Assessment of Control in Asthma: The New Focus in Management

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**ABSTRACT**

Several evidence-based guidelines on the management of asthma have been developed in the last two decades. There is a consensus that a stepped-up approach with anti-inflammatory drugs based on severity forms the cornerstone of treatment. Goals of management have been defined. Studies in several countries have however shown that a large majority of patients have failed to attain the goals of treatment. This has led to a reconsideration of strategy of management. The focus is now shifting to an assessment and a treatment approach based on control. The objective is to achieve and monitor to maintain control. The previous treatment algorithms based on assessment of severity are being discarded. It has been emphasised that the state of control is a dynamic one and therefore a regular assessment and modifications of treatment according to changes in its level are necessary. There is a need to use some method to assess control. A wide range of techniques to assess control are available that can be used depending on the requirements, settings and resources. Assessment of control may be an informal global judgement by the physician or simple tools may be used. Several formal instruments to assess the state of control have also been developed and validated in different settings. These allow a more objective and a quantitative evaluation. Control needs to be assessed at every visit of a patient and treatment adjusted accordingly. [Indian J Chest Dis Allied Sci 2008; 50: 109-116]

**Key words:** Asthma, Control, Severity, Spirometry, Asthma control test, Asthma control questionnaire.

**INTRODUCTION**

Asthma is one of the few chronic diseases that have shown consistently upward trends through the last few decades. There has been an increase in morbidity and mortality notwithstanding rapid and substantial strides in the understanding of the pathogenesis of the disease and development of newer drugs and devices for their delivery. Concern over this trend led to the development of several evidence-based guidelines for management with an aim to standardise and improve the quality of management.1,2 Over a hundred guidelines have been developed by several associations and institutions in both developed and developing countries. The guidelines reflect an almost universal consensus with minor local differences. These guidelines seek to translate the advances in the understanding of pathogenesis of asthma and in the development of new agents and strategies into practical application at all levels of healthcare. It is agreed that asthma is a chronic inflammatory airways disease and is best treated with anti-inflammatory medication, especially steroids that are most effectively administered by the inhaled route. Goals of management have been defined.

To achieve these goals, the guidelines advocate an assessment of the patients to classify the severity of disease followed by a step-wise approach to treatment. With the strategies of pharmacological treatment, avoidance of triggering factors and environmental control, we hope to achieve minimum or nil daytime and night-time symptoms, prevent acute exacerbations and limitation of activity and attain normal or near-normal lung function, thus improving the overall quality of life. While the guidelines have certainly improved the management of asthma at all levels of healthcare, it continues to be undertreated and wrongly treated. A large proportion of asthmatics have not benefited. The goals have not been achieved. The reasons for the apparent failure are related not to the concept but to delivery, wider dissemination and adoption of the guidelines. There seems to be a wide gap between theory and practice.3 While one can blame it on the poor penetration of guidelines to the primary healthcare level, physician and patient-related barriers to implementation of recommendations, and, economic and cultural factors, a substantial proportion of even those managed according to the recommendations have far from satisfactory control.4-6
WHAT IS CONTROL?

Defining control of asthma is not easy. It may be viewed as a state in which none of the manifestations of active disease are there. However, manifestations are at clinical, physiological, pathological, immunological and even molecular level. Therefore, the term ‘control’ has different connotations to different persons. To a patient, it means freedom from symptoms and the ability to function without any disease-imposed restraints. Too a clinician and a physiologist, it would mean, in addition, a normal lung function whereas a pathologist or an immunologist would fix abolition of the inflammatory process, measured invasively or noninvasively, as the end-point. From the point of view of applicability to the vast majority of patients at different levels of healthcare, clinical definitions of control are relevant. Thus, controlled asthma is characterised by minimal or no symptoms during the day and at night, no asthma attacks and emergency visits to physicians or hospitals, minimal need for reliever medications, no limitations on physical activities and exercise, nearly normal lung function and minimal or no side-effects from medication. Thus, control reflects how close a patient is towards achieving the goals of treatment. While symptom relief and freedom from acute exacerbations indicates a good response to treatment, assessment of activity limitation is an important component of control. Patients may adapt their level of activity to accommodate their asthma symptoms. They may restrict their activities and appear to be free of symptoms. Thus, limitation of functional capacity needs careful assessment.

