PEDIATRIC MIGRAINE
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February 2017

PEDIATRIC HEADACHE
- No disclosures or conflicts of interest

OBJECTIVES
- Distinguish between migraines and other types of headaches
- Explain the differences between pediatric migraines and adult migraines
- Treat pediatric migraines using current treatment methods
HEADACHE SIGNIFICANCE

- 40% of all Americans will have significant headaches during their lives
- 58% report some form of headache during past year
- Prevalence of headaches (all types)
  - Elementary school = 37-51%
  - High school = 57-82%
- In childhood, migraine > tension; reverses in adolescence

MIGRAINE SIGNIFICANCE

- Migraine headache
  - 3 to 7 years old: 1.2 – 3.2% (M > F)
  - 7 to 11 years old: 4-11% (M = F)
  - 11 to > 15 years old: 8-23% (F > M)
- Mean age of onset:
  - Boys: 7.2 years old
  - Girls: 10.9 years old

> 6 MILLION CHILDREN AND ADOLESCENTS IN THE US HAVE MIGRAINES
CASE # 1

- 8 yo F presents with throbbing headache 2-3 times per week for the past year. Associated nausea but no vomiting. She wants to rest in her room when she has a headache. She appears pale and tired with headache. Medicines do not help so she is not taking any Tylenol or Ibuprofen. Neuro exam is normal. No papilledema. Family history of migraine in mother and motion sickness in sister.

- What additional history would you like?
- What is the diagnosis?

MIGRAINE HISTORY

Headache Description
- Onset (acute vs. chronic)
- Pattern and time of day
- Frequency and Duration
- Severity/Quality
- Location (can be bilateral in children)
- Associated symptoms
- Exacerbating factors – coughing / sneezing or putting on their shoes

MIGRAINE HISTORY

- Triggers
  - Stress, sleep changes, exercise, dehydration, loud light, weather, menstrual cycle/hormonal changes, sleeping on head, particular foods, caffeine, computer use, environmental factors (smoke, etc.), motion (travel), minor trauma
- Premonitory symptoms
  - Irritability, fatigue, facial expression changes
MIGRAINE HISTORY

- Theraies attempted
- Medications
- Supplements
- Complementary therapy
- Depression and anxiety assessment
- Headache hygiene and lifestyle
- Prior evaluation
- Family history of headaches

PEDMIDAS GRADING SCALE

<table>
<thead>
<tr>
<th>PedMIDAS Score Range</th>
<th>Disability Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10</td>
<td>Little to none</td>
</tr>
<tr>
<td>11 to 30</td>
<td>Mild</td>
</tr>
<tr>
<td>31 to 50</td>
<td>Moderate</td>
</tr>
<tr>
<td>&gt; 50</td>
<td>Severe</td>
</tr>
</tbody>
</table>
INTERNATIONAL HEADACHE CLASSIFICATION
BETA VERSION - 2013

- Part 1. Primary
- Part 2. Secondary (caused by something else)
- Part 3. Cranial neuralgias

INTERNATIONAL HEADACHE CLASSIFICATION:
PART 1 – PRIMARY HEADACHE

- Migraine
- Migraine without aura
- Migraine with aura
- Other types of migraine
- Tension headache
- New daily persistent headache
MIGRAINE WITHOUT AURA

A. At least five attacks fulfilling criteria B-D
B. Headache attacks lasting 4-72 hours (2-72 hours in children)
C. Headache has at least two of the following characteristics:
   - Unilateral location (bilateral in children)
   - Pulsating quality
   - Moderate or severe pain intensity
   - Aggravation by or causing avoidance of routine physical activity
D. During headache at least one of the following:
   - Nausea and/or vomiting
   - Photophobia and phonophobia (may be inferred by behavior)
E. Not better accounted for by another ICHD-3 diagnosis

