary Disease

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Affiliations expand

- PMID: 37218000
- PMCID: PMC10202528
- DOI: 10.1186/s12913-023-09492-7

Free PMC article

Abstract

Background: Pulmonary rehabilitation (PR) decreases rehospitalization for people with COPD. However, less than 2% receive PR, partly due to lack of referral and sparsity of PR facilities. This disparity is particularly pronounced in African American and Hispanic persons with COPD. Telehealth-provided PR could increase access and improve health outcomes.

Methods: We applied the RE-AIM framework in a post-hoc analysis of our mixed methods RCT comparing referral to Telehealth-delivered PR (TelePR) versus standard PR (SPR) for African American and Hispanic COPD patients hospitalized for COPD exacerbation. Both arms received a referral to PR for 8 weeks, social worker follow-up, and surveys administered at baseline, 8 weeks, 6, and 12 months. PR sessions were conducted twice a week for 90 min each (16 sessions total). Quantitative data were analyzed using 2-sample t tests or nonparametric Wilcoxon tests for continuous data and χ^2/Fisher exact tests for categorical data. Logistic regression-estimated odds ratios (ORs) were used for the intention-to-treat primary outcome. Qualitative interviews were conducted at the end of the study to assess adherence and satisfaction and were analyzed using inductive and deductive methods. The goal was to understand Reach (whether the target population was able to be enrolled), Effectiveness (primary outcome was a composite of 6-month COPD rehospitalization and death), Adoption (proportion of people willing to initiate the program), Implementation (whether the program was able to be executed as intended, and Maintenance (whether the program was continued).

Results: Two hundred nine people enrolled out of a 276-recruitment goal. Only 85 completed at least one PR session 57/111 (51%) TelePR; 28/98 (28%) SPR. Referral to TelePR compared to SPR did not decrease the composite outcome of 6-month COPD-readmission rate/death (OR1.35;95%CI 0.69,2.66). There was significant reduction in fatigue (PROMIS® scale) from baseline to 8-weeks in TelePR compared to SPR (MD-1.34; ± SD4.22; p = 0.02). Participants who received TelePR experienced improvements from baseline in several outcomes (ie, before and after 8 weeks of PR) in the following: COPD symptoms, knowledge about COPD management, fatigue, and functional capacity. Among the patients who had 1 initial visit, adherence rates were similar (TelePR arm, 59% of sessions; SPR arm, 63%). No intervention-related adverse events occurred. Barriers to PR adoption included difficulty or reluctance to complete medical clearances and beliefs about PR efficacy. Notably, only 9 participants sustained exercise after program completion. Maintenance of the program was not possible due to low insurance reimbursement and sparsity of Respiratory Therapists.

Conclusions: TelePR can reach COPD patients with health disparities and can be successfully implemented. The small sample size and large confidence intervals prevent conclusion about the relative effectiveness of participating in TelePR compared to SPR. However, improved outcomes were seen for those in TelePR as well as in SPR. Increasing adoption of PR and TelePR requires consideration of comorbidity burden, and perception of PR utility, and must facilitate medical clearances. Given the sparsity of SPR locations, TelePR can overcome at least the barrier of access. However, given the challenges to the uptake and completion of PR - many of the additional barriers in PR (both in TelePR and SPR) need to be addressed. Awareness of these real-world challenges will not only inform implementation of TelePR for clinicians seeking to adopt this platform but will also inform study designers and reviewers regarding the feasibility of approaches to patient recruitment and retention.

Keywords: Chronic obstructive pulmonary disease; Implementation; Pulmonary rehabilitation; Quality of life; Telehealth.

Conflict of interest statement

The authors declare no competing interests.

- 37 references
- 2 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

BMC Infect Dis

. 2023 May 22;23(1):339.
doi: 10.1186/s12879-023-08258-0.

Serum cystatin C and inflammatory factors related to COVID-19 consequences

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Affiliations expand

- PMID: 37217858
- PMCID: PMC10201467
- DOI: 10.1186/s12879-023-08258-0

Free PMC article

Abstract

Background: Besides impaired respiratory function and immune system, COVID-19 can affect renal function from elevated blood urea nitrogen (BUN) or serum creatinine (sCr) levels to acute kidney injury (AKI) and renal failure. This study aims to investigate the relationship between Cystatin C and other inflammatory factors with the consequences of COVID-19.

Methods: A total of 125 patients with confirmed Covid-19 pneumonia were recruited in this cross-sectional study from March 2021 to May 2022 at Firoozgar educational hospital in Tehran, Iran. Lymphopenia was an absolute lymphocyte count of less than 1.5 × 109/L. AKI was identified as elevated serum Cr concentration or reduced urine output. Pulmonary consequences were evaluated. Mortality was recorded in the hospital one and three months after discharge. The effect of baseline biochemical and inflammatory factors on odds of death was examined. SPSS, version 26, was used for all analyses. P-vale less than 0.05 was considered significant.

Results: The highest amount of co-morbidities was attributed to COPD (31%; n = 39), dyslipidemia and hypertension (27%; n = 34 for each) and diabetes (25%; n = 31). The mean baseline cystatin C level was 1.42 ± 0.93 mg/L, baseline creatinine was 1.38 ± 0.86 mg/L, and baseline NLR was 6.17 ± 4.50. Baseline cystatin C level had a direct and highly significant linear relationship with baseline creatinine level of patients (P < 0.001; r: 0.926).). The average score of the severity of lung involvement was 31.42 ± 10.80. There is a direct and highly significant linear relationship between baseline cystatin C level and lung involvement severity score (r = 0.890, P < 0.001). Cystatin C has a higher diagnostic power in predicting the severity of lung involvement (B = 3.88 ± 1.74, p = 0.026). The mean baseline cystatin C level in patients with AKI was 2.41 ± 1.43 mg/L and significantly higher than patients without AKI (P > 0.001). 34.4% (n = 43) of patients expired in the hospital, and the mean baseline cystatin C level of this group of patients was 1.58 ± 0.90 mg/L which was significantly higher than other patients (1.35 ± 0.94 mg/L, P = 0.002).

Conclusion: cystatin C and other inflammatory factors such as ferritin, LDH and CRP can help the physician predict the consequences of COVID-19. Timely diagnosis of these factors can help reduce the complications of COVID-19 and better treat this disease. More studies on the consequences of COVID-19 and knowing the related factors will help treat the disease as well as possible.

Keywords: Acute kidnet injury; Covid-19; Extra-polmunary; Inflammatory biomarkers.

Conflict of interest statement

All authors declare no relevant conflicts of interest.

- 42 references

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant supportexpand

FULL TEXT LINKS

Clin Res Cardiol
.
. 2023 May 22.
doi: 10.1007/s00392-023-02226-z. Online ahead of print.

Overlapping obstructive sleep apnea and chronic obstructive pulmonary disease in patients undergoing percutaneous coronary intervention

C Pizarro[#1], L Biener[#2], G Nickenig[2], D Skowasch[2]
Affiliations expand

- PMID: 37217801

- DOI: 10.1007/s00392-023-02226-z

No abstract available

- 10 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Int J Cardiovasc Imaging

. 2023 May 22.
doi: 10.1007/s10554-023-02871-5. Online ahead of print.

Functional capacity and inflammatory biomarkers as predictors for right atrial volume index in COPD patients

Lamiaa Khedr[1], Naglaa F Khedr[2], Rehab H Werida[3]
Affiliations expand

- PMID: 37217717

- DOI: 10.1007/s10554-023-02871-5

Abstract

Objective: Chronic obstructive pulmonary disease (COPD) is a leading cause of mortality and right-heart complications. So, this study aimed to evaluate the role of right atrial volume index (RAVI), inflammatory biomarkers and functional capacity in predicting poor outcomes for patients with COPD, classified by COPD assessment test (CAT) questionnaire, as early predictors of right heart diseases.

Methods: 151 patients with COPD with ejection fraction (LVEF) > 55% were enrolled and classified according to CAT questionnaire into CAT ≥ 10 (group I) and CAT < 10 (group II). RAVI was calculated using Echocardiography. Assessment of RV systolic function was done by Doppler imaging. Functional capacity parameters were assessed by modified medical research council dyspnea scale (mMRC). IL-1β, adiponectin, hs-CRP and neopterin were evaluated by ELSA kits.

Results: Group I (CAT ≥ 10) had higher RAVI (73.92 ± 21.20 ml/m^2 vs 22.73 ± 6.24 ml/m^2, $p < 0.001$), lower S`tri (0.05 ± 0.01 vs 0.13 ± 0.03 m/s, $p < 0.001$), lower tricuspid annular plane systolic excursion (TAPSE) (1.20 ± 0.17 cm vs 2.17 ± 0.48 cm, $p < 0.001$), higher RVSP (54.88 ± 7.97 vs 26.79 ± 9.84 mmHg, $p < 0.001$) compared with group II (CAT < 10). RAVI was good predictor of CAT ($r = 0.954$, $p < 0.001$) and strongly correlated with tricuspid S`tri, RVSP, tricuspid E/e' and Mitral E/e' ($r = -0.737$, $r = 0.753$, $r = 0.817$ and $r = 0.515$, respectively, $p < 0.001$). RAVI was correlated with TAPSE ($r = -0.673$, $p < 0.001$) and with tricuspid E/A ratio & LVEF ($r = 0.628$, $r = -0.407$, respectively, $p < 0.001$). Hs-CRP: 2.50 ± 1.43 vs 2.03 ± 1.19, IL-1β: 37.96 ± 14.35 vs 27.57 ± 8.06, neopterin: 91.37 ± 17.30 vs 76.90 ± 16.75, $p < 0.05$) were significantly higher besides lower adiponectin levels (3.19 ± 1.98 vs 5.32 ± 1.33 $p < 0.05$) in group I as compared to group II.

Conclusion: Functional capacity might be useful predictor for right heart diseases in COPD patients. Inflammatory biomarkers, low adiponectin and high Hs-CRP, IL-1β and neopterin levels, might not only be useful to monitor treatment response but may also help to discriminate patients with a worsen prognosis.

Keywords: Adiponectin; COPD; Functional capacity; Hs-CRP, IL-1β; Neopterin; Right atrial volume index.

- 44 references

Sci Rep

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. 2023 May 22;13(1):8228.
doi: 10.1038/s41598-023-32216-0.

A blood and bronchoalveolar lavage protein signature of rapid FEV_1 decline in smoking-associated COPD

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Affiliations expand

- PMID: 37217548

- PMCID: PMC10203309

- DOI: 10.1038/s41598-023-32216-0

Free PMC article

Abstract

Accelerated progression of chronic obstructive pulmonary disease (COPD) is associated with increased risks of hospitalization and death. Prognostic insights into mechanisms and markers of progression could facilitate development of disease-modifying therapies. Although individual biomarkers exhibit some predictive value, performance is modest and their univariate nature limits network-level insights. To overcome these limitations and gain insights into early pathways associated with rapid progression, we measured 1305 peripheral blood and 48 bronchoalveolar lavage proteins in individuals with COPD [n = 45, mean initial forced expiratory volume in one second (FEV_1) 75.6 ± 17.4% predicted]. We applied a data-driven analysis pipeline, which enabled identification of protein signatures that predicted individuals at-risk for accelerated lung function decline (FEV_1 decline ≥ 70 mL/year) ~ 6 years later, with high accuracy. Progression signatures suggested that early dysregulation in elements of the complement cascade is associated with accelerated decline. Our results propose potential biomarkers and early aberrant signaling mechanisms driving rapid progression in COPD.

Conflict of interest statement

KMD, KCN, CMF, SAC, NEA, NEA, WHA, IZB, RGB, APC, EB, RCB, CBC, DJC, GJC, CMD, JMW, EAH, NNH, ATH, RJK, JAK, DAM, WKO, VEO, RP, SPP, PGW, RPB, JLC, KBA have no competing interests to declare. WWL reports personal fees from Konica Minolta and Continuing Education Alliance. MKH reports personal fees from GlaxoSmithKline, AstraZeneca, Boehringer Ingelheim, Cipla, Chiesi, Novartis, Pulmonx, Teva, Verona, Merck, Mylan, Sanofi, DevPro, Aerogen, Polarian, Regeneron, United Therapeutics, UpToDate, Medscape and Integrity. She has received either in kind research support or funds paid to the institution from the NIH, Novartis, Sunovion, Nuvaira, Sanofi, Astrazeneca, Boehringer Ingelheim, Gala Therapeutics, Biodesix, the COPD Foundation and the American Lung Association. She has participated in Data Safety Monitoring Boards for Novartis and Medtronic with funds paid to the institution. She has received stock options from Meissa Vaccines. FJM. has received personal fees from Forest, Janssen, GlaxoSmithKline, Nycomed/Takeda, Amgen, AstraZeneca, Boehringer Ingelheim, Ikaria/ Bellerophon, Genentech, Novartis, Pearl, Pfizer, Roche, Sunovion, Theravance, Axon, CME Incite, California Society for Allergy and Immunology, Annenberg, Integritas, InThough, Miller Medical, National Association for Continuing Education, Paradigm, Peer Voice, UpToDate, Haymarket Communications, Western Society of Allergy and Immunology, Informa, Bioscale, Unity Biotechnology, ConCert, Lucid, Methodist Hospital, Prime, WebMD, Bayer, Ikaria, Kadmon, Vercyte, American Thoracic Society, Academic CME, Falco, Axon Communication, Johnson & Johnson, Clarion, Continuing Education, Potomac, Afferent, and Adept; and has collected nonfinancial support from Boehringer Ingelheim, Centocor, Gilead, and Biogen/Stromedix; and declares other interests with Mereo, Boehringering Ingelheim, and Centocor. All are outside of this project.

- 60 references
- 5 figures

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

Thorax

. 2023 May 22;thorax-2023-219988.
doi: 10.1136/thorax-2023-219988. Online ahead of print.

Acetazolamide for metabolic alkalosis complicating respiratory failure with chronic obstructive pulmonary disease or obesity hypoventilation syndrome: a systematic review

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Affiliations expand

- PMID: 37217290

- DOI: 10.1136/thorax-2023-219988

Abstract

Background: Metabolic alkalosis may lead to respiratory inhibition and increased need for ventilatory support or prolongation of weaning from ventilation for patients with chronic respiratory disease. Acetazolamide can reduce alkalaemia and may reduce respiratory depression.

Methods: We searched Medline, EMBASE and CENTRAL from inception to March 2022 for randomised controlled trials comparing acetazolamide to placebo in patients with chronic obstructive pulmonary disease, obesity hypoventilation syndrome or obstructive sleep apnoea, hospitalised with acute respiratory deterioration complicated by metabolic alkalosis. The primary outcome was mortality and we pooled data using random-effects meta-analysis. Risk of bias was assessed using the Cochrane RoB 2 (Risk of Bias 2) tool, heterogeneity was assessed using the

I^2 value and χ^2 test for heterogeneity. Certainty of evidence was assessed using GRADE (Grading of Recommendations, Assessment, Development, and Evaluations) methodology.

Results: Four studies with 504 patients were included. 99% of included patients had chronic obstructive pulmonary disease. No trials recruited patients with obstructive sleep apnoea. 50% of trials recruited patients requiring mechanical ventilation. Risk of bias was overall low to some risk. There was no statistically significant difference with acetazolamide in mortality (relative risk 0.98 (95% CI 0.28 to 3.46); p=0.95; 490 participants; three studies; GRADE low certainty) or duration of ventilatory support (mean difference -0.8 days (95% CI -7.2 to 5.6); p=0.36; 427 participants; two studies; GRADE: low certainty).

Conclusion: Acetazolamide may have little impact on respiratory failure with metabolic alkalosis in patients with chronic respiratory diseases. However, clinically significant benefits or harms are unable to be excluded, and larger trials are required.

Prospero registration number: CRD42021278757.

Keywords: Assisted Ventilation; COPD Exacerbations; Critical Care.

Conflict of interest statement

Competing interests: None declared.

Drug Metab Pers Ther

. 2023 May 22.

doi: 10.1515/dmpt-2023-0014. Online ahead of print.

CRHR1 polymorphism at rs242941, rs242940, and rs72834580: association of symptoms improvement

with intranasal corticosteroids in allergic rhinitis Jordanian patients

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Affiliations expand

- PMID: 37216433

- DOI: 10.1515/dmpt-2023-0014

Abstract

Objectives: Rhinitis is classified into several types with allergic rhinitis (AR) being the most common. AR is among the inflammatory diseases, such as asthma and chronic obstructive pulmonary disease (COPD), in which corticosteroids are administered to overcome the decrease in cortisol production. The treatment options available for AR vary with 1st line treatment being intranasal corticosteroids (INCS). The responsiveness to corticosteroids is due to their binding to corticotropin-releasing hormone receptor-1 (CRHR1). Various studies have studied the responsiveness to corticosteroids treatment in patients with asthma and COPD in association with *CRHR1* gene single nucleotide polymorphisms (SNPs).

Methods: In our study, we investigated the association of three SNPs of *CRHR1* gene (rs242941, rs242940, and rs72834580) with symptoms improvement post-treatment in AR patients. Blood samples were collected from 103 patients for DNA extraction and gene sequencing. Those patients started to receive INCS for 8 weeks and their symptoms were assessed, through a questionnaire, before treatment and post-treatment to check for symptoms improvement.

Results: Our data showed that improvement of eye redness is significantly less following INCS treatment in patients with allele (C) (AOR=0.289, p-Value-0.028, 95 % CI=0.096-0.873) and genotype (CC) (AOR=0.048, p-Value-0.037, 95 % CI=0.003-0.832) of rs242941 SNP. There was no correlation with other genotypes, alleles, or haplotypes of the investigated SNPs.

Conclusions: Our findings show that there is no correlation between *CRHR1* gene polymorphism and symptoms improvement following INCS treatment. Further studies are required to evaluate the association of INCS and symptoms improvement post-treatment with larger sample size.

Keywords: CRHR1; allergic rhinitis; intranasal corticosteroids.

- 49 references

Pol J Microbiol
. 2023 May 22.
doi: 10.33073/pjm-2023-015. Online ahead of print.

Interaction of Biochemical Processes between Chronic Obstructive Pulmonary Disease (COPD), Pulmonary Arterial Hypertension (PAH), and Coronavirus Disease 2019 (COVID-19)

Zhe Tian, Lilan Cen

- PMID: 37216361

- DOI: 10.33073/pjm-2023-015

Free article

Abstract

Both pulmonary arterial hypertension (PAH) and chronic obstructive pulmonary disease (COPD) are risk factors for coronavirus disease 2019 (COVID-19). Patients with lung injury and altered pulmonary vascular anatomy or function are more susceptible to infections. The purpose of the study is to ascertain whether individuals with COPD or PAH are affected synergistically by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Data sources for the construction of a protein-protein interaction (PPI) network and the identification of differentially expressed genes (DEGs) included three RNA-seq datasets from the GEO database (GSE147507, GSE106986, and GSE15197). Then, relationships between miRNAs, common DEGs, and transcription factor (TF) genes were discovered. Functional analysis using Gene Ontology (GO), Kyoto Encyclopedia of Genes and Genomes (KEGG), and other databases, as well as the forecasting of antiviral medications for COPD and PAH patients infected with SARS-CoV-2, were also performed. Eleven common DEGs were found in the three datasets, and their biological functions were primarily enriched in the control of protein modification processes, particularly phosphorylation. Growth

factor receptor binding reflects molecular function. KEGG analysis indicated that co-DEGs mainly activate Ras, and PI3K-Akt signaling pathways and act on focal adhesions. NFKB1 interacted with HSA-miR-942 in the TF-miRNA-DEGs synergistic regulatory network. Acetaminophen is considered an effective drug candidate. There are some connections between COPD and PAH and the development of COVID-19. This research could aid in developing COVID-19 vaccines and medication candidates that would work well as COVID-19 therapies.

Keywords: chronic obstructive pulmonary disease (COPD); coronavirus disease 2019 (COVID-19); pulmonary arterial hypertension (PAH).

- 51 references

JAMA Intern Med

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. 2023 May 22;e231245.
doi: 10.1001/jamainternmed.2023.1245. Online ahead of print.

Chronic Obstructive Pulmonary Disease Exacerbations and Pneumonia Hospitalizations Among New Users of Combination Maintenance Inhalers

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Affiliations expand

- PMID: 37213116

- PMCID: PMC10203971 (available on 2024-05-22)

- DOI: 10.1001/jamainternmed.2023.1245

Abstract

Importance: Clinical guidelines on chronic obstructive pulmonary disease (COPD) recommend inhalers containing long-acting muscarinic antagonists (LAMAs) and long-acting β-agonists (LABAs) over inhalers containing inhaled corticosteroids (ICSs) and LABAs. However, data from randomized clinical trials comparing these combination inhalers (LAMA-LABAs vs ICS-LABAs) have been conflicting and raised concerns of generalizability.

Objective: To assess whether LAMA-LABA therapy is associated with reduced COPD exacerbations and pneumonia hospitalizations compared with ICS-LABA therapy in routine clinical practice.

Design, setting, and participants: This was a 1:1 propensity score-matched cohort study using Optum's Clinformatics Data Mart, a large commercial insurance-claims database. Patients must have had a diagnosis of COPD and filled a new prescription for a combination LAMA-LABA or ICS-LABA inhaler between January 1, 2014, and December 31, 2019. Patients younger than 40 years were excluded, as were those with a prior diagnosis of asthma. The current analysis was performed from February 2021 to March 2023.

Exposures: Combination LAMA-LABA inhalers (aclidinium-formoterol, glycopyrronium-formoterol, glycopyrronium-indacaterol, tiotropium-olodaterol, or umeclidinium-vilanterol) and combination ICS-LABA inhalers (budesonide-formoterol, fluticasone-salmeterol, fluticasone-vilanterol, or mometasone-formoterol).

Main outcome: The primary effectiveness outcome was first moderate or severe COPD exacerbation, and the primary safety outcome was first pneumonia hospitalization. Propensity score matching was used to control for confounding between the 2 groups. Logistic regression analysis was used to estimate propensity scores. Hazard ratios (HRs) and 95% CIs were estimated using Cox proportional hazards models stratified on matched pairs.

Results: Among 137 833 patients (mean [SD] age, 70.2 [9.9] years; 69 530 [50.4%] female) (107 004 new ICS-LABA users and 30 829 new LAMA-LABA users), 30 216 matched pairs were identified for the primary analysis. Compared with ICS-LABA use, LAMA-LABA use was associated with an 8% reduction in the rate of first moderate or severe COPD exacerbation (HR, 0.92; 95% CI, 0.89-0.96) and a 20% reduction in the rate of first pneumonia hospitalization (HR, 0.80; 95% CI, 0.75-0.86). These findings were robust across a range of prespecified subgroup and sensitivity analyses.

