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CONCUSSION

LOOK ON THE BRIGHT SIDE. FOR ONE BRIEF, GLORIOUS
MOMENT, YOU FORGOT YOU WERE ON THE CUBS.

Concussion

- Causes
 - Sudden acceleration or deceleration of the head
- Defined
 - Traumatic brain injury



Concussion

- Loss of consciousness (LOC)
 - None
 - Brief
 - Extended
- Memory loss
 - Retrograde (usually worse)
 - Anterograde



Concussion

- Loss of consciousness not a requirement for concussion
- Symptoms:
 - Altered cognition:
 - Memory difficulty, sluggish thinking, decreased concentration or calculation
 - Physical manifestations:
 - Headache, altered vision, nausea, vomiting, dizziness, altered balance, fatigue



Concussion Symptoms Cont.

- Emotional
 - “Bitchy/ moody”, easily angered, anxious, nervous, hyperemotional
- Sleep
 - Sleeping more, less or having difficulty falling asleep



Concussion in Children

- Crying more than normal
- Sustained headache
- Changes in play, diet, sleep, nursing
- Sad, more temper tantrums
- Loss of new skills (toilet training)
- Balance difficulty
- Loss of attention



Concussions in Seniors

- Often overlooked
- Difficult to measure
- Need to also be aware of possible subdural hematoma, or intracranial bleed when evaluating head injury of seniors and patients on anticoagulants.



Diagnosis of Concussion

- Diagnosed primarily from the Hx.
 - Hx is hard to obtain from patients with LOC or with amnesia.
 - Easier if you have a witness that can provide timelines of LOC and memory loss.



R/O Serious Head Injuries

- A headache that gets worse or does not go away.
- Weakness, numbness, or decreased coordination.
- Repeated vomiting or nausea.
- Slurred speech.
- Extreme drowsiness or you cannot wake them.
- One pupil that is larger than the other.
- Convulsions or seizures.
- A problem recognizing people or places.
- Increasing confusion, restlessness, or agitation.
- Loss of consciousness.



Grading Concussion

- By American Academy of Neurology
 - Graded as 1, 2 and 3
- National Federation of High Schools – Concussion guidelines
- Other entities have concussion guidelines and helps
 - Tennessee
 - www.TSSAA.org/concussion.pdf



AAN Grading Scale

- Grade 1
 - No LOC
 - Concussion symptoms Resolve in 15 minutes
 - Hardest to spot
 - (AKA getting bell rung)



AAN Grading Scale

- Grade 2
 - No LOC
 - Symptoms that last more than 15 minutes
 - With grade 2, any symptoms that last more than one hour require medical observation



Grade 3

- Symptoms
 - Loss of consciousness
 - Even for seconds
 - Vacant stare
 - Delayed verbal and motor response
 - Confusion
 - Disorientation
 - Slurred speech
 - Incoordination
 - Memory deficits



Treatment for Concussion

- Rest
 - Physical and mental
 - Day and night
- Avoid alcohol and illicit drugs
- Avoid physically or mentally demanding activities
- Use acetaminophen for pain.
 - Avoid NSAIDs



Treating Grade 1 (AAN)

- Remove from contest.
- Examine immediately and at 5 minute intervals for the development of mental status abnormalities or post-concussive symptoms at rest and with exertion.



Treating Grade 1 (AAN)

- May return to contest if mental status abnormalities or post-concussive symptoms clear within 15 minutes.
- A second Grade 1 concussion in the same contest eliminates the player from competition that day, with the player returning only if asymptomatic for one week at rest and with exercise.



On Field Assessments

- Mental Status
 - Orientation – time, place, person, situation (of trauma)
 - Concentration
 - digits backwards (e.g., 3-1-7, 4-6-8-2)
 - Months of year backwards
 - Memory
 - Three words and three objects - at 0 and 5 minutes
 - Recent news events
 - Details of the game they are playing

On Field Assessments

- External Provocative
 - 40 yard sprint
 - 5 push ups
 - 5 sit ups
 - 5 knee bends
 - Looking for a return of symptoms.



Neurological Tests

- Pupils
 - Symmetry and reaction to light
- Coordination
 - Finger/nose, tandem gait
- Sensation
 - Finger/nose with eyes closed and Romberg



Treating Grade 2

- Remove from contest and disallow return that day.
- Examine on-site frequently for signs of evolving intracranial pathology.
- A trained person should reexamine the athlete the following day.



Treating Grade 2

- Clear the athlete for return to play after 1 full asymptomatic week at rest and a normal neuro exam
- CT or MRI scanning where headache or other associated symptoms persist longer than one week.



Treating Grade 2

- A second Grade 2 concussion requires the athlete have at least two weeks symptom-free at rest.
- Any abnormality on CT or MRI scan consistent with brain swelling, contusion, or other intracranial pathology terminates the athletes season.



Treating Grade 3

- Transport the athlete to the nearest emergency department (ED)
 - by ambulance if unconscious
- ED urgent evaluation and possible hospital admission for intracranial pathology



Treating Grade 3

- If findings are normal the athlete may be sent home with explicit instructions
- Neurologic status should be assessed daily thereafter until all symptoms have stabilized or resolved.
- Prolonged unconsciousness, persistent mental status alterations, worsening postconcussion symptoms, or abnormalities on neurologic examination require urgent neurosurgical evaluation or transfer to a trauma center.



Treating Grade 3

- After a brief (seconds) Grade 3 concussion, the athlete withheld from play until asymptomatic for 1 week
- After a prolonged (minutes) Grade 3 concussion, the athlete should be withheld from play for 2 weeks
- Following a second Grade 3 concussion, the athlete should be withheld from play for a minimum of 1 asymptomatic month.



Treating Grade 3

- CT or MRI scanning is recommended for athletes whose headache or other associated symptoms persist longer than 1 week.
- Any abnormality on CT or MRI consistent with brain swelling, contusion, or other intracranial pathology should result in termination of the season for that athlete and return to play in the future should be seriously discouraged in discussions with the athlete.



Prognosis

- Healing or recovering from a concussion requires time and rest (physical and mental). It may take days, weeks, or even months.
- Patient needs to understand the symptoms so they can deal with them
- Patient should be encouraged to get help from family or friends before making important decisions.

Concussion Treatment

- Most moderate concussions that are still symptomatic at day three will resolve in 6-8 weeks.
- Ease into exercise and activity
- Exercise to tolerance
 - If exercise brings back symptoms, rest for another full day



Progressive Return to Activity

- *Step 1:* Light aerobic exercise- 5 to 10 minutes on an exercise bike or light jog
- *Step 2:* Moderate aerobic exercise- 15 to 20 minutes of running at moderate intensity



Progressive Return to Activity

- *Step 3:* Non-contact training drills in full uniform. May begin weight lifting, resistance training
- *Step 4:* Full contact practice or training.
- *Step 5:* Full game play.



Second Impact Syndrome

- Severe brain injury that may lead to death
- Caused by a concussion that follows a concussion that had occurred days or weeks earlier.
- Very controversial since studies cannot nail down the incidence or prevalence.



Conclusion

- Concussions are misunderstood by the public
- Proper management may limit complications
- Symptoms may last 30 years or more

