Chapter 21
Anaphylactic Reactions

Objectives

1. Define key terms introduced in this chapter.
2. Explain the importance of being able to recognize and treat anaphylactic reactions (slide 12).
3. Describe the pathophysiological process by which exposure to an antigen results in anaphylaxis (slides 12-21).
4. Explain the life-threatening mechanisms of anaphylaxis, including airway compromise, impaired ventilation and oxygenation, and impaired perfusion (slides 12-25).
5. Describe the difference between an anaphylactic and an anaphylactoid reaction (slides 12, 15-16, 18-19).

Objectives

6. Discuss the ways that an antigen can be introduced into the body and substances that commonly cause anaphylactic or anaphylactoid reactions (slides 20-21).
7. Explain an assessment-based approach to anaphylactic reaction including scene size-up, primary and secondary assessments, and reassessment (slides 22-31).
8. Recognize the signs and symptoms of anaphylactic reaction (slides 25-27)
9. List the two key categories of signs and symptoms that specifically indicate a severe anaphylactic reaction (slides 27-29).
Objectives

10. Develop a treatment plan for the patient with an anaphylactic reaction (slides 28-29).
11. Describe the role of epinephrine in the treatment of anaphylaxis and the criteria and procedure administration of epinephrine (slides 32-34).

Multimedia Directory

Slide 14  Anaphylactic Reaction Animation
Slide 17  Allergic Rhinitis Video
Slide 34  Allergic Reactions and Epinephrine Animation

Topics

Anaphylactic Reaction
CASE STUDY

Dispatch

Respond to Veterans’ Pavilion at Mill Run Park for a 25-year-old male complaining of difficulty breathing. Police department is on scene.

EMS Unit 204

Time out 0714

Upon Arrival

- Scene is safe; no trauma visible
- Patient sitting up, leaning forward
- The patient gasps out, “John Freeman—and I feel—real bad.”
How would you proceed to assess and care for this patient?

Anaphylactic Reaction

Pathophysiology of Anaphylactic Reaction
Anaphylactic Reaction

Pathophysiology of Anaphylactic Reaction

Sensitization
Sensitization

- Hypersensitivity
- Sensitization
- Histamine

Allergic Rhinitis

Click here to view a video on the topic of allergic rhinitis.

Pathophysiology of Anaphylactic Reaction

Anaphylactoid Reaction
Anaphylactoid Reaction

- Requires no sensitization
- Antigen causes release of mediators
- Treatment the same

Pathophysiology of Anaphylactic Reaction

Causes of Anaphylactic Reaction

- Injection
- Ingestion
- Inhalation
- Contact (absorption)
Assessment-Based Approach to Anaphylactic Reaction

Scene Size-Up

Primary Assessment

- Scene hazards
- Medications on scene
Assessment-Based Approach to Anaphylactic Reaction

Secondary Assessment

- History
  - SAMPLE
- Physical exam
- Baseline vital signs
Assessment-Based Approach to Anaphylactic Reaction

Emergency Medical Care

Back to Objectives

Emergency Medical Care

• Airway
• Suction
• Provide O₂
• Assist ventilation if necessary
• Administer prescribed epinephrine auto-injector
• Consider ALS

Reassessment
Reassessment

- Severity
- Airway
- Breathing
- Circulation
- After epinephrine auto-injector

Epinephrine Auto-Injector

- Action of medication
- Time of response
- Doses
- How to use
CASE STUDY
Follow-Up

Primary Assessment
- Dressed in jogging clothes
- Hives cover face and neck
- Patient is alert and scratching his arms and legs
- Speaks in one- or two-word phrases
- Stridor and audible wheezes
Primary Assessment
• RR: 28; P: 130 and weak
• O₂ via a nonrebreather mask at 15 lpm

Secondary Assessment
• Patient felt a sting in the left leg; three minutes later signs and symptoms started
• BP: 82/50 mmHg; P: 132 and weak; RR: 28 labored; hives; SpO₂: 88 percent

Secondary Assessment
• John’s auto-injector is not expired
• Medical direction orders administration
• Administer epinephrine
• Semi-sitting; O₂ therapy; begin transport
CASE STUDY
Treatment and Reassessment
• Two minutes later breathing much less labored; wheezing decreases
• BP: 112/68 mmHg; P: 109; hives less red; SpO₂: 96 percent
• Continued improvement on trip to hospital

CASE STUDY
Treatment and Reassessment
• Transfer patient to ED staff
• Complete report, restock truck, and notify dispatch that you are back in service

Critical Thinking Scenario
• 38-year-old female in obvious respiratory distress; stridor on inhalation and gasping
• Hives on her face, neck, and chest; face, lips, and tongue are very swollen
• Her husband indicates she suddenly experienced respiratory difficulty after taking pain medication that was prescribed for dental work done earlier in the day
Critical Thinking Scenario

• S – The patient is alert; wheezing in all lung fields; pedal pulses not palpable
• A – No known allergies
• M – No other medications
• P – No significant past medical history
• L – 15 minutes ago when she took the pain medication
• E – She was sitting in the recliner when signs and symptoms suddenly appeared

Critical Thinking Scenario

Vital signs:
• BP: 78/42 mmHg
• Radial pulse is 142 bpm and very weak
• RR: 38 per minute
• Skin is warm, dry, and flushed
• SpO₂ is 76 percent

Critical Thinking Questions

1. What is causing the airway compromise in the patient?
2. What is causing the respiratory distress?
3. How would you manage the airway and ventilation?
4. What would explain the low blood pressure?
5. What emergency care would you provide to the patient?
Critical Thinking Questions

6. What criteria would you use to determine the need for the administration of epinephrine?
7. What are side effects of epinephrine?
8. What type of reaction is the patient suffering from?

Reinforce and Review

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