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ALLEGO ALLA VOSTRA CORTESE ATTENZIONE IL LINK DI ACCESSO AGLI ABSTRACTS PRESENTATI AL CONGRESO ANNUALE ERS DI BARCELONA (4-6 SETTEMBRE 2022) CORTESEMENTE FORNITOMI DALLA DOTT.SA CARMES STABILE DI GSK ITALIA, CHE RINGRAZIO A NOME DI TUTTI.

https://scientific.sparx-ip.net/LD_USA/ERS2022usb/?#/ti

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J Gerontol A Biol Sci Med Sci

. 2022 Sep 10;glac188.

doi: 10.1093/gerona/glac188. Online ahead of print.

Pulmonary function trajectories preceding death among older adults: a

long-term community-based cohort study

Jiao Wang[1,2,3], Jie Guo[4], Abigail Dove[4], Wenzhe Yang[1,2,3], Xueri Li[1,2,3], Xiuying Qi[1,2,3], David A Bennett[5], Weili Xu[1,2,3,4]

Affiliations expand

- PMID: 36087108

- DOI: 10.1093/gerona/glac188

Abstract

Background: Poor pulmonary function (PF) has been linked to mortality, but the timing of PF changes before death remains unclear. We aimed to examine the association between PF and mortality and identify different PF trajectories precedes death.

Methods: Within the Rush Memory and Aging Project, 1,438 participants without chronic obstructive pulmonary disease were followed for up to 22 years. PF was assessed annually using a composite score (tertiled as low, medium, and high) based on forced vital capacity, forced expiratory volume in 1s, and peak expiratory flow. Survival status was observed during the follow-up period. Data were analyzed using Cox regression, Laplace regression, and mixed-effect models.

Results: During the follow-up, 737 (51.25%) participants died. Compared to high PF, the hazard ratio (95% confidence interval [CI]) of mortality was 1.35 (1.05, 1.72)/1.63 (1.25, 2.12) for medium/low PF. The median survival time (95%CI) was shortened by 0.80 (0.01-1.61)/1.72 (0.43-3.01) years for participants with medium/low PF, compared to high PF. In multi-adjusted trajectory analysis, the significant differences between decedents and survivors occurred at 7 years before death for composite PF (mean difference [95%CI]:0.14 [0.02-0.25]), 6 years for FEV1 (0.21 [0.08 to 0.33]) and FVC (0.21 [0.08 to 0.34]), and 8 years for PEF (0.21 [0.06 to 0.37]), and became greater thereafter.

Conclusions: Poor PF is associated with elevated mortality and shortens survival nearly 2 years. An acceleration in PF decline tends to occur 7 years before death. Poor PF, together with its decline, might be a predictor of mortality among community-dwelling older adults.

Keywords: Cohort study; Mortality; Pulmonary function; Trajectory.

PLoS One

. 2022 Sep 9;17(9):e0274201.

doi: 10.1371/journal.pone.0274201. eCollection 2022.

Discussing prognosis and the end of life with patients with advanced cancer or COPD: A qualitative study

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Affiliations expand

- PMID: 36084060

- DOI: 10.1371/journal.pone.0274201

Abstract

Objectives: To explore patients' experiences and recommendations for discussions about their prognosis and end of life with their physicians.

Methods: Patients with advanced cancer or advanced chronic obstructive pulmonary disease (COPD) were enrolled in qualitative interviews, which were analyzed with a phenomenological and thematic approach.

Results: During interviews with fourteen patients (median age 64 years), we identified the following themes for discussion about prognosis and the end of life: topics discussed, the timing, the setting, physician-patient relationship, responsibilities for clinicians, and recommendations. Patients preferred the physician to initiate such discussion, but wanted to decide about its continuation and content. The discussions were facilitated by an established physician-patient relationship or attendance of relatives. Patients with cancer had had discussions about prognosis at rather clear-cut moments of deterioration than patients with COPD. Patients with COPD did not consider end-of-life discussions a responsibility of the pulmonologist. Patients recommended an understandable message, involvement of relatives or other clinicians, sufficient time, and sensitive non-verbal communication.

Conclusions: Patients appreciated open, sensitive, and negotiable discussions about prognosis and the end of life.

Practice implications: Patients' recommendations could be used for communication training. Possible differences in the need for such discussions between patients with cancer or COPD warrant further research.

Conflict of interest statement

The authors have declared that no competing interests exist.

Respir Res

. 2022 Sep 8;23(1):236.

doi: 10.1186/s12931-022-02162-y.

Wood smoke exposure affects lung aging, quality of life, and all-cause mortality in New Mexican smokers

Shuguang Leng[1,2,3], Maria A Picchi[4], Paula M Meek[5], Menghui Jiang[6], Samuel H Bayliss[6], Ting Zhai[6,7], Ruslan I Bayliyev[6], Yohannes Tesfaigzi[8], Matthew J Campen[9,10], Huining Kang[6,9], Yiliang Zhu[6], Qing Lan[11], Akshay Sood[6], Steven A Belinsky[9,4]

Affiliations expand

- PMID: 36076291

- DOI: 10.1186/s12931-022-02162-y

Abstract

Background: The role of wood smoke (WS) exposure in the etiology of chronic obstructive pulmonary disease (COPD), lung cancer (LC), and mortality remains elusive in adults from

countries with low ambient levels of combustion-emitted particulate matter. This study aims to delineate the impact of WS exposure on lung health and mortality in adults age 40 and older who ever smoked.

Methods: We assessed health impact of self-reported "ever WS exposure for over a year" in the Lovelace Smokers Cohort using both objective measures (i.e., lung function decline, LC incidence, and deaths) and two health related quality-of-life questionnaires (i.e., lung disease-specific St. George's Respiratory Questionnaire [SGRQ] and the generic 36-item short-form health survey).

Results: Compared to subjects without WS exposure, subjects with WS exposure had a more rapid decline of FEV1 (- 4.3 ml/s, P = 0.025) and FEV1/FVC ratio (- 0.093%, P = 0.015), but not of FVC (- 2.4 ml, P = 0.30). Age modified the impacts of WS exposure on lung function decline. WS exposure impaired all health domains with the increase in SGRQ scores exceeding the minimal clinically important difference. WS exposure increased hazard for incidence of LC and death of all-cause, cardiopulmonary diseases, and cancers by > 50% and shortened the lifespan by 3.5 year. We found no evidence for differential misclassification or confounding from socioeconomic status for the health effects of WS exposure.

Conclusions: We identified epidemiological evidence supporting WS exposure as an independent etiological factor for the development of COPD through accelerating lung function decline in an obstructive pattern. Time-to-event analyses of LC incidence and cancer-specific mortality provide human evidence supporting the carcinogenicity of WS exposure.

Keywords: Health related quality-of-life; Lung cancer; Lung function decline; Mortality; Wood smoke.

