Chapter 10
Shock

Unit Summary

After students complete this chapter and the related course work, they will have an understanding of the different types and causes of shock, the process of perfusion, the signs and symptoms associated with shock, application of the assessment process with the shock patient, and the general and specific emergency medical care provided to patients experiencing shock.

National EMS Education Standard Competencies

Shock and Resuscitation

Applies a fundamental knowledge of the causes, pathophysiology, and management of shock, respiratory failure or arrest, cardiac failure or arrest, and post-resuscitation management.

Pathophysiology

Applies fundamental knowledge of the pathophysiology of respiration and perfusion to patient assessment and management.

Knowledge Objectives

1. Understand the pathophysiology of shock (hypoperfusion). (pp 381ï 384)
2. Recognize the causes of shock. (pp 384ï 388)
3. Describe the various types of shock. (pp 385ï 389)
4. Describe the signs and symptoms of shock. (pp 389ï 390)
5. Discuss patient assessment for shock. (pp 390ï 392)
6. Describe the steps to follow in the emergency care of the patient with signs and symptoms of shock. (pp 393ï 399)

Skills Objectives

1. Demonstrate how to control shock. (pp 393ï 389, Skill Drill 10-1)
2. Demonstrate how to complete an EMS patient care report for a patient with bleeding and/or shock. (pp 393, 403)

Lecture

I. Introduction

A. In this chapter, shock (hypoperfusion) means a state of collapse and failure of the cardiovascular system.

1. In the early stages of shock, the body attempts to maintain homeostasis (a balance of all systems in the body).
2. As shock progresses, however, blood circulation slows and eventually ceases.

B. Shock can occur because of medical or traumatic events.

1. Heart attack
2. Severe allergic reaction
3. Automobile crash
4. Gunshot wound

C. As an EMT, you cannot go wrong assuming that every patient is in shock or may go into shock.

II. Pathophysiology

A. Perfusion is the circulation of blood within an organ or tissue in adequate amounts to meet the cells' current needs.

1. The body is perfused via the circulatory system.
2. The circulatory system is a complex arrangement of connected tubes, including the arteries, arterioles, capillaries, venules, and veins.
3. There are two circuits in the body: the systemic circulation in the body and the pulmonary circulation in the lungs.
    a. The systemic circulation carries oxygen-rich blood from the left ventricle through the body and back to the right atrium.
    b. As blood passes through the tissues and organs, it gives up oxygen and nutrients and absorbs cellular wastes and carbon dioxide.
    c. Perfusion is an important part of the process by which waste products such as carbon dioxide made by the cells are removed.

B. Organs, tissues, and cells must have adequate oxygenation or they may die.

1. If oxygenated blood is not properly circulated, some of the cells and organs will not receive proper nutrients, possibly resulting in cell death.

C. Diffusion is a passive process in which molecules move from an area with a higher concentration of molecules to an area of lower concentration.

1. Oxygen molecules move from the alveoli into the blood.
2. Carbon dioxide moves from the blood into the alveoli.
3. If there is a disturbance in the transportation of carbon dioxide, dangerous waste products will build up in the cells and organs, leading to cell or organ death.

D. Shock refers to a state of collapse and failure of the cardiovascular system that leads to inadequate circulation.

1. Like internal bleeding, shock is an unseen life threat caused by a medical disorder or traumatic injury.

2. To protect vital organs, the body attempts to compensate by directing blood flow from organs that are more tolerant of low flow (such as the skin and intestines) to organs that cannot tolerate low blood flow (such as the heart, brain, and lungs).
3. If the symptoms of shock are not promptly addressed, the patient will soon die.

E. The cardiovascular system has three parts:

1. A pump (the heart)
2. A set of pipes (blood vessels and arteries that act as the container)
3. The contents of the container (the blood)
   a. These three parts can be called the ñperfusion triangle.ò
   b. When a patient is in shock, one or more of the three parts is not working properly.

F. Blood pressure is the pressure of blood within the vessels at any one time.

1. Systolic pressure is the peak arterial pressure.
2. Diastolic pressure is the pressure maintained within the arteries while the heart rests between heartbeats.

G. Blood flow through the capillary beds is regulated by the capillary sphincters, circular muscular walls that constrict and dilate.

