Anaphylaxis and Allergic Reaction

Aliases

Anaphylactic Shock

Patient Care Goals

1. Provide timely therapy for potentially life-threatening reactions to known or suspected allergens to prevent cardiorespiratory collapse and shock
2. Provide symptomatic relief for symptoms due to known or suspected allergens

Patient Presentation

Inclusion Criteria

Patients of all ages with suspected allergic reaction and/or anaphylaxis

Exclusion Criteria

No recommendations

Patient Management

Assessment

1. Evaluate for patent airway and presence of oropharyngeal edema
2. Auscultate for wheezing and assess level of respiratory effort
3. Assess for adequacy of perfusion
4. Assess for presence of signs of anaphylaxis
    a. Anaphylaxis – More severe and is characterized by an acute onset involving:
        i. The skin (urticaria) and/or mucosa with either respiratory compromise or decreased BP or signs of end-organ dysfunction
        OR
        ii. Hypotension for that patient after exposure to a known allergen
            1. Adults: Systolic BP $less\ than$ 90
            2. Pediatrics: see Vital Signs chart
        OR
        iii. Two or more of the following occurring rapidly after exposure to a likely allergen:
            1. Skin and/or mucosal involvement (urticaria, itchy, swollen tongue/lips)
                a. Skin involvement may be ABSENT in up to 40% of cases of anaphylaxis
            2. Respiratory compromise (dyspnea, wheezing, stridor, hypoxemia)
            3. Persistent gastrointestinal symptoms (vomiting, abdominal pain, diarrhea)
            4. Hypotension or associated symptoms (syncope, hypotonia, incontinence)
    b. Non-anaphylactic Allergic Reaction
        i. Signs involving only **one** organ system (e.g. localized angioedema that does not compromise the airway, or not associated with vomiting; hives alone)

Treatment and Interventions

EMR

1. Maintain airway
2. Administer oxygen as appropriate
   a. Be prepared to assist ventilations
3. Remove allergen, if present
4. If signs of anaphylaxis, administer epinephrine at the following dose and route via auto-injector:
   a. Adult (25kg or more) 0.3 mg IM in the anterolateral thigh
   b. Pediatric (less than 25kg) 0.15 mg in the anterolateral thigh
5. If signs of anaphylaxis and hypoperfusion persist following the first dose of epinephrine, additional IM epinephrine can be repeated every 5-15 minutes at above noted doses

EMT

6. Epinephrine 1:1,000 (1mg/mL), drawn from a single-dose vial and injected IM (intramuscular) in the anterolateral thigh may be administered in place of the auto-injector method, if approved by your Medical Director
7. Call for ALS transport as soon as possible and perform ongoing assessment as indicated.

Patient Safety Considerations

1. Time to epinephrine delivery

Notes/Educational Pearls

Key Considerations

1. Allergic reactions and anaphylaxis are serious and potentially life-threatening medical emergencies. It is the body's adverse reaction to a foreign protein (e.g. food, medicine, pollen, insect sting or any ingested, inhaled, or injected substance). When anaphylaxis is suspected, EMS personnel should always consider epinephrine as first-line treatment. Cardiovascular collapse may occur abruptly, without the prior development of skin or respiratory symptoms. Constant monitoring of the patient's airway and breathing is essential.
2. Contrary to common belief that all cases of anaphylaxis present with cutaneous manifestations, such as urticaria or mucocutaneous swelling, a significant portion of anaphylactic episodes may not involve these signs and symptoms on initial presentation. Moreover, most fatal reactions to food-induced anaphylaxis in children were not associated with cutaneous manifestations.
3. A thorough assessment and a high index of suspicion are required for all potential allergic reaction patients – consider:
   a. History of Present Illness
      i. Onset and location
      ii. Insect sting or bite
      iii. Food allergy/exposure
      iv. New clothing, soap, detergent
      v. Past history of reactions
      vi. Medication history
   b. Signs and Symptoms
      i. Itching or urticaria
      ii. Coughing, wheezing, or respiratory distress

iii. Chest tightness or throat constriction
iv. Hypotension or shock
v. Persistent gastrointestinal symptoms (nausea, vomiting, and diarrhea)
vi. Altered mental status

c. Other Considerations
i. Angioedema (drug-induced)
ii. Aspiration/airway obstruction
iii. Vasovagal event
iv. Asthma or COPD
v. Heart failure

4. Gastrointestinal symptoms occur most commonly in food-induced anaphylaxis, but can occur with other causes
   a. Oral pruritus is often the first symptom observed in patients experiencing food-induced anaphylaxis
   b. Abdominal cramping is also common, but nausea, vomiting, and diarrhea are frequently observed as well
5. Patients with asthma are at high risk for a severe allergic reaction

Pertinent Assessment Findings

1. Presence or absence of angioedema
2. Presence or absence of respiratory compromise
3. Presence or absence of circulatory compromise
4. Localized or generalized urticaria
5. Response to therapy

Key Documentation Elements

- Medications given
- Route of epinephrine administration
- Time of epinephrine administration
- Signs and symptoms of the patient

Performance Measures

- Percentage of patients with anaphylaxis that receive epinephrine for anaphylaxis
- Percentage of patients with anaphylaxis who receive:
  - Epinephrine within 10 minutes of arrival
  - The appropriate weight-based dose of epinephrine
- Percentage of patients that require airway management in the prehospital setting (and/or the emergency department)