

Physician Forum - Allergy and Asthma

Weihong Zheng, MD

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Welcome to BID-Needham "For Your Health Physician Forum". My name is Weihong Zheng, MD, an allergist and immunologist at Beth Israel Deaconess Hospital-Needham. Here I am going to talk about allergies and asthma, what you should know about them, what they are and how you can improve your symptoms.

1. What are allergies and atopy?

Allergy is defined as an abnormal immune response to substance that is normally harmless, like pollen or food. Allergy is also known as hypersensitivity.

Atopy describes the increased susceptibility of an individual to allergic diseases, like asthma and allergic rhinitis and eczema.

2. What is asthma?

Asthma is a reversible airway disease, can be chronic or intermittent. In asthma, the tubes that bring air to the lungs are swollen and inflamed. In addition to this inflammation, airway muscle spasm and excessive mucus can cause further narrowing. Together, they make it difficult to breath air in and out, or causes cough or wheezing.

3. Are there different types of asthma? What are they?

Asthma can be classified in many different categories, depending on the presence of allergy and the types of triggers. Based on whether the person has allergies or not, it can be described as allergic or nonallergic asthma. Based on the triggers that may cause or worsen an asthma attack, it can be classified as nocturnal, occupational or exercise-induced asthma.

4. How are allergies and asthma interconnected?

One characteristic of asthma is increased sensitivity of the airways or so called "twitchy" airways, For people who are allergic, allergies can certainly make asthma worse, although not all people with asthma have allergies or vise versa. Upon contact with the substances that they are allergic to, the "twitchy" airways become obstructed from the production of the mucus and tightening of the muscles surrounding the airways, leading to asthma symptoms. In addition to this airway obstruction, other allergy symptoms may include itchy eyes, runny nose and rash/hives.

5. What allergies cause asthma?

Common allergens affecting asthma include pollens from tree, grass and weed, mold spores, animal dander from feathered or furry animals, dust mites in humid climates and cockroaches. Food allergy also can cause asthma.

6. Can exercise induce an asthma attack? If so, how can you avoid the attack?

Exercise or physical activity can make asthma worse; for some it may be the only cause of asthma symptoms. However, exercise is important for everyone and the patients with asthma should discuss with their physicians about their symptoms before starting any exercise plan. For many people, using a medication 10-15 minutes beforehand would allow them to exercise without having asthma symptoms.

7. What types of exercise are best for people with asthma?

Sports with bursts of activity are least likely to cause asthma symptoms. Such activities followed by brief rest periods can allow the person to regain control of their breathing. These include baseball, softball, volleyball, tennis, downhill skiing, golf and some track and field events.

Sports that require continuous activity like swimming, cycling, distance running and soccer also can be enjoyed by people with exercise-induced asthma.

Participation in any sport often requires use of a pre-treatment before exercise and close monitoring. A good warm-up and cool-down period are often helpful.

Research has shown everyone can benefit greatly from exercise. It is possible to achieve you athletic goal even when you have asthma. In fact, many Olympic medal winners, like Jackie Joyner-Kersey and Amy Van Diken have exercise-induced asthma but control it well.

8. What should you do to control your asthma when you exercise?

Besides an adequate warm up beforehand, and wearing a mask or scarf to warm up your airways when exposed to cold air, there is a simple and effective way of treating exercise-induced asthma. Your healthcare provider may prescribe a "pre-treatment", such as a bronchodilator for you to inhale before exercise to quickly open the airways. It can prevent asthma symptoms during and after exercise, allowing most people with asthma to participate safely and successfully in the exercise they enjoy.

9. What do you do if you have an asthma attack while exercising?

We recommend all patients with asthma carry their albuterol inhaler when they exercise. Monitor your asthma while you exercise by watching for asthma symptoms. The peak flow

Weihong, Zheng, MD

Department of Allergy

Beth Israel Deaconess medical Center

Harvard Medical School

meter can also be useful in monitoring your asthma. A peak flow meter is a portable, hand-held device that measures how fast you blow air out. When the airways are narrowed by asthma, the peak flow number will drop. A significant drop in your peak flow number and/or asthma symptoms is a signal that you need extra medicine or maybe a short rest during exercise. Ask your healthcare provider about a written Asthma Action Plan. It will help you know what to do if you are getting worse while you exercise.

10. *What if you have heartburn or GERD? Can it worsen someone's asthma?*

Gastroesophageal reflux, or GERD, occurs when the acidic contents of the stomach flow back up into the esophagus. This stimulates a reflex that may cause asthma to worsen. Symptoms of heartburn, cough and breathing difficulty at night can indicate GERD. There are preventive measures and medications to reduce these symptoms.