Conclusion: In this cohort study, LAMA-LABA therapy was associated with improved clinical outcomes compared with ICS-LABA therapy, suggesting that LAMA-LABA therapy should be preferred for patients with COPD.

Conflict of interest statement

Conflict of Interest Disclosures: Dr Feldman reported receiving personal fees from Alosa Health and Aetion and for serving as an expert witness in litigation against inhaler manufacturers and an hororarium for a presentation to Blue Cross Blue Shield of Massachusetts outside the submitted work. Dr Gagne reported receiving grants from Eli Lilly and Novartis Pharmaceuticals and personal fees from Optum outside the submitted work. No other disclosures were reported.

JAMA

. 2023 May 21;e232065.

doi: 10.1001/jama.2023.2065. Online ahead of print.

Airway-Occluding Mucus Plugs and Mortality in Patients With Chronic Obstructive Pulmonary Disease

Alejandro A Diaz[1,2], José L Orejas[1,2], Scott Grumley[3], Hrudaya P Nath[3], Wei Wang[2,4], Wojciech R Dolliver[1], Andrew Yen[5], Seth J Kligerman[5,6], Kathleen Jacobs[5], Padma P Manapragada[3], Mostafa Abozeed[3], Muhammad Usman Aziz[3], Mohd Zahid[3], Asmaa N Ahmed[3], Nina L Terry[3], Ruben San José Estépar[2,7], Victor Kim[8], Barry J Make[9], MeiLan K Han[10], Sushilkumar Sonavane[11], George R Washko[1,2], Michael Cho[1,2,12], Raúl San José Estépar[2,7]

Affiliations expand

- PMID: 37210745

- PMCID: PMC10201404 (available on 2023-11-21)

- DOI: 10.1001/jama.2023.2065

Abstract

Importance: Airway mucus plugs are common in patients with chronic obstructive pulmonary disease (COPD); however, the association of airway mucus plugging and mortality in patients with COPD is unknown.

Objective: To determine whether airway mucus plugs identified on chest computed tomography (CT) were associated with increased all-cause mortality.

Design, setting, and participants: Observational retrospective analysis of prospectively collected data of patients with a diagnosis of COPD in the Genetic Epidemiology of COPD cohort. Participants were non-Hispanic Black or White individuals, aged 45 to 80 years, who smoked at least 10 pack-years. Participants were enrolled at 21 centers across the US between November 2007 and April 2011 and were followed up through August 31, 2022.

Exposures: Mucus plugs that completely occluded airways on chest CT scans, identified in medium- to large-sized airways (ie, approximately 2- to 10-mm lumen diameter) and categorized as affecting 0, 1 to 2, or 3 or more lung segments.

Main outcomes and measures: The primary outcome was all-cause mortality, assessed with proportional hazard regression analysis. Models were adjusted for age, sex, race and ethnicity, body mass index, pack-years smoked, current smoking status, forced expiratory volume in the first second of expiration, and CT measures of emphysema and airway disease.

Results: Among the 4483 participants with COPD, 4363 were included in the primary analysis (median age, 63 years [IQR, 57-70 years]; 44% were women). A total of 2585 (59.3%), 953 (21.8%), and 825 (18.9%) participants had mucus plugs in 0, 1 to 2, and 3 or more lung segments, respectively. During a median 9.5-year follow-up, 1769 participants (40.6%) died. The mortality rates were 34.0% (95% CI, 32.2%-35.8%), 46.7% (95% CI, 43.5%-49.9%), and 54.1% (95% CI, 50.7%-57.4%) in participants who had mucus plugs in 0, 1 to 2, and 3 or more lung segments, respectively. The presence of mucus plugs in 1 to 2 vs 0 and 3 or more vs 0 lung segments was associated with an adjusted hazard ratio of death of 1.15 (95% CI, 1.02-1.29) and 1.24 (95% CI, 1.10-1.41), respectively.

Conclusions and relevance: In participants with COPD, the presence of mucus plugs that obstructed medium- to large-sized airways was associated with higher all-cause mortality compared with patients without mucus plugging on chest CT scans.

Conflict of interest statement

Conflict of Interest Disclosures: Dr Cho reported receiving grants from Bayer. Dr Diaz reported receiving personal fees from Boehringer Ingelheim and having a patent for Methods and Compositions Relating to Airway Dysfunction pending (701586-190200USPT). Dr Terry reported that she and/or her husband are general stockholders with no controlling interest in the following: Johnson & Johnson, Kimberly-Clark Corp, Microsoft Corp, Amgen Inc, Bristol Myers Squibb, Cisco Systems Inc, Medtronic, Merck & Co Inc, Procter & Gamble, Crisper Therapeutics, Nvidia, Texas Instruments, Hewlett Packard, United Health, Abbott Labs, Eli Lilly and Co, AbbVie Inc, and LyondellBasell Industries. Mr Ruben San José Estépar reported receiving grants from the National Institutes of Health (NIH) during the conduct of the study. Dr Kim reported receiving personal fees from Gala Therapeutics, the American Board of Internal Medicine critical care test writing committee, AstraZeneca, and Boehringer Ingelheim. Dr Make reported receiving grants from National Heart, Lung, and Blood Institute provided to and controlled by National Jewish Health; fees for CME activity from the American College of Chest Physicians, Eastern Pulmonary Conference, Integritas Communications, Novartis, Pri-Med, Projects in Knowledge, and WebMD; grants from the American Lung Association, AstraZeneca, and Department of Defense paid to National Jewish Health; and royalties from Wolters Kluwer Health. Dr Make also reported serving on the data and safety monitoring board for Baystate Medical Center, Quintiles Laboratories, Spiration, and the University of Wisconsin; medical advisory board for Boehringer Ingelheim and Mylan; advisory board for GlaxoSmithKline and Mount Sinai; as a consultant for Optimum Patient Care Global and Third Pole Therapeutics; and on committees for the RECOVER trial. Dr Han

reported receiving grants from the NIH and COPD Foundation and personal fees from GlaxoSmithKline, AstraZeneca, Boehringer Ingelheim, Cipla, Chiesi, Novartis, Pulmonx, Teva Pharmaceutical Industries, Verona Pharma, Merck, Mylan, Sanofi, DevPro Biopharma, Aerogen, Polarian, Regeneron, Amgen, UpToDate, Altesa Biopharma, Medscape, National Association of Colleges and Employers, MDBriefCase, and Integrity; research support paid to the institution from the NIH, Novartis, Sunovion, Nuvaira, Sanofi, AstraZeneca, Boehringer Ingelheim, Gala Therapeutics, Biodesix, the COPD Foundation, and the American Lung Association; data and safety monitoring board funds paid to the institution from Novartis and Medtronic; and stock options from Meissa Vaccines and Altesa BioSciences. Dr Washko reported receiving personal fees from Actelion, Vertex Pharmaceuticals, Intellia Therapeutics, and Janssen Pharmaceuticals; grants from the Department of Defense and Boehringer Ingelheim; and support from Pulmonx, Janssen Pharmaceuticals, and CSL Behring; and is a co-founder of Quantitative Imaging Solutions, a company focused on image analytics and software development. Dr Washko's spouse is an employee of Biogen. Dr Raúl San José Estépar reported being a founder and equity holder of Quantitative Imaging Solutions and receiving grants from Boehringer Ingelheim, contracts to serve as image core from Insmed and Lung Biotechnology; and personal fees from LeukoLab and Chiesi. No other disclosures were reported.

Orv Hetil

. 2023 May 21;164(20):792-799.
doi: 10.1556/650.2023.32747. Print 2023 May 21.

[Health status and cardiovascular risk of Roma and non-Roma population in underprivileged settlements]

[Article in Hungarian]

Lilla Andréka[1,2], Orsolya Csenteri[1], Péter Andréka[1], Péter Vajer[1]
Affiliations expand

- PMID: 37210718

- DOI: 10.1556/650.2023.32747

Abstract

in English, Hungarian

Introduction: The "Taking the screening tests in place" program offers cardiovascular screening activities to the inhabitants of underprivileged settlements.

Objective: Evaluation of the health status and cardiovascular risk of the Roma and non-Roma population in underprivileged settlements.

Method: Information was collected about the demography, lifestyle, current illnesses, access to healthcare and the quality of patient information. General health check (body weight, height, blood pressure, blood sugar, ankle-brachial index) and cardiovascular examination were performed. Data were analyzed in Roma and non-Roma groups with Pearson's chi-squared test.

Results: 3649 people participated in the study (851 [23%] men, 2798 [77%] women), 16% (598) of the investigated population belonged to the Roma population. The mean age of men in the general population was 58 years and of women 55 years, in the Roma population 48 years and 47 years. People in the Roma population smoked more often (men 45%, women 64%) than people in the general population (both sexes 30%). In the Roma population, the consumption of sugary soft drinks at least four times a week (men 55% vs. women 43%) and the BMI (men 30 vs. 29, woman 29 vs. 28) were significantly higher. In the Roma population, 31% of the men and 13% of the women thought that their health status was bad, while in the general population it was 17% of men and 8% of women. Incidence of COPD (18% vs. 9%), coronary disease (18% vs. 13%), peripheral artery disease (13% vs. 9%) was significantly higher in the Roma population among women.

Conclusion: In the investigated population, the Roma inhabitants were significantly younger, smoked more, they were more obese, the chronic diseases were more common among them, and they considered their health status worse than the general population. Orv Hetil. 2023; 164(20): 792-799.

Keywords: Roma; cardiovascular risk factors; egészségi állapot; health status; nem roma; non-Roma; roma; szív- és érrendszeri betegségek kockázati tényezői.

Review

Biol Res Nurs
.
. 2023 May 21;10998004231178318.
doi: 10.1177/10998004231178318. Online ahead of print.

Effects of Tai Chi on Lung Function, Exercise Capacity and Psychosocial Outcomes in Patients With Chronic Obstructive Pulmonary Disease: Systematic Review and Meta-analysis of Randomized Controlled Trials

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Affiliations expand

- PMID: 37210672

- DOI: 10.1177/10998004231178318

Abstract

Objectives: To explore whether tai chi can improve lung function, exercise capacity, and health-related outcomes in patients with chronic obstructive pulmonary disease (COPD). **Methods:** The PubMed, Embase, Cochrane Central Register of Controlled Trials, Chinese National Knowledge Infrastructure (CNKI), Wanfang, and China Science and Technology Journal Database (VIP) databases were searched from inception to January 5, 2023. The methodological quality of the included studies was evaluated according to the Cochrane Handbook for Systematic Reviews of Interventions criteria. **Results:** A total of 1430 participants from 20 randomized controlled trials were included in this review. The results indicated significant effects of tai chi on FEV1, 6WMD, anxiety, and quality of life ($p < 0.01$), but not on FEV1%, FEVI/FVC, depression, and social support. **Conclusions:** Tai chi might be a potential alternative therapy to improve FEV1, 6WMD, anxiety, and quality of life for patients with COPD.

Keywords: 6WMD; COPD; FEV1; Tai chi; anxiety; depression.

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

1
Nurs Open
. 2023 May 27.
doi: 10.1002/nop2.1770. Online ahead of print.

Quality of life and associated factors among community-dwelling adults with multimorbidity in Shanghai, China: A cross-sectional study

Xingyue Liu[1,2], Juhua Zhang[3], Shixiang Zhang[4], Shuzhi Peng[2], Mengyun Pei[2], Chunying Dai[5], Tingting Wang[4], Peng Zhang[6,7]
Affiliations expand

- PMID: 37243492

- DOI: 10.1002/nop2.1770

Abstract

Aim: To compare the quality of life of patients with and without multimorbidity and investigate potential factors related to the quality of life in patients with multimorbidity.

Design: A descriptive cross-sectional study.

Methods: This study included 1778 residents with chronic diseases, including single disease (1255 people, average age: 60.78 ± 9.42) and multimorbidity (523 people, average age: 64.03 ± 8.91) groups, who were recruited from urban residents of Shanghai through a multistage, stratified, probability proportional to size sampling method. The quality of life was measured using the World Health Organization Quality of Life Questionnaire. The socio-demographic data and psychological states were measured using a self-made structured questionnaire, Self-rating Anxiety Scale, and Self-rating Depression Scale. Differences in demographic characteristics were estimated using Pearson's chi-squared test, and independent t-test or one-way ANOVA followed by S-N-K test was used to compare the mean quality of life. Multiple linear regression analysis was conducted to identify risk factors for multimorbidity.

Results: There were differences in age, education, income, and BMI between single-disease and multimorbidity groups, but no differences in gender, marriage, and occupation. Multimorbidity had lower quality of life, reflected in all four domains. Multiple linear regression analyses showed that low level of education, low income, number of diseases, depression, and anxiety were negatively related to quality of life in all domains.

Keywords: cross-sectional study; factors; multimorbidity; quality of life.

- 38 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

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2
BMC Public Health
.
. 2023 May 26;23(1):978.
doi: 10.1186/s12889-023-15965-5.

Association between sleep problems and multimorbidity patterns in older adults

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Affiliations expand

- PMID: 37237275

- PMCID: PMC10224570

- DOI: 10.1186/s12889-023-15965-5

Free PMC article

Abstract

Background: Sleep problems are frequent in older adults and are associated with chronic diseases. However, the association with multimorbidity patterns is still unknown. Considering the negative impacts that multimorbidity patterns can have on older adults' life, knowledge of this association can help in the screening and early identification of older adults with sleep problems. The objective was to verify the association between sleep problems and multimorbidity patterns in older Brazilian adults.

Methods: This was a cross-sectional study conducted with data from 22,728 community-dwelling older adults from the 2019 National Health Survey. The exposure variable was self-reported sleep problems (yes/no). The study outcomes were: multimorbidity patterns, analyzed by self-report of the coexistence of two or more chronic diseases with similar

clinical characteristics: (1) cardiopulmonary; (2) vascular-metabolic; (3) musculoskeletal; (4) coexisting patterns.

Results: Older adults with sleep problems had 1.34 (95%CI: 1.21; 1.48), 1.62 (95%CI: 1.15; 2.28), 1.64 (95%CI: 1.39; 1.93), and 1.88 (95%CI: 1.52; 2.33) greater odds of presenting vascular-metabolic, cardiopulmonary, musculoskeletal, and coexisting patterns, respectively.

Conclusions: These results suggest that public health programs aimed at preventing sleep problems in older adults are essential to reduce possible adverse health outcomes, including multimorbidity patterns and their negative consequences for older adults' health.

Keywords: Multimorbidity; Older adults; Patterns; Sleep problems.

Conflict of interest statement

The authors declare that they have no conflicting interests.

- 68 references

3

JACC Heart Fail

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. 2023 May 22;S2213-1779(23)00251-2.
doi: 10.1016/j.jchf.2023.05.015. Online ahead of print.

Cardio-Renal-Metabolic Overlap, Outcomes, and Dapagliflozin in Heart Failure with Mildly Reduced or Preserved Ejection Fraction

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Affiliations expand

- PMID: 37226448

- DOI: 10.1016/j.jchf.2023.05.015

Abstract

Background: Cardio-renal-metabolic (CRM) conditions are individually common among patients with HF, but the prevalence and influence of overlapping CRM conditions in this population have not been well-studied.

Objectives: To evaluate the impact of overlapping CRM conditions on clinical outcomes and treatment effects of dapagliflozin in HF.

Methods: In this post-hoc analysis of DELIVER, we evaluated the prevalence of comorbid CRM conditions (atherosclerotic cardiovascular disease, chronic kidney disease, and type 2 diabetes), their impact on the primary outcome (cardiovascular death or worsening HF), and treatment effects of dapagliflozin by CRM status.

Results: Among 6,263 participants, 1,952 (31%), 2,245 (36%), and 1,236 (20%) had 1, 2, and 3 additional CRM conditions, respectively. HF alone was uncommon (13%). Greater CRM multimorbidity was associated with older age, higher BMI, longer-duration HF, worse health status, and lower LVEF. Risk of the primary outcome increased with higher CRM overlap, with 3 CRM conditions independently associated with highest risk of primary events (adjusted HR, 2.16 [95% CI, 1.72-2.72]; P<0.001) compared with HF alone. Relative benefits of dapagliflozin on the primary outcome were consistent irrespective of the type of CRM overlap ($P_{interaction}$=0.773) and by the number of CRM conditions ($P_{interaction}$=0.734), with greatest absolute benefits among those with highest CRM multimorbidity. Estimated two-year numbers needed to treat with dapagliflozin to prevent one primary event were approximately 52, 39, 33, and 24 for participants with 0, 1, 2, and 3 additional CRM conditions at baseline, respectively. Adverse events between treatment arms were similar across the CRM spectrum.

Conclusions: Cardio-renal-metabolic multimorbidity was common and associated with adverse outcomes among patients with HF and LVEF>40% in DELIVER. Dapagliflozin was safe and effective across the CRM spectrum, with greater absolute benefits among those with highest CRM overlap.

Keywords: cardiometabolic; cardiorenal; comorbidity; heart failure with preserved ejection fraction; multimorbidity; sodium-glucose co-transporter-2 inhibitor.

Randomized Controlled Trial

BMJ

. 2023 May 24;381:e074054.

doi: 10.1136/bmj-2022-074054.

Optimising prescribing in older adults with multimorbidity and polypharmacy in primary care (OPTICA): cluster randomised clinical trial

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Affiliations expand

- PMID: 37225248

- PMCID: PMC10206530

- DOI: 10.1136/bmj-2022-074054

Free PMC article

Abstract

Objective: To study the effects of a primary care medication review intervention centred around an electronic clinical decision support system (eCDSS) on appropriateness of medication and the number of prescribing omissions in older adults with multimorbidity and polypharmacy compared with a discussion about medication in line with usual care.

Design: Cluster randomised clinical trial.

Setting: Swiss primary care, between December 2018 and February 2021.

Participants: Eligible patients were ≥65 years of age with three or more chronic conditions and five or more long term medications.

Intervention: The intervention to optimise pharmacotherapy centred around an eCDSS was conducted by general practitioners, followed by shared decision making between general practitioners and patients, and was compared with a discussion about medication in line with usual care between patients and general practitioners.

Main outcome measures: Primary outcomes were improvement in the Medication Appropriateness Index (MAI) and the Assessment of Underutilisation (AOU) at 12 months. Secondary outcomes included number of medications, falls, fractures, and quality of life.

Results: In 43 general practitioner clusters, 323 patients were recruited (median age 77 (interquartile range 73-83) years; 45% (n=146) women). Twenty one general practitioners with 160 patients were assigned to the intervention group and 22 general practitioners with 163 patients to the control group. On average, one recommendation to stop or start a medication was reported to be implemented per patient. At 12 months, the results of the intention-to-treat analysis of the improvement in appropriateness of medication (odds ratio 1.05, 95% confidence interval 0.59 to 1.87) and the number of prescribing omissions (0.90, 0.41 to 1.96) were inconclusive. The same was the case for the per protocol analysis. No clear evidence was found for a difference in safety outcomes at the 12 month follow-up, but fewer safety events were reported in the intervention group than in the control group at six and 12 months.

Conclusions: In this randomised trial of general practitioners and older adults, the results were inconclusive as to whether the medication review intervention centred around the use of an eCDSS led to an improvement in appropriateness of medication or a reduction in prescribing omissions at 12 months compared with a discussion about medication in line with usual care. Nevertheless, the intervention could be safely delivered without causing any harm to patients.

Trial registration: NCT03724539Clinicaltrials.gov NCT03724539.

Conflict of interest statement

Competing interests: All authors have completed the ICMJE uniform disclosure form at https://www.icmje.org/disclosure-of-interest/ and declare: financial support from grants from the Swiss National Science Foundation; MSpruit reports a settlement agreement between Spru IT and Utrecht University, in which all intellectual property related to the Systematic Tool to Reduce Inappropriate Prescribing Assistant (STRIPA) is transferred to Utrecht University, in exchange for obtaining a free but non-exclusive right to provide STRIPA consultancy or support services, both on a commercial basis, and to update the STRIPA until June 2023; ST, AL, and OS are affiliated with CTU Bern, University of Bern, which has a staff policy of not accepting honorariums or consultancy fees; however, CTU Bern is involved in design, conduct, or analysis of clinical studies funded by not-for-profit and for profit organisations; in particular, pharmaceutical and medical device companies provide direct funding to some of these studies (for an up-to-date list of CTU Bern's conflicts of interest see https://www.ctu.unibe.ch/research_projects/declaration_of_interest/index_eng.html); no other relationships or activities that could appear to have influenced the submitted work.

- 61 references
- 1 figure

J Am Geriatr Soc

. 2023 May 24.
doi: 10.1111/jgs.18413. Online ahead of print.

High-intensity home health physical therapy among older adult Veterans: A randomized controlled trial

Jennifer E Stevens-Lapsley[1,2], Danielle Derlein[2], Laura Churchill[2], Jason R Falvey[3], Amy Nordon-Craft[2], William J Sullivan[4], Jeri E Forster[5,6], Julie A Stutzbach[2,7], Katie A Butera[2,8], Robert E Burke[9,10,11], Kathleen K Mangione[12]
Affiliations expand

- PMID: 37224397

- DOI: 10.1111/jgs.18413

Abstract

Background: Older adult Veterans are at high risk for adverse health outcomes following hospitalization. Since physical function is one of the largest potentially modifiable risk factors for adverse health outcomes, our purpose was to determine if progressive, high-intensity resistance training in home health physical therapy (PT) improves physical function in Veterans more than standardized home health PT and to determine if the high-intensity program was comparably safe, defined as having a similar number of adverse events.

Methods: We enrolled Veterans and their spouses during an acute hospitalization who were recommended to receive home health care on discharge because of physical deconditioning. We excluded individuals who had contraindications to high-intensity resistance training. A total of 150 participants were randomized 1:1 to either (1) a progressive, high-intensity (PHIT) PT intervention or (2) a standardized PT intervention (comparison group). All participants in both groups were assigned to receive 12 visits (3 visits/week over 30 days) in their home. The primary outcome was gait speed at 60 days. Secondary outcomes included adverse events (rehospitalizations, emergency department visits, falls and deaths after 30 and 60-days), gait speed, Modified Physical Performance Test, Timed Up-and-Go, Short Physical Performance Battery, muscle strength, Life-Space Mobility assessment, Veterans RAND 12-item Health Survey, Saint Louis University Mental Status exam, and step counts at 30, 60, 90, 180 days post-randomization.

