LIBRA JOURNAL CLUB
2-7 May 2023

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

1
ERJ Open Res

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. 2023 May 2;9(3):00476-2022.
doi: 10.1183/23120541.00476-2022. eCollection 2023 Jul.

Hospitalisation outcomes in pneumococcal-vaccinated *versus* - unvaccinated patients with exacerbation of COPD: results from the HOPE COPD Study

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Affiliations expand

- PMID: 37143841

- PMCID: PMC10152243

- DOI: 10.1183/23120541.00476-2022

Abstract

Background: Infectious exacerbations are crucial events that dictate the natural course of COPD patients. Pneumococcal vaccination has been shown to decrease incidence of community-acquired pneumonia in COPD patients. There is a paucity of data on outcomes of hospitalisation in pneumococcal-vaccinated COPD patients in comparison with unvaccinated subjects. The objectives of the present study were to evaluate the difference in hospitalisation outcomes in pneumococcal-vaccinated *versus* -unvaccinated COPD subjects hospitalised with acute exacerbation.

Methods: This was a prospective analytical study on 120 subjects hospitalised with acute COPD exacerbation. 60 patients with prior pneumococcal vaccination and 60 unvaccinated patients were recruited. Outcomes of hospitalisation such as mortality rate, need for assisted ventilation, length of hospital stay, need for intensive care unit (ICU) care and length of ICU stay were collected and compared between two groups with appropriate statistical tools.

Results: 60% of unvaccinated patients (36 out of 60) required assisted ventilation, whereas only 43.3% of vaccinated subjects (26 out of 60) needed assisted ventilation (p-value of 0.04). Most of the secondary outcomes were better in the vaccinated group. The mean$\pm_{SD}$ length of ICU stay in the vaccinated group was 0.67±1.11 days compared to 1.77±1.89 days in the unvaccinated group. The mean$\pm_{SD}$ length of hospital stay was 4.50±1.64 days and 5.47±2.03 days in the vaccinated and unvaccinated group, respectively (p-value of 0.005).

Conclusions: COPD patients who have received prior pneumococcal vaccination have better outcomes when they are hospitalised for an acute exacerbation. Pneumococcal vaccination may be recommended for all patients with COPD who are at risk of hospitalisation with acute exacerbation.

Conflict of interest statement

Conflicts of interest: None to declare.

- 30 references
- 3 figures

ERJ Open Res
. 2023 May 2;9(3):00627-2022.
doi: 10.1183/23120541.00627-2022. eCollection 2023 Jul.

Cognitive function and inhaler technique following recovery from exacerbations of COPD

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Affiliations expand

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- PMCID: PMC10152261
- DOI: 10.1183/23120541.00627-2022

Abstract

Cognitive impairment is highly prevalent in COPD outpatients during the post-exacerbation recovery period and is associated with poor inhaler technique https://bit.ly/3XkCvCv.

Conflict of interest statement

Conflict of interest: B.E. Henkle has no conflicts. Conflict of interest: R.L. Freese has no conflicts. Conflict of interest: M. Dahlheimer has no conflicts. Conflict of interest: C. Kane has no conflicts. Conflict of interest: K.F. Hoth has no conflicts. Conflict of interest: K.M. Kunisaki has received personal fees from Allergan/AbbVie, Nuvaira and Organicell outside the work presented here.

- 8 references

3

EMBO J

. 2023 May 5;e111272.
doi: 10.15252/embj.2022111272. Online ahead of print.

High-resolution transcriptomic and epigenetic profiling identifies novel regulators of COPD

Uwe Schwartz[#1,2], Maria Llamazares Prada[#1,3,4], Stephanie T Pohl[1,5], Mandy Richter[1], Raluca Tamas[1], Michael Schuler[6], Corinna Keller[7], Vedrana Mijosek[1], Thomas Muley[4,8], Marc A Schneider[4,8], Karsten Quast[9], Joschka Hey[3,10], Claus P Heußel[4,11,12], Arne Warth[4,8,13], Hauke Winter[8,14], Özdemirhan Serçin[1], Harry Karmouty-Quintana[15], Soma Sk Jyothula[16], Manish K Patel[16], Felix Herth[4,8,17], Ina Koch[18], Giuseppe Petrosino[1], Alexandru Titimeaua[5], Balca R Mardin[1], Dieter Weichenhan[3], Tomasz P Jurkowski[19], Charles D Imbusch[20], Benedikt Brors[20], Vladimir Benes[21], Birgit Jung[7], David Wyatt[22], Heiko F Stahl[7], Christoph Plass[3,4], Renata Z Jurkowska[1,5]

Affiliations expand

- PMID: 37143403

- DOI: 10.15252/embj.2022111272

Abstract

Patients with chronic obstructive pulmonary disease (COPD) are still waiting for curative treatments. Considering its environmental cause, we hypothesized that COPD will be associated with altered epigenetic signaling in lung cells. We generated genome-wide DNA methylation maps at single CpG resolution of primary human lung fibroblasts (HLFs) across COPD stages. We show that the epigenetic landscape is changed early in COPD, with DNA methylation changes occurring predominantly in regulatory regions. RNA sequencing of matched fibroblasts demonstrated dysregulation of genes involved in proliferation, DNA repair, and extracellular matrix organization. Data integration identified 110 candidate regulators of disease phenotypes that were linked to fibroblast repair processes using phenotypic screens. Our study provides high-resolution multi-omic maps of HLFs across COPD stages. We reveal novel transcriptomic and epigenetic signatures associated with COPD onset and progression and identify new candidate regulators involved in the pathogenesis of chronic lung diseases. The presence of various epigenetic factors among the candidates demonstrates that epigenetic regulation in COPD is an exciting research field that holds promise for novel therapeutic avenues for patients.

Keywords: COPD; DNA methylation; RNA sequencing; WGBS; human lung fibroblasts.

. 2023 May 4;24(1):124.
doi: 10.1186/s12931-023-02431-4.

Microbial dysbiosis and the host airway epithelial response: insights into HIV-associated COPD using multi'omics profiling

Marcia Smiti Jude[1], Chen Xi Yang[1], Fernando Studart Leitao Filho[1], Ana I Hernandez Cordero[1], Julia Yang[1], Tawimas Shaipanich[2], Xuan Li[1], David Lin[3], Julie MacIsaac[3], Michael S Kobor[3], Sunita Sinha[4], Corey Nislow[4], Amrit Singh[1], Wan Lam[5], Stephen Lam[2,5], Silvia Guillemi[6,7], Marianne Harris[6,7], Julio Montaner[6,7], Raymond T Ng[8], Christopher Carlsten[1,2], S F Paul Man[1,2], Don D Sin[1,2], Janice M Leung[9,10]
Affiliations expand

- PMID: 37143066

- DOI: 10.1186/s12931-023-02431-4

Abstract

Background: People living with HIV (PLWH) are at increased risk of developing Chronic Obstructive Pulmonary Disease (COPD) independent of cigarette smoking. We hypothesized that dysbiosis in PLWH is associated with epigenetic and transcriptomic disruptions in the airway epithelium.

Methods: Airway epithelial brushings were collected from 18 COPD + HIV + , 16 COPD - HIV + , 22 COPD + HIV - and 20 COPD - HIV - subjects. The microbiome, methylome, and transcriptome were profiled using 16S sequencing, Illumina Infinium Methylation EPIC chip, and RNA sequencing, respectively. Multi 'omic integration was performed using Data Integration Analysis for Biomarker discovery using Latent cOmponents. A correlation > 0.7 was used to identify key interactions between the 'omes.

Results: The COPD + HIV -, COPD -HIV + , and COPD + HIV + groups had reduced Shannon Diversity ($p = 0.004$, $p = 0.023$, and $p = 5.5e-06$, respectively) compared to individuals with neither COPD nor HIV, with the COPD + HIV + group demonstrating the most reduced diversity. Microbial communities were significantly different between the four groups ($p = 0.001$). Multi 'omic integration identified correlations between Bacteroidetes Prevotella, genes FUZ, FASTKD3, and ACVR1B, and epigenetic features CpG-FUZ and CpG-PHLDB3.

Conclusion: PLWH with COPD manifest decreased diversity and altered microbial communities in their airway epithelial microbiome. The reduction in Prevotella in this group was linked with epigenetic and transcriptomic disruptions in host genes including FUZ, FASTKD3, and ACVR1B.

Keywords: Airway epithelium; COPD; Epigenetic; HIV; Methylation; Microbiome; Transcriptome.

- 41 references

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BMC Pulm Med

. 2023 May 4;23(1):156.

doi: 10.1186/s12890-023-02453-0.

Prevalence of genetic mutations in alpha-1 antitrypsin deficiency (aatd) in patients with chronic obstructive pulmonary disease in Colombia

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Affiliations expand

- PMID: 37143026

- DOI: 10.1186/s12890-023-02453-0

Abstract

Background: Alpha-1 antitrypsin deficiency (AATD) is an underrecognized genetic disorder associated mainly with pulmonary emphysema and Chronic Obstructive Pulmonary Disease (COPD). All individuals with COPD regardless of age or ethnicity should be tested for AATD, but in Colombia its prevalence in unknown.

Main objective: To determine the prevalence of the genetic mutations, present in AATD in adult patients with COPD in Colombia, using a genotyping test on cells from the oral mucosa.

Methods: This was a multicentre, observational, cross-sectional study which included adult patients attending seven COPD care centres in Colombia. Demographic data, medical history, including history of exposure to smoking and biomass smoke, most recent spirometry, pharmacological and non-pharmacological treatment received, serum AAT levels, and mutations detected by the genotyping test were recorded for all the recruited patients. For the comparison of variables between the groups with and without mutation, we used the X^2 test for the qualitative variables and the Student's t-test or Mann-Whitney U test according to their distribution.

Main findings: We collected a sample of 1,107 patients, the median age was 73.8 years (87.6-79.9). Mutations were documented in 144 patients (13.01%), the majority had the M/S mutation (78.50%), followed by M/Z (9.72%). One patient had a ZZ mutation and two patients had null alleles. In total, 23 patients had mutations associated with serum AAT deficiency (levels below 60 mg/dl).

Conclusions: Genetic mutations were documented in 13.01% of patients with COPD in Colombia and 2.07% were AATD-related, showing that there is a significant number of underdiagnosed patients.

Keywords: COPD; Genetic mutation; Genotyping test; Pulmonary emphysema; alpha-1 antitrypsin deficiency.

- 26 references

Respir Med
.
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doi: 10.1016/j.rmed.2023.107262. Online ahead of print.

There is still no established and accepted definition of COPD

Mario Cazzola[1], Francesco Blasi[2]
Affiliations expand

- PMID: 37142165

- DOI: 10.1016/j.rmed.2023.107262

No abstract available

Keywords: COPD; Definition; Treatable treats.

Conflict of interest statement

Declaration of competing interest Nothing to declare.

Chronic Obstr Pulm Dis
.
. 2023 May 3.

doi: 10.15326/jcopdf.2022.0384. Online ahead of print.

Understanding the Patient Experience of Home-Based Pulmonary Rehabilitation With Health Coaching for COPD: A Qualitative Interview Study

William R Midthun[1], Maria V Benzo[1], Jennifer L Ridgeway[2,3], Roberto P Benzo[1]
Affiliations expand

- PMID: 37140957

- DOI: 10.15326/jcopdf.2022.0384

Free article

Abstract

Background: We recently reported the largest randomized trial of home-based pulmonary rehabilitation (PR) for Chronic Obstructive Pulmonary Disease (COPD) in the USA that showed improvement in all domains of quality of life, accelerometry-measured physical activity, and self-management. We aimed for an in-depth understanding of how patients experience complex, multi-component programs like to help uncover factors related to behavior change and to inform program scale-up in other populations. In addition, we used a theoretical framework to provide a structure for understanding patient experience in the larger context of behavior change interventions for patients with COPD.

Study design and methods: The parent trial was conducted with patients diagnosed with COPD who received care at an academic medical center and a community health system in the upper Midwest. The 12-week PR intervention included three video-guided exercises to be practiced daily, activity monitors, and weekly telephonic health coaching. Trial participants were eligible to participate in an individual interview about their experience if they completed the intervention within the prior 12 months. Individual interviews were conducted by telephone using a semi-structured guide. Analysis of verbatim transcripts followed an inductive thematic approach followed by deductive categorization and interpretation using a theoretical model (Capability, Opportunity, Motivation, Behavior [COM-B]) developed for linking intervention functions to aspects of behavioral change.

Results: Among 32 eligible program participants, 32 were approached, and 15 completed interviews between October 19th, 2021, and January 13th, 2022. The COM-B model and

recommendations for program improvement were observed in the primary findings. *Capability* included the knowledge and physical ability by participating in the program, including participants' understanding of the exercises and their confidence in doing them despite physical limitations and fear of COPD exacerbation. *Opportunity* included the perceptions that the program was convenient due to being self-paced and in a home-based setting. Health coaching also provided support, social influence, and accountability. *Motivation* included a desire to feel better, improve health, and become more active and independent. Improvements in skills, mood, and attitudes from program participation further bolstered confidence and motivation, especially among participants concerned about completing the program at enrollment. *Recommendations for improvement* included varying activities/exercises to maintain interest.

Discussion: Participants provided unique insights into how they engaged with program components and the ways that the program fostered behavior change. It highlighted ways that health coaching bolstered skills and confidence among participants with the poorest function at program enrollment and how improved physical function and mood led to motivation. It also highlighted the roles of technology and telephonic support in a home-based program. Suggestions for improvement, including exercise variations, are consistent with efforts to design complex interventions that can meet diverse patients' needs.

Keywords: COPD; health coaching; home-based; motivational interviewing; pulmonary rehabilitation.

