



Factors associated with asthma control in patients with aspirin-exacerbated respiratory disease[☆]



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Summary

Background: Effective control of asthma is the primary goal of its treatment. Despite an improved understanding of asthma pathogenesis and accessibility of novel therapies, the rate of uncontrolled asthma remains high.

Objective: To find potential factors associated with asthma control in patients with aspirin-exacerbated respiratory disease (AERD).

Methods: Clinical data were collected from a specifically structured questionnaire. Demographics, a history of upper airway symptoms, asthma course, exacerbations expressed as emergency department (ED) visits/hospitalizations, and asthma treatment were considered. Spirometry, skin prick tests, total IgE concentration, and blood eosinophil count were evaluated. Asthma control was assessed through the Asthma Control Test (ACT).

Results: Out of 201 AERD patients, 41 (20.4%), 69 (34.3%), and 91 (45.3%) had controlled, partially controlled, and uncontrolled asthma, respectively. A multivariate ordered logistic regression analysis revealed that hospitalizations for asthma in the previous 12 months (OR 2.88; 95%CI, 1.11–7.46), ED visits for asthma throughout its duration (OR 1.05; 95%CI, 1.004–1.10), and total IgE concentration (OR 1.28; 95%CI, 1.02–1.60) were positively associated with poor asthma control, whereas FEV₁ values (OR 0.98; 95%CI, 0.96–0.99) and medical care at a referential specialty clinic (OR 0.50; 95%CI, 0.27–0.95) were positively associated with good asthma control.

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Conclusions: The prevalence of uncontrolled asthma in AERD patients is high and similar to that observed in different asthmatic populations. Owing both to the specificity and complexity of the disease, AERD patients should stay under regular care of well experienced referential medical centers to ensure that this asthma phenotype is dealt with effectively.

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Introduction

In line with the international guidelines, achievement and maintenance of asthma control are deemed to be primary goals of current management strategies [1,2]. Despite the widespread dissemination of these guidelines and improved understanding of asthma pathogenesis, asthma control remains suboptimal for many patients. Recent community-based asthma surveys revealed that approximately half of asthmatics had an inadequately controlled disease [3–8]. In the case of asthma, unlike diabetes or hypertension, a single, easily measurable marker that effectively facilitates the assessment of disease control is unavailable. Several composite assessment instruments have been developed for this task [9], with the Asthma Control Test (ACT) being only one of them [10].

Aspirin-exacerbated respiratory disease (AERD) is a distinct asthma phenotype, which is characterized by asthma, rhinosinusitis (frequently severe), recurrent nasal polyposis and precipitation of asthma attacks by ingestion of aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs) [11,12]. The European Network on Aspirin-induced Asthma (AIANE) study revealed that half of AERD patients had severe asthma that required chronic treatment with oral together with inhaled corticosteroids, to effectively control their symptoms [13]. In an AERD patient cohort from the United States, asthma severity was expressed by a high consumption of inhaled and systemic corticosteroids that were required to control the disease [14]. In the Epidemiology and Natural History on Asthma: Outcomes and Treatment Regimens (TENOR) study, hypersensitivity to aspirin was associated with more severe airway obstruction, more intensive health care utilization and the need for higher corticosteroid dosages compared with aspirin-tolerant asthmatics [15]. None of the above referenced studies, however, set out to examine asthma control among AERD patients.

The Cohort for Reality and Evolution of Adult Asthma in Korea (COREA) study revealed that overall asthma control, expressed as ACT scores, was comparable between AERD patients and those with good aspirin tolerance [16]. Nevertheless, the former group was characterized by significantly more frequent asthma related health care utilization. An epidemiological study, in which AERD was diagnosed based on exclusively one question, estimated that the uncontrolled asthma prevalence in this group was 26.7% [17].

The present study aimed to explore the potential factors associated with uncontrolled asthma, as estimated by the ACT, in a cohort of patients representing the AERD phenotype.

Methods

The subjects under study

The study embraced 201 patients (134 females) who were recruited from a consecutive patient group diagnosed with AERD at the Department of Internal Medicine, Jagiellonian University, Medical College, Krakow. AERD was diagnosed prior to the study. In the majority of patients, this was based on a typical history that was confirmed with a positive aspirin challenge. In 42 severe steroid-dependent asthmatics, the diagnosis was based exclusively on an unequivocal clinical picture and a history of asthma attacks after ingestion of aspirin or other NSAIDs. Owing both to low FEV₁ and the non-feasibility of reducing the oral corticosteroid dosage, they never qualified for aspirin challenge. All participants were clinically stable, had experienced no asthma exacerbations within the four weeks preceding the study and received asthma medications, as currently prescribed by their physicians. Ninety-three (46.3%) patients remained under medical care at our Department, 59 (29.3%) were treated by allergy or pulmonology specialists in the local outpatient departments, 32 (15.9%) were attended to by their general practitioners, and 17 (8.5%) remained without any medical attention. All patients gave an informed, written consent to participate in the study. The Jagiellonian University Ethics Review Committee endorsed the study protocol.

Data collection

The patient data were collected from a specifically structured questionnaire. All study participants underwent a demographic and detailed medical history interview, including questions that specifically addressed their clinical asthma courses, upper airway symptoms, nasal polyps history, polypectomies and endoscopic sinus surgeries, allergy history, and any individually used asthma medications. Asthma-related emergency department (ED) visits and hospitalizations were estimated for the entire asthma duration and for the preceding 12 months. At least one exacerbation within the preceding year was assumed as a positive result. Intensive care unit (ICU) stays throughout the asthma duration were only categorized as present or non-present.

Asthma control was assessed through the Asthma Control Test (ACT) [10]. It was composed of five rating categories (1–5 scale) that reflected the asthma control level over the previous 4 weeks. Specific items addressed the actual impact of asthma on their daily activities, shortness of

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