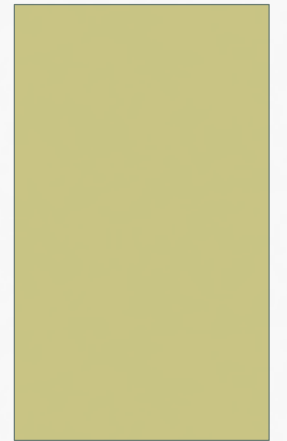


TRAUMATIC BRAIN INJURY (TBI)

BABOL UNIVERSITY OF MEDICAL SCIENCES



EPIDEMIOLOGY

- Traumatic brain injury (TBI) is a critical public health and socioeconomic problem throughout the world. It is the leading cause of mortality and disability among young individuals in high-income countries. Worldwide, the incidence of TBI is rising sharply, mainly because of increasing use of motor vehicles in low- and middle-income countries.
- In high-income countries, falls are a main cause of TBI, particularly in elderly people. Other main causes of TBI include violence and sports injuries.

EPIDEMIOLOGY

- According to a comparison between observational studies conducted in a 20-year period from 1984 to 2004, the median ages and percentages of patients older than 50 years who have sustained TBI have increased consistently.
- This increase in age among patients with TBI is probably a result of a combination of factors. First, traffic safety laws and preventive measures have reduced the incidence of TBI from traffic incidents, which occur primarily in younger patients. As a consequence, the relative incidence of TBI caused by falls is increasing, and there is also an absolute increase because falls occur more frequently as people age.

روش برخورد با بیمار دچار ترومای مغزی

- ABC
 - Airway
 - Breathing
 - Circulation

AIRWAY



BREATHINGS



CIRCULATION

- Hemorrhage control
- Shock management
- Fluid administration

SPINE IMMOBILIZATION

- Hard Collar
- Spine Board



SPINE IMMOBILIZATION



CLASSIFICATION OF TBI

- Mechanistic Perspective
 - Closed (Blunt)
 - Penetrating (Sharp)
 - Crush
 - Blast







CLASSIFICATION OF TBI

- Clinical Severity
 - Glasgow Coma Scale (GCS)
 - Four Score
 - Abbreviated Injury Score (AIS)
 - Injury Severity Score (ISS)

CLASSIFICATION OF TBI

TABLE 349-1 Glasgow Coma Scale for Assessment of Coma and Impaired Consciousness

Eye Opening	Best Motor Response	Best Verbal Response
4 = Spontaneous	6 = Obeying	5 = Oriented
3 = To speech	5 = Localizing	4 = Confused
2 = To pain	4 = Withdrawing	3 = Inappropriate
1 = None	3 = Flexing	2 = Incomprehensible
	2 = Extending	1 = None
	1 = None	

Data from Teasdale G, Jennett B. Assessment of coma and impaired consciousness. A practical scale. *Lancet*. 1974;2:81-84.

CLASSIFICATION OF TBI

- GCS
 - Severe 3 to 8
 - Moderate 9 to 13
 - Mild 14 to 15

CLASSIFICATION OF TBI

TABLE 349-3 The FOUR Score for Assessment of Coma

Eye Response	Brainstem Reflexes
4 = Eyelids opened	4 = Pupil and corneal reflexes present
3 = Eyelids open but not tracking	3 = One pupil wide and fixed
2 = Eyelids closed but opens to loud voice	2 = Pupil or corneal reflexes absent
1 = Eyelids closed but opens to pain	1 = Pupil <i>and</i> corneal reflexes absent
0 = Eyelids remain closed with pain	0 = Absent pupil, corneal, and cough reflex
Motor Response	Respiration
4 = Thumbs up, fist, or peace sign to command	4 = Not intubated, regular breathing pattern
3 = Localizing to pain	3 = Not intubated, Cheyne-Stokes breathing
2 = Flexion response to pain	2 = Not intubated, irregular breathing
1 = Extensor posturing	1 = Breathes above ventilator rate
0 = No response to pain	0 = Breathes at ventilator rate or apnea

CLASSIFICATION OF TBI

ABBREVIATED INJURY SCORE (AIS) (RANGE 0-6)

Severity scores for six body regions* (range, 0-6):

- 0: none
- 1: minor
- 2: moderate
- 3: serious
- 4: severe
- 5: critical
- 6: virtually unsurvivable

INJURY SEVERITY SCORE

Sum of quadratic scores of each AIS body region

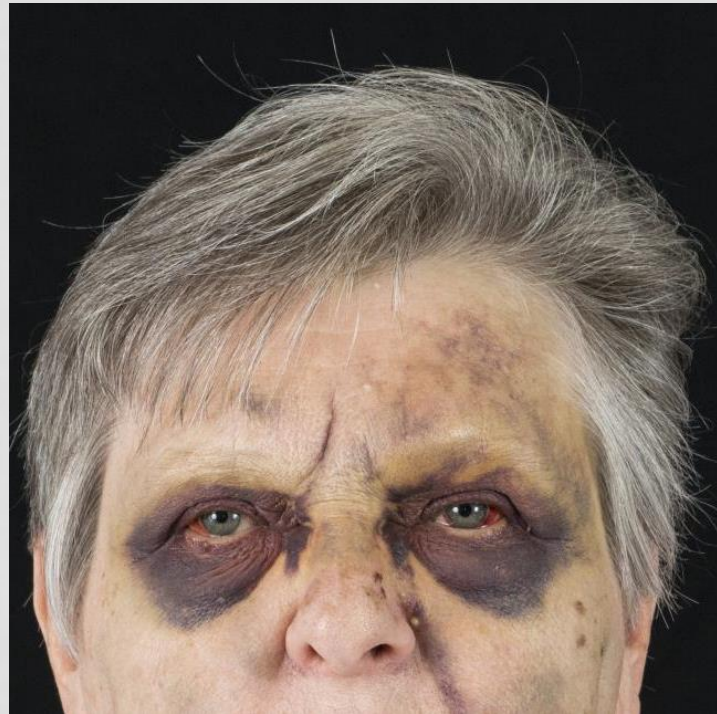
Body regions:

- Externa (skin)
- Head/neck (includes brain injury)
- Thorax
- Abdomen/pelvic contents
- Spine
- Extremities

LACERATION



SKULLBASE FRACTURE



SKULLBASE FRACTURE



PUPIL LIGHT REFLEX



ANISOCORIA



CORNEAL REFLEX



DOLL'S EYE (OCULOCEPHALIC REFLEX)



THANK YOU FOR YOUR ATTENTION

