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UNA ECCEZIONE ALLA REGOLA, ALLEGO PDF DEL LAVORO DI ALBERTO PAPI PUBBLICATO IL 15 MAGGIO 2022 SUL NEJM E PRESENTATO AL SIMPOSIO NEJM/JAMA DELLA AMERICAN THORACIC SOCIETY

COPD

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Sci Rep
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. 2022 May 16;12(1):8105.
doi: 10.1038/s41598-022-12103-w.

Additive effects of coexisting respiratory comorbidities on overall or respiratory mortality in patients with asthma: a national cohort study

Yoomi Yeo[#1], Hyun Lee[#1], Jiin Ryu[#2], Sung Jun Chung[1], Tai Sun Park[1], Dong Won Park[1], Sang-Heon Kim[1], Tae Hyung Kim[1], Jang Won Sohn[1], Ho Joo Yoon[1], Kyung Hoon Min[#3], Ji-Yong Moon[#4][5]
Affiliations expand

- PMID: 35577832

- DOI: 10.1038/s41598-022-12103-w

Abstract

Asthmatic patients are generally considered to have an increased risk of mortality compared with subjects without asthma. However, this issue has been less evaluated using nationally representative data. Moreover, it is unclear whether respiratory comorbidities other than chronic obstructive pulmonary disease (COPD) are associated with increased mortality in asthmatic patients compared with subjects without. Using a nationally representative sample database, we performed a retrospective cohort study of patients with asthma and age-sex-matched control cohort. We estimated the hazard ratio (HR) and stratified the asthma cohort based on respiratory comorbidities. During a median 8.9-year follow-up, the overall mortality rate was higher in the asthma cohort than in the control cohort ($p < 0.001$). The hazard ratio (HR) for overall mortality in the asthma cohort compared with the control cohort was 1.13. The effects of asthma on overall mortality were more evident in males, patients under medical aid, and subjects with COPD. Respiratory comorbidities were significantly associated with increased risk of overall mortality in asthmatic patients compared with controls (adjusted HRs; 1.48 for COPD, 1.40 for bronchiectasis, 4.08 for lung cancer, and 1.59 for pneumonia). While asthma and lung cancer showed an additive effect only on overall mortality, asthma and other respiratory comorbidities (COPD, pneumonia, and bronchiectasis) had additive effects only on respiratory mortality. Patients with asthma had a higher overall mortality rate compared with subjects without asthma. Respiratory comorbidities showed an additive effect on overall or respiratory mortality in patients with asthma.

- 35 references

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Expert Opin Pharmacother
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. 2022 May 16.
doi: 10.1080/14656566.2022.2076592. Online ahead of print.

Advances in inhaled corticosteroids for the treatment of chronic obstructive pulmonary disease: what is their value today?

Mario Cazzola[1], Josuel Ora[2], Luigino Calzetta[3], Paola Rogliani[1,2], Maria Gabriella Matera[4]
Affiliations expand

- PMID: 35575510

- DOI: 10.1080/14656566.2022.2076592

Abstract

Introduction: As of today, there is still a need to determine which COPD patients may benefit from ICS therapy, whether ICSs are useful in COPD patients without chronic bronchitis, and whether long-acting bronchodilators can reduce the risk of exacerbations in frequent exacerbators even if ICSs are not used, and whether combination therapy including ICSs is helpful in infrequent exacerbators to optimise the use of ICSs in COPD. Nevertheless, in recent years, a fair amount of evidence has been produced that, at least in part, can help define the role of ICSs in COPD better.

Areas covered: Herein, the authors provide an overview of current use of ICS in COPD and discuss their value to the current treatment armamentarium. The article includes discussion of which patients will benefit best from the use of ICSs, their potential uses and adverse effects.

Expert opinion: There is growing agreement on why, in whom, and when ICS therapy can be used in COPD, although the consensus is still lacking because of the heterogeneity of COPD. The use of blood eosinophil counts (BECs) is only helpful in T2 inflammation, while there is a lack of biomarkers indicating the presence of T1 and T17 immunity, which is

poorly responsive to ICS. Identifying ICS-sensitive endotypes using specific biomarkers that have yet to be identified and validated is likely to demonstrate that ICSs can influence the natural course of COPD in at least a subset of patients.

Keywords: COPD; blood eosinophil count; exacerbation; inhaled corticosteroids; mortality; phenotype; pneumonia.

Scand J Prim Health Care

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. 2022 May 16;1-9.
doi: 10.1080/02813432.2022.2073961. Online ahead of print.

Exploration of the feasibility to combine patients with chronic obstructive pulmonary disease and chronic heart failure in self-management groups with focus on exercise self-efficacy

Maaike Giezeman[1,2], Kersti Theander[2], Ann-Britt Zakrisson[1], Josefin Sundh[3], Mikael Hasselgren[1]
Affiliations expand

- PMID: 35575429

- DOI: 10.1080/02813432.2022.2073961

Abstract

Objective: To compare the level of exercise self-efficacy, symptoms, functional capacity and health status and investigate the association between these variables in patients with chronic obstructive pulmonary disease (COPD) and chronic heart failure (CHF). Additionally, to investigate how diagnosis, symptoms and patient characteristics are associated with exercise self-efficacy in these patient groups.

Design: Cross-sectional study.

Setting: Primary care.

Subjects: Patients (*n* = 150) with COPD (*n* = 60), CHF (*n* = 60) and a double diagnosis (*n* = 30).

Main outcome measures: Swedish SCI Exercise Self-Efficacy score, modified Medical Research Council Dyspnea score (mMRC), fatigue score, pain severity score, Hospital Anxiety and Depression Scale, functional capacity measured as six-minute walking distance and health status measured by a Visual Analogue Scale.

Results: Levels of exercise self-efficacy, health status and symptoms were alike for patients with COPD and patients with CHF. Functional capacity was similar after correction for age. Associations with exercise self-efficacy were found for slight dyspnea (mMRC = 1) (R -4.45; 95% CI -8.41- -0.50), moderate dyspnea (mMRC = 2) (-6.60;-10.68- -2.52), severe dyspnea (mMRC ≥ 3) (-9.94; -15.07- -4.80), fatigue (-0.87;-1.41- -0.32), moderate pain (-3.87;-7.52- -0.21) and severe pain (-5.32;-10.13- -0.52), symptoms of depression (-0.98;-1.42- -0.55) and anxiety (-0.65;-0,10- -0.32), after adjustment for diagnosis, sex and age.

Conclusion and implications: Patients with COPD or CHF have similar levels of exercise self-efficacy, symptoms, functional capacity and health status. More severe symptoms are associated with lower levels of exercise self-efficacy regardless of diagnosis, sex and age. When forming self-management groups with a focus on exercise self-efficacy, it seems more relevant to consider level of symptoms than the specific diagnosis of COPD or CHF.Key pointsExercise training is an important part of self-management in patients with COPD and chronic heart failure (CHF). High exercise self-efficacy is required for optimal exercise training.Patients with COPD and CHF have similar symptoms and similar levels of exercise self-efficacy, functional capacity and health status.Not the diagnosis, but symptoms of dyspnea, fatigue, pain, depression and anxiety are important factors influencing exercise self-efficacy and need to be addressed.When forming self-management groups with a focus on exercise self-efficacy, it seems more relevant to consider the level of symptoms than the specific diagnosis of COPD or CHF.

Keywords: Pulmonary disease; chronic obstructive; exercise; feasibility studies; heart failure; self-efficacy; self-management.

BMC Health Serv Res
.
. 2022 May 14;22(1):646.
doi: 10.1186/s12913-022-07938-y.

Effectiveness of remote home monitoring for patients with Chronic Obstructive Pulmonary Disease (COPD): systematic review

Fernanda Inagaki Nagase[1], Tania Stafinski[1], Melita Avdagovska[1], Michael K Stickland[2,3,4], Evelyn Melita Etruw[5], Devidas Menon[6]
Affiliations expand

- PMID: 35568904

- DOI: 10.1186/s12913-022-07938-y

Free article

Abstract

Background: Although remote home monitoring (RHM) has the capacity to prevent exacerbations in patients with chronic obstructive pulmonary disease (COPD), evidence regarding its effectiveness remains unclear. The objective of this study was to determine the effectiveness of RHM in patients with COPD.

Methods: A systematic review of the scholarly literature published within the last 10 years was conducted using internationally recognized guidelines. Search strategies were applied to several electronic databases and clinical trial registries through March 2020 to identify studies comparing RHM to 'no remote home monitoring' (no RHM) or comparing RHM with provider's feedback to RHM without feedback. To critically appraise the included randomized studies, the Cochrane Collaboration risk of bias tool (ROB) was used. The quality of included non-randomized interventional and comparative observational studies

was evaluated using the ACROBAT-NRSI tool from the Cochrane Collaboration. The quality of evidence relating to key outcomes was assessed using Grading of Recommendations, Assessment, Development and Evaluations (GRADE) on the following: health-related quality of life (HRQoL), patient experience and number of exacerbations, number of emergency room (ER) visits, COPD-related hospital admissions, and adherence as the proportion of patients who completed the study. Three independent reviewers assessed methodologic quality and reviewed the studies.

