Guidelines for Treatment of Headache associated with Concussion, aka mTBI

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July 18, 2018
Disclosure

Speaker’s Bureau for Amgen

We will be discussing medication usage that is considered off-label.
http://video.pbs.org/video/2365067212/

Objectives

After attending this presentation, participants should be able to:

- Define criteria for post-concussive headache
- Identify red flags for further evaluation
- Differentiate between PTT and potential secondary headache
- Initiate initial treatment plan for post-concussive headache
Epidemiology

- In 2012, an estimated 329,290 children (age 19 or younger) were treated in U.S. EDs for sports and recreation-related injuries that included a diagnosis of concussion or TBI.
- From 2001 to 2012, the rate of ED visits for sports and recreation-related injuries with a diagnosis of concussion or TBI, alone or in combination with other injuries, more than doubled among children (age 19 or younger).
- 1 of 5 children with mTBI by age 10y
- 475,000 aged 0-14 yr TBI annually in US
Concussion/mTBI

- Highest rate of concussion - males 10≤19 years

- Approximately 6% of athletes who sustain a MTBI have lingering effects: academic performance difficulties, depression and sleep disturbances

- Children take longer to recover; takes a significantly stronger hit to cause symptoms
Variations in Mechanisms of Injury for Children with Concussion

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Objectives To assess the distribution of injury mechanisms and activities among children with concussions in a large pediatric healthcare system.

Study design All patients, age 0-17 years, who had at least 1 clinical encounter with an International Classification of Diseases, Ninth Revision, Clinical Modification diagnosis of concussion in the Children’s Hospital of Philadelphia’s electronic health record system from July 1, 2012 to June 30, 2014, were selected (N = 8233) and their initial concussion-related visit identified. Approximately, 20% of the patients (n = 1625) were randomly selected for manual record review to examine injury mechanisms and activities.

Results Overall, 70% of concussions were sports related; however, this proportion varied by age. Only 18% of concussions sustained by children aged 0-4 were sports related, compared with greater proportions for older children (67% for age 5-11, 77% for age 12-14, and 73% for age 15-17). When the concussion was not sports related, the primary mechanisms of injury were struck by an object (30%) and falls (30%).

Conclusions Sports-related injuries in children older than 6 years of age contributed to the majority of concussions in this cohort; however, it is important to note that approximately one-third of concussions were from non-sports-related activities. Although there is increased participation in community and organized sports activities among children, a focus on prevention efforts in other activities where concussions occur is needed. (J Pediatr 2018;197:241-8).
Definitions
Posttraumatic Headache

- Secondary HA according to ICHD-3, BUT resemble Primary HA disorders such as migraine and TT headaches
- **ACUTE**: present <3 months
- **PERSISTENT**: present > 3 months post-injury
- HA begins 7 days after injury to the head or after regaining consciousness, possibly longer
Persistent Posttraumatic Headaches

- Prevalence - ? 50% of injured population
- In ED setting, 29.3% of children remained symptomatic 3 mo after mTBI - most common symptoms - HA, fatigue, frustration (Babcock et al 2012)
Post- Concussive Syndrome

Constellation of physical, emotional, & cognitive symptoms following mTBI
- Photophobia
- Phonophobia
- Dizziness
- Balance deficits
- Behavioral alterations
- Mood changes
- Sleep disturbance
Post-Concussive Syndrome

- Most report HA within days of injury
- 85% of youth presenting to Peds ED reported HA following mTBI
- HA is most disabling symptom

- *** This population most difficult to treat
Concussion aka mTBI

- Headache most common complaint post-injury
- Most recover within 1-2 weeks
- No clear guidelines to: speed recovery
- Minimize disability
- Maximize function
- Improved QOL
CTE
Chronic Traumatic Encephalopathy

- Long-term impact of repeated brain trauma
- Caused by accumulation of tau-protein contributes to degeneration of brain tissue
- Leads to depression, increased aggression, lack of impulse control, dementia

Courtesy of the Boston University Center for the Study of Traumatic Encephalopathy.
New Findings

- Closed head impact injuries, independent of concussive signs, can induce traumatic brain injury, as well as early pathologies & functional sequelae associated with CTE.


