

Lesson 5-2

Bleeding and Soft Tissue Injuries

Objectives

Objectives Legend

C=Cognitive P=Psychomotor A=Affective

1 = Knowledge level

2 = Application level

3 = Problem-solving level

Cognitive Objectives

At the completion of this lesson, the CFR student will be able to:

- 5-2.1 Differentiate between arterial, venous, and capillary bleeding. (C-3)
- 5-2.2 State the emergency medical care for external bleeding. (C-1)
- 5-2.3 Establish the relationship between body substance isolation and bleeding. (C-3)
- 5-2.4 List the signs of internal bleeding. (C-1)
- 5-2.5 List the steps in the emergency medical care of the patient with signs and symptoms of internal bleeding. (C-1)
- 5-2.6 Establish the relationship between body substance isolation (BSI) and soft tissue injuries. (C-3)
- 5-2.7 State the types of open soft tissue injuries. (C-1)
- 5-2.8 Describe the emergency medical care of the patient with a soft tissue injury. (C-1)
- 5-2.9 Discuss the emergency medical care considerations for a patient with a penetrating chest injury. (C-1)
- 5-2.10 State the emergency medical care considerations for a patient with an open wound to the abdomen. (C-1)
- 5-2.11 Describe the emergency medical care for an impaled object. (C-1)
- 5-2.12 State the emergency medical care for an amputation. (C-1)
- 5-2.13 Describe the emergency medical care for burns. (C-1)
- 5-2.14 List the functions of dressing and bandaging. (C-1)

Affective Objectives

At the completion of this lesson, the CFR student will be able to:

- 5-2.15 Explain the rationale for body substance isolation when dealing with bleeding and soft tissue injuries. (A-3)
- 5-2.16 Attend to the feelings of the patient with a soft tissue injury or bleeding. (A-3)
- 5-2.17 Demonstrate a caring attitude towards patients with a soft tissue injury or bleeding who request emergency medical services. (A-3)
- 5-2.18 Place the interests of the patient with a soft tissue injury or bleeding as the foremost consideration when making any and all patient care decisions. (A-3)
- 5-2.19 Communicate with empathy to patients with a soft tissue injury or bleeding, as well as with family members and friends of the patient. (A-3)

New York State Certified First Responder Curriculum

Adapted from the United States Department of Transportation
First Responder: National Standard Curriculum

Psychomotor Objectives

At the completion of this lesson, the CFR student will be able to:

- 5-2.20 Demonstrate direct pressure as a method of emergency medical care for external bleeding. (P-1, 2)
- 5-2.21 Demonstrate the use of diffuse pressure as a method of emergency medical care for external bleeding. (P-1, 2)
- 5-2.22 Demonstrate the use of pressure points as a method of emergency medical care for external bleeding. (P-1, 2)
- 5-2.23 Demonstrate the care of the patient exhibiting signs and symptoms of internal bleeding. (P-1, 2)
- 5-2.24 Demonstrate the steps in the emergency medical care of open soft tissue injuries. (P-1, 2)
- 5-2.25 Demonstrate the steps in the emergency medical care of a patient with an open chest wound. (P-1, 2)
- 5-2.26 Demonstrate the steps in the emergency medical care of a patient with open abdominal wounds. (P-1, 2)
- 5-2.27 Demonstrate the steps in the emergency medical care of a patient with an impaled object. (P-1, 2)
- 5-2.28 Demonstrate the steps in the emergency medical care of a patient with an amputation. (P-1, 2)
- 5-2.29 Demonstrate the steps in the emergency medical care of an amputated part. (P-1, 2)
- 5-2.30 Demonstrate the emergency medical care of burns. (P-1, 2)

Preparation

Motivation:

Trauma is the leading cause of death in the United States in persons between the ages of 1 and 44. Traumatic injuries and bleeding are some of the most dramatic situations that the CFR will encounter. The early control of major bleeding has great life saving potential.

Soft tissue injuries are common and dramatic, but rarely life threatening. Soft tissue injuries range from abrasions to serious full thickness burns. It is necessary for the CFR to become familiar with the emergency medical care of soft tissue injuries with emphasis on controlling bleeding, preventing further injury, and reducing contamination.

Prerequisites:

Preparatory, Airway, Patient Assessment, and Circulation Module

Materials

AV Equipment:

Utilize various audio-visual materials relating to emergency medical care. The continuous development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of the curriculum are met.

EMS Equipment:

Personal protective equipment, sterile dressings, triangular bandages, universal dressings, occlusive dressings, 4 x 4 gauze pads, self adherent bandages, roller bandages.

Personnel

Primary Instructor:

One EMT-B Instructor, knowledgeable in bleeding and soft tissue injuries.

Assistant Instructor:

The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable about bleeding and soft tissues injuries.