Results: Seventeen randomized controlled trials (RCTs) and two comparative observational studies were included in the review. The primary finding of this systematic review is that a considerable amount of evidence relating to the efficacy/effectiveness of RHM exists, but its quality is low. Although RHM is safe, it does not appear to improve HRQoL (regardless of the type of RHM), lung function or self-efficacy, or to reduce depression, anxiety, or healthcare resource utilization. The inclusion of regular feedback from providers may reduce COPD-related hospital admissions. Though adherence RHM remains unclear, both patient and provider satisfaction were high with the intervention.

Conclusions: Although a considerable amount of evidence to the effectiveness of RHM exists, due to heterogeneity of care settings and the low-quality evidence, they should be interpreted with caution.

Keywords: COPD; Home-based; Remote monitoring; Systematic review.

- 64 references

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ESC Heart Fail

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. 2022 May 13.
doi: 10.1002/ehf2.13954. Online ahead of print.

Multimorbidity, guideline-directed medical therapies, and associated outcomes among hospitalized heart failure patients

Shinsuke Takeuchi[1], Takashi Kohno[1], Ayumi Goda[1], Yasuyuki Shiraishi[2], Masataka Kawana[3], Mike Saji[4], Yuji Nagatomo[5], Yosuke Nishihata[6], Makoto Takei[7], Shintaro Nakano[8], Kyoko Soejima[1], Shun Kohsaka[2], Tsutomu Yoshikawa[4], West Tokyo Heart Failure Registry Investigators
Affiliations expand

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Free article

Abstract

Aims: Multimorbidity is common among heart failure (HF) patients and may attenuate guideline-directed medical therapy (GDMT). Multimorbid patients are under-represented in clinical trials; therefore, the effect of multimorbidity clustering on the prognosis of HF patients remains unknown. We evaluated the prevalence of multimorbidity clusters among consecutively registered hospitalized HF patients and assessed whether GDMT attenuated outcomes.

Methods and results: We examined 1924 hospitalized HF patients with reduced left ventricular ejection fraction (<50%) in a multicentre registry (West Tokyo HF Registry: WET-HF). Ten comorbid conditions in the WET-HF were abstracted: coronary artery disease, atrial fibrillation, stroke, anaemia, chronic obstructive pulmonary disease, renal dysfunction, obesity, hypertension, dyslipidaemia, and diabetes. Patients were divided into three groups (0-2: n = 451; 3-4: n = 787; and ≥5: n = 686) based on the number of comorbid conditions. The primary composite endpoint was all-cause mortality and HF rehospitalization. The most prevalent comorbidities were renal dysfunction (67.9%), hypertension (66.0%), and anaemia (53.8%). Increased comorbidity was associated with increased adverse outcomes [3-4: hazard ratio (HR) 1.42, 95% confidence interval (CI) 1.13-1.77, P = 0.003; ≥5: HR 2.12, 95%CI 1.69-2.65, P < 0.001; and reference: 0-2] and lower GDMT prescription rate (0-2: 69.2%; 3-4: 57.7%; and ≥5: 57.6%). GDMT was associated with decreased adverse outcomes; this association was maintained even as the comorbidity burden increased but

tended to weaken (0-2: HR 0.53, 95%CI 0.35-0.78; P = 0.001; 3-4: HR 0.82, 95%CI 0.65-1.04, P = 0.095; and ≥5: HR 0.81, 95%CI 0.65-1.00, P = 0.053; P for interaction = 0.156).

Conclusions: Comorbidity clusters were prevalent and associated with poorer outcomes. GDMT remained beneficial regardless of the comorbidity burden but tended to weaken with increasing comorbidity burden. Further research is required to optimize medical care in these patients.

Keywords: Comorbidity; Guideline-directed medical therapy; Heart failure; Multimorbidity.

- 34 references

SUPPLEMENTARY INFO

Grant supportexpand

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PLoS One

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. 2022 May 12;17(5):e0267952.
doi: 10.1371/journal.pone.0267952. eCollection 2022.

Effectiveness of a home telemonitoring program for patients with chronic obstructive pulmonary disease in Germany: Evidence from the first three years

Florian Hofer[1], Jonas Schreyögg[1], Tom Stargardt[1]
Affiliations expand

- PMID: 35551546

- PMCID: PMC9098037

- DOI: 10.1371/journal.pone.0267952

Free PMC article

Abstract

Introduction: Chronic obstructive pulmonary disease (COPD) affects more than 6 million people in Germany. Monitoring the vital parameters of COPD patients remotely through telemonitoring may help doctors and patients prevent and treat acute exacerbations of COPD, improving patients' quality of life and saving costs for the statutory health insurance system.

Objective: To evaluate the effects from October 2012 until December 2015 of a structured home telemonitoring program implemented by a statutory health insurer in Germany.

Methods: We conducted a retrospective cohort study using administrative data. After building a balanced control group using Entropy Balancing, we calculated difference-in-difference estimators to account for time-invariant heterogeneity. We estimated differences in mortality rates using Cox regression and conducted subgroup and sensitivity analyses to check the robustness of the base case results. We observed each patient in the program for up to 3 years depending on his or her time of enrolment.

Results: Among patients in the telemonitoring cohort, we observed significantly higher inpatient costs due to COPD (€524.2, p<0,05; €434.6, p<0.05) and outpatient costs (102.5, p<0.01; 78.8 p<0.05) during the first two years of the program. Additional cost categories were significantly increased during the first year of telemonitoring. We also observed a significantly higher number of drug prescriptions during all three years of the observation period (2.0500, p < 0.05; 0.7260, p < 0.05; 3.3170, p < 0.01) and a higher number of outpatient contacts during the first two years (0.945, p<0.01, 0.683, p<0.05). Furthermore, we found significantly improved survival rates for participants in the telemonitoring program (HR 0.68, p<0.001).

Conclusion: On one hand, telemonitoring was associated with higher health care expenditures, especially in the first year of the program. For example, we were able to

identify a statistically significant increase in inpatient costs due to COPD, outpatient contacts and drug prescriptions among individuals participating in the telemonitoring program. On the other hand, the telemonitoring program was accompanied by a survival benefit, which might be related to higher adherence rates, more intense treatment, or an improved understanding of COPD among these patients.

Conflict of interest statement

FH was a research associate at the Hamburg Center for Health Economics when this research was conducted. Since September 2019 FH is associated with AstraZeneca GmbH.

- 43 references
- 2 figures

SUPPLEMENTARY INFO

Grant supportexpand

FULL TEXT LINKS

PLoS One
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. 2022 May 12;17(5):e0267195.
doi: 10.1371/journal.pone.0267195. eCollection 2022.

A longitudinal study of the pulmonary mycobiome in subjects with and without chronic obstructive pulmonary disease

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Affiliations expand

- PMID: 35551278

- PMCID: PMC9098062

- DOI: 10.1371/journal.pone.0267195

Free PMC article

Abstract

Background: Few studies have examined the stability of the pulmonary mycobiome. We report longitudinal changes in the oral and pulmonary mycobiome of participants with and without COPD in a large-scale bronchoscopy study (MicroCOPD).

Methods: Repeated sampling was performed in 30 participants with and 21 without COPD. We collected an oral wash (OW) and a bronchoalveolar lavage (BAL) sample from each participant at two time points. The internal transcribed spacer 1 region of the ribosomal RNA gene cluster was PCR amplified and sequenced on an Illumina HiSeq sequencer. Differences in taxonomy, alpha diversity, and beta diversity between the two time points were compared, and we examined the effect of intercurrent antibiotic use.

Results: Sample pairs were dominated by Candida. We observed less stability in the pulmonary taxonomy compared to the oral taxonomy, additionally emphasised by a higher Yue-Clayton measure in BAL compared to OW (0.69 vs 0.22). No apparent effect was visually seen on taxonomy from intercurrent antibiotic use or participant category. We found no systematic variation in alpha diversity by time either in BAL (p-value 0.16) or in OW (p-value 0.97), and no obvious clusters on bronchoscopy number in PCoA plots. Pairwise distance analyses showed that OW samples from repeated sampling appeared more stable compared to BAL samples using the Bray-Curtis distance metric (p-value 0.0012), but not for Jaccard.

Conclusion: Results from the current study propose that the pulmonary mycobiome is less stable than the oral mycobiome, and neither COPD diagnosis nor intercurrent antibiotic use seemed to influence the stability.

Conflict of interest statement

I have read the journal's policy and the authors of this manuscript have the following competing interests: Einar M. H. Martinsen, Elise O. Leiten, Gunnar Husebø, and Solveig

Tangedal declare no conflict of interest. Walter Sanseverino and Andreu Paytuví-Gallart are employed at Sequentia Biotech SL. Tomas M. L. Eagan reports lecture fees from Boehringer and AstraZeneca, and grants from GlaxoSmithKline outside the submitted work. Harald G. Wiker reports being head of the educational programme for medicine at the University of Bergen. Kristel S. Knudsen reports lecture fees from Boehringer Ingelheim and Roche. Rune Nielsen reports grants from Boehringer Ingelheim, GlaxoSmithKline, AstraZeneca, and the Timber Merchant Delphins Endowment, in addition to lecture fees from GlaxoSmithKline and AstraZeneca. Rune Nielsen also reports being unpaid member of The Norwegian Respiratory Society, unpaid GOLD national delegate, unpaid ERS national delegate, and paid member of the Reference group for new Norwegian guidelines for COPD (The Norwegian Directorate of Health). This does not alter our adherence to PLOS ONE policies on sharing data and materials.

