ATLS (Advanced Trauma Life Support)

Dr.isavi

Three underlying concepts of ATLS program :

1-Treat the greatest threat to life first

2-The lack of a definite diagnosis should never impede the application

of an indicated treatment

3-A detailed history was not essential to begin the evaluation of an

acutely injured patient

Specific principles govern the management of trauma patients in ED:

1-Organized team approach

2-priorities

3-Assumption of the most serious injury

4-Treatment before diagnosis

5-Thorough examination

6-Frequent reassessment

7-Monitoring

Inhospital phase clinical process:

1-Systemic, organized approach to seriously injured patients is mandatory

2-The primary and secondary surveys should be repeated frequently

3-In the actual clinical situation, many of these activities occur in parallel or simultaneously.

Systemic, organized approach to seriously injured patients is mandatory

Preparation

Triage

Primary survey (ABCDEs)

- Resuscitation
- Adjuncts to primary survey & resuscitation

Secondary survey (Head to toe Evaluation)

- Adjuncts to secondary survey

Organized Team Approach:

1-Team Captain

2-Procedures by other physician team members.

3-Nurses.

Priorities In Management and Resuscitation

1-High-priority areas

2-Low-priority areas

Inhospital Phase ATLS

PREPARATION

1-Resuscitation area
2-Proper airway equipment
3-Warmed IV crystalline solutions
4-Monitoring capabilities
5-Summon extra medical assistance
6-Prompt response by lab and radiology personnel
7-Transfer route
8-Periodic review
8-Standard precautions

TRIAGE

Based on the ABCDE priority

PRIMARY SURVEY

Airway with Cervical spine protection

Breathing and ventilation

Circulation with hemorrhage control

Disability: Neurologic status

Exposure/ Environmental control

Foley /FAST

Airway Maintenance with Cervical Spine Protection

What are the problems that lead to airway compromise ?

What are the indications for definite airway ?

Indications For Definite Airway

1-Need for Airway Protection

a.GCS<8

b.severe maxillofacial fracture

c.risk for aspiration

d.risk for obstruction

2-Need for Ventilation

2-Need for Ventilation

1-Apnea

2-Inadequate respiratory effort

a.tachypnea

b.hypoxia

c.hypercarbia

d.cyanosis

3-Severe closed head injury with need for hyperventilation

Assessment:

1-Ascertain patency

2-Rapidly assess for airway obstruction

3-Foreign bodies, facial / mandibular / tacheal / larygeal fractures

Management:

1-Chin lift / jaw thrust maneuver

2-Clear the airway of FB

3-Insert an orotracheal / nasopharyngeal airway

4-Establish a definitive airway

- Orotracheal / nasotracheal intubation
- Surgical cricothyroidotomy

Immobilization of the c-spine

Important Notes:

1-NE does not exclude a cervical spine injury

2-Assume a cervical spine injury in any patient with multisystem trauma, especially with an altered level of consciousness or a blunt injury above the clavicle

Breathing and Ventilation

What are the injuries that may acutely impair ventilation in the primary survey?

Injuries that should be identified in the Primary survey

. Tension pneumothorax

. Flail chest with pulmonary contussion

. Massive hemothorax

. Open pneumothorax

Assessment

Inspection / palpation /Auscultation / Percussion

1-Expose the neck and chest

2-Respiratory rate and depth

3-Inspect and palpate: tracheal deviation ?

4-symmetrical chest movement ? use of accessory muscles ? signs of injury ? subcutaneous emphysema ?

5-Cyanosis ?

6-Auscultate the chest

6-Percussion : dullness? hyperresonance?

Management

1-Administer high concentrations of oxygen

2-Ventilate with BVM

3-Alleviate tension pneumothorax : needle decompression / Place chest tube

Circulation with Hemorrhage Control

What are the elements that provide the information about the hemodynamic status of the injured patients.

These elements are

1.Level of consciousness

2. Skin color

3.pulse (quality, rate, regularity)

What are the injuries that may acutely impair circulation status ?

These injuries are :

1-External/internal bleeding with hypovolemic shock

2-Massive hemothorax

3-Cardiac tamponade

Assessment:

1-Identify source of external hemorrhage

2-Identify potential source(s) of internal hemorrhage /

3-Pulse / skin color, capillary refill / Blood pressure

Management

1-Apply direct pressure to external bleeding site.

2-Internal hemorrhage ? Need for surgical intervention ?

3-Establish IV access / central line / IO

4-Fluid resuscitation / blood replacement

Disability

Assessment

1-Level of consciousness in the AVPU scale

- **Alert**
- **Voice illicits response**
- **Pain illicits response**
- **Unresponsive**

2-GCS

3-Pupils size, equality and reaction

Management

1-Intubation and allow mild hyperventilation

2-Administer IV mannitol.

3-Arrange for brain CT

Important notes

1-CT is contraindicated when the patient is hemodynamically unstable

2-A decrease in the level of consciousness may due to:

- Decreased cerebral oxygenation (A,B)
- Decreased cerebral perfusion (C)
- Direct cerebral injury (D)
- Alcohol / drugs
- Always rule out hypoxemia and hypovolemia first.

3-Reevaluation

Exposure / Environment Control

1.Completely undressed the patient.

2.Prevent hypothermia

3-Injured patients may arrive in hypothermic condition

4-Log-roll

RESUSCITATION

To reverse immediately life-threatening situations and maximize patient survival

TREATMENT PRIORITY

NECCESSARY PROCEDURE

Airway

1-Jaw thrust/chin lift/

2-Suction

3-Intubation

4-Cricothyroidotomy

(with protection of C-spine)

Breathing/Ventilation/oxygenation

1-Chest needle decompression

2-Tube thoracostomy

3-Supplemental oxygen

4-Seal open pneumothorax

Circulation/hemorrhage control

1-IV line/ central line

2-Venous cutdown

3-Fluid resuscitation/Blood transfusion

4-Thorocostomy for massive hemothorax

5-Pericardiocentesis for cardiac tamponade

Disability

1-Burr holes for trans-tentorial herniation

2-IV mannitol

Exposure/Environment

Warmed crystalloid fluid

Temperature

ADJUNCTS TO PRIMARY SURVEY AND RESUSCITATION

Electrocardiographic Monitoring.
Urinary Catheter
Gastric Catheter
Monitoring
- ABG
- Pulse oximeter
- Blood pressure

X-rays
- AP CXR
- AP pelvis
- C-spine

Diagnostic peritoneal lavage
Abdominal ultrasonography (FAST)