MIGRAINE WITH TYPICAL AURA

A. At least two attacks fulfilling criteria B and C
B. One or more of the following fully reversible motor symptoms
   - Visual
   - Sensory
   - Speech and/or language
C. At least two of the following:
   - At least one aura symptom spreads gradually over > 5 minutes and/or two or more aura symptoms occur in succession
   - Each individual symptom lasts 5-60 min
   - At least one aura symptom is unilateral
   - The aura is accompanied or following within 60 min by a headache
D. Not accounted for by another ICHD-3 diagnosis and TIA excluded

HEMIPLEGIC MIGRAINE

- Familial autosomal dominant or spontaneous
- Auras consisting of both of the following:
  - Fully reversible motor symptoms
  - Fully reversible visual, sensory, and/or speech/language symptoms
- Motor weakness may precede, accompany, or follow the headache
- Attacks can be provoked by emotional stress, mild head trauma, or exertion
- CACNA1A (chromosome 19), ATP1A2 (chromosome 1), SCN1A (chromosome 2)
OTHER MIGRAINE VARIANTS

- Basilar migraine
- Retinal migraine
- Cyclic vomiting syndrome
- Abdominal migraine
- Benign paroxysmal vertigo of childhood
- Paroxysmal torticollis of infancy

PEDIATRIC MIGRAINE

- Shorter duration (2 hours vs. 4 hours)
- Often bilateral and frontal or temporal, but localization may be difficult
- Poor description of characteristics
- More likely to have prodromes and triggers
- Less frequent aura (14-30%)
- Appearance changes over time (cyclic vomiting in younger children)
- More often with a family history (70%)

ADDITIONAL MIGRAINE ASPECTS

- Probable Migraine
  - Less than 5 attacks
  - Does not meet one of the characteristics of migraine
- Complications of migraine
  - Status migrainosus (> 72 hours with debilitating pain)
  - Persistent aura without infarction
  - Migrainous infarction
  - Seizure triggered by migraine aura
**PHASES OF MIGRAINE**

- **Prodrome**
  - Precedes headache by as much as 24 hours
  - Pale and listless, thirst, food cravings, anorexia, mood changes
  - More common in migraine without aura
  - If informed about the prodrome phase, many parents are able to recognize when a headache may occur.

- **Headache phase**
  - Head pain with gradual or rapid onset
  - No location precludes diagnosis of migraine
  - Can occur at any time (25% awaken from sleep)
  - Seeks quiet, dark room due to photophobia and phonophobia
  - Anorexia, nausea, and vomiting
  - Dizziness, lightheadedness, blurred vision
  - Abdominal pain, cold extremities, chills, sweating
  - Often pale with dark circles under eyes

- **Post-drome**
  - Exhusted
  - Some experience elation and enhanced energy
  - Can last for several days
PATHOPHYSIOLOGY OF MIGRAINE

- Vascular theory (1938)
  - Aura: vasoconstriction, resulting in focal ischemia
  - Headache: compensatory vasodilation, stretching pain fibers in arterial walls and acidosis
- Neuronal theory
  - Paroxysmal depolarization of cortical neurons

https://www.ichd-3.org

PATHOPHYSIOLOGY OF MIGRAINE

- Trigeminal – vascular theory
  - Depolarization of cortical neurons followed by reduction in posterior cerebral blood flow
  - Initial phase of cortical spreading depression
  - Sensitization of pain pathways
  - NO, 5-HT, and CGRP all play a role

CORTICAL SPREAD DEPRESSION

- Spreading Depression of Leao
  - Travels at 2-3 mm/min
  - Neuronal activation followed by suppression
  - Brainstem mediated
  - Starts occipital, spreads to central sulcus, then to meningeal trigeminal fibers
  - Correlated with blood flow
  - May activate nociceptors through NO, ANF, or nonadrenergic pathways
MIGRAINE TIDBITS

- People with migraine are more prone to motion sickness and sleep disturbances (including sleep walking)
- Aversion to objects with striped pattern (82%)
- Onset of headache with ice cream in > 90%
- 6-8 times increased risk of stroke in patient with migraine with aura if on estrogen containing OCP (if using estrogen should be less than 20 mcg)
- No triptans for hemiplegic migraine and debate regarding use in migraine with aura

