



Advice from Your Allergist on Asthma

Asthma affects an estimated 14.9 million Americans and is one of the leading causes of school and work absences. The direct and indirect costs for asthma total over \$11.3 billion annually, with about 1.5 million emergency department visits, 500,000 hospitalizations and 5,500 deaths. Although its exact cause remains a mystery and no cure exists, many excellent treatment options are available to control symptoms and reverse this chronic obstruction of the airways.

What Is Asthma?

Asthma is a respiratory condition characterized by episodes of airflow obstruction in the bronchial tubes. Symptoms caused by this obstruction include coughing, chest tightness, wheezing and shortness of breath. Although problems are often separated by symptom-free periods, asthma is a chronic disorder.

Who Gets Asthma?

Asthma tends to occur within families. The role of inheritance plays a less clear role in adult-onset asthma. People of any age may have asthma, but more than half the cases are found in children between the ages of 2 and 17. In young children, boys are nearly twice as likely to develop asthma as girls, but this gender difference tends to disappear in older age groups.

What Causes an Asthma Episode?

A wide variety of "triggers" may initiate an episode of asthma. The most common triggers are allergens, exercise, viral respiratory infections, respiratory irritants and aspirin.

Allergens are substances to which susceptible individuals may become allergic. They are a major source of problems in children and adults. Common allergens include plant pollen (tree, grass and weed), animal dander, house dust mites, cockroaches, fungi and certain foods. When an allergic individual comes in contact with one of these allergens, a complicated series of events causes the body to release certain chemicals (mediators). These mediators then trigger asthma. Exercise is a very common trigger of asthma. In fact exercise-asthma can limit physical activity in some individuals, although it need not do so. Very often, respiratory symptoms do not occur until exercise is completed. Viral respiratory infections are a leading cause of acute asthma episodes, particularly in the winter months. Surprisingly, bacterial infections (except sinusitis) do not usually provoke acute asthma attacks. Cold air, smoke, industrial chemicals, perfume, paint and gasoline fumes are all examples of irritants that can provoke asthma. These irritants probably trigger asthma by stimulating irritant receptors in the respiratory tract. These receptors, in turn, cause the muscles surrounding the airway to constrict, resulting in asthma symptoms.

Aspirin and aspirin-containing products can trigger asthma attacks in susceptible individuals. The exact cause of the reaction is unclear, but it is not an allergic reaction in the vast majority of affected people. Ten to twenty percent of adult patients with asthma experience a significant decrease in their lung function after taking aspirin. Other "nonsteroidal anti-inflammatory agents" not chemically related to aspirin can cause similar reactions. As a general rule, asthmatics should avoid these products.

Less commonly, food additives can trigger asthma, but this is rare. Of these, the most frequently implicated trigger is sulfites, which are used to preserve certain foods and medications. In some cases, the mechanism appears to be



respiratory irritation. The food color tartrazine (yellow food dye #5) has also occasionally been implicated as an asthma trigger.

What Happens During an Asthma Episode?

An asthma patient's breathing tubes are "twitchy." That is, the bronchial tubes (or, bronchi) narrow in response to certain triggers. Because individuals without asthma do not react to these stimuli, the bronchi are described as hyperactive. During an episode, muscles surrounding the bronchial tubes contract, narrowing the air passages. Inflammation also occurs along the lining of the airways, producing swelling and further reduction of airway size. In addition, mucus glands along the inside of the air passages produce excess mucus that accumulates in the already narrowed air passages. The end result is that breathing, especially exhaling, becomes extremely difficult. Air becomes trapped behind the narrowed bronchial passages and there is a decrease in the oxygen available to the body.

How Long Does an Asthma Episode Last?

The duration varies according to the severity of the attack. Mild episodes may only last a few minutes or hours. Severe episodes, however, may go on for days or even weeks. Mild symptoms can resolve spontaneously or may require medication. More severe episodes can also be treated with medications but may require hospitalization.

What Should Be Done During an Episode?

Always follow the instructions of your allergist. Ask for a written plan for both day-to-day management and specific instructions on what to do during an episode. In general, it is important to stay calm and take your prescribed medications. Bronchodilators are the most commonly prescribed drugs to treat an asthma episode. They relax the muscles surrounding the airways, resulting in dilation of the bronchial tubes. Bronchodilators may be inhaled, taken orally or injected.

