

Implications of the asthma guidelines for the clinician

Stuart W. Stoloff, MD *Reno, Nev*

Key words: Severity, control, responsiveness, asthma guidelines, impairment, risk, inhaled corticosteroids, long-acting bronchodilators

JB is a 19-year-old sophomore at the local university. He is a member of the men's tennis team and has been experiencing increasing shortness of breath requiring frequent use of his rescue inhaler since the beginning of the tennis season. Additionally, he uses his inhaler daily when walking up a steep hill to his classes and 2 or more times a week when he is awakened from sleep because of coughing. Further questioning reveals that he has received 3 bursts of oral corticosteroids in the past year for exacerbations. His previous physician, though, told him that he has only mild asthma and recommended that he be treated with albuterol on an as-needed basis only. At the time of the initial visit with JB, his spirometry revealed a prebronchodilator FEV₁/forced vital capacity ratio of 75% of predicted value and an FEV₁ of 76% of predicted value. His Asthma Control Test questionnaire score is 16. JB tells us that his goal is to be a competitive tennis player and not have symptoms that inhibit his performance. Additionally, he does not want his asthma to interfere with his regular activities, he wants to be able to sleep through the night without coughing, and he wants to not be dependent on his albuterol inhaler.

What guidance does the new National Heart, Lung, and Blood Institute's Expert Panel Report "Guidelines for the diagnosis and management of asthma" (Expert Panel Report 3) provide us about how to properly evaluate and treat him? The document states that the ultimate goal of treatment is to enable patients to live with few, if any, symptoms; no functional limitations; and no impairment in quality of life associated with asthma. Furthermore,

Abbreviations used

ICS: Inhaled corticosteroid
LABA: Long-acting bronchodilator

there should be few, if any, adverse events from either the therapy or the disease.¹

Assessing and monitoring patients with asthma is closely linked to the concepts of disease severity, control, and responsiveness to treatment. Severity is defined as the intrinsic intensity of the disease process and can be measured most easily and directly in patients who are not receiving long-term controller therapy.² Assessing severity of asthma at initial presentation allows for an estimate of the type and intensity of treatment that will be needed.

Control is the degree to which the manifestations of asthma (symptoms, functional impairments, and risks of untoward events) are minimized and the goals of therapy are achieved. The components of asthma control include monitoring signs and symptoms of asthma, pulmonary function testing with spirometry (peak flow monitoring might be used in some circumstances), quality of life, history of asthma exacerbations, pharmacotherapy for adherence and medication side effects, and last, but not least, monitoring patient-provider communication and patient satisfaction with care. Assessment of control is performed on a frequent basis and determines whether the appropriate intensity of therapy has been selected.

Finally, responsiveness is the ease with which control is achieved by therapy. If JB had been on controller therapy when you first saw him, severity could have been inferred by the least amount of treatment required to maintain control. This approach presumes that the severity of asthma is closely related to its responsiveness to treatment.

Asthma severity and asthma control are both divided into 2 domains: impairment and risk. Impairment is the assessment of the frequency and intensity of symptoms, as well as the functional limitations that the patient is experiencing now or in the past because of his or her asthma. The components of current impairment include symptoms (nighttime awakenings, frequent need for rescue inhaler, workdays/schooldays missed, ability to engage in normal daily or desired activities, and quality-of-life assessments) and lung function measured by means of spirometry. Risk is the estimate of the likelihood of an

From the Department of Family and Community Medicine, University of Nevada, School of Medicine.

Disclosure of potential conflict of interest: S. W. Stoloff has consulting arrangements with GlaxoSmithKline, AstraZeneca, Altana, Sanofi-Aventis, Schering-Plough, Novartis, Genentech, and Merck and is on the speakers' bureau for GlaxoSmithKline, AstraZeneca, Sanofi-Aventis, Schering-Plough, Novartis, and Genentech.

Received for publication February 19, 2007; revised February 21, 2007; accepted for publication February 22, 2007.

Reprint requests: Stuart W. Stoloff, MD, 1200 Mountain St, Suite 220, Carson City, NV 89703. E-mail: drstoloff@sbcglobal.net.

J Allergy Clin Immunol 2007;120:1021-2.

0091-6749/\$32.00

© 2007 American Academy of Allergy, Asthma & Immunology

doi:10.1016/j.jaci.2007.02.027

asthma exacerbation, progressive loss of pulmonary function over time caused by asthma, or an adverse event from medication or even death.

Using the severity classification that incorporates the 2 domains of current impairment and future risk, we classify JB before starting his controller treatment as having moderate persistent asthma. Assessing his level of control using the domains of impairment and risk, we classify him as “not well controlled.” The guidelines instruct us that to achieve and maintain control, we need to initiate daily long-term controller medication. Education should be initiated at the time of the initial visit and continued at every visit to educate and then reinforce adherence to therapy. The question now is which is the best therapy for him?

Inhaled corticosteroids (ICSs) are the most effective long-term therapy available for patients with all levels of persistent asthma: mild, moderate, or severe. The dose-response curve for ICS treatment for most patients begins to flatten for most measures of efficacy at low to medium doses. Doubling the dose of ICS beyond these doses does not improve efficacy for most patients, but increasing the dose of ICS increases the potential risk of drug-related adverse events. The guidelines therefore recommend that patients with moderate persistent asthma will benefit most from the combination of a low-dose ICS and a long-acting bronchodilator (LABA). The weight of the evidence continues to demonstrate that this combination of therapy leads to greater improvement in lung function, symptom control, and reductions in the use of rescue medications and exacerbations in most patients than increasing or

doubling the dose of ICS or using a leukotriene receptor antagonist or theophylline as adjunctive therapy with an ICS. A preferred option, given equal weighting by the Expert Panel Report 3, is to use an ICS as monotherapy but in the medium-dose range. As noted, studies in adults in whom low-dose ICSs were doubled compared with the combination of a low-dose ICS and a LABA demonstrated greater improvements in most outcomes in the patients receiving an ICS combined with a LABA.

On the basis of the evidence reported in the guideline and the need to help JB quickly and effectively gain asthma control, we initiate combination therapy with a low-dose ICS with a LABA in a single inhaler. JB is instructed on how to use both his new inhaler, as well as the proper use of his rescue inhaler. He is asked to return in 2 weeks, at which time his asthma control will be reassessed. At that time, we plan to discuss how he can maintain asthma control by adhering to the therapy and becoming more educated about asthma, its triggers, its natural history, and the means to achieve his selected goals. A referral is made to the certified asthma educator in the area.

REFERENCES

1. National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. Full report of the expert panel: guidelines for the diagnosis and management of asthma (EPR-3). Available at: <http://www.nhlbi.nih.gov/guidelines/asthma/epr3/>. Accessed February 16, 2007.
2. Stoloff SW, Boushey HA. Severity, control, and responsiveness in asthma. *J Allergy Clin Immunol* 2006;117:544-8.