It must be emphasised that the state of control in asthma is not a permanent one. Variability and intermittency are the cardinal clinical hallmarks of asthma and thus symptoms, sleep disturbance, activity limitation, rescue medication usage and lung function are expected to vary from time to time. Asthma control is a target to be attained and maintained by constant adjustments of treatment. A state of total control can therefore be achieved but would rarely be maintained permanently. Hence, a quantitation of the degree of control is desirable so that it can be estimated accurately how far a patient is from an ideal situation of total control or how much deterioration has occurred from a previous level of control.

CONTROL VERSUS SEVERITY

In 1996, Cockcroft and Swystun noted the conflation of asthma severity and asthma control in previously published asthma guidelines and recommended that asthma control be separated from asthma severity. Osborne et al found a lack of correlation between symptoms and long-term asthma severity.

Severity and control of asthma are two different but complementary concepts. The term “severity” is used in the context of several different situations. Reference to severity may be to describe how bad an acute exacerbation, as in acute severe asthma, is or to describe the state of chronic disease. It is also used to describe the degree of airways obstruction measured on spirometry. Here, the reference is to the chronic disease. Severity may be viewed as an intrinsic characteristic of the disease and is stable for long periods. Though not easy to measure, the concept needs to be grasped. A patient who has frequent symptoms, exacerbations, and activity limitation and requires more medication to achieve the goals of treatment clearly has more severe disease. Determinants of severity are not well defined but may relate to genetic factors, inflammation, bronchial hyperreactivity and mechanisms of cell response.

The spectrum of clinical presentations of asthma is very wide. The frequency and intensity of symptoms varies from patient to patient. There are patients who have occasional mild symptoms responding easily to treatment contrasting with patients who are continually breathless and difficult to treat. It is a common observation that patients with similar levels of airways obstruction and symptoms respond differently to the same level of treatment. The latter would be said to have a more severe disease. Control on the other hand reflects on how well the clinical manifestations of disease are suppressed by the management strategy and is a dynamic phenomenon. It is typically assessed over a short-term (a few weeks) and would vary from time to time. The terms control and severity are often used interchangeably in clinical practice and medical research but appear to be related only indirectly. It is possible for a patient to have severe asthma but good control if properly managed. On the other hand, there may be a patient with less severe asthma but poor control because of poor compliance and adherence to treatment. Management is aimed at obtaining control. Severity is one of the determinants of control. It is expected that a patient with more severe disease to have greater difficulty in controlling the manifestations of asthma. The shift in emphasis from severity to control is the most remarkable change in the 2006 Global Initiative for Asthma (GINA) update.2

Asthma severity should be assessed at the initial assessment. This would take into account, the frequency and severity of symptoms and acute exacerbations especially those requiring hospitalisations and intensive management, use of oral steroids, overall requirements for medication and limitation of activity. Subsequent management is guided by the control that is targeted and achieved. The severity of asthma generally is not reclassified at every clinical encounter. On the other hand, asthma control can be expected to change over time and should be assessed by the patient and physician periodically, at every visit. Because
assessments of asthma control is independent of current medication, asthma control is dissociated from asthma severity classification. This facilitates individualisation of treatment and is the current focus in management.