SUPPLEMENTARY INFO

Grant supportexpand

Chronic Obstr Pulm Dis

. 2023 May 3.
doi: 10.15326/jcopdf.2022.0389. Online ahead of print.

The Experiences of Individuals With a History of Acute Exacerbations of COPD and Their Thoughts on Death: Empirical Qualitative Research

Yasemin Ceyhan[1]
Affiliations expand

- PMID: 37140940

- DOI: 10.15326/jcopdf.2022.0389

Free article

Abstract

Background: The most important problem of Chronic Obstructive Pulmonary Disease (COPD) patients is acute exacerbation. Researching this experience and examining its relationship with death is extremely important in patient care.

Methods: This study was conducted to reveal the experiences of individuals with a history of Acute Exacerbations of Chronic Obstructive Pulmonary Disease (AECOPD) and their thoughts on death by qualitative empirical research. The study was conducted in the pulmonology clinic between July and September 2022. The researcher conducted in-depth face-to-face interviews with the patients in their rooms. The researcher created a semi-structured form and used it as a data collection tool in the study. With patient consent, interviews were recorded and documented. During the data analysis phase, the Colaizzi method was used. The study was presented in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist for qualitative research.

Results: The study was completed with 15 patients. 13 of the patients were male and the mean age was 65 years. Patient statements were coded after the interviews and collected under 11 sub-themes. These sub-themes were categorized under the following main themes: Recognizing AECOPD, AECOPD Instant Experiences, Post- AECOPD, and Thoughts on Death.

Conclusion: It was concluded that the patients were able to recognize the symptoms of AECOPD, that the severity of the symptoms increased during the exacerbation, that they felt regret or anxiety about re-exacerbation, and that all of these factors contributed to their fear of death.

Keywords: acute exacerbations; chronic obstructive pulmonary disease; death; nurse.

9

Curr Opin Pulm Med

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Telemedicine and home monitoring for COPD – a narrative review of recent literature

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Affiliations expand

- PMID: 37140553

- DOI: 10.1097/MCP.0000000000000969

Abstract

Purpose of review: Home monitoring is one of the methods of using telemedical technologies aimed to provide care at home and maintain a connection between patients and healthcare providers. The purpose of this review is to describe recent advancements in the use of home monitoring for the care and management of chronic obstructive pulmonary disease (COPD) patients.

Recent findings: Recent studies focused on remote monitoring for patients with COPD proved the positive effect of home monitoring interventions on the frequency of

exacerbations and unscheduled healthcare visits, duration of patients' physical activity, proved sensitivity and overall specificity of such interventions and highlighted the effectiveness of self-management.Assessing end-user experience revealed high satisfaction levels among patients and healthcare staff who used home monitoring interventions. The majority of physicians and staff responded positively about the interventions' facilitation of communication with patients. Moreover, healthcare staff considered such technologies useful for their practice.

Summary: Home monitoring for COPD patients improves medical care and disease management despite minor drawbacks and obstacles to its wide implementation. Involving end-users in evaluating and co-creating new telemonitoring interventions has the potential to improve the quality of remote monitoring for COPD patients in the near future.

- 24 references

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Review

J Adv Nurs

. 2023 May 3.
doi: 10.1111/jan.15693. Online ahead of print.

Effectiveness of internet-based self-management interventions on pulmonary function in patients with chronic obstructive pulmonary disease: A systematic review and meta-analysis

Yan-Yan Liu[1], Ya-Jie Li[1], Han-Bing Lu[1], Chun-Yu Song[1], Ting-Ting Yang[1], Jiao Xie[1]
Affiliations expand

- PMID: 37139550

- DOI: 10.1111/jan.15693

Abstract

Aim: To investigate the effectiveness of internet-based self-management interventions on pulmonary function in patients with chronic obstructive pulmonary disease (COPD).

Design: Systematic review and meta-analysis.

Data sources: Eight electronic databases including PubMed, Web of Science, Cochrane library, Embase, CINAHL, China National Knowledge Infrastructure, Wangfang and Weipu databases were systematically searched from inception of the database to January 10, 2022.

Methods: Statistical analysis was performed using Review Manager 5.4 and results were reported as mean difference (MD) or standard mean difference (SMD) with 95% confidence intervals (CI). Outcomes were the forced expiratory volume in 1 second (FEV1), forced volume capacity (FVC) and percent of FEV1/FVC. The Cochrane Risk of Bias Tool was used to assess the risk of bias of included studies. The study protocol was not registered.

Results: Eight randomized controlled trials (RCTs) including 476 participants met the inclusion criteria and were included in meta-analysis. It was found that internet-based self-management interventions showed a significant improvement in FVC(L), while FEV1 (%), FEV1 (L), FEV1/FVC (%) and FVC (%) did not significantly improve.

Conclusions: Internet-based self-management interventions were effective in improving pulmonary function in patients with COPD, caution should be exercised in interpreting the results. RCTs of higher quality are needed in the future to further demonstrate the effectiveness of the intervention.

Relevance to clinical practice: It provides evidence for internet-based self-management interventions in improving pulmonary function in patients with COPD.

Impact: The results suggested that internet-based self-management interventions could improve the pulmonary function in people with COPD. This study provides a promising alternative method for patients with COPD who have difficulty seeking face-to-face self-management interventions, and the intervention can be applied in clinical settings.

Patient or public contribution: No Patient or Public Contribution.

Keywords: chronic obstructive pulmonary disease; internet-based; meta-analysis; nursing; pulmonary function; self-management; systematic review.

- 48 references

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

11
Respir Care
.
.
.
. 2023 May 3;respcare.10813.
doi: 10.4187/respcare.10813. Online ahead of print.

Lowering PCO2 with Non-invasive Ventilation is Associated with Improved Survival in Chronic Hypercapnic Respiratory Failure

Jose Victor Jimenez[1,2], Jason Ackrivo[3], Jesse Y Hsu[4], Mathew W Wilson[1], Wassim W Labaki[1], John Hansen-Flaschen[3], Robert C Hyzy[1], Philip J Choi[5]
Affiliations expand

- PMID: 37137711

- DOI: 10.4187/respcare.10813

Abstract

Background: Chronic hypercapnic respiratory failure is associated with high mortality. While prior work has demonstrated a mortality improvement with high intensity non-invasive ventilation in chronic obstructive pulmonary disease, it is unclear whether a partial pressure carbon dioxide (PCO2) reduction strategy is associated with improved outcomes in other populations of chronic hypercapnia.**Methods:** The objective of this study was to investigate the association between PCO2 reduction (using transcutaneous partial pressure of carbon dioxide as an estimate for arterial PCO2) and survival in a broad population of individuals treated with NIV for chronic hypercapnia. We hypothesized that reductions in PCO2, would be associated with improved survival. Therefore, we performed a cohort study of all subjects evaluated from February 2012 to January 2021 for NIV initiation/optimization due to chronic hypercapnia at a home ventilation clinic in an academic center. We used multivariable Cox proportional hazard models with time-varying coefficients and PCO2 as a time-varying covariate to test the association between PCO2 and all-cause mortality adjusting for known cofounders.**Results:** The mean age of 337 subjects was 57 ± 16 years; 37% female and 85% white. In univariate analysis, survival probability increased with reductions in PCO2 to <50 mm Hg after 90 days, and these remained significant after adjusting for age, sex, race, body mass index, diagnosis, Charlson comorbidity index, and baseline PCO2. In the multivariable analysis, patients who had a < 50 mm Hg had a reduced mortality risk of 94% between 90-179 days (HR=0.06; 95% CI: 0.01 - 0.50), 69% between 180 - 364 days (HR=0.31; 95% CI: 0.12 - 0.79), and 73% for 365 - 730 days (HR = 0.27; 95% CI: 0.13 - 0.56).**Conclusion:** Reduction in PCO2 from baseline for subjects with chronic hypercapnia on NIV is associated with improved survival. Management strategies should target the greatest attainable reductions in PCO2.

Keywords: Amyotrophic Lateral Sclerosis; Chronic Obstructive Pulmonary Disease; Hypercapnia; Mortality; Neuromuscular Diseases; Noninvasive Ventilation; Respiratory Insufficiency.

Eur Respir J
. 2023 May 2;61(4):23E6104.
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April Podcast: Global Initiative for Chronic Obstructive Lung Disease 2023 Report

No authors listed

- PMID: 37137514

- DOI: 10.1183/13993003.E6104-2023

No abstract available

Comment on

- Global Initiative for Chronic Obstructive Lung Disease 2023 Report: GOLD Executive Summary.
  Agustí A, Celli BR, Criner GJ, Halpin D, Anzueto A, Barnes P, Bourbeau J, Han MK, Martinez FJ, Montes de Oca M, Mortimer K, Papi A, Pavord I, Roche N, Salvi S, Sin DD, Singh D, Stockley R, López Varela MV, Wedzicha JA, Vogelmeier CF.Eur Respir J. 2023 Apr 1;61(4):2300239. doi: 10.1183/13993003.00239-2023. Print 2023 Apr.PMID: 36858443 **Free PMC article.**

Review

Eur Respir Rev

. 2023 May 3;32(168):230009.
doi: 10.1183/16000617.0009-2023. Print 2023 Jun 30.

Identifying risk factors for COPD and adult-onset asthma: an umbrella review

Judith C S Holtjer[1], Lizan D Bloemsma[2 3 4], Rosanne J H C G Beijers[5], Merel E B Cornelissen[2 3 4], Bart Hilvering[2], Laura Houweling[1 2], Roel C H Vermeulen[1 6], George S Downward[1 6], Anke-Hilse Maitland-Van der Zee[7 3 4]; P4O2 consortium
Affiliations expand

- PMID: 37137510

- DOI: 10.1183/16000617.0009-2023

Free article

Abstract

Background: COPD and adult-onset asthma (AOA) are the most common noncommunicable respiratory diseases. To improve early identification and prevention, an overview of risk factors is needed. We therefore aimed to systematically summarise the nongenetic (exposome) risk factors for AOA and COPD. Additionally, we aimed to compare the risk factors for COPD and AOA.

Methods: In this umbrella review, we searched PubMed for articles from inception until 1 February 2023 and screened the references of relevant articles. We included systematic reviews and meta-analyses of observational epidemiological studies in humans that assessed a minimum of one lifestyle or environmental risk factor for AOA or COPD.

Results: In total, 75 reviews were included, of which 45 focused on risk factors for COPD, 28 on AOA and two examined both. For asthma, 43 different risk factors were identified

while 45 were identified for COPD. For AOA, smoking, a high body mass index (BMI), wood dust exposure and residential chemical exposures, such as formaldehyde exposure or exposure to volatile organic compounds, were amongst the risk factors found. For COPD, smoking, ambient air pollution including nitrogen dioxide, a low BMI, indoor biomass burning, childhood asthma, occupational dust exposure and diet were amongst the risk factors found.

Conclusions: Many different factors for COPD and asthma have been found, highlighting the differences and similarities. The results of this systematic review can be used to target and identify people at high risk for COPD or AOA.

Conflict of interest statement

Provenance: Submitted article, peer reviewed. Conflict of interest: A.H. Maitland-Van der Zee is the PI of P4O2 (Precision Medicine for more Oxygen) public–private partnership sponsored by Health Holland involving many private partners who contribute in cash and/or in kind. Partners in the Precision Medicine for more Oxygen (P4O2) consortium are the Amsterdam UMC, Leiden University Medical Center, Maastricht UMC+, Maastricht University, UMC Groningen, UMC Utrecht, Utrecht University, TNO, Aparito, Boehringer Ingelheim, Breathomix, Clear, Danone Nutricia Research, Fluidda, MonitAir, Ncardia, Ortec Logiqcare, Philips, Proefdiervrij, Quantib-U, RespiQ, Roche, Smartfish, SODAQ, Thirona, TopMD, Lung Alliance Netherlands (LAN) and the Lung Foundation Netherlands (Longfonds). The consortium is additionally funded by the PPP Allowance made available by Health Holland, Top Sector Life Sciences & Health (LSHM20104; LSHM20068), to stimulate public-private partnerships and by Novartis. A.H. Maitland-Van der Zee has received grants from Boehringer Ingelheim, Vertex Innovation Award, Dutch Lung Foundation, Stichting Asthma Bestrijding, and Innovative Medicine Initiative (IMI). A.H. Maitland-Van der Zee has received consulting fees from AstraZeneca and Boehringer Ingelheim. A.H. Maitland-Van der Zee has received GSK honarium for a lecture. A.H. Maitland-Van der Zee is the chair of DSMB SOS BPD study and advisory board member of the CHAMP study. A.H. Maitland-Van der Zee is the president of the federation of innovative drug research in the Netherlands (FIGON) and president of the European Association of systems medicine (EASYM). The remaining authors have no conflicts to declare.

Review

Eur Respir Rev
. 2023 May 3;32(168):220237.
doi: 10.1183/16000617.0237-2022. Print 2023 Jun 30.

Quality of life in patients with chronic respiratory failure on home mechanical ventilation

Rebecca F D'Cruz[1,2], Georgios Kaltsakas[3,2], Eui-Sik Suh[3,4], Nicholas Hart[3,2]
Affiliations expand

- PMID: 37137507

- DOI: 10.1183/16000617.0237-2022

Free article

Abstract

Home mechanical ventilation (HMV) is a treatment for chronic respiratory failure that has shown clinical and cost effectiveness in patients with underlying COPD, obesity-related respiratory failure and neuromuscular disease (NMD). By treating chronic respiratory failure with adequate adherence to HMV, improvement in patient-reported outcomes including health-related quality of life (HRQoL) have been evaluated using general and disease-specific quantitative, semi-qualitative and qualitative methods. However, the treatment response in terms of trajectory of change in HRQoL is not uniform across the restrictive and obstructive disease groups. In this review, the effect of HMV on HRQoL across the domains of symptom perception, physical wellbeing, mental wellbeing, anxiety, depression, self-efficacy and sleep quality in stable and post-acute COPD, rapidly progressive NMD

(such as amyotrophic lateral sclerosis), inherited NMD (including Duchenne muscular dystrophy) and obesity-related respiratory failure will be discussed.