Results: There were no differences between groups in gait speed at 60 days, and no significant differences in adverse events between groups at either time point. Similarly, physical performance measures and patient reported outcomes were not different at any

time point. Notably, participants in both groups experienced increases in gait speed that met or exceeded established clinically important thresholds.

Conclusions: Among older adult Veterans with hospital-associated deconditioning and multimorbidity, high-intensity home health PT was safe and effective in improving physical function, but not found to be more effective than a standardized PT program.

Keywords: high-intensity; home health; older adults; physical therapy; veterans.

- 39 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

6
Drugs Aging
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. 2023 May 23.
doi: 10.1007/s40266-023-01029-1. Online ahead of print.

Benzodiazepine Receptor Agonists Use and Cessation Among Multimorbid Older Adults with Polypharmacy: Secondary Analysis from the OPERAM Trial

François-Xavier Sibille[1,2,3], Marie de Saint-Hubert[4,5], Séverine Henrard[5,6], Carole Elodie Aubert[7,8], Namiko Anna Goto[9], Emma Jennings[10], Olivia Dalleur[6,11], Nicolas Rodondi[7,8], Wilma Knol[9], Denis O'Mahony[10], Matthias Schwenkglenks[12], Anne Spinewine[6,13]
Affiliations expand

- PMID: 37221407

- DOI: 10.1007/s40266-023-01029-1

Abstract

Background: Benzodiazepine receptor agonists (BZRAs) are commonly prescribed in older adults despite an unfavorable risk-benefit ratio. Hospitalizations may provide a unique opportunity to initiate BZRA cessation, yet little is known about cessation during and after hospitalization. We aimed to measure the prevalence of BZRA use before hospitalization and the rate of cessation 6 months later, and to identify factors associated with these outcomes.

Methods: We conducted a secondary analysis of a cluster randomized controlled trial (OPtimising thERapy to prevent Avoidable hospital admissions in the Multimorbid elderly [OPERAM]), comparing usual care and in-hospital pharmacotherapy optimization in adults aged 70 years or over with multimorbidity and polypharmacy in four European countries. BZRA cessation was defined as taking one or more BZRA before hospitalization and not taking any BZRA at the 6-month follow-up. Multivariable logistic regression was performed to identify factors associated with BZRA use before hospitalization and with cessation at 6 months.

Results: Among 1601 participants with complete 6-month follow-up data, 378 (23.6%) were BZRA users before hospitalization. Female sex (odds ratio [OR] 1.52 [95% confidence interval 1.18-1.96]), a higher reported level of depression/anxiety (OR up to 2.45 [1.54-3.89]), a higher number of daily drugs (OR 1.08 [1.05-1.12]), use of an antidepressant (OR 1.74 [1.31-2.31]) or an antiepileptic (OR 1.46 [1.02-2.07]), and trial site were associated with BZRA use. Diabetes mellitus (OR 0.60 [0.44-0.80]) was associated with a lower probability of BZRA use. BZRA cessation occurred in 86 BZRA users (22.8%). Antidepressant use (OR 1.74 [1.06-2.86]) and a history of falling in the previous 12 months (OR 1.75 [1.10-2.78]) were associated with higher BZRA cessation, and chronic obstructive pulmonary disease (COPD) (OR 0.45 [0.20-0.91]) with lower BZRA cessation.

Conclusion: BZRA prevalence was high among included multimorbid older adults, and BZRA cessation occurred in almost a quarter of them within 6 months after hospitalization. Targeted BZRA deprescribing programs could further enhance cessation. Specific attention is needed for females, central nervous system-acting co-medication, and COPD co-morbidity.

Registration: ClinicalTrials.gov identifier: NCT02986425. December 8, 2016.

- 50 references

SUPPLEMENTARY INFO

Associated data, Grant supportexpand

FULL TEXT LINKS

7
BMC Geriatr
. 2023 May 22;23(1):318.
doi: 10.1186/s12877-023-03961-8.

Chronic health conditions and mortality among older adults with complex care needs in Aotearoa New Zealand

Rebecca Abey-Nesbit[1], Hamish A Jamieson[1], Hans Ulrich Bergler[1], Ngaire Kerse[2], John W Pickering[1], Ruth Teh[3]
Affiliations expand

- PMID: 37217895
- PMCID: PMC10201728

- DOI: 10.1186/s12877-023-03961-8

Free PMC article

Abstract

Background: Older people have more comorbidities than younger groups and multimorbidity will increase. Often chronic conditions affect quality of life, functional ability and social participation. Our study aim was to quantify the prevalence of chronic conditions over a three-year period and their association with mortality after accounting for demographics.

Methods: We conducted a retrospective cohort study using routinely collected health data including community-dwelling older adults in New Zealand who had an interRAI Home Care assessment between 1 January 2017 and 31 December 2017. Descriptive statistics and differences between variables of interest among ethnic groups were reported. Cumulative density plots of mortality were developed. Logistic regression models adjusted for age and sex to estimate mortality were created independently for each combination of ethnicity and disease diagnosis.

Results: The study cohort consisted of 31,704 people with a mean (SD) age of 82.3 years (8.0), and of whom 18,997 (59.9%) were female. Participants were followed for a median 1.1 (range 0 to 3) years. By the end of the follow-up period 15,678 (49.5%) people had died. Nearly 62% of Māori and Pacific older adults and 57% of other ethnicities had cognitive impairment. Diabetes the next most prevalent amongst Māori and Pacific peoples, and coronary heart disease amongst Non-Māori/Non-Pacific individuals. Of the 5,184 (16.3%) who had congestive heart failure (CHF), 3,450 (66.6%) died. This was the highest mortality rate of any of the diseases. There was a decrease in mortality rate with age for both sexes and all ethnicities for those with cancer.

Conclusions: Cognitive impairment was the most common condition in community dwelling older adults who had an interRAI assessment. Cardiovascular disease (CVD) has the highest mortality risk for all ethnic groups, and in non-Māori/non-Pacific group of advanced age, risk of mortality with cognitive impairment is as high as CVD risk. We observed an inverse for cancer mortality risk with age. Important differences between ethnic groups are reported.

Keywords: Ageing; Comorbidities; Geriatric assessment; Mortality; interRAI.

Conflict of interest statement

The authors declare that they have no competing interests.

- 35 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Int J Clin Pharm
.
. 2023 May 22.
doi: 10.1007/s11096-023-01600-1. Online ahead of print.

Cardiometabolic risk in people under 40 years with severe mental illness: reading between the guidelines

Aoife Carolan[1,2], Caroline Hynes[3,4], Stephen McWilliams[3,5], Cristín Ryan[6], Judith Strawbridge[4], Dolores Keating[3,4]
Affiliations expand

- PMID: 37212968
- DOI: 10.1007/s11096-023-01600-1

Abstract

People with severe mental illness (SMI) have a shorter life expectancy than the rest of the population. Multimorbidity and poorer physical health contribute to this health inequality. Cardiometabolic multimorbidity confers a significant mortality risk in this population.

Multimorbidity is not restricted to older people and people with SMI present with multimorbidity earlier in life. Despite this, most screening, prevention and treatment strategies target older people. People under 40 years with SMI are underserved by current guidelines for cardiovascular risk assessment and reduction. Research is needed to develop and implement interventions to reduce cardiometabolic risk in this population.

Keywords: Cardiometabolic risk; Intervention; Multimorbidity; Risk assessment; Severe mental illness.

- 20 references

Br J Gen Pract

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. 2023 May 25;73(731):e435-e442.
doi: 10.3399/BJGP.2022.0235. Print 2023 Jun.

Development of a modified Cambridge Multimorbidity Score for use with SNOMED CT: an observational English primary care sentinel network study

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Affiliations expand

- PMID: 37130611

- PMCID: PMC10170523

- DOI: 10.3399/BJGP.2022.0235

Free PMC article

Abstract

Background: People with multiple health conditions are more likely to have poorer health outcomes and greater care and service needs; a reliable measure of multimorbidity would inform management strategies and resource allocation.

Aim: To develop and validate a modified version of the Cambridge Multimorbidity Score in an extended age range, using clinical terms that are routinely used in electronic health records across the world (Systematized Nomenclature of Medicine - Clinical Terms, SNOMED CT).

Design and setting: Observational study using diagnosis and prescriptions data from an English primary care sentinel surveillance network between 2014 and 2019.

Method: In this study new variables describing 37 health conditions were curated and the associations modelled between these and 1-year mortality risk using the Cox proportional hazard model in a development dataset (n = 300 000). Two simplified models were then developed - a 20-condition model as per the original Cambridge Multimorbidity Score and a variable reduction model using backward elimination with Akaike information criterion as the stopping criterion. The results were compared and validated for 1-year mortality in a synchronous validation dataset (n = 150 000), and for 1-year and 5-year mortality in an asynchronous validation dataset (n = 150 000).

Results: The final variable reduction model retained 21 conditions, and the conditions mostly overlapped with those in the 20-condition model. The model performed similarly to the 37- and 20-condition models, showing high discrimination and good calibration following recalibration.

Conclusion: This modified version of the Cambridge Multimorbidity Score allows reliable estimation using clinical terms that can be applied internationally across multiple healthcare settings.

Keywords: Systematized Nomenclature of Medicine–Clinical Terms; general practice; medical record systems, computerised; mortality; multimorbidity; population surveillance.

Conflict of interest statement

Simon de Lusignan is Director of the RCGP RSC; he has had grants through his University from AstraZeneca, GSK, Lily, MSD, Sanofi, Seqirus, and Takeda; and has been an advisory board member for AstraZeneca, Sanofi, Seqirus, and Pfizer.

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

1
Int J Environ Res Public Health

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. 2023 May 21;20(10):5903.
doi: 10.3390/ijerph20105903.

Exposure to Disinfectants and Cleaning Products and Respiratory Health of Workers and Children in Daycares: The CRESPI Cohort Protocol

Nicole Le Moual[1], Orianne Dumas[1], Pierre Bonnet[2], Anastasie Eworo Nchama[1], Barbara Le Bot[3], Etienne Sévin[4], Isabelle Pin[5], Valérie Siroux[5], Corinne Mandin[2], The Crespi Study Group
Affiliations expand

- PMID: 37239629

- DOI: 10.3390/ijerph20105903

Free article

Abstract

Although cleaning tasks are frequently performed in daycare, no study has focused on exposures in daycares in relation to respiratory health. The CRESPI cohort is an epidemiological study among workers (n~320) and children (n~540) attending daycares. The purpose is to examine the impact of daycare exposures to disinfectants and cleaning products (DCP) on the respiratory health of workers and children. A sample of 108 randomly selected daycares in the region of Paris has been visited to collect settled dust to analyze semi-volatile organic compounds and microbiota, as well as sample indoor air to analyze aldehydes and volatile organic compounds. Innovative tools (smartphone applications) are used to scan DCP barcodes in daycare and inform their use; a database then matches the barcodes with the products' compositions. At baseline, workers/parents completed a standardized questionnaire, collecting information on DCP used at home, respiratory health, and potential confounders. Follow-up regarding children's respiratory health (monthly report through a smartphone application and biannual questionnaires) is ongoing until the end of 2023. Associations between DCP exposures and the respiratory health of workers/children will be evaluated. By identifying specific environments or DCP substances associated with the adverse respiratory health of workers and children, this longitudinal study will contribute to the improvement of preventive measures.

Keywords: asthma; environmental and occupational exposures; epidemiology; indoor air quality; settled dust.

Pulmonology

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. 2023 May 24;S2531-0437(23)00091-0.

doi: 10.1016/j.pulmoe.2023.05.002. Online ahead of print.

Alpha-1 antitrypsin deficiency and Pi*S and Pi*Z SERPINA1 variants are associated with asthma exacerbations

Elena Martín-González[1], José M Hernández-Pérez[2], José A Pérez Pérez[3], Javier Pérez-García[1], Esther Herrera-Luis[1], Ruperto González-Pérez[4], Orelvis González-González[5], Elena Mederos-Luis[6], Inmaculada Sánchez-Machín[6], Paloma Poza-Guedes[4], Olaia Sardón[7], Paula Corcuera[8], María J Cruz[9], Francisco J González-Barcala[10], Carlos Martínez-Rivera[11], Joaquim Mullol[12], Xavier Muñoz[9], José M Olaguibel[13], Vicente Plaza[14], Santiago Quirce[15], Antonio Valero[16], Joaquín Sastre[17], Javier Korta-Murua[8], Victoria Del Pozo[18], Fabián Lorenzo-Díaz[3], Jesús Villar[19], María Pino-Yanes[20], Mario A González-Carracedo[21]
Affiliations expand

- PMID: 37236906

- DOI: 10.1016/j.pulmoe.2023.05.002

Free article

Abstract

Introduction and objectives: Asthma is a chronic inflammatory disease of the airways. Asthma patients may experience potentially life-threatening episodic flare-ups, known as exacerbations, which may significantly contribute to the asthma burden. The Pi*S and Pi*Z variants of the SERPINA1 gene, which usually involve alpha-1 antitrypsin (AAT) deficiency, had previously been associated with asthma. The link between AAT deficiency and asthma might be represented by the elastase/antielastase imbalance. However, their role in asthma exacerbations remains unknown. Our objective was to assess whether SERPINA1 genetic variants and reduced AAT protein levels are associated with asthma exacerbations.

Materials and methods: In the discovery analysis, SERPINA1 Pi*S and Pi*Z variants and serum AAT levels were analyzed in 369 subjects from La Palma (Canary Islands, Spain). As replication, genomic data from two studies focused on 525 Spaniards and publicly available data from UK Biobank, FinnGen, and GWAS Catalog (Open Targets Genetics) were analyzed. The associations between SERPINA1 Pi*S and Pi*Z variants and AAT deficiency with asthma exacerbations were analyzed with logistic regression models, including age, sex, and genotype principal components as covariates.

Results: In the discovery, a significant association with asthma exacerbations was found for both Pi*S (odds ratio [OR]=2.38, 95% confidence interval [CI]= 1.40-4.04, p-value=0.001)

and Pi*Z (OR=3.49, 95%CI=1.55-7.85, p-value=0.003)Likewise, AAT deficiency was associated with a higher risk for asthma exacerbations (OR=5.18, 95%CI=1.58-16.92, p-value=0.007) as well as AAT protein levels (OR= 0.72, 95%CI=0.57-0.91, p-value=0.005). The Pi*Z association with exacerbations was replicated in samples from Spaniards with two generations of Canary Islander origin (OR=3.79, p-value=0.028), and a significant association with asthma hospitalizations was found in the Finnish population (OR=1.12, p-value=0.007).

Conclusions: AAT deficiency could be a potential therapeutic target for asthma exacerbations in specific populations.

Keywords: Alpha-1 antitrypsin; Alpha-1 antitrypsin deficiency; Asthma; Exacerbations; SERPINA1.

Conflict of interest statement

Conflicts of interest Authors declare they have no competing interests or other interests that might be perceived to influence the interpretation of the manuscript. No supporting institution may gain or lose financially through this publication. E.M.G. report funding from the Board of Economy, Industry, Trade, and Knowledge of the Canary Islands Government, with a European Social Fund co-financing rate managed by the Canary Islands Agency for Research, Innovation, Society and Information (ACIISI). E.H.L. was supported by a fellowship awarded by MCIN/AEI/10.13039/501100011033 and by “ESF Investing in your future” (PRE2018–083,837). V.P. has received grant support from MSD. V.d.P. was supported by CIBER de Enfermedades Respiratorias, ISCIII, Spain. E.H.L., and M.P.Y. report funding from the Spanish Ministry of Science and Innovation (MCIN/AEI/10.13039/501100011033) and by the European Social Fund “ESF Investing in your future” by the European Union. J.P.G reports funding from the Spanish Ministry of Universities. M.P.Y. report grants from the European Regional Development Fund “ERDF A way of making Europe” by the European Union. M.P.Y. reports grant support from GlaxoSmithKline, Spain paid to Fundación Canaria Instituto de Investigación Sanitaria de Canarias (FIISC) for a project outside the submitted work and grants from Instituto de Salud Carlos III, Madrid, Spain. M.P.Y. and J.V. report grants from Instituto de Salud Carlos III, Madrid, Spain.

3
Allergy Asthma Proc
.
. 2023 May 26.
doi: 10.2500/aap.2023.44.230030. Online ahead of print.

The third pandemic: The respiratory syncytial virus landscape and specific considerations for the allergist/immunologist

Lawrence D Frenkel, Sananda Gaur, Joseph A Bellanti

- PMID: 37236777

- DOI: 10.2500/aap.2023.44.230030

Abstract

Background: Since its initial identification in 1956, respiratory syncytial virus (RSV) has been the second most common cause of mortality in infants <6 months of age and a major cause of morbidity and mortality associated with lower respiratory tract infection (LRTI) in older adults (ages >60 years) worldwide. Of particular interest to the allergist/immunologist is a growing body of evidence that suggests an association between LRTI caused by RSV in infants with later-life development of asthma, wheezing, or impaired lung function in adults. Efforts to develop a RSV vaccine have been thwarted for >70 years by the occurrence of enhanced respiratory disease (ERD), an adverse RSV vaccine reaction, in the 1960s, in which more-severe illness occurred on natural infection after vaccination of infants who were RSV naive and with a formalin-inactivated RSV vaccine. Recent advances in knowledge of the structural biology of the RSV surface fusion glycoprotein, however, have revolutionized RSV vaccine development for preventive interventions and have offered, at last, the hope of an effective and safe vaccine for the prevention of RSV disease.

Objective: The purpose of this report was to examine the current evidence that supports the epidemiology, disease manifestations, molecular biology, treatments, and new vaccine development of RSV vaccines.

Results: The host-immune response to RSV infection is carried out by two distinct but overlapping universes of mucosal and systemic immune systems in which a balanced set of B- and T-cell responses are involved in protective immunity that includes the mucosal immune system in which immunoglobulin A (IgA) prevails and the systemic immune system in which IgG neutralizing antibody predominates. The key to developing an effective vaccine is now thought to be linked to the availability of a stabilized prefusion F protein in the immunizing vaccine, which can perform a dual function of a balanced mucosal and/or systemic immune response as well as an effective antibody specifically directed to critical epitopes on the requisite prefusion F protein.

Conclusion: The unfortunate manifestation of RSV ERD that occurred in the 1960s has led to a better understanding of the structural biology of the RSV surface fusion glycoprotein and has provided a basis for the development of more effective and safer RSV vaccines and monoclonal antibody preparations for immunoprophylaxis of the dread effects of RSV disease. There are now a large number of clinical trials in progress that are evaluating these products, which include recombinant vector, subunit, particle-based, live-attenuated, chimeric, and nucleic acid vaccines; and monoclonal antibodies. This article givesan overview of the many aspects of RSV disease and development of virus (RSV) vaccines of particular interest to the allergist/immunologist.

JAMA

. 2023 May 26.

doi: 10.1001/jama.2023.5588. Online ahead of print.

Asthma in Pregnancy

Jenny Huang[1], Jennifer Namazy[1]

Affiliations expand

- PMID: 37234011

- DOI: 10.1001/jama.2023.5588

No abstract available

Plain language summary

This JAMA Insights in the Women's Health series examines the management of asthma during pregnancy, including diagnosis, treatment, and the handling of exacerbations.

Review

Adv Ther

. 2023 May 26.

doi: 10.1007/s12325-023-02514-0. Online ahead of print.

Efficacy of Biologics in Severe, Uncontrolled Asthma Stratified by Blood Eosinophil Count: A Systematic Review

Stephanie Korn[1,2], Bill Cook[3], Lisa J Simpson[4], Jean-Pierre Llanos[5], Christopher S Ambrose[6]

Affiliations expand

- PMID: 37233876

- DOI: 10.1007/s12325-023-02514-0

Abstract

Introduction: Randomized controlled trials (RCTs) of biologics in patients with severe, uncontrolled asthma have shown differential results by baseline blood eosinophil count (BEC). In the absence of head-to-head trials, we describe the effects of biologics on annualized asthma exacerbation rate (AAER) by baseline BEC in placebo-controlled RCTs. Exacerbations associated with hospitalization or an emergency room visit, pre-bronchodilator forced expiratory volume in 1 s, Asthma Control Questionnaire score, and Asthma Quality of Life Questionnaire score were also summarized.

Methods: MEDLINE (via PubMed) was searched for RCTs of biologics in patients with severe, uncontrolled asthma and with AAER reduction as a primary or secondary endpoint. AAER ratios and change from baseline in other outcomes versus placebo were compared across baseline BEC subgroups. Analysis was limited to US Food and Drug Administration-approved biologics.

Results: In patients with baseline BEC ≥ 300 cells/μL, AAER reduction was demonstrated with all biologics, and other outcomes were generally improved. In patients with BEC 0 to < 300 cells/μL, consistent AAER reduction was demonstrated only with tezepelumab; improvements in other outcomes were inconsistent across biologics. In patients with BEC 150 to < 300 cells/μL, consistent AAER reduction was demonstrated with tezepelumab and dupilumab (300 mg dose only), and in those with BEC 0 to < 150 cells/μL, AAER reduction was demonstrated only with tezepelumab.

Conclusion: The efficacy of all biologics in reducing AAER in patients with severe asthma increases with higher baseline BEC, with varying profiles across individual biologics likely due to differing mechanisms of action.

Keywords: Biologic; Blood eosinophil; Efficacy; Exacerbations; Randomized placebo-controlled trial; Severe asthma; Systematic review.

Ann Am Thorac Soc
.
. 2023 May 26.
doi: 10.1513/AnnalsATS.202212-994RL. Online ahead of print.

Maternal Hypertensive Disorders of Pregnancy and the Risk of Childhood Asthma

Anna Chen Arroyo[1], Lacey Robinson[2], Kaitlyn James[3,4], Sijia Li[5], Mohammad Kamal Faridi[5], Sarah Hsu[6,7], Orianne Dumas[8], Anne Y Liu[9], Maurice Druzin[10], Camille E Powe[11,3], Carlos A Camargo Jr[12,3]
Affiliations expand

- PMID: 37233740

- DOI: 10.1513/AnnalsATS.202212-994RL

No abstract available

Pediatr Pulmonol
.
. 2023 May 26.
doi: 10.1002/ppul.26499. Online ahead of print.