Recommended Minimum Time to Complete:

One and a half hours

Presentation

Declarative (What)

1. Bleeding
 - A. General considerations
 1. The CFR must be aware of the risk of infectious disease from contact with blood or body fluids.
 2. The severity of blood loss must be based on the patient's signs and symptoms and the general impression of the amount of blood loss.
 3. The body's normal response to bleeding is blood vessel contractions and clotting.
 4. A serious injury may prevent effective clotting from occurring.
 5. Uncontrolled bleeding or significant blood loss leads to shock and possibly death.
 6. Bleeding may be external or internal.
 7. Internal and external bleeding can result in severe blood loss with resultant shock and subsequent death.
 - B. Types of external bleeding
 1. Arterial
 - a. The blood spurts from the wound.
 - b. Bright, red, oxygen rich blood.
 - c. Arterial bleeding is the most difficult to control because of the pressure at which arteries bleed.
 - d. As the patient's blood pressure drops, the amount of spurting may also drop.
 2. Venous
 - a. The blood flows as a steady stream.
 - b. Dark, oxygen poor blood.
 - c. Bleeding from a vein can be profuse; however, in most cases it is easier to control due to the lower venous pressure.
 3. Capillary
 - a. The blood oozes from a capillary and is dark red in color.
 - b. The bleeding often clots spontaneously.
 4. Role of the CFR
 - a. Complete the CFR assessment
 - (1) Complete a scene size-up before initiating emergency medical care.
 - (2) Complete an initial assessment on all patients.
 - (3) Apply oxygen if needed.
 - (3) Complete a physical exam as needed.
 - (4) Complete on-going assessments.
 - b. Comfort, calm, and reassure the patient while awaiting additional EMS resources
 - (1) The CFR must be aware of the implications of not using body substance isolation precautions.
 - (2) Body substance isolation

- (3) Maintain airway/artificial ventilation.
 - (4) Bleeding control
 - (a) Apply finger tip pressure (use flat part of fingers) directly on the point of bleeding.
 - (b) If no injury to the muscle or bone exists, elevation of a bleeding extremity may be used secondary to and in conjunction with direct pressure.
 - (c) Large gaping wounds may require sterile gauze and direct hand pressure if finger tip pressure fails to control bleeding.
 - (d) If bleeding does not stop, remove dressing and assess for bleeding point to apply direct pressure. If more than one site of bleeding is discovered, apply additional pressure.
 - (e) Pressure points may be used in upper and lower extremities.
- C. Internal bleeding
- 1. Injured or damaged internal organs commonly lead to extensive bleeding that is concealed.
 - 2. Painful, swollen, deformed extremities may also lead to serious internal blood loss.
 - 3. Signs and symptoms
 - a. Discolored, tender swollen or hard tissue
 - b. Increased respiratory and pulse rates
 - c. Pale, cool skin
 - d. Nausea and vomiting
 - e. Thirst
 - f. Mental status changes
 - 4. Role of the CFR
 - a. Complete the CFR assessment
 - (1) Complete a scene size-up before initiating emergency medical care.
 - (2) Complete an initial assessment on all patients.
 - (3) Apply oxygen if not already done.
 - (4) Complete a physical exam as needed.
 - (5) Complete on-going assessments.
 - b. Comfort, calm, and reassure the patient while awaiting additional EMS resources.
 - (1) Body substance isolation.
 - (2) Apply oxygen if needed.
 - (3) Maintain airway/artificial ventilation.
 - (4) Manage any external bleeding.
 - (5) Reassure the patient.
 - (6) Keep the patient calm and in position of comfort.
 - (7) Keep the patient warm.
 - (8) Treat for shock.

- D. Shock (hypoperfusion)
 - 1. Condition resulting from the inadequate delivery of oxygenated blood to body tissues.
 - 2. Can be a result of
 - a.. Failure of the heart to provide oxygenated blood
 - b. Abnormal dilation of the vessels
 - c. Blood volume loss
 - 3. Signs and symptoms
 - a. Extreme thirst
 - b. Restlessness, anxiety
 - c. Rapid, weak pulse
 - d. Rapid, shallow respirations
 - e. Mental status changes
 - f. Pale, cool, moist skin
 - 4. Role of the CFR
 - a. Complete the CFR assessment
 - (1) Complete a scene size-up before initiating emergency medical care.
 - (2) Complete an initial assessment on all patients.
 - (3) Apply oxygen if not already done.
 - (4) Elevate the patients legs.
 - (5) Complete a physical exam as needed.
 - (6) Complete on-going assessments.
 - b. Comfort, calm, and reassure the patient while awaiting additional EMS resources.
 - (1) Maintain airway/ventilation.
 - (2) Prevent further blood loss.
 - (3) Keep patient calm, in position of comfort.
 - (4) Keep patient warm - attempt to maintain normal body temperature.
 - (5) Do not give food or drink.
 - (6) Provide care for specific injuries.

