CONCUSSION MANAGEMENT IN PRIMARY CARE

James Levins, MS3
UVM College of Medicine
Goals

- To convey what I have learned about current guidelines and recommendations regarding concussions and concussion management

- For me to learn from your personal experiences with patients suffering from concussions
Outline

- Concussion background information
- Act 68
- Concussion management
- Why is this important?
Chris

- 12yo soccer player collides with a player during a game
- He appears dazed, complains of a headache and can’t remember the score of the game, so his coach sits him out
- The next day, his parents bring him to see you…
- What do you do?
## Identifying a Concussion

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>Appears dazed</td>
</tr>
<tr>
<td>Nausea/vomiting</td>
<td>Confusion</td>
</tr>
<tr>
<td>Balance problems</td>
<td>Forgets score, game, plays</td>
</tr>
<tr>
<td>Phono- and photophobia</td>
<td>Loss of consciousness (10-15%)</td>
</tr>
<tr>
<td>Impaired concentration</td>
<td>Amnesia</td>
</tr>
</tbody>
</table>

### Exacerbating factors

| Exertion                       | Reading, homework                              |
| Note-taking                    | Video games                                     |
Concussion is a mild traumatic brain injury

Trauma resulting in a disruption of the normal metabolism of neuronal tissue

Associated decrease in cerebral blood flow

This makes the brain more susceptible to recurrent and more severe injury

The developing brain is more sensitive to metabolic changes
Emergencies

- Intracranial hemorrhage
- Prolonged unconsciousness
- Neurological signs
- Imaging?
Mimickers

- Neck injuries
- Post-traumatic migraine
- Inner ear trauma

- Good to be aware of these, but often the best practice is a conservative approach
  - “When in doubt, sit them out”
Course of Concussions

- Uncomplicated concussions typically resolve in 7-10 days
- If persistent or worsening symptoms for >3 weeks, consider referral to sports medicine physician

- What have been your experiences?
Variability

- The **threshold** for a concussion is highly variable
- The severity and duration of **symptoms** is highly variable
- An **individualized approach** to management is essential
Overview

- Concussion background information
- Act 68
- Concussion management
- Why is this important?
Effective July 2013:
- All schools shall implement a concussion management plan
- All coaches and officials of collision sports shall receive concussion education every 2 years

Effective July 2015:
- All school sports will require a medical professional present at sports activities
How is this being implemented?

- High school – athletic trainer sees the athlete and coordinates with the coaches and physician
- Middle school – often coordinated through the school nurse
- Rutland Rec Dept – concussion identification is part of annual education for coaches
- Areas where communication can be improved:
  - Middle school, summer programs, non-sports related injuries
Questions?
Overview

- Concussion background information
- Act 68
- Concussion management
- Why is this important?
Return to Play Protocol

- Symptom-free for 24 hours
- Step 1 – aerobic conditioning
- Step 2 – sports-specific drills
- Step 3 – non-contact training drills
- Step 4 – full contact practice after medical clearance
- Step 5 – full competition
Back to Chris

- His parents call your office, saying: “Chris successfully completed steps 1 and 2, but he began to get headaches and nausea when he started step 3”

- What do you tell them?
Other Activities

- His parents ask: “Can he watch TV, read, play video games or text?”
- Your response?

- “How will we know when he’s ok to return to school?”
- What do you say?
Return to Learn Protocol

- **Home** – light cognitive activity for 15min
  - Music, TV, email

- **Home** – moderate cognitive activity for 30min
  - Reading, homework

- **Home** – gradual increase to full homework load

- **School** – may require half days, frequent breaks, lighter work load, testing accommodations

- **KEY** – let the symptoms guide progression

- **Premature return** to cognitive activity has been shown to result in **delayed recovery**
Questions?

- Have you seen something like this before?
- Is this similar to what you have used?
- If not, does this seem feasible?
- What further suggestions do you have?
Overview

- Concussion background information
- Act 68
- Concussion management
- Why is this important?
Short and Long Term Effects

- Repeated and/or more severe concussions
- Post-concussive syndrome
- Second-impact syndrome?
- Chronic neurocognitive impairment?
- Chronic traumatic encephalopathy?
Identification of concussions can be difficult, the management doesn’t have to be.

Role of the PCP is to clear the athlete for return to sport using a step-wise, individual approach.

Return to learning also follows a similar symptom-driven, step-wise approach.
Questions?

- Does this plan seem feasible?
- Do you think this would be adhered to?
- Do you have other experiences?
Interactive Concussion Review and CME from the CDC:
  - http://www.cdc.gov/concussion/headsup/clinicians/

American Medical Society of Sports Medicine position statement:

RTP protocol:

RTL protocol:

Link for clinician resources:
  - http://www.biavt.org/images/Section_10c_-_Resources_healthcare_professionals3-11-14.doc