Conflict of interest statement

Conflict of interest: R.F D'Cruz has received consulting fees from ResMed and AstraZeneca; and payment or honoraria from ResMed and Fisher & Paykel, all outside the submitted work. Conflict of interest: G. Kaltsakas has nothing to disclose. Conflict of interest: E-S. Suh has received grants or contracts from Philips Respironics; and consulting fees from Philips, all outside the submitted work. Conflict of interest: N. Hart has received consulting fees from ResMed and from Philips; payment or honoraria from Fisher & Paykel and Philips; and support for attending meetings and/or travel from Fisher & Paykel, all outside the submitted work; N. Hart has patents planned, issued or pending: Myotrace Patent, held by Guy's and St Thomas' Foundation Trust.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

15
Phys Ther
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Mobile Health Pulmonary Rehabilitation Compared to a Center-Based Program for Cost-Effectiveness and Effects on Exercise Capacity, Health

Status, and Quality of Life in People with Chronic Obstructive Pulmonary Disease: A Protocol for a Randomized Controlled Trial

Sally L Wootton[1,2], Marita T Dale[2], Jennifer A Alison[2,3], Sarah Brown[1,2,4], Hannah Rutherford[2,5], Andrew S L Chan[1,6,7], Marlien Varnfield[8], Ian A Yang[9], Michelle Cunich[10], Sarah Dennis[2,11,12], Zoe J McKeough[2]
Affiliations expand

- PMID: 37133445

- DOI: 10.1093/ptj/pzad044

Abstract

Objective: A comprehensive digitalized program is a novel way to improve access to pulmonary rehabilitation for people with chronic obstructive pulmonary disease (COPD). This study aims to determine if a home-based pulmonary rehabilitation program supported by mobile health (mHealth) technology is equivalent to center-based pulmonary rehabilitation in terms of improvements in exercise capacity and health status in people with COPD.

Methods: This study is a prospective, multicenter, equivalence randomized controlled trial (RCT) with intention-to-treat analysis. A hundred participants with COPD will be recruited from 5 pulmonary rehabilitation programs. Following randomization, participants will be assigned in a concealed manner to receive either home-based pulmonary rehabilitation supported by mHealth or center-based pulmonary rehabilitation. Both programs will be 8 weeks and will include progressive exercise training, disease management education, self-management support, and supervision by a physical therapist. Co-primary outcome measures will be the 6-Minute Walk Test and the COPD Assessment Test. Secondary outcome measures will include the St George's Respiratory Questionnaire, the EuroQol 5 Dimension 5 Level, the modified Medical Research Council dyspnea scale, the 1-minute sit-to-stand test, the 5 times sit-to-stand test, the Hospital Anxiety and Depression Scale, daily physical activity levels, health care utilization, and costs. Outcomes will be measured at baseline and at the end of the intervention. Participant experience will be assessed through semistructured interviews at the end of the intervention. Utilization of health care and costs will also be measured again after 12 months.

Impact: This study will be the first rigorous RCT to examine the effects of a home-based pulmonary rehabilitation program supported by mHealth technology that includes comprehensive clinical outcome evaluation, assessment of daily physical activity, a health economic analysis, and qualitative analysis. If findings demonstrate that there is equivalence in clinical outcomes, that the mHealth program costs the least amount (and is thus cost-effective), and that the mHealth program is acceptable to participants, such programs should be widely implemented to improve access to pulmonary rehabilitation.

Keywords: Chronic Obstructive Pulmonary Disease; Exercise; Physical Activity; Pulmonary Rehabilitation; Quality of Life; mHealth.

J Manag Care Spec Pharm

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Clinical and economic outcomes in patients with chronic obstructive pulmonary disease initiating maintenance therapy with tiotropium bromide/olodaterol or fluticasone furoate/umeclidinium/vilanterol

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Affiliations expand

- PMID: 37133429

- DOI: 10.18553/jmcp.2023.22373

Abstract

BACKGROUND: Clinical practice guidelines recommend dual long-acting muscarinic antagonists (LAMAs)/long-acting $\beta_2$agonists (LABAs) as maintenance therapy in patients with chronic obstructive pulmonary disease (COPD) and dyspnea or exercise intolerance. Escalation to triple therapy (TT) (LAMA/LABA/inhaled corticosteroid) is conditionally recommended for patients with continued exacerbations on dual LAMA/ LABA therapy. Despite this guidance, TT use is widespread across COPD severities, which could impact clinical and economic outcomes. **OBJECTIVE:** To compare COPD exacerbations, pneumonia events, and disease-related and all-cause health care resource utilization and costs (in 2020 US dollars) in patients initiating fixed-dose combinations of either LAMA/ LABA (tiotropium/olodaterol [TIO + OLO]) or TT (fluticasone furoate/umeclidinium/vilanterol [FF + UMEC + VI]). **METHODS:** This retrospective observational study of administrative claims included patients with COPD aged 40 years or older initiating TIO + OLO or FF + UMEC + VI from June 2015 to November 2019. TIO + OLO and FF + UMEC + VI cohorts in the overall and maintenance-naive populations were 1:1 propensity score matched on baseline demographics, comorbidities, COPD medications, health care resource utilization, and costs. Multivariable regression compared clinical and economic outcomes up to 12 months in FF + UMEC + VI vs TIO + OLO postmatched cohorts. **RESULTS:** After matching, there were 5,658 and 3,025 pairs in the overall and maintenance-naive populations, respectively. In the overall population, the risk of any (moderate or severe) exacerbation was 7% lower in FF + UMEC + VI vs TIO + OLO initiators (adjusted hazard ratio [aHR] = 0.93; 95% CI = 0.86-1.0; *P* = 0.047). There was no difference in the adjusted risk of any exacerbation in the maintenance-naive population (aHR = 0.99; 95% CI = 0.88-1.10). Pneumonia risk was not statistically different between cohorts in the overall (aHR = 1.12; 95% CI = 0.98-1.27) and maintenance-naive (aHR = 1.13; 95% CI = 0.95-1.36) populations. COPD- and/or pneumonia-related adjusted total annualized costs (95% CI) were significantly greater for FF + UMEC + VI vs TIO + OLO in the overall ($17,633 [16,661-18,604] vs $14,558 [13,709-15,407]; *P* < 0.001; differences [% of relative increase] = $3,075 [21.1%]) and maintenancenaive ($19,032 [17,466-20,598] vs $15,004 [13,786-16,223]; *P* < 0.001; $4,028 [26.8%]) populations, with significantly higher pharmacy costs with FF + UMEC + VI (overall: $6,567 [6,503-6,632] vs $4,729 [4,676-4,783]; *P* < 0.001; $1,838 [38.9%]; maintenance-naive: $6,642 [6,560-6,724] vs $4,750 [4,676-4,825]; *P* < 0.001; $1,892 [39.8%]). **CONCLUSIONS:** A lower risk of exacerbation was observed with FF + UMEC + VI vs TIO + OLO in the overall population but not among the maintenance-naive population. Patients with COPD initiating TIO + OLO had lower annualized costs than FF + UMEC + VI initiators in the overall and maintenance-naive populations. Thus, in the maintenance-naive population, initiation with dual LAMA/LABA

therapy per practice guidelines can improve real-world economic outcomes. Study registration number: ClinicalTrials.gov (identifier: NCT05127304). **DISCLOSURES:** The study was funded by Boehringer Ingelheim Pharmaceuticals, Inc (BIPI). To ensure independent interpretation of clinical study results and enable authors to fulfill their role and obligations under the ICMJE criteria, BIPI grants all external authors access to relevant clinical study data. In adherence with the BIPI Policy on Transparency and Publication of Clinical Study Data, scientific and medical researchers can request access to clinical study data after publication of the primary manuscript in a peer-reviewed journal, regulatory activities are complete and other criteria are met. Dr Sethi has received honoraria/ fees for consulting/speaking from Astra-Zeneca, BIPI, and GlaxoSmithKline. He has received consulting fees for serving on data safety monitoring boards from Nuvaira and Pulmotect. He has received consulting fees from Apellis and Aerogen. His institution has received research funds for his participation in clinical trials from Regeneron and AstraZeneca. Ms Palli was an employee of BIPI at the time the study was conducted. Drs Clark and Shaikh are employees of BIPI. Ms Buysman and Mr Sargent are employees and Dr Bengtson was an employee of Optum, which was contracted by BIPI to conduct this study. Dr Ferguson reports grants and personal fees from Boehringer Ingelheim during the conduct of the study; grants from Novartis, Altavant, and Knopp; grants and personal fees from AstraZeneca, Verona, Theravance, Teva, and GlaxoSmithKline; and personal fees from Galderma, Orpheris, Dev.Pro, Syneos, and Ionis outside the submitted work. He was a paid consultant for BIPI for this study. The authors received no direct compensation related to the development of the manuscript. BIPI was given the opportunity to review the manuscript for medical and scientific accuracy as well as intellectual property considerations.

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Implementation of digital home monitoring and management of respiratory disease

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Affiliations expand

- PMID: 37132298

- DOI: 10.1097/MCP.0000000000000965

Abstract

Purpose of review: Digital respiratory monitoring interventions (e.g. smart inhalers and digital spirometers) can improve clinical outcomes and/or organizational efficiency, and the focus is shifting to sustainable implementation as an approach to delivering respiratory care. This review considers key aspects of the technology infrastructure, discusses the regulatory, financial and policy context that influence implementation, and highlights the over-arching societal themes of equity, trust and communication.

Recent findings: Technological requirements include developing interoperable and connected systems; establishing stable, wide internet coverage; addressing data accuracy and monitoring adherence; realising the potential of artificial intelligence; and avoiding clinician data overload. Policy challenges include concerns about quality assurance and increasingly complex regulatory systems. Financial barriers include lack of clarity over cost-effectiveness, budget impact and reimbursement. Societal concerns focus on the potential to increase inequities because of poor e-health literacy, deprivation or lack of available infrastructure, the need to understand the implications for patient/professional interactions of shifting care to remote delivery and ensuring confidentiality of personal data.

Summary: Understanding and addressing the implementation challenges posed by gaps in policy, regulatory, financial, and technical infrastructure is essential to support delivery of equitable respiratory care that is acceptable to patients and professionals.

- 113 references

Curr Opin Pulm Med

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Telerehabilitation in pulmonary diseases

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Affiliations expand

- PMID: 37132293

- DOI: 10.1097/MCP.0000000000000962

Abstract

Purpose of review: Telerehabilitation is an alternative delivery model for pulmonary rehabilitation, an evidence-based nonpharmacological intervention, in people with chronic pulmonary disease. This review synthesizes current evidence regarding the telerehabilitation model for pulmonary rehabilitation with an emphasis on its potential and implementation challenges, as well as the clinical experiences from the COVID-19 pandemic.

Recent findings: Different models of telerehabilitation for delivering pulmonary rehabilitation exist. Current studies comparing telerehabilitation to centre-based pulmonary rehabilitation primarily focus on the evaluation in people with stable chronic obstructive pulmonary disease, which demonstrated equivalent improvements in exercise capacity, health-related quality of life and symptoms with improved programme completion rates. Although telerehabilitation may improve access to pulmonary rehabilitation by addressing travel burden, improving schedule flexibility and geographic disparity, there are challenges of ensuring satisfaction of healthcare interactions and

delivering core components of initial patient assessment and exercise prescription remotely.

Summary: Further evidence is needed on the role of telerehabilitation in various chronic pulmonary diseases, as well as the effectiveness of different modalities in delivering telerehabilitation programmes. Economic and implementation evaluation of currently available and emerging models of telerehabilitation in delivering pulmonary rehabilitation are needed to ensure sustainable adoption into clinical management for people with chronic pulmonary disease.

- 72 references

Review

J Burn Care Res

. 2023 May 2;44(3):693-697.
doi: 10.1093/jbcr/irab127.

Nexobrid Treatment for Burn Injuries in Patients With Chronic Obstructive Pulmonary Disease and Home Oxygen Therapy

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Affiliations expand

- PMID: 34197585

- DOI: 10.1093/jbcr/irab127

Abstract

There is an increased risk for burn injuries associated with home oxygen therapy of patients with chronic obstructive pulmonary disease (COPD) since 10% to 50% of these patients continue to smoke. Enzymatic eschar removal of facial burns is gaining popularity but intubation of this specific patient group often leads to prolonged weaning and can require tracheostomy. This study dealt with the question if enzymatic debridement in these patients can also be performed in analgosedation. A selective review of the literature regarding burn trauma associated with home oxygen use in patients with COPD was performed, as well as a retrospective analysis of all patients with burn injuries associated with home oxygen use and COPD that were admitted to the study clinic. In the literature, 1746 patients with burns associated with home oxygen use are described, but none of them received enzymatic debridement. In this study, 17 patients were included. All three patients in this study with facial full-thickness burn injuries received enzymatic debridement. The mortality rate in this cohort was 17.6% (3/17). Up to date, there is limited experience performing regional anesthesia debridement in patients with COPD. This is the first manuscript describing the use of enzymatic debridement in patients with COPD and home oxygen therapy. We could confirm other studies that intubation of these patients leads to prolonged ventilation hours and increases the probability for poor prognosis. Therefore, we described the treatment of enzymatic debridement in analgosedation without intubation.

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

. 2023 May 4;23(1):439.
doi: 10.1186/s12913-023-09412-9.

