




Multisystem Trauma

Trauma

Hypovolemic Shock

Septic Shock

Burns




Prompt, efficient & organized
care of multisystem trauma
requires a multidisciplinary team
approach

Assessment

Treatment

Care



Trauma: Physical injury or wound that is inflicted by an external or violent act.
(intentional or unintentional)

Multiple traumas : Injuries to more than one body area or organ & are the leading cause of death in people < 45yr.



Types:

1. Blunt
2. Penetrating (disrupts body surface)
3. Perforating (entrance & exit)



Causes:

Weapons, RTAs, Quarrel, falling down,

How it happens ?

Abrasion (painful loss of skin surface)

Laceration (torn skin)

Puncture wound (penetrated skin)

Traumatic amputation (limb or part of limb)

What to look for ?

According to the type & extent of trauma

Conscious patient is able to focus the assessment on areas need immediate attention. (SHO, Neurologic symptoms, ...)

- I. **Primary Assessment (ABCDE)**
- II. **Secondary Assessment**



Primary Assessment

A= Airway patency

B= Breathing

C= Circulation

D= Disability

E= Exposure & Environment

Secondary Assessment

After completing pri. assess. & treating life threatening conditions:

Taking history (SAMPLE)

S: symp and signs (related to present condition)

A: allergies

M: medications

P: past medical hx

L: last meal

E: events leading to injury

performing physical exam.

Head to Toe (general app, vital signs, head and neck, chest and back, abdomine, perineal body, extremities)

If patient condition is stabilized

- Fill in other parts of normal health hx.
- Hx of blood transfusion and tetanus immunization.
- Hx of alcohol

Tests :

- According to body system affected by trauma

Chest trauma----- (CXR)

Aortic injury----- (Angiography studies)

Head trauma---- (Brain CT, skull X-ray, cervical spine X-ray, angiogram)

ABG analysis

CBC, Coagulation studies, S.electrolytes, blood group and cross match


Management of traumatic wounds:

Depends on specific type of wound and degree of contamination

- control bleeding(apply firm, direct pressure and elevate the extremity)
- cleaning wound
- pain medication
- antibiotics
- surgery

In Summary:

- .Assess ABCs , adequate O₂ supplementation.
- .Immobilize head & neck(sand bags, board & tape)
- .Monitor vital signs----& note changes
- .Monitor O₂ sat & cardiac rythm for arrythmias.
- .Assess neurological status (LOC, pupillary,motor response)
- .Blood tests (B type & cross match).
- .Insert two large bore IV canula (NS or lactated Ringer)

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- .Quick & careful assess for multiple injuries.
 - .Assess wounds & control bleeding (pr & elevation)
 - .Assess for increase abdominal distention & increase diameter of extremities.
 - .Administer blood products as appropriate.
 - .Signs of hypovolemic shock.
 - .Provide pain medication.
 - .Reassurance to patient & his family.
 - .Explain Dx tests & Rx.



Hypovolemic shock

Acute blood loss $> 20\%$ total blood volume

Without sufficient blood or fluid replacement hypovolemic shock may lead to irreversible damage to organs & systems

Causes:

- ❖ G.I. Bleeding.
- ❖ Internal or external haemorrhage.
- ❖ Intestinal obstruction.
- ❖ Peritonitis.
- ❖ Acute pancreatitis.
- ❖ Ascitis.
- ❖ Dehydration (excessive perspiration, severe diarrhea, vomiting, diabetes insipidus, diuresis, inadequate fluid intake)

Pathophysiology

Decrease intravascular vol.



Decrease venous return



Decrease stroke vol.



Decrease Cardiac output



Decrease mean arterial pr.



Impaired tissue perfusion



Decrease O₂ & nutrient delivery to cells



**Multisystem Organ Dysfunction
Syndrom (MODS)**

Assessment

The specific signs and symptoms exhibited by the patient depends on the amount of fluid loss.

Findings:

- Pale skin
- Decreased sensorium
- Rapid, shallow respiration
- Urine o/p < 25ml/hr
- Rapid, thready peripheral pulses
- Cold, clammy skin
- Mean arterial pr < 60mmHg & narrow pulse pr
- ↓ (CVP, Rt atrial pr, PAWP, Card o/p)

Diagnosis (no single test tell !)


- Low(PCV,Hb,RBC, Platelets)
- High(Serum K , Na, lactate dehydrogenase, creatinine, BUN)
- ↑ Urine osmolarity > 1.020
- ↓ Urine creatinine
- ↓ PaO₂, ↑ PaCO₂
- OGD, X-Rays, NG tube aspirate
- Coagulation studies for coagulopathy from DIC

Treatment

- ❖ Prompt, adequate fluid & blood replacement.
- ❖ Pneumatic antishock garment.
- ❖ O₂
- ❖ Control Bleeding
- ❖ Dopamine (inotropic drug)
- ❖ Surgery

Summary

- Assess ABC-----CPR at anytime.
- O₂, pulse oxymetry, ABGs, anticipate ETI & mechanical ventilation.
- Vital signs monitoring.
- Neurological status, cardiac rhythm.
- Skin colour, capillary refill.
- Monitor haemodynamic parameters (invasive CVP, PAWP, Car o/p) q 15mins
- Input/output chart
- Blood component (serial Hb, PCV)
- Dopamine or doputamine I.V. (Increase cardiac contractility and renal perfusion)

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- Look for impending coagulopathy (petechiae, bruising, bleeding or ooz from gums or venipunctures).
 - Provide emotional support & reassurance.
 - Prepare for surgery.