MIGRAINE VS TENSION HEADACHES

- Tension Type Headache
  - Mild to moderate in intensity
  - Band-like in distribution
  - Pain involves the neck and occipital muscle pain
  - Pain is essentially continuous
  - Doesn’t typically involve N/V or abdominal pain
  - Occurs during times of stress
  - Less likely to run in families

CASE # 1

- 8 yo F presents with throbbing headache 2-3 times per week for the past year. Associated nausea but no vomiting. She wants to rest in her room when she has a headache. She appears pale and tired with headache. Medicines do not help so she is not taking any Tylenol or Ibuprofen. Neuro exam is normal. No papilledema. Family history of migraine in mother and motion sickness in sister.
- Diagnosis: Migraine without aura
CASE # 2

- 17 yo F presents with headache for the past 6 months starting every few days and then increasing to daily. She is unable to describe the headache quality or location and there is no pattern. Occasional photophobia and nausea sometimes. History of headaches last year after a concussion. MRI brain and neurological exam is normal.

- Anything else you want from the history?
- What is the diagnosis?
- Any other evaluation you would recommend?

INDICATIONS FOR LABS AND LUMBAR PUNCTURE

AAN practice parameter for recurrent headaches in children ages 3-18 years old unassociated with trauma, fever, or other obvious provocative cause

RECOMMENDATION

"There is inadequate documentation in the literature to support any recommendation as to the value of routine laboratory studies or performance of routine lumbar puncture in the evaluation of recurrent headache in children."
CAN EEG HELP WITH THE DIAGNOSIS OF MIGRAINE

- There is a higher incidence of abnormal EEG patterns in migraine patients than all headache patients or age-matched non-headache patients.

Lewis, Ashwal, Dahl, et al. 2002

INDICATIONS FOR EEG

RECOMMENDATIONS:
- “EEG is not recommended in the routine evaluation of a child with recurrent headaches, as it is unlikely to provide an etiology, improve diagnostic yield, or distinguish migraine from other types of headache.”
- “Although the risk of future seizures is negligible in children with recurrent headache and paroxysmal EEG, future investigations for epilepsy should be determined by clinical follow-up.”

INDICATIONS FOR NEUROIMAGING

RECOMMENDATIONS:
- “Obtaining a neuroimaging study on a routine basis is not indicated in children with recurrent headaches and a normal neurological examination.”
- “Neuroimaging should be considered in children with abnormal neurologic examination (e.g., focal findings, signs of increased intracranial pressure, significant alteration in consciousness, or both).”
- “Neuroimaging should be considered in children in whom there are historical features to suggest the recent onset of severe headache, change in type of headache, or if there are associated features that suggest neurologic dysfunction.”
INDICATIONS FOR IMAGING

- Associated features that place children in "high risk" group:
  - Headache for < 6 months and at least one other predictor
  - Sleep-related headache
  - Nausea
  - Confusion
  - Absence of visual aura
  - Absence of family history of migraine
  - Abnormal neurological exam

PRIMARY VS SECONDARY HEADACHE

<table>
<thead>
<tr>
<th>Historical features</th>
<th>Primary headache</th>
<th>Secondary headache</th>
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</thead>
<tbody>
<tr>
<td>Onset</td>
<td>&gt; 6 months</td>
<td>&lt; 6 months</td>
</tr>
<tr>
<td>Pattern</td>
<td>Recurrent, daily</td>
<td>Progressive</td>
</tr>
<tr>
<td>Location</td>
<td>Frontal, lateral</td>
<td>Posterior</td>
</tr>
<tr>
<td>Quality</td>
<td>Throbbing, pressure</td>
<td>Pressure</td>
</tr>
<tr>
<td>Time of day</td>
<td>Anytime</td>
<td>Early morning</td>
</tr>
<tr>
<td>Frequency and duration</td>
<td>Variable, hours to days</td>
<td>Constant</td>
</tr>
<tr>
<td>Nausea and vomiting</td>
<td>Nausea &gt;&gt; vomiting</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Visual changes</td>
<td>Aura</td>
<td>Diplopia</td>
</tr>
<tr>
<td>Photo and phonophobia</td>
<td>Common</td>
<td>Absent</td>
</tr>
</tbody>
</table>

TREATMENT

CASE # 3

- 14 yo M with intermittent headaches for the past 2-3 years that is bitemporal and frontal. He has a decreased appetite and stomach does not feel well with headaches. Sometimes there is nausea or vomiting. PEDMidas score is 55 (severe disability). Neurological exam is normal.

