

Risk factors for an exacerbation-prone asthma phenotype

May 20 2012

A number of specific risk factors are associated with an exacerbation-prone phenotype of severe asthma, according to a new study from researchers in Sweden.

The results will be presented at the ATS 2012 International Conference in San Francisco.

"Acute exacerbations are a major source of morbidity and mortality in asthma," said lead author Maciek Kupczyk, MD, PhD, a researcher at the Karolinska Institutet in Stockholm "In children, the costs of [asthma care](#) are three times higher in exacerbators as compared to those patients who did not experience any attacks. Exacerbations are a prominent feature of poorly controlled and severe asthma, and even in patients with mild disease, the rates of severe exacerbations are high."

"Recent ATS/ERS guideline point out that exacerbations constitute the greatest risk to patients, are the major cause of stress and anxiety to patients and their families, and generate the greatest cost to the [health care system](#)," continued Dr. Kupczyk. "In our clinical practice, we have recognized a subgroup of asthma patients that experience a higher rate of exacerbations. In contrast to [chronic obstructive pulmonary disease \(COPD\)](#), the phenotype of frequent exacerbators has not been clearly characterized in [asthma patients](#)."

The study enrolled 93 patients with severe asthma and 76 patients with mild-to-moderate asthma who were followed for one year. Patients with

at least one [exacerbation](#) despite high-dose inhaled corticosteroid treatment and [specialist care](#) in the year prior to enrollment in the study were considered to have severe asthma.

A total of 122 exacerbations were recorded during follow-up, including 104 that occurred in 52 patients with severe asthma and 18 that occurred in 16 patients with moderate asthma. Frequent exacerbations occurred only in the [severe asthma](#) group.

Frequent exacerbators used significantly higher doses of inhaled and oral glucocorticosteroids, had worse asthma control, and had higher C-reactive [protein levels](#) and higher sputum eosinophils at baseline as compared with non-frequent exacerbators. A significantly faster decline in FEV1/FVC ratio was also seen in frequent exacerbators.

When frequent exacerbations were defined as two or more events per year, Juniper asthma control questionnaire (ACQ) score, sputum eosinophils $\geq 2\%$, smoking history, lower quality of life, and forced expiratory volume (FEV1) $\leq 70\%$ were associated with the development of exacerbations. When frequent exacerbations were defined as three or more events per year, body mass index > 25 , quality of life, smoking, and Juniper ACQ score were associated with the development of exacerbations.

"Exacerbations are important events in the natural history of asthma that is not well controlled," said Dr. Kupczyk. The implications of these flare-ups include an increased risk of mortality, low health status, decreased quality of life, and extensive utilization of health care resources."

"In this study we detail the characteristics of frequent exacerbators' phenotype based on medical history, physiological variables and biomarkers," said Dr. Kupczyk. "The ability to identify patients at greatest risk for future exacerbations is vital for developing effective

preventive strategies, reducing health care costs, and achieving good [asthma control](#).

"Appropriate long term management strategies using a personalized medicine approach, coupled with improved compliance, should reduce mortality and morbidity associated with [asthma](#) exacerbations," Dr. Kupczyk concluded. "However, further studies are needed to clarify which treatment option is optimal in frequent exacerbators."

More information: "Identification Of Risk Factors For Frequent Exacerbations In Severe Asthma" (Session A92, Sunday, May 20, Room 2005-2007, Moscone Center; Abstract 31646)

Provided by American Thoracic Society

Citation: Risk factors for an exacerbation-prone asthma phenotype (2012, May 20) retrieved 24 December 2022 from <https://medicalxpress.com/news/2012-05-factors-exacerbation-prone-asthma-phenotype.html>

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