

# Allergic reactions

With the approach of summer, people's thoughts will naturally turn to picnics, outdoor sports and family vacations. Here at the Hoffman Center, however, we will be focused on treating patients with respiratory illnesses, many of whom will see their symptoms worsening during this allergy season. Millions of Americans suffer from hay fever—experiencing itchy, watery eyes and a runny nose. But hay fever is just one type of allergic reaction. Allergy is the mechanism responsible for the pain of poison ivy and the hives or respiratory distress brought on by exposure to shellfish or bee stings, and it may precipitate cases of severe asthma.

What is the nature of this allergic response? Simply defined, an allergy is an abnormal immune reaction to otherwise harmless living or non-living matter in the environment. We call the substance that causes an allergic reaction an allergen or antigen. In the body, whether inhaled, eaten or absorbed through the skin, the allergen triggers an immune response. The body produces antibodies against the allergen as it would against an invading microorganism. The difference is that instead of helping the body resist disease, it is the immune response itself that is responsible for the onset of allergic symptoms.

We don't often think of allergies as an immune disorder, probably because allergic reactions can evoke a wide variety of symptoms and researchers disagree about the number of people who really suffer from distinct allergies. However, symptoms such as nasal congestion, frequent colds or sinus infections, or severe gastrointestinal problems often point to the allergic response as an underlying cause. In our practice, we consider the possibility of allergic reactions when people are chronically ill but no one has been able to identify an infectious agent or other clear cause. I don't automatically do allergy testing with a new patient, but if I see symptoms suggestive of allergies, it is easy to do a skin-prick test with a panel of common allergens. I've had many satisfied patients who were pleased to find out that their seemingly intractable problems could be solved by avoiding an allergen.

Many respiratory ailments have an allergic basis. These include asthma, chronic bronchitis, hay fever and frequent colds or sinus infections. A common scenario for the development of these problems is as follows. The immune system recognizes an allergen in the environment and antibodies of the immunoglobulin E class are produced. These antibodies are unique in that they can signal other cells of the immune system to release a compound called histamine. Histamine is a normal component of cells, but in the allergic reaction it circulates through the bloodstream where it constricts small muscles around air passages (producing wheezing or asthma), increases the flow of mucus, and causes some blood vessels to contract and others to relax and leak fluid into tissues. Hay fever brings about a runny nose and fluid in the windpipe, and the resulting coughs and sneezes are an attempt to expel the allergens from the breathing passages. With asthma, constricting muscles in the windpipe can choke off the flow of air.

The first medical reports of allergic reactions came out of nineteenth century industrial England. Allergies are, possibly, a byproduct of the Industrial Revolution and the polluted air that came with it. People who have hay fever and asthma suffer when they are exposed to any irritating environmental pollutant such as cigarette smoke, automobile exhaust, perfume or cleaning fluid. Here in New York City, doctors and hospitals in the South Bronx have observed skyrocketing rates of asthma among children and adults, which are ascribed to general air pollution and to interior pollutants such as smoke, dust mites, roach parts and roach poison in cramped, overcrowded urban apartments. The rising use of environmental pollutants

could explain why the incidence of asthma and the number of deaths from asthma surged throughout the 1980s.

What steps can be taken to reduce our exposure to some of these allergens? Fortunately, there are some simple measures that are effective in removing allergens from the home environment. Dust, mold and dust mites are frequent offenders in the home. People with known sensitivities to any of these should use HEPA filters to remove small particles from the air. Barrier covers for pillows and mattresses are useful in diminishing exposure to dust mites whose waste material is extremely inflammatory. Extra care should be used in cleaning to make sure that dust-gathering surfaces such as draperies and carpets are thoroughly vacuumed, and it is a good idea to remove these items from bedrooms. In addition, molds and dust mites flourish in hot, humid conditions, so allergy sufferers should keep the temperature below 70 degrees F and use a dehumidifier to maintain low levels of moisture in the air.