I. Specific Injuries

A. Types

- 1. Abrasion
 - a. Outermost layer of skin is damaged by shearing forces.
 - b. Painful injury, even though superficial.
 - c. No or very little oozing of blood.
- 2. Laceration
 - a. Break in skin of varying depth
 - b. May occur in isolation or together with other types of soft tissue injury.
 - c. Caused by forceful impact with sharp object.
 - d. Bleeding may be severe.
- 3. Penetration/puncture
 - a. Caused by sharp pointed object

- b. May be little or no external bleeding
 - c. Internal bleeding may be severe.
 - d. Exit wound may be present.
 - e. Examples:
 - (1) Gun shot wound
 - (2) Stab wound
- B. Role of the CFR
- 1. Complete the CFR assessment
 - a. Complete a scene size-up before initiating emergency medical care.
 - b. Complete an initial assessment on all patients.
 - c. Apply oxygen if not already done.
 - d. Complete a physical exam as needed.
 - e. Complete on-going assessments.
 - 2. Comfort, calm, and reassure the patient while awaiting additional EMS resources.
 - a. Relationship to body substance isolation
 - (1) Gloves
 - (2) Gown
 - (3) Eye protection
 - (4) Hand washing
 - b. Maintain proper airway/artificial ventilation
 - c. Management of open soft tissue injuries.
 - (1) Expose the wound.
 - (2) Control the bleeding.
 - (3) Prevent further contamination.
 - (4) Apply sterile dressing to the wound and bandage securely in place.
- C. Special considerations
- 1. Chest injuries -
 - a. An occlusive dressing should be applied to open wounds and sealed on three sides.
 - b. Position of comfort if no spinal injury suspected
 - 2. Impaled objects
 - a. Do not remove the impaled object unless it is through the cheek or it would interfere with airway management or chest compressions.
 - b. Manually secure the object.
 - c. Expose the wound area.
 - d. Control bleeding.
 - e. Utilize a bulky dressing to help stabilize the object.
 - 3. Eviscerations
 - a. Open injury with protruding organs
 - b. Do not attempt to replace protruding organs.
 - c. Cover with thick moist dressing.
 - 4. Amputations
 - a. Involves the extremities and other body parts

- b. Massive bleeding may be present or bleeding may be limited.
 - c. Locate and preserve the amputated part.
 - (1) Place the part in a plastic bag.
 - (2) Place the plastic bag containing the part in a larger bag or container with ice and water.
 - (a) Do not use ice alone.
 - (b) Do not use dry ice.
- D. Burns
- 1. Classification
 - a. According to depth
 - b. Superficial involves only the outer layer of the skin
 - (1) Reddening of the skin
 - (2) Swelling
 - c. Partial thickness involves the outer and middle layer of the skin
 - (1) Deep intense pain
 - (2) Reddening, blisters
 - d. Full thickness extends through all layers of the skin
 - (1) Characteristics of partial thickness
 - (2) Areas of charred skin
 - 2. Role of the CFR
 - a. Complete the CFR assessment
 - (1) Complete a scene size-up before initiating emergency medical care.
 - (2) Complete an initial assessment on all patients.
 - (3) Apply oxygen if not already done.
 - (4) Complete a physical exam as needed.
 - (5) Complete on-going assessments.
 - b. Comfort, calm, and reassure the patient while awaiting additional EMS resources.
 - (1) Stop the burning process initially with water or saline.
 - (2) Remove smoldering clothing and jewelry.
 - (a) Be aware that some clothing may have melted to the skin.
 - (b) If resistance is met when removing the clothing, it should be left in place.
 - (3) Body substance isolation
 - (4) Continually monitor the airway for evidence of closure.
 - (5) Prevent further contamination.
 - (6) Cover the burned area with a dry sterile dressing.
 - (7) Do not use any type of ointment, lotion, or antiseptic.
 - (8) Do not break blisters.
 - 3. Special Considerations
 - a. Chemical burns
 - (1) Scene safety
 - (2) Gloves and eye protection

- (3) Brush off dry powder.
 - (4) Flush with copious amounts of water.
 - (5) Consider eye burns if splash injury.
 - b. Electrical burns
 - (1) Scene safety
 - (2) Often more severe than external indications
 - (3) Monitor the patient closely for respiratory or cardiac arrest.
 - c. Infant and child considerations
 - (1) Greater surface area in relation to the total body size
 - (2) Results in greater fluid and heat loss.
 - (3) May need to keep environment warm when possible.
 - (4) Consider possibility of child abuse.
- II. Dressing and Bandaging
- A. Function
 1. Stop bleeding.
 2. Protect the wound from further damage.
 3. Prevent further contamination and infection.
 - B. Dressings
 1. Universal dressing
 2. 4 X 4 inch gauze pads
 3. Adhesive-type
 4. Occlusive
 - C. Bandages
 1. Holds dressing in place
 2. Types
 - a. Self-adherent bandages
 - b. Gauze rolls
 - c. Triangular bandages
 - d. Adhesive tape