Am J Cardiol

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. 2022 May 9;S0002-9149(22)00364-2.

doi: 10.1016/j.amjcard.2022.04.003. Online ahead of print.

Meta-Analysis Assessing the Cardiovascular Efficacy of Sodium-Glucose Co-Transporter-2 Inhibitors in

Patients With Chronic Obstructive Pulmonary Disease

Dimitrios Patoulias[1], Christodoulos Papadopoulos[2], Nikolaos Fragakis[2], Asterios Karagiannis[1], Michael Doumas[3]
Affiliations expand

- PMID: 35550822

- DOI: 10.1016/j.amjcard.2022.04.003

No abstract available

SUPPLEMENTARY INFO

Publication typesexpand

FULL TEXT LINKS

Am J Respir Crit Care Med

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. 2022 May 13.
doi: 10.1164/rccm.202109-2133OC. Online ahead of print.

Characterization of Immunopathology and Small Airway Remodeling in Constrictive Bronchiolitis

Sergey S Gutor[1], Bradley W Richmond[2], Rui-Hong Du[2], Pingsheng Wu[2,3], Jae Woo Lee[4], Lorraine B Ware[5], Ciara M Shaver[2], Sergey V Novitskiy[6], Joyce E Johnson[7], John H Newman[2], Stephen I Rennard[8], Robert F Miller[2], Timothy S Blackwell[2], Vasiliy V Polosukhin[2]
Affiliations expand

- PMID: 35550018

- DOI: 10.1164/rccm.202109-2133OC

Abstract

Rationale: Constrictive bronchiolitis (ConB) is a relatively rare and understudied form of lung disease whose underlying immunopathology remains incompletely defined.

Objectives: Our objectives were to quantify specific pathological features that differentiate ConB from other diseases that affect the small airways and to investigate the underlying immune/inflammatory phenotype present in ConB.

Methods: We performed a comparative histomorphometric analysis of small airways in lung biopsy samples collected from 50 soldiers with post-deployment ConB, 8 patients with sporadic ConB, 55 patients with chronic obstructive pulmonary disease (COPD), and 25 non-diseased control subjects. We measured immune and inflammatory gene expression in lung tissue using the NanoString nCounter® Immunology Panel from 6 controls, 6 soldiers with ConB, and 6 sporadic ConB patients.

Measurements and main results: Compared to control subjects, we found shared pathological changes in small airways from soldiers with post-deployment ConB and patients with sporadic ConB, including increased thickness of the smooth muscle layer, increased collagen deposition in the subepithelium, and lymphocyte infiltration. Using principal component analysis, we showed that ConB pathology was clearly separable both from control lungs and small airways disease associated with COPD. NanoString gene expression analysis from lung tissue revealed T cell activation in both groups of ConB patients with up-regulation of pro-inflammatory pathways, including cytokine-cytokine receptor interactions, NF-κB signaling, Toll-like receptor signaling, T cell receptor signaling, and antigen processing and presentation.

Conclusions: These findings indicate shared immunopathology among different forms of ConB and suggest that an ongoing Th1-type adaptive immune response underlies airway wall remodeling in ConB.

Keywords: COPD; gene expression profiling; inflammation; small airway disease.

Am J Respir Crit Care Med
.
. 2022 May 12.
doi: 10.1164/rccm.202110-2302OC. Online ahead of print.

Risks of Mortality and Airflow Limitation in Japanese with Preserved Ratio Impaired Spirometry

Yasuyoshi Washio[1,2], Satoko Sakata[2,3,4], Satoru Fukuyama[1], Takanori Honda[2], Keiko Kan-O[1], Mao Shibata[2,5], Jun Hata[6,5,7], Hiromasa Inoue[8], Takanari Kitazono[7,3], Koichiro Matsumoto[1], Toshiharu Ninomiya[2,3]
Affiliations expand

- PMID: 35549659

- DOI: 10.1164/rccm.202110-2302OC

Abstract

Rationale: Several Western studies have reported that participants with preserved ratio impaired spirometry (PRISm) have higher risks of airflow limitation (AFL) and death. However, evidence in East Asian populations is limited.

Objectives: To investigate the relation between PRISm and the risks of death and incident AFL in a Japanese population.

Methods: A total of 3,032 community-dwelling Japanese participants aged ≥40 years were followed up for a median of 5.3 years by annual spirometry examinations. Participants were classified into lung function categories at baseline as follows: normal spirometry (forced expiratory volume in 1 second/forced vital capacity (FEV1/FVC) ≥0.70 and FEV1 ≥80% predicted), PRISm (≥0.70 and <80%), AFL Global Initiative for Chronic Obstructive Lung

Disease (GOLD) 1 (<0.70 and ≥80%), and AFL GOLD 2-4 (<0.70 and <80%). Hazard ratios (HRs) and their 95% confidence intervals (CIs) were computed using a Cox proportional hazard model.

Measurements and main results: During the follow-up period, 131 participants died, 22 of whom died from cardiovascular disease, and 218 participants developed AFL. When examining the prognosis of each baseline pulmonary function category, participants with PRISm had higher risks of all-cause death (HR 2.20 [95%CI: 1.35 to 3.59]) and cardiovascular death (HR 4.07 [1.07 to 15.42]) than those with normal spirometry after adjusting for confounders. Moreover, the multivariable-adjusted risk of incident AFL was greater in participants with PRISm than in those with normal spirometry (HR 2.48 [1.83 to 3.36]).

Conclusions: PRISm was associated with higher risks of all-cause and cardiovascular death and a greater risk of the development of AFL in a Japanese community.

Keywords: lung disease epidemiology; spirometry classification; spirometry mortality; spirometry statistics and numerical data.

Editorial

JAMA

. 2022 May 10;327(18):1768-1770.
doi: 10.1001/jama.2022.3823.

Screening for Chronic Obstructive Pulmonary Disease: Challenges and Opportunities

Surya P Bhatt[1], George T O'Connor[2,3]
Affiliations expand

- PMID: 35536275

- DOI: 10.1001/jama.2022.3823

No abstract available

Comment on

- Screening for Chronic Obstructive Pulmonary Disease: US Preventive Services Task Force Reaffirmation Recommendation Statement.
  US Preventive Services Task Force, Mangione CM, Barry MJ, Nicholson WK, Cabana M, Caughey AB, Chelmow D, Coker TR, Davis EM, Donahue KE, Jaén CR, Kubik M, Li L, Ogedegbe G, Pbert L, Ruiz JM, Stevermer J, Tseng CW, Wong JB.JAMA. 2022 May 10;327(18):1806-1811. doi: 10.1001/jama.2022.5692.PMID: 35536260

JAMA
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. 2022 May 10;327(18):1831.
doi: 10.1001/jama.2022.6110.

Screening for Chronic Obstructive Pulmonary Disease

Jill Jin[1]
Affiliations expand

- PMID: 35536265

- DOI: 10.1001/jama.2022.6110

No abstract available

Original report in

- Screening for Chronic Obstructive Pulmonary Disease: US Preventive Services Task Force Reaffirmation Recommendation Statement.
  US Preventive Services Task Force, Mangione CM, Barry MJ, Nicholson WK, Cabana M, Caughey AB, Chelmow D, Coker TR, Davis EM, Donahue KE, Jaén CR, Kubik M, Li L, Ogedegbe G, Pbert L, Ruiz JM, Stevermer J, Tseng CW, Wong JB.JAMA. 2022 May 10;327(18):1806-1811. doi: 10.1001/jama.2022.5692.PMID: 35536260

JAMA

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. 2022 May 10;327(18):1812-1816.
doi: 10.1001/jama.2022.4708.

Screening for Chronic Obstructive Pulmonary Disease: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force

Elizabeth M Webber[1], Jennifer S Lin[1], Rachel G Thomas[1]

Affiliations expand

- PMID: 35536261

- DOI: 10.1001/jama.2022.4708

Abstract

Importance: Chronic obstructive pulmonary disease (COPD) is a leading cause of morbidity and mortality in the US.

Objective: To conduct a targeted systematic review to update the evidence on the effectiveness of screening for COPD and the treatment of COPD to inform the US Preventive Services Task Force (USPSTF) update of the 2016 recommendation statement on COPD screening.

Data sources: MEDLINE, the Cochrane Central Register of Controlled Trials, and CINAHL for relevant studies published between January 1, 2015, to January 22, 2021; surveillance through March 25, 2022.

Study selection: English-language studies of screening in individuals who do not recognize or report respiratory symptoms; studies of treatment in persons with mild or moderate, or minimally symptomatic, COPD.

Data extraction and synthesis: Two reviewers independently appraised the articles and extracted relevant data from fair- or good-quality studies; no quantitative synthesis was conducted.

Main outcomes and measures: COPD-related morbidity or mortality, measures of health-related quality of life, and adverse events.

