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COPD

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Expert Rev Respir Med

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. 2022 Jun 17.

doi: 10.1080/17476348.2022.2092099. Online ahead of print.

[Vaccination and modern management of chronic obstructive pulmonary disease - a narrative review](#)

[Oana Joean](#)¹, [Tobias Welte](#)^{1,2}

Affiliations expand

- PMID: 35713962

- DOI: [10.1080/17476348.2022.2092099](https://doi.org/10.1080/17476348.2022.2092099)

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) carries a tremendous societal and individual burden posing significant challenges for public health systems worldwide due to its high morbidity and mortality. Due to aging, multimorbidity but also in the wake of important progress in deciphering the heterogeneous disease endotypes, an individualized approach to the prevention and management of COPD is necessary.

Areas covered: This article tackles relevant immunization strategies that are available or still under development with a focus on latest evidence but also controversies around different regional immunization approaches. Further, we present the crossover between chronic lung inflammation and lung microbiome disturbance as well as its role in delineating COPD endotypes. Moreover, the article attempts to underline endotype-specific treatment approaches. Lastly, we highlight non-pharmacologic prevention and management programs in view of the challenges and opportunities of the COVID-19 era.

Expert opinion: Despite remaining challenges, personalised medicine has the potential to offer tailored approaches to prevention and therapy and promises to improve the care of patients living with COPD.

Keywords: COPD; COVID-19; endotype; infection; inflammation; influenza; microbiome; personalised medicine; pertussis; pneumococcus; telehealth; vaccination.

[Proceed to details](#)

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Medicine (Baltimore)

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. 2022 Jun 17;101(24):e29433.

doi: 10.1097/MD.00000000000029433.

[Practical parameters that can be used for nutritional assessment in patients hospitalized in the intensive care unit with the diagnosis of chronic obstructive pulmonary disease: Prognostic nutritional index, neutrophil-to-lymphocyte, platelet-to-lymphocyte, and lymphocyte-to-monocyte ratio](#)

[Ramazan Baldemir](#)¹, [Mustafa Özgür Cirik](#)

Affiliations expand

- PMID: 35713452
- DOI: [10.1097/MD.00000000000029433](https://doi.org/10.1097/MD.00000000000029433)

Abstract

Malnutrition is an important condition in patients diagnosed with chronic obstructive pulmonary disease (COPD). There is a need for practical and objective nutritional assessment methods in patients hospitalized in the intensive care unit with the diagnosis of COPD. In this study, it was aimed to determine the parameters that can practically evaluate the nutritional status of these patients. It was aimed to determine the relationship between prognostic nutritional index (PNI), and nutritional risk screening (NRS)-2002, nutrition risk in the critical ill (Nutric) Score and to determine a cut-off value for PNI, neutrophil-to-lymphocyte (NLR), platelet-to-lymphocyte ratio (PLR), lymphocyte-to-monocyte ratio (LMR), and other complete blood count parameters. Hemogram values, albumin values, NLR, PLR, LMR, NRS-2002, PNI and modified Nutric Score calculations of the patients hospitalized in the intensive care unit due to COPD were recorded. The relationship between PNI and NRS-2002 and modified Nutric Score, as well as the relationship between NLR, PLR, LMR, hemogram parameters and PNI were analyzed using statistical methods. The PNI cut-off value for nutritional assessment in patients

hospitalized in the intensive care unit due to COPD was determined as 38.5 (area under curve = 0.891, sensitivity 80.8%, specificity 88.1%, positive predictive value 92.9%, negative predictive value 88%). High-risk group according to PNI compared to low-risk group, lymphocyte count ($P < .001$), basophil count ($P = .004$), red blood cell ($P < .001$), hemoglobin ($P < .001$), hematocrit ($P < .001$), and LMR ($P = .001$) were statistically significantly lower, while NLR ($P < .001$) and PLR ($P = .001$) were statistically significantly higher. Cut-off values for lymphocyte count, basophil count, NLR, PLR, and LMR were found to be 1.18, 0.035, 7.97, 291.10, and 2.606, respectively. Nutritional risk assessment can be made in a practical way by using PNI in patients hospitalized in intensive care unit due to COPD. For this, the PNI cut-off value was determined as 38.5 in our study. In addition, NLR, PLR, LMR, basophil and lymphocyte values, which can be calculated using complete blood count parameters, may also be useful in the evaluation of nutritional status in these patients. In our study, the cut-off values determined for NLR, PLR, LMR, basophil and lymphocyte were 7.97, 291.10 and 2.606, 0.035 and 1.18, respectively. We think that the results we have obtained can provide preliminary information for future research.

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Conflict of interest statement

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

- [36 references](#)

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Respirology

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. 2022 Jun 15.

doi: 10.1111/resp.14309. Online ahead of print.

[Effectiveness of influenza and pneumococcal vaccines on chronic obstructive pulmonary disease exacerbations](#)

[Yan Li](#)¹, [Pingshu Zhang](#)², [Zhijie An](#)¹, [Chenyan Yue](#)¹, [Yamin Wang](#)¹, [Yunqiu Liu](#)³, [Xiaodong Yuan](#)², [Ying Ma](#)², [Keli Li](#)¹, [Zundong Yin](#)¹, [Liye Wang](#)³, [Huaqing Wang](#)¹

Affiliations expand

- PMID: 35705329
- DOI: [10.1111/resp.14309](https://doi.org/10.1111/resp.14309)

Abstract

Background and objective: Single-study evidence of separate and combined effectiveness of influenza and pneumococcal vaccination in patients with chronic obstructive pulmonary disease (COPD) is limited. To fill this gap, we studied the effectiveness of trivalent seasonal influenza vaccine (TIV) and 23-valent pneumococcal polysaccharide vaccine (PPSV23), separately and together, at preventing adverse COPD outcomes.

Methods: Our study used a self-controlled, before-and-after cohort design to assess the effectiveness of TIV and PPSV23 in COPD patients. Patients were recruited from hospitals in Tangshan City, Hebei Province, China. Subjects self-selected into one of the three vaccination schedules: TIV group, PPSV23 group and TIV&PPSV23 group. We used a physician-completed, medical record-verified questionnaire to obtain data on acute exacerbations of COPD (AECOPD), pneumonia and related hospitalization. Vaccine effectiveness was determined by comparing COPD outcomes before and after vaccination, controlling for potential confounding using Cox regression.