1. These sphincters are under the control of the autonomic nervous system, which regulates involuntary functions such as sweating and digestion.
2. Capillary sphincters also respond to other stimuli such as:
   a. Heat
   b. Cold
   c. The need for oxygen
   d. The need for waste removal

H. Perfusion requires more than just having a working cardiovascular system.

1. Adequate oxygen exchange in the lungs
2. Adequate nutrients in the form of glucose in the blood
3. Adequate waste removal, primarily through the lungs

I. Mechanisms are in place to help support the respiratory and cardiovascular systems when the need for perfusion of vital organs is increased.

1. These mechanisms include the autonomic nervous system and hormones.
   a. They are triggered when the body senses that the pressure in the system is failing.
   b. Hormones stimulate an increase in heart rate and in the strength of cardiac contractions and vasoconstriction in nonessential areas, primarily in the skin and gastrointestinal tract.
   c. These actions are designed to maintain pressure in the system and, as a result, perfusion of all vital organs.
   d. The autonomic nervous system and hormones respond within seconds.

III. Causes of Shock

A. Shock can result from many conditions, including bleeding, respiratory failure, acute allergic reactions, and overwhelming infection.

1. In all cases, the damage occurs because of insufficient perfusion of organs and tissues.

B. Pump failure

1. Causes: heart attack, trauma to heart, obstructive causes
2. Types of shock
    a. Cardiogenic shock
    b. Obstructive shock

C. Low fluid volume

1. Causes: trauma to vessels or tissues, fluid loss from the gastrointestinal tract (vomiting/diarrhea can also lower the fluid component of the blood)
2. Types of shock
    a. Hemorrhagic shock
    b. Nonhemorrhagic shock

D. Poor vessel function

1. Causes: infection, drug overdose (narcotic), spinal cord injury, anaphylaxis
2. Types of shock
    a. Distributive shock
        i. Septic shock
        ii. Neurogenic shock
        iii. Anaphylactic shock
        iv. Psychogenic shock

IV. Types of Shock

A. Cardiogenic shock

1. Cardiogenic shock is caused by inadequate function of the heart, or pump failure.
2. A major effect is the backup of blood into the lungs.
3. The resulting buildup of pulmonary fluid is called pulmonary edema.
    a. Edema is the presence of abnormally large amounts of fluid between cells in body tissues, causing swelling of the affected area.
    b. Pulmonary edema leads to impaired ventilation.
4. Cardiogenic shock develops when the heart cannot maintain sufficient output to meet the demands of the body.
    a. Cardiac output is the volume of blood that the heart can pump per minute, and it is dependent upon several factors.
        i. The heart must have adequate strength, which is largely determined by the ability of the heart muscle to contract (myocardial contractility).
        ii. The heart must receive adequate blood to pump.
        iii. The resistance to flow in the peripheral circulation must be appropriate.

B. Obstructive shock

1. Obstructive shock occurs when conditions that cause mechanical obstruction of the cardiac muscle also affect the pump function.

2. Common examples:
    a. Cardiac tamponade
        i. It is a collection of fluid between the pericardial sac and the myocardium.
        ii. It is caused by blunt or penetrating trauma and can progress rapidly.
        iii. Blood leaks into the tough fibrous membrane known as the pericardium, causing an accumulation of blood within the pericardial sac.
        iv. This accumulation leads to compression of the heart.
        v. Signs and symptoms of cardiac tamponade are referred to as Beckôs triad, the presence of jugular vein distention, muffled heart sounds, and systolic and diastolic blood pressure starting to merge.
    b. Tension pneumothorax
        i. It is caused by damage to lung tissue.
        ii. The damage allows air normally held within the lung to escape into the chest cavity.
        iii. This air applies pressure to the organs, including the heart.

C. Distributive shock

1. Distributive shock results when there is widespread dilation of small arterioles, venules, or both.
2. The circulating blood volume pools in the expanded vascular beds and tissue perfusion decreases.
3. Septic shock
    a. Septic shock occurs as result of severe infections, usually bacterial, in which toxins are generated by the bacteria or by infected body tissues.
        i. The toxins damage the vessel walls, causing increased cellular permeability.
        ii. The vessel walls leak and are unable to contract well.
        iii. Widespread dilation of vessels, in combination with plasma loss through the injured vessel walls, results in shock.
    b. Septic shock is a complex problem.
        i. There is an insufficient volume of fluid in the container, because much of the plasma has leaked out of the vascular system (hypovolemia).
        ii. The fluid that has leaked out often collects in the respiratory system, interfering with ventilation.
        iii. The vasodilation leads to a larger-than-normal vascular bed to contain the smaller-than-normal volume of intravascular fluid.
    c. Septic shock is almost always a complication of a very serious illness, injury, or surgery.
4. Neurogenic shock
    a. Neurogenic shock is usually a result of injury to the part of the nervous system that controls the size and muscle tone of the blood vessels.
    b. Causes include:
        i. Damage to the spinal cord
        ii. Brain conditions
        iii. Tumors
        iv. Pressure on the spinal cord
        v. Spina bifida
    c. In neurogenic shock, the muscles in the walls of the blood vessels are cut off from the sympathetic nervous system and nerve impulses that cause them to contract.
        i. All vessels below the level of the spinal injury dilate widely, increasing the size and capacity of the vascular system and causing blood to pool.
        ii. The available 6 L of blood in the body can no longer fill the enlarged vascular system.