Results: The review included no trials on the effectiveness of screening, 3 trials or analyses (n = 20 058) of pharmacologic treatment published since 2015, 13 trials (n = 3657) on nonpharmacologic interventions, and 2 large observational studies (n = 243 517) addressing the harms of pharmacologic treatment published since 2015. The results from the clinical trials of pharmacologic therapy are consistent with the previous review supporting the USPSTF that bronchodilators with or without inhaled corticosteroids can reduce COPD exacerbations and tiotropium can improve health-related quality of life in adults with moderate COPD. Overall, there was no consistent benefit observed for any type of nonpharmacologic intervention across a range of patient outcomes. None of the included treatment trials that reported adverse effects found significant harms. Two large observational studies in a screen-relevant population demonstrated an association of the initiation of a long-acting muscarinic antagonist or long-acting beta agonist with the risk of a serious cardiovascular event in treatment-naïve patients and an association of inhaled corticosteroids use with the risk of developing diabetes.

Conclusions and relevance: The findings of this targeted evidence update are generally consistent with the findings of the previous systematic review supporting the 2016 USPSTF recommendation. Evidence of pharmacologic treatment was still largely limited to persons with moderate airflow obstruction, and there was no consistent benefit observed for a range of nonpharmacologic interventions in mild to moderate COPD or in minimally symptomatic persons with COPD.

SUPPLEMENTARY INFO

Publication types, MeSH terms, Substancesexpand

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Practice Guideline

JAMA

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. 2022 May 10;327(18):1806-1811.
doi: 10.1001/jama.2022.5692.

Screening for Chronic Obstructive Pulmonary Disease: US Preventive Services Task Force Reaffirmation Recommendation Statement

US Preventive Services Task Force; Carol M Mangione[1], Michael J Barry[2], Wanda K Nicholson[3], Michael Cabana[4], Aaron B Caughey[5], David Chelmow[6], Tumaini Rucker Coker[7], Esa M Davis[8], Katrina E Donahue[3], Carlos Roberto Jaén[9], Martha Kubik[10], Li Li[11], Gbenga Ogedegbe[12], Lori Pbert[13], John M Ruiz[14], James Stevermer[15], Chien-Wen Tseng[16], John B Wong[17]

Affiliations expand

- PMID: 35536260

- DOI: 10.1001/jama.2022.5692

Abstract

Importance: Chronic obstructive pulmonary disease (COPD) is an irreversible reduction of airflow in the lungs. Progression to severe disease can prevent participation in normal activities because of deterioration of lung function. In 2020 it was estimated that approximately 6% of US adults had been diagnosed with COPD. Chronic lower respiratory disease, composed mainly of COPD, is the sixth leading cause of death in the US.

Objective: To update its 2016 recommendation, the US Preventive Services Task Force (USPSTF) commissioned a reaffirmation evidence update that focused on targeted key questions for benefits and harms of screening for COPD in asymptomatic adults and treatment in screen-detected or screen-relevant adults.

Population: Asymptomatic adults who do not recognize or report respiratory symptoms.

Evidence assessment: Using a reaffirmation process, the USPSTF concludes with moderate certainty that screening for COPD in asymptomatic adults has no net benefit.

Recommendation: The USPSTF recommends against screening for COPD in asymptomatic adults. (D recommendation).

Comment in

- Screening for Chronic Obstructive Pulmonary Disease: Challenges and Opportunities.
  Bhatt SP, O'Connor GT.JAMA. 2022 May 10;327(18):1768-1770. doi: 10.1001/jama.2022.3823.PMID: 35536275 No abstract available.

Summary for patients in

- Screening for Chronic Obstructive Pulmonary Disease.
  Jin J.JAMA. 2022 May 10;327(18):1831. doi: 10.1001/jama.2022.6110.PMID: 35536265 No abstract available.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

FULL TEXT LINKS

BMC Pulm Med
. 2022 May 8;22(1):185.
doi: 10.1186/s12890-022-01980-6.

Association between annual change in FEV_1 and comorbidities or impulse oscillometry in chronic obstructive pulmonary disease

Hiroyuki Sugawara[1,2], Atsushi Saito[3], Saori Yokoyama[2], Kazunori Tsunematsu[1], Hirofumi Chiba[2]
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- PMID: 35527263
- PMCID: PMC9080138
- DOI: 10.1186/s12890-022-01980-6

Free PMC article

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is characterized by persistent respiratory symptoms and airflow limitation. The decline in forced expiratory volume in one second (FEV_1) is considered to be one of the most important outcome measures for evaluating disease progression. However, the only intervention proven to improve COPD prognosis is smoking cessation. This study therefore investigated the factors associated with annual FEV_1 decline in COPD.

Methods: This retrospective study followed up 65 patients treated for COPD for 5 years: 13 current smokers and 52 former smokers, 25 with pneumonia, 24 with asthma, 18 with cancer, and 17 with cardiovascular disease. The patients were divided into groups based on clinical cutoff parameters of the impulse oscillometry system (IOS): 11 high and 54 low R5, 8 high and 57 low R20, 21 high and 44 low R5-R20, 26 high and 39 low X5, 38 high and 27 low Fres, and 36 high and 29 low AX. We investigated whether the decline in FEV_1 was associated with comorbidities and IOS parameters.

Results: The annual change in FEV_1 over 5 years was significantly affected by smoking status (current - 66.2 mL/year vs. former - 5.7 mL/year, $p < 0.01$), pneumonia (with - 31.5 mL/year vs. without - 8.9 mL/year, $p < 0.05$), asthma (with - 30.2 mL/year vs. - 10.8 mL/year, $p < 0.01$), but not by cancer and cardiovascular disease. In the groups defined by IOS results, only the high AX group had significantly more annual decline in FEV_1 and $\%FEV_1$ than the low AX group (- 22.1 vs. - 12.8, $p < 0.05$ and - 0.20 vs. 0.40, $p < 0.05$, respectively).

Conclusions: Continuing smoking as well as complications in pneumonia and asthma would be risk factors for the progression of COPD. AX might be a suitable parameter to predict the prognosis of patients with COPD.

Keywords: COPD Assessment Test; Chronic obstructive pulmonary disease; Impulse oscillometry system; Pulmonary function test; St. George's Respiratory Questionnaire.

Conflict of interest statement

None of the authors have a conflict of interest to declare.

- 45 references
- 4 figures

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

FULL TEXT LINKS

ASTHMA

Items 1-14 of 14 (Display the 14 citations in PubMed)

1. **Additive effects of coexisting respiratory comorbidities on overall or respiratory mortality in patients with asthma: a national cohort study**

Sci Rep. 2022 May 16;12(1):8105. doi: 10.1038/s41598-022-12103-w.

Authors

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- DOI: 10.1038/s41598-022-12103-w

Abstract

Asthmatic patients are generally considered to have an increased risk of mortality compared with subjects without asthma. However, this issue has been less evaluated using nationally representative data. Moreover, it is unclear whether respiratory comorbidities other than chronic obstructive pulmonary disease (COPD) are associated with increased mortality in asthmatic patients compared with subjects without. Using a nationally representative sample database, we performed a retrospective cohort study of patients with asthma and age-sex-matched control cohort. We estimated the hazard ratio (HR) and stratified the asthma cohort based on respiratory comorbidities. During a median 8.9-year follow-up, the overall mortality rate was higher in the asthma cohort than in the control cohort ($p < 0.001$). The hazard ratio (HR) for overall mortality in the asthma cohort compared with the control cohort was 1.13. The effects of asthma on overall mortality were more evident in males, patients under medical aid, and subjects with COPD. Respiratory comorbidities were significantly associated with increased risk of overall mortality in asthmatic patients compared with controls (adjusted HRs; 1.48 for COPD, 1.40 for bronchiectasis, 4.08 for lung cancer, and 1.59 for pneumonia). While asthma and lung cancer showed an additive effect only on overall mortality, asthma and other respiratory comorbidities (COPD, pneumonia, and bronchiectasis) had additive effects only on respiratory mortality. Patients with asthma had a higher overall mortality rate compared with subjects without asthma. Respiratory comorbidities showed an additive effect on overall or respiratory mortality in patients with asthma.

- 35 references

2. ## Tezepelumab compared with other biologics for the treatment of severe asthma: a systematic review and indirect treatment comparison

J Med Econ. 2022 May 16;1-86. doi: 10.1080/13696998.2022.2074195. Online ahead of print.

