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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
* **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

* Cricothyroidotomy
* **2- Breathing**
* All patients should receive

 O2

 +pulse oximetry.

* Life –threatening conditions

* Tension Pneumothorax.
* Open Pneumothorax.
* Flail chest & pulmonary contusion.
* Massive hemothorax.
* Cardiac temponade.
* Tension Peumothorx

Respiratory distress +one of the following:

-Tracheal deviation.

-Decrease breath sound.

-Distended neck veins.

-Subcutanous 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 Penumothorax.
* 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**
* 2large 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/Environmental 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 catherization.
* 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 = Stroke volume(SV)\*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 veiws 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.
* Prognsis is poor.