11. *What percentage of the population suffers from asthma?*

- Asthma affects close to 10% of the U.S. population, as many as 30 million people. The prevalence of asthma has doubled over the last 20 years.
- Asthma is one of the leading chronic diseases. It also has significant direct health care costs, prescription drug costs and indirect costs from missed school days and work days in the magnitude of billions of dollars.

12. *What are the risk factors and demographics?*

- The risk factors for developing asthma include having parents with asthma, maternal smoking and being African Americans.

13. *We often hear that residents of urban areas, especially children, are more susceptible to allergies and asthma than other people. Is this true, and why?*

Some studies have shown that inner city children are more susceptible to allergy and asthma. It has been thought to be related to air pollution, exposure to certain allergens, crowded living environment and problems in access to health care.

14. *What is the atopic march?*

Atopic march is a triad of allergic rhinitis, asthma and eczema. Eczema is one of the most common skin disorders seen in infants and children. It usually has its onset during the first 6 months of life. It is a herald for the development of allergic rhinitis and/or asthma. On the basis of several longitudinal studies, nearly 50% of children with eczema later develop asthma and two thirds will develop allergic rhinitis. So this progression is called atopic march. There are studies focused on novel approach toward interrupting this atopic march.

15. *Is there more asthma in childhood than there used to be, or does it just seem that way?*

Yes, it has been such a trend. Asthma and allergies have both been on the rise for several decades, especially in developed countries. The hygiene hypothesis has offered one explanation for this increase: compared with the past, children living in these developed countries today are

exposed to fewer infectious organisms, which are necessary to properly train their developing immune systems. As a result, their immune systems may overreact to relatively harmless irritants, leading to allergies and asthma.

16. *Why do some people have so many allergies?*

Both genetic predisposition and environmental factors play roles in development of allergies. For a patient, being allergic to one thing shift the immune response to make him/her more susceptible to other allergies.

17. *Can allergies be prevented?*

It has long been known that allergies and asthma tend to run in families. Consequently, many prevention efforts have been targeted at the children of allergic or asthmatic parents. Although allergies and asthma cannot be uniformly prevented, recent information suggests that there are steps a family with allergic disease might take to delay or reduce the occurrence of allergies in their infants.

18. *What are the most common treatments for allergies?*

The best treatment is avoidance. This could be difficult if you are allergic to things like pollens, molds and dust mites. Allergy medications, including prescription nasal sprays and antihistamines, can help control symptoms. If actions to avoid exposure and medications are not effective, your doctor might consider Immunotherapy (commonly called allergy shots).

19. *How does immunotherapy, or allergy shots, work?*

Immunotherapy induces your body's tolerance and decreases your sensitivity to the allergens. It consists of a series of injections (shots) with a solution containing the allergens that cause your symptoms. Treatment usually begins with a weak solution containing the allergens given once or twice a week. The strength of the solution is gradually increased with each dose. Once the strongest dosage is reached, the injections are often given once a month to control your symptoms. Immunotherapy should always be given at your healthcare provider's office.

Immunotherapy does not produce immediate results. A period of six months to one year may be required before improvement is seen. A normal course of treatment for the shots is three to five years, although some people with asthma may benefit from a longer course.

Immunotherapy can alter the natural course of the allergic diseases and can be effective against grass, weed and tree pollens, house dust mites, cat and dog dander and insect stings.

20. *Are there alternative therapies?*

There are alternative therapies: acupuncture, herbal regimens and homeopathic regimens but their effectiveness are still not clear at this time.

21. *How do you treat asthma in women who are pregnant or lactating?*

Asthma affects almost 7% of pregnant women and can cause serious complications for both mother and child if not controlled properly during pregnancy. The good news is that asthma and allergies can be controlled, and when they are,

the risks to mother and baby are extremely low. If you are pregnant and have allergy and/or asthma, visit your doctor regularly to evaluate and monitor your symptoms and medication.

Remember that the potential risks of most asthma medications are lower than the risks of uncontrolled asthma, which can be harmful to you and your baby. Today there are many excellent medications for treating asthma and allergies. Although no medication can be proven entirely safe for use during pregnancy, you and your doctor can work together to develop a treatment plan that carefully balances medication use and symptom control, and assures that the potential benefits of the medication outweigh the potential risks of the medication and of uncontrolled asthma.

In general, the same medications used during pregnancy are appropriate during labor and delivery and when nursing. You should check with your doctor before using any medication during pregnancy or lactation.

22. *What can you tell us about food allergies?*

While an estimated 40 to 50 million Americans have allergies, two percent of all adults are allergic to foods or food additives. Eight percent of children under age six have adverse reactions to ingested foods.

Allergic reactions to foods typically begin within minutes to a few hours after eating the offending food. The frequency and severity of symptoms vary widely from one person to another. Mildly allergic persons may only suffer a runny nose with sneezing, while highly allergic persons may experience severe and life-threatening reactions, such as asthma or swelling of the tongue, lips or throat.

