Chapter 27 Chest Injuries

Chest Injuries

- Each year in the United States, ____________ trauma causes more than:
  - 700,000 emergency department visits
  - 18,000 deaths
- Chest injuries can involve the ____________ , lungs, and great blood vessels.

Anatomy of the Thorax (1 of 3)

- The chest ____________ extends from the lower end of the neck to the diaphragm.
- The neurovascular bundle lies closely along the ____________ margin of each rib.
- The ____________ covers each lung and the thoracic cavity.
  - Surfactant allows the lungs to move freely against the inner chest wall during respiration.

Anatomy of the Thorax (2 of 3)

- Vital organs, such as the ____________, are protected by the ribs.
  - Connected in the back to the ____________
  - Connected in the front to the ____________

Anatomy of the Thorax (3 of 3)

- The ____________ contains the heart, great vessels, esophagus, and trachea.
  - A thoracic ____________ aneurysm can develop in this area of the chest.
- The ____________ is a muscle that separates the thoracic cavity from the abdominal cavity.

Organs of the Chest

Structures of the Chest

Review of Mechanics of Ventilation (1 of 2)

- ____________
  - Intercostal muscles ____________ and diaphragm flattens.

Review of Mechanics of Ventilation (2 of 2)

- ____________ nerves exit the spinal cord at C3, C4, and C5.
  - Spinal cord injury below C5
    - Loss of ability to move ____________ muscles
    - Diaphragm can still contract; patient can still breathe.
  - Spinal cord injury at C3 or higher
    - No ability to ____________
Injuries to the Chest

Closed Chest Injuries
- Caused by _______________________ trauma

Open Chest Injuries
- Caused by _______________________ trauma

Closed Chest Injuries
- Can cause significant _______________________ and pulmonary contusion
- If the heart is damaged, it may not be able to refill with or receive ________________.
- Lung tissue _______________________ can result in exponential loss of surface area.
- Rib fractures may cause further damage.

Open Chest Injuries
- In an open chest injury, an object _______________________ the chest wall itself.
- Knife, bullet, piece of metal, or broken end of fractured rib
- Do not attempt to move or _______________________ object.

Signs and Symptoms of Chest Injuries
- Pain at the site of injury
- Pain aggravated by increased _______________________ 
- Dyspnea
- _______________________

Assessment of Chest Injuries
- ________________________ -BTLS
- Chest wall movement
- ________________ movement
- Hemoptysis
- Shock
- _______________________

Pneumothorax
- Collapsed _______________________
- Air accumulates in the _______________________ space.
- Air enters through a hole in the chest wall.
  - The lung may collapse in a few seconds or a few minutes.
- An open or penetrating wound to the chest is called a _______________________ chest wound.

Open Pneumothorax(Sucking Chest Wound)

Care for Open Pneumothorax
- Clear and manage the _______________________.
• Provide oxygen.
• ________________ an open wound with an occlusive dressing.
• Depending on local protocol, tape down all ________________ sides or create a flutter valve.

20 **Spontaneous Pneumothorax**
• Some people are born with or develop ________________ areas on the surface of the lungs.
• Occasionally, the area will ________________ spontaneously, allowing air into the pleural space.
• Patient experiences sudden chest pain and trouble breathing.
• Consider a spontaneous pneumothorax for a patient with chest pain without ________________ .

21 **Tension Pneumothorax**
• Results from trauma to chest causing a “______________ valve” on lung wall
• Can occur from sealing all four sides of the dressing on a sucking chest wound.
• Can also occur from a fractured rib puncturing the lung or ________________ .
• Can also result from a ________________ pneumothorax.

22 **Tension Pneumothorax**
23 **Signs and Symptoms of Tension Pneumothorax**
• Respiratory distress, ________________
• ________________ neck veins
• Trachea deviation away from injured side
• Tachycardia
• Low blood glucose level
• Decreased ________________ sounds
• ________________ sound when chest tapped

24 **Care for Tension Pneumothorax**
• If a tension pneumothorax develops from sealing an open chest wound, partly ________________ the dressing to let the air escape.
• Provide oxygen, assist ventilations as needed, request ________________ , and/or transport.

25 **Hemothorax**
• Collection of ________________ in the pleural space
• Suspect if the following are seen:
  • Signs and symptoms of ________________
  • Decreased ________________ sounds on affected side
• If both air and blood are present in the pleural space, it is a hemopneumothorax.

26 **Hemothorax and Hemopneumothorax**
27 **S/S of Hemothorax**
• Early S/S of _______________________ shock
• Decreased lung sounds on injured side
• _______________________ neck veins
• “_______________________” sound when chest tapped
• Hemopneumothorax will sound “Full” on lower lungs and “Hollow” on upper lungs

28 □ Cardiac Tamponade
• Blood or other fluids collect in the _______________________ .
• Protective membrane (pericardium) around the heart fills with _______________________ or fluid
• The heart cannot adequately _______________________ the blood.

29 □ Cardiac Tamponade

30 □ S/S of Cardiac Tamponade
• Very soft and _______________________ heart tones
• _______________________ pulse
• Low blood pressure
• Decrease in difference between systolic and diastolic blood pressure
• Jugular vein _______________________ (JVD)
• Provide oxygen and transport quickly.

31 □ Rib Fractures
• They are very common in the ________________________ .
• A fractured rib may lacerate the surface of the lung.
• Patients will avoid taking deep breaths and breathing will be rapid and shallow.
• The patient often holds the _______________________ side to minimize discomfort.
• Administer oxygen.
• Sling and _______________________ arm on injured side

32 □ Flail Chest (1 of 4)
• _______________________ or more ribs fractured in _______________________ or more places
• Or when the sternum is fractured along with several ribs.
• A segment of the chest wall may be detached from the rest of the thoracic cage.
• Creates _______________________ movement.

33 □ Flail Chest (2 of 4)

34 □ Flail Chest (3 of 4)
• Breathing is extremely painful and patient rarely receives adequate oxygenation.
• Care includes:
  • -Maintaining the ________________________ .
  • -Providing _______________________ support.
  • -Performing ongoing assessment.
• Immobilizing flail segment with _______________ or pillow but do not tape around chest

35 □ Flail Chest (4 of 4)

36 □ Pulmonary Contusions
• Bruising of the _______________________
• Develops over _______________________
• ______________________ fill with blood, and edema accumulates in the lung, causing hypoxia.
• Provide oxygen and ventilatory support.

37 □ Traumatic Asphyxia
• Sudden, severe ______________________ of chest
• Produces rapid ______________________ in pressure within chest
• Results in neck vein distention, cyanosis, and bleeding into the eyes. Head and shoulders turn ______________________ . Tongue swells.
• Provide supplemental oxygen and monitor vital signs.
• Transport immediately.

38 □ Traumatic Asphyxia

39 □ Blunt Myocardial Injury
• Bruising of ______________________ muscle
• Pulse is often ______________________.
• There is no ______________________ treatment for this condition.
• Check patient’s pulse and note irregularities.
• Provide supplemental oxygen and transport immediately.

40 □ Laceration of the Great Vessels
• The superior vena cava, inferior vena cava, pulmonary ______________________ and veins, and aorta are contained in the chest.
• Injury to these vessels can cause ______________________ hemorrhaging.
• Treatment includes:
  • -CPR if needed
  • -Ventilatory support
  • -Supplemental ______________________
  • -Transport immediately.

41 □ General Treatment Procedure for All Chest Injuries
• ABC’s
  • ______________________
• Be aggressive to assist ventilations
• Expose Chest
• Cover all open wounds with ______________________ dressing
• ASSESS ______________________ SOUNDSS!!!!!!