

Allergy and Pesticides: Ten Questions and Answers

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HOW IS ALLERGY DEFINED?

Allergy may be defined as a hypersensitivity reaction in a person to an exposure that does not affect most people. About five percent of the population has a genetic tendency to develop allergies. This condition, called atopy, runs in families, starting in infancy with skin problems (eczema), wheezing, food intolerance and other susceptibilities. The most common allergens are proteins which occur in nature. The term "allergy" has become so popular that a recent survey revealed that 37% of those interviewed thought that they were "allergic" to something. However, clinical allergy is diagnosed by a combination of history, physical examination, and special tests.

HOW IS ASTHMA DEFINED?

Respiratory allergy is one kind of hypersensitivity. It is manifest in two forms: "intrinsic" and "extrinsic." Intrinsic asthma is a physiological (not environmental) condition which occurs in certain people. They have a lifelong condition of airway response (called reactive airway); infections, allergens, and irritants (including chemicals) trigger excessive spasm and swelling of the bronchi. Once recognized, reactive airway patients can be helped with a lifelong medical program and strict avoidance of specific triggering substances. Extrinsic asthma refers to a respiratory reaction to specific allergens in the environment. Environmental allergens may include manmade substances such as chemicals and natural substances such as airborne mold from peanuts or cheese. There are allergic reactions to microbes, dander, insect venoms, house dust, and plant products such as pollens, wood dust, thorns and sap. Allergic responses to prescribed drugs are well known. Many causes of extrinsic asthma can be diagnosed with skin tests and can be corrected or modified by a series of shots called desensitization.

WHAT ABOUT ALLERGY OF THE SKIN?

There are at least five major types of skin reactions. The most common is an irritant reaction from a sharp prick or scratch. This will cause an immediate flare of the skin especially in certain atopic individuals. The next type is a reaction to a foreign protein which produces a hive or welt which itches. This occurs within 30 minutes through a substance carried in the blood called IgE (immunoglobulin). The third response is delayed hypersensitivity which is characterized by a response of the lymphocytes or white blood cells. This response takes a minimum of 24 to 36 hours to respond to the allergic challenge of the sensitizing substance. The fourth type of response is similar to the third type but requires addition of ultraviolet light and is called photosensitivity. For example, oral tetracycline antibiotic can cause a delayed type of rash in people when they are exposed to sunlight. It is more severe and long lasting than simple sunburn. The fifth type of skin reaction is poorly understood. This is a psychosomatic skin reaction that occurs when a person, under unusual stress, breaks out in hives.

HOW ARE PEOPLE EXPOSED TO PESTICIDES WHICH MIGHT RESULT IN ALLERGIC SYMPTOMS?

Pesticides may be encountered as residues in food, air and water. People may also be exposed to pesticides used in agriculture, applications for pest control at home or at work, applications to roadside right-of-ways to control weeds and applications of pesticides for public health vector control programs. A specific pesticide exposure which might cause an allergic reaction in a susceptible individual can be 1,000 times less than an exposure which would cause a toxic reaction. For example, exposure to pyrethrum can trigger an asthma attack at a trivial dose of exposure.

WHY DO SOME PEOPLE COUGH, WHEEZE OR SNEEZE WHEN THEY ARE AROUND PESTICIDE SPRAYS?

The answer is not simple. Pesticide products consist of two components: the active ingredients whose percentage is very small and the inert ingredients which account for the bulk of most products. The active ingredient is usually a single, highly purified component although it may be a combination of two or more pesticides. Usually, the inert ingredients consist of carriers such as petroleum distillates, but may contain other chemicals such as emulsifiers, conditioning agents or wetting agents. Their ability to irritate or sensitize is poorly understood. Some people react to the strong odor and irritating effect of petroleum distillates. The eyes, the mucous membranes of the nose and even the sensitive linings of the mouth and the back of the throat may feel scratchy. This is usually an annoying symptom which subsides within a few minutes after being removed from exposure to the irritant. Irritation occurs not only with manmade volatile substances, but also with naturally occurring substances such as perfumes, flowers, or onions. A pesticide product which causes someone to develop severe, acute respiratory symptoms would be a true hypersensitivity to one of the active ingredients. This can occur with a limited number of specific pesticides, all requiring clinical confirmation. Allergic symptoms tend to last for hours or days; irritant symptoms clear up quickly when the person moves away from the source of exposure. There is no specific desensitization for pesticide allergy.

HOW COMMON IS ALLERGY TO PESTICIDES?

Fortunately, few of the thousands of pesticides used today cause true allergic symptoms. Like cosmetics, pesticides are tested for their allergenic potential prior to marketing. Which pesticide is responsible for the asthma attack or the rash requires detective work by the patient and the doctor.

WHICH PESTICIDES CAUSE ALLERGY?

The following list of common names of pesticides have been reported by scientists to be sensitizers in certain susceptible individuals: allidochlor, anilazine, antu, barban, benomyl, captafol, captan, dazomet, dichloropropane, dichloropropene, lindane, maneb, nitrofen, propachlor, pyrethrum/pyrethroids, rotenone, thiram, zineb.

DO PESTICIDE LABELS CARRY ALLERGY WARNINGS?

Pesticide labels carry warnings about known health effects. Most of these deal with toxicity. Some indicate problems that have been reported with either irritation to the skin, eyes, and respiratory tract or true hypersensitivity reactions. It is important to read the label carefully before using the pesticide. Protective clothing is effective for irritants, but may not protect against an allergen. Strict avoidance is recommended by the allergist.

WHAT SHOULD A PERSON DO WHO SUSPECTS PESTICIDE ALLERGY?

Persons who suspect allergy should take the pesticide label to their physician to begin the investigation. Expert consultation is available to the physician from a variety of experts in allergy and other sources. Interestingly, after years of tolerating a substance without symptoms, a person may "become" allergic to it. There is no explanation for this, doctors have learned to expect such cases of changes in immune reactions.

HOW WILL A DOCTOR HELP ME?

Specific diagnosis is the key to any puzzling case of disease. An alert physician and a conscientious patient can work out the most likely diagnosis. They do this by keeping an accurate history of the time, place and activity at the onset of symptoms. This then leads to selective clinical tests for specific agents. Consultation and support of an allergy specialist may be required.

SUMMARY

Remember, some use the terms "allergy" and "sensitivity" incorrectly. True symptoms of allergy are not the same as irritant effects: diagnosis and treatment are different. Simple avoidance of suspect allergens and use of antihistamines help most people counter allergic reactions. Others may need to carry an adrenaline syringe to prevent anaphylactic shock from food, insect stings, etc. Inhaled medications relieve reactive airway symptoms.