THE CURRENT SCENARIO OF CONTROL

One of the largest and most comprehensive surveys of public, patient and professional knowledge, attitudes and behaviour toward asthma in the United States, called the “Asthma in America”, has revealed glaring results that show the rather poor impact of asthma management guidelines. The national sample of asthma patients was identified by systematically screening a national sample of 42,022 households in the United States. Interviews were completed with a national sample of 2,509 adults with asthma or parents of children with asthma. A national cross-sectional sample of 1,000 adults in the general public was also conducted for comparison to the national asthma sample. Finally, a national sample of more than 700 healthcare providers comprising 512 doctors, 101 nurses and 113 pharmacists was interviewed as part of the survey.

It was observed that asthma management in America was falling far short of the goals established by the National Heart, Lung, and Blood Institute (NHLBI) guidelines. Thirty percent of asthma patients were awakened by breathing problems at least once a week; 49% of children with asthma and 25% of adults with asthma missed school or work because of asthma in past year; 32% of children with asthma went to emergency room for asthma attacks while 41% of all people with asthma were hospitalised, treated in emergency rooms or required other urgent care for their asthma in the past year; 48% of patients were limited in sports/recreation, 36% limited in normal physical exertion and 25% limited in their social activities. Only 35% of patients reported having had a lung-function test in past year. One serious problem contributing to the poor level of asthma control was that a significant number of people with asthma tended to underestimate the severity of their condition and overestimate how well their asthma was being controlled.

The scenario in Europe is equally dismal as revealed in the Asthma Insights and Reality in Europe (AIRE) study. In seven European countries, 2,803 patients were selected by screening 73,880 households. Forty-six percent of patients reported day-time symptoms and 30% reported sleep disturbances at least once a week. In the past 12 months, 25% of patients reported an unscheduled urgent care visit, 10% reported one or more emergency room visits and 7% reported overnight hospitalisation due to asthma. Patient perception of asthma control did not match their symptom severity; approximately 50% of patients reporting severe persistent symptoms also considered their asthma to be completely or well controlled.

The Gaining Optimal Asthma Control (GOAL) study attempted to answer the question whether guideline-defined asthma control could be achieved. A total of 5068 patients from 826 centres in 44 countries were screened; 3421 qualified for inclusion. Three thousand thirty-nine patients completed phase 1; 2890 patients completed phase 2. Total control was achieved across all strata in only 31% and 19% of patients after phase 1 and in 40% and 28% of patients at one year with salmeterol/fluticasone combination and fluticasone, respectively. Good control was achieved across all strata in 63% and 50% of patients after phase 1 and 71% and 59% of patients at one year for these regimens, respectively. Thus, a substantial number of patients failed to achieve the goals of treatment. These results achieved in a research study where the patients were closely supervised and treatment was stepped up as required suggest that in the real world, results would be even less satisfactory. In a recent study in the Asia-Pacific region carried out in eight countries with a sample of 3207 physician-diagnosed asthmatics, daytime asthma symptoms were reported by 51.4% of respondents and 44.3% reported sleep disturbance caused by asthma in the preceding four weeks. At least two in every five respondents (43.6%) had been hospitalised, attended a hospital emergency department, or made unscheduled emergency visits to other healthcare facilities for treatment of asthma during the previous 12 months. Overall, 15.3% of respondents reported that they had required admission to the hospital for asthma treatment.

Reasons for Poor Control

The level of control reflects the behaviour of both the physicians and the patients. The physicians need to make a correct diagnosis, assess severity of the disease and start appropriate treatment along with nonpharmacological measures including avoidance of triggers and environmental control. They have to monitor the response and make necessary adjustments. Patients need to engage in self-management behaviours with optimal adherence to appropriate treatment.

Poor control may be for several reasons including co-morbidity (e.g. rhinitis, COPD), severe therapy-resistant disease, ongoing exposure to triggers (e.g. occupational asthma, pets, mite, etc), inadequate assessment, inadequate treatment, ineffective delivery of treatment (e.g. poor inhaler technique), limited treatment effectiveness (e.g. smoking interfering with steroid actions), inadequate use of action plans, low patient and physician expectations, low adherence with agreed asthma therapy, functional and psychological problems affecting willingness to use therapy, over-reliance on complementary/alternative treatment, not attending medical consultations and patients not perceiving symptoms as indicative of poor control.
Social, cultural and economic factors also have a role in modulating patient behaviour. In evaluating reasons for poor control, a physician must take into account these factors.

