



Emergency Medical Training Services

Emergency Medical Technician – Basic Program Outlines

Outline Topic: CHEST INJURIES

Revised: 11/2013

DEFINITIONS

- Ventilation - component of respiration.
- Respiration - entire physiologic process in which O₂ exchanged through the alveolar/capillary membrane.
- Ventilator Rate - the number of inhalation and exhalation (breathing) per minute.
- Respiratory Rate - the amount of exchange within the body. Cellular level.
- Paradoxical motion - indicates a flailed chest and the broken part moves in the opposite movement of the ventilation effort.

PNEUMOTHORAX AND HEMOTHORAX

- Air or blood or both in the plural space.
- First sign and symptom is dyspnea. Followed by decreased breath sounds, unequal chest rise.
- If pneumothorax BP will stay the same or go up and JVD.
- If hemothorax BP stays the same or goes down and no JVD.
- Paramedic care place needle decompression (dart the chest) to let air out of plural space. 2nd/3rd mid clavicle and/or 5th/6th midaxially.
- EMT care ABC's and transport.

CARDIAC TAMPONADE

- A bleeding heart that collects in the sac around the heart - pericardial sac.
- Think of a Cardiac Tamponade just like a collapsed lung and plural space.
- BECK'S TRIAD are signs and symptoms for Cardiac Tamponade. Muffled heart tones (because of blood in the sac around heart), JVD (the heart cannot pump because of the pressure to blood backs up in vessels), narrowing pulse pressure.
- Doctor will stick a long needle into chest and place in pericardial sac and drain the blood.
- EMS care ABC's and transport.

FLAILED CHEST

- 2 or more consecutive ribs broken in 2 or more places. Makes an island.
- Cause paradoxical motion.
- EMS care is to try to limit external motion of flailed segment. Hold a pillow, trauma dressing around chest.
- NO SAND BAGS.

RIB FRACTURES

- Can kill you.
- Can cause internal bleeding.

- Can cause air/blood in plural space.
- Can cause you to not inflate your lungs fully and pneumonia can develop.
- ATELECTASIS is when alveoli are not inflated and collapse decreasing the surface area.
- EMS care is ABC's.

TENSION PNEUMOTHORAX

- This is nothing new to you. This is a pneumothorax that gets bigger and gets worse. Just like hyperglycemia can turn into DKA. Same thing just worse.
- Most tension pneumothorax's are caused by medical people. When an EMT gets to the scene the patient has shallow breathing and slow. The EMT uses a BVM to increase volume and rate causing more air into plural space faster. Dead is dead, you have to breath for them in this case.
- Signs and symptoms of tension pneumothorax - since this is worse more air has collected causing no chest rise on the affected side. No breath sounds on affected side. Tracheal deviation to unaffected side (late. late sign).
- Paramedic darts the chest or chest tube placement to fix the leak and get air out of plural space.

OPEN CHEST WOUND CARE

- Known as sucking chest wound.
- Air can enter the plural space. Collapsing lungs.

- Transport on left side if possible.
- Think of the hole like your mouth. When you breathe in, air will enter the hole. When you exhale the air will exit the hole.
- Use an occlusive dressing to cover the hole. If breathing gets worse unseal the occlusive when they exhale and seal before they inhale to let air out.
- Dressing types. Tape occlusive dressing on three sides to form a FLUTTER VALVE. By taping only three sides when the patient exhales air goes out and when they inhale the occlusive will seal. Just like the flap on a non-rebreather mask.
- Dressing types – Tape occlusive dressing on all four sides. If needed open when they exhale and close when they inhale.
- On an exam if you have to pick chose three sides (flutter) versus four sides if the choice is not both are correct.

TRAUMATIC ASPHYXIA

- A mechanism that holds or pushes the chest wall inward.
- Examples. A cave-in and the patient is in dirt up to the chest. The pressure pushes blood to head and squashes the body. The Addison Airport when the mechanic went under the airplane and the wheels collapsed and the plane smashed his body that was under the plane and his head was out and popped.

- Signs - blue face, bulging blue tongue, blood from eyes, ears, nose. Throat triples in size. Dead if not already dead. This all depends on the force on the body. If the person is still talking what do you think will happen when the item squeezing them is removed?
- Care ABC's, PASG to keep pressure up. Load and go.