Why Does Physical Exertion Trigger Asthma?

During aerobic exercise, rapid breathing occurs through the mouth. As a result, the air that reaches the bronchial tubes has not been warmed and humidified by passing through the nose. This cold, dry air can trigger asthma. Asthma symptoms are generally at their worst after six to eight minutes of aerobic exercise. More than 70 percent of all asthmatics experience some degree of exercise-induced asthma.

Should Patients With Asthma Avoid Sports and Exercise?

By taking preventive measures, asthmatics should be able to compete in any sport, even at an elite level. Not all sports, however, are equally tolerated. In general, exercise and sports that involve prolonged periods of running are more likely to provoke asthma symptoms than nonaerobic ones. Swimming is one of the best-tolerated sports. In most instances, exercise induced asthma can be controlled to allow participation in any sport. Many Olympic athletes, including several gold medal winners, have had asthma.

What Is the Difference Between Allergies and Asthma?

Asthma is obstruction of airflow in the bronchial tubes that is reversible. Allergies are one of the factors that can trigger asthma attacks. Not all asthmatics are allergic and there are many people who are allergic but do not have asthma.

Is There a Cure for Asthma?

Though it has long been treatable, a cure for asthma remains elusive. Preventive treatment, however, may minimize the difficulty an individual experiences with asthma. Scientists throughout the world are searching for



specific cures.

What's the Best Treatment?

Prevention of symptoms is always the best form of treatment. It is important for a patient with asthma to learn what conditions prompt symptoms and avoid them whenever possible. When avoidance is impossible, preventive treatment is desirable. Various forms of preventive therapy are available.

Medications may be started prior to exercise or exposure to environments that predictably produce an attack.

If asthma symptoms are frequent or unpredictable, your allergist may advise you to take medications on a routine basis. Drugs used for this purpose include inhaled steroids, antileukotrienes, cromolyn and related drugs, inhaled or oral beta agonists (some of which are long acting), long-acting theophyllines, or oral steroids. For allergic patients, immunotherapy (allergy shots) may offer relief from allergens that cannot be avoided. Immunotherapy increases a patient's tolerance to the allergens that prompt asthma symptoms and appears to help control the inflammation that underlies chronic asthma.

Is Asthma a Psychological Disorder?

No, but emotions can worsen asthma. Panic can prevent a patient from relaxing and following instructions properly, both of which are essential during an episode. Also, scientists have found that strong emotions can cause a patient's bronchial tubes to constrict, which may provoke or worsen an episode.

Asthma can cause emotional strain. Depression often sets in when patients cannot participate in normal activities. Asthma is a leading cause of school and work absences, which can have far reaching effects on a patient's emotional well-being, education and finances. Finally, it must also be remembered that asthma can be a major emotional and financial strain on the entire family.

Will Some Children Outgrow Asthma?

The idea that asthma will be outgrown is more a myth than reality. True, some individuals may reach a point where they no longer experience symptoms as they did in earlier years, but sophisticated testing would show these individuals still run the risk of again having symptoms later in life.

Is Asthma Life-Threatening?

Not usually, but in severe cases asthma can be life-threatening. Deaths occur more frequently in adults. More than 80 percent of the 3,880 deaths related to asthma in 1985 occurred in asthmatics over age 45. Usually, however, the airways can be opened and the attack controlled with medications. In a severe attack, the airways may become completely blocked leading to respiratory failure. This condition is a medical emergency and requires immediate attention. It is important for asthmatics to learn to recognize severe episodes and how to prevent them. Some physicians blame the dramatic increase in asthma related deaths to an over-reliance on drugs designed to open obstructed airways. It appears more likely, however, that deaths are due to the delay in administering therapy to relieve the episode.

Tips for Patients and Parents of Asthmatic Children

- * Above all else, learn everything you can about asthma;
- * Learn what triggers your (your child's) symptoms and avoid them as best you can;
- * Recognize the signs of an oncoming episode and learn to judge its severity;
- * Provide preventive care so that you or your child have the least amount of difficulty with symptoms;



* Learn self management skills for yourself, and teach your child these skills in an age-appropriate way.

Summary

Although no cure exists for asthma, excellent treatment is available for control of symptoms. We learn more about asthma every year, and newer, more effective and safer drugs are always being developed. As a result, most patients with asthma live normal, productive lives. Research is continuing and the outlook is bright. For more information about asthma, contact your