HEAD & MENTAL STATUS

DISASTER RESPONSE ADVANCED FIRST AID

TODD MINER

WITH HELP FROM ZOE HENDRICKS

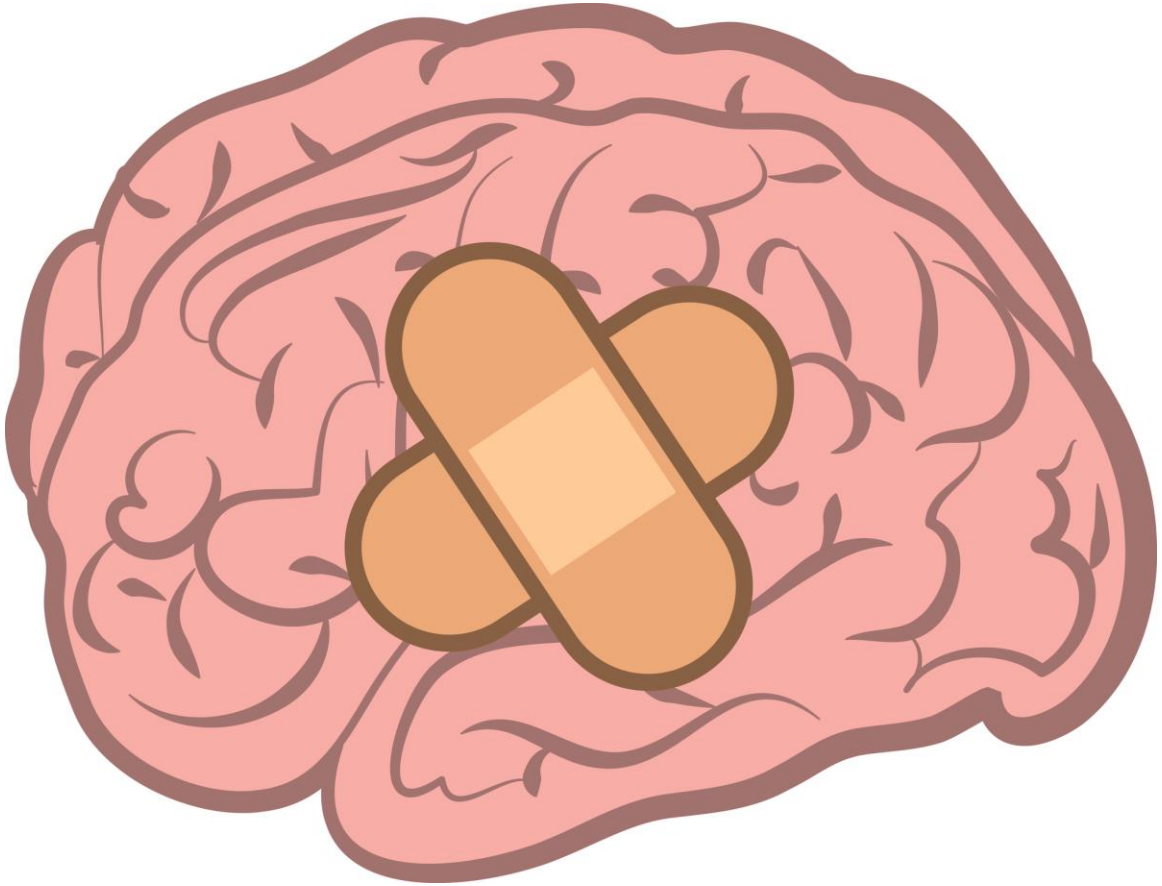
WILDERNESS MEDICINE SECTION

DEPARTMENT OF EMERGENCY MEDICINE

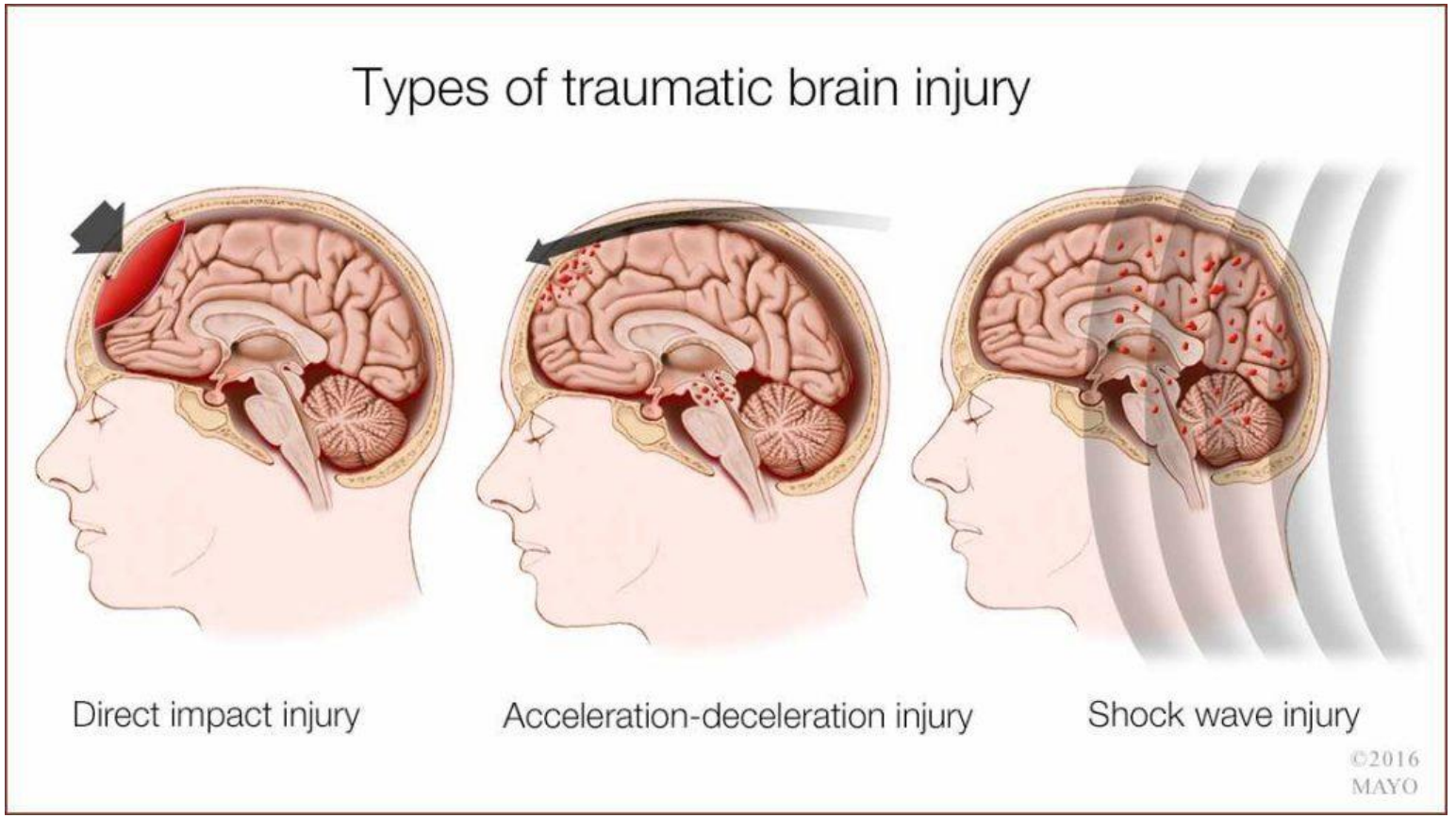
UNIVERSITY OF COLORADO SCHOOL OF MEDICINE

GOALS

- Describe significance of head trauma
- List signs/symptoms of various levels of TBIs
- Describe treatment for minor TBIs/concussion
- Describe treatment of moderate to severe TBIs
- List symptoms of increasing ICP and describe or demonstrate treatment



- **TBI – T**raumatic **B**rain **I**njury: **a** disruption in normal function of brain; caused by bump, blow, or jolt to head
  - Concussion: mild TBI
  - ICP: Intra-Cranial Pressure



Head injuries – Big Picture

- Most at risk: the usual suspects → infants, males, +75 year-olds, and 14-24-year-olds
- Challenge: head is black box—hard to see what is going on inside skull
- Patient often is altered – they can't tell us what is going on
- Fixed sphere, nowhere for swelling to go leading to increasing inter cranial pressures (ICP)

TBI Signs/Symptoms

- Any period of loss of or decreased consciousness
- Any loss of memory for events immediately before or after injury
- Neurologic deficits

  Muscle weakness, loss of balance/coordination, vision disruption, change in speech/language, sensory loss, photophobia
- Alteration in mental state at time of injury

  Confusion, slowed thinking, difficulty with concentration, dizziness, disorientation
- Longer loss of consciousness or altered mental status worrying sign

Mental Status Vital Sign Review

- Remember we assess mental status using AVPU
  - **A**lert
  - **V**erbal
  - **P**ain
  - **U**nresponsive

"Alert" further divided into **Alert & Oriented (AO)** to four questions:

- Person (**Who** are you? *What is your name?*)
- Place (**Where** are you?)
- Time (**When** is it? *What month is it? Who is pres?*)
- Event (**What** happened?)

TBI Anticipated Problem

If there is a TBI
could there be spinal damage?