Second Impact Syndrome

- Catastrophic football head injuries are 3 times more likely to occur in HS athletes
- Pediatric and adolescent athletes are at highest risk for the Second- Impact Syndrome
- Controversial?
WT-12yo

- Plays tackle football in middle school program
Predictive Factors

- Age
- Sex: female risk factor (Blume, 2012)
- Prior personal & family hx of HA
- May make it more likely to have HA recurrence OR initial headache beginning following head trauma
- Younger age (5-12y)- risk factor for mod/severe TBI
- Adolescents with mTBI have increased risk of posttraumatic headache
Risk Factors for Persistent Posttraumatic headaches

- Kuczynski & Barlow (2013): >50% of PPT HA had hx of preexisting HA, >30% w/ hx of migraine HA.
- Prior concussion; PPT HA
- Preexisting anxiety and/or depression

No criteria with reliable sensitivity or specificity to identify pts at high risk for PPT HA following concussion/mTBI.
Evaluation of Pediatric Posttraumatic Headache

*Acute Posttraumatic Headache
*Neuroimaging
*Subacute & Persistent Posttraumatic Headache
Evaluation of Acute PT Headache

- **Immediate Care Following Head Injury:**
  - Assess injury severity/other injuries
  - If athlete w/sudden onset of HA & suspect concussion-remove from play, follow protocols
  - Acute medical evaluation:
    - How trauma occurred
    - Symptoms
    - Presence of amnesia, memory problems, LOC
    - Balance problems
    - Behavioral change from baseline
  - History of head injuries, pre-existing headaches, mood disorders, medical history and meds
  - Complete medical, neurological and fundoscopic examination
Neuroimaging

- Not helpful in Dx of concussion or PTT HA
- Consider if concern for:
  - Skull/spine fx
  - Intracranial hemorrhage/thrombosis

**Red Flags for intracranial lesions:**
- Abnl or asymmetries on exam; AMS
- HA worsening after acute injury
- Worsening of HA w/Valsalva maneuver
- Sudden or explosive HA long after trauma
- Systemic sx-weight loss, fever
- Other risk factors- immunosuppression, hypercoagulable state, cancer and anticoagulation therapy
Carotid or Vertebral Dissection

- Can present with neck pain and signs of transient cerebral ischemia or stroke
- Consider with neck or head trauma
Subacute & Persistent PT HA

**Other PT symptoms?**
- Sleep disruption
- Mood changes
- Nausea
- Dizziness
- Balance problems
- Cognitive changes
- Pattern of symptoms evolved over time
Subacute & Persistent PT HA

- Is headache increasing vs decreasing over time? -- Consider Secondary Headaches
- Systemic, metabolic, infectious or toxic, alcohol & drugs
- Have they been advised to “rest”?  
  - What he/she is doing to “rest”
- How does HA change with activity?
- Too much—exacerbate headache
- Too little/restrictive—may increase anxiety
Testing/Screening Options
Balance Testing

Neurocognitive Testing

Speech & Language
Singer, a performer on stage, wildly popular in school.
Starting inside linebacker at 15yo for the W.S. Reynolds High School Demons in Winston-Salem.
The Demons were lining up against the Page High School (Greensboro) Pirates. In the fourth quarter, Matt suffered from a severe helmet to helmet collision, struggled to his feet and was shipped by ambulance to the hospital.
He slipped into a coma, declared brain dead the next day and, on the 24th with family surrounding him, hospital workers pulled the plug.
Jaquan Waller
September 19, 2008

- HS Junior, running back for varsity team Greenville’s H.J. Rose, a team that faces off with the New Bern Bears every year.

- While carrying the ball at the line of scrimmage, had a hard hit with an opposing player caused him to fumble. Stunned, he made it to the sideline where he collapsed. He was taken to Pitt County Memorial where he was placed on life support. The next day he was dead.

- Both Jaquan and Matthew had suffered concussions during practices just a day or two before their fatal games.

- Medical examiner’s declaration of Waller’s cause of death on his death certificate reads, “Closed head injury due to sequential impacts during contact sport.”

- “Jaquan Waller died accidentally as the result of what is called ‘second impact syndrome.’
Gfeller-Waller Concussion Awareness Act

Signed into law on June 16, 2011 by Governor Beverly Purdue (NC).

