

AAOS

Ninth Edition

Emergency

Care and Transportation of the Sick and Injured



Section 4: Medical Emergencies

16: Allergic Reactions and Envenomations

Cognitive Objectives (1 of 2)

- 4-5.1 Recognize the patient experiencing an allergic reaction.
- 4-5.2 Describe the emergency medical care of the patient with an allergic reaction.
- 4-5.3 Establish the relationship between the patient with an allergic reaction and airway management.
- 4-5.4 Describe the mechanisms of allergic response and the implications for airway management.

Cognitive Objectives (2 of 2)

- 4-5.5 State the generic and trade names, medication forms, dose, administration, action, and contraindications for the epinephrine auto-injector.
- 4-5.6 Evaluate the need for medical direction in the emergency medical care of the patient with an allergic reaction.
- 4-5.7 Differentiate between the general category of those patients having an allergic reaction, and those patients having an allergic reaction and requiring immediate medical care, including immediate use of an epinephrine auto-injector.

Affective Objectives

4-5.8 Explain the rationale for administering epinephrine using an auto-injector.

Psychomotor Objectives

- 4-5.9 Demonstrate the emergency medical care of the patient experiencing an allergic reaction.
- 4-5.10 Demonstrate the use of an epinephrine auto-injector.
- 4-5.11 Demonstrate the assessment and documentation of patient response to an epinephrine injection.
- 4-5.12 Demonstrate proper disposal of equipment.
- 4-5.13 Demonstrate completing a prehospital care report for patients with allergic emergencies.

Allergic Reactions

- Allergic reaction
 - Exaggerated immune response to any substance
- Histamines and leukotrienes
 - Chemicals released by the immune system

Anaphylaxis

- Extreme allergic reaction
- Involves multiple organs
- Can rapidly result in death
- Most common signs:
 - Wheezing
 - Urticaria (hives)





Severe Allergic Reaction



Five General Allergen Categories

- Insect bites and stings
- Medications
- Plants
- Food
- Chemicals

Insect Bites and Stings

- Death from insect stings outnumber those from snakebites.
- Venom is injected through stinging organ.
- Some insects and ants can sting repeatedly.

Signs and Symptoms

- Sudden pain, swelling, and redness at site
- Itching and sometimes a wheal
- Sometimes dramatic swelling

Removing Stingers



Anaphylactic Reactions to Stings

- 5% of all people are allergic to bee, hornet, yellow jacket, and wasp stings.
- Anaphylaxis accounts for approximately 200 deaths a year.
- Most deaths occur within half an hour of being stung.

Signs and Symptoms of Allergic Reaction

- Itching and burning
- Widespread urticaria
- Wheals
- Swelling of the lips and tongue
- Bronchospasm and wheezing
- Chest tightness and coughing
- Dyspnea
- Anxiety
- Abdominal cramps
- Hypotension

You are the Provider

- You are dispatched to a park for a possible allergic reaction.
- You arrive to find a crowd of onlookers around a 25-year-old man.
- He appears very anxious and has hives all over his chest and arms. He thinks he was stung.
- He says it is hard to breathe, and is dizzy.

You are the Provider (continued)

- What type of reaction is this man having?
- What vital signs would you expect?
- What is your next step?

Scene Size-up

- Remember crew safety.
- Check environment for source of the reaction—insects, foods, medications.
- Call ALS immediately if reaction is serious, as in this case.

You are the Provider

(continued)

- Vital signs are:
 - BP 94/56 mm Hg
 - Pulse 130 beats/min
 - Respirations 42 breaths/min
 - Pulse oximetry 90%
- You explain that you need to administer epinephrine, then administer it.
- Your partner administers high-flow oxygen and removes the stinger.
- You have patient lie down with feet propped up.

Initial Assessment

- General impression
 - May present as respiratory distress and/or cardiac distress in the form of shock.
 - Patients may feel sense of impending doom.
 - Check carefully for medical identification tags.
 - See what treatment has been administered prior to your arrival.
 - If unresponsive, immediately evaluate and treat life threats.