Results: We recruited 474 COPD patients, of whom 109 received TIV, 69 received PPSV23 and 296 received TIV and PPSV23. Overall effectiveness for preventing AECOPD, pneumonia and related hospitalization were respectively

70%, 59% and 58% in the TIV group; 54%, 53% and 46% in the PPSV23 group; and 72%, 73% and 69% in the TIV&PPSV23 group. The vaccine effectiveness without COVID-19 non-pharmaceutical intervention period were 84%, 77% and 88% in the TIV group; 63%, 74% and 66% in the PPSV23 group; and 82%, 83% and 91% in the TIV&PPSV23 group.

Conclusion: Influenza vaccination and PPSV23 vaccination, separately and together, can effectively reduce the risk of AECOPD, pneumonia and related hospitalization. Effectiveness for preventing AECOPD was the greatest.

Keywords: 23-valent pneumococcal polysaccharide vaccine; acute exacerbations of chronic obstructive pulmonary disease; hospitalization; immunization; pneumonia; trivalent seasonal influenza vaccine; vaccine effectiveness.

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- [26 references](#)

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. 2022 Jun 13;56:46.

doi: 10.11606/s1518-8787.2022056004324. eCollection 2022.

[Ambient air pollutants relate to hospital admissions for chronic obstructive pulmonary disease in Ganzhou, China](#)

[Xingye Zhou](#)¹, [Chenwei Li](#)¹, [Yanfang Gao](#)¹, [Chuanfei Zhou](#)¹, [Lei Huang](#)¹, [Xiaokang Zhang](#)¹

Affiliations expand

- PMID: 35703601
- DOI: [10.11606/s1518-8787.2022056004324](https://doi.org/10.11606/s1518-8787.2022056004324)

Free article

Abstract

Objective: To evaluate the relationship between ambient air pollutants and chronic obstructive pulmonary disease in relatively low-polluted areas in China.

Methods: Atmospheric pollutants levels and meteorological data were obtained from January 2016 to December 2020. The medical database including daily hospital admissions for chronic obstructive pulmonary disease (ICD10: J44) was derived from the First Affiliated Hospital of Gannan Medical University. The generalized additive model was used to analyze the percentage change with 95% confidence interval in daily hospital admissions for chronic obstructive pulmonary disease associated with a 10 $\mu\text{g}/\text{m}^3$ increase in atmospheric pollutants levels.

Results: In total, occurred 4,980 chronic obstructive pulmonary disease hospital admissions (not including emergency department visits) during 2016-2020. The mean concentrations of daily PM_{2.5}, PM₁₀, SO₂, NO₂, O₃, and CO were 37.5 $\mu\text{g}/\text{m}^3$, 60.1 $\mu\text{g}/\text{m}^3$, 18.7 $\mu\text{g}/\text{m}^3$, 23.5 $\mu\text{g}/\text{m}^3$, 70.0 $\mu\text{g}/\text{m}^3$, and 1.2 mg/m³ in Ganzhou. Each 10 $\mu\text{g}/\text{m}^3$ increment of PM_{2.5}, PM₁₀, NO₂, and O₃ were significantly associated with 2.8% (95%CI: 1.0-4.7), 1.3% (95%CI: 0.3-2.4), 2.8% (95%CI: 0.4-5.4), and 1.5% (95%CI: 0.2-2.7) elevation in daily chronic obstructive pulmonary disease hospital admissions. The estimates of delayed effects of PM_{2.5}, PM₁₀, NO₂, and O₃ were observed at lag6, lag6, lag8, lag1,

respectively. The health effects of particulate pollutants (PM2.5 and PM10) may be independent of other pollutants. The adverse effects of air pollutants were more evident in the warm season (May-Oct) than in the cold season (Nov-Apr).

Conclusion: Our study demonstrated that elevated concentrations of atmospheric pollutant (PM2.5, PM10, NO2, and O3), especially particulate pollutants, can be associated with increased daily count of hospital admissions for chronic obstructive pulmonary disease, which may promote further understanding of the potential hazards of relatively low levels of air pollution on chronic obstructive pulmonary disease and other respiratory disorders.

SUPPLEMENTARY INFO

MeSH terms, Substances expand

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Int J Emerg Med

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. 2022 Jun 13;15(1):27.

doi: 10.1186/s12245-022-00430-8.

[**Point of care ultrasound as initial diagnostic tool in acute dyspnea patients in the emergency department of a tertiary care center: diagnostic accuracy study**](#)

[Himanshi Baid](#)¹, [Nagasubramanyam Vempalli](#)², [Subodh Kumar](#)³, [Poonam Arora](#)¹, [Rohit Walia](#)⁴, [Udit Chauhan](#)⁵, [Krishna Shukla](#)¹, [Aakash Verma](#)⁶, [Hannah Chawang](#)¹, [Disha Agarwal](#)⁷

Affiliations expand

- PMID: 35698060
- PMCID: [PMC9190130](#)
- DOI: [10.1186/s12245-022-00430-8](#)

Free PMC article

Abstract

Background: Dyspnea is one of the common symptoms patients present to the emergency department (ED). The broad spectrum of differentials often requires laboratory and radiological testing in addition to clinical evaluation, causing unnecessary delay. Point of care ultrasound (PoCUS) has shown promising results in accurately diagnosing patients with dyspnea, thus, becoming a popular tool in ED while saving time and maintaining safety standards. Our study aimed to determine the utilization of point of care ultrasound in patients with acute dyspnea as an initial diagnostic tool in our settings.

Methodology: The study was conducted at the emergency department of a tertiary healthcare center in Northern India. Adult patients presenting with acute dyspnea were prospectively enrolled. They were clinically evaluated and necessarily investigated, and a provisional diagnosis was made. Another EP, trained in PoCUS, performed the scan, blinded to the laboratory investigations (not the clinical parameters), and made a PoCUS diagnosis. Our gold standard was the final composite diagnosis made by two Emergency Medicine consultants (who had access to all investigations). Accuracy and concordance of the ultrasound diagnosis to the final composite diagnosis

were calculated. The time to formulate a PoCUS diagnosis and final composite diagnosis was compared.

Results: Two hundred thirty-seven patients were enrolled. The PoCUS and final composite diagnosis showed good concordance ($\kappa = 0.668$). PoCUS showed a high sensitivity for acute pulmonary edema, pleural effusion, pneumothorax, pneumonia, pericardial effusion, and low sensitivity for acute exacerbation of chronic obstructive pulmonary disease (AECOPD) and acute respiratory distress syndrome (ARDS)/acute lung injury (ALI). High overall specificity was seen. A high positive predictive value for all except left ventricular dysfunction, pericardial effusion, non-cardiopulmonary causes of dyspnea, and a low negative predictive value was seen for pneumonia. The median time to make a PoCUS diagnosis was 16 (5-264) min compared to the 170 (8-1346) min taken for the final composite diagnosis. Thus, time was significantly lower for PoCUS diagnosis (p value <0.001).