Antenatal size, early childhood growth, and asthma within a cohort created by data linkage

Steve Turner[1], Anthony Chapman[1], Lorna Aucott[2]
Affiliations expand

- PMID: 37232335

- DOI: 10.1002/ppul.26499

Abstract

Introduction: The gestation when small for gestational age (SGA) is first associated with asthma is not well understood. Here, we use routinely acquired data from 10 weeks gestation to up to 28 years of age to test the hypothesis that SGA before birth is associated with an increased risk for asthma in a large population born between 1987 and 2015.

Methods: Databases were linked to produce a single database that held antenatal fetal ultrasound measurements; maternal characteristics; birth measurements; childhood anthropometric measurements at age 5 years; hospital admission data (1987-2015); and family doctor prescribing (2009-2015). Asthma admission and receipt of any asthma medications were the outcomes. Analyses related single and then multiple anthropometric measurements to asthma outcomes.

Results: Outcome data were available for 63,930 individuals. Increased length in the first-trimester size was associated with a reduced odds ratio (OR) for asthma admission of 0.991 [0.983, 0.998] per mm increase and also a shorter time to first admission, with a hazard ratio risk of 0.987 [0.980, 0.994] per mm increase. Independent of all earlier measurements, increased height at 5 years (available in a subset of 15,760) was associated with reduced OR for an asthma admission, with OR of 0.874 [0.790, 0.967] per z score. Longitudinal measurements of weight were not related to asthma outcomes.

Conclusions: Longer first-trimester length is associated with more favorable asthma outcomes, and subsequently, increased height in childhood is also independently associated with more favorable asthma outcomes. Interventions that reduce SGA and encourage healthy postnatal growth might improve asthma outcomes.

Keywords: asthma; fetus; growth; information storage and retrieval; longitudinal studies.

- 34 references

SUPPLEMENTARY INFO

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8

Pharm Nanotechnol

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. 2023 May 25.
doi: 10.2174/2211738511666230525151106. Online ahead of print.

Nanomedicines: Impactful Approaches for Targeting Pulmonary Diseases

Shivang Dhoundiyal[1], Md Aftab Alam[1], Awaneet Kaur[1], Shaweta Sharma[1]
Affiliations expand

- PMID: 37231722

- DOI: 10.2174/2211738511666230525151106

Abstract

In both developing and developed nations, pulmonary diseases are the major cause of mortality and disability. There has been a worldwide increase in the incidence of both acute and chronic respiratory illnesses, which poses a serious problem for the healthcare system. Lung cancer seems to be just one form of a parenchymal lung disorder, but there are many others, including chronic obstructive pulmonary disease (COPD), asthma, occupational lung diseases (asbestosis, pneumoconiosis), etc. Notably, chronic respiratory

disorders cannot be cured, and acute abnormalities are notoriously difficult to treat. As a result, it is possible that therapeutic objectives could be achieved using nanotechnology in the form of either improved pharmacological efficacy or reduced toxicity. In addition, the incorporation of various nanostructures permits the enhancement of medication bioavailability, transport, and administration. Medicines and diagnostics based on nanotechnology have progressed significantly toward clinical application for the treatment of lung cancers. In recent years, scientists have shifted their focus towards exploring the potential of nanostructures in the treatment of other relevant respiratory illnesses. Micelles and polymeric nanoparticles are the two most studied nanostructures in a wide range of diseases. This study concludes with a summary of recent and pertinent research in drug delivery systems for the treatment of various pulmonary disorders, as well as trends, limitations, significance, and treatment and diagnostics employing nanotechnology, as well as future studies in this domain.

Keywords: Drug delivery.; Nanomaterials; Nanomedicine; Nanotechnology; Nanotheranostics; Pulmonary diseases.

Editorial

Hypertens Res

. 2023 May 25.

doi: 10.1038/s41440-023-01328-5. Online ahead of print.

Asthma as risk for incident cardiovascular disease and its subtypes

Takumi Hirata[1]

Affiliations expand

- PMID: 37231166

- DOI: 10.1038/s41440-023-01328-5

No abstract available

Keywords: Asthma; Cardiovascular disease; Epidemiology.

Comment on

- Asthma and increased risk of myocardial infarction and mortality among hypertensive Korean patients.
  Lee CJ, Hwang J, Kang CY, Kang D, Kim DH, Park HJ, Kim HC, Ihm SH, Kim YJ, Shin JH, Pyun WB, Park S.Hypertens Res. 2023 Mar 29. doi: 10.1038/s41440-023-01257-3. Online ahead of print.PMID: 36991063

- 11 references

10

Occup Environ Med

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. 2023 May 25;oemed-2022-108671.
doi: 10.1136/oemed-2022-108671. Online ahead of print.

Impact of asthma on working life: an analysis of the French CONSTANCES cohort

Dorothée Provost[1], Marie-Christine Delmas[2], Laetitia Bénézet[2], Céline Ribet[3], Julie Chesneau[2], Chantal Raherison[4], Marcel Goldberg[3], Orianne Dumas[5], Nicole Le Moual[5], Yuriko Iwatsubo[2]
Affiliations expand

- PMID: 37230753

- DOI: 10.1136/oemed-2022-108671

Free article

Abstract

Objectives: Asthma has significant occupational consequences. The objective of our study was to investigate the links between asthma and the career path, taking into account gender and age at asthma onset.

Methods: Using cross-sectional data collected at inclusion in the French CONSTANCES cohort in 2013-2014, we studied the links between each career path indicator (number of job periods, total duration of employment, numbers of part-time jobs and work interruptions due to unemployment or health issues, employment status at inclusion) on the one hand, and current asthma and asthma symptom score in the last 12 months on the other hand, as reported by the participants. Multivariate analyses were performed separately for men and women using logistic and negative binomial regression models adjusted for age, smoking status, body mass index and educational level.

Results: When the asthma symptom score was used, significant associations were observed with all of the career path indicators studied: a high symptom score was associated with a shorter total duration of employment as well as a greater number of job periods, part-time jobs and work interruptions due to unemployment or health issues. These associations were of similar magnitude in men and women. When current asthma was used, the associations were more pronounced in women for some career path indicators.

Conclusion: The career path of asthmatic adults is more often unfavourable than that of those without asthma. Efforts should be made to support people with asthma in the workplace, in order to maintain employment and facilitate the return to work.

Keywords: asthma; epidemiology; occupational health.

Conflict of interest statement

Competing interests: MG reports grants or contracts from ANSES.

J Allergy Clin Immunol Pract

. 2023 May 23;S2213-2198(23)00549-4.

doi: 10.1016/j.jaip.2023.05.013. Online ahead of print.

Cluster analyses from the real-world NOVELTY study: six clusters across the asthma-COPD spectrum

Rod Hughes[1], Eleni Rapsomaniki[2], Aruna T Bansal[3], Jørgen Vestbo[4], David Price[5], Alvar Agustí[6], Richard Beasley[7], Malin Fagerås[8], Marianna Alacqua[2], Alberto Papi[9], Hana Müllerová[2], Helen K Reddel[10]; NOVELTY Scientific Community and the NOVELTY study investigators

Affiliations expand

- PMID: 37230383

- DOI: 10.1016/j.jaip.2023.05.013

Abstract

Background: Asthma and chronic obstructive pulmonary disease (COPD) are complex diseases whose definitions overlap.

Objective: To investigate clustering of clinical/physiological features and readily available biomarkers in patients with physician-assigned diagnoses of asthma and/or COPD in NOVELTY (NCT02760329).

Methods: Two approaches were taken to variable selection, using baseline data: approach A was data-driven, hypothesis-free, using Pearson's dissimilarity matrix; approach B used an unsupervised Random Forest guided by clinical input. Cluster analyses were conducted across 100 random resamples using partitioning around medoids, followed by consensus clustering.

Results: Approach A included 3,796 individuals (mean age 59.5 years, 54% female); approach B included 2,934 patients (mean age 60.7 years, 53% female). Each identified six mathematically stable clusters, which had overlapping characteristics. Overall, 67-75% of asthma patients were in three clusters, and ~90% of COPD patients in three clusters. Although traditional features like allergies and current/ex-smoking (respectively) were higher in these clusters, there were differences between clusters and approaches in features such as sex, ethnicity, breathlessness, frequent productive cough and blood cell counts. The strongest predictors of approach A cluster membership were age, weight, childhood onset, pre-bronchodilator FEV_1, duration of dust/fume exposure and number of daily medications.

Conclusion: Cluster analyses in NOVELTY patients with asthma and/or COPD yielded identifiable clusters, with several discriminatory features that differed from conventional diagnostic characteristics. The overlap between clusters suggests that they do not reflect discrete underlying mechanisms, and points to the need for identification of molecular endotypes and potential treatment targets across asthma and/or COPD.

Keywords: Precision medicine; asthma; biomarkers; chronic obstructive pulmonary disease; cluster analysis.

Pulm Pharmacol Ther
.
. 2023 May 23;102226.
doi: 10.1016/j.pupt.2023.102226. Online ahead of print.

Nebulized amphotericin B for preventing exacerbations in allergic bronchopulmonary aspergillosis: A systematic review and meta-analysis

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Affiliations expand

- PMID: 37230237

- DOI: 10.1016/j.pupt.2023.102226

Abstract

Background: Allergic bronchopulmonary aspergillosis (ABPA) is complicated by exacerbations in more than one-third of the subjects. Whether nebulized amphotericin B (NAB) therapy prevents ABPA exacerbations remains unclear.

Objectives: The primary objective of this systematic review and meta-analysis was to determine the frequency of subjects remaining exacerbation-free, one year after initiating NAB. The key secondary objectives were the time to first exacerbation and the safety of NAB therapy.

Methods: We searched the PubMed and Embase databases for studies evaluating ≥5 subjects of ABPA managed with NAB. We report the pooled proportion of ABPA subjects remaining exacerbation free after one year. For the randomized controlled trials (RCTs), we estimate the pooled risk difference (RD) of exacerbation-free status at one year with NAB versus the control arm.

Results: We included five studies for our analysis; three were observational (n = 28) and two RCTs (n = 160). The pooled proportion (95% confidence interval [CI]) of subjects

remaining exacerbation free with NAB at one year was 76% (62-88). The pooled RD (95% CI) of an exacerbation-free status at one year was 0.33 (-0.12 to 0.78) and was not significantly different between the NAB and control arms. The time to first exacerbation was longer with NAB than with the standard therapy. No serious adverse events were reported with NAB.

Conclusion: NAB does not improve exacerbation-free status at one year; however, weak evidence suggests it delays ABPA exacerbations. More research using different dosing regimens is required.

Keywords: ABPM; Asthma; Bronchiectasis; Inhaled amphotericin B; Itraconazole; Relapse.

Conflict of interest statement

Declaration of competing interest None.

J Pediatr (Rio J)

. 2023 May 22;S0021-7557(23)00060-8.
doi: 10.1016/j.jped.2023.05.002. Online ahead of print.

The PAY test: a new approach for assessing functional performance in children and adolescents with asthma

Fernanda C Lanza[1], Jenifer Santos[2], Jessyca P Selman[2], Ariane O Crispim[2], Karina S Nascimento[2], Giovanna M Souza[2], Danila V B Cano[2], Anne E Holland[3], Dirceu Solé[4], Simone Dal Corso[2]

Affiliations expand

- PMID: 37230151

- DOI: 10.1016/j.jped.2023.05.002

Free article

Abstract

Objective: To develop, validate, and test the reproducibility of a new test capable of assessing functional performance in children and adolescents (PAY test: Performance Activity in Youth).

Methods: participants without and with asthma were included in the development and validation phases, respectively. The PAY test includes five activities: transition from sitting to standing, walking 10 m, step climbing, shoulder extension and flexion, and star jumps. Participants underwent the Pediatric Glittre test (TGlittre-P), modified shuttle test (MST), and cardiopulmonary exercise test (CPET).

Outcomes: PAY test time, oxygen uptake (VO_{2peak}), and distance walked in the MST.

Results: 8 healthy volunteers, aged 12 (7 - 15) years old were included in the development phase and 32 participants with asthma, aged 11 (7 -14) years old, in the validation phase. The PAY test elicited greater physiological responses (VO_{2peak} 33.5 ± 6.9 mL/kg) than the TGlittre-P (VO_{2peak}: 27.4 ± 9.0 mL/kg), but lower than the MST (VO_{2peak}: 48.9 ± 14.2 mL/kg) and CPET (VO_{2peak}: 42.0 ± 8.8 mL/kg), $p < .05$. A moderate correlation between the PAY test time and the TGlittre-P time ($r = 0.70$, $p < .001$) and distance walked in the MST ($r = -0.72$, $p < .001$). The PAY test time was longer in participants with asthma than in healthy participants (3.1 [3.0 - 3.3] min vs. 2.3 [2.1 - 2.4 min]), $p < .001$.; and it was reproducible (ICC 0.78, CI 95% 0.55-0.90, $p < .001$).

Conclusions: The PAY test is a valid and reproducible tool for assessing functional performance in children and adolescents with asthma.

Keywords: Asthma; Children; Exercise; Functional capacity; Reproducibility; Validation.

Conflict of interest statement

Conflicts of interest The authors declare no conflicts of interest.

Review

Int Immunopharmacol
.
2023 May 23;120:110367.
doi: 10.1016/j.intimp.2023.110367. Online ahead of print.

Mesenchymal stem cells and allergic airway inflammation; a therapeutic approach to induce immunoregulatory responses

Mohammad Gholami[1], Khodayar Ghorban[2], Mahvash Sadeghi[3], Maryam Dadmanesh[4], Negin Hosseini Rouzbahani[5], Sajad Dehnavi[6]
Affiliations expand

- PMID: 37230032

- DOI: 10.1016/j.intimp.2023.110367

Abstract

Allergic airway inflammations are among the essential disorders worldwide that are already considered a significant concern. Mesenchymal stem cells (MSCs) are stromal cells with regenerative potential and immunomodulatory characteristics and are widely administered for tissue repair as an immunoregulatory agent in different inflammatory diseases. The current review summarized primary studies conducted to evaluate the therapeutic potential of MSCs for allergic airway disorders. In this case, modulation of airway pathologic inflammation and infiltration of inflammatory cells were examined, and modulation of the Th1/Th2 cellular balance and humoral responses. Also, the effects of

MSCs on the Th17/Treg ratio and inducing Treg immunoregulatory responses along with macrophage and dendritic cell function were evaluated.

Keywords: Airway allergic inflammation; Allergic asthma; Allergic rhinitis; Immunomodulation; mesenchymal stem cell (MSC).

Conflict of interest statement

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

Review

ERJ Open Res

. 2023 May 22;9(3):00034-2023.
doi: 10.1183/23120541.00034-2023. eCollection 2023 May.

ERS International Congress 2022: highlights from the Airway Diseases Assembly

Augusta Beech[1,2], Andrea Portacci[3], Beatrice Herrero-Cortina[4,5], Alexander G Mathioudakis[6], Carolina Gotera[7], Lena Uller[8], Fabio Luigi Massimo Ricciardolo[9,10], Pavol

Pobeha[11], Robert J Snelgrove[12], Gert-Jan Braunstahl[13], Apostolos Bossios[14][15], Omar Usmani[12], Sachin Ananth[16]
Affiliations expand

- PMID: 37228280

- PMCID: PMC10204859

- DOI: 10.1183/23120541.00034-2023

Abstract

The European Respiratory Society (ERS) celebrated the return of an in-person meeting in Barcelona, Spain, after 2 years of virtual congresses. The ERS Congress 2022 programme was replete with symposia, skills workshops and abstract presentations from all 14 assemblies, encompassing over 3000 abstracts presented in the form of thematic poster discussion and oral presentations. In this article, highlights from the ERS Congress 2022 (including from thematic poster sessions, oral presentations and symposia from keynote speakers), presented by Assembly 5 (Airway diseases, asthma, COPD and chronic cough), are reviewed by Early Career Members and experts in the field, with the aim of presenting key recent findings in the field.

Conflict of interest statement

Conflict of interest: A. Portacci declares honoraria from AstraZeneca, GlaxoSmithKline, Chiesi and Sanofi. C. Gotera declares payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from AstraZeneca and GlaxoSmithKline. L. Uller reports payment or honoraria from AstraZeneca for lectures, presentations, speakers' bureaus, manuscript writing or educational events. P. Pobeha declares payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from AstraZeneca and Angeliny, is secretary of Group 05.02 (monitoring airway disease) of the European Respiratory Society, and a member of steering committees of the Slovak respiratory society and Slovak sleep medicine society. R.J. Snelgrove declares grants from The Wellcome Trust. G-J. Braunstahl reports attending advisory boards for GlaxoSmithKline, Novartis, AstraZeneca, Boehringer Ingelheim and Sanofi, honoraria from Novartis, AstraZeneca, Chiesi, GlaxoSmithKline, Teva and ALK Abello, participating in research with GlaxoSmithKline, Chiesi, AstraZeneca, ALK Abello, Novartis and Teva, and attending international conferences with Novartis and Teva. A. Bossios declares honoraria for advisory board meetings from GSK, AstraZeneca, Teva,

Novartis and Sanofi, is a member of the steering committee of SHARP, secretary of Assembly 5 (airway diseases, asthma, COPD and chronic cough) of the European Respiratory Society and vice-chair of the Nordic Severe Asthma Network. O. Usmani reports grants and personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi and GlaxoSmithKline, personal fees from Napp, Mundipharma, from Sandoz and Takeda, grants from Edmond Pharma, and personal fees from Cipla, Covis, Novartis, Mereo Biopharma, Orion, Menarini, UCB, Trudell Medical, Deva, Kamada, Covis and Kyorin, outside the submitted work; and is chair of Assembly 5 (airway diseases, asthma, COPD and chronic cough) of the European Respiratory Society. A. Beech, F.L.M. Ricciardolo, B. Herrero-Cortina, A.G. Mathioudakis and S. Ananth declare no conflicts of interest.

- 110 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

16
ERJ Open Res
. 2023 May 22;9(3):00650-2022.
doi: 10.1183/23120541.00650-2022. eCollection 2023 May.

Occupational exposures and small airway obstruction in the UK Biobank Cohort

Johanna Feary[1], Valentina Quintero-Santofimio[1], James Potts[1], Roel Vermeulen[2], Hans Kromhout[2], Ben Knox-Brown[1], Andre F S Amaral[1]
Affiliations expand

- PMID: 37228277

- PMCID: PMC10204826

- DOI: 10.1183/23120541.00650-2022

Abstract

Background: Small airways obstruction (SAO) is a key feature of both COPD and asthma, which have been associated with workplace exposures. Whether SAO, which may occur early in the development of obstructive lung disease and without symptoms, also associates with occupational exposures is unknown.

Methods: Using UK Biobank data, we derived measurements of SAO from the 65 145 participants with high-quality spirometry and lifetime occupational histories. The ALOHA+ Job Exposure Matrix was used to assign lifetime occupational exposures to each participant. The association between SAO and lifetime occupational exposures was evaluated using a logistic regression model adjusted for potential confounders. A second logistic regression model was also run to account for potential co-exposures.

Results: SAO was present in varying proportions of the population depending on definition used: 5.6% (forced expiratory flow between 25 and 75% of the forced vital capacity (FEF_{25-75}) < lower limit of normal (LLN)) and 21.4% (forced expiratory volume in 3 s (FEV_3)/forced expiratory volume in 6 s (FEV_6) <LLN). After adjustment for confounders and co-exposures, people in the highest category of exposure to pesticides were significantly more likely to have SAO (FEV_3/FEV_6 <LLN: OR 1.24, 95% CI 1.06-1.44). The association between pesticides and SAO showed an exposure-response pattern. SAO was also less likely among people in the highest exposure categories of aromatic solvents (FEV_3/FEV_6 <LLN: OR 0.85, 95% CI 0.73-0.99) and metals (FEV_3/FEV_6 <LLN: OR 0.77, 95% CI 0.62-0.94).

Conclusion: Our findings suggest that occupational exposure to pesticides play a role in the SAO. However, further work is needed to determine causality, and identify the specific component(s) responsible and the underlying mechanisms involved.

Conflict of interest statement

Conflict of interest: None declared.

- 39 references
- 2 figures

ERJ Open Res
. 2023 May 22;9(3):00104-2023.
doi: 10.1183/23120541.00104-2023. eCollection 2023 May.

Comparison of the Asthma Control Questionnaire and patient diaries in uncontrolled asthma

Dave Singh[1], Alberto Papi[2], Guy Brusselle[3], J Christian Virchow[4], Giorgio Walter Canonica[5], Eva Topole[6], Andrea Vele[6], George Georges[6]
Affiliations expand

- PMID: 37228265
- PMCID: PMC10204853
- DOI: 10.1183/23120541.00104-2023

Abstract

These *post hoc* analyses suggest that the Asthma Control Questionnaire and eDiary have different measurement properties, and it is therefore potentially valuable to include both in clinical trials https://bit.ly/3TIYCIX.

Conflict of interest statement

Conflicts of interest: D. Singh reports consulting fees from Aerogen, AstraZeneca, Boehringer Ingelheim, Chiesi, Cipla, CSL Behring, Epiendo, Genentech, GlaxoSmithKline, Glenmark, Gossamerbio, Kinaset, Menarini, Novartis, Pulmatrix, Sanofi, Synairgen, Teva, Theravance and Verona, all outside the submitted work. Conflicts of interest: A. Papi reports grant payments to his institution from Chiesi, AstraZeneca, GlaxoSmithKline, Boehringer Ingelheim, Pfizer, Teva and Sanofi, consultancy fees from Chiesi, AstraZeneca, GlaxoSmithKline, Novartis, Sanofi, Iqvia, Avillion and Elpen Pharmaceuticals, and payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from Chiesi, AstraZeneca, GlaxoSmithKline, Boehringer Ingelheim, Menarini, Novartis, Zambon, Mundipharma, Teva, Sanofi, Edmond Pharma, Iqvia, MSD, Avillion and Elpen Pharmaceuticals, all outside the submitted work. Conflicts of interest: G. Brusselle reports honoraria for lectures from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis and Teva; he is a member of advisory boards for Amgen, AstraZeneca, Boehringer-Ingelheim, GlaxoSmithKline, Novartis, Sanofi/Regeneron and Teva. All of these declarations are outside the submitted work. Conflicts of interest: J.C. Virchow reports consulting fees and payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from Novatis, Chiesi, GlaxoSmithKline, AstraZeneca, TEVA, Menarini, Berlin-Chemie, Sanofi and Boehringer Ingelheim, support for attending meetings and/or travel from Sanofi and Boehringer Ingelheim, and participation on a data safety monitoring board or advisory board for Chiesi, all outside the submitted work. Conflicts of interest: G.W. Canonica has no other relevant conflicts of interest to disclose. Conflicts of interest: E. Topole is an employee of Chiesi Farmaceutici SpA, the sponsor of the studies. Conflicts of interest: A. Vele is an employee of Chiesi Farmaceutici SpA, the sponsor of the studies. Conflicts of interest: G. Georges is an employee of Chiesi USA, Inc.