Application

Procedural (How)

1. Review the methods of controlling external bleeding with an emphasis on body substance isolation.
2. Demonstrate the procedure for treating an open soft tissue injury.
3. Demonstrate the necessary body substance isolation when dealing with soft tissue injuries.
4. Demonstrate the proper method for applying an occlusive dressing.
5. Demonstrate the proper method for stabilizing an impaled object.
6. Show a diagram illustrating a superficial, partial thickness, and full thickness burn.
7. Demonstrate the proper emergency medical care for a superficial, partial thickness, and full thickness burn.

New York State Certified First Responder Curriculum

Adapted from the United States Department of Transportation
First Responder: National Standard Curriculum

8. Show the various types of dressings and bandages.
9. Demonstrate the proper method for applying a universal dressing, a 4 X 4 inch dressing, and an adhesive type dressing.
10. Demonstrate the proper method for applying bandages: self-adherent, gauze rolls, triangular, and adhesive tape.
11. Demonstrate the proper method for applying a pressure dressing.

Contextual (When, Where, Why)

External bleeding is assessed during the initial patient assessment after securing the scene and ensuring personal safety. After airway and breathing control of arterial or venous bleeding will be done upon immediate identification.

Soft tissue injuries, unless life threatening, will be treated after the initial assessment. Failure to treat soft tissue injuries could lead to severe bleeding, further damage to the injury, or further contamination.

Student Activities

Auditory (Hearing)

1. Students should hear simulations to identify signs and symptoms of external bleeding.
2. The student should hear simulated situations in which the signs and symptoms of soft tissue injuries and procedures for treating soft tissue injuries are demonstrated.
3. The student should hear the sounds made by open sucking chest wounds.

Visual (Seeing)

1. The students should see audio-visual materials of the various types of external bleeding.
2. The student should see audio-visual materials of the proper methods to control bleeding.
3. The student should see a patient to identify major bleeding.
4. The students should see, in simulated situations, the application of direct pressure, elevation, and pressure points in the emergency medical care of external bleeding.
5. Show diagrams of the various types of soft tissue injuries.
6. The student should see demonstrations of the treatment of an open soft tissue injury.
7. The student should see demonstrations of necessary body substance isolation when dealing with soft tissue injuries.
8. The student should see demonstrations of the proper method for applying an occlusive dressing.
9. The student should see demonstrations of the proper method for stabilizing an impaled object.
10. The student should see diagrams illustrating a superficial, partial thickness, and full thickness burn.

11. The student should see demonstrations of the proper emergency medical care for superficial, partial thickness, and full thickness burns.
12. The student should see the various types of dressing and bandages.
13. The student should see demonstrations of the proper methods for applying a universal dressing, a 4 X 4 inch dressing, and an adhesive type dressing.
14. The student should see demonstrations of the proper method for applying bandages: self-adherent, gauze rolls, triangular, and adhesive tape.
15. The student should see demonstrations of the proper method for applying a pressure dressing.

Kinesthetic (Doing)

1. The student should practice the steps in the emergency medical care of open soft tissue injuries.
2. The student should practice the steps in the emergency medical care of a patient with an open chest wound.
3. The student should practice the steps in the emergency medical care of a patient with an open abdominal wound.
4. The student should practice the steps in the emergency medical care of a patient with an impaled object.
5. The student should practice the steps in the emergency medical care of a patient with superficial burns.
6. The student should practice the steps in the emergency medical care of a patient with partial thickness burns.
7. The student should practice the steps in the emergency medical care of a patient with full thickness burns.
8. The student should practice the steps in the emergency medical care of a patient with an amputation.
9. The student should practice the steps in the emergency medical care of the amputated part.
10. The student should practice the steps in the emergency medical care of a patient with a chemical burn.
11. The student should practice the steps in the emergency medical care of a patient with an electrical burn.

Instructor Activities

Facilitate discussion and supervise practice.

Reinforce student progress in cognitive, affective, and psychomotor domains.

Redirect students having difficulty with content. (Complete remediation form.)

Evaluation

Written:

Develop evaluation instruments, e.g., quizzes, oral reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

New York State Certified First Responder Curriculum

Adapted from the United States Department of Transportation

First Responder: National Standard Curriculum

Practical:

Evaluate the actions of the CFR students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Remediation

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

Enrichment

What is unique in the local area concerning this topic? Complete enrichment sheets from instructor's course guide and attach with lesson plan.