Conclusion: By combining the overall accuracy of PoCUS, the concordance with the final composite diagnosis, and the statistically significant reduction in time taken to formulate the diagnosis, PoCUS shows immense promise as an initial diagnostic tool that may expedite the decision-making in ED for patients' prompt management and disposition with reliable accuracy.

Keywords: Bedside ultrasound; Diagnostic accuracy; Dyspnea; Emergency department; PoCUS; Point of care ultrasound.

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Conflict of interest statement

The authors declared no conflicts of interest with respect to the research, authorship, and/or publication of this article.

- [26 references](#)
- [1 figure](#)

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Editorial

Am J Respir Crit Care Med

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. 2022 Jun 15;205(12):1369-1370.

doi: 10.1164/rccm.202203-0579ED.

[Lessons from the North: CanCOLD, Exercise, and Chronic Obstructive Pulmonary Disease](#)

[Peter Calverley](#)¹

Affiliations expand

- PMID: 35486861
- DOI: [10.1164/rccm.202203-0579ED](https://doi.org/10.1164/rccm.202203-0579ED)

No abstract available

Comment on

- [Impaired Ventilatory Efficiency, Dyspnea, and Exercise Intolerance in Chronic Obstructive Pulmonary Disease: Results from the CanCOLD Study.](#)

Phillips DB, Elbehairy AF, James MD, Vincent SG, Milne KM, de-Torres JP, Neder JA, Kirby M, Jensen D, Stickland MK, Guenette JA, Smith BM, Aaron SD, Tan WC, Bourbeau J, O'Donnell DE; CanCOLD Collaborative

Research Group and the Canadian Respiratory Research Network. Am J
Respir Crit Care Med. 2022 Jun 15;205(12):1391-1402. doi:
10.1164/rccm.202109-2171OC.PMID: 35333135

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS



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Am J Respir Crit Care Med

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. 2022 Jun 15;205(12):1391-1402.

doi: 10.1164/rccm.202109-2171OC.

[Impaired Ventilatory Efficiency, Dyspnea, and Exercise Intolerance in Chronic Obstructive Pulmonary Disease: Results from the CanCOLD Study](#)

[Devin B Phillips](#)¹, [Amany F Elbehairy](#)^{1 2 3}, [Matthew D James](#)¹, [Sandra G Vincent](#)¹, [Kathryn M Milne](#)⁴, [Juan P de-Torres](#)¹, [J Alberto Neder](#)¹, [Miranda Kirby](#)⁵, [Dennis Jensen](#)^{6 7}, [Michael K Stickland](#)^{8 9}, [Jordan A Guenette](#)³, [Benjamin M Smith](#)^{7 10}, [Shawn D Aaron](#)¹¹, [Wan C Tan](#)⁴, [Jean Bourbeau](#)^{7 10}, [Denis E O'Donnell](#)¹, [CanCOLD Collaborative Research Group and the Canadian Respiratory Research Network](#)

Collaborators, Affiliations expand

- PMID: 35333135
- DOI: [10.1164/rccm.202109-2171OC](https://doi.org/10.1164/rccm.202109-2171OC)

Abstract

Rationale: Impaired exercise ventilatory efficiency (high ventilatory requirements for CO₂ \dot{V}_E/\dot{V}_{CO_2}) provides an indication of pulmonary gas exchange abnormalities in chronic obstructive pulmonary disease (COPD). **Objectives:** To determine 1) the association between high \dot{V}_E/\dot{V}_{CO_2} and clinical outcomes (dyspnea and exercise capacity) and its relationship to lung function and structural radiographic abnormalities; and 2) its prevalence in a large population-based cohort. **Methods:** Participants were recruited randomly from the population and underwent clinical evaluation, pulmonary function, cardiopulmonary exercise testing, and chest computed tomography. Impaired exercise ventilatory efficiency was defined by a nadir \dot{V}_E/\dot{V}_{CO_2} above the upper limit of normal (ULN), using population-based normative values. **Measurements and Main Results:** Participants included 445 never-smokers, 381 ever-smokers without airflow obstruction, 224 with Global Initiative for Chronic Obstructive Lung Disease (GOLD) 1 COPD, and 200 with GOLD 2-4 COPD. Participants with \dot{V}_E/\dot{V}_{CO_2} above the ULN were more likely to have activity-related dyspnea (Medical Research Council dyspnea scale ≥ 2 ; odds ratio [5-95% confidence intervals], 1.77 [1.31 to 2.39]) and abnormally low peak \dot{V}_{O_2} ($\dot{V}_{O_{2peak}}$ below the lower limit of normal; odds ratio, 4.58 [3.06 to 6.86]). The Kco had a stronger correlation with nadir \dot{V}_E/\dot{V}_{CO_2} ($r = -0.38$; $P < 0.001$) than other relevant lung function and computed tomography metrics. The prevalence of \dot{V}_E/\dot{V}_{CO_2} above the ULN was 24% in COPD (similar in GOLD 1 and 2 through 4), which was greater than in never-smokers (13%) and ever-smokers (12%). **Conclusions:** \dot{V}_E/\dot{V}_{CO_2} above the ULN was associated with greater dyspnea and low $\dot{V}_{O_{2peak}}$ and was present in 24% of all participants with COPD, regardless of GOLD stage. The results show the importance of recognizing impaired exercise ventilatory efficiency as a potential contributor to dyspnea and exercise limitation, even in mild COPD.

Keywords: chronic obstructive pulmonary disease; dyspnea; exercise capacity; pulmonary function; ventilatory efficiency.

Comment in

- [Lessons from the North: CanCOLD, Exercise, and Chronic Obstructive Pulmonary Disease.](#)

Calverley P. *Am J Respir Crit Care Med.* 2022 Jun 15;205(12):1369-1370.
doi: 10.1164/rccm.202203-0579ED.PMID: 35486861 No abstract available.

SUPPLEMENTARY INFO

MeSH terms, Substances, Grant support [expand](#)

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Int J Epidemiol

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. 2022 Jun 13;51(3):931-944.

doi: 10.1093/ije/dyab258.