Evaluation of the implementation progress through key performance indicators in a new multimorbidity patient-centered care model in Chile

Teresita Varela[1], Paula Zamorano[2 3 4], Paulina Muñoz[1], Carolina Rain[5], Esteban Irazoqui[1], Jaime C Sapag[5 6 7], Alvaro Tellez[1 5]
Affiliations expand

- PMID: 37143071

- DOI: 10.1186/s12913-023-09412-9

Abstract

Background: Complex health interventions involve deep organizational, structural, and cultural changes that challenge health teams and decision-makers. The explosion of chronic diseases has made the multimorbidity approach a global priority. The Centro de Innovación en Salud ANCORA UC implemented a Multimorbidity Patient-Centered Care Model in the Chilean public health system.

Objective: This study aims to evaluate the progress of the implementation of the Multimorbidity Patient-Centered Care Model in seven primary care centers through key performance indicators.

Methods: a set of indicators was designed to evaluate change management, operations, installation of new roles, and services and activities of the intervention strategy of the model. Key performance indicators were identified to monitor the implementation progress on minimal components for the model's sustainability. Each item was assigned against an expected minimum score of 67% of progress from the overall score. They were monitored twice in seven primary health centers in 2019 and 2020, which intervened 22,642 patients with the intervention.

Results: The results showed that six of the seven primary care centers reached the minimum implementation threshold. The main advances were in operational conditions, and those with minor progress in implementation were the clinical services. Population size, organization, coordination of the health care teams, additional training, and decision-makers support were key factors that determined the degree of progress in a complex intervention.

Conclusion: It was possible to measure the progression of the implementation of a complex intervention through key performance indicators delivering relevant information for decision-makers that pursue a successful and faithful implementation. This study provides a valuable tool for the national scale-up of a similar model started in Chile by the Ministry of Health and other countries.

Keywords: Implementation; Key performance indicators; Model; Multimorbidity; Patient-centered; Progress.

- 24 references

2

Nat Rev Dis Primers

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. 2023 May 4;9(1):23.

doi: 10.1038/s41572-023-00437-2.

Syndemic thinking to address multimorbidity and its structural determinants

Justin Dixon[1], Emily Mendenhall[2]

Affiliations expand

- PMID: 37142626

- DOI: 10.1038/s41572-023-00437-2

No abstract available

- 10 references

3

Drugs Aging

. 2023 May 2.
doi: 10.1007/s40266-023-01024-6. Online ahead of print.

The EURO-FORTA (Fit fOR The Aged) List Version 2: Consensus Validation of a Clinical Tool for Improved Pharmacotherapy in Older Adults

Farhad Pazan[1], Christel Weiss[2], Martin Wehling[3]; FORTA Expert Panel Members
Collaborators, Affiliations expand

- PMID: 37129833

- PMCID: PMC10152014

- DOI: 10.1007/s40266-023-01024-6

Free PMC article

Abstract

Background: The aging of our societies leads to a higher prevalence of multimorbidity and therefore polypharmacy, which often results in inappropriate drug treatment. To address this issue, numerous listing approaches, such as the Fit fOR The Aged (FORTA) list have been developed. FORTA's positive impact on the quality of medications and relevant clinical outcomes has been shown. Based on new emerging evidence and experiences with the existing FORTA lists, we aimed to update the FORTA lists in several European countries/regions.

Methods: Two-step Delphi consensus procedures were conducted in Poland, UK/Ireland, Italy, Spain, the Nordic countries, The Netherlands and France. The existing European FORTA lists served as survey proposals.

Results: Thirty-two experts agreed to take part in this study (return rate: 96.9%). The country/region-specific overall consensus for all items and participants after the first round was > 90%. FORTA lists from six participating countries, plus the FORTA list for the German-speaking countries, were collated into the new EURO-FORTA List, which now contains 267 items aligned to 27 indications. Three items were added to the EURO-FORTA List, and no drugs were deleted. Eight FORTA items were relabeled, and 96.9% of the labels remained unchanged.

Conclusion: In this study, seven new country/region specific FORTA lists, as well as a new overarching EURO-FORTA List, were developed. An overall increase in the mean consensus coefficient and increases for all disease-specific mean consensus coefficients show a wider consensus among participants. The new lists have the potential to improve drug therapy in older people internationally.

- 34 references

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Review

Rheumatology (Oxford)

. 2023 May 2;62(5):1773-1779.
doi: 10.1093/rheumatology/keac584.

Comorbidities and extra-articular manifestations in difficult-to-treat rheumatoid arthritis: different sides of the same coin?

Mrinalini Dey[1,2], György Nagy[3,4,5], Elena Nikiphorou[6]
Affiliations expand

- PMID: 36205537

- DOI: 10.1093/rheumatology/keac584

Abstract

Despite the improvement in treatment for people with RA, ~30% of patients remain symptomatic in the presence of optimized medical therapy, described as having 'difficult-to-treat' (D2T) RA. The average patient with RA has 1.6 other clinical conditions, which accumulate over time. Comorbidities are increasingly recognized as key contributors to D2T disease, and are themselves perpetuated by the D2T state. In this review, we discuss the commonest comorbidities in the context of D2T RA. We propose the need for a paradigm shift in the clinical and research agenda for comorbidities-including a need to consider and manage these prior to the development of D2T disease and not as an afterthought.

Keywords: comorbidity; difficult-to-treat; disease activity; multimorbidity; rheumatoid arthritis; syndemics.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

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

1
Sci Immunol
. 2023 May 12;8(83):eabq6352.
doi: 10.1126/sciimmunol.abq6352. Epub 2023 May 5.

A human model of asthma exacerbation reveals transcriptional programs and cell circuits specific to allergic asthma

Jehan Alladina[1,2], Neal P Smith[2,3,4], Tristan Kooistra[1,2], Kamil Slowikowski[2,3,4], Isabela J Kernin[2,3,4], Jacques Deguine[3], Henry L Keen[5], Kasidet Manakongtreecheep[2,3,4], Jessica Tantivit[2,3,4], Rod A Rahimi[1,2], Susan L Sheng[1], Nhan D Nguyen[1,2], Alexis M Haring[1,2], Francesca L Giacona[1,2], Lida P Hariri[1,6], Ramnik J Xavier[3,7,8], Andrew D Luster[2,3,9], Alexandra-Chloé Villani[2,3,4], Josalyn L Cho[10], Benjamin D Medoff[1,2]
Affiliations expand

- PMID: 37146132

- DOI: 10.1126/sciimmunol.abq6352

Abstract

Asthma is a chronic disease most commonly associated with allergy and type 2 inflammation. However, the mechanisms that link airway inflammation to the structural changes that define asthma are incompletely understood. Using a human model of allergen-induced asthma exacerbation, we compared the lower airway mucosa in allergic

asthmatics and allergic non-asthmatic controls using single-cell RNA sequencing. In response to allergen, the asthmatic airway epithelium was highly dynamic and up-regulated genes involved in matrix degradation, mucus metaplasia, and glycolysis while failing to induce injury-repair and antioxidant pathways observed in controls. *IL9*-expressing pathogenic T_H2 cells were specific to asthmatic airways and were only observed after allergen challenge. Additionally, conventional type 2 dendritic cells (DC2 that express *CD1C*) and *CCR2*-expressing monocyte-derived cells (MCs) were uniquely enriched in asthmatics after allergen, with up-regulation of genes that sustain type 2 inflammation and promote pathologic airway remodeling. In contrast, allergic controls were enriched for macrophage-like MCs that up-regulated tissue repair programs after allergen challenge, suggesting that these populations may protect against asthmatic airway remodeling. Cellular interaction analyses revealed a T_H2-mononuclear phagocyte-basal cell interactome unique to asthmatics. These pathogenic cellular circuits were characterized by type 2 programming of immune and structural cells and additional pathways that may sustain and amplify type 2 signals, including TNF family signaling, altered cellular metabolism, failure to engage antioxidant responses, and loss of growth factor signaling. Our findings therefore suggest that pathogenic effector circuits and the absence of proresolution programs drive structural airway disease in response to type 2 inflammation.

Review

Sci Immunol

. 2023 May 12;8(83):eadh0597.
doi: 10.1126/sciimmunol.adh0597. Epub 2023 May 5.

See no allergen, hear no allergen, speak no allergen!

Aurore C A Gay[1,2], Martijn C Nawijn[1,2]
Affiliations expand

- PMID: 37146130

- DOI: 10.1126/sciimmunol.adh0597

Abstract

Segmental allergen challenge in allergic patients with asthma reveals a previously unknown role for monocytes in the T helper 2 (T_H2)-dependent inflammatory response, whereas in allergic controls without asthma, allergen unresponsiveness seems to be maintained through epithelial-myeloid cell cross-talk that prevents T_H2 cell activation (see related Research Article by Alladina *et al.*).

3

Medicine (Baltimore)

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. 2023 May 5;102(18):e33660.
doi: 10.1097/MD.0000000000033660.

Comparison of omalizumab and mepolizumab treatment efficacy in patients with atopic and eosinophilic "Overlap" severe asthma: Biological agent preference in atopic-eosinophilic severe asthma

Fatma Merve Tepetam[1], Ali Burkan Akyildiz[1], Şeyma Özden[1], Cihan Örcen[2], Tuğçe Yakut[3], Özge Atik[1]
Affiliations expand

- PMID: 37144999

- PMCID: PMC10158900

- DOI: 10.1097/MD.0000000000033660

Abstract

Approximately 1-third of patients with severe asthma are candidates for both omalizumab and mepolizumab treatment. We aimed to compare the clinical, spirometric and inflammatory efficacy of these 2 biologics in atopic and eosinophilic "overlap" severe asthma patients. In our 3-center retrospective cross-sectional observational study, the data of patients who received omalizumab or mepolizumab for at least 16 weeks to treat severe asthma were examined. Atopic (perennial allergen sensitivity and total IgE level 30-1500 IU/mL) and eosinophilic (blood eosinophil counts ≥150 cells/μL in admission; or ≥300 cells/μL in the previous year) patients with asthma suitable for both biologics were included in the study. Post-treatment changes in the asthma control test (ACT) score, number of attacks, forced expiratory volume in 1 second (FEV1), and eosinophil count were compared. The rates of any biological responder patient were compared according to whether they had high eosinophil counts (≥500 cells/μL vs <500 cells/μL). Total of 181 patients data were evaluated, of the 74 atopic and eosinophilic overlap patients included in the study, 56 were receiving omalizumab and 18 were receiving mepolizumab. When omalizumab and mepolizumab treatment efficacies were compared, there was no difference in terms of the reduction in attacks and improvement in ACT. The decrease in eosinophil levels in patients in the mepolizumab arm was significantly higher than that in patients in the omalizumab arm (46.3% vs 87.8%; P < .001). The improvement in FEV1 was greater with mepolizumab treatment, although the difference was not significant (215 mL vs 380 mL; P = .053). It has been shown that having high eosinophil counts does not affect the clinical and spirometric responder patient rates for either biological condition. The success of omalizumab and mepolizumab treatment is similar in patients with atopic and eosinophilic overlap with severe asthma. However, because the baseline patient inclusion criteria are not compatible, head-to-head studies comparing both biological agents are required.

Conflict of interest statement

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

- 31 references
- 2 figures

Review

ERJ Open Res

. 2023 May 2;9(3):00444-2022.
doi: 10.1183/23120541.00444-2022. eCollection 2023 Jul.

Definitions of non-response and response to biological therapy for severe asthma: a systematic review

Ekaterina Khaleva[1], Anna Rattu[1], Chris Brightling[2], Andrew Bush[3], Arnaud Bourdin[4], Apostolos Bossios[5], Kian Fan Chung[6], Rekha Chaudhuri[7], Courtney Coleman[8], Ratko Djukanovic[19], Sven-Erik Dahlén[5], Andrew Exley[10], Louise Fleming[6], Stephen J Fowler[11], Atul Gupta[12], Eckard Hamelmann[13], Gerard H Koppelman[14 15], Erik Melén[16], Vera Mahler[17], Paul Seddon[18], Florian Singer[19 20], Celeste Porsbjerg[21], Valeria Ramiconi[22], Franca Rusconi[23], Valentyna Yasinska[5], Graham Roberts[19]
Affiliations expand

- PMID: 37143849

- PMCID: PMC10152254

- DOI: 10.1183/23120541.00444-2022

Abstract

Background: Biologics have proven efficacy for patients with severe asthma but there is lack of consensus on defining response. We systematically reviewed and appraised methodologically developed, defined and evaluated definitions of non-response and response to biologics for severe asthma.

Methods: We searched four bibliographic databases from inception to 15 March 2021. Two reviewers screened references, extracted data, and assessed methodological quality of development, measurement properties of outcome measures and definitions of response based on COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN). A modified GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach and narrative synthesis were undertaken.

Results: 13 studies reported three composite outcome measures, three asthma symptoms measures, one asthma control measure and one quality of life measure. Only four measures were developed with patient input; none were composite measures. Studies utilised 17 definitions of response: 10 out of 17 (58.8%) were based on minimal clinically important difference (MCID) or minimal important difference (MID) and 16 out of 17 (94.1%) had high-quality evidence. Results were limited by poor methodology for the development process and incomplete reporting of psychometric properties. Most measures rated "very low" to "low" for quality of measurement properties and none met all quality standards.

Conclusions: This is the first review to synthesise evidence about definitions of response to biologics for severe asthma. While high-quality definitions are available, most are MCIDs or MIDs, which may be insufficient to justify continuation of biologics in terms of cost-effectiveness. There remains an unmet need for universally accepted, patient-centred, composite definitions to aid clinical decision making and comparability of responses to biologics.

