

## Diagnose Concussion / mTBI

- Reported traumatic event (e.g. hit to head, face or body)
- Initial obvious signs (e.g. LOC, convulsion, unsteady gait)
- Observer reports "feeling off, not right" (e.g. cognitive, behavior, emotion)
- Patient reports any symptoms of concussion
- Abnormal neurocognitive and / or balance exam

Common symptoms include: headache, nausea, vomiting, dizziness, history of brief LOC, confusion, disorientation, impaired memory, amnesia, drowsiness, agitation, fatigue, irritability, sleep disturbance, balance disturbance, diminished reaction time, or sensitivity to light sound and motion.

## Check for red flags indicative of a more severe TBI or other neurological impairment:

- Somnolent / lethargic
- Confused, agitated or irritable
- Focal neurological symptoms or deficits
- Signs of basal or depressed skull fracture
- Seizure
- Progressively worsening headaches (despite rest)
- Thunderclap headache
- Headache induced by positional change or valsalva

**The presence of any of the above on history or physical exam should prompt URGENT neuroimaging**

## Counsel: Provide and review written individualized discharge information

- "Brain Rest": cognitive and physical
- Graded return to school
- Graded return to sports and other activities
- Normalize expected recovery: education and reassurance

1. Emergency Department Discharge Instructions following a Mild Traumatic Brain Injury (Concussion)
2. Academic Recommendations and Restrictions upon Discharge from the Emergency Department following a Concussion

**If symptoms persist more than 2 weeks, refer to an Interprofessional mTBI/Concussion Program**

## Headache Management

### ACUTE (LESS THAN 2 WEEKS)

#### BOX A

- Rest: cognitive and physical (as per MCH Trauma ED guidelines)
- NSAIDs (e.g. ibuprofen) as per dosing instructions every 6 hours as needed for 3-5 days. If still needed after 3-5 days, reduce to no more than 3 doses per week
- Educate about medication overuse headache
- Avoid opioids

#### BOX B

Refer to Pediatric Emergency Department for acute abortive therapy if pain is severe and / or disabling (e.g. IV metoclopramide or prochlorperazine)

*References: McCrory P, Meeuwisse W, Aubry M et al. Consensus statement on concussion in sport: the 4<sup>th</sup> International Conference on Concussion in Sport held in Zurich, November 2012. Br J Sports Med. 2013; 47:250-258  
Friedman, Debbie., Gagnon Isabelle., editors the Montreal Children's Hospital Trauma. (2011). "Concussion KIT". 2<sup>nd</sup> ed*

### SUBACUTE (2 WEEKS TO 3 MONTHS)

#### BOX C

- As per BOX A, if not already tried (e.g. NSAIDs)
- AVOID medication overuse (no more than 3 doses per week)
- If migraine features: trial of triptan (e.g. almotriptan, rizatriptan)
- If disabling or moderate / severe pain, see BOX B
- If occipital or cervicogenic component: consider peripheral nerve block
- If cervicogenic headache, refer to physical therapy
- Assess and treat comorbidities (e.g. depression, anxiety, insomnia)

#### BOX D

Prophylaxis options (more than 1 headache/week or significant functional disability)

*First choices:*

- vitamin B2
- melatonin (recommended if sleep disturbance)

*Alternate choices:*

- amitriptyline
- gabapentin (recommended for occipital neuralgia, especially if not responding to nerve block)

#### BOX E

- Encourage patient to keep headache diary
- Lifestyle modifications: balanced diet, avoid skipping meals, adequate hydration and sleep hygiene (at least 6 hours / night restorative sleep)
- Biofeedback, stress management, behavioral therapies

### CHRONIC (MORE THAN 3 MONTHS)

#### BOX F

- Trial of acute abortive therapy (BOX B)
- Short course of steroids, especially if medication overuse
- If medication overuse: complete cessation of the overused abortive medication
- Consider option(s) in BOX C not yet tried. If a specific triptan was tried without effect, try an alternative triptan
- Address lifestyle issues (BOX E)
- Assess and treat comorbidities (e.g. depression, anxiety, insomnia)

#### BOX G

Start prophylaxis or try an alternate medication if previous 2-3 month trial was ineffective at target dose or maximum tolerated dose:

- amitriptyline
- gabapentin
- topiramate
- vitamin B2
- melatonin

If not improving, refer to Neurology