. 2023 May 22;9(3):00653-2022.
doi: 10.1183/23120541.00653-2022. eCollection 2023 May.

ERS International Congress 2022: highlights from the Paediatrics Assembly

Cristina Ardura-Garcia[1], Katharina Kainz[2], Maria Christina Mallet[3,4], Laura Petrarca[5,6], Jasna Rodman Berlot[7], Monique Slaats[8], Carmen Streibel[9], Susanne Vijverberg[10,11], Emma E Williams[12], Myrofora Goutaki[4,13], Diane M Gray[14], Anna Lavizzari[15], Rory E Morty[16,17], Marijke Proesmans[18], Dirk Schramm[19], Mirjam Stahl[20,21,22], Angela Zacharasiewicz[2], Alexander Moeller[23], Mariëlle W Pijnenburg[8]
Affiliations expand

- PMID: 37228264

- PMCID: PMC10204827

- DOI: 10.1183/23120541.00653-2022

Abstract

This review has been prepared by the Early Career Members and Chairs of the European Respiratory Society (ERS) Assembly 7: Paediatrics. We here summarise the highlights of the advances in paediatric respiratory research presented at the ERS International Congress 2022. The eight scientific groups of this Assembly cover a wide range of research areas, including respiratory physiology and sleep, asthma and allergy, cystic fibrosis (CF), respiratory infection and immunology, neonatology and intensive care, respiratory epidemiology, bronchology, and lung and airway developmental biology. Specifically, we report on abstracts presented at the congress on the effect of high altitude on sleep, sleep disorders, the hypoxic challenge test, and measurements of ventilation inhomogeneity. We discuss prevention of preschool wheeze and asthma, and new asthma medications. In children with CF, we describe how to monitor the effect of CF transmembrane conductance regulator modulator therapy. We present respiratory manifestations and chronic lung disease associated with common variable immunodeficiency. Furthermore, we discuss how to monitor respiratory function in neonatal and paediatric intensive care units. In

respiratory epidemiology, we present the latest news from population-based and clinical cohort studies. We also focus on innovative and interventional procedures for the paediatric airway, such as cryotherapy. Finally, we stress the importance of better understanding the molecular mechanisms underlying normal and abnormal lung development.

Conflict of interest statement

Conflict of interest: C. Ardura-Garcia received support from the ERS for attending meetings and was the Early Career Member Representative of the Paediatrics Assembly of the ERS. Conflict of interest: M.C. Mallet is supported by the Swiss National Science Foundation (320030_182628). Conflict of interest: S. Vijverberg is supported by the Lung Foundations Netherlands and ZonMW (payments made to institution as research funding). Conflict of interest: M. Goutaki is chair of the Group 07.06 of the ERS and she is supported by the Swiss National Science Foundation (PZ00P3_185923). Conflict of interest: D.M. Gray has received a research fellowship from the Wellcome Trust, is an Executive Committee member of Pan African Thoracic Society, and treasurer and the Co-chair of the Department of Paediatrics and Child Health Advocacy Committee, University of Cape Town. Conflict of interest: M. Proesmans is member of the ERS Clinical Research Collaboration on non-CF bronchiectasis in children (unpaid). Conflict of interest: M. Stahl has received a payment to their institution from Vertex Pharmaceuticals, has participated on a Data Safety Monitoring Board or Advisory Board for Vertex Pharmaceuticals, and is the FGM Chairwoman, GPP treasurer and secretary of group 07.03 of the ERS. Conflict of interest: A. Zacharasiewicz has received payment or honoraria from Sanofi, Vertex, AstraZeneca, Novartis, Löwenstein and Hagleitner, support for attending meetings and/or travel from Gilead AOP, has participated on advisory boards from Chiesi and Vertex, and is the Head of Pediatric Asthma and Allergy Group of the Austrian Pediatric Society and of the Austrian Respiratory Society. Conflict of interest: A. Moeller has received a research grant, consulting fees and honoraria for lectures from Vertex to his institution, he is Co-President of Swiss Working Group for Cystic Fibrosis and secretary of the ERS Paediatrics Assembly. Conflict of interest: M.W. Pijnenburg's institution received payments from Sanofi (advisory board), Novartis and AbbVie (speakers fees), and she received support from the ERS for attending meetings as head of the Paediatrics Assembly. Conflict of interest: J. Rodman Berlot, K. Kainz, L. Petrarca, M. Slaats, C. Streibel, E.E. Williams, A. Lavizzari, R.E. Morty and D. Schramm have nothing to disclose.

- 88 references

SUPPLEMENTARY INFO

Publication typesexpand

Trop Doct
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. 2023 May 24;494755231175709.
doi: 10.1177/00494755231175709. Online ahead of print.

Association between neutrophil lymphocyte ratio and status of symptom control in children and adolescents with bronchial asthma

Lourembam Radhapyari[1], Prashant Kumar Verma[2], Vinod Kumar[3], Manish Kumar[4], Arvind Kumar Gupta[5], Nowneet Kumar Bhat[6]
Affiliations expand

- PMID: 37226508

- DOI: 10.1177/00494755231175709

Abstract

Neutrophil lymphocyte ratio (NLR), an easy and readily available biomarker of systemic inflammation, has been less studied so far as a putative marker of asthma control. Our study aimed to assess its feasibility. A total of 90 asthmatic children, aged 5-18 years, diagnosed according to Global Initiative for Asthma (GINA) guidelines, were. Control status of asthma was assessed using the asthma control test (ACT) or childhood ACT and categorized as controlled group-1 (ACT > 19) and uncontrolled group-2 (ACT ≤ 19). The difference between mean values in both groups was analysed, finding a significant difference between children with and without a family history (p = 0.004) and those with

and without a need for admission (p = 0.045). Also, a significant association was established between NLR and the type of severity of asthma (p = 0.049), but none between NLR and age, gender, BMI, coexisting allergic rhinitis, or asthma exacerbation. Thus we found no significant association between NLR and symptom control status. However, NLR has the potential to be a putative marker of inflammation, although its relative status to CRP needs further studies.

Keywords: Asthma; asthma controlled test; neutrophil lymphocyte ratio.

Expert Rev Clin Immunol

. 2023 May 25.

doi: 10.1080/1744666X.2023.2218617. Online ahead of print.

Evaluation of switching or simultaneous use of biologic treatment in patients with severe chronic rhinosinusitis with nasal polyps and severe asthma. Considerations in clinical decision making

Josje Otten[1], Rik van der Lans[1], Eugenio de Corso[2], Kanstantsin Dziadziulia[3], Bart Hilvering[4], Els Weersink[4], Matteo Bonini[5], Jan Hagemann[6], Wanrawee Thaitrakool[1,7], Claudio Montuori[8], Ludger Klimek[3], Sietze Reitsma[1], Wytske Fokkens[1]

Affiliations expand

- PMID: 37226507

- DOI: 10.1080/1744666X.2023.2218617

Abstract

Introduction: Type 2 targeting biologics have reached the market first for asthma and since 2019 also for CRSwNP. As clear guidelines and predictors for optimal biological choice are missing, patients are sometimes required to switch biologic therapy in order to find the optimal treatment result. In this paper, we evaluate reasons for switching biologics and the treatment effects after each sequential switch.

Materials and methods: 94 patients who switched from one biologic to another for their treatment of CRSwNP and asthma were evaluated.

Results: 20 patients experienced satisfactory control of CRSwNP, but insufficient control of severe asthma. 51 patients experienced satisfactory control of severe asthma, but insufficient control of CRSwNP/EOM. 28 patients experienced insufficient control of both upper and lower airways. 13 patients had to switch because of side effects. Furthermore, two cases are described to clarify clinical decision making.

Discussion: For abovementioned patients, a multidisciplinary approach is mandatory to find the best suitable biologic. It seems ineffective to switch to a second anti-IL5 treatment if the first one is not successful. Most patients that failed omalizumab and/or an anti-IL-5 treatment are well controlled on dupilumab. Therefore we suggest to use dupilumab as first choice when switching biologic agents.

Keywords: CRSwNP; asthma; biologics; double treatment; switching.

Ann Allergy Asthma Immunol

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. 2023 May 22;S1081-1206(23)00359-9.
doi: 10.1016/j.anai.2023.05.018. Online ahead of print.

Place of death from asthma differs by age, race and ethnicity

Sylvette Nazario[1], Lorena González-Sepúlveda[2], Bonnie Telón-Sosa[3], Sona Rivas-Tumanyan[4]
Affiliations expand

- PMID: 37225001

- DOI: 10.1016/j.anai.2023.05.018

No abstract available

Keywords: Asthma mortality; Hispanics; Non-Hispanic Black individuals; Non-Hispanic-White individuals; Puerto Rican individuals; place of death.

Pediatr Pulmonol

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. 2023 May 24.
doi: 10.1002/ppul.26500. Online ahead of print.

Prospective follow up after omalizumab discontinuation in a cohort of children with severe asthma

Valentina Agnese Ferraro[1], Amelia Licari[2 3], Alessandro Volpini[4], Grazia Fenu[5], Maria Francesca Patria[6], Manuela Seminara[7], Elena Spada[8], Franca Rusconi[9]
Affiliations expand

- PMID: 37222415

- DOI: 10.1002/ppul.26500

No abstract available

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Review

Respirology
.
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.
. 2023 May 24.
doi: 10.1111/resp.14520. Online ahead of print.

Biologics for severe asthma-Which, when and why?

Peer Ameen Shah[1], Chris Brightling[1]
Affiliations expand

- PMID: 37222237

- DOI: 10.1111/resp.14520

Abstract

Asthma is a common chronic inflammatory condition of the airways that affects about 350 million people globally. In 5%-10% of individuals, it is severe, with considerable morbidity and high health care utilization. The goal of asthma management is disease control by reducing symptoms and exacerbations and reducing corticosteroid-related morbidity. The era of biologics has revolutionized the management of severe asthma. Biologics have changed our expectations for severe asthma, especially in those people with type-2 mediated immunity. We can now explore the potential for changing disease trajectory and inducing remission. However, biologics are not a panacea for all severe asthma sufferers and despite their success there remains substantial unmet clinical need. We review the pathogenesis of asthma, phenotyping the heterogeneity of asthma, currently licensed and future biologic agents, how to choose the initial biologic, assessing the response, remission and switching of biologic therapies.

Keywords: asthma; asthma control; biologics; biologics switching; biomarkers; exacerbations; remission; severe asthma.

- 114 references

SUPPLEMENTARY INFO

Publication typesexpand

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WILEY Full Text Article UNIMORE

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Med Sci Monit

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. 2023 May 24;29:e939350.

doi: 10.12659/MSM.939350.

Relationship Between Physical Activity and Adult Asthma Control Using NHANES 2011-2020 Data

Wei Ye[1], Xingxing Li[2], Yuenuo Huang[3]
Affiliations expand

- PMID: 37221818

- DOI: 10.12659/MSM.939350

Abstract

BACKGROUND The purpose of this study was to determine whether PA is associated with asthma control using data from the National Health and Nutrition Examination Survey (NHANES) for 2011-2020. We did not find a relationship between physical activity (PA) and asthma control. MATERIAL AND METHODS In this study, we measured asthma control by counting asthma attacks and emergency room visits for asthma in the past year. Physical activity was divided into recreational physical activity and work physical activity. A total of 3158 patients (≥20 years old) were included in the study, of which 2375 were in the asthma attack group and 2844 were in the emergency care group, with indicators of asthma control and physical activity as dichotomous variables. Multiple sets of covariates were selected, such as age, gender, and race. Multiple logistic regression analysis and subgroup analysis were used to analyze the data. RESULTS Active workload was significantly correlated with acute asthma attacks, but the relationship with emergency care was not statistically significant. We found that the relationship between physical activity and emergency care was influenced by race, education, and economic level. CONCLUSIONS The amount of work activity was correlated with acute asthma attacks, and the relationship between physical activity and emergency case was influenced by race, education, and economic level.

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

Respir Care
.
. 2023 May 23;respcare.10464.
doi: 10.4187/respcare.10464. Online ahead of print.

Validity, Reproducibility, and Minimal Detectable Difference of the Functional Upper Extremity Function Test – Simplified Version – for Adults With Moderate–Severe Asthma and COPD

Natielly Soares Correia[1], Joice Mara de Oliveira[1], Diery Rugila Fernandes[1], Denner Idelmar Feitosa[1], Daniel Martins Pereira[2], Daniel Pereira do Amaral[3], Rafael Mesquita[4], Fabio Pitta[5], Simone Dal Corso[3], Karina Couto Furlanetto[6]
Affiliations expand

- PMID: 37221086

- DOI: 10.4187/respcare.10464

Abstract

Background: Upper-limbs (ULs) functional tests which are valid and reliable for individuals with chronic respiratory disease (CRD) are scarce. The aim of this study was to investigate the intra-rater reproducibility, validity, minimal detectable difference (MDD), and learning effect of the Upper Extremity Function Test - simplified version (UEFT_S) functional test and to characterize its performance for adults with moderate-severe asthma and COPD.

Methods: The UEFT_S was performed twice, and the number of elbow flexions in 20 s was the outcome. In addition, spirometry, 6-min walk test (6MWT), handgrip dynamometry (HGD), and usual and maximum timed-up-and-go tests (TUG_usual and TUG_max) were also performed.

Results: Eighty-four individuals with moderate-severe CRD and 84 control individuals matched by anthropometric data were analyzed. Individuals with CRD presented better performance in the UEFT_S than controls (P = .023). UEFT_S correlated significantly with HGD, TUG_usual, TUG_max, and 6MWT (P < .047 for all). The test-retest intraclass correlation coefficient was 0.91 [0.86-0.94], and the MDD was 0.4%.

Conclusions: The UEFT_S is a valid and reproducible tool to assess the functionality of the ULs in people with moderate-severe asthma and COPD. When applied in the modified form, the test can be considered simple, fast, and inexpensive, with an easy outcome to interpret.

Keywords: COPD; asthma; upper extremity; validation study.

J Community Health

. 2023 May 23.
doi: 10.1007/s10900-023-01239-z. Online ahead of print.

Asthma Prevalence among Athletes in an Urban Adolescent Population

Charles Siegel[1], Eric Tecce[2], John R Vaile[2], Arlene Maheu[2], Jeremy Close[3,4]
Affiliations expand

- PMID: 37219790

- DOI: 10.1007/s10900-023-01239-z

Abstract

Objective: To identify individuals at risk of asthma by assessing the prevalence of asthma in an urban, athletic adolescent population using preparticipation physical evaluation (PPE) data.

Study design: Using the Athlete Health Organization (AHO) PPE data from 2016 to 2019, asthma prevalence was collected by reported diagnosis in the history or physical. Chi-square tests and logistic regression were performed to characterize the relationship between asthma and social factors such as race, ethnicity, and income. Control variables such as age, body mass index, blood pressure, sex, and family history were also collected.

Results: Over 2016-2019, 1,400 athletes ranging from 9 to 19 years of age had completed PPEs (Table 1). A large percentage of student-athletes were found to have asthma (23.4%), of whom a majority 86.3% resided in low-income zip-codes. Additionally, 65.5% of athletes with asthma identified as Black, with race being associated with asthma prevalence ($p < 0.05$). Demographic factors like income, age, and gender were not significantly associated with asthma prevalence.

Conclusions: Self-identified Black individuals reported higher prevalence of asthma when compared to the general population. Identifying factors like race and income that place adolescent athletes at risk of asthma is a key step to understanding the complex relationship between asthma and social determinants of health. This work advances the conversation for establishing best practices for serving vulnerable populations, as seen in this urban population of children with asthma.

Keywords: Adolescents; Asthma; Athletes; Disparities; Population-health; Social-determinants.

- 23 references

. 2023 May 23.
doi: 10.1111/cea.14351. Online ahead of print.

Digital interventions to improve adherence to maintenance medication in asthma

Konstantina Papadopoulou[1], Ian Gregory[2]
Affiliations expand

- PMID: 37218611

- DOI: 10.1111/cea.14351

No abstract available

Keywords: asthma; digital interventions; electronic monitoring devices.

- 9 references

Review

Clin Respir J

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. 2023 May 22.
doi: 10.1111/crj.13629. Online ahead of print.

Efficacy and safety of montelukast adjuvant therapy in adults with cough variant asthma: A systematic review and meta-analysis

Qian Xu[1,2,3], Tingting Lu[2,3], Zhongyang Song[4], Peng Zhu[1], Yana Wu[1], Lumei Zhang[1], Kehu Yang[2,3], Zhiming Zhang[5]
Affiliations expand

- PMID: 37218346

- DOI: 10.1111/crj.13629

Abstract

Background: Montelukast is a highly selective and specific cysteinyl leukotriene receptor antagonist used in the treatment of asthma. Whether montelukast as adjuvant therapy can significantly and safely treat adults with cough variant asthma (CVA) remains inconclusive.

Aims: This meta-analysis systematically evaluated the efficacy and safety of montelukast as an adjuvant treatment for adults with CVA.

Materials and methods: Randomized controlled trials (RCTs) on montelukast combined with inhaled corticosteroids (ICS) and long-acting β2 agonists (LABAs) to treat CVA in adults, from inception to March 6, 2023, were retrieved from the CNKI, Wanfang, VIP, CBM, PubMed, Embase, Cochrane Library, and Web of Science databases and Clinical Trials website. Review Manager (version 5.4) and Stata (version 15.0) were used to conduct the meta-analysis.

Results: A total of 15 RCTs were ultimately included in the meta-analysis. It was established that montelukast as adjuvant therapy raised the total effective rate (RR = 1.20, 95% confidence interval [CI] [1.13, 1.27], P < 0.01) and improved the FEV1% (SMD = 0.91, 95% CI [0.40, 1.41], P < 0.01), PEF% (SMD = 0.63, 95% CI [0.38, 0.88], P < 0.01), FEV1 (SMD = 1.15, 95% CI [0.53, 1.77], P < 0.01), PEF (SMD = 0.64, 95% CI [0.42, 0.86], P < 0.01), and FEV1/FVC% (SMD = 0.76, 95% CI [0.51, 1.01], P < 0.01) and reduced the recurrence rate (RR = 0.28, 95% CI [0.15, 0.53], P < 0.01). The incidence of adverse reactions was higher in the montelukast auxiliary group compared to the control group but with no statistical difference (RR = 1.32, 95% CI [0.89, 1.96], P = 0.17).

Conclusion: Existing evidence indicated that the use of montelukast as an adjuvant therapy had therapeutic efficacy superior to ICS + LABA alone for the treatment of adult patients with CVA. However, further research is needed, especially a combination of high-quality long-term prospective studies and carefully designed RCTs.

Keywords: cough variant asthma; meta-analysis; montelukast; randomized controlled trial.

- 41 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Editorial

Respirology
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. 2023 May 22.
doi: 10.1111/resp.14522. Online ahead of print.

Asthma research priorities: Listening to everybody

Robert J Hancox[1], Philip G Bardin[2]
Affiliations expand

- PMID: 37218110

- DOI: 10.1111/resp.14522

No abstract available

Keywords: asthma; end-user engagement; research priorities.

- 9 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

30
BMC Pediatr
. 2023 May 23;23(1):255.
doi: 10.1186/s12887-023-04062-6.

Efficacy analysis of oral dexamethasone in the treatment of infantile spasms and infantile spasms related Lennox-Gastaut syndrome

Jieling Li[#1], Yujing Gao[#1], Jie Cao[2], Fangcheng Cai[1], Xiuquan Zhai[3]
Affiliations expand

- PMID: 37217894
- PMCID: PMC10204310

- DOI: 10.1186/s12887-023-04062-6

Free PMC article

Abstract

Objective: Treatment with adrenocorticotropic hormone (ACTH) or a corticosteroid is the first choice for infantile spasms (IS), and vigabatrin is the first choice for children with tuberous sclerosis. Although corticosteroids may be also effective against IS and IS-related Lennox-Gastaut syndrome (LGS), the use of dexamethasone (DEX), a kind of corticosteroid, for these diseases has been rarely reported. This retrospective study aimed to evaluate the efficacy and tolerability of DEX for the treatment of IS and IS-related LGS.

Methods: Patients diagnosed as having IS (including patients whose condition evolved to LGS after the failure of early treatment) in our hospital between May 2009 and June 2019 were treated with dexamethasone after failure of prednisone treatment. The oral dose of DEX was 0.15-0.3 mg/kg/d. Thereafter, the clinical efficacy, electroencephalogram (EEG) findings, and adverse effects were observed every 4-12 weeks depending on the individual patient's response. Then, the efficacy and safety of DEX in the treatment of IS and IS-related LGS were retrospectively evaluated.

Results: Among 51 patients (35 cases of IS; 16 cases of IS-related LGS), 35 cases (68.63%) were identified as responders to DEX treatment, comprising 20 cases (39.22%) and 15 cases (29.41%) with complete control and obvious control, respectively. To discuss the syndromes individually, complete control and obvious control were achieved in 14/35 and 9/35 IS cases and in 6/16 and 6/16 IS-related LGS cases, respectively. During DEX withdrawal, 11 of the 20 patients with complete control relapsed (9/14 IS; 2/6 LGS). The duration of dexamethasone treatment (including weaning) in most of the 35 responders was less than 1 year. However, 5 patients were treated with prolonged, low-dose maintenance therapy, which continued for more than 1.5 years. These 5 patients showed complete control, and 3 patients had no recurrence. Except for one child who died of recurrent asthma and epileptic status 3 months after stopping DEX, there were no serious or life-threatening adverse effects during DEX treatment.

Conclusion: Oral DEX is effective and tolerable for IS and IS-related LGS. all LGS patients were evolved from IS in this study. The conclusion may not apply to patients with other etiology and courses of LGS. Even when prednisone or ACTH is failed, DEX may still be considered as a treatment option. For children who respond to DEX but do not show complete control after 6 months of treatment, prolonged treatment with low-dose DEX administered in the morning might be considered.