- Any other information you would like?
- What is the diagnosis?
- What would you do for treatment!
COMPREHENSIVE TREATMENT

- Abortive medications for acute treatment
- Preventive daily medications
- Non-pharmacologic and bio-behavioral interventions

LIFESTYLE RECOMMENDATIONS

- Diet
  - 3 healthy meals every day, no skipping, snacks if needed
  - Focus on breakfast that includes some protein
- Exercise
- Hydration
  - At least 6-8 glasses of water per day
  - Restrict caffeinated beverages
- Sleep
  - Limit screen time to < 2 hours per day
  - Coping skills / relaxation

GOALS OF ACUTE TREATMENT

- Treat attacks rapidly and consistently, and without recurrence
- Restore the patient’s ability to function
- Minimize the use of back-up and rescue medications
- Optimize self-care and reduce subsequent use of resources
- Have minimal or no side effects
- Cost-effective for overall management
ACUTE TREATMENT PRINCIPLES

- Early treatment (1st 10 minutes)
- Correct dose
- Correct formulation
- Step-wise treatment
- Don’t judge effectiveness too quickly
- Avoid converting to medication overuse headache
- Triptans 2x per week at most
- Ibuprofen 3x per week at most

AAN GUIDELINES

- Ibuprofen is effective and should be considered for the acute treatment of migraine in children (doses of 7.5 mg/kg – 10 mg/kg) (Level A)
- Acetaminophen is probably effective (15 mg/kg) (Level B)
- Sumatriptan nasal spray is effective (Level A)
  - < 50kg then 25mg, > 50kg then 50mg
- No data to support or refute use of any oral triptan preparations in children or adolescents
- Inadequate data to make judgment on efficacy of subcutaneous sumatriptan

TRIPTANS

- Selective serotonin agonists
- FDA approved in children
  - Sumatriptan and almotriptan approved > 12 yo
  - Rizatriptan approved > 6 yo
  - < 40 kg: 5mg and > 40kg: 10mg
- Safe, effective
  - Except with heart disease, hypertension, pregnancy, headache or hemiplegic migraines (l aura)
- Forms include
  - Injections, tablets, nasal sprays
TRIPTANS

- Side-effects
  - Tingling
  - Dizziness
  - Warmth
  - Nausea
  - Weakness
  - Chest tightness

ACUTE STATUS MIGRAINOSIS TREATMENT

- Migraine cocktail: ketorolac, diphenhydramine, and prochlorperazine plus IV fluids
- Prochlorperazine not only reduces nausea but also helps with underlying headache process
- Prochlorperazine (82% response) more effective than metoclopramide (42%)
- Magnesium 1-2g and Sodium valproate 20 mg/kg up to 1000mg
- Dihydroergotamine (DHE) if no triptan in past 24 hours

PREVENTATIVE TREATMENT

- When to treat:
  - > 1 headache per week
  - Large impact (missing school or work)
  - Poor response to acute medication
  - Hemiplegic or other concerning features
- Goals of treatment:
  - Reduce the headache frequency to < 1-2 per month
  - PHMIDAS score < 10 for sustained period of time (4-6 months)
PREVENTATIVE MEDICATIONS

- Topiramate
- Sodium valproate
- Levetiracetam
- Amantadine or Neurontin
- Propranolol
- Cyproheptadine
- Flunarizine (not available in US), verapamil

