

NURSING 202 – ADVANCED CONCEPTS OF NURSING
CHEST TRAUMA

- Chest Trauma Overview
 - 75% of all traumatic deaths
 - MOI: Blunt or penetrating trauma
 - Blunt: chest strikes or is struck by an object
 - External injury may appear minor, but have internal injuries
 - MVA, fall, assault, crush, explosion
 - Penetrating: open injury in which a FB impales or passes through the body tissue
 - Knife, GSW, stick, missile
- Pneumothorax
 - Caused by air entering the pleural cavity
 - Normally, negative pressure allows the lungs to fill with chest wall expansion
 - When air enters pleural space → positive pressure → lung volume decreases/ lung collapse
 - Open Pneumo= air entering through an opening in the chest wall
 - Closed Pneumo= no external wounds
 - S/Sx: tachycardia, dyspnea, respiratory distress, oxygen desaturation, no BS on auscultation over affected area
 - Treatment: depending on severity → No treatment, Chest Tube insertion, Thoracentesis
- Spontaneous Pneumo
 - Rupture of small blebs located at apex of lung
 - Blebs can occur in young, healthy individuals or those with lung disease
 - Increased risk for bleb formation with Smokers
 - Risk Factors: tall, thin, male, family hx, previous pneumo
- Traumatic Pneumo
 - Penetrating (open) or nonpenetrating (closed)
 - Penetrating may be referred to as “Sucking Chest Wound”
 - Air entering pleural space through the chest wall during inspiration
 - Tx: cover the wound with an occlusive dressing secured on 3 sides
 - Inspiration- a negative pressure is created → dressing pulls against wound → prevents air from entering
 - Expiration- dressing is pushed out and air escapes
 - DO NOT REMOVE PENETRATING OBJECT → stabilize with bulky dressing
- Tension Pneumo
 - Air enters pleural space but cannot escape → compression on lungs and heart → mediastinum shift → compresses good lung → pressure increases and decreases venous return → decrease CO
 - Medical Emergency (resp and CV compromise)
 - S/Sx: dyspnea, tachycardia, tracheal deviation, decreased or absent breath sounds, JVD, cyanosis, diaphoresis → not treated = severe hypoxemia/ decreased CO → death

- Treatment: Needle decompression → chest tube insertion, treat obstruction (I.e. chest tube clamped, open chest wound causing flap, sucking chest wound dressing taped on four sides)
 - 2nd ICS (above 3rd rib) Midclavicular
 - 14 gauge ~2-3 inches long
- Hemothorax
 - Accumulation of blood in the pleural space
 - With pneumo = hemopneumothorax
 - Treatment: chest tube to evacuate blood collection
 - Consider autotransfusion
- Rib Fractures
 - Ribs 1-3 take significant force to break
 - Ribs 5-9 are most common
 - R/F underlying organ injury
 - Heart, lung, liver, spleen
 - R/F pneumo
 - S/Sx: pain with inspiration at site of injury, shallow breaths (to decrease pain) → atelectasis and PNA common r/t decreased ventilation and retained secretions
 - Tx: Decrease pain, C&DB exercises, IS, NSAIDS, opioids, nerve blocks
- Flail Chest
 - Fx of several consecutive ribs in two or more separate places causing an unstable segment OR Fx of sternum and several consecutive ribs
 - S/Sx: Paradoxical movement during breathing, increased WOB, tachycardia, “Flail” segment moves in opposite direction of chest
 - Inspiration → sucked in
 - Expiration → bulges out
 - Dx: CXR
 - Tx: Airway management (possible intubation required), pain control, surgical fixation may be required, fx’s heal with time
- Aortic Tear
 - Hemodynamically unstable
 - From blunt or penetrating trauma
 - Often fatal
 - Sx: Hypotensive, Chest Pain, unequal extremity pulse
 - Tx: Mass Transfusion Protocol (MTP), Permissive Hypotension, surgery
- Myocardial Contusion
 - Cause: Blunt Injury
 - EKG Abnormality, chest wall ecchymosis, chest pain
 - Tx: Monitoring, treat dysrhythmia
- Pulmonary Contusion
 - Develops over time
 - Damages lung parenchyma → leakage of blood and fluid in the interstitial and intra-avelolar spaces
 - Edema/ inflammatory response
 - Sx: CP, cough, hypoxia, dyspnea
 - Tx: Pain medications, intubation prn, cautious with fluid overload

- Tracheobronchial Injury
 - Penetrating or “Clothesline” type injury
 - Sx: hoarseness, subcutaneous emphysema, hemoptysis
 - Tx: Intubate
- Blunt Esophageal Injury
 - MOI: Blunt (i.e. steering wheel)
 - Sx: air in mediastinum with widening on CXR, pneumo/hemothorax
 - Tx: Surgery
- Ruptured Diaphragm
 - Abdominal contents in chest
 - Sx: SOB, BS in chest
 - Tx: Surgical
- Subcutaneous Emphysema
 - Air enters the tissues and travels under the skin, usually in the neck and chest
 - Sx: tissue paper or rice krispy noise palpated on chest/neck, swelling, consider airway compromise
 - Tx: resolves spontaneously, is airway compromised → consider intubation
- Chest Tubes
(Review Independently)
 - Inserted to drain the pleural space and reestablish negative pressure
 - Traditional drainage container systems or smaller Pigtales for uncomplicated pneumo
 - Notify MD:
 - Initial output >500 ml
 - >200ml output/ 2 hours
 - NEVER CLAMP!
 - FOCA
 - Fluctuation, Output, Color, Air leak (bubbles? → Ok initially)
 - DOPE
 - Dislodgement, Obstruction, Pneumo, Equipment