iii. Even though no blood or fluid has been lost, perfusion of organs and tissues becomes inadequate, and shock occurs.

5. Anaphylactic shock
   a. Anaphylaxis occurs when a person reacts violently to a substance to which he or she has been sensitized.
      i. Sensitization means becoming sensitive to a substance that did not initially cause a reaction.
      ii. Each subsequent exposure after sensitization tends to produce a more severe reaction.
   b. Common causes include:
      i. Injections (tetanus antitoxin, penicillin)
      ii. Stings (honeybee, wasp, yellow jacket, hornet)
      iii. Ingestion (shellfish, fruit, medication)
      iv. Inhalation (dust, pollen)
   c. Anaphylactic shock can develop within minutes or even seconds of contact with the substance.
   d. The signs are very distinct and not seen with other forms of shock (see Table 10-2).
   e. Note that cyanosis (bluish color of the skin) is a late sign of anaphylactic shock.
6. Psychogenic shock
   a. A patient in psychogenic shock has had a sudden reaction of the nervous system that produces a temporary, generalized vascular dilation, resulting in fainting, or syncope.
   b. Blood pools in the dilated vessels, reducing the blood supply to the brain.
      i. As a result, the brain ceases to function normally, and the patient faints.
   c. Life-threatening causes include irregular heartbeat and brain aneurysm.
   d. Nonï life-threatening causes include receiving bad news, experiencing fear, or seeing unpleasant sights (like the sight of blood).

D. Hypovolemic shock

1 Hypovolemic shock is the result of an inadequate amount of fluid or volume in the system.
   a. There are hemorrhagic causes and nonhemorrhagic causes.
2. Hypovolemic shock also occurs with severe thermal burns.
   a. Intravascular plasma is lost.
   b. Plasma leaks from the circulatory system into the burned tissues that lie adjacent to the injury.
3. Dehydration, the loss of water or fluid from body tissues, can cause or aggravate shock.
   a. Fluid loss may be a result of severe vomiting and/or diarrhea.

E. Respiratory insufficiency

1. A patient with a severe chest injury, such as flail chest or obstruction of the airway, may be unable to breathe in an adequate amount of oxygen.
   a. An insufficient concentration of oxygen in the blood can produce shock as rapidly as vascular causes.
2. Certain types of poisoning may affect the ability of cells to metabolize or carry oxygen.
   a. Carbon monoxide poisoning
   b. Cyanide poisoning
3. Anemia occurs when there is an abnormally low number of red blood cells.
   a. Anemia may be the result of either chronic or acute bleeding, a deficiency in certain vitamins or minerals, or an underlying disease process.

V. The Progression of Shock

A. Three stages in the progression of shock

1. Compensated shock
   a. In early stages of shock, the body can still compensate for blood loss.
   b. Signs and symptoms:
      i. Agitation
      ii. Anxiety
      iii. Restlessness
      iv. Feeling of impending doom
      v. Altered mental status
      vi. Weak, rapid (thready), or absent pulse
      vii. Clammy (pale, cool, moist) skin
      viii. Pallor, with cyanosis about the lips
      ix. Shallow, rapid breathing
      x. Air hunger (shortness of breath), especially if there is a chest injury
      xi. Nausea or vomiting
      xii. Capillary refill of longer than 2 seconds in infants and children
      xiii. Marked thirst
2. Decompensated shock
   a. The late stage, when blood pressure is falling
   b. Signs and symptoms:
      i. Falling blood pressure (systolic blood pressure of 90 mm Hg or lower in an adult)
      ii. Labored or irregular breathing
      iii. Ashen, mottled, or cyanotic skin
      iv. Thready or absent peripheral pulses
      v. Dull eyes, dilated pupils
      vi. Poor urinary output
3. Irreversible shock
   a. Terminal stage of shock
   b. A transfusion of any type will not be enough to save a patientôs life.
4. Blood pressure may be the last measurable factor to change in shock.
   a. When a drop in blood pressure is evident, shock is well developed.
   b. This is particularly true in infants and children, who can maintain their blood pressure until they have lost more than half their blood volume.
5. The EMT must use caution when caring for elderly patients.
   a. Keep in mind the following signs of the normal aging process when managing geriatric patients:
      i. The central nervous system often has a delayed response.
      ii. The cardiovascular system has a variety of changes that result in a decrease in the efficiency of the system.
      iii. The respiratory system has significant changes as the elasticity of the lungs and their size and strength decrease.

