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- **Trauma**
- Epidemiology

- Trauma remains the most common cause of death for all individuals between the ages of 1 and 44 years.
- The third most common cause of death regardless of age.
- **Initial Assessment**
- Must quickly identify & treat immediately life threatening injuries.
- The initial treatment of seriously injured patients consists of
 - Primary survey
 - Resuscitation
 - Secondary survey
 - Diagnostic evaluation
 - Definitive care

- ATLS

Advanced Trauma Life Support (ATLS) course of the American College of Surgeons Committee on Trauma is directed at primary care physicians in rural communities.

- Primary Survey

A , B ,C ,D ,E

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1- Airway + C-collar

If the patient conscious and normal voice , no further evaluation of the airway.

- ASSUME there is cervical spine fracture till proved otherwise.
- HARD NECK COLLAR ALONE IS NOT SUFFICIENT Adhesive Tape.
- Sand bags at sides of the head.
- OR a person holding the head.

- The most common cause of intubation is **altered mental status**.
- Signs and symptoms of airway compromise
 - High index of suspicion
 - Change in voice / sore throat
 - Noisy breathing (snoring and stridor)
 - Dyspnea and agitation.

- Tachypnea
- Airway Management

Supplemental oxygen

Basic techniques

Basic adjuncts

Definitive airway

- Airway Management
- Basic techniques
(reopen airway & help restore satisfactory oxygenation and breathing)

chin-lift

jaw-thrust

suction

- Airway Management
Basic adjuncts

Oropharyngeal airway

Patients who can tolerate an oral airway will usually need intubation.

Nasopharyngeal airway

Often well tolerated

- **Definitive airway**

Orotracheal Intubation

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Cricothyroidotomy

- **2- Breathing**

- All patients should receive

O₂

+pulse oximetry.

- Life –threatening conditions
 - Tension Pneumothorax.
 - Open Pneumothorax.
 - Flail chest & pulmonary contusion.
 - Massive hemothorax.
 - Cardiac tamponade.
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- Tension Pneumothorax

Respiratory distress +one of the following:

- Tracheal deviation.
- Decrease breath sound.
- Distended neck veins.

- Subcutaneous emphysema.
- Mediastinal shift.
- Hyperresonant.
- Increase PR & RR.
- Hypotension.

Rx :chest decompression + tube thoracostomy.

- The lung continues to leak air into the chest cavity and results in compression of the chest structures, including vessels that return blood to the heart.
- **Open Peumothorax**

- Do not close the wound because it will convert into Tension Pneumothorax.
- Rx in the field: occlusive dressing.
- Proper Rx: wound closure+ tube thoracostomy
- **Flail chest**
- ≥ 2 ribs fractures in at least 2 locations.
- Pulmonary contusion with or without ribs fractures may compromise oxygenation, ventilation.

- Rx
- Adequate oxygenation, ventilation and pulmonary toilet.

To prevent the development of pneumonia, which is the most common complication of chest wall injury.

- Analgesia is the mainstay of therapy for rib fractures.
- Opioid analgesic.
- PCA.
- The best analgesia for a severe chest wall injury is a continuous epidural infusion of a local anaesthetic agent (+/- an opioid).
- Local anaesthetic is infiltrated around the intercostal nerve posteriorly.

- **?Rib fracture fixation.**

- **3- Circulation**

- Manual compression.

- Avoid blind clamping because of risk injury to other structures e.g. nerves

- **Circulation**

- 2 large IV lines

- Initial fluid Resuscitation

- Adult 1L NS, RL.

- Child 20 mg /kg RL.

Repeat in adults 1x
& in pediatrics 2x

- **4- Disability**

- Rapid neurological evaluation .
- Check

level of consciousness.

Pupillary size and

reaction.

- **5-**

Exposure/Environmenta

I Control

- The patient should be completely undressed & fully exposed for examination.

- Cover with warm blankets.
- Warm IV Fluids.
- Warm environment.
- Adjuncts to Primary survey
- NGT
- CXR , Lateral neck X-ray , Pelvis X-ray.
- Urinary catheterization.
- ABG.
- ...

- DECOMPRESS URINARY BLADDER.

- MONITOR URINE OUT-PUT
 - IF there are
 - Blood at meatus
 - Blood in scrotum
 - High prostate in rectal ex.
- DO ASCENDING (RETROGRADE)
URETHROGRAM--SUPRAPUBIC
CATHETER

- Urine output
- In adult 0.5ml /kg per hour.
- In children 1ml /kg per hour.
- In infant 2 ml /kg per hour.

- Shock
 - Global tissue hypoxia.

- Occurs when either the supply of or the ability to use oxygen and other nutrients is insufficient to meet metabolic demands.
- **Pathophysiology of shock**
 - MAP is directly proportional to CO and SVR.

- $CO = \text{Stroke volume}(SV) * \text{Heart rate}(HR)$

- SV is directly proportional to preload, afterload, and myocardial contractility.
- MAP is directly proportional to heart rate, preload, afterload, and contractility.
- Compensatory changes in response to systemic hypotension include the release of catecholamines, aldosterone, renin, and cortisol, which act in concert

to increase heart rate, preload, afterload, and contractility

- **Hypovolemic Shock**
- control of ongoing volume loss and restoration of intravascular volume.

Causes:-

Hemorrhage . (Commonest cause of shock in polytrauma)

Severe inflammation or infection.

Trauma.

Burns.

Vomiting.

Excessive Diuresis.

- Symptoms and signs
- Pallor.
- Cool , moist skin.
- Hypotension.
- Tachycardia.
- Restless.
- Oliguria/anuria.
- Coma, cardiac arrhythmias and cardiac arrest (in sever shock).
- Management
 - Adequate airway.
 - 100% O₂.
 - Elevate the foot.
 - IV lines (IV fluids , blood transfusion).
 - Urinary catheter.

- Definitive Rx.

- **Secondary Survey**

Head to toe evaluation

(Complete Physical Examination
)

- Score 3 : severe injury with poor prognosis
Score 13-15 : minor injury with good prognosis
- Imaging and other diagnostic aids
 - X-ray.
 - Ct scan.
 - FAST.
 - DPL.

- Neck

****3 veiwws of C-spine series**

-AP.

-Lateral.

-Transoral odontoid.

- CXR

- ?

- ??

- Normal pelvic X-ray

- ?

- Epidural hematoma

- BLOOD between skull & dura.
- Biconvex shape(ثنائي التحدب)
- Disruption of middle meningeal artery.
- Subdural hematoma
- BLOOD between dura & cortex.
- Venous disruption or laceration of brain parenchyma.
- Crescent shape.
- Prognosis is poor.