

Editorial

You can control your asthma if appropriately managed

Asthma is a chronic inflammatory disorder associated with airway hyper-responsiveness which leads to recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction which is often reversible either spontaneously or with treatment¹. It is estimated that asthma affects 300 million individuals worldwide, with the prevalence ranged from 1 to 18 per cent of the population in different countries¹. Asthma has a significant impact on individuals, their families, and society. Although there is no cure for asthma, appropriate management most often results in the achievement of control.

The goals for successful management of asthma are to achieve and maintain control of symptoms, to maintain normal level of activity, to maintain lung function as close to normal as possible, to avoid adverse effects from medications, to prevent exacerbations, and to prevent mortality¹. Clinical studies have shown that asthma can be effectively controlled by intervening to suppress and reverse the inflammation as well as treating the bronchoconstriction and related symptoms. The management of asthma can be approached by different ways, depending on the availability of the various forms of asthma treatment, culture preference, and health care systems.

The first important issue in order to be successful in asthma treatment is to establish a correct diagnosis¹. Asthma symptoms may be intermittent and their significance may be overlooked by patients and physicians, or because most of these are nonspecific, it may result in misdiagnosis, which leads to inappropriate treatment. A clinical diagnosis of asthma

is often prompted by symptoms such as episodic breathlessness, wheezing, cough, and chest tightness. Measurements of lung function (spirometry or peak expiratory flow) provide an assessment of the severity of airflow limitation, its reversibility, and its variability, and provide confirmation of the diagnosis of asthma². For patients with consistent symptoms of asthma, but normal lung function, measurement of airway responsiveness may help establish the diagnosis³.

The effective management of asthma requires development of a partnership between the asthmatic individual (parents or caregivers in the case of children) and the health care professionals, with the aim to give people the ability to control their own condition with guidance from health care professionals. This approach is called guided self-management and has been shown to reduce asthma morbidity in both adults and children^{1,4,5}. The effects were greatest where the intervention involved each of the following elements: education, self-monitoring, regular review, and patient-directed management using a written asthma action plan^{1,5}.

The goal of asthma medication, to achieve and maintain clinical control, can be reached in a majority of patients with an appropriate intervention strategy. Based on the new guidelines from the Global Initiative for Asthma (GINA)¹, the patient is assigned to one of the five “treatment steps”, depending on the current level of control and treatment is adjusted in a continuous cycle driven by the changes in the asthma control status, which involves assessment of asthma control, treatment to achieve control, and monitoring to maintain control¹. If asthma is not controlled on the current control regimen, treatment should be stepped

up until control is achieved. On the contrary, when control is maintained for three months, treatment can be stepped down¹. Ongoing monitoring is essential to maintain control and to establish the lowest step and dose of treatment to minimize cost and maximize safety.

Asthma exacerbations are characterized by progressive increase in shortness of breath, wheezing, cough, chest tightness, or combination of these symptoms, accompanied by worsening of pulmonary functions¹. Exacerbations usually have a progressive onset but a subset of patients, mostly adults, present more acutely. Respiratory distress is common. Respiratory tract viruses have emerged as the most frequent triggers for exacerbations in both children and adults; however, the mechanisms underlying these remain poorly understood¹. The primary therapies for exacerbations include the repetitive administration of rapid acting inhaled bronchodilators, the early introduction of systemic glucocorticosteroids, and oxygen supplementation. The aims of treatment are to relieve airflow obstruction and hypoxaemia as quickly as possible, and to plan the prevention of future relapses. Severe exacerbations are potentially life threatening, and their treatment requires closer supervision. Patients at high risk of asthma related death also require closer attention and should be encouraged to seek urgent care early in the course of their exacerbations.

Another important approach to achieve asthma control is to identify and reduce exposure to risk factors, including allergies (such as dust mites, furred animals, cockroaches, fungi, pollens and molds), air pollutants, occupational allergies, food and food additives, drugs, influenza vaccination, obesity, emotion stress, and other factors that may exacerbate asthma¹. Though pharmacological intervention to treatment in established asthma is highly effective in controlling symptoms and improving quality of life, measures to avoid or reduce exposure to risk factors should be implemented wherever possible. For occupational asthma, the early identification of occupational sensitizers and the removal of sensitized patients from any further exposure are extremely important.

Specific considerations are required in managing asthma in relation to pregnancy, obesity, surgery, rhinitis, sinusitis, and nasal polyps, occupational asthma, respiratory infections, gastroesophageal reflux, aspirin induced asthma, and anaphylaxis. These patients require a closer follow up and adjustment of medications¹.

In general, a majority of asthma patients can achieve successful control after appropriate medications; however, some with severe asthma may not respond to standard therapy comprising high doses of inhaled corticosteroids in combination with other medications including long-acting β_2 -agonists and leukotriene-receptor antagonists⁶. It is considered as a heterogeneous disease in which a variety of clinical, physiological and inflammatory markers determine disease severity⁷. Although severe asthma comprises only approximately 5 to 10 per cent of all asthmatic patients, it accounts for more than half of the health care spending on asthma because patients with severe asthma consume more expensive drugs and are more likely to be hospitalized or require additional medical attention⁶.

The first steps towards adequate treatment of a patient with severe asthma are to establish a secure diagnosis and to address and remove risk factors that may aggravate or complicate the disease. Poor adherence to therapy, however, appeared to be a major factor contributing to difficult-to-treat asthma, and the poor compliance with controller therapy is an important determinant of asthma severity. In patients with difficult-to-treat asthma, more than 80 per cent show poor adherence with regular inhaled therapy⁸. Even in the patients with the most severe asthma treated with maintenance oral prednisolone, only about half of the patients take the oral steroid based on plasma prednisolone assays⁹. Adherence to asthma medication can be improved. Confronting the problem in a medical concordance interview can lead to sustained behavioural changes as has been shown in a randomized controlled pilot study in patients referred to a specialized centre with low adherence as the primary cause of difficult-to-control asthma¹⁰. Since many patients do not take their medication because they perceive it to be unnecessary or because they are concerned about potential adverse effects, these issues should be addressed systematically in every patient with severe asthma.

After separating all true severe asthma patients by revisiting the diagnosis, ongoing exposures and treatment adherence, the major objective is optimization of therapy. Fortunately, there are rapid developments in the pharmacological as well as non-pharmacological treatment of severe asthma^{11,12}. New effective corticosteroids with less systemic side effects might be used at high doses in the treatment of severe asthma. Corticosteroids switch off inflammatory genes by recruiting the nuclear enzyme histone

deacetylase-2 to the activated inflammatory gene initiation site so that activators of this enzyme might also have anti-inflammatory effects or might enhance the anti-inflammatory effects of corticosteroids. New bronchodilators such as once-daily β_2 -agonists and long-acting muscarinic antagonists are being studied. Omalizumab (anti-IgE) is a novel therapy that has specifically been approved for the treatment of severe asthma¹³. Blockade of lipid mediators and Th2 cytokines and new chemokine receptor antagonists are under development or in clinical trials. New broad-spectrum anti-inflammatory treatments such as inhibitors of phosphodiesterase-4, kinases, and mast cells, and antioxidants are now in clinical development. Bronchial thermoplasty might be an option for some patients who do not respond to pharmacological treatment and in whom airway smooth muscle hypertrophy is predominant.

GINA has been working with health care professionals and public health officials around the world to reduce asthma prevalence, morbidity, and mortality, and has successfully helped to improve the lives of people with asthma. GINA believes that all asthmatics can achieve successful control if the health care professionals can carefully follow the new guidelines of asthma treatment and if the patients can fully conform to their prescription.

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