- 58 references

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Review

NPJ Prim Care Respir Med

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. 2022 Sep 8;32(1):33.

doi: 10.1038/s41533-022-00297-5.

Practical tips in bronchiectasis for Primary Care

Miguel Angel Martinez-Garcia[1,2], Alberto Garcia-Ortega[3], Grace Oscullo[3]

Affiliations expand

- PMID: 36075906

- DOI: 10.1038/s41533-022-00297-5

Abstract

Bronchiectasis is the third most common chronic inflammatory airway disease, after chronic obstructive pulmonary disease (COPD) and asthma with a prevalence clearly underestimated probably because of its clinical similitudes with other chronic airway diseases. Bronchiectasis can be caused by a dozen of pulmonary and extra-pulmonary diseases and a variable number and severity of exacerbations can appear throughout its natural history, usually with an infectious profile. The dilation of the airway and the inflammation/infection is their radiological and pathophysiological hallmarks. Primary Care should play an important play in many aspects of the bronchiectasis assessment. In this article, we will try to offer a series of important concepts and practical tips on some key aspects of the diagnosis and management of bronchiectasis in Primary Care: clinical suspicion, diagnostic methods, severity assessment, overlap with asthma and COPD and microbiological and therapeutic aspects.

- 53 references

SUPPLEMENTARY INFO

Publication typesexpand

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. 2022 Sep 8;20(1):304.

doi: 10.1186/s12916-022-02487-x.

Sex-specific patterns and lifetime risk of multimorbidity in the general population: a 23-year prospective cohort study

Premysl Velek[1,2], Annemarie I Luik[3,4], Guy G O Brusselle[3,5,6], Bruno Ch Stricker[3], Patrick J E Bindels[7], Maryam Kavousi[3], Brenda C T Kieboom[3,8], Trudy Voortman[3], Rikje Ruiter[3,9], M Arfan Ikram[3], M Kamran Ikram[3,10], Evelien I T de Schepper[7], Silvan Licher[3]

Affiliations expand

- PMID: 36071423

- PMCID: PMC9454172

- DOI: 10.1186/s12916-022-02487-x

Abstract

Background: Multimorbidity poses a major challenge for care coordination. However, data on what non-communicable diseases lead to multimorbidity, and whether the lifetime risk differs between men and women are lacking. We determined sex-specific differences in multimorbidity patterns and estimated sex-specific lifetime risk of multimorbidity in the general population.

Methods: We followed 6,094 participants from the Rotterdam Study aged 45 years and older for the occurrence of ten diseases (cancer, coronary heart disease, stroke, chronic obstructive pulmonary disease, depression, diabetes, dementia, asthma, heart failure, parkinsonism). We visualised participants' trajectories from a single disease to multimorbidity and the most frequent combinations of diseases. We calculated sex-specific lifetime risk of multimorbidity, considering multimorbidity involving only somatic diseases (1) affecting the same organ system, (2) affecting different organ systems, and (3) multimorbidity involving depression.

Results: Over the follow-up period (1993-2016, median years of follow-up 9.2), we observed 6334 disease events. Of the study population, 10.3% had three or more diseases, and 27.9% had two or more diseases. The most frequent pair of co-occurring diseases among men was COPD and cancer (12.5% of participants with multimorbidity), the most frequent pair of diseases among women was

depression and dementia (14.9%). The lifetime risk of multimorbidity was similar among men (66.0%, 95% CI: 63.2-68.8%) and women (65.1%, 95% CI: 62.5-67.7%), yet the risk of multimorbidity with depression was higher for women (30.9%, 95% CI: 28.4-33.5%, vs. 17.5%, 95% CI: 15.2-20.1%). The risk of multimorbidity with two diseases affecting the same organ is relatively low for both sexes (4.2% (95% CI: 3.2-5.5%) for men and 4.5% (95% CI: 3.5-5.7%) for women).

Conclusions: Two thirds of people over 45 will develop multimorbidity in their remaining lifetime, with women at nearly double the risk of multimorbidity involving depression than men. These findings call for programmes of integrated care to consider sex-specific differences to ensure men and women are served equally.

Keywords: Chronic diseases; Cohort study; Multimorbidity; Population study; Risk of multimorbidity; Sex differences.

Conflict of interest statement

The authors declare that they have no competing interests.

- 40 references
- 3 figures

SUPPLEMENTARY INFO

MeSH termsexpand

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Eur Heart J Qual Care Clin Outcomes

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. 2022 Sep 7;qcac059.

doi: 10.1093/ehjqcco/qcac059. Online ahead of print.

The association of temporal sequence in atrial fibrillation and chronic

obstructive pulmonary disease diagnosis and mortality risk

Peder Emil Warming[1], Rodrigue Garcia[1,2,3], Carl Johann Hansen[1], Sami Olavi Simons[4], Christian Torp-Pedersen[5,6], Dominik Linz[7,8,9], Jacob Tfelt-Hansen[1,10]

Affiliations expand

- PMID: 36069895

- DOI: 10.1093/ehjqcco/qcac059

Abstract

Background and aims: Chronic obstructive pulmonary disease (COPD) is present in 13% of atrial fibrillation (AF) patients. In patients diagnosed with both AF and COPD, we aimed to assess overall mortality risk and its association with temporal sequence in AF and COPD diagnosis.

Methods: This nationwide study assessed all patients aged 18-85 years diagnosed with both COPD and AF between 1999 and 2018 in Denmark. Three groups were defined according to the temporal sequence of diagnosis: COPD diagnosed at least 6 months before AF (COPD-First), AF diagnosed at least 6 months before COPD (AF-First) and COPD and AF diagnosed within a 6-months' time frame (AF~COPD).

Results: We included 62 806 patients (75.0 years; 56.5% males). After 5 years of follow-up, 31 494 (50.1%) died. Mortality was highest in the COPD-First group (COPD-First: 52.8%; AF-First: 46.0%; AF~COPD 50.6%). In a multivariable Cox-regression model adjusted for age, sex, type 2 diabetes, history of acute myocardial infarction, cancer, chronic kidney disease, and stroke, the AF~COPD group (HR 1.14, 95%CI 1.11-1.17; P < 0.0001) and COPD-First group (HR 1.26, 95%CI 1.23-1.29; P < 0.0001) had a higher risk of death compared to the AF-First group. A restricted cubic spline analysis showed that the earlier the COPD was diagnosed, the worse the prognosis.

Conclusions: Patients with concomitant AF and COPD had a very poor prognosis and the temporal sequence in diagnosis was differentially associated with prognosis, where a COPD diagnosis preceding an AF diagnosis was accompanied with a higher mortality risk compared to a COPD diagnosis following an AF diagnosis.

Keywords: Atrial fibrillation; Chronic Obstructive Pulmonary Disease; Epidemiology.

Influenza Other Respir Viruses

. 2022 Sep 7.

doi: 10.1111/irv.13050. Online ahead of print.

