

MAJOR TRAUMA

The modern management of major trauma requires a disciplined team approach. A didactic set of guidelines is recommended. The advanced trauma life support (TM American College of Surgeons) is the most widely adopted system at the present time. The key elements involve the primary survey/resuscitation phase, the secondary survey and the rapid implementation of definitive treatment, which may involve early surgery. Life threatening conditions must be detected and treated immediately.

If a seriously injured patient is expected then

Call for help

Identify leader

Triage: identifying patients at particular risk of death and serious morbidity!

Move patient in to resus room (if not already there)

Follow this system to the end

Obtain an accurate history from the ambulance crew

Indicators of major trauma

Triage Revised Trauma Score

Glasgow Coma Score <13

Systolic BP < 90mmHg

Respiratory Rate <12 or >29

Injury Pattern

Penetrating injury to head, neck, chest, abdomen, groin

Two or more proximal long bone #

Flail chest

Burn >15% and/or facial/airway/chest involvement

Pedestrians or motor cyclists

History of alcohol or drugs

Mechanism

Fall >6 metres

Ejection of patient from vehicle

Roll over of vehicle

Death of same car occupant

Rearward displacement of front axle

Passenger compartment intrusion

PRIMARY SURVEY AND RESUSCITATION PHASE

- A- Airway. Clear airway, use chin lift/jaw thrust. Immobilise c-spine with collar/sandbags/tape
- B- Breathing. Check ventilation. Administer oxygen at 15L/min. mask with reservoir
- C- Circulation. Check for pulses, skin perfusion. Identify obvious sites of blood loss
- D- Dysfunction of CNS. AVPU. A (Alert) V (responds to vocal stimulus) P (responds to pain) U (unresponsive), check pupils and limb movements
- E- Exposure and examine thoroughly

DETECT AND TREAT LIFE THREATENING INJURIES

- A** compromised airway? Consider oropharyngeal or nasopharyngeal airway. If no response, consider intubation. If unable consider cricothyroidotomy.
- B** ventilate by bag and mask or tube. Use oxygen. Needle thoracostomy for tension pneumothorax. Identify flail chest. Insert chest drain for pneumo/haemothorax. The oximeter reading should be 95% or greater
- C** arrest obvious external loss. Predict bleeding and pre-empt shock, insert two large bore lines. Infuse 2litres (20ml/kg in children) of warm crystalloid prior to transfusion of warmed blood/ the latter may be o-neg/type specific/full x-match. Drain haemopericardium. Use cutdown or intraosseous lines if necessary.
- D** assess level of consciousness. Use AVPU. Look at the pupils. Can the patient move all 4 limbs?
- E** undress completely. Avoid hypothermia. Attach ECG monitor. Insert NG tube and urinary catheter. BEWARE of contraindications! Blood for U+E, ABG, FBC, X-Match

Obtain Trauma X-rays

Lateral C-spine (ensure visualise C7/T1 pull shoulders)

CXR

Pelvis

UNRESPONSIVE SHOCK = GO TO THEATRE NOW WITH SENIOR HELP

SECONDARY SURVEY

Recheck A/B/C/D

PROCEED IF STABLE

Secondary survey is a head to toe/front & back examination

Ask AMPLE

Allergies

Medications enquire re tetanus status

Past medical history

Last eaten

Events surrounding incident

SECONDARY SURVEY

HEAD	Assess for wounds and fractures. Examine the eyes and for base of skull fracture
FACE	Examine mouth, mandible, zygoma, nose and ears. Exclude midfacial # and airways obstruction
NECK	Assume a fracture. Use collar, tape and sandbag immobilisation. Palpate the spine. Wounds deeper than platysma need exploration by ENT surgeon in theatre. C-spine # on x-ray necessitates imaging of full spinal column
CHEST	Look, listen and feel. Look at the chest x-ray. Exclude: pulmonary and cardiac contusion, aortic rupture, diaphragmatic hernia, tracheal, bronchial or oesophageal injury. Exclude minor thoracic trauma. Exclude pneumothorax
NEURO	GCS. Full CNS examination. Evidence of paralysis or sensory deficit requires full spinal stabilisation. Decreasing GCS levels not responding to resuscitation measures indicate need for CT and neurological consultation
ABDOMEN	Both peritoneal and retroperitoneal injuries may present with normal signs. Rectal and perineal examination is essential. Either peritoneal lavage and/or ultrasound may help in excluding abdominal injury.
FRACTURES	Check for malalignment, crepitus, tenderness. Assess neurovascular and tendon function. Log roll the patient to assess thoracolumbar injuries. Exclude minor fractures, dislocations, glass or other foreign bodies. Examine the back!!

Definitive Management operative/intensive care unit

Pain: morphine 0.1-0.2mg/kg iv in diluted incremental doses

Get senior help to define treatment objectives and formulate plan of action which may include further resuscitation, investigation and theatre

DO NOT WASTE TIME

Document all events and treatments

Transfer arrangements; stabilise patients before transfer.

Anaesthetist to transfer. Airway patent & stable? Intubate before transfer. Life saving surgery (e.g. splenectomy) may be needed locally before transfer to regional trauma unit

Ensure copy of notes & x-rays with patient.

If being transferred to neurosurgery then complete neuro transfer letter.

REMEMBER: tetanus prophylaxis. Antibiotics. Information for relatives