



Current Issues in Chest Trauma Management

1. Kinematics of chest trauma

- a. 90% of injuries can be predicted accurately if kinematics are evaluated
- b. diaphragmatic tear
- c. tracheal fracture

2. Fick Principle

- a. aiming for FiO₂ of 85%
- b. must be able to get oxygen in, and down to the alveoli
- c. oxygen and carbon dioxide must be able to diffuse across the alveolar/capillary membrane
- d. must have enough blood volume and an intact container to move the gases around
- e. must be able to off-load at the tissues
- f. any insult in the above WILL cause the patient to go into SHOCK

3. Management of rib fractures or flail segment

- a. splinting and bulky dressings are no longer required
- b. emphasis on pain management and positive pressure ventilation if needed
- c. respiratory rates less than 10 and greater than 30 need assisted ventilations
- d. minute volume is more important than tidal volume

4. Management of tension pneumothorax

- a. needle decompress only when signs of shock/hemodynamic compromise are evident
 - i. diminished or absent lung sounds
 - ii. marked difficulty breathing
 - iii. loss of distal pulses/cool, pale and diaphoretic skin signs/BP < 90
- b. flutter valve no longer required
- c. penetrating trauma to the head, neck and torso does not need to be fully immobilized unless a neurological deficit is present on scene

5. Commotio cordis

- a. sudden interruption of cardiac cycle resulting in ventricular fibrillation
- b. from direct blow to the chest (kick, punch, baseball, etc.)
- c. most common in young, healthy athletes
- d. treatment is defibrillation within 3 minutes
- e. PAD and coach/teacher defibrillators key to survivability