3 Components:

* Education
* Emergency action and post-concussion protocol implementation
* Clearance/return to play or practice following concussion.

Retrieved from https://www.nchsaa.org/parents-students/health-safety/concussion-awareness
**Gfeller-Waller NCHSAA Student-Athlete & Parent/Legal Custodian Concussion Information Sheet**

What is a concussion? A concussion is an injury to the brain caused by a direct or indirect blow to the head. It results in your brain not working as it should. It may or may not cause you to black out or pass out. It can happen to you from a fall, a hit to the head, or a hit to the body that causes your head and your brain to move quickly back and forth.

How do I know if I have a concussion? There are many signs and symptoms that you may have following a concussion. A concussion can affect your thinking, the way your body feels, your mood, or your sleep. Here is what to look for:

<table>
<thead>
<tr>
<th>Thinking/Remembering</th>
<th>Physical</th>
<th>Emotional/Mood</th>
<th>Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty focusing</td>
<td>Headache</td>
<td>Difficulty thinking faster</td>
<td>Headache</td>
</tr>
<tr>
<td>Getting tired</td>
<td>Fuzzy or blurry vision</td>
<td>Difficulty concentrating</td>
<td>Fatigue</td>
</tr>
<tr>
<td>Taking longer to figure things out</td>
<td>Feeling sick to your stomach/nausea</td>
<td>Difficulty remembering new information</td>
<td>Nausea</td>
</tr>
<tr>
<td>Difficulty concentrating</td>
<td>Vomiting/throwing up</td>
<td>Difficulty remembering new information</td>
<td>Feeling more moody</td>
</tr>
<tr>
<td>Difficulty remembering new information</td>
<td>Dizziness</td>
<td>Difficulty remembering new information</td>
<td>Feeling nervous or worried</td>
</tr>
<tr>
<td>Loss of balance</td>
<td>Slurred speech</td>
<td>Difficulty remembering new information</td>
<td>Feeling more nervous</td>
</tr>
<tr>
<td>Difficulty remembering new information</td>
<td>Sensitivity to noise or light</td>
<td>Difficulty remembering new information</td>
<td>Feeling more sensitive to light</td>
</tr>
</tbody>
</table>

Table is adapted from the Centers for Disease Control and Prevention (http://www.cdc.gov/concussion/)

What should I do if I think I have a concussion? If you are having any of the signs or symptoms listed above, you should tell your parents, coach, athletic trainer or school nurse so they can get you the help you need. If a parent notices these symptoms, they should inform the school nurse or athletic trainer.

When should I be particularly concerned? If you have a headache that gets worse over time, you are unable to control your body, you throw up repeatedly or feel more and more sick to your stomach, or your words are coming out fanny/stilted, you should let an adult like your parent or coach or teacher know right away, so they can get you the help you need before things get worse.

What are some of the problems that may affect me after a concussion? You may have trouble in some of your classes at school or even with activities at home. If you continue to play or return to play too early with a concussion, you may have long-term trouble remembering things or paying attention, headaches may last a long time, or personality changes can occur. Once you have a concussion, you are more likely to have another concussion.

How do I know when it’s okay to return to physical activity and my sport after a concussion? After telling your coach, your parents, and any medical personnel around that you think you have a concussion, you will probably be seen by a doctor trained in helping people with concussions. Your school and your parents can help you decide who is best to treat you and help you make the decision on when you should return to activity/play or practice. Your school will have a policy on how to treat concussions. You should not return to play or practice on the same day as your suspected concussion.

You should not have any symptoms at rest or during/after activity when you return to play, as this is a sign your brain has not recovered from the injury.

*This information is provided to you by the UNC Matthew Gfeller Sport-Related TB Research Center, North Carolina Medical Society, North Carolina Athletic Trainers’ Association, Brain Injury Association of North Carolina, North Carolina Neurological Society, and North Carolina High School Athletic Association.*

**Gfeller-Waller NCHSAA Student-Athlete & Parent/Legal Custodian Concussion Statement Form**

Instructions: The student athlete and his/her parent or legal custodian, must initial beside each statement acknowledging that they have read and understand the corresponding statement. The student-athlete should initial in the left column and the parent or legal custodian should initial in the right column. Some statements are applicable only to the student-athlete and should only be initialed by the student-athlete.