[Predicting cardiovascular risk from national administrative databases using a combined survival analysis and deep learning approach](#)

[Sebastiano Barbieri](#)¹, [Suneela Mehta](#)², [Billy Wu](#)², [Chrianna Bharat](#)³, [Katrina Poppe](#)², [Louisa Jorm](#)¹, [Rod Jackson](#)²

Affiliations expand

- PMID: 34910160
- DOI: [10.1093/ije/dyab258](https://doi.org/10.1093/ije/dyab258)

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Abstract

Background: Machine learning-based risk prediction models may outperform traditional statistical models in large datasets with many variables, by identifying both novel predictors and the complex interactions between them. This study compared deep learning extensions of survival analysis models with Cox proportional hazards models for predicting cardiovascular disease (CVD) risk in national health administrative datasets.

Methods: Using individual person linkage of administrative datasets, we constructed a cohort of all New Zealanders aged 30-74 who interacted with public health services during 2012. After excluding people with prior CVD, we developed sex-specific deep learning and Cox proportional hazards models to estimate the risk of CVD events within 5 years. Models were compared based on the proportion of explained variance, model calibration and discrimination, and hazard ratios for predictor variables.

Results: First CVD events occurred in 61 927 of 2 164 872 people. Within the reference group, the largest hazard ratios estimated by the deep learning models were for tobacco use in women (2.04, 95% CI: 1.99, 2.10) and chronic obstructive pulmonary disease with acute lower respiratory infection in men (1.56, 95% CI: 1.50, 1.62). Other identified predictors (e.g. hypertension, chest pain, diabetes) aligned with current knowledge about CVD risk factors. Deep learning outperformed Cox proportional hazards models on the basis of proportion of explained variance (R²: 0.468 vs 0.425 in women and 0.383 vs 0.348 in men), calibration and discrimination (all P <0.0001).

Conclusions: Deep learning extensions of survival analysis models can be applied to large health administrative datasets to derive interpretable CVD risk prediction equations that are more accurate than traditional Cox proportional hazards models.

Keywords: Cardiovascular diseases; deep learning; health planning; machine learning; population health; primary prevention; risk assessment; survival analysis.

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MeSH terms, Grant supportexpand

FULL TEXT LINKS

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Expert Opin Biol Ther

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. 2022 Jun 17.

doi: 10.1080/14712598.2022.2091409. Online ahead of print.

[Biologics in severe asthma: outcomes in clinical trials—similarities and differences](#)

[Agamemnon Bakakos](#)¹, [Nikoletta Rovina](#)¹, [Stelios Loukides](#)², [Petros Bakakos](#)¹

Affiliations expand

- PMID: 35712995
- DOI: [10.1080/14712598.2022.2091409](https://doi.org/10.1080/14712598.2022.2091409)

Abstract

Introduction: Severe asthma is a heterogenous disease characterized by multiple phenotypes. Targeted biologic therapies have revolutionarily changed the management of severe asthma by affecting various clinical outcomes, mainly by reducing exacerbations and the use of maintenance corticosteroids, but also by improving lung function and patient quality of life.

Areas covered: Randomized controlled trials have convincingly demonstrated the efficacy of different biologics in improving the above outcomes. However, no head-to-head studies exist to compare their efficacy and many patients with severe asthma are eligible for more than one biologic agent. In this review, we present the effect of various biologics in the various outcomes as shown in randomized controlled trials and discuss their similarities and differences.

Expert opinion: Both the initial choice of a biologic as well as the option of switching to another give the clinician an interesting but also difficult decision when choosing a biologic therapy for patients with severe asthma. This decision is mainly based on the individual characteristics of the patient, especially rate of exacerbations and use of systemic corticosteroids, but is also influenced by the presence of comorbidities and lung function impairment. No safety concerns have been raised around the use of these biologics.

Keywords: Severe asthma; T2-high; benralizumab; dupilumab; mepolizumab; omalizumab; tezepelumab.

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BMC Pulm Med

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. 2022 Jun 16;22(1):231.

doi: 10.1186/s12890-022-02024-9.

[Understanding the journeys of patients with an asthma exacerbation requiring urgent therapy at a primary care clinic](#)

[Jing Sheng Quek](#)¹, [Wern Ee Tang](#)², [Elya Chen](#)², [Helen Elizabeth Smith](#)³

Affiliations expand

- PMID: 35710361
- DOI: [10.1186/s12890-022-02024-9](#)

Abstract

Background: Asthma is a significant health issue in primary care. We examined the journeys of patients with asthma exacerbations requiring urgent therapy at a primary care clinic in Singapore.

Methods: Face-to-face semi-structured interviews were conducted with patients who received urgent therapy for asthma exacerbation at a primary care clinic. Data collected was used to construct themes.

Results: Fifteen multi-ethnic adult patients were recruited. Participants cited treatment cost, underuse of preventer medication, difficulties attending routine asthma care due to work, and stigma as barriers to asthma control. Reasons for delay in seeking urgent care for asthma were: inability to access medical care out of hours, competing priorities, perception that an

exacerbation was 'not serious enough', difficulty recognizing symptoms of asthma exacerbation, and being tired or despondent. Participants were triggered to seek care due to failure of reliever inhalers, duration of symptoms, sleep disturbance, inability to work, or advice from others. During an exacerbation, participants often initiated other self-management measures besides using reliever medication. This included over-the-counter medications and non-pharmacological interventions (e.g. drinking water). Of the 15 patients interviewed, only one stepped up preventer inhaler adequately, according to their Asthma Action Plan (AAP).

Conclusions: In caring for patients with asthma, primary care providers should address patients' asthma self-management skills, such as recognizing symptoms of asthma exacerbations and regular preventer use, and provide clear instructions on how to respond to asthma symptoms (AAP). Minimizing direct (medication and consultation fees) and indirect costs (loss of earnings and adverse impact on employment prospects) are also important considerations.

Keywords: Asthma exacerbation; Control; Delay; Education; Health-seeking behaviour; Self-management.

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BMJ Open

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. 2022 Jun 16;12(6):e056295.

doi: 10.1136/bmjopen-2021-056295.