Impact of respiratory viral infections on mortality and critical illness among hospitalized patients with chronic obstructive pulmonary disease

Sunita Mulpuru[1,2,3], Melissa K Andrew[4,5], Lingyun Ye[5], Todd Hatchette[6,7,5], Jason LeBlanc[7,5], May El-Sherif[5], Donna MacKinnon-Cameron[5], Shawn D Aaron[1,2,3], Gonzalo G Alvarez[1,2,3], Alan J Forster[1,2,3], Ardith Ambrose[5], Shelly A McNeil[6,5], Serious Outcomes Surveillance and Canadian Immunization Research Network (CIRN) Investigators

Affiliations expand

- PMID: 36069141

- DOI: 10.1111/irv.13050

Free article

Abstract

Background: Seasonal respiratory viral infections are associated with exacerbations and morbidity among patients with COPD. The real-world clinical outcomes associated with seasonal viral infections are less well established among hospitalized patients.

Research question: To estimate the association between seasonal respiratory viral infections, 30-day mortality, and intensive care unit (ICU) admission among hospitalized COPD patients.

Study design and methods: We conducted an analysis of a national prospective multicenter cohort of COPD patients hospitalized with acute respiratory illness during winter seasons (2011-2015) in Canada. Nasopharyngeal swabs were performed on all patients at the onset of hospital admission for diagnosis of viral infection. Primary outcomes were 30-day mortality and ICU admissions. Secondary outcomes included invasive/non-invasive ventilation use.

Results: Among 3931 hospitalized patients with COPD, 28.5% (1122/3931) were diagnosed with seasonal respiratory viral infection. Viral infection was associated with increased admission to ICU (OR 1.5, 95% CI 1.2-1.9) and need for mechanical ventilation (OR 1.9, 95% CI 1.4-2.5), but was not associated with mortality (OR 1.1, 95% CI 0.8-1.4). Patients with respiratory syncytial virus (RSV) were equally likely to require ICU admission (OR 1.09, 95% CI 0.67-1.78), and more likely to need non-invasive ventilation (OR 3.1; 95% CI 1.8-5.1) compared to patients with influenza.

Interpretation: Our results suggest COPD patients requiring hospitalization for respiratory symptoms should routinely receive viral testing at admission, especially for RSV and influenza, to inform prognosis, clinical management, and infection control practices during winter seasons. Patients with COPD will be an important target population for newly developed RSV therapeutics.

Clinical trial registration: ClinicalTrials.gov ID: NCT01517191.

Keywords: COPD; RSV; influenza; mortality; respiratory viruses.

- 40 references

SUPPLEMENTARY INFO

Associated data, Grant supportexpand

FULL TEXT LINKS

WILEY Free Full Text

ASTHMA

J Asthma

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. 2022 Sep 10;1-11.

doi: 10.1080/02770903.2022.2123741. Online ahead of print.

Reduced forced expiratory flow between 25% and 75% of vital capacity in children with allergic rhinitis without asthmatic symptoms

Jue Seong Lee[1], Sang Hyun Park[1], Han Ho Kim[1], So Hyun Ahn[2], Eunji Kim[3], Seunghyun Kim[3], Wonsuck Yoon[3], Young Yoo[4]

Affiliations expand

- PMID: 36093643

- DOI: 10.1080/02770903.2022.2123741

Abstract

Introduction: Allergic rhinitis (AR) and asthma are closely associated in children. Reduced $FEF_{25\%-75\%}$ which reflects small airway airflow limitation is frequently observed in asthma. This study aimed to examine the proportion of small airway dysfunction in children with AR and to determine its associated factors.

Methods: The medical records of 144 aged 6-18-year children with AR without overt asthmatic symptoms were retrospectively reviewed. Subjects were divided into 2 groups according to the $FEF_{25\%-75\%}$ values; normal $FEF_{25\%-75\%}$ group (n = 129) and reduced $FEF_{25\%-75\%}$ group (n = 15). Clinical data, allergen sensitization profile, exhaled nitric oxide, spirometry, and methacholine provocation test results were compared between the two groups.

Results: The mean FEV_1 and $FEF_{25\%-75\%}$ values in the reduced $FEF_{25\%-75\%}$ group (73.5 ± 9.4%pred and 56.0 ± 7.7%pred, respectively) were significantly lower than in the normal $FEF_{25\%-75\%}$ group (87.0 ± 12.5%pred and 99.1 ± 21.4%pred, respectively). The mean disease duration was significantly longer in the reduced $FEF_{25\%-75\%}$ group than in the normal $FEF_{25\%-75\%}$ group (5.39 ± 1.85 y vs 3.14 ± 1.80 y, $p < 0.001$). Subjects with positive bronchial hyperresponsiveness ($MChPC_{20}$<16 mg/mL) were more frequently detected in the reduced $FEF_{25\%-75\%}$ group than in the normal $FEF_{25\%-75\%}$ group (26.7% vs 8.52%, $p = 0.013$). Long disease duration and severity of AR were significantly associated with impaired $FEF_{25\%-75\%}$ values.

Conclusions: Subjects with AR alone may have impaired $FEF_{25\%-75\%}$ values which is considered as a marker of early bronchial involvement. Longer disease duration and

severity of AR are important risk factors for progressive declines in small airway function. Physicians should be aware of need for the measurement of $FEF_{25\%-75\%}$ values for early detection of small airway dysfunction, particularly in children with severe long-lasting allergic rhinitis.

Keywords: Morbidity and Mortality; Pediatrics; Physiology; Rhinitis/Sinusitis.

Allergol Int

. 2022 Sep 7;S1323-8930(22)00091-0.

doi: 10.1016/j.alit.2022.08.004. Online ahead of print.

Development of vasculitis in a case with severe asthma treated with benralizumab and low-dose corticosteroid

Natsuka Umezawa[1], Hirokazu Sasaki[2], Haruhiko Furusawa[3], Daisuke Kawata[2], Chiina Hata[4], Shinsuke Yasuda[2]

Affiliations expand

- PMID: 36088219

- DOI: 10.1016/j.alit.2022.08.004

No abstract available

SUPPLEMENTARY INFO

Review

Curr Allergy Asthma Rep

. 2022 Sep 10.

doi: 10.1007/s11882-022-01041-2. Online ahead of print.

Narrative Review of the Role of Patient-Reported Outcomes and Inhaler Handling Errors in the Control of Asthma and COPD

Raúl De Simón Gutiérrez[1], Raúl Piedra Castro[2]

Affiliations expand

- PMID: 36087251

- DOI: 10.1007/s11882-022-01041-2

Abstract

Purpose of review: Asthma and chronic obstructive pulmonary disease (COPD) are chronic respiratory diseases that remain uncontrolled in many patients, despite the wide range of therapeutic options available. This review analyzes the available clinical evidence on 3 budesonide/formoterol DPI devices, Spiromax®, Turbuhaler®, and Easyhaler®, in terms of patient-reported outcomes (PROs), inhaler errors, and asthma and COPD control.