Consequences of Poor Control

Poor or inadequate control has clinical, socio-economic and psychological repercussions. Continued symptoms, airway inflammation and obstruction lead to distress, limitation of activity and interference in activities of daily living and also put a patient at risk of acute exacerbations and hence mortality. Poorer control may underlie airway remodeling due to continued inflammatory processes in the airways leading to partially or even irreversible obstruction. The costs of uncontrolled asthma are tremendous. It means increased expenditure on consultations, transport, hospitalisation and medication. An analysis of nine studies conducted in Australia, Canada, France, Sweden, UK and USA showed that around one-third of the direct costs of asthma, and three-quarters of the total costs of asthma, were a consequence of uncontrolled disease. In a US study conducted in 1993, the average cost per patient ranged from US$47 for those with controlled disease, to US$7030 for those with uncontrolled symptoms. A survey in the UK found that the annual cost of a patient who experienced an asthma exacerbation was more than 3.5 times the cost of controlled disease, to US$7030 for those with uncontrolled symptoms. A survey in the UK found that the annual cost of a patient who experienced an asthma exacerbation was more than 3.5 times the cost of those who did not experience an attack (£381 vs £108). Besides the direct costs of managing asthma, there are indirect costs related to loss of productivity along with a poorer quality of life. Poor control also imposes a psychological burden on the patient and the family. It interferes with normal social interactions and causes loss of self-confidence and esteem. For a child, it means interference with normal activities of childhood, school absenteeism, poorer performance at school and impaired growth and development.

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Tools to Measure Control of Asthma

Clinical and Physiological Assessment

Physicians usually make as assessment of how well a patient is responding to treatment by asking a few questions about symptoms and a physical examination. In clinical practice, asthma control assessment usually will encompass the entire interim between periodic visits although a patient’s recent experiences will dominate his responses. Clinical indicators of poor control include persistence of symptoms including nocturnal awakenings, activity limitation, and frequent use of rescue medication and oral steroids, emergency consultations and hospitalisation. If available, the physician may use aids such as a peak flow meter or spirometry. In busy clinics, especially in public hospitals, the number of patients may be so large that it is not possible to carry out tests of lung function on all the patients. Further, it would be rarely possible to carry out these tests on every visit of a patient even in smaller clinics. Therefore, how well a patient has responded to treatment is usually judged by a global assessment by the physician using his clinical judgment and acumen.

This introduces a subjective bias. As the major input for this assessment is the patient’s perception of control, this is likely to be erroneous. Studies have shown that physicians too are more often than not likely to overestimate the level of control, leading to undertreatment. There is little correlation between commonly measured objective measurement of lung function using peak flow meters or spirometry and the level of symptoms or quality of life impairment perceived by patients.

It is commonly argued that objective measures are more reliable than a subjective assessment. However, measures of lung function provide information about the airways caliber only at the time of the test and in a disease such as asthma where lung function varies widely over time, a one-point assessment is clearly of limited use. As pointed out above, due to resource constraints and costs, these tests can be done only infrequently. The results of spirometry on two visits provide no information on the airway function between the visits. Spirometric values can change dramatically with aggressive treatments or recent drug usage. Thus, a patient may have normal or near normal values because he has recently stepped up treatment. The greatest utility of spirometry is to confirm the diagnosis or to assess when the response is inappropriate or when the patient has a poor perception of symptoms or to document restoration of lung function to normalcy.