Conflict of interest statement

Conflict of interests: E. Khaleva and A. Rattu declare funding for the present manuscript from the 3TR European Union Innovative Medicines Initiative 2 paid to the university. C. Brightling declares grants from GlaxoSmithKline, AstraZeneca, Novartis, Chiesi, Boehringer Ingelheim, Genentech, Roche, Sanofi, Mologic and 4DPharma, consulting fees from GlaxoSmithKline, AstraZeneca, Novartis, Chiesi, Boehringer Ingelheim, Genentech, Roche, Sanofi, Mologic, 4DPharma and Teva, and support from the 3TR project. A. Bourdin reports being an investigator for clinical trials promoted by AstraZeneca, Chieisi, GlaxoSmithKline,

Boehringer Ingelheim, Novartis, Regeneron and Sanofi; having received fees for lectures, attendance of meeting and consultancy from AstraZeneca, Chieisi, GlaxoSmithKline, Boehringer Ingelheim, Novartis, Regeneron and Sanofi; having received research grants from AstraZeneca and Boehringer Ingelheim; and participation on a data safety monitoring or advisory board of AB Science. A. Bossios has received lecture fees from GlaxoSmithKline, AstraZeneca, Teva and Novartis; honoraria for advisory board meetings from GlaxoSmithKline, AstraZeneca, Teva, Novartis and Sanofi; and received support for attending meetings from AstraZeneca and Novartis, all outside the present work; reports being 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 (NSAN). K.F. Chung has received honoraria for participating in advisory board meetings of GlaxoSmithKline, AstraZeneca, Roche, Novartis, Merck and Shionogi regarding treatments for asthma, COPD and chronic cough, and has also been renumerated for speaking engagements for Novartis and AstraZeneca. R. Chaudhuri has received lecture fees from GlaxoSmithKline, AstraZeneca, Teva, Chiesi, Sanofi and Novartis; honoraria for advisory board meetings from GlaxoSmithKline, AstraZeneca, Teva, Chiesi and Novartis; sponsorship to attend international scientific meetings from Chiesi, Napp, Sanofi, Boehringer, GlaxoSmithKline and AstraZeneca, and a research grant to her Institute from AstraZeneca for a UK multicentre study. C. Coleman declares funding received to support this work by the European Lung Foundation (ELF) from the European Commission's Innovative Medicines Initiative 2 Joint Undertaking (JU) under grant agreement number 831434 (3TR), and is an employee of the ELF. R. Djukanovic declares funding from European Respiratory Society, Teva, GlaxoSmithKline, Novartis, Sanofi and Chiesi for the SHARP CRC, consulting fees for Synairgen; honorarium for a lecture from GlaxoSmithKline, participation on a data safety monitoring board or advisory board for Kymab (Cambridge) and shares in Synairgen, outside the submitted work. S-E. Dahlen declares funding from 3TR IMI Grant; consulting fees from AstraZeneca, Cayman Co., GlaxoSmithKline, Novartis, Regeneron, Sanofi and Teva; honoraria for lectures from AstraZeneca and Sanofi. A. Exley declares being a minority shareholder in GlaxoSmithKline PLC. L. Fleming declares participation in advisory boards and honoraria for lectures from Sanofi, Respiri UK, AstraZeneca, Novartis and Teva, outside the scope of this publication. All payments were made to her institution. A. Gupta received speaker and advisory board fees from GlaxoSmithKline, Novartis, AstraZeneca and Boehringer Ingelheim. A. Gupta's institution had received research grants from GlaxoSmithKline, Novartis, AstraZeneca and Boehringer Ingelheim. E. Hamelmann declares support from the German Ministry of Education and Research (BMBF) and German Asthma Net (GAN) e.V.; funding for research in severe asthma in children (CHAMP-01GL1742D) and for Severe Asthma Register. G.H. Koppelman reports receiving research grants from the Lung Foundation of the Netherlands, Ubbo Emmius Foundation, H2020 European Union, Teva, GlaxoSmithKline and Vertex, outside this work (money to institution); he reports memberships of advisory boards to GlaxoSmithKline and PURE-IMS, outside this work (money to institution). E. Melen has received consulting fees from AstraZeneca, Chiesi, Novartis and Sanofi outside the submitted work. V. Mahler has no conflict of interest but declares that the views expressed in this review are the personal views of the author and

may not be understood or quoted as being made on behalf of or reflecting the position of the respective national competent authority, the European Medicines Agency, or one of its committees or working parties. F. Singer reports being an investigator for clinical trials promoted by Vertex and having received fees for lectures from Vertex and Novartis, outside the submitted work. C. Porsbjerg declares grants, consulting fees and honoraria from AstraZeneca, GlaxoSmithKline, Novartis, Teva, Sanofi, Chiesi and ALK (paid to institution and personal honoraria); participation in the advisory board for AstraZeneca, Novartis, Teva, Sanofi and ALK, outside the submitted work. V. Ramiconi reports grants paid to EFA from Pfizer, Novartis, AstraZeneca, Sanofi, Chiesi Farmaceutici, Regeneron, DBV Technologies, MSD, GlaxoSmithKline, Aimmune, LeoPharma, AbbVie, Boehringer Ingelheim, OM Pharma and Roche; payment for expert testimony from Novartis Global Respiratory Patient Council 2021 and Novartis EPIS Steering Committee to EFA. G. Roberts declares EU IMI funding and consulting fees from AstraZeneca paid to his institution. No other author has any conflict of interest to declare.

ERJ Open Res

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doi: 10.1183/23120541.00586-2022. eCollection 2023 Jul.

Characteristics of severe asthma patients on biologics: a real-life European registry study

Stefania Principe[1,2], Levi B Richards[1], Simone Hashimoto[1], Johannes Anthon Kroes[3], Job J M H Van Bragt[1], Susanne J Vijverberg[1], Jacob K Sont[4], Nicola Scichilone[2], Kristina Bieksiene[5], Anneke Ten Brinke[6], Zsuzsanna Csoma[7], Barbro Dahlén[8], Bilun Gemicioglu[9], Ineta Grisle[10], Piotr Kuna[11], Zorica Lazic[12], Florin Mihaltan[13], Sanja Popović-Grle[14], Sabina Škrgat[15], Alessandro Marcon[16], Marco Caminati[17], Ratko Djukanovic[18], Celeste Porsbjerg[19], Anke-Hilse Maitland Van Der Zee[1,20,21]
Affiliations expand

- PMID: 37143845

- PMCID: PMC10152256

- DOI: 10.1183/23120541.00586-2022

Abstract

Background: The use of anti-interleukin-5 (IL5) for severe asthma is based on criteria from randomised controlled trials (RCTs), but in real-life patients might not fulfil the eligibility criteria but may benefit from biologics. We aimed to characterise patients starting anti-IL5(R) in Europe and evaluate the discrepancies between initiation of anti-IL5(R) in real life and in RCTs.

Materials and methods: We performed a cross-sectional analysis with data from the severe asthma patients at the start of anti-IL5(R) in the Severe Heterogeneous Asthma Research collaboration Patient-centred (SHARP Central) registry. We compared the baseline characteristics of the patients starting anti-IL5(R) from 11 European countries within SHARP with the baseline characteristics of the severe asthma patients from 10 RCTs (four for mepolizumab, three for benralizumab and three for reslizumab). Patients were evaluated following eligibility criteria from the RCTs of anti-IL5 therapies.

Results: Patients starting anti-IL5(R) in Europe (n=1231) differed in terms of smoking history, clinical characteristics and medication use. The characteristics of severe asthma patients in the SHARP registry differed from the characteristics of patients in RCTs. Only 327 (26.56%) patients fulfilled eligibility criteria of all the RCTs; 24 patients were eligible for mepolizumab, 100 for benralizumab and 52 reslizumab. The main characteristics of ineligibility were: ≥10 pack-years, respiratory diseases other than asthma, Asthma Control Questionnaire score ≤1.5 and low-dose inhaled corticosteroids.

Conclusion: A large proportion of patients in the SHARP registry would not have been eligible for anti-IL5(R) treatment in RCTs, demonstrating the importance of real-life cohorts

in describing the efficacy of biologics in a broader population of patients with severe asthma.

Conflict of interest statement

Conflict of interest: S. Principe is an employee of the University of Palermo with co-EU research funds EU-REACT FESR o FSE, PON Ricerca e Innovazione 2014–2020 - DM 1062/2021. Conflict of interest: A. Ten Brinke reports grants from AstraZeneca, GSK and TEVA, fees for advisory boards and lectures from AstraZeneca, GSK, Novartis, TEVA and Sanofi Genzyme. Conflict of interest: I. Grisle declares honoraria for lectures from AZ, Novartis, GSK, Berlin Chemie, Boehringer Ingelheim and Norameda. Conflict of interest: P. Kuna declares honoraria for lectures/presentations from AstraZeneca, GSK, Boehringer Ingelheim, Berlin Chemie, Menarini, FAES, Adamed, Polpharma, Glenmark, Novartis and Teva, and support for attending meetings from AstraZeneca, Berlin Chemie and Menarini. Conflict of interest: S. Popović-Grle declares consulting fees from AZ, GSK, Novartis, Pliva Teva, Sanofi and ALK, and honoraria for lectures from AZ, GSK, Novartis, Pliva TEVA, Sanofi and ALK. Conflict of interest: S. Škgrat declares, in the past 36 months, honoraria for lectures and educational events from AstraZeneca (AZ), Pliva Teva, Berlin Chemie, Chiesi and Medis, and participation on advisory boards for AZ and Berlin Chemie. Conflict of interest: C. Porsbjerg declares, in the past 36 months, grants from AZ, GSK, Novartis, TEVA, Sanofi, Chiesi and ALK, consulting fees from AZ, GSK, Novartis, TEVA, Sanofi, Chiesi and ALK, honoraria for lectures from AZ, GSK, Novartis, TEVA, Sanofi, Chiesi and ALK, participation for advisory boards AZ, GSK, Novartis, TEVA, Sanofi, Chiesi and ALK. Conflict of interest: All the other authors declare that they have no conflicts of interest.

- 34 references
- 3 figures

ERJ Open Res

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doi: 10.1183/23120541.00665-2022. eCollection 2023 Jul.

Influence of anti-interleukin (IL)-5/anti-IL-5 receptor-α treatment on work productivity in patients with severe eosinophilic asthma

Nora Drick[1,2], Lina Brinkmann[1], Jan Fuge[1,2], Tobias Welte[1,2], Hendrik Suhling[1,2]
Affiliations expand

- PMID: 37143840
- PMCID: PMC10152247
- DOI: 10.1183/23120541.00665-2022

Abstract

This retrospective study shows that treatment with anti-eosinophilic antibodies in patients with severe eosinophilic asthma is associated with an increase in work productivity and a decrease in missed days at work https://bit.ly/3IIPppR.

Conflict of interest statement

Conflicts of interest: N. Drick reports speaker fees for AstraZeneca. H. Suhling reports speaker fees for AstraZeneca, GlaxoSmithKline (GSK) and Novartis. J. Fuge reports speaker fees for AstraZeneca. T. Welte reports personal fees from AstraZeneca, GSK and Sanofi Aventis, and his institution has received research grants from the German Ministry of Research and Education. L. Brinkmann has no relevant conflicts of interest.

- 11 references
- 1 figure

Review

ERJ Open Res

. 2023 May 2;9(3):00591-2022.
doi: 10.1183/23120541.00591-2022. eCollection 2023 Jul.

Ethnic variation in asthma healthcare utilisation and exacerbation: systematic review and meta-analysis

AbdulQadr Akin-Imran[1,2], Achint Bajpai[3], Dáire McCartan[1], Liam G Heaney[4], Frank Kee[1], Charlene Redmond[1], John Busby[1]
Affiliations expand

- PMID: 37143831

- PMCID: PMC10152257

- DOI: 10.1183/23120541.00591-2022

Abstract

Background: Patients from ethnic minority groups (EMGs) frequently report poorer asthma outcomes; however, a broad synthesis summarising ethnic disparities is yet to be undertaken. What is the magnitude of ethnic disparities in asthma healthcare utilisation, exacerbations and mortality?

Methods: MEDLINE, Embase and Web of Science databases were searched for studies reporting ethnic variation in asthma healthcare outcomes (primary care attendance, exacerbation, emergency department (ED) visits, hospitalisation, hospital readmission, ventilation/intubation and mortality) between White patients and those from EMGs.

Estimates were displayed using forest plots and random-effects models were used to calculate pooled estimates. We conducted subgroup analyses to explore heterogeneity, including by specific ethnicity (Black, Hispanic, Asian and other).

Results: 65 studies, comprising 699 882 patients, were included. Most studies (92.3%) were conducted in the United States of America (USA). Patients from EMGs had evidence suggestive of lower levels of primary care attendance (OR 0.72, 95% CI 0.48-1.09), but substantially higher ED visits (OR 1.74, 95% CI 1.53-1.98), hospitalisations (OR 1.63, 95% CI 1.48-1.79) and ventilation/intubation (OR 2.67, 95% CI 1.65-4.31) when compared to White patients. In addition, we found evidence suggestive of increased hospital readmissions (OR 1.19, 95% CI 0.90-1.57) and exacerbation rates (OR 1.10, 95% CI 0.94-1.28) among EMGs. No eligible studies explored disparities in mortality. ED visits were much higher among Black and Hispanic patients, while Asian and other ethnicities had similar rates to White patients.

Conclusions: EMGs had higher secondary care utilisation and exacerbations. Despite the global importance of this issue, the majority of studies were performed in the USA. Further research into the causes of these disparities, including whether these vary by specific ethnicity, is required to aid the design of effective interventions.