Airborne pollen from flowers, shrubs and grass is a widely recognized allergen, but few people realize that they may be allergic to eating grass. Who actually eats grass? In fact, we commonly eat domesticated forms of grass such as wheat and other grains. A person who is highly sensitive to the allergens in grasses may suffer nasal congestion or other symptoms from eating wheat bread or corn products. Another common offender is the mold *Alternaria*, which is found growing in grain elevators and triggers many cases of asthma in people who live in farming areas. People who suffer from these allergies should try to keep windows and doors closed during pollen season and also should use air purifiers to protect against allergens and pollutants.

The allergic reaction often is a factor in the pathogenesis of asthma. Doctors define this disease as an inflammation of the lungs associated with increased mucus production and constriction of the tiny airways that lead to the oxygen-absorbing areas of the lungs. Asthma frequently is associated with increased sensitivity to chemicals, allergens and cold air, all of which can precipitate an acute attack. Interestingly, asthma rates have been rising in western countries, where medical care is reputed to be some of the most advanced in the world. One might postulate that this is the result of air pollution, but studies show that air quality actually has been improving during recent years. The increase in asthma statistics has remained a curious anomaly without explanation, until recently.

A study in the British medical journal *The Lancet* examined the relationship between the frequency of use of inhaler medications and the severity of asthma symptomatology. Surprisingly, the less frequently inhaled bronchodilators were used, the better the asthma symptoms were controlled. The authors of the study concluded that "the trend toward use of regular, higher doses of longer-acting inhaled treatment may be an important causal factor in the worldwide increase in asthma." The fact is that the medical profession is facing a crisis in the management of asthma. While mainstream medicine continues to try out new pharmaceutical agents, many of which will produce unwanted side effects, alternative medicine can offer a wide range of therapies that really work for asthma.

As someone who believes in preventive medicine, I first encourage my patients to avoid situations that can irritate the respiratory system: passive smoking, environmental pollutants, dust mites, chemicals and molds. Mold allergy is becoming increasingly appreciated as an asthma precipitant. Asthma sufferers can use "mold plates" to identify the presence of troublesome molds at home. Similarly, there are now home test kits available for the detection of chemicals and pesticides.

New techniques for allergy desensitization also will help patients with asthma. These methods include the administration of antigens via oral or nasal solutions as

well as enzyme-potentiated desensitization or EPD. Such treatments can have profound benefits for asthma patients and replace the questionably effective allergy shots that conventional allergists still employ.

Nutrient therapy also can offer remarkable benefits. The antioxidant vitamins C, E and A, along with mixed carotenoids, zinc and selenium can help reduce the inflammatory condition of asthma. Chief among nutrients important to people with asthma is magnesium. Intravenous infusions of magnesium can halt even some of the most severe exacerbations of emphysema under emergency room circumstances. Magnesium apparently acts as a natural bronchodilator, relaxing the smooth muscle found in the walls of the tubules that bring air into the lungs, thus relieving the spasms that close these tubes down in asthma. Vitamin B6 is another useful vitamin along with B12, which can provide relief to asthma sufferers through its ability to activate the body's chemical detoxification pathways. Molybdenum, a trace metal and important nutrient, participates in the body's sulfite oxidase pathway, helping the body break down and eliminate sulfite chemicals that may trigger asthma attacks.

Herbs also can be useful in asthma management. A traditional Chinese herb known as ephedra is the mainstay of asthma treatment in Chinese medicine. Western herbs of use include pleurisy root, yerba santa and lobelia. Ginkgo biloba, which appears to benefit patients with Alzheimer's disease, also has specific anti-inflammatory effects in asthma. The Chinese healing art of acupuncture has been proven to be helpful in mitigating the symptoms of asthma. I find that acupuncture can be useful in the treatment of patients trying to stop smoking as well as in the treatment of asthma.

Truly holistic management of asthma also requires attention to the regulation of the nervous system. This may include training in deep relaxation and abdominal breathing. Biofeedback techniques, with emphasis on breathing retraining, can help patients reimpose some measure of control on their runaway physiology. Control of asthma is predicated on restoration of the autonomic nervous system to a more stable, balanced state.

Effective therapy for allergy and asthma sufferers need not depend on spectacular breakthroughs in pharmacology. Simple techniques are now at our disposal to help us reverse the trend toward worsening statistics of allergies and asthma.