Keywords: Dexamethasone; IS-related Lennox–Gastaut syndrome; Infantile spasms; Oral; Prednisone.

Conflict of interest statement

All authors declare no conflicts of interest.

- 39 references
- 4 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

FULL TEXT LINKS

Cell Mol Immunol

. 2023 May 23.
doi: 10.1038/s41423-023-01029-6. Online ahead of print.

Vitamin B6 regulates IL-33 homeostasis to alleviate type 2 inflammation

Songling Zhu[#1], Shufen Zhong[#2], Kebin Cheng[#3], Li-Sha Zhang[#3], Jiu-Wu Bai[3], Zu Cao[3], Su Wang[1], Wen Chen[2], Shipeng Cheng[2], Liyan Ma[2], Zhiyang Ling[2], Yuying Huang[2], Wangpeng Gu[1], Xiaoyu Sun[2], Chunyan Yi[2], Meng Zhao[2], Shuo Liang[4], Jin-Fu Xu[5], Bing Sun[6,7], Yaguang Zhang[8]
Affiliations expand

- PMID: 37217797

- DOI: 10.1038/s41423-023-01029-6

Abstract

Interleukin-33 (IL-33) is a crucial nuclear cytokine that induces the type 2 immune response and maintains immune homeostasis. The fine-tuned regulation of IL-33 in tissue cells is critical to control of the type 2 immune response in airway inflammation, but the mechanism is still unclear. Here, we found that healthy individuals had higher phosphate-pyridoxal (PLP, an active form of vitamin B6) concentrations in the serum than asthma patients. Lower serum PLP concentrations in asthma patients were strongly associated with worse lung function and inflammation. In a mouse model of lung inflammation, we revealed that PLP alleviated the type 2 immune response and that this inhibitory effect relied on the activity of IL-33. A mechanistic study showed that in vivo, pyridoxal (PL) needed to be converted into PLP, which inhibited the type 2 response by regulating IL-33 stability. In mice heterozygous for pyridoxal kinase (PDXK), the conversion of PL to PLP was limited, and IL-33 levels were increased in the lungs, aggravating type 2 inflammation. Furthermore, we found that the mouse double minute 2 homolog (MDM2) protein, an E3 ubiquitin-protein ligase, could ubiquitinate the N-terminus of IL-33 and sustain IL-33 stability in epithelial cells. PLP reduced MDM2-mediated IL-33 polyubiquitination and decreased the level of IL-33 through the proteasome pathway. In addition, inhalation of PLP alleviated asthma-related effects in mouse models. In summary, our data indicate that vitamin B6 regulates MDM2-mediated IL-33 stability to constrain the type 2 response, which might help develop a potential preventive and therapeutic agent for allergy-related diseases.

Keywords: IL-33; Type 2 inflammation; Vitamin B6..

- 63 references

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

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32

Am J Perinatol

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. 2023 May 22.
doi: 10.1055/a-2097-1468. Online ahead of print.

Asthma medication reduction during the periconceptional period may have implications for asthma control and pregnancy outcomes

Matthew Rohn[1], Danielle Stevens[2], William Grobman[3], Rajesh Kumar[4], Zhen Chen[5], Jessy Deshane[6], Joseph Biggio[7], Akila Subramaniam[8], Katherine L Grantz[9], Seth Sherman[10], Pauline Mendola[11][12]
Affiliations expand

- PMID: 37216974

- DOI: 10.1055/a-2097-1468

Abstract

Background: Asthma medication reduction is common in early pregnancy and may be an important contributor to worsening asthma in pregnancy.

Methods: In a prospective cohort study, self-reported current and past asthma medications were collected and analyses compared measures of asthma status in women who discontinued asthma medication in the six months prior to enrollment ("step down") versus those who did not ("no change"). Evaluation of asthma was done at three study visits (one per trimester) and by daily diaries, including measures of lung function (percent predicted forced expiratory volume in one and six seconds, (%FEV1, %FEV6), peak expiratory flow (%PEF), forced vital capacity (%FVC), FEV1 to FVC ratio (FEV1/FVC)), lung inflammation (fractional exhaled nitric oxide (FeNO), ppb), rate of asthma symptoms (activity limitation, night symptoms, rescue inhaler use, wheeze, shortness of breath, cough, chest tightness, chest pain), and rate of asthma exacerbations. Adverse pregnancy outcomes were also evaluated. Adjusted regression analyses examined whether adverse outcomes differed by periconceptional asthma medication changes.

Results: Of 279 participants included in analyses, 135 (48.4%) did not change asthma medication in the periconceptional period while 144 (51.6%) reported a step down in medication. Those in the step-down group were more likely to have milder disease (88

(61.1%) in the step-down versus 74 (54.8%) in the no change group), exhibited less activity limitation (rate ratio (RR): 0.68, 95% CI 0.47-0.98), and experienced fewer asthma attacks (RR: 0.53, 95% CI 0.34-0.84) during pregnancy. Women in the step-down group had a non-significant increase in overall odds of experiencing an adverse pregnancy outcome (odds ratio 1.62, 95% CI 0.97-2.72).

Conclusions: Over half of women with asthma reduce asthma medication in the periconceptional period. Although these women typically have milder disease, a step down in medication may be associated with an increased risk of adverse pregnancy outcomes.

Conflict of interest statement

The authors declare that they have no conflict of interest.

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

JAMA Intern Med

. 2023 May 22;e231245.
doi: 10.1001/jamainternmed.2023.1245. Online ahead of print.

Chronic Obstructive Pulmonary Disease Exacerbations and Pneumonia Hospitalizations Among New Users of Combination Maintenance Inhalers

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Affiliations expand

- PMID: 37213116

- PMCID: PMC10203971 (available on 2024-05-22)

- DOI: 10.1001/jamainternmed.2023.1245

Abstract

Importance: Clinical guidelines on chronic obstructive pulmonary disease (COPD) recommend inhalers containing long-acting muscarinic antagonists (LAMAs) and long-acting β-agonists (LABAs) over inhalers containing inhaled corticosteroids (ICSs) and LABAs. However, data from randomized clinical trials comparing these combination inhalers (LAMA-LABAs vs ICS-LABAs) have been conflicting and raised concerns of generalizability.

Objective: To assess whether LAMA-LABA therapy is associated with reduced COPD exacerbations and pneumonia hospitalizations compared with ICS-LABA therapy in routine clinical practice.

Design, setting, and participants: This was a 1:1 propensity score-matched cohort study using Optum's Clinformatics Data Mart, a large commercial insurance-claims database. Patients must have had a diagnosis of COPD and filled a new prescription for a combination LAMA-LABA or ICS-LABA inhaler between January 1, 2014, and December 31, 2019. Patients younger than 40 years were excluded, as were those with a prior diagnosis of asthma. The current analysis was performed from February 2021 to March 2023.

Exposures: Combination LAMA-LABA inhalers (aclidinium-formoterol, glycopyrronium-formoterol, glycopyrronium-indacaterol, tiotropium-olodaterol, or umeclidinium-vilanterol) and combination ICS-LABA inhalers (budesonide-formoterol, fluticasone-salmeterol, fluticasone-vilanterol, or mometasone-formoterol).

Main outcome: The primary effectiveness outcome was first moderate or severe COPD exacerbation, and the primary safety outcome was first pneumonia hospitalization. Propensity score matching was used to control for confounding between the 2 groups. Logistic regression analysis was used to estimate propensity scores. Hazard ratios (HRs) and 95% CIs were estimated using Cox proportional hazards models stratified on matched pairs.

Results: Among 137 833 patients (mean [SD] age, 70.2 [9.9] years; 69 530 [50.4%] female) (107 004 new ICS-LABA users and 30 829 new LAMA-LABA users), 30 216 matched pairs were identified for the primary analysis. Compared with ICS-LABA use, LAMA-LABA use was associated with an 8% reduction in the rate of first moderate or severe COPD exacerbation (HR, 0.92; 95% CI, 0.89-0.96) and a 20% reduction in the rate of first pneumonia hospitalization (HR, 0.80; 95% CI, 0.75-0.86). These findings were robust across a range of prespecified subgroup and sensitivity analyses.

Conclusion: In this cohort study, LAMA-LABA therapy was associated with improved clinical outcomes compared with ICS-LABA therapy, suggesting that LAMA-LABA therapy should be preferred for patients with COPD.

Conflict of interest statement

Conflict of Interest Disclosures: Dr Feldman reported receiving personal fees from Alosa Health and Aetion and for serving as an expert witness in litigation against inhaler manufacturers and an hororarium for a presentation to Blue Cross Blue Shield of Massachusetts outside the submitted work. Dr Gagne reported receiving grants from Eli Lilly and Novartis Pharmaceuticals and personal fees from Optum outside the submitted work. No other disclosures were reported.

34

Am J Respir Crit Care Med

. 2023 May 22.

doi: 10.1164/rccm.202209-1707OC. Online ahead of print.

Distinct Epithelial–Innate Immune Cell Transcriptional Circuits Underlie Airway Hyperresponsiveness in Asthma

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Affiliations expand

- PMID: 37212596

- DOI: 10.1164/rccm.202209-1707OC

Abstract

Rationale: Indirect airway hyperresponsiveness (AHR) is a highly specific feature of asthma but the underlying mechanisms responsible for driving indirect AHR remain incompletely understood.

Objectives: Identify differences in gene expression in epithelial brushings obtained from individuals with asthma who were characterized for indirect AHR in the form of exercise-induced bronchoconstriction (EIB).

Methods: RNA-sequencing (RNA-seq) analysis was performed on epithelial brushings obtained from asthmatic individuals with (n=11) and without EIB (n = 9). Differentially expressed genes (DEGs) were correlated with measures of airway physiology, sputum inflammatory markers, and airway wall immunopathology. Based on these relationships, we examined the effects of primary airway epithelial cells (AECs) and specific epithelial-derived cytokines on both mast cells (MCs) and eosinophils (EOS).

Results: We identified 120 DEGs between individuals with and without EIB. Network analyses suggested critical roles for IL-33-, IL-18-, and IFN-γ-related signaling amongst these DEGs. IL1RL1 expression was positively correlated with the density of MCs in the epithelial compartment and IL1RL1, IL18R1, and IFNG were positively correlated with the density of intraepithelial EOS. Subsequent ex vivo modeling demonstrated that AECs promote sustained T2 inflammation in MCs and enhance IL-33-induced T2 gene expression. Further, EOS increase expression of IFNG and IL13 in response to both IL-18 and IL-33 as well as exposure to AECs.

Conclusions: Circuits involving epithelial interactions with MCs and EOS are closely associated with indirect AHR. Ex vivo modeling indicates that epithelial-dependent regulation of these innate cells may be critical in indirect AHR and modulating T2 and non-T2 inflammation in asthma.

Keywords: airway epithelium; airway hyperresponsiveness; asthma; eosinophil; mast cell.

Editorial

Expert Rev Clin Immunol
.
. 2023 May 21;1-5.
doi: 10.1080/1744666X.2023.2215986. Online ahead of print.

What place will tezepelumab hold in the treatment paradigm in chronic rhinosinusitis?

Valentin Favier[1], Jérémy Charriot[2,3], Louis Crampette[1], Arnaud Bourdin[2,3], Engi Ahmed[2,3,4]
Affiliations expand

- PMID: 37194702

- DOI: 10.1080/1744666X.2023.2215986

No abstract available

Keywords: Chronic Rhinosinusitis; T2 inflammation; Tezepelumab; asthma; biologics; eosinophils; nasal polyps.

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

JAMA
.
. 2023 May 23;329(20):1731.
doi: 10.1001/jama.2023.7765.

RSV Infection During Infancy Tied to Asthma Later

Emily Harris

- PMID: 37133889

- DOI: 10.1001/jama.2023.7765

No abstract available

. 2023 May 22;13(5):1226.
doi: 10.3390/life13051226.

Nasal Patency in Sitting, Supine, and Prone Positions in Individuals with and without Allergic Rhinitis

Yun-Ting Wang[1], Yao-Te Tsai[1,2], Cheng-Ming Hsu[1,2,3], Ming-Shao Tsai[1,2,3], Hsin-Yi Tsai[1], Geng-He Chang[1,2,3,4]
Affiliations expand

- PMID: 37240871

- DOI: 10.3390/life13051226

Free article

Abstract

(1) Background: Physiological changes in nasal patency in response to posture contribute to sleep-related problems. Previously, we reported that the supine and prone positions cause a significant decrease in nasal patency in subjective and objective assessments of healthy individuals. Therefore, we conducted a study to evaluate the effect of posture on nasal patency in patients with allergic rhinitis (AR); (2) Methods: The present study comprised 30 patients diagnosed with AR and 30 healthy subjects without nasal disease (non-AR). Changes in nasal patency were evaluated in the sitting, supine, and prone positions. We used the visual analog scale to evaluate subjective nasal blockage. Acoustic rhinometry and endoscopy were used to objectively measure changes in nasal patency; (3) Results: In the non-AR group, the prone position had a significant effect on subjective nasal blockage compared with the sitting position, with significant decreases in the minimal cross-sectional area (mCSA) measured by acoustic rhinometry. Furthermore, endoscopy demonstrated a significantly increased inferior turbinate hypertrophy in the non-AR group. In the AR group, there was no statistical difference in subjective nasal blockage symptoms between the different positions. However, in objective examinations (acoustic rhinometry and endoscopy), the prone position showed significantly decreased nasal patency; (4) Conclusions: In patients with AR, subjective nasal blockage did not significantly increase in the supine or prone position. Endoscopy demonstrated increased inferior turbinate hypertrophy in supine and prone positions resulting in a significant reduction in nasal cavity mCSA, indicating an objective reduction in nasal patency.

Keywords: allergic rhinitis; nasal patency; position.

J Allergy Clin Immunol Pract

. 2023 May 24;S2213-2198(23)00554-8.

doi: 10.1016/j.jaip.2023.05.016. Online ahead of print.

Epidemiology of Allergic Rhinitis in Children: a Systematic Review and Meta-Analysis

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Affiliations expand

- PMID: 37236349

- DOI: 10.1016/j.jaip.2023.05.016

Abstract

Background: Allergic Rhinitis (AR) is associated with significant clinical and socio-economic burdens. AR is a frequent risk factor for other atopic diseases, such as asthma. Thus, a comprehensive updated description of the epidemiology of AR in the pediatric population is needed to understand its implications better.

Objective: To determine the incidence, prevalence and epidemiology of AR among children over the last ten years.

Methods: We conducted a systematic review and meta-analysis using a protocol registered and published with the international prospective register of systematic reviews (PROSPERO register number: CRD42022332667). We searched databases, registers, and websites for cohort or cross-sectional studies published between 2012 and 2022, evaluating the epidemiology (incidence or prevalence) of AR in the pediatric population. We assessed study quality and risk of bias using items derived from the Strengthening the Reporting of Observational Studies in Epidemiology Statement.

Results: Twenty-two studies were included in the analysis. The overall prevalence of physician-diagnosed AR was 10.48%, the overall prevalence of self-reported current (last 12 months) AR was 18.12%, the overall prevalence of self-reported lifetime AR was 19.93%. Incidence could not be determined. The analysis of prevalence of AR over the time showed a rising trend in physician-diagnosed AR over the years (8.39% in 2012-2015 vs 19.87% in 2016-2022).

Conclusion: AR has significant impacts on the pediatric population, with an increasing trend for diagnosed AR over the years. Further investigations concerning incidence, comorbidities, diagnosis and treatment are needed to provide a complete overview of the disease, its burden and management.

Keywords: Allergic rhinitis; Children; Epidemiology; Incidence; Prevalence.

Int Arch Allergy Immunol

. 2023 May 23;1-9.

doi: 10.1159/000528393. Online ahead of print.

MiR-193b-3p Regulates TLR4 Expression to Inhibit Inflammation by Targeting ETS1 in Allergic Rhinitis

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Affiliations expand

- PMID: 37231959

- DOI: 10.1159/000528393

Abstract

Introduction: Allergic rhinitis (AR) is identified as a multifactorial disease caused by the interaction of genes and surroundings, which is difficult to cure. MicroRNAs were reported to be engaged in AR development. Here, we aimed to seek the anti-inflammatory effects and regulatory mechanism of miR-193b-3p in AR.

Methods: Mucosal tissues from AR patients and healthy volunteers were collected, and human nasal epithelial cells (HNECs) were treated with IL-13 to establish a cell model of AR. The gene expression of miR-193b-3p, ETS1, TLR4, GM-CSF, eotaxin, and MUC5AC was determined by RT-qPCR. The protein levels of ETS1 and TLR4 were examined using Western blot. Enzyme-linked immunosorbent assay was performed to measure protein concentration of GM-CSF, eotaxin, and MUC5AC in cell supernatant. Dual luciferase assay was applied to verify the interaction among miR-193b-3p, ETS1, and TLR4.

Results: The expression of miR-193b-3p was declined in clinical samples from AR patients and in IL-13-induced HNECs, while the mRNA and protein levels of ETS1 and TLR4 were elevated. MiR-193b-3p overexpression or ETS1 silencing notably decreased the mRNA and protein levels of GM-CSF, eotaxin, and MUC5AC in IL-13-treated HNECs. Mechanistically, miR-193b-3p directly combined with ETS1 to silence ETS1 expression. ETS1 promoted the transcriptional activity of TLR4 through interacting with TLR4 promoter. Furthermore, rescue experiments revealed that ETS1 overexpression abolished miR-193b-3p sufficiency-mediated suppression of the mRNA and protein levels of GM-CSF, eotaxin, and MUC5AC in IL-13-treated HNECs. Similarly, TLR4 overexpression compromised the inhibitory impacts of ETS1 downregulation on the mRNA and protein levels of GM-CSF, eotaxin, and MUC5AC in IL-13-induced HNECs.

Discussion: MiR-193b-3p repressed IL-13-induced inflammatory response in HNECs by suppressing ETS1/TLR4 axis, which indicated that miR-193b-3p might be a therapeutic target for AR treatment.

Keywords: Allergic rhinitis; ETS1; Inflammatory factors; TLR4; miR-193b-3p.

Review

Int Immunopharmacol

. 2023 May 23;120:110367.
doi: 10.1016/j.intimp.2023.110367. Online ahead of print.

Mesenchymal stem cells and allergic airway inflammation; a therapeutic approach to induce immunoregulatory responses

Mohammad Gholami[1], Khodayar Ghorban[2], Mahvash Sadeghi[3], Maryam Dadmanesh[4], Negin Hosseini Rouzbahani[5], Sajad Dehnavi[6]
Affiliations expand

- PMID: 37230032

- DOI: 10.1016/j.intimp.2023.110367

Abstract

Allergic airway inflammations are among the essential disorders worldwide that are already considered a significant concern. Mesenchymal stem cells (MSCs) are stromal cells with regenerative potential and immunomodulatory characteristics and are widely administered for tissue repair as an immunoregulatory agent in different inflammatory diseases. The current review summarized primary studies conducted to evaluate the therapeutic potential of MSCs for allergic airway disorders. In this case, modulation of airway pathologic inflammation and infiltration of inflammatory cells were examined, and modulation of the Th1/Th2 cellular balance and humoral responses. Also, the effects of

MSCs on the Th17/Treg ratio and inducing Treg immunoregulatory responses along with macrophage and dendritic cell function were evaluated.

Keywords: Airway allergic inflammation; Allergic asthma; Allergic rhinitis; Immunomodulation; mesenchymal stem cell (MSC).

Conflict of interest statement

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

Trop Doct

. 2023 May 24;494755231175709.
doi: 10.1177/00494755231175709. Online ahead of print.

Association between neutrophil lymphocyte ratio and status of symptom control in children and adolescents with bronchial asthma

Lourembam Radhapyari[1], Prashant Kumar Verma[2], Vinod Kumar[3], Manish Kumar[4], Arvind Kumar Gupta[5], Nowneet Kumar Bhat[6]

Affiliations expand

- PMID: 37226508

- DOI: 10.1177/00494755231175709

Abstract

Neutrophil lymphocyte ratio (NLR), an easy and readily available biomarker of systemic inflammation, has been less studied so far as a putative marker of asthma control. Our study aimed to assess its feasibility. A total of 90 asthmatic children, aged 5-18 years, diagnosed according to Global Initiative for Asthma (GINA) guidelines, were. Control status of asthma was assessed using the asthma control test (ACT) or childhood ACT and categorized as controlled group-1 (ACT > 19) and uncontrolled group-2 (ACT ≤ 19). The difference between mean values in both groups was analysed, finding a significant difference between children with and without a family history (p = 0.004) and those with and without a need for admission (p = 0.045). Also, a significant association was established between NLR and the type of severity of asthma (p = 0.049), but none between NLR and age, gender, BMI, coexisting allergic rhinitis, or asthma exacerbation. Thus we found no significant association between NLR and symptom control status. However, NLR has the potential to be a putative marker of inflammation, although its relative status to CRP needs further studies.

Keywords: Asthma; asthma controlled test; neutrophil lymphocyte ratio.

BMC Pediatr

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. 2023 May 24;23(1):258.

doi: 10.1186/s12887-023-04021-1.

Clinical response to varying pollen exposure in allergic rhinitis in children in The Netherlands

Ellen Tameeris[1], Arthur M Bohnen[2], Patrick J E Bindels[2], Gijs Elshout[2]
Affiliations expand

- PMID: 37226154
- PMCID: PMC10207782
- DOI: 10.1186/s12887-023-04021-1

Free PMC article

Abstract

Background: Allergic rhinitis (AR) affects 10-15% of children. Symptoms in seasonal AR are influenced by pollen exposure. Pollen counts vary throughout the pollen season and therefore, symptom severity fluctuates. This study investigates the correlation between pollen concentration and symptom load in children with AR in The Netherlands.

Methods: A secondary analysis was performed in a study determining the most effective treatment for children with seasonal AR. Symptoms were measured during three months in 2013 and 2014 using a daily symptom diary. The pollen concentration was measured with a Hirst type volumetric spore trap sampler. A correlation coefficient was calculated for the correlation between the pollen concentration and the mean daily symptom score. The study protocol was approved by the medical ethical review committee of the Erasmus MC and is incorporated in the International Clinical Trials Registry Platform (EUCTR2012-001,591-11-NL).

Results: In 2014, the correlation coefficient for birch pollen concentration and symptom score was 0.423 (p = 0.000). The correlation coefficient for grass pollen concentration and symptom score was 0.413 (p = 0.000) and 0.655 (p = 0.000) in 2013 and 2014, respectively. A delayed correlation between the birch pollen concentration and the symptom scores was seen up to two days after the pollen measurement (0.151, p = 0.031). For grass pollen this effect lasted up to three days after the pollen measurement (0.194, p = 0.000).