iv. The skin becomes thinner, drier, less elastic, and more fragile, thus providing less protection and thermal regulation (cold and hot).
v. The renal system decreases in function and may not respond well to unusual demands such as illness.
vi. The gastrointestinal system sustains changes in gastric motility that may lead to slower gastric emptying.

b. Treating a pediatric or geriatric patient in shock is no different than treating any other shock patients:
i. Provide in-line spinal stabilization if indicated. If spinal immobilization is not indicated, maintain the patient in a position of comfort.
ii. Suction as necessary and provide high-flow oxygen via a nonrebreathing mask.
iii. Control bleeding.
iv. Maintain body temperature.
v. Provide rapid transportation.

6. Expect shock in many emergency medical situations.
7. Also expect shock if a patient has any one of the following conditions:
a. Multiple severe fractures
b. Abdominal or chest injury
c. Spinal injury
d. Severe infection
e. Major heart attack
f. Anaphylaxis

VI. Patient Assessment for Shock

A. Scene size-up

1. Scene safety
a. Ensure the scene is safe for you, your partner, your patient, and bystanders.
b. Determine the necessary standard precautions and whether you will need additional resources to assist in moving the patient(s).
2. Mechanism of injury/nature of illness
a. Observe the scene and patient for clues to determine the nature of the illness or the mechanism of injury.

B. Primary assessment

1. The primary assessment for a patient with suspected shock should include a rapid scan of the patient to:
a. Determine level of consciousness
b. Identify and manage life-threatening concerns
c. Determine the priority of the patient and transport
2. Treat according to the ABCs.
3. Significant bleeding, internal or external, is an immediate life threat.
4. Provide high-flow oxygen to assist in perfusion of damaged tissues.
a. If the patient has signs of hypoperfusion, treat aggressively and provide rapid transport to the hospital.
b. Request advanced life support (ALS) as necessary to assist with more aggressive shock management.
5. Form a general impression.

a. Form an initial general impression, including age, sex, signs of distress, obvious life-threatening injuries, abnormal positioning, and skin color.
b. Determine the need for manual spinal immobilization and assess the patientôs level of consciousness.
c. If the patient is awake and alert, determine a chief complaint.

6. Airway and breathing
   a. Assess the airway to ensure it is patent.
   b. Quickly assess breathing.
      i. Inspect and palpate the chest wall to assess for DCAP-BTLS.
      ii. Observe the patient for signs of accessory muscle use.
      iii. An increased respiratory rate is often an early sign of impending shock.
   c. Give high-flow oxygen or, if needed, assist respirations with a bag-mask device.
7. Circulation
   a. Check for a distal pulse.
   b. If there is none, check for a central pulse.
   c. Determine if the pulse is fast, slow, weak, strong, or altogether absent.
      i. A rapid pulse suggests compensated shock.
      ii. In shock or compensated shock, the skin may be cool, clammy, or ashen.
   d. If the patient has no pulse and is not breathing, immediately begin cardiopulmonary resuscitation (CPR).
8. Transport decision
   a. Determine whether the patient should be treated as high priority, whether ALS is needed, and which facility to transport to.
   b. Trauma patients with shock, or a suspicious MOI, generally should go to a trauma center.