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- PMID: 35570578
- DOI: 10.1080/13696998.2022.2074195

Abstract

AIMS To compare the efficacy of tezepelumab with other approved biologics via indirect treatment comparisons (ITCs) in patients aged ≥12 years with severe uncontrolled asthma.**MATERIALS AND METHODS** Data from randomized controlled trials (RCTs) identified from a systematic literature review were synthesized using two different ITC approaches: network meta-analysis (NMA) and simulated treatment comparison (STC). Outcomes of interest were annualized asthma exacerbation rate (AAER) and AAER for exacerbations leading to hospitalization. To address potential heterogeneity between study populations, various subgroup analyses were performed for the NMA (based on blood eosinophil count [Eos], fractional exhaled nitric oxide level, and presence of allergic asthma), and for the STC, models were adjusted for potential treatment effect modifiers. Sensitivity analyses were performed to assess the impact of study design (exclusion of non placebo-controlled studies and non-phase 3 or 4 studies). Results were reported as rate ratios (RRs) with 95% credible/confidence intervals and ranking statistics were computed for the NMAs.**RESULTS** Sixteen RCTs were included in at least one of the ITCs. All biologics (tezepelumab, dupilumab, benralizumab, mepolizumab, reslizumab, and omalizumab) had similar efficacy, with no statistically significant RRs for either exacerbation

outcome; however, tezepelumab was favorably associated with numerically lower AAERs and was ranked first in the network for both types of exacerbation outcome. This trend was consistent in the subgroup and sensitivity analyses. As with the primary NMA, the STC results did not demonstrate any significant differences between biologics, but point estimates were favorable towards tezepelumab.**LIMITATIONS** Heterogeneity between trials was observed among eligibility criteria and clinically important patient characteristics; however, impact on findings is expected to be low, based on consistency across analyses.**CONCLUSIONS** Findings from both ITCs (NMA and STC) support the use of tezepelumab in a broad patient population of severe uncontrolled asthma of any phenotype.

Keywords: C; C00; I; I1; I10; Severe asthma; asthma exacerbation; biologics; eosinophilic asthma; indirect treatment comparison; network meta-analysis; simulated treatment comparison; tezepelumab; uncontrolled asthma.

3. ## Albuterol-Budesonide Fixed-Dose Combination Rescue Inhaler for Asthma

N Engl J Med. 2022 May 15. doi: 10.1056/NEJMoa2203163. Online ahead of print.

Authors

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- PMID: 35569035
- DOI: 10.1056/NEJMoa2203163

Abstract

Background: As asthma symptoms worsen, patients typically rely on short-acting β_2-agonist (SABA) rescue therapy, but SABAs do not address worsening inflammation, which leaves patients at risk for severe asthma exacerbations. The use of a fixed-dose combination of albuterol and budesonide, as compared with albuterol alone, as rescue medication might reduce the risk of severe asthma exacerbation.

Methods: We conducted a multinational, phase 3, double-blind, randomized, event-driven trial to evaluate the efficacy and safety of albuterol-budesonide, as compared with albuterol alone, as rescue medication in patients with uncontrolled moderate-to-severe asthma who were receiving inhaled glucocorticoid-containing maintenance therapies, which were continued throughout the trial. Adults and adolescents (≥12 years of age) were randomly assigned in a 1:1:1 ratio to one of three trial groups: a fixed-dose combination of 180 μg of albuterol and 160 μg of budesonide (with each dose consisting of two actuations of 90 μg and 80 μg, respectively [the higher-dose combination group]), a fixed-dose combination of 180 μg of albuterol and 80 μg of budesonide (with each dose consisting of two actuations of 90 μg and 40 μg, respectively [the lower-dose combination group]), or 180 μg of albuterol (with each dose consisting of two actuations of 90 μg [the albuterol-alone group]). Children 4 to 11 years of age were

randomly assigned to only the lower-dose combination group or the albuterol-alone group. The primary efficacy end point was the first event of severe asthma exacerbation in a time-to-event analysis, which was performed in the intention-to-treat population.

Results: A total of 3132 patients underwent randomization, among whom 97% were 12 years of age or older. The risk of severe asthma exacerbation was significantly lower, by 26%, in the higher-dose combination group than in the albuterol-alone group (hazard ratio, 0.74; 95% confidence interval [CI], 0.62 to 0.89; P = 0.001). The hazard ratio in the lower-dose combination group, as compared with the albuterol-alone group, was 0.84 (95% CI, 0.71 to 1.00; P = 0.052). The incidence of adverse events was similar in the three trial groups.

Conclusions: The risk of severe asthma exacerbation was significantly lower with as-needed use of a fixed-dose combination of 180 μg of albuterol and 160 μg of budesonide than with as-needed use of albuterol alone among patients with uncontrolled moderate-to-severe asthma who were receiving a wide range of inhaled glucocorticoid-containing maintenance therapies. (Funded by Avillion; MANDALA ClinicalTrials.gov number, NCT03769090.).

Full text links

NEJM FULL TEXT

4. ## Management of United Airway Disease focused on patients with asthma and chronic rhinosinusitis with nasal polyps: a systematic review

J Allergy Clin Immunol Pract. 2022 May 11;S2213-2198(22)00484-6. doi: 10.1016/j.jaip.2022.04.039. Online ahead of print.

Authors

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- PMID: 35568331
- DOI: 10.1016/j.jaip.2022.04.039

Abstract

Background: The clinical approach to upper and lower respiratory diseases from a joint perspective, known as united airway disease (UAD), is challenging for healthcare professionals due to a paucity of specific studies.

Objective: This study reviews recent scientific evidence on the management of asthma and chronic rhinosinusitis with nasal polyps (CRSwNP) from an UAD perspective.

Methods: A systematic search of PubMed, Scopus and Web of Science was conducted for nine research questions, and studies published from January 2015 to July 2021 were included. Quality assessment was performed with the Critical Appraisal Skills Programme.

Results: In total, 32 publications met the inclusion criteria. Control of type 2 inflammation in UAD (reported in 9 studies) was associated with biological therapies, for which an impact on asthma, CRSwNP and/or aspirin/nonsteroidal anti-inflammatory drug-exacerbated respiratory disease

(AERD/N-ERD) outcomes was described in 9 studies. However, there was a lack of scientific evidence on clinical and/or biochemical markers associated with response to biologics in patients with UAD. The benefit on corticosteroid reduction in patients receiving biologics was reported in 9 studies. Three publications reported a positive impact of surgery on asthma and/or CRSwNP outcomes, while the effect of biologics on reducing the need of surgery was consistent across six studies.

Conclusion: Our results underscore an overall scarcity of scientific evidence on the treatment strategies for these frequent coexisting entities from an UAD approach, but also identifies several research gaps and unmet needs that should be addressed to ensure optimal diagnosis, management, and follow-up of these patients.

Keywords: AERD/N-ERD; asthma; chronic rhinosinusitis with nasal polyps; management; type 2 inflammation; united airway disease.

Full text links

5. ## Long-Term Efficacy and Safety of Dupilumab in Adolescents with Moderate-to-Severe Atopic Dermatitis: Results Through Week 52 from a Phase III Open-Label Extension Trial (LIBERTY AD PED-OLE)

Am J Clin Dermatol. 2022 May 14. doi: 10.1007/s40257-022-00683-2. Online ahead of print.

Authors

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- PMID: 35567671
- DOI: 10.1007/s40257-022-00683-2

Abstract

Background: For adolescent patients (aged ≥ 12 to < 18 years) with uncontrolled moderate-to-severe atopic dermatitis (AD), 16 weeks of treatment with dupilumab resulted in substantial clinical benefit compared with placebo, with an acceptable safety profile. However, long-term data on the approved dose regimens of dupilumab in adolescents with AD are lacking.

Objectives: This open-label extension study (LIBERTY AD PED-OLE, NCT02612454) reports the long-term safety, efficacy, and pharmacokinetics of dupilumab in adolescents with moderate-to-severe AD who had participated in dupilumab parent trials.

Methods: Patients enrolled under the original study protocol received subcutaneous dupilumab according to a weight-based regimen (2 or 4 mg/kg every week). Following protocol amendment, patients were switched to subcutaneous dupilumab 300 mg every 4 weeks (q4w) irrespective of weight, and newly enrolled patients were started on dupilumab 300 mg q4w. Patients with an inadequate clinical response (Investigator's Global Assessment [IGA] score of 0/1 was not reached) to the q4w regimen could be uptitrated to the approved dupilumab dose regimens of 200 or 300 mg every 2 weeks (body weight < 60 or ≥ 60 kg, respectively). Patients whose IGA score of 0/1 was maintained continuously for a 12-week period after week 40 were discontinued from dupilumab, monitored for relapse, and re-initiated on dupilumab if required.

Results: Data for 294 patients (mean age 14.7 years) were analyzed, 102 (34.7%) of whom had completed the 52-week visit at the database lock. The dupilumab long-term safety profile was comparable to that seen in adults and consistent with the known safety profile. Most treatment-emergent adverse events were mild/moderate. By week 52, 42.7% of patients had an IGA score of 0/1 (clear/almost clear), and 93.1%, 81.2%, and 56.4%, respectively, had at least a 50%, 75%, or 90% improvement in Eczema Area and Severity Index (EASI). Most (70.9%) patients required uptitration to the approved dupilumab dose regimen. The proportions of uptitrated patients with an IGA score of 0/1 or 75% improvement in EASI increased over time, reaching 35.7% and 51.9%, respectively, 48 weeks after the first uptitration visit. By week 52, 29.4% of patients had clear/almost clear skin sustained for 12 weeks and had stopped medication; 56.7% relapsed and were subsequently re-initiated on treatment, with a mean time to re-initiation of 17.5 (± standard deviation 17.3) weeks.