This form must be completed for each student-athlete, even if there are multiple student-athletes in the household.

Student-Athlete Name: (please print) __________________________________________________________________________________________

Parent/Legal Custodian Name(s): (please print) ______________________________________________________________________________________

**Student-Athlete Initials**

A concussion is a brain injury, which should be reported to my parent(s) or legal custodian(s), my or my child’s coach(es), or a medical professional if one is available.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

A concussion cannot be “seen.” Some signs and symptoms might be present immediately; however, other symptoms can appear hours or days after an injury.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

I will tell my parents, my coach and/or a medical professional about my injuries and illnesses.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

If I think a teammate has a concussion, I should tell my coach(es), parent(s)/legal custodian(s) or medical professional about the concussion.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

I, or my child, will not return to play in a game or practice if a hit to my, or my child’s, head or body causes any concussion-related symptoms.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

I, or my child, will need written permission from a medical professional trained in concussion management to return to play or practice after a concussion.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

Based on the latest data, most concussions take 7 days or less to get better. A concussion may not go away, right away. I realize that resolution from a concussion is a process that may require more than one medical visit.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

I realize that ER/Urgent Care physicians will not provide clearance to return to play or practice, if seen immediately or shortly after the injury.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

After a concussion, the brain needs time to heal. I understand that for my child it is much more likely to have another concussion or more serious brain injury if return to play or practice occurs before concussion symptoms go away.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

Sometimes, repeat concussions can cause serious and long-lasting problems.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

I have read the concussion symptoms listed on the Student-Athlete/Parent Legal Custodian Concussion Information Sheet.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

I have asked an adult and/or medical professional to explain any information contained in the Student-Athlete & Parent Concussion Information Sheet that I do not understand.

<table>
<thead>
<tr>
<th>Confirms the above statement</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

**By signing below, we agree that we have read and understand the information contained in the Student-Athlete & Parent/Legal Custodian Concussion Statement Form, and have initialed appropriately beside each statement.**

Signature of Student-Athlete ____________________________________________________________________________ Date ________

Signature of Parent/Legal Custodian _______________________________________________________________________ Date ________

Rev May 2016 Approved for use in 2018-19 School Year
SW-16yo Volleyball

- CC-2 months ago, hit teammate’s head; then hit floor during VB game; now with trouble concentrating and memory, sleep & HA
Treatment for Acute Posttraumatic Headache
Treatment for Acute PT HA

- Exclude intracranial hemorrhage or lesion:
- Use ibuprofen, acetaminophen, naproxen
- HA Hygiene- sleep healthy eating, hydration & stress management

- Caution with triptan use- theoretical risk of vasospasm, may exacerbate hypoperfusion in underlying vascular injury?
Treatment for Persistent Posttraumatic Headache
Treatment of PPT HA

- Triad- CBT, physical rehabilitation & pharmacological management
- Education about course and treatment of concussion shown to improved outcome following pediatric mTBI
  - Lifestyle changes
  - Proper use of acute and prophylactic medications
  - Realistic expectations including time to recovery
Lifestyle modification
Behavioral Measures
Nonpharmacologic Interventions
Lifestyle Modifications

- **Brain Rest** - what is it?
- Rest X 5 days VS Rest for 1-2 days, then stepwise return to activities
- **total prolonged rest** = more post-concussive symptoms
- School and activity modifications
- Regular bedtimes/sleep
- Limit caffeine intake
ACUTE CONCUSSION EVALUATION (ACE)

CARE PLAN

Patient Name: __________________________
DOB: ___________ Age: ___________
Date: ___________ ID/MHR: __________
Date of Injury: ___________

You have been diagnosed with a concussion (also known as a mild traumatic brain injury). This personal plan is based on your symptoms and is designed to help speed your recovery. Your careful attention to it can also prevent further injury.

You should not participate in any high risk activities (e.g., sports, physical education (PE), riding a bike, etc.) if you still have any of the symptoms below. It is important to limit activities that require a lot of thinking or concentration (homework, job-related activities), as this can also make your symptoms worse. If you no longer have any symptoms and believe that your concentration and thinking are back to normal, you can slowly and carefully return to your daily activities. Children and teenagers will need help from their parents, teachers, coaches, or athletic trainers to help monitor their recovery and return to activities.

