

Tips to Remember: What is anaphylaxis?

Anaphylaxis is a severe allergic reaction that may involve the entire body. It can result in trouble breathing, loss of consciousness and even death. Anaphylaxis is a medical emergency that requires immediate medical treatment, and later follow up care by an allergist/immunologist.

Anaphylaxis can occur in some people after they are exposed to a substance to which they are severely allergic. The most common substances that trigger anaphylaxis are foods, medications, and insect stings. It has been estimated that up to 15% of the population is at risk for anaphylaxis.

Mechanisms

Anaphylaxis is triggered the same way other allergies are: the immune system—which serves as the body's defense against potentially dangerous substances such as germs—overreacts to a harmless substance (an *allergen*) and in that process can damage the body. As part of the normal immune response, proteins called *antibodies* are produced that can detect and help destroy “invaders” in the body. A specific antibody called *Immunoglobulin E*, or *IgE*, is responsible for the adverse reactions in people with allergies.

When allergens first enter the body of a person predisposed to allergies, the immune system produces the allergen-specific IgE antibodies. The IgE antibodies attach themselves to the surface of cells called *mast cells*. The next time that allergic individual comes into contact with the allergen, the IgE identifies it and quickly initiates the release of chemicals - such as histamine - from the mast cells. These potent chemicals cause the symptoms seen in allergic reactions and anaphylaxis.

Symptoms of anaphylaxis

Anaphylaxis is a “systemic reaction,” which means that various parts of the body are affected that are a distance from the allergen's initial entry site (e.g., a sting site for insects or the stomach for foods). Symptoms of anaphylaxis can vary from mild to severe and are potentially deadly. Here is a list of possible symptoms that may occur alone or in any combination:

Skin: hives, swelling, itch, warmth, redness, rash

Breathing: wheezing, shortness of breath, throat tightness, cough, hoarse voice, chest pain/tightness, nasal congestion/hay fever-like symptoms, trouble swallowing

Stomach: nausea, pain/cramps, vomiting, diarrhea, itchy mouth/throat

Circulation: pale/blue color, poor pulse, passing-out, dizzy/lightheaded, low blood pressure, shock

Other: anxiety, feeling of “impending doom,” red/itchy/watery eyes, headache, cramping of the uterus



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Reactions usually begin within minutes of exposure, but may be delayed. Sometimes symptoms resolve, only to recur or progress a few hours later. The most dangerous symptoms are low blood pressure, breathing difficulties, shock and loss of consciousness, all of which can be fatal.

There are a variety of medical conditions that may mimic anaphylaxis. These include heart attacks, anxiety attacks, choking and seizures, among others. If you experience any unusual symptoms, it is vitally important to seek immediate medical attention (e.g., call 911) for prompt treatment and to determine the cause of the symptoms.

Substances that trigger reactions

Foods: Essentially any food can trigger an allergic reaction, but some of the most common ones that cause severe anaphylaxis are: peanuts, nuts from trees (e.g., walnut, cashew, Brazil nut), shellfish, fish, milk and eggs.

Stinging insects: The venom of stinging insects such as yellow jackets, honeybees, paper wasps, hornets and fire ants cause discomfort for most people who are stung. However, reactions can be severe and even deadly for people with allergies to these venoms.

Medications: Virtually any medication can trigger an allergic reaction. Common categories of drugs that cause anaphylaxis are antibiotics and anti-seizure medicines. Medical therapies such as certain post-surgery fluids, vaccines, blood and blood products, radiocontrast dyes, pain medications and other drugs may cause anaphylaxis or anaphylactoid reactions.

Latex: Some products made from natural latex (from the rubber tree) contain allergens that can trigger reactions in sensitive individuals. The greatest danger of severe reactions occurs when latex comes into contact with moist areas of the body or internal surfaces during surgery, because more of the allergen can rapidly be absorbed into the body.

Exercise: Although rare, exercise can also trigger anaphylaxis. Oddly enough, it does not occur after every exercise session and in some cases, only occurs after eating certain foods before exercise.