Conclusions: Consistent with results seen with short-term treatment, long-term treatment with dupilumab showed an acceptable safety profile while providing incremental clinical benefit with continued treatment over time. The high proportion of patients who needed uptitration because of inadequate response to q4w dosing supports the q2w dose regimen as optimal for this age group. Finally, the majority of patients who stopped medication after having clear/almost clear skin sustained over 12 weeks experienced disease recurrence, suggesting the need for continued dupilumab dosing to maintain efficacy.

Trial registration: ClinicalTrials.gov
Identifiers: NCT02612454, NCT02407756, NCT03054428, and NCT03050151.

Infographic: Video abstract: What is the long-term safety and efficacy profile in adolescents with moderate-to-severe 98 atopic dermatitis treated with the approved dupilumab dose regimen? (MP4 40,966 KB).

Plain Language Summary

Atopic dermatitis, or eczema, is a common chronic skin disease that can cause intense and persistent itching and rashes. Atopic dermatitis remains a problem for many adolescent patients, even if they use a number of different treatments. Dupilumab is a newer treatment for atopic dermatitis. In short-term clinical studies, dupilumab improved the disease with acceptable safety. In this study, adolescents with moderate-to-severe atopic dermatitis who had completed one of the short-term studies continued dupilumab treatment for 1 year. The patients started treatment with dupilumab once every 4 weeks. But if their atopic dermatitis did not improve sufficiently, they were given dupilumab every 2 weeks. Through a year of treatment, there were no unexpected side effects. The side effects that did occur were mild or moderate in severity and in most cases did not lead to interruption of treatment. Almost half of the patients achieved skin that was clear or almost clear of atopic dermatitis during the study. But their atopic dermatitis often returned if they stopped being treated, and about half of them needed to start treatment again. Most patients needed to be treated every 2 weeks. The positive effects of dupilumab generally increased the longer patients were treated.

- 31 references

Full text links

SpringerLink FULL-TEXT ARTICLE

6. ## Hospitalization to Emergency Department Visit Ratio for Pediatric Asthma: A Population-Based Study

J Allergy Clin Immunol Pract. 2022 May 10;S2213-2198(22)00483-4. doi: 10.1016/j.jaip.2022.04.038. Online ahead of print.

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- PMID: 35561967
- DOI: 10.1016/j.jaip.2022.04.038

No abstract available

Full text links

7. Exacerbation Profile and Risk Factors in a T2-Low Severe Asthma Population

Am J Respir Crit Care Med. 2022 May 12. doi: 10.1164/rccm.202201-0129OC. Online ahead of print.

Authors

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- PMID: 35549845
- DOI: 10.1164/rccm.202201-0129OC

Abstract

Although present in a minority of severe asthmatics, very little is known about the mechanisms underlying T2-low asthma, making it a significant unmet need in asthma research.

Methods: Exacerbation assessment was a pre-specified secondary analysis of data from a RCT comparing the use of biomarkers & symptoms to adjust steroid treatment in a T2-low severe asthma-enriched cohort. Participants were phenotyped as T2LOW(fractional exhaled nitric oxide [FeNO] ≤20 ppb & blood eosinophil count [PBE] ≤150 cells/μL) or T2HIGH (FeNO>20 or PBE>150) at study enrolment & at each exacerbation. We report comparison of exacerbators & non-exacerbators, physiological changes at exacerbation in T2LOW & T2HIGH ,& stability of inflammatory phenotypes.

Results: 60.8% (183/301) ≥1 self-reported exacerbations (total of 390). Exacerbators were more likely to be female, have a higher BMI & more exacerbations requiring oral corticosteroid (OCS) & unscheduled primary care attendances for exacerbations. At enrolment, 23.6% (71/301) were T2LOW, & 76.4% (230/301) T2HIGH. The T2LOW group had more asthma primary care attendances, were more likely to have a previous admission to HDU/ICU & to be receiving maintenance OCS. At exacerbation the T2LOW events were indistinguishable from T2HIGH exacerbations in terms of lung

function & symptom increase, with no increase in T2 biomarkers from stable to exacerbation state in the T2LOW exacerbations.

Conclusion: Asthma exacerbations demonstrating a T2LOW phenotype were physiologically & symptomatically similar to T2HIGHexacerbations. The clinically significant T2LOW exacerbations highlights the unmet & pressing need to further understand the mechanisms at play in non-T2 asthma.

Keywords: T2-low; exacerbation; phenotype; severe asthma.

Full text links

AJRCCM Full Text

8. ## Susceptibility of Patients with Airways Disease to SARS-CoV-2 Infection

Am J Respir Crit Care Med. 2022 May 12. doi: 10.1164/rccm.202111-2547PP. Online ahead of print.

Authors

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- PMID: 35549839
- DOI: 10.1164/rccm.202111-2547PP

Abstract

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has led to a worldwide pandemic. People with airways disease are at higher risk of respiratory infection, and viruses can trigger respiratory exacerbations. Patients with airways disease may therefore be more susceptible to SARS-CoV-2 infection, development of covid-19, or be at higher risk of adverse outcomes. Here we review susceptibility, based on current epidemiological studies, and explore biological mechanisms. Evidence from multiple large observational studies has shown chronic obstructive pulmonary disease (COPD) is a significant risk factor for covid-19 related mortality. Whether people with asthma are more susceptible to infection or severe outcomes has been much debated but appears to be related to their asthma phenotype and severity. To what extent these differences are biological or influenced by public health non-pharmacological interventions is difficult to quantify. Biological mechanisms that may influence susceptibility and adverse outcomes in airways disease include the increased expression of protein receptors enabling viral cell entry, dysfunctional epithelial airway immunity, type-2 inflammation and the use of inhaled corticosteroids. A better understanding of the susceptibility and mechanisms is essential for developing preventative and therapeutic strategies. This article is open access and distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives License 4.0 (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Keywords: SARS-CoV-2; airways disease; asthma; copd; covid-19.

Full text links

AJRCCM Full Text

9. ## SARS-CoV-2 mRNA Vaccine Antibody Response in Asthma Patients with Biologic Therapy after Second and Booster Dose: A Real-world Analysis

Am J Respir Crit Care Med. 2022 May 12. doi: 10.1164/rccm.202203-0599LE. Online ahead of print.

Authors

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RHINITIS

Sci Rep
. 2022 May 16;12(1):8102.
doi: 10.1038/s41598-022-12207-3.

Associations of sleep problems with asthma and allergic rhinitis among Chinese preschoolers

Ying Ma[1], Jie Tang[2], Yuqi Wen[3], Yan Hu[3], Jingjing Liang[3], Lin Jiang[3], Yanfei Xing[3], Yanyan Song[3]
Affiliations expand

- PMID: 35577978

- DOI: 10.1038/s41598-022-12207-3

Abstract

The aim of this study was to examine the associations of sleep problems with asthma and allergic rhinitis among Chinese preschoolers. This cross-sectional survey was conducted in Guangzhou, China. Children aged 3-6 years were recruited from 32 kindergartens in 7 administrative districts. Asthma, allergic rhinitis and sleep problems were evaluated using a valid questionnaire. Binary logistic regression models were employed to estimate the odds ratios (OR) and 95% confidence intervals (CI) for the associations of asthma and allergic rhinitis with short sleep duration, late bedtime and frequent nocturnal awakening. We included 4876 preschool children in the current analysis. Of these, 182 (3.7%) diagnosed as asthma, and 511 (10.5%) diagnosed as allergic rhinitis. Frequent nocturnal awakening was associated with asthma and allergic rhinitis, with adjusted OR were 1.49 (95% CI 1.05-2.13) and 1.59 (95% CI 1.27-1.99), respectively. Subgroup analysis showed the OR for frequent nocturnal awakening with asthma was higher in girls (1.68; 95% CI 1.02-2.78) than in boys (1.35; 95% CI 0.81-2.24), but the OR for frequent nocturnal awakening with allergic rhinitis were similar in girls

(1.73; 95% CI 1.15-2.30) and boys (1.57; 95% CI 1.17-2.12). No significant associations of short sleep duration and late bedtime with asthma or allergic rhinitis were identified. Our data suggested that frequent nocturnal awakening was associated with asthma and allergic rhinitis among preschoolers, and the association of frequent nocturnal awakening with asthma differed by gender. Further studies are warranted to address the causal relationship between nocturnal awakening and asthma and allergic rhinitis.

- 47 references

SUPPLEMENTARY INFO

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Allergy
.
. 2022 May 14.
doi: 10.1111/all.15371. Online ahead of print.

Comparison of rhinitis treatments using MASK-air® data and considering the Minimal Important Difference

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Bom[63], Luis Taborda-Barata[64], Sanna Toppila-Salmi[39], Joaquin Sastre[65], Ioanna Tsiligianni[66], Arunas Valiulis[67], Olivier Vandenplas[68], Dana Wallace[69], Susan Waserman[70], Arzu Yorgancioglu[71], Mihaela Zidarn[72,73], Torsten Zuberbier[21,22], Joao A Fonseca[1,2,3], Jean Bousquet[21,22,74]
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- PMID: 35567393

- DOI: 10.1111/all.15371

Abstract

Background: Different treatments exist for allergic rhinitis (AR), including pharmacotherapy and allergen immunotherapy (AIT), but they have not been compared using direct patient data (i.e., "real-world data").