Recent findings: The effectiveness of dry powder inhalers (DPI) depends largely on the device and the patient's inhaler technique. Equally important are the patient's perception of the inhaler and adherence. Given the high burden of these diseases, it is important that efforts be made to select the best DPI for each patient and to analyze the impact of these variables to help improve the health and quality of life of our patients. This review provides a comprehensive overview of the present knowledge about PROs, inhaler handling errors, and asthma and COPD control achieved by Spiromax®, Turbuhaler®, and Easyhaler®.

Keywords: Asthma; COPD; Dry powder inhalers; Inhaler error; Patient-reported outcomes; Spiromax.

- 48 references

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Respir Res

. 2022 Sep 8;23(1):237.

doi: 10.1186/s12931-022-02156-w.

Peripheral blood transcriptomic clusters uncovered immune phenotypes of asthma

Hyun Woo Lee[#1], Min-Gyung Baek[#2], Sungmi Choi[2], Yoon Hae Ahn[3], Ji-Young Bang[4], Kyoung-Hee Sohn[5], Min-Gyu Kang[6], Jae-Woo Jung[7], Jeong-Hee Choi[8], Sang-Heon Cho[3 9], Hana Yi[# 10 11], Hye-Ryun Kang[# 12 13 14]

Affiliations expand

- PMID: 36076228

- DOI: 10.1186/s12931-022-02156-w

Abstract

Background: Transcriptomic analysis has been used to elucidate the complex pathogenesis of heterogeneous disease and may also contribute to identify potential therapeutic targets by delineating the hub genes. This study aimed to investigate whether blood transcriptomic clustering can distinguish clinical and immune phenotypes of asthmatics, and microbiome in asthmatics.

Methods: Transcriptomic expression of peripheral blood mononuclear cells (PBMCs) from 47 asthmatics and 21 non-asthmatics was measured using RNA sequencing. A hierarchical clustering algorithm was used to classify asthmatics. Differentially expressed genes, clinical phenotypes, immune phenotypes, and microbiome of each transcriptomic cluster were assessed.

Results: In asthmatics, three distinct transcriptomic clusters with numerously different transcriptomic expressions were identified. The proportion of severe asthmatics was highest in cluster 3 as 73.3%, followed by cluster 2 (45.5%) and cluster 1 (28.6%). While cluster 1 represented clinically non-severe T2 asthma, cluster 3 tended to include severe non-T2 asthma. Cluster 2 had features of both T2 and non-T2 asthmatics characterized by the highest serum IgE level and neutrophil-dominant sputum cell population. Compared to non-asthmatics, cluster 1 showed higher CCL23 and IL1RL1 expression while the expression of TREML4 was suppressed in cluster 3. CTSD and ALDH2 showed a significant positive linear relationship across three clusters in the order of cluster 1 to 3. No significant differences in the diversities of lung and gut microbiomes were observed among transcriptomic clusters of asthmatics and non-asthmatics. However, our study has limitations in that small sample size data were analyzed with unmeasured confounding factors and causal relationships or function pathways were not verified.

Conclusions: Genetic clustering based on the blood transcriptome may provide novel immunological insight, which can be biomarkers of asthma immune phenotypes. Trial registration Retrospectively registered.

Keywords: Asthma; Cluster analysis; Microbiome; RNA-Seq; Transcriptome.

- 52 references

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Grant supportexpand

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Editorial

Pediatr Res

. 2022 Sep 8.

doi: 10.1038/s41390-022-02290-7. Online ahead of print.

Global climate change: the defining issue of our time for our children's health

Cynthia F Bearer[1], Eleanor J Molloy[2], Mesfin Teklu Tessema[3], Suzinne Pak-Gorstein[4], Desiree Montecillo-Narvaez[5], Gary L Darmstadt[6], Vanitha Sampath[7], Sarah Mulkey[8], Kari C Nadeau[7,9]

Affiliations expand

- PMID: 36075986

- DOI: 10.1038/s41390-022-02290-7

No abstract available

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Review

NPJ Prim Care Respir Med

. 2022 Sep 8;32(1):33.

doi: 10.1038/s41533-022-00297-5.

Practical tips in bronchiectasis for Primary Care

Miguel Angel Martinez-Garcia[1,2], Alberto Garcia-Ortega[3], Grace Oscullo[3]

Affiliations expand

- PMID: 36075906

- DOI: 10.1038/s41533-022-00297-5

Abstract

Bronchiectasis is the third most common chronic inflammatory airway disease, after chronic obstructive pulmonary disease (COPD) and asthma with a prevalence clearly underestimated probably because of its clinical similitudes with other chronic airway diseases. Bronchiectasis can be caused by a dozen of pulmonary and extra-pulmonary diseases and a variable number and severity of exacerbations can appear throughout its natural history, usually with an infectious profile. The dilation of the airway and the inflammation/infection is their radiological and pathophysiological hallmarks. Primary Care should play an important play in many aspects of the bronchiectasis assessment. In this article, we will try to offer a series of important concepts and practical tips on some key aspects of the diagnosis and management of bronchiectasis in Primary Care: clinical suspicion, diagnostic methods, severity assessment, overlap with asthma and COPD and microbiological and therapeutic aspects.

- 53 references

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Review

Allergy

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. 2022 Sep 8.

doi: 10.1111/all.15506. Online ahead of print.

Real-world evidence for the long-term effect of allergen immunotherapy: current status on database-derived European studies

Christian Vogelberg[1], Ludger Klimek[2], Bernd Brüggenjürgen[3], Marek Jutel[4,5]

Affiliations expand

- PMID: 36074052

- DOI: 10.1111/all.15506

Abstract

Background: Randomized controlled trials (RCTs) are the gold-standard for benefit-risk assessments during drug approval processes. Real-word data (RWD) and the resulting real-world evidence (RWE) are becoming increasingly important for assessing the effectiveness of drug products after marketing authorization showing how RCT results are transferred into real life care. The effectiveness of allergen immunotherapy (AIT) has been assessed in several RWE studies based on large prescription databases.

Methods: We performed a literature search for retrospective cohort assessments of prescription databases in Europe to provide an overview on the methodology, long-term effectiveness outcomes and adherence to AIT.

Results: 13 respective publications were selected. AIT was more effective in reducing the progression of allergic rhinitis (AR) compared to a non-AIT control group receiving only symptomatic treatment for AR for up to 6 years. The development and progression of asthma was hampered for most endpoints in patients treated with most preparations compared to the non-AIT group, receiving only anti-asthmatic medication. The results for "time to onset" of asthma were inconsistent. Adherence to AIT decreased during the recommended 3-years treatment period, however in most studies higher adherence to subcutaneous than to sublingual AIT was shown.

Conclusion: The analysis of long-term effectiveness outcomes of the RWE studies based on prescription databases confirms the long-term efficacy of AIT demonstrated in RCTs. Progression of rhinitis and asthma symptoms as well as delayed onset of asthma triggered by different allergens, real life adherence to the treatment shows differences in particular application routes.