Today the following symptoms are present (circle or check). No reported symptoms

<table>
<thead>
<tr>
<th>Physical</th>
<th>Thinking</th>
<th>Emotional</th>
<th>Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headaches</td>
<td>Sensitivity to light</td>
<td>Feeling mentally foggy</td>
<td>Irritability</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drowsiness</td>
</tr>
<tr>
<td>Nausea</td>
<td>Sensitivity to noise</td>
<td>Problems concentrating</td>
<td>Sadness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sleeping more than usual</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Numbness/Tingling</td>
<td>Problems remembering</td>
<td>Feeling more emotional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sleeping less than usual</td>
</tr>
<tr>
<td>Visual problems</td>
<td>Vomiting</td>
<td>Feeling more slowed down</td>
<td>Nervousness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Trouble falling asleep</td>
</tr>
<tr>
<td>Balance Problems</td>
<td>Dizziness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RED FLAGS: Call your doctor or go to your emergency department if you suddenly experience any of the following:

<table>
<thead>
<tr>
<th>Headaches that worsen</th>
<th>Look very drowsy, can't be awakened</th>
<th>Can't recognize people or places</th>
<th>Unusual behavior changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seizures</td>
<td>Nausea/vomiting</td>
<td>Increasing confusion</td>
<td>Increasing irritability</td>
</tr>
<tr>
<td>Neck pain</td>
<td>Slurred speech</td>
<td>Weakness or numbness in arms or legs</td>
<td>Loss of consciousness</td>
</tr>
</tbody>
</table>

Returning to Daily Activities

1. Get lots of rest. Be sure to get enough sleep at night- no late nights. Keep the same bedtime weekdays and weekends.
2. Take daytime naps or rest breaks when you feel tired or fatigued.
3. Limit physical activity as well as activities that require a lot of thinking or concentration. These activities can make symptoms worse.
   • Physical activity includes PE, sports practices, weight-training, running, exercising, heavy lifting, etc.
   • Thinking and concentration activities (e.g., homework, classwork load, job-related activity).
4. Drink lots of fluids and eat carbohydrates or protein to main appropriate blood sugar levels.
5. As symptoms decrease, you may begin to gradually return to your daily activities. If symptoms worsen or return, lessen your activities, then try again to increase your activities gradually.
6. During recovery, it is normal to feel frustrated and sad when you do not feel right and you can't be as active as usual.
7. Repeated evaluation of your symptoms is recommended to help guide recovery.

Returning to School

1. If you (or your child) are still having symptoms of concussion you may need extra help to perform school-related activities. As your (or your child's) symptoms decrease during recovery, the extra help or supports can be removed gradually.
2. Inform the teacher(s), school nurse, school psychologist or counselor, and administrator(s) about your (or your child's) injury and symptoms. School personnel should be instructed to watch for:
   • Increased problems paying attention or concentrating
   • Increased problems remembering or learning new information
   • Longer time needed to complete tasks or assignments
   • Greater irritability, less able to cope with stress
   • Symptoms worsen (e.g., headache, tiredness) when doing schoolwork

---Continued on back page---

This form is part of the "Heads Up: Brain Injury in Your Practice" tool kit developed by the Centers for Disease Control and Prevention (CDC).
Returning to School (Continued)

Until you (or your child) have fully recovered, the following supports are recommended: (check all that apply)

- No return to school. Return on (date) ________________
- Return to school with following supports. Review on (date) ________________
- Shortened day. Recommend ________ hours per day until (date) ________________
- Shortened classes (i.e., rest breaks during classes). Maximum class length: ________ minutes.
- Allow extra time to complete coursework/assignments and tests.
- Lessen homework load by ________%. Maximum length of nightly homework: ________ minutes.
- No significant classroom or standardized testing at this time.
- Check for the return of symptoms (use symptom table on front page of this form) when doing activities that require a lot of attention or concentration.
- Take rest breaks during the day as needed.
- Request meeting of 504 or School Management Team to discuss this plan and needed supports.