Objective: To compare AR pharmacological treatments on (i) daily symptoms, (ii) frequency of use in co-medication, (iii) visual analogue scale (VAS) on allergy symptom control considering the minimal important difference (MID) and (iv) the effect of AIT.

Methods: We assessed the MASK-air® app data (May 2015 - December 2020) by users self-reporting AR (16-90 years). We compared eight AR medication schemes on reported VAS of allergy symptoms, clustering data by patient, and controlling for confounding factors. We compared (i) allergy symptoms between patients with and without AIT and (ii) different drug classes used in comedication.

Results: We analysed 269,837 days from 10,860 users. Most days (52.7%) involved medication use. Median VAS levels were significantly higher in co-medication than in monotherapy (including the fixed combination azelastine-fluticasone) schemes. In adjusted models, azelastine-fluticasone was associated with lower average VAS global allergy symptoms than all other medication schemes, while the contrary was observed for oral corticosteroids. AIT was associated with a decrease in allergy symptoms in some medication schemes. A difference larger than the MID compared to no treatment was observed for oral steroids. Azelastine-fluticasone was the drug class with the lowest chances of being used in co-medication (adjusted OR=0.75; 95%CI=0.71-0.80).

Conclusions: Median VAS levels were higher in co-medication than in monotherapy. Patients with more severe symptoms report a higher treatment, which is currently not reflected in guidelines.

Keywords: allergen immunotherapy; allergic rhinitis; co-medication; multivariable mixed-effects model; real-world data.

. 2022 May 9;11(9):1584.
doi: 10.3390/cells11091584.

Safety Profile and Issues of Subcutaneous Immunotherapy in the Treatment of Children with Allergic Rhinitis

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Affiliations expand

- PMID: 35563890
- PMCID: PMC9100360
- DOI: 10.3390/cells11091584

Free PMC article

Abstract

This study aims to evaluate safety issues of house dust mite subcutaneous immunotherapy (SCIT) among allergic rhinitis (AR) children. A retrospective cohort study was done between 2015 and 2020 to investigate the side effects of SCIT among AR children caused by a house dust mite allergy. Among 1098 patients who received house dust mite subcutaneous immunotherapy injections, 284 patients (25.87%) had side effects (SE). SE were found to be 699 times higher or in 2.27% of the 30,744 subcutaneous immunotherapy injections. A total of 17.9% of the patients had local SE during SCIT administration. Systemic side effects occurred in 8.38% of children receiving SCIT and in 0.53% of the total population who received SCIT injections. Only 2/92 (2.18%) of patients suffered an allergic reaction within 30 minutes of

injection and these patients responded well to antiallergic medication. Severe anaphylaxis occurred in 0.091% of the 1098 patients in the SCIT group and in 0.0033% of the 30,774 SCIT injections. Systemic SE after SCIT occurred in 8.38% of patients receiving SCIT or 0.53% of the total number of SCIT injections. Anaphylactic episodes occurred in 16 patients (1.46%) and 15 patients (1.37%) who had first and second episodes. One severe attack was found and it was resolved with adrenaline. This study demonstrates that in pediatric patients with AR who received HDM SCIT for 18 months with high adherence, some experienced significant local SE and systemic SE caused by SCIT, but this did not interfere with the course of AR treatment or the effectiveness of SCIT.

Keywords: allergic rhinitis; efficacy; house dust mites; safety; subcutaneous immunotherapy.

Conflict of interest statement

The authors declare no conflict of interest.

- 45 references
- 5 figures

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Clin Exp Immunol

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. 2022 May 13;208(1):25-32.
doi: 10.1093/cei/uxac019.

Clinical features and nasal inflammation in asthma and allergic rhinitis

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Affiliations expand

- PMID: 35560176

- DOI: 10.1093/cei/uxac019

Abstract

Asthma and allergic rhinitis (AR) are widely considered to be the most common chronic inflammatory disorders. This study was performed to investigate the clinical features, disease severity, and upper airway inflammation among patients with asthma, AR, and asthma comorbid AR. Blood and nasal lavage fluid samples were collected from patients with isolated asthma (n = 23), isolated AR (n = 22), and asthma comorbid AR (n = 22). Demographic data, symptom evaluation, and spirometry were obtained from all subjects. The levels of interleukin (IL)-4, IL-5, IL-13, IL-17, IL-25, IL-33, and S100 proteins were measured in the nasal lavage fluid. Compared with isolated asthma, patients with asthma comorbid AR showed a lower quality of life according to the asthma quality-of-life questionnaire (AQLQ) score (6.11 ± 0.47 vs. 6.45 ± 0.35, P = 0.007). Additionally, no significant difference in the levels of IL-4 (P = 0.116), IL-25 (P = 0.235), and S100A12 (P = 0.392) was observed in nasal lavage fluid among three groups. However, miniscule levels of IL-5, IL-17, IL-13, IL-33, S100A8, and S100A9 were detected in nasal lavage fluid in all three groups. Patients with asthma comorbid AR showed an increased level of systemic cytokine in plasma than that of patients with isolated AR or asthma alone. The finding from our study may help clinicians to better understand the airway inflammation among asthma patients with or without AR.

Keywords: allergic rhinitis; asthma; clinical features; inflammation; nasal.

Ann Otol Rhinol Laryngol

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. 2022 May 12;34894221093890.
doi: 10.1177/00034894221093890. Online ahead of print.

Nasal Nitric Oxide as a Biomarker in the Diagnosis and Treatment of Sinonasal Inflammatory Diseases: A Review of the Literature

Jacob J Benedict[1], Matthew Lelegren[1], Joseph K Han[1], Kent Lam[1]
Affiliations expand

- PMID: 35549446

- DOI: 10.1177/00034894221093890

Abstract

Objective: To critically review the literature on nasal nitric oxide (nNO) and its current clinical and research applicability in the diagnosis and treatment of different sinonasal inflammatory diseases, including acute bacterial rhinosinusitis (ABRS), allergic rhinitis (AR), and chronic rhinosinusitis (CRS).

Methods: A search of the PubMed database was conducted to include articles on nNO and sinonasal diseases from January 2003 to January 2020. All article titles and abstracts were reviewed to assess their relevance to nNO and ABRS, AR, or CRS. After selection of the manuscripts, full-text reviews were performed to synthesize current understandings of nNO and its applications to the various sinonasal inflammatory diseases.

Results: A total of 79 relevant studies from an initial 559 articles were identified using our focused search and review criteria. nNO has been consistently shown to be decreased in ABRS and CRS, especially in cases with nasal polyps. While AR is associated with elevations in nNO, nNO levels have also been found to be lower in AR cases with higher symptom severity. The obstruction of the paranasal sinuses is speculated to be an important variable in the relationship between nNO and the sinonasal diseases. Treatment of these diseases appears to affect nNO through the reduction of inflammatory disease burden and also mitigation of sinus obstruction.

Conclusion: nNO has been of increasing interest to researchers and clinicians over the last decade. The most compelling data for nNO as a clinical tool involve CRS. nNO can be used as a marker of ostiomeatal complex patency. Variations in measurement techniques and technology continue to impede standardized interpretation and implementation of nNO as a biomarker for sinonasal inflammatory diseases.

Keywords: allergic rhinitis; chronic rhinosinusitis; fractionated exhaled nitric oxide; nasal nitric oxide; nasal polyps; nitric oxide.

Int Forum Allergy Rhinol
. 2022 May 11.
doi: 10.1002/alr.23011. Online ahead of print.

Local nasal immunotherapy for allergic rhinitis: A systematic review and meta-analysis

Navarat Kasemsuk[1,2], Premyot Ngaotepprutaram[1,2], Dichapong Kanjanawasee[2,3], Triphoom Suwanwech[1,2], Stephen R Durham[4], Giorgio Walter Canonica[5,6], Pongsakorn Tantilipikorn[1,2]
Affiliations expand

- PMID: 35543418

- DOI: 10.1002/alr.23011

Abstract

Introduction: Local nasal immunotherapy (LNIT), an alternative non-injection immunotherapy method, is theoretically an efficient method of inducing immunotolerance directly in the affected organ. LNIT is more convenient and less invasive than injection immunotherapy, with fewer systemic reactions. The development of adjuvants to overcome LNIT's limitations raises the possibility of it being an alternative allergen immunotherapy.

Objectives: To evaluate the clinical and immunological efficacy and safety of LNIT for patients with allergic rhinitis.

Methods: A systematic search for randomized controlled trials comparing LNIT and placebos was performed using OVID Medline and EMBASE. Outcomes were total nasal symptom score (TNSS), symptom medication score (SMS), medication score, immunological assessment, and nasal provocation threshold. Data were pooled for meta-analysis.

Results: Twenty studies with 698 participants were included. The LNIT group had greater posttreatment improvement of TNSS, SMS, and medication score than the control (TNSS: SMD -1.37 [95% CI -2.04, -0.69]; SMS: -1.55 [95% CI -2.83, -0.28]; medication score: -1.09 [95% CI -1.35, -0.83]). Immunological assessments showed no significant differences in serum-specific IgE (MD 6.35 [95% CI -4.62, 17.31]), nasal IgE (MD -0.59 [95% CI -1.99, 0.81]), or nasal ECP (MD 7.63 [95% CI -18.65, 33.91]). Only serum IgG significantly increased with LNIT (MD 0.45 [95% CI 0.20, 0.70]). Posttreatment, nasal provocation threshold was higher with LNIT (MD 27.30 [95% CI 10.13, 44.46]). No significant adverse events were reported.