Keywords: allergen immunotherapy; allergic asthma; allergic rhinitis; long-term efficacy; real-world evidence.

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Review

J Paediatr Child Health

. 2022 Sep 8.

doi: 10.1111/jpc.16197. Online ahead of print.

Respiratory syncytial virus, recurrent wheeze and asthma: A narrative review of pathophysiology, prevention and future directions

Elly Binns[1,2], Jane Tuckerman[1,3], Paul V Licciardi[1,3], Danielle Wurzel[3,4,5]

Affiliations expand

- PMID: 36073299

- DOI: 10.1111/jpc.16197

Abstract

Globally, respiratory syncytial virus (RSV) is the leading cause of bronchiolitis and pneumonia in young children, and the association between severe RSV disease and later recurrent wheeze and asthma is well established. Whilst a causal link between RSV and wheeze/asthma is not yet proven, immunological evidence suggests skewing towards a Th2-type response, and dampening of IFN-γ antiviral immunity during RSV infection underpins airway hyper-reactivity in a subset of susceptible children after RSV infection. Age at primary RSV infection, viral co-infection and genetic influences may act as effect-modifiers. Despite the significant morbidity and mortality burden of RSV disease in children, there is currently no licensed vaccine. Recent advancements in RSV preventatives, including long-acting monoclonal antibodies and maternal vaccinations, show significant promise and we are on the cusp of a new era in RSV prevention. However, the potential impact of RSV preventatives on subsequent wheeze and asthma remains unclear. The ongoing COVID-19 pandemic and associated public health measures have disrupted the usual seasonality of RSV. Whilst this has posed challenges for health-care services it has also enhanced our understanding of RSV transmission. The near absence of RSV cases during the first year of the pandemic in the context of strict public health measures has provided a rare opportunity to study the impact of delayed age of primary RSV infection

on asthma prevalence. In this review, we summarise current understanding of the association between RSV, recurrent wheeze and asthma with a focus on pathophysiology, preventative strategies and future research priorities.

Keywords: COVID-19; asthma; palivizumab; respiratory syncytial virus; wheeze.

- 50 references

SUPPLEMENTARY INFO

Publication typesexpand

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BMC Pulm Med

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. 2022 Sep 7;22(1):338.

doi: 10.1186/s12890-022-02138-0.

Risk factors associated with comorbid asthma in patients with chronic rhinosinusitis with nasal polyps: a cross-sectional study

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Affiliations expand

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- PMCID: PMC9454111

- DOI: 10.1186/s12890-022-02138-0

Abstract

Background: Although 20-60% of patients with chronic rhinosinusitis with nasal polyps (CRSwNP) have asthma, the risk factors associated with comorbid asthma are not clear. The aim of the study was to investigate the factors associated with asthma, and develop a practical scoring system to screen asthma comorbidity in CRSwNP patients.

Methods: This report describes a cross-sectional study with consecutive CRSwNP patients. Two cohorts of CRSwNP patients named "modelling" group and "validation" group were investigated respectively. Logistic regression analysis was performed based on demographic and clinical data collected from patients in the modelling group to determine the risk factors associated with asthma, and establish a scoring system for screening comorbid asthma. Receiver operating characteristic curve was constructed to evaluate the screening system; the optimal cut-off point was established by means of the Yoden Index. The consistency between the diagnosis of asthma by the Global Initiative for Asthma (GINA) criteria and by the screening system was assessed by Kappa value in the validation group.

Results: Totally 150 patients in modelling group and 78 patients in validation group were enrolled. Female gender (odds ratio [OR] = 6.4; P < 0.001), allergic rhinitis (OR = 2.9; P = 0.021), serum total (T)-immunoglobulin (Ig) E ≥ 69.0kU/L (OR = 12.0; P < 0.001), and blood eosinophil count ≥ 0.35 × 10^9/L (OR = 4.0; P = 0.001) were shown to be independent risk factors for asthma in patients with CRSwNP. Based on these variables, a scoring system (FAIE) ranging from 0(no risk) to 6(high risk); was developed. The area under the receiver operating characteristic curve of the system was 0.823, and the optimal cut-off value was 3 points, with sensitivity 83.8% and specificity 68.6% for screening asthma. The asthma comorbidity determined with FAIE score ≥ 3 points in the validation group, was moderately consistent with that defined by GINA (Kappa = 0.513, P < 0.001), with sensitivity 76.9% and specificity 74.4%.

Conclusions: Female gender, allergic rhinitis, serum T-IgE level, and blood eosinophil count are independent risk factors for asthma comorbidity in patients with CRSwNP, and the FAIE system may be practical for screening comorbid asthma in these patients.

Keywords: Asthma screening system; Chronic rhinosinusitis; Comorbid-asthma; Nasal polyps; Risk factors.

Conflict of interest statement

The authors declare that they have no conflicts of interest.

- 45 references
- 3 figures

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

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Allergy

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. 2022 Sep 7.

doi: 10.1111/all.15509. Online ahead of print.

Obesity in women with asthma: baseline disadvantage plus greater small-airway responsiveness

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Affiliations expand

- PMID: 36070075

- DOI: 10.1111/all.15509

Abstract

Background: Obesity is known to diminish lung volumes and worsen asthma. However, mechanistic understanding is lacking, especially as concerns small-airway responsiveness. The objective of this study was therefore to compare small-airway responsiveness, as represented by change in expiratory:inspiratory mean lung density ratios ($MLD_{e/i,}$ as determined by computed tomography (CT)) throughout methacholine testing in obese versus non-obese women with asthma.

Methods: Thoracic CT was performed during methacholine bronchoconstriction challenges to produce standardized response curves (SRC: response parameter versus ln(1+% PD20), where PD20 is the cumulative methacholine dose) for 31 asthma patients (n=18 non-obese and n=13 obese patients). Mixed models evaluated obesity effects and interactions on SRCs while adjusting for age and bronchial morphology. Small airway responsiveness as represented by SRC slope was calculated for each third of the $MLD_{e/i}$ response and compared between groups.

Results: Obesity-associated effects observed during experimental bronchoconstriction included: (i) a significant baseline effect for FEV1 with lower values for the obese (73.11±13.44) versus non-obese (82.19±8.78; P=0.002) groups prior to methacholine testing and (ii) significantly higher responsiveness in small airways as estimated via differences in $MLD_{e/i}$ slopes (group×ln(1+% PD20 interaction; P=0.023). The latter were pinpointed to higher slopes in the obese group at the beginning 2/3 of SRCs (P=0.004 and P=0.021). Significant obesity effects (P=0.035 and P=0.008) indicating lower FVC and greater % change in $MLD_{e/I}$ (respectively) throughout methacholine testing, were also observed.

Conclusion: In addition to baseline differences, small-airway responsiveness (as represented by change in $MLD_{e/i}$) during methacholine challenge is greater in obese women with asthma as compared to the non-obese.