Conflict of interest statement

Conflict of interest: L.G. Heaney reports grant funding from Medimmune, Novartis UK, Roche/Genentech Inc., GlaxoSmithKline, Amgen, Genentech/Hoffman la Roche, AstraZeneca, Aerocrine and Vitalograph, and has given lectures supported by Novartis, Hoffman la Roche/Genentech Inc., Sanofi, GlaxoSmithKline, AstraZeneca, Teva and Circassia; and reports support for attending meetings from AstraZeneca, Boehringer Ingelheim, Chiesi, Glaxo Smith Kline and Napp Pharmaceuticals. L.G. Heaney has taken part in advisory boards supported by Novartis, Hoffman la Roche/Genentech Inc., Sanofi, Evelo Biosciences, GlaxoSmithKline, AstraZeneca, Teva, Theravance and Circassia. The rest of the authors declare that they have no relevant conflicts of interest.

- 116 references
- 3 figures

Review

Adv Clin Exp Med
.
. 2023 May 4.
doi: 10.17219/acem/161156. Online ahead of print.

Assessment and therapeutic management of acute asthma: The approaches of nursing staff in patient care

Dan Sun[1], Ping Sun[2], Zhengyan Wang[3]
Affiliations expand

- PMID: 37140015

- DOI: 10.17219/acem/161156

Abstract

Acute severe asthma describes serious asthmatic attacks, which remain a major treatment challenge and a significant source of morbidity in adults. It places the patient in danger of developing respiratory failure, a condition known as status asthmaticus. It is often fatal if not recognized and treated early. Many patients are at risk for numerous reasons; thus, the key issues are early detection, assessment and management. A multidisciplinary and collaborative approach is needed to effectively treat acute respiratory failure (ARF). Considerable research has investigated the range of opportunities available for treating asthma. Current treatment options include conventional agents, such as inhalational corticosteroids, â-agonists, leukotriene modulators, monoclonal antibodies, and oral corticosteroids (OCS). Nurses are in a perfect position to assess patients' risk of developing respiratory failure, monitor them, evaluate their care, and coordinate a multidisciplinary

approach. In this review, we discuss acute asthma and the role of the nursing officer (NO) in the management of the illness. The review will also emphasize various current treatment approaches available for the NO that can effectively target and prevent respiratory failure. This review provides nurses and other healthcare workers with updated information on timely, effective and safe supportive management of patients with asthma.

Keywords: assessment; drugs; nursing officer; status asthmaticus; therapeutic management.

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Occup Environ Med

. 2023 May 3;oemed-2022-108763.
doi: 10.1136/oemed-2022-108763. Online ahead of print.

Occupational risk factors and exposure-response relationships for airway disease among health workers exposed to cleaning agents in tertiary hospitals

Hussein H Mwanga[1,2], Roslynn Baatjies[1,3], Mohamed Fareed Jeebhay[4]
Affiliations expand

- PMID: 37137692

- DOI: 10.1136/oemed-2022-108763

Abstract

Objectives: This study investigated occupational risk factors and exposure-response relationships for airway disease among health workers (HWs) exposed to cleaning agents in two tertiary hospitals in South Africa and Tanzania.

Methods: In this cross-sectional study, 697 participants completed questionnaire interviews while 654 underwent fractional exhaled nitric oxide (FeNO) testing. Asthma Symptom Score (ASS) was computed based on the sum of answers to five questions on asthma-related symptoms in the past 12 months. For exposure-response analyses, cleaning agent-related self-reported exposure variables were categorised into three levels (cleaning product not used; use of a cleaning product for up to 99 min per week and use of a cleaning product for ≥100 min per week).

Results: Asthma-related outcomes (ASS and FeNO) demonstrated positive associations with medical instrument cleaning agents (orthophthalaldehyde and enzymatic cleaners) and tasks (instruments precleaning and changing sterilisation solutions) as well as patient care activities (disinfection prior to procedures and disinfecting wounds). A particularly pronounced dose-response relationship was observed between work-related ocular-nasal symptoms and medical instrument cleaning agents (orthophthalaldehyde, glutaraldehyde, enzymatic cleaners, alcohols and bleach) (OR range: 2.37-4.56) and tasks (OR range: 2.92-4.44). A strong association was also observed between ASS and use of sprays for fixed surface cleaning (mean ratio 2.81; 95% CI 1.41 to 5.59).

Conclusions: Specific agents for medical instrument disinfection for example, orthophthalaldehyde and enzymatic cleaners, patient care activities and use of sprays are important occupational risk factors for airway disease among HWs.

Keywords: Allergy and Immunology; Asthma; Chemical Hazard Release; Health Personnel; Toxicology.

Conflict of interest statement

Competing interests: None declared.

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Review

Eur Respir Rev

. 2023 May 3;32(168):230009.
doi: 10.1183/16000617.0009-2023. Print 2023 Jun 30.

Identifying risk factors for COPD and adult-onset asthma: an umbrella review

Judith C S Holtjer[1], Lizan D Bloemsma[2 3 4], Rosanne J H C G Beijers[5], Merel E B Cornelissen[2 3 4], Bart Hilvering[2], Laura Houweling[1 2], Roel C H Vermeulen[1 6], George S Downward[1 6], Anke-Hilse Maitland-Van der Zee[7 3 4]; P4O2 consortium
Affiliations expand

- PMID: 37137510

- PMCID: PMC10155046

- DOI: 10.1183/16000617.0009-2023

Free PMC article

Abstract

Background: COPD and adult-onset asthma (AOA) are the most common noncommunicable respiratory diseases. To improve early identification and prevention, an overview of risk factors is needed. We therefore aimed to systematically summarise the nongenetic (exposome) risk factors for AOA and COPD. Additionally, we aimed to compare the risk factors for COPD and AOA.

Methods: In this umbrella review, we searched PubMed for articles from inception until 1 February 2023 and screened the references of relevant articles. We included systematic reviews and meta-analyses of observational epidemiological studies in humans that assessed a minimum of one lifestyle or environmental risk factor for AOA or COPD.

Results: In total, 75 reviews were included, of which 45 focused on risk factors for COPD, 28 on AOA and two examined both. For asthma, 43 different risk factors were identified while 45 were identified for COPD. For AOA, smoking, a high body mass index (BMI), wood dust exposure and residential chemical exposures, such as formaldehyde exposure or exposure to volatile organic compounds, were amongst the risk factors found. For COPD, smoking, ambient air pollution including nitrogen dioxide, a low BMI, indoor biomass burning, childhood asthma, occupational dust exposure and diet were amongst the risk factors found.

Conclusions: Many different factors for COPD and asthma have been found, highlighting the differences and similarities. The results of this systematic review can be used to target and identify people at high risk for COPD or AOA.

Conflict of interest statement

Provenance: Submitted article, peer reviewed. Conflict of interest: A.H. Maitland-Van der Zee is the PI of P4O2 (Precision Medicine for more Oxygen) public–private partnership sponsored by Health Holland involving many private partners who contribute in cash and/or in kind. Partners in the Precision Medicine for more Oxygen (P4O2) consortium are the Amsterdam UMC, Leiden University Medical Center, Maastricht UMC+, Maastricht University, UMC Groningen, UMC Utrecht, Utrecht University, TNO, Aparito, Boehringer Ingelheim, Breathomix, Clear, Danone Nutricia Research, Fluidda, MonitAir, Ncardia, Ortec Logiqcare, Philips, Proefdiervrij, Quantib-U, RespiQ, Roche, Smartfish, SODAQ, Thirona, TopMD, Lung Alliance Netherlands (LAN) and the Lung Foundation Netherlands (Longfonds). The consortium is additionally funded by the PPP Allowance made available by Health Holland, Top Sector Life Sciences & Health (LSHM20104; LSHM20068), to stimulate public-private partnerships and by Novartis. A.H. Maitland-Van der Zee has received grants from Boehringer Ingelheim, Vertex Innovation Award, Dutch Lung Foundation, Stichting Asthma Bestrijding, and Innovative Medicine Initiative (IMI). A.H. Maitland-Van der Zee has received consulting fees from AstraZeneca and Boehringer Ingelheim. A.H. Maitland-Van der Zee has received GSK honarium for a lecture. A.H. Maitland-Van der Zee is the chair of DSMB SOS BPD study and advisory board member of the CHAMP study. A.H. Maitland-Van der Zee is the president of the federation of innovative drug research in the Netherlands (FIGON) and president of the European Association of systems medicine (EASYM). The remaining authors have no conflicts to declare.

- 98 references
- 1 figure

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JAMA

. 2023 May 3.
doi: 10.1001/jama.2023.7765. Online ahead of print.

RSV Infection During Infancy Tied to Asthma Later

Emily Harris

- PMID: 37133889

- DOI: 10.1001/jama.2023.7765

No abstract available

FULL TEXT LINKS

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12
Pediatr Pulmonol
.
. 2023 May 3.
doi: 10.1002/ppul.26441. Online ahead of print.

Which children are still dying from asthma? A 13 year review of pediatric asthma deaths in British Columbia, Canada

Victoria E Cook[1], Michael Seear[2], Bruce Carleton[3,4], Connie L Yang[1,3]
Affiliations expand

- PMID: 37133221

- DOI: 10.1002/ppul.26441

No abstract available

SUPPLEMENTARY INFO

Publication types, Grant supportexpand

FULL TEXT LINKS

13
Multicenter Study

Respir Res
.

. 2023 May 3;24(1):121.
doi: 10.1186/s12931-023-02415-4.

The effects of benralizumab on airway geometry and dynamics in severe eosinophilic asthma: a single-arm study design exploring a functional respiratory imaging approach

Eduardo Genofre[1], Donna Carstens[2], Wilfried DeBacker[3,4], Patrick Muchmore[3], Reynold A Panettieri Jr[5], Kirsty Rhodes[6], Vivian H Shih[7], Frank Trudo[2]
Affiliations expand

- PMID: 37131265
- PMCID: PMC10154186
- DOI: 10.1186/s12931-023-02415-4

Free PMC article

Abstract

Background: Severe eosinophilic asthma (SEA) is characterised by elevated blood/sputum eosinophil counts and airway inflammation, which can lead to mucus plug-mediated airway obstruction, increased exacerbation frequency, declines in lung function, and death. Benralizumab targets the alpha-subunit of the interleukin-5 receptor found on eosinophils, leading to rapid and near complete eosinophil depletion. This is expected to result in reduced eosinophilic inflammation, reduced mucus plugging and improved airway patency and airflow distribution.

Methods: BURAN is an interventional, single-arm, open-label, uncontrolled, prospective, multicentre study during which participants will receive three 30 mg subcutaneous doses of benralizumab at 4-week intervals. This study will use functional respiratory imaging (FRI), a novel, quantitative method of assessing patients' lung structure and function based on detailed, three-dimensional models of the airways, with direct comparison of images taken

at Weeks 0 and 13. Patients aged ≥ 18 years with established SEA who may be receiving oral corticosteroids and/or other asthma controller medications, who are inadequately controlled on inhaled corticosteroid-long-acting β_2-agonist therapies and who have had ≥ 2 asthma exacerbations in the previous 12 months will be included. The objectives of BURAN are to describe changes in airway geometry and dynamics, measured by specific image-based airway volume and other FRI endpoints, following benralizumab therapy. Outcomes will be evaluated using descriptive statistics. Changes in FRI parameters, mucus plugging scores and central/peripheral ratio will be quantified as mean percent change from baseline (Week 0) to Week 13 (± 5 days) and statistical significance will be evaluated using paired t-tests. Relationships between FRI parameters/mucus plugging scores and conventional lung function measurements at baseline will be assessed with linear regression analyses for associations between outcomes, scatterplots to visualise the relationship, and correlation coefficients (Spearman's rank and Pearson's) to quantify the strength of these associations.

Conclusions: The BURAN study will represent one of the first applications of FRI-a novel, non-invasive, highly sensitive method of assessing lung structure, function and health-in the field of biologic respiratory therapies. Findings from this study will increase understanding of cellular-level eosinophil depletion mechanisms and improvements in lung function and asthma control following benralizumab treatment. Trial registration EudraCT: 2022-000152-11 and NCT05552508.

Keywords: Eosinophilic asthma; Functional respiratory imaging; Lung structure/function; Mucus plugging; Obstructive airway disease; Respiratory disease; T2 inflammation.

Conflict of interest statement

EG, DC, KR, VHS, FT: Are or were employees of AstraZeneca at the time of study design, may own stock or stock options. PM: Employee of FLUIDDA. WDB: Medical advisor for FLUIDDA. RP Jr: Has received research support from, and conducted advisory boards for, AstraZeneca, Sanofi, Regeneron, Genentech, and Novartis.

- 55 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Associated dataexpand

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Clinical Trial

Respir Res
.
. 2023 May 2;24(1):120.
doi: 10.1186/s12931-023-02409-2.

Can we predict who will benefit most from biologics in severe asthma? A post-hoc analysis of two phase 3 trials

Wenjia Chen[1], Helen K Reddel[2], J Mark FitzGerald[3], Richard Beasley[4], Christer Janson[5], Mohsen Sadatsafavi[3]
Affiliations expand

- PMID: 37131185
- PMCID: PMC10155396
- DOI: 10.1186/s12931-023-02409-2

Free PMC article

Abstract

Background: Individualized prediction of treatment response may improve the value proposition of advanced treatment options in severe asthma. This study aimed to investigate the combined capacity of patient characteristics in predicting treatment response to mepolizumab in patients with severe asthma.

Methods: Patient-level data were pooled from two multinational phase 3 trials of mepolizumab in severe eosinophilic asthma. We fitted penalized regression models to quantify reductions in the rate of severe exacerbations and the 5-item Asthma Control Questionnaire (ACQ5) score. The capacity of 15 covariates towards predicting treatment response was quantified by the Gini index (measuring disparities in treatment benefit) as well as observed treatment benefit within the quintiles of predicted treatment benefit.