Other: Anaphylaxis has rarely been associated with exposure to seminal fluid, hormones and exposure to extreme temperatures. When no cause is found and the reaction is definitely anaphylaxis, it is termed idiopathic anaphylaxis.

Treatment and prevention

If you (or anyone you are with) begins experiencing severe allergy symptoms, call for medical help to get to an emergency room, where you may receive an epinephrine (adrenalin) shot to relieve breathing problems and improve circulation, and other medications such as antihistamines (that reduce the swelling and itch) or steroids (that further reduce the allergic response). The sooner the reaction is treated, the less severe it is likely to become. Even if you

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have received immediate medical treatment on site, you should be transported to a hospital for further evaluation.

When to see an allergy/asthma specialist

The AAAAI's *How the Allergist/Immunologist Can Help: Consultation and Referral Guidelines Citing the Evidence* provide information to assist patients and health care professionals in determining when a patient may need consultation or ongoing specialty care by the allergist/immunologist. Patients should see an allergist/immunologist if they:

- Have a severe allergic reaction (anaphylaxis) without an obvious or previously defined trigger.
- Have had anaphylaxis attributed to food, drugs, or insect stings.
- Have had exercise-induced anaphylaxis or food-dependent exercise induced anaphylaxis.

The allergist/immunologist will take your medical history and conduct other tests, if needed, to determine the exact cause. Once the trigger of the reaction is identified, your allergist/immunologist can provide detailed information about avoiding the substance, and possibly related ones that pose danger. Avoidance of the allergen(s) is the primary way to remain safe, but requires quite a great deal of education. Specific advice may include:

Food: how to interpret ingredient labels, manage restaurant dining, avoid food cross-contact.

Insects: reducing perfumes, bright color clothing, and “high risk” activities, wearing long sleeves/pants.

Medications: which drugs/treatments to avoid, a list of alternative medications that should be tolerated.

In some cases, your allergist/immunologist may suggest specific treatments. For example, vaccines (“allergy shots”) to virtually eliminate the risk of anaphylaxis from insect stings are available, and there are procedures that make it possible to be treated with certain medications to which you are allergic.

Anaphylaxis events can be made worse by the medications that patients take to treat other illnesses. In addition some medications interfere with the activity of epinephrine used to treat episodes of anaphylaxis. The allergist/immunologist can advise you about these medications and suitable alternatives.

Your allergist/immunologist may also prescribe a self-injectable epinephrine shot to carry with you. This medication reverses the allergic reaction, at least temporarily, to provide the life-saving time needed to get further treatment in a medical facility. Learn how to self-administer the epinephrine according to your allergist/immunologist's instructions, and replace the device before the labeled expiration date.

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You may also want to wear a special bracelet or necklace that identifies you as having a severe allergy. These tags can also supply other important information about your medical condition.

If you have had an anaphylactic reaction, you may want to inform family, health care workers, employers and school personnel about your allergy so they can watch for symptoms and help you avoid your allergy triggers. Above all, make sure to work in partnership with your allergist/immunologist to ensure your safety and health.

What your allergist/immunologist can do

- Determine if you have had, or are at risk for, anaphylaxis
- Determine what trigger(s) may cause your reaction
- Advise you as to whether or not any medications you are taking might make anaphylactic episodes worse or interfere with treatment and suggest alternatives
- Teach you how to avoid the allergen(s)
- Provide education about recognizing symptoms of an allergic reaction
- Create a written emergency treatment plan for use by you and others
- Offer the most up-to-date therapies to treat and/or prevent reactions

Your allergist/immunologist can provide you with more information on anaphylaxis.

***Tips to Remember* are created by the Public Education Committee of the American Academy of Allergy, Asthma and Immunology.**

The content of this article is for informational purposes only. It is not intended to replace evaluation by a physician. If you have questions or medical concerns, please contact your allergist/immunologist.

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