Keywords: air-trapping; body mass index; computed tomography; mean lung density; methacholine.

Sci Total Environ

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doi: 10.1016/j.scitotenv.2022.155536. Epub 2022 Apr 27.

Status of TNF-α and IL-6 as pro-inflammatory cytokines in exhaled breath condensate of late adolescents with asthma and healthy in the dust storm and non-dust storm conditions

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Affiliations expand

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- DOI: 10.1016/j.scitotenv.2022.155536

Abstract

Exposure to airborne particulate matter (PM) can be considered as an important risk factor for human health. Some cytokines have been recognized as the biomarkers of exposure to air pollution. Experimental studies indicate that PM exposure could be associated with inflammation. Thus, the purpose of this study was to evaluate whether the exposure to air PM is associated with biomarkers of inflammation. The specific aim of this study was to determine the correlation between airborne PM levels and IL-6 and TNF-α as airway inflammation biomarkers among two groups of late adolescents in northwest of Iran. This study included 46 subjects, comprising 23 asthmatic subjects and 23 non-asthmatic persons. Environmental PM (PM_{10}, $PM_{2.5}$ and PM_{1}) levels were measured in dust storm and non-dust storm days during both cold and warm seasons. Following the sampling of PM,

Two pro-inflammatory cytokines of IL-6 and TNF-α in exhaled breath condensate (EBC) were also determined in the EBC samples via commercial ELISA kits. Daily mean ambient air PM_{10}, $PM_{2.5}$ and PM_1 concentrations during the dust storm days was 221.79, 93.13 and 25.52 μg m^{-3} and in non-dusty days 48.37, 18.54 and 6.1 μg m^{-3}, respectively. Biomarkers levels were significantly ($p < 0.001$) higher in asthmatic students compared to the non-asthmatic subjects. EBC cytokines levels were increased in dust storm days compared to the non-dusty days ($p < 0.001$) and were positively correlated with different size of ambient PM concentration. Dust storm conditions can increase the pro-inflammatory cytokines and cause adverse effects on pulmonary health and lung tissue damage.

Keywords: Cytokines; Dust storm; IL-6; Particulate matter; TNF-α.

Conflict of interest statement

Declaration of competing interest The authors (Mohammad Ghanbari Ghozikali, Khalil Ansarin, Kazem Naddafi, Ramin Nabizadeh, Kamyar Yaghmaeian, Jalil Jaafari, Reza Dehghanzadeh, Zahra Atafar, Maryam Faraji, Aliakbar Mohammadi, Gholamreza Goudarzi, and Masud Yunesian) declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

RHINITIS

1

J Asthma

. 2022 Sep 10;1-11.

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Reduced forced expiratory flow between 25% and 75% of vital capacity in children with allergic rhinitis without asthmatic symptoms

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Affiliations expand

- PMID: 36093643

- DOI: 10.1080/02770903.2022.2123741

Abstract

Introduction: Allergic rhinitis (AR) and asthma are closely associated in children. Reduced $FEF_{25\%-75\%}$ which reflects small airway airflow limitation is frequently observed in asthma. This study aimed to examine the proportion of small airway dysfunction in children with AR and to determine its associated factors.

Methods: The medical records of 144 aged 6-18-year children with AR without overt asthmatic symptoms were retrospectively reviewed. Subjects were divided into 2 groups according to the $FEF_{25\%-75\%}$ values; normal $FEF_{25\%-75\%}$ group (n = 129) and reduced $FEF_{25\%-75\%}$ group (n = 15). Clinical data, allergen sensitization profile, exhaled nitric oxide, spirometry, and methacholine provocation test results were compared between the two groups.

Results: The mean FEV_1 and $FEF_{25\%-75\%}$ values in the reduced $FEF_{25\%-75\%}$ group (73.5 ± 9.4%pred and 56.0 ± 7.7%pred, respectively) were significantly lower than in the normal $FEF_{25\%-75\%}$ group (87.0 ± 12.5%pred and 99.1 ± 21.4%pred, respectively). The mean disease duration was significantly longer in the reduced $FEF_{25\%-75\%}$ group than in the normal $FEF_{25\%-75\%}$ group (5.39 ± 1.85 y vs 3.14 ± 1.80 y, $p < 0.001$). Subjects with positive bronchial hyperresponsiveness ($MChPC_{20}$<16 mg/mL) were more frequently detected in the reduced $FEF_{25\%-75\%}$ group than in the normal $FEF_{25\%-75\%}$ group (26.7% vs 8.52%, $p = 0.013$). Long disease duration and severity of AR were significantly associated with impaired $FEF_{25\%-75\%}$ values.

Conclusions: Subjects with AR alone may have impaired $FEF_{25\%-75\%}$ values which is considered as a marker of early bronchial involvement. Longer disease duration and severity of AR are important risk factors for progressive declines in small airway function. Physicians should be aware of need for the measurement of $FEF_{25\%-75\%}$ values for early detection of small airway dysfunction, particularly in children with severe long-lasting allergic rhinitis.

Keywords: Morbidity and Mortality; Pediatrics; Physiology; Rhinitis/Sinusitis.

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Sci Total Environ

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Asthma, allergic rhinitis and atopic dermatitis in association with home environment – The RHINE study

Juan Wang[1], Christer Janson[2], Andrei Malinovschi[3], Mathias Holm[4], Karl A Franklin[5], Lars Modig[6], Ane Johannessen[7], Vivi Schlünssen[8], Thorarinn Gislason[9], Nils Oskar Jogi[10], Dan Norbäck[11]

Affiliations expand

- PMID: 36089044

- DOI: 10.1016/j.scitotenv.2022.158609

Abstract

We studied home environment exposures in relation to asthma, allergic rhinitis and atopic dermatitis among offspring of participants (parents) in the Respiratory Health in Northern Europe (RHINE) study (age ≤ 30 y). Totally 17,881 offspring from Iceland, Norway, Sweden, Denmark and Estonia were included. Home environment exposures, including dampness and mold, type of dwelling, construction year and indoor painting were registered through a questionnaire answered by parents in the first follow up (RHINE II). The parents reported ten years later with in the frame of RHINE III offspring's birth year and offspring's asthma, allergic rhinitis, atopic dermatitis. They also reported dampness and mold at home from RHINE II to RHINE III. The prevalence of offspring's asthma before 10 y, asthma after 10 y, allergic rhinitis at any age and atopic dermatitis at any age were 9.7 %, 4.3 %, 15.6 % and 17.3 %, respectively. Asthma before 10 y was related to any indoor painting at RHINE II (OR = 1.14, 95%CI (1.02, 1.29)). Asthma after 10 y was associated with dampness/mold at home (OR = 1.33-1.62) and living in the newest buildings (constructed in 1986-2001) (OR = 1.30, 95%CI (1.02, 1.66)). Allergic rhinitis was associated with living in newer buildings (constructed in 1961-2001) (OR = 1.16-1.24). Atopic dermatitis was associated with visible mold (OR = 1.35, 95%CI(1.12, 1.62)), dampness/mold at home (OR = 1.18-1.38), living in apartments (OR = 1.22, 95%CI(1.10, 1.35)) and living in newer buildings (constructed in 1961-2001) (OR = 1.14-1.25). There were dose-response effects of dampness and mold on offspring's asthma after 10 y and atopic dermatitis (20 years exposure vs. 10 years exposure). Older offspring had increased risk of developing asthma after 10 y and atopic dermatitis. In conclusion, home dampness and mold, living in apartments, living in newer buildings and indoor painting were associated with offspring's asthma or allergic diseases. Stronger health effects were found among offspring with prolonged exposure of dampness/mold.