Results: There was marked variability in the ability of patient characteristics to predict treatment response; covariates explained greater heterogeneity in predicting treatment response to asthma control than to exacerbation frequency (Gini index 0.35 v. 0.24). Key predictors for treatment benefit for severe exacerbations included exacerbation history, blood eosinophil count, baseline ACQ5 score and age, and those for symptom control included blood eosinophil count and presence of nasal polyps. Overall, the average reduction in exacerbations was 0.90/year (95%CI, 0.87–0.92) and average reduction in ACQ5 score was 0.18 (95% CI, 0.02–0.35). Among the top 20% of patients for predicted treatment benefit, exacerbations were reduced by 2.23/year (95% CI, 2.03–2.43) and ACQ5 score were reduced by 0.59 (95% CI, 0.19–0.98). Among the bottom 20% of patients for predicted treatment benefit, exacerbations were reduced by 0.25/year (95% CI, 0.16–0.34) and ACQ5 by -0.20 (95% CI, -0.51 to 0.11).

Conclusion: A precision medicine approach based on multiple patient characteristics can guide biologic therapy in severe asthma, especially in identifying patients who will not benefit as much from therapy. Patient characteristics had a greater capacity to predict treatment response to asthma control than to exacerbation.

Trial registration: ClinicalTrials.gov number, NCT01691521 (registered September 24, 2012) and NCT01000506 (registered October 23, 2009).

Keywords: Biologics; Mepolizumab; Prediction; Severe asthma; Treatment response.

Conflict of interest statement

The authors declare no conflict of interests.

- 41 references
- 3 figures

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substances, Associated data, Grant supportexpand

FULL TEXT LINKS

J Pediatr Psychol
. 2023 May 2;jsad022.
doi: 10.1093/jpepsy/jsad022. Online ahead of print.

Depressive Symptom Trajectories Across Adolescence and Adulthood Among Individuals With Asthma

Nicole M Ruppe[1,2], Ashley H Clawson[3], Rachel L Ankney[1], Ginger Welch[4], Larry L Mullins[1,2], John M Chaney[1,2]
Affiliations expand

- PMID: 37130344

- DOI: 10.1093/jpepsy/jsad022

Abstract

Objective: Individuals with asthma experience increased depressive symptoms, which is associated with deleterious health outcomes. No studies have examined depressive symptom trajectories among individuals with asthma despite increased risk. This study expanded prior literature by identifying the following: (1) depressive symptoms trajectories for individuals with and without asthma and (2) predictors of baseline levels and changes in symptoms across time for individuals with asthma.

Methods: Adolescents with (N = 965) and without (N = 7,392) asthma self-reported on depressive symptoms (CESD-9) across development. Covariates included: demographics and persistence of asthma. Latent growth curve modeling (LGCM) was used to identify depressive symptom trajectories and their predictors.

Results: A multigroup LCGM identified no significant differences between depressive symptom trajectories of individuals with and without asthma. Depressive symptoms followed a quadratic shape across time for individuals with asthma (Mintercept = 5.73, p < .00; Mlinear = -0.38,p < .001; Mquad = 0.03, p < .001), with a linear deceleration in depressive symptoms during adolescence and an acceleration of symptoms into adulthood. Next predictors of depressive trajectories among individuals with asthma were examined. Female sex (B = 0.58, p < .001), lower parent education (B = -0.57, p < .001), older age (B = 0.19, p < .001), and identifying as Black (B = 0.31, p = .04) were associated with greater baseline depressive symptoms. Older individuals exhibited faster linear symptom decelerations (B = -0.56, p < .001) and faster symptom accelerations (B = 0.73, p < .001). American Indian (AIAN) individuals exhibited faster linear symptom decelerations (B = -1.98, p = .005) and faster quadratic accelerations (B = 3.33, p = .007).

Discussion: Our results suggest that the depressive symptom trajectories of individuals with asthma are curvilinear and similar to individuals without asthma. When examining predictors of depressive symptom trajectories for those with asthma, socioeconomic disadvantage and racial marginalization were associated with greater baseline depressive symptoms. Although AIAN youth demonstrated more favorable trajectories in adolescence, they also exhibited worse trajectories across young adulthood and adulthood. Findings suggest the need to better understand the impact of multilevel risk and protective factors on depressive symptoms trajectories for individuals with asthma, especially marginalized populations.

Keywords: adolescents; asthma; depression; emerging/young adults; longitudinal research.

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

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

1

Review

Aesthetic Plast Surg

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. 2023 May 5.
doi: 10.1007/s00266-023-03348-5. Online ahead of print.

Allergic Complications of Hyaluronidase Injection: Risk Factors, Treatment Strategies, and Recommendations for Management

Gunel Guliyeva[1], Maria T Huayllani[1], Casey Kraft[2], Craig Lehrman[1], Monica T Kraft[3]
Affiliations expand

- PMID: 37145319

- DOI: 10.1007/s00266-023-03348-5

Abstract

Background: Hyaluronidase is used as a reversal agent for hyaluronic acid fillers and to increase the diffusion of other medications after infiltration. Cases of hyaluronidase allergy have been described in the literature since 1984. However, it is still frequently misdiagnosed. This review aims to summarize the current literature to describe the clinical picture of hyaluronidase allergy and identify any risk factors associated with its development, as well as provide recommendations for management in plastic surgery.

Methods: A digital search of PubMed, Scopus, and Embase databases was performed by two reviewers following the PRISMA guidelines. This search identified 247 articles.

Results: Two hundred forty-seven articles were identified, and 37 of them met the eligibility criteria. One hundred six patients with a mean age of 54.2 years were included in these studies. History of allergy to other substances (timothy grass, egg white, horse serum, penicillin, insect bites, wasp venom, thimerosal, potassium, histamine, phenylmercuric acetate, and nickel) and allergic diseases (asthma, dermatitis, atopy, rhinitis) was reported. A large portion of the patients with a history of repeated exposure (2-4) experienced the symptoms with their second injection. Nonetheless, there was no significant association between time to allergy development and the number of exposures ($P = 0.3$). Treatment with steroids +/- antihistamines resulted in the rapid and predominantly complete reversal of the symptoms.

Conclusions: Prior injections or sensitization by insect/wasp venom might be the primary factor associated with hyaluronidase allergy development. The time between the repeated injections is not a likely contributor to the presentation.

Level of evidence iii: This journal requires that authors assign a level of evidence to each article. For a full description of these Evidence-Based Medicine ratings, please refer to the Table of Contents or the online Instructions to Authors www.springer.com/00266 .

Keywords: Dermal Filler; Hyaluronoglucosaminidase/adverse effects; Hypersensitivity; Insect Bites and Stings; Plastic; Surgery; Wasp Venoms.

- 63 references

SUPPLEMENTARY INFO

Publication typesexpand

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J Asthma

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. 2023 May 4;1-9.
doi: 10.1080/02770903.2023.2209175. Online ahead of print.

Efficacy and Safety of Fixed-Dose Combination of Bilastine in Adult Patients with Allergic Rhinitis: A Phase III, Randomized, Multi-Center,

Double-Blind, Active Controlled Clinical Study

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- PMID: 37140964

- DOI: 10.1080/02770903.2023.2209175

Abstract

Histamine and cysteinyl leukotrienes (CysLTs) are potent inflammatory mediators in allergic rhinitis (AR). A combination therapy against these targets provides additive benefit. Studies involving Levocetirizine and Montelukast (highly selective leukotriene receptor antagonist) combination showed additive benefits and are widely prescribed for AR. A randomized, double-blind, comparative, parallel study was conducted to evaluate the efficacy and safety of Bilastine 20mg and Montelukast 10mg fixed drug combination at 16 ENT centers in India. Adult patients with AR with for at least one year with IgE antibody test positive and 12-hour NSS score > 36 during the last 3 days were enrolled in this study. All eligible patients were randomized to receive either fixed-dose combination of Bilastine 20 mg & Montelukast 10 mg or FDC Montelukast 10 mg & Levocetirizine 5 mg tablets for 4 weeks. The change in mean total symptom score (nasal symptom scores (NSS) & non-nasal symptom scores (NNSS)) from baseline to week 4 was assessed as primary endpoint. The change in mean TSS from baseline to week 4 was 16.6 units in Bilastine 20mg and Montelukast 10mg FDC compared to 17 units in Levocetirizine 5mg and Montelukast 10mg FDC. The difference in mean change between groups was comparable (P = 0.8876) between groups. Bilastine 20mg and Montelukast 10mg combination was well tolerated in patients with AR.

Keywords: Second-generation antihistamine; allergic rhinitis; clinical trial; fixed-dose combination; leukotriene receptor antagonist; safety; total symptom score.

Otolaryngol Head Neck Surg
.
2023 May 3.
doi: 10.1002/ohn.361. Online ahead of print.

The Role of Nasal Endoscopy in the Preoperative Evaluation of Nasal Airway Obstruction

Lauren A Gardiner[1], Lindsey K Goyal[1], Jennifer L McCoy[2,3], Grant S Gillman[1]
Affiliations expand

- PMID: 37132657

- DOI: 10.1002/ohn.361

Abstract

Objective: To examine the prevalence and nature of nasal endoscopic findings in patients referred for structural nasal obstruction, and analyze how such findings influence the preoperative evaluation or operative plan.

Study design: Cross-sectional study.

Setting: University-based academic otolaryngology practice.

Methods: Nasal endoscopy was performed by a single surgeon and the exam findings were documented. Patient demographics, variables in the patient history, Nasal Obstruction Symptom Evaluation scores, and an Ease-of-Breathing Likert Scale were tested for associations with findings on endoscopy.

Results: A total of 82 of 346 patients (23.7%) had findings on rigid nasal endoscopy not appreciable on anterior rhinoscopy. Prior nasal surgery (p = .001) and positive allergy testing (p = .013) were significantly associated with findings on nasal endoscopy. Endoscopic findings prompted additional preoperative studies in 50 (14.5%) patients, and a change in the operative plan in 26 (7.5%) patients.

Conclusion: In patients referred for surgical management of nasal obstruction, findings on nasal endoscopy otherwise undetected with anterior rhinoscopy are most common in but certainly not limited to those with prior nasal surgery or allergic rhinitis. Routine nasal endoscopy should be considered for all patients being evaluated for nasal airway surgery. These results may benefit future updates of the clinical consensus statements regarding the role of nasal endoscopy in the evaluation of nasal valve compromise and septoplasty.

Keywords: nasal airway obstruction; nasal endoscopy; practice guidelines.

- 12 references

ERJ Open Res

. 2023 May 2;9(3):00444-2022.
doi: 10.1183/23120541.00444-2022. eCollection 2023 Jul.

Definitions of non-response and response to biological therapy for severe asthma: a systematic review

Ekaterina Khaleva[1], Anna Rattu[1], Chris Brightling[2], Andrew Bush[3], Arnaud Bourdin[4], Apostolos Bossios[5], Kian Fan Chung[6], Rekha Chaudhuri[7], Courtney Coleman[8], Ratko Djukanovic[19], Sven-Erik Dahlén[5], Andrew Exley[10], Louise Fleming[6], Stephen J Fowler[11], Atul Gupta[12], Eckard Hamelmann[13], Gerard H Koppelman[14,15], Erik Melén[16], Vera Mahler[17], Paul Seddon[18], Florian Singer[19,20], Celeste Porsbjerg[21], Valeria Ramiconi[22], Franca Rusconi[23], Valentyna Yasinska[5], Graham Roberts[19]
Affiliations expand

- PMID: 37143849

- PMCID: PMC10152254

- DOI: 10.1183/23120541.00444-2022

Abstract

Background: Biologics have proven efficacy for patients with severe asthma but there is lack of consensus on defining response. We systematically reviewed and appraised methodologically developed, defined and evaluated definitions of non-response and response to biologics for severe asthma.

Methods: We searched four bibliographic databases from inception to 15 March 2021. Two reviewers screened references, extracted data, and assessed methodological quality of development, measurement properties of outcome measures and definitions of response based on COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN). A modified GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach and narrative synthesis were undertaken.

Results: 13 studies reported three composite outcome measures, three asthma symptoms measures, one asthma control measure and one quality of life measure. Only four measures were developed with patient input; none were composite measures. Studies utilised 17 definitions of response: 10 out of 17 (58.8%) were based on minimal clinically important difference (MCID) or minimal important difference (MID) and 16 out of 17 (94.1%) had high-quality evidence. Results were limited by poor methodology for the development process and incomplete reporting of psychometric properties. Most measures rated "very low" to "low" for quality of measurement properties and none met all quality standards.

Conclusions: This is the first review to synthesise evidence about definitions of response to biologics for severe asthma. While high-quality definitions are available, most are MCIDs or MIDs, which may be insufficient to justify continuation of biologics in terms of cost-effectiveness. There remains an unmet need for universally accepted, patient-centred, composite definitions to aid clinical decision making and comparability of responses to biologics.