Treatment – TBI

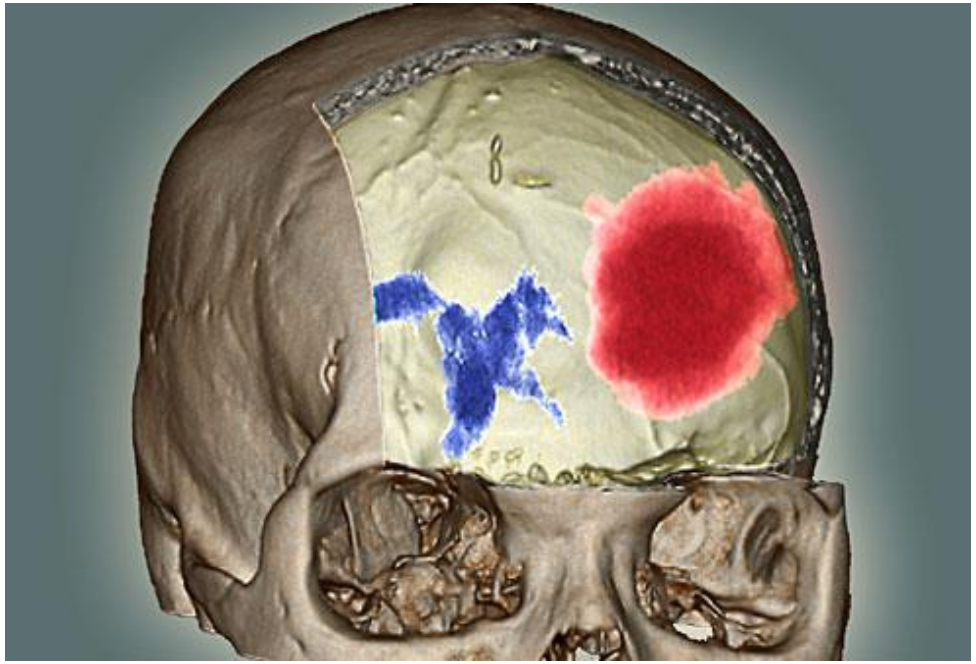
- Assess for spinal injury
- Monitor for worsening signs (decreasing AVPU, repeated vomiting, increasing pain, abnormal respirations)
- Sleep best medicine
- Place in darkened room with limited stimulation (talking, reading, screen time, etc.), ideally for 24 hours
- Moderate to severe TBIs require hospitalization, emergency evac

Treatment For Mild TBI After 24 Hours

- Walking okay after 24 hours
- Avoid hazardous conditions
- A repeat TBI absolutely should be avoided
- At this point emergency evacuation unlikely needed, but all patients should be seen by definitive care

Signs/Symptoms of Moderate to Severe TBIs

- Patient unresponsive for 30 minutes to 24 hours and likely **V** or **P** at best on the AVPU scale
- Skull fracture, especially significant open fracture
- Clear and/or bloody fluid coming from internal ear canal or nose, not associated with localized injury
- Significant penetrating injury
- Ultimate treatment is evacuation!
- Thankfully very rare



General principles to determine if emergency evacuation is necessary for a mild TBI

- Probably not necessary if
  - There was no loss of consciousness
  - There is no significant altered mental status
  - Mental status returns to AOx3 or AOx4 < 15 minutes
- Conservative course of action is evacuate for any TBI
- Definite emergency evacuation if
  - Signs of increasing ICP develop (repeated vomiting, increasing headache, decreasing mental status, erratic respirations)
  - Any serious questions as to severity of head injury or patient generally deteriorating

TBIs can lead to bleeds that develop into increasing Intracranial Pressure (ICP)

- Bruises to the brain and/or bleeds increase volume in skull
- Skull fixed sphere, cerebral edema starts to increase pressure
- Initially there may be mild changes to mental status (increasing headaches, subtle personality changes, etc.)
- If increasing intracranial pressure continues, significant altered mental status follows, impacting respiration and other functions, leading to possible coma and/or death

Signs & Symptoms of Increasing ICP

- Increasing headache
- Worsening vision disturbances
- Vomiting more than once
- Decreasing mental status
- Slowing and/or erratic respirations
- Late and very serious signs
    - fixed, dilated, or blown pupil(s)
    - seizures

Field Treatment of Increasing ICP

- Elevate upper body approximately 30 degrees to allow gravity to help decrease pressure
- Protect airway, consider recovery position
- Keep patient warm
- Emergency evacuation

Head Injury & Mental Status Summary

- Head injuries & TBI: both common and severe
- Moderate-severe TBIs require emergency evacuation
- Mild TBI ideally treated with sleep, rest, and limited stimulation
- Suspected increasing ICP (decreasing LOC, increasing headache, respiration changes etc.) needs emergency evacuation
- TBI patient should have airway monitored, upper body elevated by 30 degrees, and kept warm and possibly in recovery position

Evacuation Considerations

<u>May</u> not need emergency treatment

- Mild TBI (no or brief loss of consciousness) not an emergency evacuation
- All TBIs should be examined by definitive medical care

EMERGENCY EVACUATION

- Moderate-severe TBI (lengthy loss of consciousness, skull fracture, blood/fluid in ears or nose, etc.)
- Suspected increasing ICP (decreasing mental status, increasing headache, respiration changes etc.)
- Stroke
- First time seizure, a seizure lasting more than a few minutes, multiple seizures without return to normal mental status in between

Research & Resources Head & Mental Status Issues

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