

The Allergy & Asthma Center

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Anaphylaxis

Definition

Anaphylaxis is a life-threatening type of allergic reaction.

Alternative Names

Anaphylactic reaction; Anaphylactic shock; Shock - anaphylactic

Causes

Anaphylaxis is a severe, whole-body allergic reaction. After being exposed to a substance like bee sting venom, the person's immune system becomes sensitized to that allergen. On a later exposure, an allergic reaction may occur. This reaction is sudden, severe, and involves the whole body.

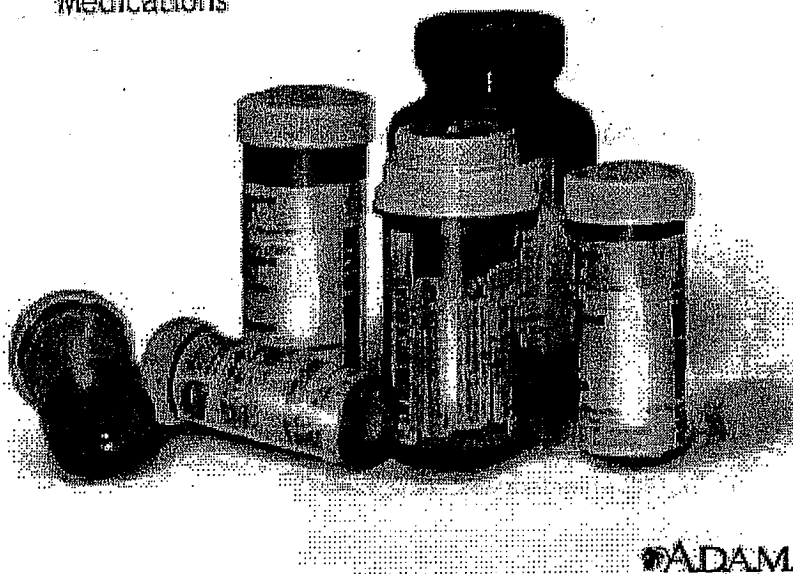
Tissues in different parts of the body release histamine and other substances. This causes the airways to tighten and leads to other symptoms.

Some drugs (polymyxin, morphine, x-ray dye, and others) may cause an anaphylactoid-like reaction (anaphylactoid reaction) when people are first exposed to them. This is usually due to a toxic reaction, rather than the immune system response that occurs with "true" anaphylaxis.

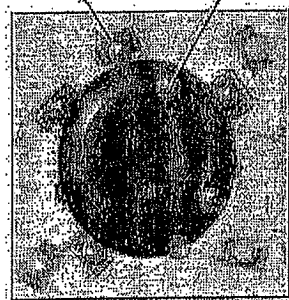
The symptoms, risk for complications without treatment, and treatment are the same, however, for both types of reactions.

Anaphylaxis can occur in response

Medications



Antibody Antigen



Red blood cell

An antibody is a protein produced by the immune system in response to the presence of an antigen.

ADAM

to any allergen. Common causes include:

- Drug allergies
- Food allergies
- Insect bites/stings

Pollens and other inhaled allergens rarely cause anaphylaxis. Some people have an anaphylactic reaction with no known cause.

Anaphylaxis rarely occurs. However, it is life-threatening and can occur at any time. Risks include history of any type of allergic reaction.

Symptoms

Symptoms develop rapidly, often within seconds or minutes. They may include the following:

- Abdominal pain or cramping
- Abnormal (high-pitched) breathing sounds
- Anxiety
- Confusion
- Cough
- Diarrhea
- Difficulty breathing
- Fainting, light-headedness, dizziness
- Hives, itchiness
- Nasal congestion
- Nausea, vomiting
- Sensation of feeling the heart beat (palpitations)
- Skin redness
- Slurred speech
- Wheezing

Exams and Tests

Signs include:

- Abnormal heart rhythm (arrhythmia)
- Fluid in the lungs (pulmonary edema)
- Hives
- Low blood pressure
- Mental confusion

- Rapid pulse
- Skin that is blue from lack of oxygen or pale from shock
- Swelling (angioedema) in the throat that may be severe enough to block the airway
- Swelling of the eyes or face
- Weakness
- Wheezing

The health care provider will wait to test for the specific allergen that caused anaphylaxis (if the cause is not obvious) until after treatment.

Treatment

Anaphylaxis is an emergency condition requiring immediate professional medical attention. Call 911 immediately.

Check the ABCs (airway, breathing, and circulation from Basic Life Support) in all suspected anaphylactic reactions.

CPR should be started, if needed. People with known severe allergic reactions may carry an Epi-Pen or other allergy kit, and should be helped if necessary.

Paramedics or physicians may place a tube through the nose or mouth into the airways (endotracheal intubation) or perform emergency surgery to place a tube directly into the trachea (tracheostomy or cricothyrotomy).

Epinephrine should be given by injection in the thigh muscle right away. This opens the airways and raises the blood pressure by tightening blood vessels.

Treatment for shock includes fluids through a vein (intravenous) and medications that support the actions of the heart and circulatory system.

The person may receive antihistamines, such as diphenhydramine, and corticosteroids, such as prednisone, to further reduce symptoms (after lifesaving measures and epinephrine are administered).

Outlook (Prognosis)

Anaphylaxis is a severe disorder that can be life-threatening without prompt treatment. However, symptoms usually get better with the right therapy, so it is important to act right away.

Possible Complications

- Airway blockage
- Cardiac arrest (no effective heartbeat)
- Respiratory arrest (no breathing)
- Shock

When to Contact a Medical Professional

Call 911 if you develop severe symptoms of anaphylaxis. If you are with another person, he or she may take you to the nearest emergency room.

Prevention

Avoid known allergens. Any person experiencing an allergic reaction should be monitored, although monitoring may be done at home in mild cases.

Occasionally, people who have a history of drug allergies may safely be given the medication they are allergic to after being pretreated with corticosteroids (prednisone) and antihistamines (diphenhydramine).

People who have a history of allergy to insect bites/stings should carry (and use) an emergency kit containing injectable epinephrine and chewable antihistamine. They should also wear a MedicAlert or similar bracelet or necklace stating their allergy.

References

The diagnosis and management of anaphylaxis: an updated practice parameter. *J Allergy Clin Immunol.* 2005;115(3 Suppl):S483-S523.

Sicherer SH, Simons FE, Section on Allergy and Immunology, American Academy of Pediatrics. Self-injectable epinephrine for first-aid management of anaphylaxis. *Pediatrics.* 2007;119:638-646.

Simons FE. Anaphylaxis. *J Allergy Clin Immunol.* 2008;121:S402-S407.

Sampson HA, Muñoz-Furlong A, Campbell RL, Adkinson NF Jr, Bock SA, Branum A, et al. Second symposium on the definition and management of anaphylaxis: summary report-second National Institute of Allergy and Infectious Disease/Food Allergy and Anaphylaxis Network symposium. *Ann Emerg Med.* 2006;47:373-380.

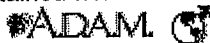
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