Keywords: Allergic rhinitis; Asthma; Atopic dermatitis; Dampness; Home environment; Indoor painting.

Int Forum Allergy Rhinol

. 2022 Sep 9.

doi: 10.1002/alr.23078. Online ahead of print.

Systematic review of real-world persistence and adherence in subcutaneous allergen immunotherapy

Michelle Park[1], Shrey Kapoor[1], Julie Yi[1], Nanki Hura[1,2], Sandra Lin[1,3]

Affiliations expand

- PMID: 36083799

- DOI: 10.1002/alr.23078

Abstract

Background: Given that subcutaneous immunotherapy (SCIT) adherence in the literature is often studied in closely monitored trials, few studies report real-world SCIT adherence. The purpose of this review is to assess SCIT adherence in real-world settings.

Methods: A literature search of PubMed, Embase, Cochrane Library, Web of Science, and Scopus for real-world studies examining SCIT adherence was performed. Paired investigators independently reviewed all articles. For this review, "persistence" was defined as continuing therapy and not being lost to follow-up after initiating SCIT, and "adherence" defined as persistence in accordance with prescribed SCIT dose, dosing schedule, and duration. Article quality was first assessed using a modified Newcastle-Ottawa scale and then converted to Agency for Healthcare Research and Quality standards (good, fair, and poor).

Results: The search yielded 1596 nonduplicate abstracts, from which 17 articles (n = 263,221 patients) met inclusion criteria. Fourteen (82%) studies reported persistence rates, ranging from 16.0% to 93.7%. Seven (41%) studies reported adherence rates, ranging from 15.1% to 99%. Five (29%) studies (n = 416 patients) collected original data on reasons for discontinuing SCIT, of which inconvenience was most cited. All studies were Oxford level of evidence 2b and of good (n = 10) to fair (n = 7) quality.

Conclusion: Real-world SCIT persistence and adherence rates are poor, with the majority of included studies reporting rates <80%; however, they range widely, explained in part by inter-study differences in measuring and reporting adherence-related findings. Future studies on SCIT adherence may benefit from following concordant definitions of persistence and adherence in addition to standardized reporting metrics.

Keywords: Allergic rhinitis; adherence; allergy injections; compliance; persistence; subcutaneous immunotherapy.

Review

Int Forum Allergy Rhinol

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Sublingual immunotherapy persistence and adherence in real-world settings: a systematic review

Michelle Park[1], Shrey Kapoor[1], Julie Yi[1,2], Nanki Hura[1,3], Sandra Lin[1,4]

Affiliations expand

- PMID: 36083179

- DOI: 10.1002/alr.23086

Abstract

Background: Sublingual immunotherapy (SLIT) adherence in the literature is often evaluated in closely monitored trials that may impact patient behavior; real-world SLIT

adherence is relatively unknown. This systematic review intends to assess SLIT adherence in studies that reflect real-world settings.

Methods: A literature search of PubMed, Embase, Cochrane, Web of Science, and Scopus for real-world studies examining SLIT adherence was performed. Monitored clinical trials were excluded. Paired investigators independently reviewed all articles. For this review, "persistence" was defined as continuing therapy and not being lost to follow-up and "adherence" as persistence in accordance with prescribed SLIT dose, dosing schedule, and duration. Article quality was assessed using a modified Newcastle-Ottawa scale and then converted to AHRQ standards (good, fair, and poor).

Results: The search yielded 1596 nonduplicate abstracts, from which 32 articles (n = 63,683 patients) met criteria. Twenty-six (81%) studies reported persistence rates ranging from 7.0% to 88.7%, and 18 (56%) reported adherence rates ranging from 9.6% to 97.0%. Twenty-one (66%) studies surveyed reasons for discontinuing SLIT. All studies were Oxford level of evidence 2b and of good (n = 12) to fair (n = 20) quality.

Conclusion: Reported rates of real-world SLIT persistence and adherence varied widely by study methodology (e.g., follow-up duration, objective vs subjective assessment). Studies with longer follow-up generally reported lower rates; 3-year persistence ranged from 7% to 59.0% and 3-year adherence from 9.6% to 49.0%. Future studies of SLIT adherence would benefit from following concordant definitions of persistence/adherence and standardized reporting metrics.

Keywords: Allergic rhinitis; SLIT; adherence; allergen immunotherapy; compliance; persistence; sublingual immunotherapy.

Review

. 2022 Sep 8.

doi: 10.1111/all.15506. Online ahead of print.

Real-world evidence for the long-term effect of allergen immunotherapy: current status on database-derived European studies

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Affiliations expand

- PMID: 36074052

- DOI: 10.1111/all.15506

Abstract

Background: Randomized controlled trials (RCTs) are the gold-standard for benefit-risk assessments during drug approval processes. Real-word data (RWD) and the resulting real-world evidence (RWE) are becoming increasingly important for assessing the effectiveness of drug products after marketing authorization showing how RCT results are transferred into real life care. The effectiveness of allergen immunotherapy (AIT) has been assessed in several RWE studies based on large prescription databases.

Methods: We performed a literature search for retrospective cohort assessments of prescription databases in Europe to provide an overview on the methodology, long-term effectiveness outcomes and adherence to AIT.

Results: 13 respective publications were selected. AIT was more effective in reducing the progression of allergic rhinitis (AR) compared to a non-AIT control group receiving only symptomatic treatment for AR for up to 6 years. The development and progression of asthma was hampered for most endpoints in patients treated with most preparations compared to the non-AIT group, receiving only anti-asthmatic medication. The results for "time to onset" of asthma were inconsistent. Adherence to AIT decreased during the recommended 3-years treatment period, however in most studies higher adherence to subcutaneous than to sublingual AIT was shown.

Conclusion: The analysis of long-term effectiveness outcomes of the RWE studies based on prescription databases confirms the long-term efficacy of AIT demonstrated in RCTs. Progression of rhinitis and asthma symptoms as well as delayed onset of asthma triggered by different allergens, real life adherence to the treatment shows differences in particular application routes.

Keywords: allergen immunotherapy; allergic asthma; allergic rhinitis; long-term efficacy; real-world evidence.