Prospective study of factors associated with asthma attack recurrence (ATTACK) in children from three Ecuadorian cities during COVID-19: a study protocol

[Diana Morillo](#)¹, [Santiago Mena-Bucheli](#)¹, [Angélica Ochoa](#)², [Martha E Chico](#)¹, [Claudia Rodas](#)³, [Augusto Maldonado](#)^{4,5}, [Karen Arteaga](#)⁶, [Jessica Alchundia](#)⁷, [Karla Solorzano](#)⁷, [Alejandro Rodriguez](#)¹, [Camila Figueiredo](#)⁸, [Cristina Ardura-Garcia](#)⁹, [Max Bachmann](#)¹⁰, [Michael Richard Perkin](#)¹¹, [Irina Chis Ster](#)^{12,12}, [Alvaro Cruz](#)¹³, [Natalia Cristina Romero](#)^{#14,15}, [Philip Cooper](#)^{#16,12}

Affiliations expand

- PMID: 35710244
- DOI: [10.1136/bmjopen-2021-056295](https://doi.org/10.1136/bmjopen-2021-056295)

Free article

Abstract

Introduction: Asthma is a growing health problem in children in marginalised urban settings in low-income and middle-income countries. Asthma attacks are an important cause of emergency care attendance and long-term morbidity. We designed a prospective study, the Asthma Attacks study, to identify factors associated with recurrence of asthma attacks (or exacerbations) among children and adolescents attending emergency care in three Ecuadorian cities.

Methods and analysis: Prospective cohort study designed to identify risk factors associated with recurrence of asthma attacks in 450 children and adolescents aged 5-17 years attending emergency care in public hospitals in three Ecuadorian cities (Quito, Cuenca and Portoviejo). The primary outcome will be rate of asthma attack recurrence during up to 12 months of follow-up.

Data are being collected at baseline and during follow-up by questionnaire: sociodemographic data, asthma history and management (baseline only); recurrence of asthma symptoms and attacks (monthly); economic costs of asthma to family; Asthma Control Test; Pediatric Asthma Quality of life Questionnaire; and Newcastle Asthma Knowledge Questionnaire (baseline only). In addition, the following are being measured at baseline and during follow-up: lung function and reversibility by spirometry before and after salbutamol; fractional exhaled nitric oxide (FeNO); and presence of IgG antibodies to SARS-CoV-2 in blood. Recruitment started in 2019 but because of severe disruption to emergency services caused by the COVID-19 pandemic, eligibility criteria were modified to include asthmatic children with uncontrolled symptoms and registered with collaborating hospitals. Data will be analysed using logistic regression and survival analyses.

Ethics and dissemination: Ethical approval was obtained from the Hospital General Docente de Calderon (CEISH-HGDC 2019-001) and Ecuadorian Ministry of Public Health (MSP-CGDES-2021-0041-O N° 096-2021). The study results will be disseminated through presentations at conferences and to key stakeholder groups including policy-makers, postgraduate theses, peer-review publications and a study website. Participants gave informed consent to participate in the study before taking part.

Keywords: COVID-19; asthma; epidemiology.

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Conflict of interest statement

Competing interests: None declared.

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iScience

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. 2022 May 23;25(6):104440.

doi: 10.1016/j.isci.2022.104440. eCollection 2022 Jun 17.

[Targeted deletion of Interleukin-3 results in asthma exacerbations](#)

[Julia Kölle](#)¹, [Theodor Zimmermann](#)², [Alexander Kiefer](#)², [Ralf J Rieker](#)³, [Paraskevi Xepapadaki](#)⁴, [Sebastian Zundler](#)⁵, [Nikolaos G Papadopoulos](#)^{4,6}, [Susetta Finotto](#)¹

Affiliations expand

- PMID: 35707726
- PMCID: [PMC9189047](#)
- DOI: [10.1016/j.isci.2022.104440](#)

Free PMC article

Abstract

The cytokine interleukin-3 (IL-3) acts on early hematopoietic precursor cells. In humans, T_{reg} cells secrete IL-3 and repress inflammatory cells except for basophils. The present study aims to elucidate the contribution of IL-3 in the development and the course of allergic asthma. We therefore analyzed the secretion of IL-3 in PBMCs and total blood cells in two cohorts of pre-school children with and without asthma. In a murine model of allergic asthma, we analyzed the phenotype of IL-3^{-/-} mice compared to wild-type mice. PBMCs

from asthmatic children showed increased IL-3 secretion, which directly correlated with improved lung function. IL-3^{-/-} asthmatic mice showed increased asthmatic traits. Moreover, IL-3-deficient mice had a defect in T regulatory cells in the lung. In conclusion, IL-3 downregulation was found associated with more severe allergic asthma in pre-school children. Consistently, targeting IL-3 resulted in an induced pathophysiological response in a murine model of allergic asthma.

Keywords: Biological sciences; Immunology; immune response.

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Conflict of interest statement

The authors declare no conflict of interest on the matter described in this manuscript.

- [52 references](#)
- [7 figures](#)

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Drug Ther Bull

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. 2022 Jun 15;dtb-2022-000033.

doi: 10.1136/dtb.2022.000033. Online ahead of print.

[Macrolides for asthma evidence](#)

No authors listed

- PMID: 35705323
- DOI: [10.1136/dtb.2022.000033](https://doi.org/10.1136/dtb.2022.000033)

Abstract

Overview of: Undela K, Goldsmith L, Kew KM, *et al* Macrolides for chronic asthma. *Cochrane Database Syst Rev* 2021;11:10.1002/14651857.CD002997.pub5.

Keywords: Drug-Related Side Effects and Adverse Reactions; Health Care Quality, Access, and Evaluation.

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Review

Eur Respir Rev

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. 2022 Jun 14;31(164):220039.

doi: 10.1183/16000617.0039-2022. Print 2022 Jun 30.

[Risk factors for asthma exacerbations during pregnancy: a systematic review and meta-analysis](#)

[Annelies L Robijn¹](#), [Marleen P Bokern²](#), [Megan E Jensen¹](#), [Daniel Barker³](#), [Katherine J Baines¹](#), [Vanessa E Murphy⁴](#)

Affiliations expand

- PMID: 35705210
- DOI: [10.1183/16000617.0039-2022](#)

Free article

Abstract

Background: Conflicting literature exists regarding the risk factors for exacerbations among pregnant women with asthma. This systematic review and meta-analysis aimed to determine risk factors for asthma exacerbations during pregnancy.

Methods: Electronic databases were searched for the following terms: (asthma or wheeze) and (pregnan* or perinat* or obstet*) and (exacerb* or flare up or morbidit* or attack*). All studies published between 2000 and 24 August 2021 were considered for inclusion if they reported at least one potential risk factor of asthma exacerbations in pregnant women with asthma. Of the 3337 references considered, 35 publications involving 429 583 pregnant women with asthma were included. Meta-analyses were conducted to determine mean difference in risk factor between exacerbation groups, or the relative risks of exacerbation with certain risk factors. Good study quality was found through the Newcastle-Ottawa Scale (median score 8, interquartile range 7-9).

