Trauma and Critical Care Management

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Introduction :
With the view of increase in violence related injury trauma & critical care occupies a major role in managing trauma victims during mass casualties.

Trauma care consists of
1) Scene Survey
2) Triage
3) Primary Survey and interventions.
4) Secondary Surgery and interventions.
5) Evacuation

Trauma Care can be Depicted in an Acronym - 4T
1) Travel to scene
2) Triage
3) Treat
4) Transfer

Scene Survey :
Ensure scene safety (Don't be come a victim yourself)
Observe the scene from a distance.
Confirm the type of trauma (Motor vehicle/Penetrating trauma/chemical or biological hazards)

out of 4T, due importance is to be given to triage

Triage :
Categorization of casualties for the priority of treatment and evacuation.
One of the most important tasks in casualty care which requires the most informed judgement, knowledge and courage.
A continuing process and the individual assigned should be the most capable and experienced health care provider available.

Categories of casualty triage :
The first formal triage establishes the patients category. These categories are color coded and are recognized as follows.

1) Immediate (Red Tag)

Includes all compromises to a patient's ABC's

If immediate medical attention is not provided, the patient will die. These medical procedure should not be time consuming and concern only those casualties with high chance of survival.

Examples :

Penetrating chest / abdomen wounds
Asphyxia and airway obstruction
Tension pneumothorax.
CNS injuries
Amputations
Sever Burns

Delayed (Yellow TAg):

Good pulse and respiratory status.
Follows commands.
Can usually tolerate a delay to surgical intervention without compromising a successful out come

Examples :

Fractures with stable haemodynamics
Facial wounds withour airway compromise.
Soft tissue wounds that require surgery.

Minimal (Green Tag) :

Walking wounded
Injuries that will still need treatment however unlikely to deteriorate over the next few days.

Examples :

Minor abrasions, lacerations etc.
Burns <15% TBSA
Fracture small bones
Psychiatri patients

Expectant (Black Tag) :

No respiratory effort despite simple airway maneuvers.

Either non survivable wounds or wounds that would take too many resources so as to jeopardi the immediate and delayed patients.

Examples :

Cardiac arrest from any cause
Massive brain/head trauma
Burns > 60% TBSA
Profound shock

Primary Survey - ABCDE of Trauma :

Airway maintenance with C - spine control
Breathing, ventilation and oxygenation
Circulation and Haemorrhage control

Dissbility and Neurological status
Expose and Environmental control

1. *Airway Maintenance :*
   Maneuvers - Head lift, Jaw thrust & chin lift
   Oropharyngeal airway
   Nasopharyngeal airway
   Cricothyroidotomy
2) *C- Spine Control :*
   Use cervical collar of appropriate size
   Careful transport of the patient by immobilization of C - Spine and the whole body as one unit.
3) *Breathing, Ventilation and oxygenation :*
   Look, Feel and listen for chest movemberts and breath sounds.
   Thension Pneumothorax is one of the leading cause of preventable death in battle field. It requires emergent decompression by Needle thoracostomy. If it fails then go for Tube thoracostomy.
   Mechanical ventilation if necessary.
   High flow oxygen if available.
4. *Circulation and Haemorrhage control :*
   Haemorrage is the leading cause of death in battle fiel. Hypotension in trauma is assumed to be from haemorrhage.
   Interventions:
   IV acess : Large bore peripheral line/venous cut-down.
   IV fluid bolus and blood if available.
   Stop bleeding by compression bandage/ tourniquets where possible.
5. *Disability :*
   Check level of consciousness
   Check pupillary response
6. *Expose and Environmental Control :*
   Undress for evaluation of hidden injuries.
   Prevent hypothermia

Secondary Survery :
If is done to identified and treat all non life threatening injuries not previously identified on primary survey. Head to toe examination is done after primary survery is complete and the patient's vitals are normal. Consists of history taking, physical examination and interventions.

History :
What kind of trauma has the victim sustained ?
Blunt/ Penetrating/Burns
AMPLE - Allergies / Medications/ Past illness / Last meals / Events or environments related to injury.

Physical Examinations :
Detailed head to toe examination
Neurological evaluations using Glasgow Coma Scale

Interventions :
As dictated by the condition of patient and facilities available.

Evacuation :

Casualty evacuations is ateam effort.

Appropriate ground and air evacuation should be based on patient categorized of precedence

Type of Evacuation :

Urgent evacuation :

Evacuation to next higher echelon of medical care is needed to save life or limb.

Evacuation must occur with in 2 hours.

Priority Evacuation :

Evacuation to next higher echelon of medical care is needed to otherwise the patient w deteriorate in to the urgent category.

Evacuation must occur with in 4 hours.

Routine evacuation :

Evacuation to next higher echelon of medical care is needed complete final treatment.

Evacuation must occur with in 24 hours.

Conclusion :

We hope this review will benefit our colleague in managing trauma victim in mass casualties, w proper knowledge, trauma care.

Reference :

"Trauma and critical care para rescue course "
Organized by the Institute for global Health
(Course from 19-23 August 2002) at Shree Birendra Hospital