SUPPLEMENTARY INFO

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BMC Pulm Med

. 2022 Sep 7;22(1):338.

doi: 10.1186/s12890-022-02138-0.

Risk factors associated with comorbid asthma in patients with chronic rhinosinusitis with nasal polyps: a cross-sectional study

Fangyuan Li[#1], Xuechen Wang[#1], Shen Shen[2,3], Kai Huang[1], Ming Wang[2,3], Xiaofang Liu[1], Chengshuo Wang[2,3], Jianmin Jin[#1,3], Luo Zhang[#4,5,6,7]

Affiliations expand

- PMID: 36071399

- PMCID: PMC9454111

- DOI: 10.1186/s12890-022-02138-0

Abstract

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Results: Totally 150 patients in modelling group and 78 patients in validation group were enrolled. Female gender (odds ratio [OR] = 6.4; P < 0.001), allergic rhinitis (OR = 2.9; P = 0.021), serum total (T)-immunoglobulin (Ig) E ≥ 69.0kU/L (OR = 12.0; P < 0.001), and blood eosinophil count ≥ 0.35 × 10^9/L (OR = 4.0; P = 0.001) were shown to be independent risk factors for asthma in patients with CRSwNP. Based on these variables, a scoring system (FAIE) ranging from 0(no risk) to 6(high risk); was developed. The area under the receiver operating characteristic curve of the system was 0.823, and the optimal cut-off value was 3 points, with sensitivity 83.8% and specificity 68.6% for screening asthma. The asthma comorbidity determined with FAIE score ≥ 3 points in the validation group, was moderately consistent with that defined by GINA (Kappa = 0.513, P < 0.001), with sensitivity 76.9% and specificity 74.4%.

Conclusions: Female gender, allergic rhinitis, serum T-IgE level, and blood eosinophil count are independent risk factors for asthma comorbidity in patients with CRSwNP, and the FAIE system may be practical for screening comorbid asthma in these patients.

Keywords: Asthma screening system; Chronic rhinosinusitis; Comorbid-asthma; Nasal polyps; Risk factors.

Conflict of interest statement

The authors declare that they have no conflicts of interest.

- 45 references
- 3 figures

SUPPLEMENTARY INFO

MeSH terms, Grant supportexpand

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Allergy

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. 2022 Sep 7.

doi: 10.1111/all.15511. Online ahead of print.

Allergic disease trajectories up to adolescence: Characteristics, early-life and genetic determinants

Anna Kilanowski[1 2 3], Elisabeth Thiering[1 3], Gang Wang[4 5], Ashish Kumar[5], Sara Kress[6 7], Claudia Flexeder[1 8 9], Carl-Peter Bauer[10], Dietrich Berdel[11], Andrea von Berg[11], Anna Bergström[12 13], Monika Gappa[14], Joachim Heinrich[9 15], Gunda Herberth[16], Sibylle Koletzko[17 18], Inger Kull[5 19 20], Erik Melen[5], Tamara Schikowski[6], Annette Peters[1 21], Marie Standl[1 8]

Affiliations expand

- PMID: 36069615

- DOI: 10.1111/all.15511

Abstract

Background: Allergic diseases often develop jointly during early childhood but differ in timing of onset, remission and progression. Their disease course over time is often difficult to predict and determinants are not well understood.

Objectives: We aimed to identify trajectories of allergic diseases up to adolescence and to investigate their association with early-life and genetic determinants and clinical characteristics.

Methods: Longitudinal k-means clustering was used to derive trajectories of allergic diseases (asthma, atopic dermatitis and rhinitis) in two German birth cohorts (GINIplus/LISA). Associations with early-life determinants, polygenic risk scores, food and aeroallergen sensitization and lung function were estimated by multinomial models. Results were replicated in the independent Swedish BAMSE cohort.

Results: Seven allergic disease trajectories were identified: "Intermittently allergic", "rhinitis", "early-resolving dermatitis", "mid-persisting dermatitis", "multimorbid", "persisting dermatitis plus rhinitis" and "early-transient asthma". Family history of allergies was more prevalent in all allergic disease trajectories compared the non-allergic controls with stronger effect sizes for clusters comprising more than one allergic disease (e.g. RRR=5.0, 95%CI=[3.1-8.0] in the multimorbid versus 1.8[1.4-2.4] in the mild intermittently allergic cluster). Specific polygenic risk scores for single allergic diseases were significantly associated with their relevant trajectories. The derived trajectories and their association with genetic effects and clinical characteristics showed similar results in BAMSE.

Conclusion: Seven robust allergic clusters were identified and showed associations with early life and genetic factors as well as clinical characteristics.

Keywords: Allergic diseases; Epidemiology; Longitudinal clustering; Polygenic risk score; Trajectories.

Laryngoscope

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doi: 10.1002/lary.30380. Online ahead of print.

Knockdown of Cadherin 26 Prevents the Inflammatory Responses of Allergic Rhinitis

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Affiliations expand

- PMID: 36069256

- DOI: 10.1002/lary.30380

Abstract

Objectives: Allergic rhinitis (AR) is an inflammatory autoimmune disease with disorder of the nasal mucosa. Cadherin 26 (CDH26), an alpha integrin-binding epithelial receptor, is regulated during allergic inflammation. This study aimed to investigate whether CDH26 contributes to the severity of AR.

Study design: In vivo and in vitro.

Methods: We investigated the effects of CDH26 knockdown by lentivirus (LV)-mediated shRNA on ovalbumin (OVA)-induced AR mice and IL-13-stimulated human nasal epithelial cells (NECs).

Results: CDH26 mRNA and protein expression was significantly increased in the nasal mucosa of AR patients and mice. Intranasal instillation of LV-shCDH26 alleviated allergic symptoms and decreased the histological changes of nasal mucosa in AR mice. Furthermore, the serum levels of OVA-specific IgE, IgG, pro-inflammatory factors IL-25, IL-33, and TSLP were decreased in AR mice with CDH26 knockdown. With regard to AR-

induced Th2 inflammation, LV-shCDH26 intervention effectively decreased the distribution of $CD4^+$ /$GATA3^+$ Th2 cells, and the mRNA expression of IL-4, IL-5, and IL-13 in the nasal mucosa. CDH26 knockdown down-regulated the expression of β-catenin but not for E-cadherin and ZO-1 in nasal mucosa induced by AR. In vitro, CDH26 knockdown inhibited the protein expression of TSLP, GM-CSF and eotaxin in NECs, and CDH26 overexpression remarkably promoted the production of these inflammatory factors in IL-13-induced NECs.

Conclusions: CDH26 knockdown attenuates the AR-induced inflammatory response both in vivo and in vitro.

Level of evidence: NA Laryngoscope, 2022.

Keywords: allergic rhinitis; cadherin 26; human nasal epithelial cells; inflammation.

- 32 references

SUPPLEMENTARY INFO

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