Results: Increased maternal age (mean difference 0.62, 95% CI 0.11-1.13), obesity (relative risk 1.25, 95% CI 1.15-1.37), smoking (relative risk 1.35, 95% CI 1.04-1.75), black ethnicity (relative risk 1.62, 95% CI 1.52-1.73), multiparity (relative risk 1.31, 95% CI 1.01-1.68), depression/anxiety (relative risk 1.42, 95% CI 1.27-1.59), moderate-severe asthma (relative risk 3.44, 95% CI 2.03-

5.83, *versus* mild) and severe asthma (relative risk 2.70, 95% CI 1.85-3.95, *versus* mild-moderate) were associated with an increased risk of asthma exacerbations during pregnancy.

Conclusions: Future interventions aimed at reducing exacerbations in pregnancy could address the modifiable factors, such as smoking and depression/anxiety, and introduce more regular monitoring for those with nonmodifiable risk factors such as obesity and more severe asthma.

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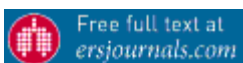
Conflict of interest statement

Conflict of interest: M.P. Bokern reports support for the present manuscript from Groningen Research Institute of Pharmacy, Pharmacotherapy, Epidemiology and Economics, University of Groningen, Groningen, the Netherlands and Department of Non-Communicable Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, UK. M.P. Bokern reports grants or contracts from GlaxoSmithKline (GSK PhD scholarship at London School of Hygiene and Tropical Medicine), outside the submitted work. V.E. Murphy reports support for the present manuscript from Medical Research Future Fund Investigator Grant (paid to her institution). The remaining authors have nothing to disclose.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

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Expert Rev Respir Med

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. 2022 Jun 15.

doi: 10.1080/17476348.2022.2090342. Online ahead of print.

Dupilumab-induced hypereosinophilia: review of the literature and algorithm proposal for clinical management

[Marco Caminati](#)¹, [Bianca Olivieri](#)¹, [Annarita Dama](#)², [Claudio Micheletto](#)³, [Pierluigi Paggiaro](#)⁴, [Patrick Pinter](#)⁵, [Gianenrico Senna](#)^{1,2}, [Michele Schiappoli](#)²

Affiliations expand

- PMID: 35703018
- DOI: [10.1080/17476348.2022.2090342](https://doi.org/10.1080/17476348.2022.2090342)

Abstract

Introduction: Dupilumab is a human monoclonal antibody that targets both IL-4 and IL-13 signaling. It is currently indicated for the treatment of asthma, moderate-to-severe atopic dermatitis and chronic rhinosinusitis with nasal polyps (CRSwNP). Eosinophilia has been reported as a potential adverse event in treated patients.

Areas covered: A selective search on PubMed and Medline up to January 2022 was performed, by focusing on dupilumab-induced hypereosinophilia described in clinical trials, real-life studies and case reports. The possible mechanisms underlying dupilumab-induced hypereosinophilia and the eosinophils-related morbidity have also been explored.

Expert opinion: Dealing with dupilumab-induced hypereosinophilia represents a clinical challenge for clinicians managing patients on dupilumab therapy. An algorithm for the practical management of dupilumab-induced

hypereosinophilia has been proposed, in order to properly investigate potential eosinophil-related morbidity and avoid unnecessary drug discontinuation.

Keywords: Asthma; IL-13; IL-4; algorithm; atopic dermatitis; dupilumab; eosinophils; hyper-eosinophilia; nasal polyps.

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J Asthma

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. 2022 Jun 13;1-14.

doi: 10.1080/02770903.2022.2089997. Online ahead of print.

[**Asthma, Chronic Obstructive Pulmonary Disease \(COPD\), and Asthma-COPD overlap among US working adults**](#)

[Girija Syamlal](#)¹, [Katelynn E Dodd](#)¹, [Jacek M Mazurek](#)¹

Affiliations expand

- PMID: 35696621
- DOI: [10.1080/02770903.2022.2089997](https://doi.org/10.1080/02770903.2022.2089997)

Abstract

Asthma-COPD overlap (ACO) is a respiratory condition with more severe respiratory symptoms, poorer quality of life, and increased hospital admissions compared with asthma or COPD alone. **Objectives:** Estimate asthma, chronic obstructive pulmonary disease (COPD), and ACO prevalence among workers by industry and occupation and assess physical and mental health status, healthcare utilization, among workers with ACO. **Methods:** The 2014-2018 National Health Interview Survey (NHIS) data for working adults aged ≥ 18 years employed (sample $n = 99,424$) in the 12 months prior to the survey were analyzed. Age-adjusted ACO, COPD and asthma prevalence and prevalence ratios adjusted for age, sex, race and smoking status were estimated. **Results:** During 2014-2018, of the estimated 166 million (annual average) US workers, age-adjusted asthma, COPD, and ACO prevalence was 6.9%, 4.0%, and 1.1%, respectively. ACO prevalence was highest among workers aged ≥ 65 years (2.0%), females (1.6%), current smokers (1.9%), those living below the federal poverty level (2.3%), and workers in the accommodation and food services (1.6%) industry and personal care and service (2.3%) occupations. Workers with ACO had more frequent ($p < 0.05$) physician office visits, emergency department visits; and were more likely to be in poorer mental health, obese, have more lost workdays, more bed days, and comorbidities compared to workers with asthma alone and workers with COPD alone. **Conclusion:** Higher ACO prevalence among worker groups and increased healthcare utilization underscores the need for early identification of asthma and COPD, assessment of potential workplace exposures, and implementation of tailored interventions to reduce ACO among working adults.

Keywords: Epidemiology; Morbidity and Mortality; Prevention; Quality of Life.

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Expert Rev Clin Immunol

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. 2022 Jun 13.

doi: 10.1080/1744666X.2022.2089654. Online ahead of print.

Comorbid allergic rhinitis and asthma: important clinical considerations

[E Nappi](#)^{1,2}, [G Paoletti](#)^{1,2}, [L Malvezzi](#)^{1,3}, [S Ferri](#)², [F Racca](#)², [M R Messina](#)^{1,2}, [F Puggioni](#)^{1,2}, [E Heffler](#)^{1,2}, [G Canonica](#)^{1,2}

Affiliations expand

- PMID: 35695326
- DOI: [10.1080/1744666X.2022.2089654](https://doi.org/10.1080/1744666X.2022.2089654)

Abstract

Introduction: : The numerous links between allergic rhinitis and asthma have been extensively explored in the last two decades, gaining great concern within the scientific community. These two conditions frequently coexist in the same patient and share numerous pathogenetic and pathophysiological mechanisms.