Conclusion: We found comparable correlations between symptom score and pollen concentration as found by EAACI. Birch and grass pollen have an elongated influence on symptom score of several days. This implies patients need to continue on demand medication longer after a measured pollen peak.

Keywords: Allergic Rhinitis; Children; Pollen counts; Pollen season definition; Symptom variation.

Conflict of interest statement

The authors declare no competing interests.

- 20 references
- 1 figure

Randomized Controlled Trial

Sci Rep

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. 2023 May 24;13(1):8372.
doi: 10.1038/s41598-023-34790-9.

A randomized controlled trial of effects of open-label placebo compared to double-blind placebo and treatment-

as-usual on symptoms of allergic rhinitis

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Affiliations expand

- PMID: 37225724
- PMCID: PMC10206347
- DOI: 10.1038/s41598-023-34790-9

Free PMC article

Abstract

Placebo effects are known for numerous clinical symptoms. Until recently, deception of placebos was thought to be essential for placebo effects, but intriguing new studies suggest that even placebos without concealment (open-label placebos) may help patients with various clinical disorders. Most of those studies compared open-label placebo treatments with no treatment conditions (or treatment "as usual"). Given that open-label placebo studies obviously cannot be blinded, additional control studies are important to assess the efficacy of open-label placebos. The current study aimed to fil this gap by comparing open-label with conventional double-blind placebos and treatment as usual. Patients with seasonal allergic rhinitis were randomly divided in different groups. The first group received open-label placebos, the second double-blind placebos, and the third was treated as usual. After 4 weeks, results demonstrated that open-label placebos improved allergic symptoms more than treatment-as-usual and even more as double-blind placebos. In addition, we observed that allergic symptoms in general (and also the open-label placebo effects) were reduced by the Covid-19 pandemic. The results suggest that seasonal allergic symptoms may be relieved by open-label placebos. We discuss these results by addressing possible different mechanisms of open-label and conventionally concealed placebo treatments.

Conflict of interest statement

MS has no competing financial interests to report, KZ was a former employee of the sponsoring company (SymbioPharm, Herborn, Germany) and PE is consultant of this company. PE is also consultant of PrecisionBiotics Ltd. (Cork Ireland).

- 34 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

Respir Med

. 2023 May 22;215:107263.
doi: 10.1016/j.rmed.2023.107263. Online ahead of print.

Whispers of change in preschool asthma phenotypes: Findings in the French ELFE cohort

Sadia Khan[1], El Hassane Ouaalaya[2], Amandine Divaret Chauveau[3], Emeline Scherer[3], Gabriel Reboux[3], Laurence Millon[4], Antoine Deschildre[5], Christophe Marguet[6], Marie-Noëlle Dufourg[7], Marie-Aline Charles[7], Chantal Raherison Semjen[8]
Affiliations expand

- PMID: 37224890

- DOI: 10.1016/j.rmed.2023.107263

Abstract

Rationale: Early life asthma phenotyping remains an unmet need in pediatric asthma. In France, severe pediatric asthma phenotyping has been done extensively; however, phenotypes in the general population remain underexplored. Based on the course and severity of respiratory/allergic symptoms, we aimed to identify and characterize early life wheeze profiles and asthma phenotypes in the general population.

Methods: ELFE is a general population based birth cohort; which recruited 18,329 newborns in 2011, from 320 maternity units nationwide. Data was collected using parental responses to modified versions of ISAAC questionnaire on eczema, rhinitis, food allergy, cough, wheezing, dyspnoea and sleep disturbance due to wheezing at 3 time points: post-natal (2 months), infancy (age 1) and pre-school (age 5). We built a supervised trajectory for wheeze profiles and an unsupervised approach was used for asthma phenotypes. Chi squared ($\chi 2$) test or fisher's exact test was used as appropriate ($p < 0.05$).

Results: Wheeze profiles and asthma phenotypes were ascertained at age 5. Supervised wheeze trajectory of 9161 children resulted in 4 wheeze profiles: Persistent (0.8%), Transient (12.1%), Incident wheezers at age 5 (13.3%) and Non wheezers (73.9%). While 9517 children in unsupervised clusters displayed 4 distinct asthma phenotypes: Mildly symptomatic (70%), Post-natal bronchiolitis with persistent rhinitis (10.2%), Severe early asthma (16.9%) and Early persistent atopy with late onset severe wheeze (2.9%).

Conclusion: We successfully determined early life wheeze profiles and asthma phenotypes in the general population of France.

Keywords: Asthma (clinical aspects); Asthma epidemiology; Asthma in early life; Asthma severity; Cluster analysis; Wheezing.

Conflict of interest statement

Declaration of competing interest There is no conflict of interest.

Drug Metab Pers Ther

. 2023 May 22.
doi: 10.1515/dmpt-2023-0014. Online ahead of print.

CRHR1 polymorphism at rs242941, rs242940, and rs72834580: association of symptoms improvement with intranasal corticosteroids in allergic rhinitis Jordanian patients

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- PMID: 37216433

- DOI: 10.1515/dmpt-2023-0014

Abstract

Objectives: Rhinitis is classified into several types with allergic rhinitis (AR) being the most common. AR is among the inflammatory diseases, such as asthma and chronic obstructive pulmonary disease (COPD), in which corticosteroids are administered to overcome the decrease in cortisol production. The treatment options available for AR vary with 1st line treatment being intranasal corticosteroids (INCS). The responsiveness to corticosteroids is due to their binding to corticotropin-releasing hormone receptor-1 (CRHR1). Various studies have studied the responsiveness to corticosteroids treatment in patients with asthma and COPD in association with *CRHR1* gene single nucleotide polymorphisms (SNPs).

Methods: In our study, we investigated the association of three SNPs of *CRHR1* gene (rs242941, rs242940, and rs72834580) with symptoms improvement post-treatment in AR patients. Blood samples were collected from 103 patients for DNA extraction and gene sequencing. Those patients started to receive INCS for 8 weeks and their symptoms were assessed, through a questionnaire, before treatment and post-treatment to check for symptoms improvement.

Results: Our data showed that improvement of eye redness is significantly less following INCS treatment in patients with allele (C) (AOR=0.289, p-Value-0.028, 95 % CI=0.096-0.873) and genotype (CC) (AOR=0.048, p-Value-0.037, 95 % CI=0.003-0.832) of rs242941 SNP. There was no correlation with other genotypes, alleles, or haplotypes of the investigated SNPs.

Conclusions: Our findings show that there is no correlation between *CRHR1* gene polymorphism and symptoms improvement following INCS treatment. Further studies are required to evaluate the association of INCS and symptoms improvement post-treatment with larger sample size.

Keywords: CRHR1; allergic rhinitis; intranasal corticosteroids.

- 49 references

Expert Rev Clin Immunol

. 2023 May 24;1-8.
doi: 10.1080/1744666X.2023.2214729. Online ahead of print.

An international Delphi study on the burden of allergic rhinoconjunctivitis and urticaria and the role of bilastine among current treatment options

M K Church[1], G W Canonica[2,3], P Kuna[4], M Maurer[1,5], R Mösges[6], Z Novak[7], N G Papadopoulos[8], P Rodriguez Del Rio[9], Delphi Study Group
Affiliations expand

- PMID: 37191185

- DOI: 10.1080/1744666X.2023.2214729

Abstract

Background: Allergic rhinoconjunctivitis and chronic urticaria are common histamine-driven diseases, exerting detrimental effects on cognitive functions, sleep, daily activities, and quality of life. Non-sedating second-generation H_1-antihistamines are the first-line treatment of choice. Aim of the study was to define the role of bilastine among second-generation H_1-antihistamines in the treatment of allergic rhinoconjunctivitis and urticaria in patients of different ages.

Methods: An international Delphi study was carried out to assess consensus among experts from 17 European and extra-European countries on three main topics: 1) Burden of disease; 2) Current treatment options; 3) Specific characteristics of bilastine among second-generation antihistamines.

Results: Here, we present the results obtained for a selection of 15 out of 27 consensus statements, focused on disease burden, role of second-generation antihistamines and bilastine profile. The rate of concordance was ≥98% for 4 statements, ≥ 96% for 6, ≥ 94% for 3, and ≥90% for 2.

Conclusions: The high degree of agreement obtained suggests a wide awareness of the burden of allergic rhinoconjunctivitis and chronic urticaria among experts from all over the world and reflects a broad consensus on the role of second-generation antihistamines in general and of bilastine in particular for their management.

Keywords: Allergic rhinitis; Delphi process; anti-histamines; bilastine; urticaria.

. 2023 May 23;7(10):2245-2251.
doi: 10.1182/bloodadvances.2022009079.

Outcomes before and after providing interdisciplinary hematology and pulmonary care for children with sickle cell disease

Rachel N Zeno[1], Joseph Stanek[2], Courtney Pugh[3], Michelle Gillespie[4], Benjamin T Kopp[4,3], Susan Creary[2,5]
Affiliations expand

- PMID: 36576975

- PMCID: PMC10205588

- DOI: 10.1182/bloodadvances.2022009079

Free PMC article

Abstract

People with sickle cell disease (pwSCD) are at risk of developing lung conditions that complicate their SCD but often face health care access barriers. An interdisciplinary clinic providing pulmonary care for pwSCD was created in 2014 at the Nationwide Children's Hospital (NCH) to address access barriers that may prevent optimized treatment. We hypothesize that pwSCD and pulmonary disease would have fewer hospitalizations for acute chest syndrome (ACS), asthma, and vaso-occlusive episodes in the 2 years after their initial SCD-pulmonary clinic visit compared with the 2 years before. From 2014 to 2020, 119 pwSCD were evaluated in the SCD-pulmonary clinic and followed up at the NCH for at least 2 years before and after this initial visit. Acute care outcomes, pulmonary function, polysomnography, echocardiogram, laboratory, and medication prescribing data were collected and analyzed using the Wilcoxon signed ranked and McNemar tests. The median number of acute care visits for ACS ($P < .001$) and asthma ($P = .006$) were significantly lower during the 2 years after pwSCD's initial SCD-pulmonary clinic evaluation compared with the 2 years before. Asthma and allergic rhinitis were more frequently diagnosed and prescriptions for hydroxyurea ($P = .005$) and inhaled corticosteroids ($P = .005$) were more common in the post-SCD-pulmonary clinic period. The median number of prescribed

systemic corticosteroids was lower in the 2 years after SCD-pulmonary clinic evaluation ($P < .0001$). Lactate dehydrogenase and white blood cell counts also significantly decreased. Implementing a multidisciplinary SCD-pulmonary clinic is feasible and may allow improved management of pulmonary problems and lead to improvements in the usage of health and acute care.

Conflict of interest statement

Conflict-of-interest disclosure: The authors declare no competing financial interests.

- 21 references
- 3 figures

SUPPLEMENTARY INFO

MeSH terms, Substancesexpand

FULL TEXT LINKS

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

1

J Manag Care Spec Pharm

. 2023 May 27;1-11.
doi: 10.18553/jmcp.2023.22417. Online ahead of print.

Identifying potentially undiagnosed nontuberculous mycobacterial lung

disease among patients with chronic obstructive pulmonary disease: Development of a predictive algorithm using claims data

Ping Wang[1], Theodore K Marras[2], Paul D Allison[3], Mariam Hassan[1], Anjan Chatterjee[1]
Affiliations expand

- PMID: 37243674

- DOI: 10.18553/jmcp.2023.22417

Abstract

BACKGROUND: Nontuberculous mycobacterial lung disease (NTMLD) is a debilitating disease. Chronic obstructive pulmonary disease (COPD) is the leading comorbidity associated with NTMLD in the United States. Their similarities in symptoms and overlapping radiological findings may delay NTMLD diagnosis in patients with COPD. **OBJECTIVE:** To develop a predictive model that identifies potentially undiagnosed NTMLD among patients with COPD. **METHODS:** This retrospective cohort study developed a predictive model of NTMLD using US Medicare beneficiary claims data (2006 - 2017). Patients with COPD with NTMLD were matched 1:3 to patients with COPD without NTMLD by age, sex, and year of COPD diagnosis. The predictive model was developed using logistic regression modeling risk factors such as pulmonary symptoms, comorbidities, and health care resource utilization. The final model was based on model fit statistics and clinical inputs. Model performance was evaluated for both discrimination and generalizability with c-statistics and receiver operating characteristic curves. **RESULTS:** There were 3,756 patients with COPD with NTMLD identified and matched to 11,268 patients with COPD without NTMLD. A higher proportion of patients with COPD with NTMLD, compared with those with COPD without NTMLD, had claims for pulmonary symptoms and conditions, including hemoptysis (12.6% vs 1.4%), cough (63.4% vs 24.7%), dyspnea (72.5% vs 38.2%), pneumonia (59.2% vs 13.4%), chronic bronchitis (40.5% vs 16.3%), emphysema, (36.7% vs 11.1%), and lung cancer (15.7% vs 3.5%). A higher proportion of patients with COPD with NTMLD had pulmonologist and infectious disease (ID) specialist visits than patients with COPD without NTMLD (≥ 1 pulmonologist visit: 81.3% vs 23.6%, respectively; ≥ 1 ID visit: 28.3% vs 4.1%, respectively, $P < 0.0001$). The final model consists of 10 risk factors (≥ 2 ID specialist visits; ≥ 4 pulmonologist visits; the presence of hemoptysis, cough, emphysema, pneumonia, tuberculosis, lung cancer, or idiopathic interstitial lung disease; and being underweight during a 1-year pre-NTMLD

period) predicting NTMLD with high sensitivity and specificity (c-statistic, 0.9). The validation of the model on new testing data demonstrated similar discrimination and showed the model was able to predict NTMLD earlier than the receipt of the first diagnostic claim for NTMLD. **CONCLUSIONS:** This predictive algorithm uses a set of criteria comprising patterns of health care use, respiratory symptoms, and comorbidities to identify patients with COPD and possibly undiagnosed NTMLD with high sensitivity and specificity. It has potential application in raising timely clinical suspicion of patients with possibly undiagnosed NTMLD, thereby reducing the period of undiagnosed NTMLD. **DISCLOSURES:** Dr Wang and Dr Hassan are employees of Insmed, Inc. Dr Chatterjee was an employee of Insmed, Inc, at the time of this study. Dr Marras is participating in multicenter clinical trials sponsored by Insmed, Inc, has consulted for RedHill Biopharma, and has received a speaker's honorarium from AstraZeneca. Dr Allison is an employee of Statistical Horizons, LLC. This study was funded by Insmed Inc.

J Allergy Clin Immunol Pract

. 2023 May 23;S2213-2198(23)00549-4.

doi: 10.1016/j.jaip.2023.05.013. Online ahead of print.

Cluster analyses from the real-world NOVELTY study: six clusters across the asthma-COPD spectrum

Rod Hughes[1], Eleni Rapsomaniki[2], Aruna T Bansal[3], Jørgen Vestbo[4], David Price[5], Alvar Agustí[6], Richard Beasley[7], Malin Fagerås[8], Marianna Alacqua[2], Alberto Papi[9], Hana Müllerová[2], Helen K Reddel[10]; NOVELTY Scientific Community and the NOVELTY study investigators

Affiliations expand

- PMID: 37230383

- DOI: 10.1016/j.jaip.2023.05.013

Abstract

Background: Asthma and chronic obstructive pulmonary disease (COPD) are complex diseases whose definitions overlap.

Objective: To investigate clustering of clinical/physiological features and readily available biomarkers in patients with physician-assigned diagnoses of asthma and/or COPD in NOVELTY (NCT02760329).

Methods: Two approaches were taken to variable selection, using baseline data: approach A was data-driven, hypothesis-free, using Pearson's dissimilarity matrix; approach B used an unsupervised Random Forest guided by clinical input. Cluster analyses were conducted across 100 random resamples using partitioning around medoids, followed by consensus clustering.

Results: Approach A included 3,796 individuals (mean age 59.5 years, 54% female); approach B included 2,934 patients (mean age 60.7 years, 53% female). Each identified six mathematically stable clusters, which had overlapping characteristics. Overall, 67-75% of asthma patients were in three clusters, and ~90% of COPD patients in three clusters. Although traditional features like allergies and current/ex-smoking (respectively) were higher in these clusters, there were differences between clusters and approaches in features such as sex, ethnicity, breathlessness, frequent productive cough and blood cell counts. The strongest predictors of approach A cluster membership were age, weight, childhood onset, pre-bronchodilator FEV_1, duration of dust/fume exposure and number of daily medications.

Conclusion: Cluster analyses in NOVELTY patients with asthma and/or COPD yielded identifiable clusters, with several discriminatory features that differed from conventional diagnostic characteristics. The overlap between clusters suggests that they do not reflect discrete underlying mechanisms, and points to the need for identification of molecular endotypes and potential treatment targets across asthma and/or COPD.

Keywords: Precision medicine; asthma; biomarkers; chronic obstructive pulmonary disease; cluster analysis.

SUPPLEMENTARY INFO

Associated dataexpand

FULL TEXT LINKS

ERJ Open Res
. 2023 May 22;9(3):00739-2022.
doi: 10.1183/23120541.00739-2022. eCollection 2023 May.

Epidemiology of unexplained chronic cough in adults: a population-based study

Johnmary T Arinze[1,2], Tjeerd van der Veer[3], Daniel Bos[4,5], Bruno Stricker[4], Katia M C Verhamme[2], Guy Brusselle[1,3,4]
Affiliations expand

- PMID: 37228289
- PMCID: PMC10204850
- DOI: 10.1183/23120541.00739-2022

Abstract

Unexplained chronic cough accounts for a significant proportion of chronic cough cases in adults, and its persistent phenotype shows female preponderance that is demographically similar to individuals with cough hypersensitivity https://bit.ly/3EwjWVo.

Conflict of interest statement

Conflict of interest: J.T. Arinze reports grants or contracts from Merck Sharp & Dohme (MSD) doctoral research grant outside the submitted work. Conflict of interest: G.G. Brusselle reports grants or contracts from a MSD research grant for an investigator-initiated study outside the submitted work. Conflict of interest: The remaining authors have nothing to disclose.

- 17 references
- 1 figure

Review

ERJ Open Res

. 2023 May 22;9(3):00034-2023.
doi: 10.1183/23120541.00034-2023. eCollection 2023 May.

ERS International Congress 2022: highlights from the Airway Diseases Assembly

Augusta Beech[1,2], Andrea Portacci[3], Beatrice Herrero-Cortina[4,5], Alexander G Mathioudakis[6], Carolina Gotera[7], Lena Uller[8], Fabio Luigi Massimo Ricciardolo[9,10], Pavol Pobeha[11], Robert J Snelgrove[12], Gert-Jan Braunstahl[13], Apostolos Bossios[14,15], Omar Usmani[12], Sachin Ananth[16]

Affiliations expand

- PMID: 37228280

- PMCID: PMC10204859

- DOI: 10.1183/23120541.00034-2023

Abstract

The European Respiratory Society (ERS) celebrated the return of an in-person meeting in Barcelona, Spain, after 2 years of virtual congresses. The ERS Congress 2022 programme was replete with symposia, skills workshops and abstract presentations from all 14 assemblies, encompassing over 3000 abstracts presented in the form of thematic poster discussion and oral presentations. In this article, highlights from the ERS Congress 2022 (including from thematic poster sessions, oral presentations and symposia from keynote speakers), presented by Assembly 5 (Airway diseases, asthma, COPD and chronic cough), are reviewed by Early Career Members and experts in the field, with the aim of presenting key recent findings in the field.

Conflict of interest statement

Conflict of interest: A. Portacci declares honoraria from AstraZeneca, GlaxoSmithKline, Chiesi and Sanofi. C. Gotera declares payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from AstraZeneca and GlaxoSmithKline. L. Uller reports payment or honoraria from AstraZeneca for lectures, presentations, speakers’ bureaus, manuscript writing or educational events. P. Pobeha declares payment or honoraria for lectures, presentations, speakers’ bureaus, manuscript writing or educational events from AstraZeneca and Angeliny, is secretary of Group 05.02 (monitoring airway disease) of the European Respiratory Society, and a member of steering committees of the Slovak respiratory society and Slovak sleep medicine society. R.J. Snelgrove declares grants from The Wellcome Trust. G-J. Braunstahl reports attending advisory boards for GlaxoSmithKline, Novartis, AstraZeneca, Boehringer Ingelheim and Sanofi, honoraria from Novartis, AstraZeneca, Chiesi, GlaxoSmithKline, Teva and ALK Abello, participating in research with GlaxoSmithKline, Chiesi, AstraZeneca, ALK Abello, Novartis and Teva, and attending international conferences with Novartis and Teva. A. Bossios declares honoraria for advisory board meetings from GSK, AstraZeneca, Teva, Novartis and Sanofi, is a member of the steering committee of SHARP, secretary of Assembly 5 (airway diseases, asthma, COPD and chronic cough) of the European Respiratory Society and vice-chair of the Nordic Severe Asthma Network. O. Usmani reports grants and personal fees from AstraZeneca, Boehringer Ingelheim, Chiesi and GlaxoSmithKline, personal fees from Napp, Mundipharma, from Sandoz and Takeda, grants from Edmond Pharma, and personal fees from Cipla, Covis, Novartis, Mereo Biopharma, Orion, Menarini, UCB, Trudell Medical, Deva, Kamada, Covis and Kyorin, outside the submitted work; and is chair of Assembly 5 (airway diseases, asthma, COPD and chronic

cough) of the European Respiratory Society. A. Beech, F.L.M. Ricciardolo, B. Herrero-Cortina, A.G. Mathioudakis and S. Ananth declare no conflicts of interest.

- 110 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

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5

Review

ERJ Open Res

. 2023 May 22;9(3):00094-2023.
doi: 10.1183/23120541.00094-2023. eCollection 2023 May.

The "vicious circle" of chronic cough: the patient experience – qualitative synthesis

Kayleigh Brindle[1,2], Alyn Morice[1,2], Natalie Carter[1], Dominic Sykes[2], Mengru Zhang[2,3], Andrea Hilton[4]

Affiliations expand

- PMID: 37228274

- PMCID: PMC10204820

- DOI: 10.1183/23120541.00094-2023

Abstract

Aim: The aim of this study was to systematically search and synthesise findings from peer-reviewed qualitative studies describing the experiences of those living with chronic cough.