Conflict of interest statement

Conflict of interests: E. Khaleva and A. Rattu declare funding for the present manuscript from the 3TR European Union Innovative Medicines Initiative 2 paid to the university. C. Brightling declares grants from GlaxoSmithKline, AstraZeneca, Novartis, Chiesi, Boehringer Ingelheim, Genentech, Roche, Sanofi, Mologic and 4DPharma, consulting fees from GlaxoSmithKline, AstraZeneca, Novartis, Chiesi, Boehringer Ingelheim, Genentech, Roche, Sanofi, Mologic, 4DPharma and Teva, and support from the 3TR project. A. Bourdin reports being an investigator for clinical trials promoted by AstraZeneca, Chieisi, GlaxoSmithKline, Boehringer Ingelheim, Novartis, Regeneron and Sanofi; having received fees for lectures, attendance of meeting and consultancy from AstraZeneca, Chieisi, GlaxoSmithKline, Boehringer Ingelheim, Novartis, Regeneron and Sanofi; having received research grants from AstraZeneca and Boehringer Ingelheim; and participation on a data safety monitoring or advisory board of AB Science. A. Bossios has received lecture fees from GlaxoSmithKline, AstraZeneca, Teva and Novartis; honoraria for advisory board meetings from GlaxoSmithKline, AstraZeneca, Teva, Novartis and Sanofi; and received support for attending meetings from AstraZeneca and Novartis, all outside the present work; reports being 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 (NSAN). K.F. Chung has received honoraria for participating in advisory board meetings of GlaxoSmithKline, AstraZeneca, Roche, Novartis, Merck and Shionogi regarding treatments for asthma, COPD and chronic cough, and has also been renumerated for speaking engagements for Novartis and AstraZeneca. R. Chaudhuri has received lecture fees from GlaxoSmithKline, AstraZeneca, Teva, Chiesi, Sanofi and Novartis; honoraria for advisory board meetings from GlaxoSmithKline, AstraZeneca, Teva, Chiesi and Novartis; sponsorship to attend international scientific meetings from Chiesi, Napp, Sanofi, Boehringer, GlaxoSmithKline and AstraZeneca, and a research grant to her Institute from AstraZeneca for a UK multicentre study. C. Coleman declares funding received to support this work by the European Lung Foundation (ELF) from the European Commission's Innovative Medicines Initiative 2 Joint Undertaking (JU) under grant agreement number 831434 (3TR), and is an employee of the ELF. R. Djukanovic declares funding from European Respiratory Society, Teva, GlaxoSmithKline, Novartis, Sanofi and Chiesi for the SHARP CRC, consulting fees for Synairgen; honorarium for a lecture from GlaxoSmithKline, participation on a data safety monitoring board or advisory board for Kymab (Cambridge) and shares in Synairgen, outside the submitted work. S-E. Dahlen declares funding from 3TR IMI Grant; consulting fees from AstraZeneca, Cayman Co., GlaxoSmithKline, Novartis, Regeneron, Sanofi and Teva; honoraria for lectures from AstraZeneca and Sanofi. A. Exley declares being a minority shareholder in GlaxoSmithKline PLC. L. Fleming declares participation in advisory boards and honoraria for lectures from Sanofi, Respiri UK, AstraZeneca, Novartis and Teva, outside the scope of this publication. All payments were made to her institution. A. Gupta received speaker and advisory board fees from GlaxoSmithKline, Novartis, AstraZeneca and Boehringer Ingelheim. A. Gupta's institution had received research grants from GlaxoSmithKline, Novartis, AstraZeneca and Boehringer Ingelheim. E. Hamelmann declares support from the German Ministry of Education and Research (BMBF) and German Asthma Net (GAN) e.V.; funding for research in severe asthma in children (CHAMP-01GL1742D) and

for Severe Asthma Register. G.H. Koppelman reports receiving research grants from the Lung Foundation of the Netherlands, Ubbo Emmius Foundation, H2020 European Union, Teva, GlaxoSmithKline and Vertex, outside this work (money to institution); he reports memberships of advisory boards to GlaxoSmithKline and PURE-IMS, outside this work (money to institution). E. Melen has received consulting fees from AstraZeneca, Chiesi, Novartis and Sanofi outside the submitted work. V. Mahler has no conflict of interest but declares that the views expressed in this review are the personal views of the author and may not be understood or quoted as being made on behalf of or reflecting the position of the respective national competent authority, the European Medicines Agency, or one of its committees or working parties. F. Singer reports being an investigator for clinical trials promoted by Vertex and having received fees for lectures from Vertex and Novartis, outside the submitted work. C. Porsbjerg declares grants, consulting fees and honoraria from AstraZeneca, GlaxoSmithKline, Novartis, Teva, Sanofi, Chiesi and ALK (paid to institution and personal honoraria); participation in the advisory board for AstraZeneca, Novartis, Teva, Sanofi and ALK, outside the submitted work. V. Ramiconi reports grants paid to EFA from Pfizer, Novartis, AstraZeneca, Sanofi, Chiesi Farmaceutici, Regeneron, DBV Technologies, MSD, GlaxoSmithKline, Aimmune, LeoPharma, AbbVie, Boehringer Ingelheim, OM Pharma and Roche; payment for expert testimony from Novartis Global Respiratory Patient Council 2021 and Novartis EPIS Steering Committee to EFA. G. Roberts declares EU IMI funding and consulting fees from AstraZeneca paid to his institution. No other author has any conflict of interest to declare.

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. 2023 May 2;9(3):00712-2022.

doi: 10.1183/23120541.00712-2022. eCollection 2023 Jul.

The Bronchiectasis Exacerbation Diary: a novel patient-reported outcome for non-cystic fibrosis bronchiectasis

Vivian H Shih[1], Maria Jison[2], Erik Bark[3], Meredith Venerus[4], Oren Meyers[4], James D Chalmers[5]
Affiliations expand

- PMID: 37143836
- PMCID: PMC10152244
- DOI: 10.1183/23120541.00712-2022

Abstract

Bronchiectasis is a chronic, progressive lung disease believed to result from a vicious cycle of infection and inflammation, with symptoms of chronic cough with sputum production, chronic fatigue, rhinosinusitis, chest pain, breathlessness and haemoptysis. There are currently no established instruments to monitor daily symptoms and exacerbations for use in clinical trials. Following a literature review and three expert clinician interviews, we conducted concept elicitation interviews with 20 patients with bronchiectasis to understand their personal disease experience. Findings from literature and clinician feedback were used to develop a draft version of the Bronchiectasis Exacerbation Diary (BED), which was designed to monitor key symptoms on a daily basis and during exacerbations. Patients were eligible to be interviewed if they were US residents aged ≥18 years, had a computed tomography scan-confirmed diagnosis of bronchiectasis with ≥two exacerbations in the previous 2 years and had no other uncontrolled respiratory conditions. Four waves of five patient interviews each were conducted. Patients (n=20) had a mean±$_{SD}$ age of 53.9±12.8 years, and most were female (85%) and white (85%). A total of 33 symptoms and 23 impacts arose from the patient concept elicitation interviews. The BED was revised and finalised based upon patient feedback. The final BED is a novel, eight-item patient-reported outcome (PRO) instrument for monitoring key exacerbation symptoms on a daily basis with content validity established through comprehensive qualitative research and direct patient insight. The BED PRO development framework will be completed following psychometric evaluations of the data from a phase 3 bronchiectasis clinical trial.

Conflict of interest statement

Conflicts of interest: V.H. Shih, M. Jison and E. Bark are employees of AstraZeneca and may own stock. M. Venerus and O. Meyers are employees of IQVIA, which received funding from AstraZeneca to conduct this study. J.D. Chalmers has received research grants from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Gilead Sciences, Novartis, and Insmed, as well as consultancy or speaker fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis, Insmed, Janssen, and Zambon.

- 21 references
- 5 figures

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

1
Editorial

ERJ Open Res

. 2023 May 2;9(3):00087-2023.
doi: 10.1183/23120541.00087-2023. eCollection 2023 Jul.

The BED-Pro Tool: facilitating the detection of bronchiectasis exacerbations

Yong-Hua Gao[1,2], Wei-Jie Guan[3,4]

Affiliations expand

- PMID: 37143843

- PMCID: PMC10152263

- DOI: 10.1183/23120541.00087-2023

Abstract

The Bronchiectasis Exacerbation Diary is an eight-item patient-reported outcome instrument for detecting exacerbations in bronchiectasis https://bit.ly/3k2IH4p.

Conflict of interest statement

Conflict of interest: W-j. Guan is an associate editor of this journal. Y-h. Gao has nothing to disclose.

- 12 references

SUPPLEMENTARY INFO

Publication typesexpand

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ERJ Open Res

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. 2023 May 2;9(3):00712-2022.
doi: 10.1183/23120541.00712-2022. eCollection 2023 Jul.

The Bronchiectasis Exacerbation Diary: a novel patient-reported outcome for non-cystic fibrosis bronchiectasis

Vivian H Shih[1], Maria Jison[2], Erik Bark[3], Meredith Venerus[4], Oren Meyers[4], James D Chalmers[5]
Affiliations expand

- PMID: 37143836
- PMCID: PMC10152244
- DOI: 10.1183/23120541.00712-2022

Abstract

Bronchiectasis is a chronic, progressive lung disease believed to result from a vicious cycle of infection and inflammation, with symptoms of chronic cough with sputum production, chronic fatigue, rhinosinusitis, chest pain, breathlessness and haemoptysis. There are currently no established instruments to monitor daily symptoms and exacerbations for use in clinical trials. Following a literature review and three expert clinician interviews, we conducted concept elicitation interviews with 20 patients with bronchiectasis to understand their personal disease experience. Findings from literature and clinician feedback were used to develop a draft version of the Bronchiectasis Exacerbation Diary (BED), which was designed to monitor key symptoms on a daily basis and during exacerbations. Patients were eligible to be interviewed if they were US residents aged ≥18 years, had a computed tomography scan-confirmed diagnosis of bronchiectasis with ≥two exacerbations in the previous 2 years and had no other uncontrolled respiratory conditions. Four waves of five patient interviews each were conducted. Patients (n=20) had a mean±$_{SD}$ age of 53.9±12.8 years, and most were female (85%) and white (85%). A total of 33 symptoms and 23 impacts arose from the patient concept elicitation interviews. The BED was revised and finalised based upon patient feedback. The final BED is a novel, eight-item patient-reported outcome (PRO) instrument for monitoring key exacerbation symptoms on a daily basis with content validity established through comprehensive qualitative research and direct patient insight. The BED PRO development framework will be completed following psychometric evaluations of the data from a phase 3 bronchiectasis clinical trial.

Conflict of interest statement

Conflicts of interest: V.H. Shih, M. Jison and E. Bark are employees of AstraZeneca and may own stock. M. Venerus and O. Meyers are employees of IQVIA, which received funding from AstraZeneca to conduct this study. J.D. Chalmers has received research grants from AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Gilead Sciences, Novartis, and Insmed, as well as consultancy or speaker fees from AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Novartis, Insmed, Janssen, and Zambon.

- 21 references
- 5 figures

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ERJ Open Res

. 2023 May 2;9(3):00695-2022.
doi: 10.1183/23120541.00695-2022. eCollection 2023 Jul.

Benefit–risk assessment of brensocatib for treatment of non–cystic fibrosis bronchiectasis

James D Chalmers[1], Mark L Metersky[2], Joseph Feliciano[3], Carlos Fernandez[3], Ariel Teper[3], Andrea Maes[3], Mariam Hassan[3], Anjan Chatterjee[3]
Affiliations expand

- PMID: 37143828

- PMCID: PMC10152260

- DOI: 10.1183/23120541.00695-2022

Abstract

Brensocatib is a novel anti-inflammatory therapy in development for bronchiectasis treatment. Phase 2 WILLOW trial data demonstrate a low number needed to treat and negative number needed to harm, suggesting a favourable benefit-risk profile. https://bit.ly/3SbisW3.

Conflict of interest statement

Conflict of interest: J.D. Chalmers has received grants and personal fees from AstraZeneca, Boehringer Ingelheim, GSK, Zambon and Insmed Incorporated; a grant from Gilead; and personal fees from Novartis and Chiesi within the past 24 months. He is an associate editor of this journal. Conflict of interest: M.L. Metersky has received consulting fees from Insmed Incorporated, Boehringer Ingelheim, California Institute for Biomedical Research and Zambon; and his institution has received clinical trial support from Insmed Incorporated. Conflict of interest: J. Feliciano, C. Fernandez, A. Teper, A. Maes, M. Hassan and A. Chatterjee are employed by Insmed Incorporated.

- 10 references

Eur Respir J

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. 2023 May 4;2202053.

doi: 10.1183/13993003.02053-2022. Online ahead of print.

European Respiratory Society statement on airway clearance techniques in adults with bronchiectasis

Beatriz Herrero-Cortina[1,2,3], Annemarie L Lee[4,5], Ana Oliveira[6,7,8,9], Brenda O'Neill[10], Cristina Jácome[11,12], Simone Dal Corso[13,14], William Poncin[15,16,17], Gerard Muñoz[18,19], Deniz Inal-Ince[20], Victoria Alcaraz-Serrano[21,22], Gregory Reychler[15,16,17], Angela Bellofiore[23,24], Thomy Tonia[25], James D Chalmers[26], Arietta Spinou[27,28]
Affiliations expand

- PMID: 37142337

- DOI: 10.1183/13993003.02053-2022

Abstract

Airway clearance techniques (ACTs) are part of the main management strategy for patients with bronchiectasis. Despite being a priority for patients, accessibility, implementation, and reporting of ACTs are variable in clinical settings and research studies. This European Respiratory Society statement summarises current knowledge about the ACTs in adults with bronchiectasis and makes recommendations to improve future evidence base. A task force of 14 experts and two patient representatives (10 countries) determined the scope of this statement through consensus and defined six questions. The questions were answered based on systematic searches of the literature.The statement provides a comprehensive review of the physiological rationale for ACTs in adults with bronchiectasis, and the mechanisms of action along with the advantages and disadvantages of each ACT. Evidence on the ACTs in clinical practice indicates that active cycle of breathing techniques, positive expiratory pressure devices and gravity assisted drainage technique are the most frequently used techniques, although there is limited evidence on the type of ACTs used in specific countries. A review of 30 randomised trials for the effectiveness of the ACTs shows that these interventions increase sputum clearance during or after treatment, reduce the impact of cough and the risk of exacerbations, and improve health-related quality of life. Furthermore, strategies for reducing the risk of bias in future studies are proposed. Finally, an exploration of patientś perceptions, barriers and enablers related to this treatment is also included to facilitate implementation and adherence to ACTs.