Areas covered: : We reviewed major pathophysiological, epidemiological, and clinical links between allergic rhinitis and asthma. We also provided a comprehensive discussion of allergic rhinitis treatment according to current guidelines, with a particular focus on the relevance of allergic rhinitis therapies in patients with comorbid asthma.

Expert opinion: : We believe that there are several unmet needs for our patients, however, there are promising advances forecasted for the future. Although allergic rhinitis is a recognized risk factor for asthma, a proper asthma detection and prevention plan in allergic rhinitis patients is not

available. Allergen immunotherapy (AIT) represents a promising preventive strategy and may deserve an earlier positioning in allergic rhinitis management. A multidisciplinary approach should characterize the journey of patients with respiratory allergies, with an adequate referral to specialized Allergy/Asthma centers. Molecular Allergy Diagnosis may provide support for optimal AIT use. Finally, a possible evolution of biological treatment can be envisaged, mainly if biosimilars decrease such therapies' costs.

Keywords: Allergen Immunotherapy; Allergic Rhinitis Treatment; Allergic rhinitis; Asthma; Asthma Comorbidities; Respiratory allergies; United Airway Disease.

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Review

Respirology

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. 2022 Jun 12.

doi: 10.1111/resp.14312. Online ahead of print.

[Bronchial thermoplasty: State of the art](#)

[Muhammad Daniyal Hashmi](#)¹, [Asad Khan](#)², [Majid Shafiq](#)³

Affiliations expand

- PMID: 35692074
- DOI: [10.1111/resp.14312](https://doi.org/10.1111/resp.14312)

Abstract

Since the publication of a sham-controlled, randomized trial (AIR2) and subsequent marketing approval by the US Food and Drug Administration, we have significantly advanced our understanding of bronchial thermoplasty (BT)'s scientific basis, long-term safety, clinical efficacy and cost-effectiveness. In particular, the last 2 years have witnessed multiple research publications on several of these counts. In this review, we critically appraise our evolving understanding of BT's biologic underpinnings and clinical impact, offer an evidence-based patient workflow guide for the busy pulmonologist and highlight both current challenges as well as potential solutions for the researcher and the clinician.

Keywords: bronchial thermoplasty; cost-effectiveness; efficacy; mechanism of action; safety; severe asthma.

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- [60 references](#)

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RHINITIS

Semin Respir Crit Care Med

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. 2022 Jun 17.

doi: 10.1055/s-0042-1749454. Online ahead of print.

[Immunotherapy for Asthma](#)

[Jelena Eremija](#)¹, [Tara F Carr](#)¹

Affiliations expand

- PMID: 35714626
- DOI: [10.1055/s-0042-1749454](https://doi.org/10.1055/s-0042-1749454)

Abstract

Asthma represents one of the biggest global health concerns with increasing prevalence and influence on global health. Several distinct asthma phenotypes have been identified with one of the most common, earliest recognized, and described being the allergic asthma phenotype, in which allergens trigger asthma through mechanisms involving allergen-specific immunoglobulin E (IgE). Allergen-specific immunotherapy (AIT), in the forms of subcutaneous immunotherapy (SCIT) and sublingual immunotherapy (SLIT), has been used for many decades as a tool for reducing IgE-mediated sensitization and controlling symptoms of allergic disease, most commonly for allergic rhinitis, and it remains the only currently available disease modifying therapy in atopic patients. AIT has been studied for use in mild to moderate allergic asthma. While the data are often inconsistent, and utilize a multitude of different methods, antigens, and outcome measures, in general, AIT may have several beneficial effects on asthma disease control, quality of life, and requirement for medication. These benefits are notable when immunotherapy is used as an adjunct to pharmacologic treatment in carefully selected and monitored patients with mild to moderate persistent asthma. Patients with severe asthma are excluded from these trials. Importantly, patients with asthma, and in particular severe asthma, may have a higher rate of systemic adverse reactions to SCIT, including anaphylaxis, however, these events are overall rare. Future research in the area is needed to definitively assess the benefit of SCIT and SLIT for patients with asthma, comparing outcomes with

different methods, addressing the role of AIT in severe asthma, significance of multiallergen AIT in allergic asthma, and safety concerns in asthma.

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Conflict of interest statement

None declared.

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Int Forum Allergy Rhinol

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. 2022 Jun 17.

doi: 10.1002/alr.23047. Online ahead of print.

[Temperature-controlled radiofrequency neurolysis for treatment of chronic rhinitis: 12-month outcomes after treatment in a randomized controlled trial](#)

[Masayoshi Takashima](#)¹, [J Pablo Stolovitzky](#)², [Randall A Ow](#)³, [Stacey L Silvers](#)⁴, [Nadim B Bikhazi](#)⁵, [Curtis D Johnson](#)⁶

Affiliations expand

- PMID: 35714267
- DOI: [10.1002/alr.23047](https://doi.org/10.1002/alr.23047)

Abstract

Background: Temperature-controlled radiofrequency (TCRF) neurolysis of the posterior nasal nerve (PNN) area for the treatment of chronic rhinitis was previously reported as superior to a sham control procedure at 3 months postprocedure in this randomized controlled trial (RCT). The primary endpoint

was responder rate: $\geq 30\%$ improvement (decrease) in 24-hour reflective total nasal symptom score (rTNSS) from baseline. Here, 12-month outcomes following active treatment are reported.

Methods: This was a prospective, multicenter, patient-blinded RCT. Patients in the index active treatment arm were unblinded at 3 months and followed through 12 months. At 3 months, eligible sham control arm patients were invited to crossover to active treatment. Eligibility criteria included rTNSS ≥ 6 , with moderate-severe rhinorrhea and mild-severe congestion. The TCRF stylus was applied bilaterally to non-overlapping areas in the region of the PNN.

Results: Patients in the index active treatment arm had a mean baseline rTNSS of 8.3 (95%CI 7.9 to 8.7), $n = 77$. At 12 months, the responder rate was 80.6% (95%CI 69.1%-89.2%), $n = 67$. At 12 months, the mean change in rTNSS was -4.8 (95%CI -5.5 to -4.1); $p < .001$; a 57.8% improvement. The available initial rTNSS-based outcomes in the crossover active treatment arm ($n = 27$) were following the same course as the index treatment arm. No serious adverse events and 8 adverse events related to the device/procedure were reported in the trial to date.