Methods: A systematic search was conducted to identify all studies that used qualitative methodology to report on the experiences of adults living with chronic cough. A thematic synthesis of the first-hand narratives was undertaken. Key themes in relation to personal perspectives and experiences of living with chronic cough were identified and grouped into analytical themes.

Results: Six studies met the inclusion criteria. The thematic synthesis generated three analytical themes: 1) "It's just a cough"; 2) "Constant cough and constant worry"; and 3) "No light at the end of the tunnel", highlighting the biopsychosocial nature of chronic cough. The synthesis highlights chronic cough as a heterogeneous experience that may appear idiosyncratic, completely consuming the lives of those living with it.

Conclusion: This is to our knowledge the first qualitative synthesis reporting on the perceptions and experiences of adults living with chronic cough. Our review draws attention to the paucity of literature that utilises qualitative methodology to explore the experience of living with chronic cough. We highlight the missing voice of people living with chronic cough in the contemporary literature. There is now a requirement for research exploring the narratives of those living with chronic cough, to gain an understanding of the condition beyond simple quantification.

Conflict of interest statement

Conflict of Interest: K. Brindle reports payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events received from MSD outside the submitted work. Conflict of Interest: A. Morice reports the following relationships outside the submitted work: grants or contracts received from MSD, Bayer, Shionogi, Bellus and NeRRe; royalties or licences from the HARQ questionnaire; payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events received from MSD; and payment for expert testimony received from NICE. He is the chair of the task force on chronic cough for the European Respiratory Society and an associate editor of this journal outside of this submitted work. Conflict of Interest: N. Carter, D. Sykes and M. Zhang have nothing to disclose Conflict of Interest: A. Hilton declares grants or contracts from the NIHR, payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from HU UK conference LTD, and is a member of the ACBS outside of the submitted work.

- 34 references
- 1 figure

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

6

ERJ Open Res
. 2023 May 22;9(3):00039-2023.
doi: 10.1183/23120541.00039-2023. eCollection 2023 May.

Understanding patient experience of chronic cough in interstitial lung disease

Jennifer M V Mann[1 2 3], Anne E Holland[4 5], Nicole S L Goh[1 2 3], Yet H Khor[1 2 3 5]
Affiliations expand

- PMID: 37228271
- PMCID: PMC10204822
- DOI: 10.1183/23120541.00039-2023

Abstract

Rationale: Chronic cough is a common symptom in patients with interstitial lung disease (ILD), negatively contributing to health-related quality of life. Despite this, there is limited information and understanding on the experience of this group of patients with chronic cough. This study aimed to explore the symptom experiences for chronic cough in patients with ILD to identify its characteristics and impacts.

Methods: A qualitative study using semi-structured telephone interviews was undertaken in 16 adults with a diagnosis of ILD of any type and severity. Patients were recruited from a quaternary referral centre in Melbourne, Australia. Interviews were transcribed verbatim and coded by two researchers using thematic analysis.

Results: Patients (age range: 39-87 years, forced vital capacity: 53-107% predicted and diffusing capacity of the lung for carbon monoxide: 28-89% predicted) experienced a spectrum of cough severity and characteristics, including both dry and productive coughs. The impact of chronic cough included physical symptoms, social and emotional difficulties, and interference with work and vocational participation. Management strategies used to relieve cough included mucolytics, opiates, throat lozenges, warm drinks, pacing, breath control, relaxation exercises, movement, continuous positive airways pressure and supplemental oxygen. Patients expressed a need for further information and education regarding chronic cough, including its triggers and management.

Conclusions: This study highlights the experience and significance of chronic cough in patients with ILD. The nature and severity of chronic cough in patients with ILD appears to be more heterogeneous than previously described, with physical, social and emotional impacts contributing to symptom burden.

Conflict of interest statement

Conflict of interest: N.S.L. Goh reports personal fees from Boehringer Ingelheim and AstraZeneca, and nonfinancial support from Air Liquide outside the submitted work. The other authors report no relevant disclosures.

- 21 references

Meta-Analysis

Respir Res

. 2023 May 23;24(1):137.
doi: 10.1186/s12931-023-02450-1.

The association of spirometric small airways obstruction with respiratory symptoms, cardiometabolic diseases, and quality of life: results from the Burden of Obstructive Lung Disease (BOLD) study

Ben Knox-Brown[1], Jaymini Patel[2], James Potts[2], Rana Ahmed[3], Althea Aquart-Stewart[4], Cristina Barbara[5,6], A Sonia Buist[7], Hamid Hacene Cherkaski[8], Meriam Denguezli[9], Mohammed Elbiaze[10], Gregory E Erhabor[11], Frits M E Franssen[12,13], Mohammed Al Ghobain[14], Thorarinn Gislason[15,16], Christer Janson[17], Ali Kocabaş[18], David Mannino[19,20], Guy Marks[21,22,23], Kevin Mortimer[24,25], Asaad Ahmed Nafees[26], Daniel Obaseki[11], Stefanni Nonna M Paraguas[27,28], Li Cher Loh[29], Abdul Rashid[29], Sundeep Salvi[30,31], Terence Seemungal[32], Michael Studnicka[33], Wan C Tan[34], Emiel F M Wouters[12,35], Hazim Abozid[35], Alexander Mueller[35], Peter Burney[2], Andre F S Amaral[2]
Affiliations expand

- PMID: 37221593

- PMCID: PMC10207810

- DOI: 10.1186/s12931-023-02450-1

Free PMC article

Abstract

Background: Spirometric small airways obstruction (SAO) is common in the general population. Whether spirometric SAO is associated with respiratory symptoms, cardiometabolic diseases, and quality of life (QoL) is unknown.

Methods: Using data from the Burden of Obstructive Lung Disease study (N = 21,594), we defined spirometric SAO as the mean forced expiratory flow rate between 25 and 75% of the FVC (FEF_{25-75}) less than the lower limit of normal (LLN) or the forced expiratory volume in 3 s to FVC ratio (FEV_3/FVC) less than the LLN. We analysed data on respiratory symptoms, cardiometabolic diseases, and QoL collected using standardised questionnaires. We assessed the associations with spirometric SAO using multivariable regression models, and pooled site estimates using random effects meta-analysis. We conducted identical analyses for isolated spirometric SAO (i.e. with FEV_1/FVC ≥ LLN).

Results: Almost a fifth of the participants had spirometric SAO (19% for FEF_{25-75}; 17% for FEV_3/FVC). Using $FEF_{25-75,}$ spirometric SAO was associated with dyspnoea (OR = 2.16, 95% CI 1.77-2.70), chronic cough (OR = 2.56, 95% CI 2.08-3.15), chronic phlegm (OR = 2.29, 95% CI 1.77-4.05), wheeze (OR = 2.87, 95% CI 2.50-3.40) and cardiovascular disease (OR = 1.30, 95% CI 1.11-1.52), but not hypertension or diabetes. Spirometric SAO was associated with worse physical and mental QoL. These associations were similar for FEV_3/FVC. Isolated spirometric SAO (10% for FEF_{25-75}; 6% for FEV_3/FVC), was also associated with respiratory symptoms and cardiovascular disease.

Conclusion: Spirometric SAO is associated with respiratory symptoms, cardiovascular disease, and QoL. Consideration should be given to the measurement of FEF_{25-75} and FEV_3/FVC, in addition to traditional spirometry parameters.

Keywords: Cardiovascular disease; Quality of life; Small airways obstruction; Spirometry; Symptoms.

Conflict of interest statement

Outside of the submitted work: DM declares being a consultant to GlaxoSmithKline, AstraZeneca, COPD Foundation. Royalties—Up to Date. Expert Witness-Schlesinger Law Firm. All other authors declare no competing interests.

- 37 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Grant supportexpand

FULL TEXT LINKS

BMC Pulm Med
. 2023 May 23;23(1):179.
doi: 10.1186/s12890-023-02476-7.

Characteristics of idiopathic pulmonary fibrosis -associated cough. a case-control study

Eeva Saari[1,2], Minna Mononen[3], Hannele Hasala[4], Anne Lätti[3,5], Johanna Kaulamo[3,6], Hanna Nurmi[3,5], Riitta Kaarteenaho[7,8], Minna Purokivi[5], Heikki O Koskela[3,5]
Affiliations expand

- PMID: 37221535
- PMCID: PMC10207773
- DOI: 10.1186/s12890-023-02476-7

Free PMC article

Abstract

Background: Most patients with idiopathic pulmonary fibrosis (IPF) complain of cough. IPF-associated cough is widely characterized as dry or non-productive. The aim of this study was to compare chronic cough in early stage IPF patients to cough in subjects with chronic cough from a community-based sample and, especially, to investigate whether cough in IPF is less productive than chronic cough in a community-based sample.

Methods: The IPF cough population consisted of 46 biopsy-confirmed patients who complained of chronic cough. Control population consisted of subjects with chronic cough, gathered by a community-based email survey sent to public service employees and the Finnish Pensioners' Federation. A case-control setting was applied by having four age, gender, and smoking-status matched subjects from the community sample for each IPF cough patient. A cough specific quality of life questionnaire (Leicester Cough Questionnaire (LCQ)) was filled in by all subjects. The LCQ questionnaire contains 19 questions, each question is scored from 1 to 7 and total score from 3 to 21 with a smaller value indicating more severe impairment.

Results: The sputum production frequency, as assessed by LCQ question 2, was 5.0 (3.0-6.0) in the IPF chronic cough population and 5.0 (3.0-6.0) in the community-based chronic cough population (median and interquartile range p= 0.72). The LCQ total score was 14.8 (11.5-18.1) in the IPF chronic cough population and 15.4 (13.0-17.5) in the community-based chronic cough population (p=0.76). The domain impact scores were physical, 4.9 (3.9-6.1) vs. 5.1 (4.5-5.6) (p=0.80); psychological, 4.6 (3.7-5.9) vs. 4.7 (3.9-5.7) (p=0.90); and social, 5.5 (3.7-6.5) vs. 5.5 (4.5-6.3) (p=0.84), respectively. Furthermore, cough response to paint or fumes, cough disturbing sleep, and cough frequency per day did not differ between the groups.

Conclusion: Cough in early stage IPF patients was not distinguishable from chronic cough in the community-based population by LCQ. Especially, there was no difference in the self-reported frequency of cough-associated sputum production.

Keywords: Cough; Idiopathic pulmonary fibrosis (IPF); Leicester Cough Questionnaire (LCQ).

Conflict of interest statement

ES: personal consulting fee and congress travel costs from Boehringer Ingelheim, congress travel costs from Novartis Finland, Orion Pharma, AstraZeneca, virtual congress costs from Roche, owns personal stocks from Orion Pharma LTD, Board member of Finnish allergology- and immunology association, outside the submitted work. MM: personal consulting fee, congress travel costs and a lecture fee from Boehringer Ingelheim, outside the submitted work. AL: personal congress travel costs from Boehringer Ingelheim, Novartis, lecture fees from the Pharmaceutical Learning Centre, GlaxoSmithKline, Chiesi, MSD, Hengitysliitto, outside the submitted work, JK: personal congress travel costs from Boehringer Ingelheim outside the submitted work. HN: personal lecture fees from Boehringer Ingelheim and Roche, congress travel costs from Boehringer Ingelheim, Sanofi-Genzyme, and Chiesi, outside the submitted work. RK: personal consulting, lecture, and advisory board fees from Boehringer Ingelheim, a lecture fee from Roche, virtual congress costs from Roche, Novartis, an advisory board fee from MSD, outside the submitted work. MP: personal lecture fee, congress travel costs and advisory board member Boehringer

Ingelheim, lecture fee Roche, congress travel costs Orion Pharma, outside the submitted work. HOK: personal lecture fee from Boehringer Ingelheim, personal congress travel costs from AstraZeneca, owns personal stocks from Orion Pharma LTD, outside the submitted work. HH declares no competing interests.

- 30 references
- 2 figures

SUPPLEMENTARY INFO

MeSH termsexpand

FULL TEXT LINKS

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

1
Pediatr Res
.
. 2023 May 26.
doi: 10.1038/s41390-023-02591-5. Online ahead of print.

Efficacy and safety of macrolides in the treatment of children with bronchiectasis: a meta-analysis

Guihua Song[1], Yan Zhang[2], Suping Yu[2], Mengmeng Sun[2], Bingxue Zhang[2], Minghao Peng[2], Weigang Lv[2], Hongyun Zhou[2]
Affiliations expand

- PMID: 37237074

- DOI: 10.1038/s41390-023-02591-5

Abstract

Background: This study summarized the available randomized controlled trials (RCTs) to assess the efficacy and safety of macrolides on pathogens, lung function, laboratory parameters, and safety in children with bronchiectasis.

Methods: PubMed, EMBASE, and the Cochrane Library were searched for available papers published up to June 2021. The outcomes were the pathogens, adverse events (AEs), and the forced expiratory volume in one second (FEV1%) predicted.

Results: Seven RCTs (633 participants) were included. The long-term use of macrolides reduced the risk of the presence of Moraxella catarrhalis (RR = 0.67, 95% CI: 0.30-1.50, P = 0.001; I^2 = 0.0%, $P_{heterogeneity}$ = 0.433), but not Haemophilus influenza (RR = 0.19, 95% CI: 0.08-0.49, P = 0.333; I^2 = 57.0%, $P_{heterogeneity}$ = 0.040), Streptococcus pneumonia (RR = 0.91, 95% CI: 0.61-1.35, P = 0.635; I^2 = 0.0%, $P_{heterogeneity}$ = 0.515), Staphylococcus aureus (RR = 1.01, 95% CI: 0.36-2.84, P = 0.986; I^2 = 61.9%, $P_{heterogeneity}$ = 0.033), and any pathogens present (RR = 0.61, 95% CI: 0.29-1.29, P = 0.195; I^2 = 80.3%, $P_{heterogeneity}$ = 0.006). Long-term macrolides had no effect on FEV1% predicted (WMD = 2.61, 95% CI: -1.31, 6.53, P = 0.192; I^2 = 0.0%, $P_{heterogeneity}$ = 0.896). Long-term macrolides did not increase the risk of AEs or serious AEs.

Conclusion: Macrolides do not significantly reduce the risk of pathogens present (except for Moraxella catarrhalis) or increase FEV1% predicted among children with bronchiectasis. Moreover, macrolides were not associated with AEs. Considering the limitations of the meta-analysis, further larger-scale RCTs are needed to confirm the findings.

Impact: Macrolides do not significantly reduce the risk of pathogens present (except for Moraxella catarrhalis) among children with bronchiectasis. Macrolides do not significantly increase FEV1% predicted among children with bronchiectasis. This meta-analysis reports on the efficacy and safety of macrolides in the treatment of children with bronchiectasis, providing evidence for the management of children with bronchiectasis. This meta-analysis does not support the use of macrolides in the management of children with bronchiectasis unless the presence of Moraxella catarrhalis is provenor suspected.

- 36 references

SUPPLEMENTARY INFO

Publication typesexpand

Pulm Pharmacol Ther

. 2023 May 23;102226.
doi: 10.1016/j.pupt.2023.102226. Online ahead of print.

Nebulized amphotericin B for preventing exacerbations in allergic bronchopulmonary aspergillosis: A systematic review and meta-analysis

Valliappan Muthu[1], Sahajal Dhooria[1], Inderpaul Singh Sehgal[1], Kuruswamy Thurai Prasad[1], Shivaprakash M Rudramurthy[2], Ashutosh N Aggarwal[1], Arunaloke Chakrabarti[3], Ritesh Agarwal[4]
Affiliations expand

- PMID: 37230237

- DOI: 10.1016/j.pupt.2023.102226

Abstract

Background: Allergic bronchopulmonary aspergillosis (ABPA) is complicated by exacerbations in more than one-third of the subjects. Whether nebulized amphotericin B (NAB) therapy prevents ABPA exacerbations remains unclear.

Objectives: The primary objective of this systematic review and meta-analysis was to determine the frequency of subjects remaining exacerbation-free, one year after initiating NAB. The key secondary objectives were the time to first exacerbation and the safety of NAB therapy.

Methods: We searched the PubMed and Embase databases for studies evaluating ≥5 subjects of ABPA managed with NAB. We report the pooled proportion of ABPA subjects remaining exacerbation free after one year. For the randomized controlled trials (RCTs), we estimate the pooled risk difference (RD) of exacerbation-free status at one year with NAB versus the control arm.

Results: We included five studies for our analysis; three were observational (n = 28) and two RCTs (n = 160). The pooled proportion (95% confidence interval [CI]) of subjects remaining exacerbation free with NAB at one year was 76% (62-88). The pooled RD (95% CI) of an exacerbation-free status at one year was 0.33 (-0.12 to 0.78) and was not significantly different between the NAB and control arms. The time to first exacerbation was longer with NAB than with the standard therapy. No serious adverse events were reported with NAB.

Conclusion: NAB does not improve exacerbation-free status at one year; however, weak evidence suggests it delays ABPA exacerbations. More research using different dosing regimens is required.

Keywords: ABPM; Asthma; Bronchiectasis; Inhaled amphotericin B; Itraconazole; Relapse.

Conflict of interest statement

Declaration of competing interest None.

ERJ Open Res

. 2023 May 22;9(3):00628-2022.
doi: 10.1183/23120541.00628-2022. eCollection 2023 May.

ERS International Congress 2022: highlights from the Respiratory Infections Assembly

Radhika Banka[1], Kiarina Chichirelo-Konstantynovych[2], Katie L Horton[3,4], Tetyana Konstantynovych[5], Merete B Long[6], Melissa J McDonnell[7], Oliver W Meldrum[8], Mirae Park[9], Lidia Perea[10], Oksana Viltsaniuk[5], Holly R Keir[6]
Affiliations expand

- PMID: 37228292

- PMCID: PMC10204818

- DOI: 10.1183/23120541.00628-2022

Abstract

The European Respiratory Society International Congress took place both in person, in Barcelona, Spain, and online in 2022. The congress welcomed over 19 000 attendees on this hybrid platform, bringing together exciting updates in respiratory science and medicine from around the world. In this article, Early Career Members of the Respiratory Infections Assembly (Assembly 10) summarise a selection of sessions across a broad range of topics, including presentations on bronchiectasis, nontuberculous mycobacteria, tuberculosis, cystic fibrosis and coronavirus disease 2019.

Conflict of interest statement

Conflict of interest: K. Chichirelo-Konstantynovych declares support for attending the European Respiratory Society International Congress in 2022 as an invited Chair. H.R. Keir declares personal honoraria from Insmed Incorporated for providing an educational lecture in the 36 months prior to manuscript submission. All other authors declare no competing interests.

- 70 references

Pediatr Pulmonol
.
. 2023 May 24.
doi: 10.1002/ppul.26485. Online ahead of print.

Impact of Elexacaftor-Tezacaftor-Ivacaftor on lung disease in cystic fibrosis

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- PMID: 37222417

- DOI: 10.1002/ppul.26485

Abstract

Background: In people with cystic fibrosis (pwCF), the impact of cystic fibrosis transmembrane conductance regulator (CFTR) modulator therapies, such as Elexacaftor-Tezacaftor-Ivacaftor (ETI), on structural changes in the lungs is unclear.

Objective: To determine the impact of ETI on clinical parameters and on structural lung disease as measured by the changes in the chest computed tomography (CT) scans in pwCF.

Methods: Percent predicted forced expiratory volume in one second (ppFEV1), body mass index (BMI), and microbiologic data were collected at initiation and 3-month intervals for 1 year. Chest CT scans before starting ETI therapy (baseline) and at 1-year on ETI therapy were compared by two pulmonologists independently.

Results: The sample size was 67 pwCF, 30 (44.8%) males, median age of 25 (16, 33.5) years. Significant increases in ppFEV1 and BMI observed by 3 months of ETI therapy persisted throughout 1 year of ETI therapy ($p < 0.001$ at all-time points for both). After 1 year on ETI, pwCF had significant reductions in Pseudomonas aeruginosa (-42%) and MRSA (-42%) positivity. None of the pwCF had worsening of chest CT parameters during 1 year of ETI therapy. Comparing chest CT findings at baseline and at 1-year follow-up, bronchiectasis was present in 65 (97%) pwCF and at 1-year follow-up decreased in 7 (11%). Bronchial wall thickening 64 (97%), decreased in 53 (79%). Mucous plugging in 63 (96%), absent in 11 (17%), and decreased in 50 (77%). Hyperinflation/air trapping in 44 (67%), decreased in 11 (18%), absent in 27 (44%) CONCLUSIONS: ETI significantly improved clinical outcomes and lung disease as documented by improvement in chest CT scans.

Keywords: bronchiectasis; chest computed tomography; cystic fibrosis.

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. 2023 May 22;1-10.
doi: 10.1007/s11356-023-27502-3. Online ahead of print.

Urinary copper levels are associated with bronchiectasis in non-smokers living near a petrochemical complex

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- PMID: 37217814

- PMCID: PMC10202350

- DOI: 10.1007/s11356-023-27502-3

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Abstract

The incidence of respiratory diseases has been associated with copper in particulate matter; however, the relationship between urinary copper levels and interstitial lung changes remains unclear. Therefore, we conducted a population-based study in southern Taiwan between 2016 and 2018, excluding individuals with a history of lung carcinoma, pneumonia, and cigarette smoking. Low-dose computed tomography (LDCT) was performed to detect lung interstitial changes, including the presence of ground-glass opacity or bronchiectasis in LDCT images. We categorized urinary copper levels into quartiles (Q1: ≤10.3; Q2: >10.4 and ≤14.2; Q3: >14.3 and ≤18.9; and Q4: >19.0 μg/L) and analyzed the risk of interstitial lung changes using multiple logistic regression analysis. The urinary copper levels were significantly positively correlated with age, body mass index, serum white blood cell count, aspartate aminotransferase, alanine aminotransferase, creatinine, triglycerides, fasting glucose, and glycated hemoglobin and significantly negatively correlated with platelet count and high-density lipoprotein cholesterol. The study found that the highest quartile of urinary copper levels (Q4) was significantly associated with an increased risk of bronchiectasis compared to the lowest quartile (Q1) of urinary copper levels, with an odds ratio (OR) of 3.49 and a 95% confidence interval (CI) of 1.12-10.88. However, the association between urinary copper levels and interstitial lung disease needs further investigation in future studies.

Keywords: Bronchiectasis; Copper; Ground-glass opacity; Low-dose computed tomography; Petrochemical complex.

Conflict of interest statement

The authors declare no competing interests.

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