C. History taking

1. Investigate the chief complaint.
2. Obtain a SAMPLE history.

D. Secondary assessment

1. Physical examinations
   a. If significant trauma has likely affected multiple systems, start with a full-body scan to be sure that you have identified all injuries.
   b. Next assess the respiratory system and ask yourself the following questions:
      i. Is the patientôs respiratory rate and quality within normal limits?
      ii. What is the patientôs skin color and condition?
      iii. Are there any signs of increased respiratory efforts such as retractions, nasal flaring, stridor, or use of accessory muscles?
   c. Assess the neurologic system, including:
      i. Level of consciousness
      ii. Pupil size and reactivity
      iii. Motor response
      iv. Sensory response
   d. Assess the musculoskeletal system by doing a detailed full-body scan.
   e. Assess all anatomic regions, looking for the following signs/symptoms:
      i. Raccoon eyes, Battleôs sign, and/or drainage of blood or fluid from the ears or nose

ii. Jugular vein distention and tracheal deviation
iii. Pelvic stability
iv. Tenderness or rigidity in the abdomen
v. Pulse, motor, and sensory function in the extremities

2. Vital signs
   a. Obtain a complete set of baseline vital signs.
      i. If the patientôs condition is unstable or could become unstable, reassess vital signs every 5 minutes.
      ii. If the patient is in stable condition, reassess vital signs every 10 to 15 minutes.
   b. Monitoring devices
      i. Use monitoring devices to quantify the patientôs oxygenation and circulatory status.
      ii. Use a noninvasive technique to monitor blood pressure and a pulse oximeter to evaluate the effectiveness of oxygenation.

E. Reassessment

1. Interventions
   a. Determine what interventions are needed for your patient at this point based on the findings of your assessment.
      i. Focus on supporting the cardiovascular system.
      ii. Provide oxygen and put the patient in the shock position.
2. Communication and documentation
   a. Patients who are in decompensated shock will need rapid interventions to restore adequate perfusion.
   b. Most of the interventions used to treat shock do not require a specific physicianôs order; however, some do.
   c. Determine whether your patient is in compensated or decompensated shock.
   d. Document these findings after you have treated for shock.

VII. Emergency Medical Care for Shock

A. You must begin immediate treatment for shock as soon as you realize that the condition may exist.

1. See ***Skill Drill 10-1***.
2. Do not give the patient anything by mouth, no matter how urgently you are asked.
   a. To relieve the intense thirst that often accompanies shock, give the patient a moistened piece of gauze to chew or suck.
   b. Never give a patient in shock an alcoholic drink or other depressant.
3. Accurately record the patientôs vital signs approximately every 5 minutes throughout treatment and transport.
4. Table 10-4 lists the general supportive measures for the major types of shock.

B. Treating cardiogenic shock

1. The patient who is in shock as a result of a heart attack does not require a transfusion of blood, intravenous fluids, or elevation of the legs.
2. Chronic lung disease will aggravate cardiogenic shock.
   a. The patient is often able to breathe better in a sitting or semisitting position.
3. Usually, patients with cardiogenic shock do not have any injury, but they may be having chest pain.

a. The patient may have taken nitroglycerin before EMS arrives and may want to take more.
b. Before helping the patient self-administer nitroglycerin, be sure to consult with medical control for instructions.

4. Perform an accurate assessment.
5. Patients in cardiogenic shock usually have a low blood pressure.
6. Other signs and symptoms include:
   a. Weak, irregular pulse
   b. Cyanosis about the lips and underneath the fingernails
   c. Anxiety
   d. Nausea
7. Place the patient in a position that eases breathing as you give high-flow oxygen.
   a. Assist ventilations as necessary and have suction nearby in case the patient vomits.
   b. Provide prompt transport.
   c. Approach a patient who has had a suspected heart attack with calm reassurance.

C. Treating obstructive shock

1. In cardiac tamponade
   a. Increasing cardiac output should be the priority in treating cardiac tamponade.
   b. Apply high-flow oxygen.
   c. Surgery is the only definitive treatment.
   d. Pericardiocentesis, which involves penetrating the pericardium with a needle and withdrawing the accumulated blood from the pericardial sac, is the only practical ALS prehospital approach.
      i. This procedure is rarely performed in the field.
      ii. Early recognition along with rapid transport or ALS management, if available, is the key treatment available to EMT providers.
2. In tension pneumothorax
   a. High-flow oxygen via nonrebreathing mask should be applied to prevent hypoxia.
   b. Usually the only action that can prevent eventual death from a tension pneumothorax is decompression of the injured side of the chest, relieving the pressure in the chest and allowing the heart to expand fully again.
   c. Early recognition along with rapid transport or ALS management, if available, is the key treatment available to EMT providers.

D. Treating septic shock

1. The proper treatment of septic shock requires complex hospital management, including antibiotics.
2. Use appropriate standard precautions and transport as promptly as possible.
3. Use high-flow oxygen during transport.
4. Ventilatory support may be necessary to maintain adequate tidal volume.
5. Use blankets to conserve body heat.