Conclusion: TCRF neurolysis of the PNN area is safe and the symptom burden improvement that was superior to a sham procedure at 3 months was sustained through 12 months. This article is protected by copyright. All rights reserved.

Keywords: Rhinitis; congestion; neurolysis; posterior nasal nerve; radiofrequency ablation; rhinorrhea.

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[Review](#)

Hum Vaccin Immunother

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. 2022 Jun 15;1-10.

doi: 10.1080/21645515.2022.2066424. Online ahead of print.

Update about Oralair® as a treatment for grass pollen allergic rhinitis

[L Klimek¹](#), [R Brehler²](#), [R Mösges^{3,4,5}](#), [P Demoly^{6,7}](#), [J Mullol⁸](#), [D Y Wang⁹](#), [R O'Hehir¹⁰](#), [A Didier¹¹](#), [M Kopp¹²](#), [C Bos¹³](#), [E Karagiannis¹³](#)

Affiliations expand

- PMID: 35704772
- DOI: [10.1080/21645515.2022.2066424](https://doi.org/10.1080/21645515.2022.2066424)

Abstract

Sublingual immunotherapy (SLIT) is a well-tolerated, safe, and effective approach to treating allergic rhinitis (AR). Oralair® is a five-grass pollen SLIT tablet containing natural pollen allergens from five of the major grass species responsible for seasonal AR due to grass pollen allergy. Recommended use is in a pre-coseasonal regimen, starting daily treatment approximately 4 months before the start of the pollen season, with treatment then continued daily throughout the season; treatment should continue for 3-5 y. Clinical efficacy and safety of Oralair® in patients with grass pollen-induced AR has been demonstrated in a comprehensive clinical development program of randomized controlled trials. Effectiveness has been substantiated in subsequent observational studies with sustained efficacy following treatment cessation and a favorable level of adherence, quality of life, benefit, and satisfaction for the patients. Supportive evidence for a benefit in reducing the risk or delaying the development of allergic asthma is emerging.

Keywords: 5-Grass pollen tablet; allergen immunotherapy; allergic rhinoconjunctivitis; asthma; sublingual immunotherapy.

SUPPLEMENTARY INFO

Publication types expand

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Expert Rev Clin Immunol

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. 2022 Jun 13.

doi: 10.1080/1744666X.2022.2089654. Online ahead of print.

[Comorbid allergic rhinitis and asthma: important clinical considerations](#)

[E Nappi](#)^{1,2}, [G Paoletti](#)^{1,2}, [L Malvezzi](#)^{1,3}, [S Ferri](#)², [F Racca](#)², [M R Messina](#)^{1,2}, [F Puggioni](#)^{1,2}, [E Heffler](#)^{1,2}, [G Canonica](#)^{1,2}

Affiliations expand

- PMID: 35695326
- DOI: [10.1080/1744666X.2022.2089654](https://doi.org/10.1080/1744666X.2022.2089654)

Abstract

Introduction: : The numerous links between allergic rhinitis and asthma have been extensively explored in the last two decades, gaining great concern within the scientific community. These two conditions frequently coexist in the same patient and share numerous pathogenetic and pathophysiological mechanisms.

Areas covered: : We reviewed major pathophysiological, epidemiological, and clinical links between allergic rhinitis and asthma. We also provided a comprehensive discussion of allergic rhinitis treatment according to current guidelines, with a particular focus on the relevance of allergic rhinitis therapies in patients with comorbid asthma.

Expert opinion: : We believe that there are several unmet needs for our patients, however, there are promising advances forecasted for the future. Although allergic rhinitis is a recognized risk factor for asthma, a proper asthma detection and prevention plan in allergic rhinitis patients is not available. Allergen immunotherapy (AIT) represents a promising preventive strategy and may deserve an earlier positioning in allergic rhinitis management. A multidisciplinary approach should characterize the journey of patients with respiratory allergies, with an adequate referral to specialized Allergy/Asthma centers. Molecular Allergy Diagnosis may provide support for optimal AIT use. Finally, a possible evolution of biological treatment can be envisaged, mainly if biosimilars decrease such therapies' costs.

Keywords: Allergen Immunotherapy; Allergic Rhinitis Treatment; Allergic rhinitis; Asthma; Asthma Comorbidities; Respiratory allergies; United Airway Disease.

FULL TEXT LINKS



CHRONIC COUGH

Am J Speech Lang Pathol

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. 2022 Jun 14;1-10.

doi: 10.1044/2022_AJSLP-21-00381. Online ahead of print.

Effectiveness of the Therapy Program for Management of Chronic Cough: Preliminary Data From a Randomized Clinical Trial

[Vanessa Veis Ribeiro](#)^{1,2}, [Leonardo Wanderley Lopes](#)³, [Camila Macêdo Araújo de Medeiros](#)³, [Allan Carlos França da Silva](#)³, [Agostinho Hermes de Medeiros Neto](#)⁴, [Mara Behlau](#)¹

Affiliations expand

- PMID: 35699263

- DOI: [10.1044/2022_AJSLP-21-00381](https://doi.org/10.1044/2022_AJSLP-21-00381)

Abstract

Purpose: The purpose of this study is to analyze the effectiveness of the Therapy Program for Management of Chronic Cough (TMCC) in laryngeal sensations and symptoms related to the cough in individuals with chronic refractory cough (CRC).

Method: This research is a randomized double-blind clinical trial (Register Number: RBR-4m6x29). Eleven participants were allocated to two groups by parallel randomization: The Experimental Group-consisting of six individuals who underwent the TMCC; and the Control Group-consisting of five individuals who underwent the Comprehensive Vocal Rehabilitation Program (CVRP). Two primary outcomes were analyzed: self-perception of laryngeal sensations (Newcastle Laryngeal Hypersensitivity Questionnaire [LHQ-Br]) and self-perception of symptoms of upper airway-related cough (Cough Severity Index [CSI-Br]). The two-way repeated-measures analysis of variance was used to compare the evaluation moments and intervention groups. For multiple comparisons, the Tukey test with Bonferroni correction was used. To evaluate the effect size, eta partial square was used.

Results: There was no difference between groups for any outcomes analyzed. There was a statistically significant difference with a large effect size for the moment factor in all outcomes. A statistically significant difference was observed with a large effect size for the interaction effect between group and moment for LHQ-Br total and CSI-Br psychological and functional.

Conclusions: The TMCC and CVRP were effective for the rehabilitation of CRC, considering the viewpoint of the subject. The TMCC improved laryngeal sensations and psychological and functional symptoms, while CVRP was relevant to improve psychological and functional symptoms in individuals with CRC.

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