Airway and Breathing

- You may only have a few minutes to assess the airway and provide lifesaving measures.
- Place conscious patient in tripod position.
- Quickly listen to lungs for wheezing.
- Provide high-concentration oxygen via nonrebreathing mask, but be prepared to assist with ventilations if necessary.

Circulation

- Look for indications of circulatory distress.
- If unresponsive without a pulse, begin CPR and AED resuscitation.
- Rapid heart rate; cool, moist skin; and delayed capillary refill times indicate hypoperfusion.

Transport Decision

- Transport promptly.
- Take patient medications and auto-injectors with you.
- Treat respiratory distress and shock, then transport immediately.

Focused History and Physical Exam

- Unresponsive patients receive a rapid physical exam.
- For responsive patients, obtain a SAMPLE history.
- SAMPLE history helps determine:
 - History of specific allergies
 - If patient carries medication for an allergy
 - If reaction is related to food or environment

Focused Physical Exam

- Evaluate respiratory system, circulatory system, mental status, and skin.
- Be alert for altered mental status.
- Thoroughly assess breathing and auscultate.
- Check for wheezing and stridor.

Signs and Symptoms (1 of 2)

- Sneezing or itchy, runny nose
- Tightness in chest or throat
- Irritating, persistent dry cough
- Hoarseness
- Rapid, labored, or noisy respirations
- Wheezing and/or stridor
- Decreased blood pressure
- Increased pulse
- Pale skin, dizziness

Signs and Symptoms (2 of 2)

- Loss of consciousness, coma
- Flushing, itching, or burning skin
- Urticaria
- Swelling
- Warm, tingling feeling in the face, mouth, chest, feet, hands
- Anxiety
- Abdominal cramps
- Headache
- Itchy, watery eyes
- Decreasing mental status

Baseline Vital Signs

- Assess pulse, respirations, blood pressure, skin, and pupils.
- Watch for shock.
- Fast pulses and hypotension are ominous signs.
- Skin signs may be unreliable due to rashes or swelling.

Interventions

- Severe reactions require epinephrine and ventilatory support.
- Milder reactions may only require oxygen.
- In either case, transport.

You are the Provider (continued)

- A few moments after EpiPen administration, the patient is breathing more easily.
- Blood pressure and pulse oximetry values have risen; respirations have decreased.
- The paramedics arrive and begin to administer IV fluids.

Detailed Physical Exam

- Consider if:
 - Complaint or history is confusing.
 - There is extended transport time.
 - You need to clarify findings.
- In severe reactions, exam may be omitted.

Ongoing Assessment

- Monitor with vigilance; deterioration can be rapid and fatal.
- Note the effect of epinephrine. Consider second dose.
- If you are unsure whether to administer epinephrine, contact medical control.
- Document the patient's response.

Emergency Medical Care

- In addition to providing oxygen, be prepared to maintain airway or give CPR.
- Placing ice over injury site may slow absorption of toxin, but may also freeze skin and cause more damage.
- You may or may not be allowed to assist with epinephrine depending on local protocols.
- Adult dose is 0.3 mg; pediatric dose is 0.15 mg.

Using an Auto-Injector

- Receive order from medical direction.
- Follow BSI precautions.
- Make sure the prescription is for the patient.
- Make sure the medication is not discolored or expired.



Anakit



Administering an Auto-Injector

- Remove safety cap.
- Place tip of injector against lateral side of patient's thigh.
- Push injector firmly and hold until all medication is injected.
- Remove injector.
- Record time and dose.
- Reassess and record vital signs.

Using an AnaKit (1 of 2)

- Follow the same preliminary steps.
- Prepare injection site.
- Hold syringe upright so that air rises to base of needle.
- Turn plunger one quarter turn.



Using an AnaKit (2 of 2)

- Insert needle quickly.
- Push plunger until it stops.
- Have the patient chew and swallow Chlo-Amine tablets.
- Apply a cold pack.