The most common symptoms of food allergy include skin rashes, hives, stuffy, runny nose, sneezing, vomiting, nausea, stomach cramps, indigestion and diarrhea. Other symptoms can be asthma with cough or wheezing and anaphylaxis, a severe allergic reaction that may be life threatening.

23. *What food are people usually allergic to?*

Although food allergy occurs most often in infants and children, it can appear at any age and can be caused by foods that had been previously eaten without any problems. Eggs, cows milk, peanuts, soy, wheat, tree nuts, fish and shellfish are the most common foods causing allergic reactions, but almost any food has the potential to trigger an allergy. Foods most likely to cause anaphylaxis are peanuts, tree nuts and shellfish.

24. *How is food allergy diagnosed?*

Based on your history, physical exam and testing, your allergist may further narrow down the suspected foods. If properly performed and interpreted, skin tests or IgE blood tests to foods are reliable and good screening tests for food allergy. Not all positive skin tests and/or IgE blood tests equal a definite food allergy. If needed, food challenges are the best way to determine whether or not a food allergy really exists. During an oral food challenge test the patient will eat or drink small portions of a suspected food in gradually increasing portions over a given period of time, usually under a physician's supervision, to see if an allergic reaction occurs.

Food challenge is also very helpful to determine whether the child has outgrown his/her food allergy and to safely re-introduce the food back to the diet.

25. *How is food allergy managed?*

Once the diagnosis of food allergy is confirmed, the most effective treatment is not eating the offending food in any form. Therefore, the patient must be vigilant in checking ingredient labels of food products and learning other names of identification of the responsible food or food additive to make sure it is not present.

In case they accidentally ingest a food allergen, individuals with food allergy should have a clearly defined plan of action for handling situations. Have a list of symptoms and your doctor's instructions for treatment posted in a prominent place in your kitchen. Oral antihistamines can be very useful in treating many of the early symptoms of a mild allergic reaction to a food.

Persons with histories of severe reactions need to be instructed in when and how to give themselves a shot of epinephrine (adrenaline) in the event of a severe allergic reaction. This medication is available in easy-to-use injectable devices and should be carried by persons with histories of severe allergic reactions. You should be taken to the hospital or call 911 and arrange for follow-up medical care for a severe reaction. Bracelets or necklaces may be worn to quickly alert medical personnel or other caretakers about food allergies.

In some cases, particularly in children, strict adherence to an elimination diet appears to promote the process of outgrowing a food allergy. Patients who use caution and carefully follow an allergist's advice can bring food allergy under control.

26. *Why are so many children allergic to peanuts these days?*

The rise of peanut allergy is proportional to the rise of allergic disease in general. However, peanut allergy has caught a lot of public attention for a variety of reasons. Peanut allergy tends to cause more severe, life threatening reaction. It accounts for 80 percent of fatal or near-fatal allergic reactions each year. Only 20% of children outgrow their peanut allergy, so it is much less likely to be outgrown than other food allergies. We frequently recommend peanut-allergic patients avoid tree nuts as an extra precaution because 30 % of peanut allergy patients also allergic to tree nuts. Many tree nuts are processed on equipment shared with peanuts so they may be contaminated with peanuts during the preparation process.

27. *Is there a psychological component to allergies – can anxiety make them worse?*

Emotions do not cause allergy or asthma, but can make patient feeling worse with their symptoms. Anxiety can lead to changes in breathing patterns, vocal cord dysfunction, mimic or worsen the symptoms of asthma. So it is important to reduce your stress and have a good allergy and asthma management plan.

28. *What is an allergist and what does an allergist do?*

An allergist/immunologist is a physician specially trained to manage and treat allergies and asthma. Becoming an allergist/immunologist requires training in internal medicine or pediatrics then additional years of fellowship in allergy and immunology

We work as a team with your primary care physician, pediatrician and other specialists to effectively manage the comprehensive needs of patients with allergic disease. We handle day to day management of prevention, diagnosis, and treatment of immune system problems such as allergies, asthma, eczema, urticaria, recurrent sinus and lung infections.

FACTOID: More than 200,000 people are hospitalized, and about 36,000 people die of the flu each year. Having asthma

puts you at risk for flu complications. An annual flu shot can reduce your risk of catching the flu.

FACTOID: Asthma is slightly more common in boys than girls and occurs in more Hispanic and black than white children.

FACTOID: An **allergy** is an abnormal, acquired sensitivity to a given substance, including pollen, drugs, or numerous environmental triggers. The term was coined by the Viennese pediatrician Clemens von Pirquet in 1906 after noting that some of his patients were hypersensitive to normally innocuous entities such as dust, pollen, or certain foods. Pirquet called this phenomenon "allergy", from the Greek words *allos* meaning "other" and *ergon* meaning "work".