ALLERGIES

Patient Information Fact Sheet

What is an allergy?

The term "allergy" is used many ways, sometimes loosely, as with many people who say they are allergic to something if it makes them feel unwell in any way. The clinical definition of an allergy, however, is hypersensitivity (abnormal sensitivity) to a foreign substance (allergen) that is normally harmless. An allergic reaction is the body's way of trying to get rid of an allergen. Some of the more common allergies include hay fever; allergic asthma; eczema in infants; drug allergies; and food allergies. Hereditary factors are thought to play a role in the development of allergies. An allergy is different from an intolerance. For example, a food intolerance may be caused by a lack of a specific substance in the body, whereas an allergy is caused by an immune response by the body.

What are the symptoms of allergic reactions?

People respond to allergies in different ways and the symptoms vary depending on the type of allergy. Hay fever is a common allergy that causes a variety of symptoms, including as a runny or stuffy nose, sneezing, and eye symptoms such as watering, redness, itchiness or a gritty feeling. Allergies can also cause asthma-type wheezing in the chest. Most asthma-type reactions cause narrowing of the airways, which makes breathing more difficult.

Another fairly common allergen is metal, such as nickel. Nickel is often found in jewelry and watch straps and can cause an eczema-like rash (eg, red, itchy, raised blisters) usually referred to as contact dermatitis. True food allergies, as opposed to food intolerances, are relatively rare. Reactions range from mild (eg, gastric upset and diarrhea) to life-threatening (swelling of the lips, tongue and throat, and severe asthma). Celiac disease (or gluten intolerance) is a particular condition caused by an allergy to gluten, a constituent of wheat. Some food additives such as tartrazine can cause hives or asthma.

An allergic substance may cause a serious, immediate reaction known as anaphylaxis. This can happen in response a drug, bee or wasp stings, or in rare cases to certain foods such as nuts or shellfish. Symptoms of anaphylaxis occur very suddenly and can include the following: generalized swelling; swelling of the throat causing difficulty in breathing; asthma symptoms; itchy rash; and faintness and unconsciousness due to low blood pressure. Anaphylaxis can be life-threatening and requires immediate emergency treatment.

What causes allergic reactions?

Ironically, the incidence of allergies is thought to be increasing as a result of the healthier lifestyle we now have compared with that of our predecessors. Because many harmful viruses and bacteria have been eradicated or neutralized (via vaccines, for instance) it is thought that our immune systems are reacting increasingly to other foreign substances. The tendency to develop an allergy can be inherited and people who are allergic to one substance are likely to have multiple allergies. For example, children with asthma have a greater tendency to suffer from eczema than those who do not have asthma. Allergies may also be related in part to the environment. For example, the pollen count in one country may be higher than another, resulting in higher levels of hay fever in that country.

What tests confirm an allergy?

There are various tests that may be used to establish the cause of allergies, including skin patch testing and skin prick testing. Skin patch testing can be used to test for skin allergies such as hives or dermatitis. Small discs impregnated with various allergens are applied to the back or upper arm and left in place for 48 hours. The skin will be checked for any redness or swelling immediately after removing the patch and also after 48 hours. If there is a reaction, the allergen responsible can be identified from the patch that caused it.

Skin-prick testing involves placing a small amount of different allergen solutions on the skin. The skin is then pricked to allow the solutions to enter under the skin. If there is an allergic reaction to that substance, an itchy welt will appear soon afterward. A number of allergens will usually be tested at the same time. The test is usually done on the forearm but sometimes on the back in infants. Once the allergen is known, the sufferer can minimize exposure to it where possible.

Testing for food allergies can be a long process and usually requires exclusion of certain foods or restricted diets and adding them back to a diet gradually to see when or if symptoms occur. Patients need to be monitored carefully by a doctor or dietitian. However, because the reaction times to various foods can vary from a few hours to days, it may be difficult to identify the cause of the allergic reaction.

Tests for asthma include the use of a peak flow meter and a spirometer to record lung function. These may be particularly useful if a person has an allergy to a substance at work, such as grain or flour or high levels of dust. The asthma may not be present while at a doctor's office but, if present while at work, it may indicate an allergy to a particular substance in the workplace.

How are allergies treated?

Antihistamines are used to treat allergic reactions. These drugs work by blocking the action of histamine, a substance that is produced by the body in response to an allergen and that causes the allergic reaction. Antihistamines are particularly useful in the treatment of hay fever symptoms. They are also given to relieve itching and irritation of the skin (such as hives) and for mild acute allergic reactions. They are of no benefit in asthma. Sedating antihistamines include **chlorpheniramine** (Chlor-trimeton), **cyproheptadine**, **hydroxyzine** (Vistaril), **diphenhydramine**, and **promethazine**. These may cause drowsiness as a side effect, which can be useful in some conditions such as itchiness of the skin at night. Nonsedating antihistamines are also available. These include **cetirizine** (Zyrtec), **desloratadine** (Clarinex), **fexofenadine** (Allegra), **levocetirizine** (Xyzal), and **loratadine** (Claritin). Antihistamines are available as tablets and/or liquid. Some antihistamines can be purchased from a pharmacist without a prescription.

For allergic reactions causing nasal symptoms such as sneezing or runny nose, an anti-inflammatory drug such as **cromolyn** nasal spray may be effective. Other antihistamines are also available as nasal sprays, for example, **azelastine**. Corticosteroid nasal sprays may also be given. These may contain **beclomethasone** (Beconase AQ), **budesonide** (Rhinocort Aqua), **flunisolide**, **fluticasone**

(Flonase, Veramyst), **mometasone** (Nasonex) or **triamcinolone** (Nasacort AQ). Decongestants such as **pseudoephedrine** (Sudafed) can be useful for short-term treatment of sinusitis or prior to flying.

Combination products containing an antihistamine and a decongestant are also available. For hay fever affecting the eyes, there are several antihistamine eye drop preparations available including **azelastine** (Optivar), **ketotifen** (Alaway, Claritin Eye, Zaditor, Zyrtec Itchy Eye Drops), **olopatadine** (Pataday, Patanol), and **emedastine** (Emadine). Antihistamine and vasoconstrictor combination eye drops (eg, **pheniramine** and **naphazoline** [Naphcon A]) are also available to treat allergy symptoms and redness.

In asthma, specific treatment is prescribed and includes the use of inhalers and other medication. More information on asthma can be found at www.cdc.gov/asthma.

Anaphylactic reactions require immediate treatment, usually with a combination of antihistamines and epinephrine given in an injection form. People who have a known allergy that can result in anaphylaxis (such as those with bee-sting or peanut allergies) should carry the drug with them at all times (in the form of a prefilled injector—Auvi-Q, EpiPen). The prescribing doctor can provide a letter describing the allergy and the medical necessity of having the injector available at all times, including on an airplane.

›Further Information

National Institutes of Health: http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001815/

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