Peak flow monitoring at home has sometimes been considered as the equivalent of home blood glucose monitoring in diabetes. Asthma management guidelines have formulated action plans for patients based on peak flow readings classified into red, yellow and green zones and advise appropriate action. However, studies have shown poor compliance. The Asthma in America survey revealed that only 28 percent had a peak-flow meter to monitor their airflow and only nine percent reported using it at least once a week. Although affordable, most patients do not use it for long. There are technical and physiological limitations too. There is a wide instrument-to-instrument variation and accuracy is difficult to check. Calibration is not possible for users. Proper training is required to obtain correct readings. Finally, these reflect only large airway function and are not sensitive for detecting subtle abnormalities.

In settings of clinical trials, semi-quantitative means of assessing control are often used including evaluating or scoring each symptom or separate component of asthma control and comparing the effects of treatment
or interventions on these. Simple ordinal grading systems such mild, moderate and severe or scales of increasing severity from 0 to 3 or 4, or 0 to 100 are often used. Although crude, these may be of some value in clinical studies involving follow-up. However, these are not reliable for comparisons between studies.

**Inflammation Markers**

Inflammation being the pathological hallmark of the disease offers an excellent and a direct outcome parameter to assess the adequacy of treatment and the degree of control. Unfortunately, direct tools such as bronchial biopsy and bronchoalveolar lavage being invasive cannot be done repeatedly and are strictly research tools. Further, these sample only small areas of lung and it cannot be ascertained whether these specimens are representative of inflammation at other sites. Markers of inflammation in blood have never been consistently shown to be of any value in monitoring airway inflammation. However, in recent years, induced sputum and markers in exhaled air have received enthusiastic attention. Eosinophil count estimations in spontaneously produced or induced sputum can be measured as a marker of control, though the method requires appropriate expertise and laboratory support so is not currently suitable for use in routine primary care. Exhaled air nitric oxide, hydrogen peroxide, isoprostanes, etc., have been measured. As these are noninvasive, these can be done as often as required. Limiting factors are the high costs of the equipment and quality control issues related to standardisation of techniques. These remain to be validated. Their current status is undefined as reproducibility, specificity and sensitivity, and correlations with other measures of control need to be evaluated. Some studies have shown exhaled air nitric oxide to be a promising marker of control. In a study by Sippel et al, exhaled nitric oxide levels demonstrated significant correlation with measures of asthma control, such as daily use of β₂-agonists, symptom scores of the prior two weeks, and reversibility of airway obstruction. Unfortunately, exhaled nitric oxide did not correlate with health-care utilisation. In a study by Jones and colleagues, a single measure of exhaled nitric oxide, as well as change in exhaled nitric oxide, were predictive of loss of asthma control following steroid withdrawal. Exhaled nitric oxide also correlated with symptoms of asthma and FEV₁, as well as sputum eosinophils.

Whether these will ultimately achieve the status of clinically useful measures or remain research tools remains to be seen. Resource constraints will always hamper their wider application. Considering the huge numbers of patients that are managed in most hospitals, clinical tools remain the only feasible option.

**Clinical Tools**

Simple and quick tools have been described. The Rule of Two' consists of three items covering asthma symptoms and rescue medication use, each of which is answered with ‘yes’ (2 points) or ‘no’ (0 point) so that summing the answers gives a score ranging from 3 (= poor control) to 6 (= good control). The 30-second test contains six questions with yes/no response options and is widely used in Canada. These tools have not been validated in large studies.

The Gaining Optimal Asthma Control (GOAL) study used two new guideline-based composite measures of control; Total control (TC) and Well-controlled (WC). Seven end-points were defined: daytime symptoms, rescue β₂-agonist use, morning peak expiratory flow, night-time awakening, exacerbations, emergency visits and treatment-related adverse events. Total control is nil recording for all of above with a normal lung function. ‘Minimal’ daytime symptoms (≤ 2 days of short symptoms) and β₂-agonist use on ≤ 2 days and ≤ 4 occasions per week with nil recording for other end-points classified the control as WC and was considered as acceptably ‘controlled asthma’. Asthma control was assessed over an 8-week period prior to each clinic visit. Total control or WC asthma was achieved if the patient had at least 7 out of 8 weeks in that control state. The Joint Task Force of three American scientific bodies gave similar definitions of TC and WC.

