

# Editorial

## Defining asthma control: time to look for new definitions?

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The etiology of asthma is unknown, and there is as yet no consensus regarding a single definition. Therefore, asthma has been defined through a set of clinical, pathophysiological and anatomopathological characteristics.<sup>(1)</sup> The principal clinical characteristic is the occurrence of intermittent episodes of dyspnea, principally nocturnal, and cough (which can be an isolated manifestation) with or without expiratory wheezing. The predominant physiological characteristic is the reversible airflow limitation, principally due to increased airway responsiveness to nonspecific stimuli. From the anatomopathological point of view, the predominant alteration is the presence of airway inflammation, with infiltrates of the airway walls by non-resident blood cells, of which the most characteristic, albeit not exclusive, is the eosinophil.<sup>(2)</sup> Inflammation of the airways is considered the core of the pathogenesis of asthma.<sup>(3)</sup> It is believed that the inflammatory process in the airways is the primary cause of asthma and its symptoms, determining its severity, the occurrence of exacerbations and the subsequent structural alterations (airway remodeling), which determine the persistence of clinical abnormalities, such as symptoms, airflow limitation and hyperreactivity, even when the inflammation is controlled.

This definition leads us to the conclusion that the symptoms are only one of the outcomes that characterize this clinical condition known as asthma. However, for many years, symptom relief has been used as an outcome measure, or principal criterion, to define the control of asthma. This happens because, in most cases, patients with asthma seek treatment when their asthma symptoms worsen. However, although the symptoms can be a sensitive indicator of changes in airflow or airway responsiveness, they can often present low sensitivity and specificity. For example, one study<sup>(4)</sup> evaluated changes in symptoms and in peak expiratory flow (PEF) in patients with asthma treated at primary health care clinics. Alterations in symptoms correlated with changes in PEF in 60% of the cases. However, in 30% of the cases, they were increased without a change in PEF and were absent, with significant alterations in PEF, in 10%. The inadequate identification of airflow limitation can also be observed when the limitation is produced through methacholine-induced bronchoprovocation. In this case, the author of another study<sup>(5)</sup> observed that 12% of the individ-

uals who presented a drop in the forced expiratory volume in one second (FEV<sub>1</sub>) of 50% of predicted after inhaling methacholine did not report symptoms. These values of inadequate perception can be considered low in relation to those observed by the author of another study,<sup>(6)</sup> who reported the recovery of hospitalized patients with asthma treated for an exacerbation. It was observed that the symptoms disappeared in all patients when FEV<sub>1</sub> was still reduced by over 50%, raising the hypothesis that this phenomenon is an important determinant of the severity of the presentation of the exacerbation, before the patient seeks help. This partial or inadequate correlation between symptoms and expiratory flows has also been observed when we compare symptoms with the inflammatory process of the airways.<sup>(7)</sup>

In this issue of the Brazilian Journal of Pulmonology, Ponte et al.<sup>(8)</sup> report the experience of perception of symptoms in a less affluent population in Salvador. In a cross-sectional study, 289 patients with asthma, consecutively included with disease of varying severity, were evaluated using structured questionnaires, medication and functional evaluation, in order to determine their perception of the degree to which their symptoms were controlled. The authors concluded that a significant number of patients in these conditions do not adequately perceive the control of the disease, principally older patients, those with low family income and those presenting mild stages of the disease. Findings confirm, once again, the lack of accuracy of the symptoms in portraying the level of control.

However, the information that concerns us the most in this study might have been underestimated by the authors. Observing Table 1 of this study, we can see that only 14% of the patients felt that the control of asthma was inadequate, and this number increased to 62% when the attending physicians performed the evaluation. In addition, regardless of the discordance between the clinical evaluation and that of the patient, 153 patients (53% of the patients evaluated and enrolled in the program cited) had asthma that was not adequately controlled. Although, at first sight, these findings may be surprising, they are in agreement with those of larger, interview-based studies.<sup>(9,10)</sup> The author of a certain study evaluated 2184 adult patients with asthma, or parents of patients with asthma, in 11 countries in Latin America.<sup>(10)</sup> In that evaluation, also cross-sectional, the perception of asthma

symptoms did not correlate with the level of asthma control and, although nearly 45% of the patients believed that their asthma was controlled, only 2.6% of the sample met the criteria to support this assumption. The vast majority of the interviewees presented uncontrolled asthma.

What could explain such a dissociation between perception and real control level in patients in Latin America<sup>(9,10)</sup> and in the patients described in the study by Ponte et al.<sup>(8)</sup> The answer is probably related to the change of the concept of control. The present guidelines<sup>(1,11)</sup> adopt a more rigid definition that consists of several parameters, in addition to symptom control, which makes this outcome (control) more difficult to achieve than is the simple suppression of the symptoms.

The criteria currently established by the Global Initiative for Asthma and by the Brazilian Thoracic Society, through their guidelines,<sup>(1,11)</sup> define control based on the fulfillment of several clinical and spirometric parameters, as well as parameters of anamnesis, considered as indirect markers of the improvement of the inflammation of the airways, including: 1) absence of daily and nocturnal symptoms, or reduction of these symptoms to the minimum; 2) normal or near normal pulmonary function test results; 3) absent or infrequent exacerbations; 4) little or no need for rescue bronchodilators; and 5) minimal or no limitation of activities. Whenever possible, control should be maintained with the smallest possible quantity of drugs. Therefore, a wider and more adequate concept of asthma was built and is recognized by the guidelines as the principal goal in the management of patients with asthma.<sup>(12)</sup>

Recognizing that achieving and maintaining control should be the principal goal of the treatment of asthma is not new and has been discussed in international consensus for the management of asthma for over a decade. However, adopting this compound definition and the demonstrating that the control of asthma could be achieved in medical practice were demonstrated only recently with the publication of the study Gaining Optimal Asthma Control, in 2004.<sup>(13)</sup> This study demonstrated that, with an individualized treatment addressed by the physician, in search of the total control of the outcomes of asthma, according to what has been defined above, control has been achieved in most

patients included, regardless of the severity of the symptoms present at the initiation of treatment.

The question that becomes mandatory for the clinicians who manage the treatment of patients with asthma is: "How can I measure, achieve and maintain the control of asthma of my patients?" The tendency derived from the current guidelines indicates that the level of control should be determined in all patients. Afterwards, we would look for the best treatment, based on the level of treatment that the patient was already receiving. Subsequently, patient control level should be systematically monitored, in order to be maintained. Therefore, monitoring the level of control is an integral and fundamental part of the management of the patient with asthma.<sup>(1,12)</sup>

This monitoring can be achieved by using quantitative instruments specifically developed to determine the control of asthma, during medical visits. In Brazil, there are two quantitative instruments<sup>(14,15)</sup> available in order to systematically evaluate the level of control: the Asthma Control Questionnaire and the Asthma Control Test. In addition to their intrinsic validity and responsiveness, these instruments are easy to use and self-applicable, despite being additional tools that can guide therapeutic decisions and facilitate the monitoring of asthma control.

In summary, speaking of asthma today means determining its control level and steering the various management strategies so that most patients achieve this control. This new paradigm should be disseminated to all levels of treatment, and is the final goal in the treatment of asthma.<sup>(1,11)</sup> It is expected that, by adopting these goals, the low indices of asthma control demonstrated to date can be definitively changed.

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