Conclusions: LNIT is a safe, alternative allergen immunotherapy route without significant adverse events. It improves clinical symptoms, reduces medication usage, and increases the nasal provocation threshold. This article is protected by copyright. All rights reserved.

Keywords: Allergic rhinitis; Allergy vaccine; Local nasal immunotherapy; Meta-analysis; Nasal administration.

J Asthma
.
. 2022 May 13;1-7.
doi: 10.1080/02770903.2022.2043363. Online ahead of print.

Allergic rhinitis co-morbidity on asthma outcomes in city school children

Jessica Stern[1], Michael Chen[2], Maria Fagnano[3], Jill S Halterman[3]
Affiliations expand

- PMID: 35195499

- DOI: 10.1080/02770903.2022.2043363

Abstract

Background: School based asthma programs have demonstrated that preventive asthma therapy administered in school reduces asthma morbidity. The burden of co-morbid allergic disease on asthma outcomes in a large school based asthma cohort has been unexplored.

Objective: Evaluate the prevalence of allergic rhinitis (AR) in historically minoritized school children with persistent asthma, and determine if AR is an independent risk factor for asthma morbidity.

Methods: We evaluated the prevalence of AR in children enrolled in 3 NIH funded school based asthma programs in Rochester, NY. We used linear regression and multivariate analyses to compare asthma outcomes for children whose caregivers did and did not report AR.

Results: We used data from 1,029 children with asthma (mean age 7.4, 60.4% Black, 29.5% Hispanic, 72.8% insured with Medicaid). 63% of children reported AR. Children with AR had significantly fewer symptom free days over 2 weeks compared to children without AR (7.2 vs. 8.3, $p < 0.001$). Children with AR also had more daytime symptoms, (4.7 vs. 3.7, $p < 0.001$), more rescue medication use (4.5 vs. 3.4, $p < 0.01$), and more activity limitation due to asthma (3.6 vs. 2.5, $p < 0.001$). Only 44% of children with AR reported allergy medication use.

Conclusions: Among a large school-based cohort of minoritized children with asthma, we found that the majority of children have comorbid allergic rhinitis, which was associated with increased asthma morbidity. Inadequate recognition and treatment for allergic rhinitis likely represents substantial preventable morbidity for this group.

Keywords: allergic rhinitis; asthma; children; health disparities; health equity; low income; minority health; school based care.

Sci Total Environ

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. 2022 May 15;821:152960.
doi: 10.1016/j.scitotenv.2022.152960. Epub 2022 Jan 10.

Association between air pollution and outpatient visits for allergic rhinitis: Effect modification by ambient temperature and relative humidity

Rongshan Wu[1], Qun Guo[1], Jingpu Fan[1], Changsheng Guo[1], Gang Wang[2], Wei Wu[3], Jian Xu[4]
Affiliations expand

- PMID: 35016948

- DOI: 10.1016/j.scitotenv.2022.152960

Abstract

Mounting evidence indicated the associations between air pollution and outpatient visits for allergic rhinitis (AR), while few studies assessed the effect modification of these associations by ambient temperature and relative humidity (RH). In this study, dataset of AR outpatients was obtained from Chinese People's Liberation Army Strategic Support Force Characteristic Medical Center in Beijing during 2014 to 2019, and the average concentrations of air pollutants including particulate matter ≤2.5 μm in diameter ($PM_{2.5}$) and ≤10 μm (PM_{10}), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and meteorological factors (temperature and RH) at the same period were collected from one nearby air monitoring station. We performed a time-series study with Poisson regression model to examine the effects of air pollutants on AR outpatients after adjustment for potential confounders. And the effects modification analysis was further conducted by stratifying temperature and RH by tertiles into three groups of low, middle and high. In total of 33,599 outpatient visits for AR were recorded during the study period. Results found that a 10 μg/m^3 increase in $PM_{2.5}$, PM_{10}, NO_2 and SO_2 was associated with significant increases in AR outpatients of 1.24% (95% confidence interval (CI): 0.69%, 1.78%), 0.79% (95% CI: 0.43%, 1.15%), 3.05% (95% CI: 1.72%, 4.40%) and 5.01% (95% CI: 1.18%, 8.96%), respectively. Stronger associations were observed in males than those in females, as well as in young adults (18-44 years) than those in other age groups. Air pollution effects on AR outpatients increased markedly at low temperature (<33.3th percentile) and high RH (>66.7th percentile). Findings in this study indicate that air pollution is associated with increased risk of AR outpatients, and the effects of air pollution on AR could be enhanced at low temperature and high RH.

Keywords: Air pollution; Allergic rhinitis; Ambient temperature; Effect modification; Outpatient visit; Relative humidity.

Conflict of interest statement

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

SUPPLEMENTARY INFO

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CHRONIC COUGH

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Ann Allergy Asthma Immunol

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. 2022 May 12;S1081-1206(22)00406-9.
doi: 10.1016/j.anai.2022.05.003. Online ahead of print.

Demographic, Clinical, and Patient-Reported Outcome Data From Two Global, Phase 3 Trials of Chronic Cough

Peter V Dicpinigaitis[1], Surinder S Birring[2], Michael Blaiss[3], Lorcan P McGarvey[4], Alyn H Morice[5], Ian D Pavord[6], Imran Satia[7], Jaclyn A Smith[8], Carmen La Rosa[9], Qing Li[9], Allison Martin Nguyen[9], Jonathan Schelfhout[9], Anjela Tzontcheva[9], David Muccino[9]
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- PMID: 35569802

- DOI: 10.1016/j.anai.2022.05.003

Abstract

Background: Current characterization of patients with refractory or unexplained chronic cough (RCC and UCC, respectively) primarily stems from relatively small clinical studies.

Objective: To report the baseline medical history and clinical characteristics of individuals with RCC or UCC enrolled in COUGH-1 and COUGH-2, two large, global, phase 3 trials of gefapixant, a P2 × 3-receptor antagonist.

Methods: Adults with a chronic cough lasting ≥1 year, diagnosis of RCC or UCC, and score of ≥40 mm on a 100-mm cough severity visual analog scale (VAS) at both screening and baseline were eligible for enrollment. Demographics, medical history, and cough characteristics were collected at baseline. Cough-related measures included objective cough frequency, cough severity VAS, Leicester Cough Questionnaire (LCQ), and Hull Airway Reflux Questionnaire (HARQ). Data were summarized using descriptive statistics.

Results: Of 2044 participants, 75% were female, mean age was 58 years, and mean cough duration was ~11 years. Among all participants, 73% were previously diagnosed with asthma, gastroesophageal reflux disease, and/or rhinitis/upper-airway cough syndrome. The mean LCQ total score was 10.4, with domain scores reflecting impaired cough-specific quality of life (QOL) across physical, psychological, and social domains. The mean HARQ score was 39.6, with some of the most burdensome reported items being consistent with features of cough-reflex hypersensitivity. Participant characteristics and cough burden were comparable across geographic regions.

Conclusion: Participants with RCC or UCC had characteristics consistent with published demographics associated with chronic cough. These data reflect a global population with burdensome cough of long duration and substantial impairment to QOL.

Keywords: cough-reflex hypersensitivity; idiopathic cough; neuropathic cough; persistent cough; refractory chronic cough; unexplained chronic cough.

. 2022 May 11;1-22.
doi: 10.1080/13543776.2022.2069010. Online ahead of print.

P2X receptor antagonists and their potential as therapeutics: a patent review (2010–2021)

Chianna Dane[1], Leanne Stokes[2], William T Jorgensen[1]
Affiliations expand

- PMID: 35443137

- DOI: 10.1080/13543776.2022.2069010

Abstract

Introduction: Purinergic receptors play a critical role in neurotransmission, and modulation of complex physiological functions and thus have implications in numerous disease states. The past decade has seen substantial progress in the design of novel chemical compounds that act on the P2X class of receptors and warrants an updated review of this field.

Areas covered: This review provides a summary of the patent literature describing the discovery and clinical uses of P2X receptor antagonists published between 2010 and September 2021. The reader will gain information on structural claims, representative structures, and biological data of recently reported P2X antagonists.

Expert opinion: Despite continual advancement in both crystallography and chemical biology strengthening our understanding of purinergic signalling, there remains an absence of clinically approved chemotypes. A testament to both the therapeutic potential and academic perseverance in purinergic research is the multitude of research initiatives that maintain active P2X receptor programs that have spanned decades. Very recently, the FDA declined Merck Pharmaceuticals application for Gefapixant, a P2X3 selective inhibitor as a treatment for chronic cough, requesting additional data. This unfortunate setback will ultimately be insignificant considering the long history of P2X investigation and the preclinical and clinical development that will undoubtedly occur over the next decade.

Keywords: Drug discovery; P2X antagonists; inhibitors; purinergic; therapeutic applications.