The 2006 update of GINA guidelines is notable for a marked change in the principles guiding patient assessment, initiation of treatment and its subsequent adjustments. The previous classification of asthma by severity into intermittent, mild persistent, moderate persistent and severe persistent is now recommended only for research purposes. Throughout the report, emphasis is placed on the concept that the goal of asthma treatment is to achieve and maintain clinical control. A classification of asthma by level of control into Controlled, Partly Controlled, or Uncontrolled is recommended (Table 1). It is a working scheme that has not been validated.

**Specific Control Instruments**

Use of questionnaires to record patient-reported outcomes is perhaps the best way to assess control. Several such questionnaires have been developed with varying performance characteristics. Not all such instruments meet the requirements of an ideal asthma control measurement tool (Table 2). There are published but proprietary questionnaire instruments that might be useful in assessing asthma control. The Asthma Control Questionnaire (ACQ), the Asthma Therapy Assessment Questionnaire (ATAQ) and the Asthma Control Test (ACT) have been studied, validated, and published. There are substantial overlaps in the content. However, the time period and scoring systems are different.
The Asthma Control Questionnaire was developed and validated by Juniper et al.\textsuperscript{26} It contains a total of seven items: 5 cover symptoms (nocturnal wakening, severity of morning asthma symptoms, need to limit activity, shortness of breath, and wheezing), one is related to the use of beta agonists, and the lung function measured as FEV\textsubscript{1} % predicted is given a score. The experiences of the past seven days are recorded. The patients respond to each question using a 7-point scale. The items are equally weighted, and the ACQ score is the mean of the seven items, ranging from 0 (well-controlled) to 6 (extremely poorly controlled). The ACQ has strong measurement properties as an evaluative and a discriminative instrument and can be used in clinical trials and cross-sectional studies.

While the requirement for spirometry imposes a limitation as this may not be available especially at primary and secondary health care levels, and further the patients may not be using $\beta_2$ agonist inhalers, the Juniper ACQ has been shown to perform equally well in a shortened 5-item version not requiring information on lung function and inhaler usage.\textsuperscript{27} The scoring may be considered cumbersome for the illiterate and the less well-educated. An official Hindi version is also available.

The Asthma Therapy Assessment Questionnaire\textsuperscript{25} is a disease management tool. The ATAQ instrument can be either self-administered or administered by a healthcare professional. It has elements related to overall assessment of therapy and contains four questions related to control. The control domain highlights potential asthma management issues, such as patient self-reported asthma symptom control, missed daily activities, missed work and/or school, nocturnal awakenings, and high use of quick-reliever medication. Additionally assessed for children are wheeze during the day when exercising and not exercising. For each completed survey, a score of 0 on the Control Domain indicates no control issues as measured by the instrument, and the highest possible score indicates all possible control issues measured by the instrument. The Asthma Control Domain for Adults ranges from 0 (no control problems) to 4 (4 control problems) and reflects the level of asthma control in the past four weeks. The Asthma Control Domain for Children and Adolescents ranges from 0 (no control problems) to 7 (7 control problems) and reflects asthma control in the past four weeks.

While the ATAQ requires information on inhaler use, it does not require lung function testing and measures control over the previous four weeks and therefore is more vulnerable to problem of recall. Compared to ACQ and ACT, it has been used much less in published studies.