Returning to Sports

1. You should NEVER return to play if you still have ANY symptoms – (Be sure that you do not have any symptoms at rest and while doing any physical activity and/or activities that require a lot of thinking or concentration.)
2. Be sure that the PE teacher, coach, and/or athletic trainer are aware of your injury and symptoms.
3. It is normal to feel frustrated, sad and even angry because you cannot return to sports right away. With any injury, a full recovery will reduce the chances of getting hurt again. It is better to miss one or two games than the whole season.

The following are recommended at the present time:

- Do not return to PE class at this time
- Return to PE class
- Do not return to sports practices/games at this time
- Gradual return to sports practices under the supervision of an appropriate health care provider.
  - Return to play should occur in gradual steps beginning with aerobic exercise only to increase your heart rate (e.g., stationary cycle), moving to increasing your heart rate with movement (e.g., running); then adding controlled contact if appropriate; and finally return to sports competition.
  - Pay careful attention to your symptoms and your thinking and concentration skills at each stage of activity. Move to the next level of activity only if you do not experience any symptoms at the next level. If your symptoms return, stop these activities and let your health care professional know. Once you have not experienced symptoms for a minimum of 24 hours and you receive permission from your health care professional, you should start again at the previous step of the return to play plan.

Gradual Return to Play Plan

1. No physical activity
2. Low levels of physical activity (i.e., walking, light jogging, light stationary biking, light weightlifting (lower weight, higher reps, no bench, no squat)).
3. Moderate levels of physical activity with body/head movement. This includes moderate jogging, brief running, moderate-intensity stationary biking, moderate-intensity weightlifting (reduced time and/or reduced weight from your typical routine).
4. Heavy non-contact physical activity. This includes sprinting/running, high-intensity stationary biking, regular weightlifting routine, non-contact sport-specific drills (in 3 planes of movement).
5. Full contact in controlled practice.
6. Full contact in game play.

*Neuropsychological testing can provide valuable information to assist physicians with treatment planning, such as return to play decisions.

This referral plan is based on today’s evaluation:

- Return to this office. Date/Time
- Refer to: Neurosurgery____ Neurology____ Sports Medicine____ Physiatrist____ Psychiatrist____ Other____
- Refer for neuropsychological testing
- Other____

ACE Care Plan Completed by: __________ MD RN NP PhD ATC

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Acute Treatment for HA Exacerbations in Patients with Persistent Posttraumatic Headache
Acute Treatment for Exacerbation of HA

- If needed, medications should be given at home, school, after school care.
- Limit abortive treatment to no more than 3x/week.
- No place for opioids, steroids, barbiturates- risk for long-term dependence, development of MOH.
- If migrainous symptoms- consider migraine treatment.
Preventive Therapy for Persistent Posttraumatic Headache
Preventive Treatment for PPT HA

- Magic numbers - >4 HA/mo
- Acute/episodic medications not effective
- Goals are reducing Ha frequency, prevent progression to chronic daily headache, improving HA-related disability
- Medications
- Nerve blocks
ImPACT Testing

- Assesses intelligence, problem-solving, language, attention, concentration, working memory, information process speed
- Inexpensive; 20-30 minutes; can be repeated
- *Leads to more conservative management; athletes tested less likely to return to play same day
- *Adjunct data to determine return to play decision
- *Demonstrate deficits despite not having complaints important to allow time for complete recovery, to prevent 2nd-Impact syndrome
- *Can be done while symptomatic & assist with school management; determine if cognitive rest is needed
NG-15yo football and wrestling

CC-headaches 2-3x/week for >2 years

PMH-Never had a “concussion”
Has had his “bell rung” almost every game but never “passed out”
Conclusions

- Most acute PT HA resolve within 2-3 weeks
- Significant minority develop PPT HA, leading to disability, disruption of academic, athletic, family & social activities
- Thorough evaluation
- Exclude secondary headache
- Develop individualized treatment strategies:
  - Lifestyle changes
  - Complementary treatments
  - Psychological support
  - Pharmacological treatments
  - School accommodations
  - Repeat evaluations
To Play or Not to Play....
Thank You

Picture used with permission from Ashley Ayscue
The Daily Dispatch, Henderson, NC
References