E. Treating neurogenic shock

1. For the spinal cord injury patient, use a combination of all known supportive measures.
   a. The patient who has sustained this kind of injury usually will require hospitalization for a long time.
2. Emergency treatment must be directed at:

a. Obtaining and maintaining a proper airway
b. Providing spinal immobilization
c. Assisting inadequate breathing as necessary
d. Conserving body heat
e. Providing the most effective circulation possible

3. Keep the patient as warm as possible with blankets.
4. Transport promptly.

F. Treating anaphylactic shock

1. Effective treatment for a severe, acute allergic reaction is to administer epinephrine via subcutaneous or intramuscular injection.
   a. A patient who is aware of having a specific sensitivity may carry a bee-sting kit containing epinephrine.
2. Promptly transport the patient.
   a. Provide supplemental oxygen and ventilatory assistance.
   b. Try to find out what agent caused the reaction and how it was received.
3. Keep in mind that a mild reaction may worsen suddenly or over time.
4. Consider requesting ALS backup, if available.

G. Treating psychogenic shock

1. In uncomplicated fainting, once the patient collapses, circulation to the brain is restored, and with it, a normal state of functioning.
2. Psychogenic shock can worsen other types of shock.
3. If the attack has caused the patient to fall, you must check for injuries, especially in older patients.
4. Assess the patient thoroughly for any other abnormality.
5. If after regaining consciousness, the patient is unable to walk normally, suspect head injury.
   a. Transport the patient promptly.
   b. Record all initial observations of vital signs and level of consciousness.

H. Treating hypovolemic shock

1. Control all obvious external bleeding.
2. Splint any bone and joint injuries.
3. Secure and maintain an airway, and provide respiratory support, including supplemental oxygen and, if needed, assisted ventilations.
   a. Be sure the patient does not aspirate blood or vomitus.
4. Transport the patient as rapidly as possible.

I. Treating respiratory insufficiency

1. Immediately secure and maintain the airway.
2. Clear the mouth and throat of anything obstructing the air passages, including mucus, vomitus, and foreign material.
3. If necessary, provide ventilations with a bag-mask device.
4. Give supplemental oxygen, and transport the patient promptly.

VIII. Summary

A. Perfusion requires an intact cardiovascular system and a functioning respiratory system.

B. Most types of shock are caused by dysfunction in the heart, blood vessels, or volume of blood.

C. Shock is the collapse and failure of the cardiovascular system, when blood circulation slows and eventually stops.

D. Blood is the vehicle for carrying oxygen and nutrients through the vessels to the capillary beds to tissue cells, where these supplies are exchanged for waste products.

E. Blood contains red blood cells, white blood cells, platelets, and a liquid called plasma.

F. The *systolic* pressure is the peak arterial pressure, or pressure generated every time the heart contracts.

G. The *diastolic* pressure is the pressure maintained within the arteries while the heart rests between heartbeats.

H. The various types of shock are cardiogenic, obstructive, septic, neurogenic, anaphylactic, psychogenic, and hypovolemic.

I. Signs of compensated shock include anxiety or agitation; tachycardia; pale, cool, moist skin; increased respiratory rate; nausea and vomiting; and increased thirst.

J. If there is any question on your part, treat for shock. It is never wrong to treat for shock.

K. Signs of decompensated shock include labored or irregular respirations, ashen gray or cyanotic skin color, weak or absent distal pulses, dilated pupils, and profound hypotension.

L. Remember, by the time a drop in blood pressure is detected, shock is usually in an advanced stage.

M. Anticipate shock in patients who may have:

1. Severe infection
2. Significant blunt force trauma or penetrating trauma
3. Massive external bleeding or index of suspicion for major internal bleeding
4. Spinal injury
5. Chest or abdominal injury
6. Major heart attack
7. Anaphylaxis

N. Treating a pediatric or geriatric patient in shock is no different than treating any other shock patient.

Post-Lecture

Unit Assessment

1. Define shock.

2. What are the three basic causes of shock?

3. Fainting is what type of shock?

4. Severe thermal burns cause what type of shock?

5. A decrease in blood pressure is an early sign of shock. True or false?

6. Infants and children may lose half of their blood volume before having a blood pressure drop. True or false?

7. What are three signs and symptoms of decompensated shock?

8. What conditions should make you suspect shock?

9. What are the general considerations for treating a patient in shock?

10. Why should you be cautious in giving nitroglycerin to a patient in cardiogenic shock?

Knowledge Objectives

Knowledge Objectives