The Asthma Control Test\textsuperscript{26} consists of five items: shortness of breath, patient rating of control, use of rescue medication, work/school limitations related to asthma, and nocturnal asthma symptoms. Each of the five items is assessed on a 5-point scale and the response is summed to give scores ranging from 5 (poor control) to 25 (complete control). It has been shown to have reliable internal consistency, validity and responsiveness. It is easy to administer, easy to understand and can be easily applied in the clinic. The scoring system is simple and allows categorisation into controlled and uncontrolled states. It does not require lung function data and thus can be applied at all levels of healthcare. However, it requires information on inhaler or nebulizer use, which would not be available in a substantial proportion of patients. The ACT evaluates the control over the previous four weeks.

Table 1. GINA classification of level of control\textsuperscript{2}

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Controlled (All of the following)</th>
<th>Partly Controlled (Any measure present in any week)</th>
<th>Uncontrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daytime symptoms</td>
<td>None (twice or less/week)</td>
<td>More than twice/week</td>
<td>Three or more features of partly controlled asthma present in any week</td>
</tr>
<tr>
<td>Limitations of activities</td>
<td>None</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Nocturnal symptoms/awakening</td>
<td>None</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td>Need for reliever/rescue treatment</td>
<td>None (twice or less/week)</td>
<td>More than twice/week</td>
<td></td>
</tr>
<tr>
<td>Lung function (PEF or FEV\textsubscript{1})</td>
<td>Normal</td>
<td>$&lt;80%$ predicted or personal best (if known)</td>
<td></td>
</tr>
<tr>
<td>Exacerbations</td>
<td>None</td>
<td>One or more/year</td>
<td>One in any week</td>
</tr>
</tbody>
</table>

Table 2. Requirements of an ideal instrument to measure asthma control

- Applicable and feasible in clinical practice at all levels of healthcare
- Convenient to administer
- Questions should be easy to understand
- Choices of responses should be clear and unambiguous
- Should not be time consuming
- Mathematically simple
- Valid and reproducible
- Should be able to discriminate among patients
- Should be responsive to changes in asthma control over time
- Should provide guidance to titrate treatment
- Capable of self-administration
- Should not be susceptible to recall bias
- Should perform equally well with or without lung function data
Problems in recall are therefore more likely with the ACT. Large scale studies are however lacking on its clinical utility.

MANAGEMENT BASED ON CONTROL

The Joint Task Force on Practice Parameters representing the American Academy of Allergy, Asthma and Immunology, the American College of Allergy, Asthma and Immunology and the Joint Council of Allergy, Asthma and Immunology has recommended that the step care of asthma should be based on asthma control.9

Global Initiative for Asthma5 has suggested a step-care approach to treatment based on assessment of control, marking a departure from the severity-based approach of the previous guidelines. Treatment is initiated and adjusted in a continuous cycle (assessing asthma control, treating to achieve control, and monitoring to maintain control) driven by the patient’s level of asthma control. Treatment options are organised into five “Steps” reflecting increasing intensity of treatment (dosages and/or number of medications) required to achieve control. At all steps, a reliever medication should be provided for as needed use. At steps 2 through 5, a variety of controller medications are available. If asthma is not controlled on the current treatment regimen, treatment should be stepped up until control is achieved. When control is maintained, treatment can be stepped down in order to find the lowest step and dose of treatment that maintains control. If asthma is partly controlled, an increase in treatment should be considered, subject to whether more effective options are available (e.g., increased dose or an additional treatment), safety and cost of possible treatment options, and the patient’s satisfaction with the level of control achieved.

To sum up, assessment of control is now considered central to effective management of asthma. It is recognised that asthma is characteristically a disease marked by variations in clinical manifestations and therefore, control will vary from time to time. Thus, control needs to be assessed at every visit and treatment adjusted accordingly. A more detailed assessment of asthma should be conducted, especially for patients whose asthma is not well-controlled. The step care of asthma should be based on asthma control. The physician caring for asthmatics may adopt any of the several tools and methods available to assess control depending on the purpose and resources. While formal tools that allow quantitation may be more useful in research studies, simple clinical tools that are based on guidelines-defined goals are appropriate for clinical practice.

REFERENCES