TOPIRAMATE

Table 1. Baseline Demographic and Migraine Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Topiramate</th>
<th>Placebo</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, n (%)</td>
<td>18 (75%)</td>
<td>11 (71%)</td>
<td>0.85</td>
</tr>
<tr>
<td>Age, y (mean)</td>
<td>38 (8)</td>
<td>37 (8)</td>
<td>0.6</td>
</tr>
<tr>
<td>BMI, kg/m^2 (mean)</td>
<td>26.6 (4.3)</td>
<td>26.9 (3.9)</td>
<td>0.78</td>
</tr>
<tr>
<td>Migraine frequency (mean)</td>
<td>16.4 (6.0)</td>
<td>15.8 (6.0)</td>
<td>0.43</td>
</tr>
<tr>
<td>Migraine duration (mean)</td>
<td>21.5 (9.8)</td>
<td>21.2 (9.6)</td>
<td>0.84</td>
</tr>
<tr>
<td>Migraine severity (mean)</td>
<td>5.9 (1.6)</td>
<td>5.3 (1.3)</td>
<td>0.07</td>
</tr>
<tr>
<td>Rescue medication use (mean)</td>
<td>6.19 (2.91)</td>
<td>6.01 (2.92)</td>
<td>0.68</td>
</tr>
<tr>
<td>PainDIQ score</td>
<td>10.6 (1.1)</td>
<td>10.3 (1.2)</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Lakshmi et al, 2006

- Baseline period of 25mg daily that was increased up to 100mg per day over 4 weeks followed by 12 weak maintenance phase of 50mg BID
- 95.2% of patients with > 50% reduction in monthly migraine days
- No statistically significant mean change in migraine duration, mean migraine severity, or number of rescue medication used
- Side effects: weight loss (81%), loss of appetite (23.8%), paresthesia (23.8%), increased concentration (19%), sedation (19%), abdominal pain (4.3%)
TOPIRAMATE DOSING

- Adults
  - Start with 25mg at bedtime and increase by 25mg weekly up to 100mg BID
- Peds
  - Start with 12.5mg at bedtime and increase by 12.5mg every 1-2 weeks to 25mg BID
  - Benefit shown up to 2 mg/kg/day divided BID

Figure 3. Decrease in mean monthly migraine frequency: topiramate versus placebo.

Figure 4. Pediatric Migraine Disability Assessment Scale (PedMIDAS) score: topiramate versus placebo.
CYPROPHEPTADINE

- Children
  - 2mg QHS and increase by 2mg every 3 weeks up to 4mg BID (max dose 8mg BID)
  - 2-6 yo - not to exceed 12 mg/day
  - > 7 yo - not to exceed 16mg/day
  - Typical dosing is 0.2-0.4 mg/kg
- Side effects: sedation, weight gain, dry mouth, restlessness

ARE WE REALLY DOING THE RIGHT THING?!

CHAMP STUDY
CHAMP STUDY

- Study completion
  - 80% amitriptyline
  - 78% topiramate
  - 89% placebo
- Serious adverse events
  - Amitriptyline: altered mood (3) and syncope (1)
  - Topiramate: suicide attempt (1)

DISCUSSION POINTS

- Previous data on topiramate was for episodic migraine and ages 12-17 years
- CHAMP study included chronic migraine
- CHAMP study ages 8-17 years old
- Adult headache prevention approach may be different than in children
- Many other medication options available and more studies are needed!
AAN GUIDELINES

- Flunarizine is probably effective for migraine in children but is not available in US (Level B).
- There is insufficient evidence to make any recommendation concerning the use of cyproheptadine, amitriptyline, sodium valproate, topiramate, levetiracetam (Level U).
- Recommendations cannot be made concerning propranolol or trazodone as the evidence is conflicting (Level U).
- Placebo and nimodipine (Level B) and clonidine (Level B) did not efficacy and are not recommended.

COMPLEMENTARY AND INTEGRATIVE APPROACHES

- CoQ10
  - 1-3 mg/kg/day (maximum 100 mg/day)
- Riboflavin
  - 25-100 mg/kg/day
- Butter bur
  - Helpful but pyrrolidine alkaloids can be hepatotoxic, carcinogenic, and veno-occlusive and many headache centers are no longer recommending since not FDA regulated.

MAGNESIUM

- Dose
  - < 9 yo 100mg every day
  - > 9 yo 400mg every day
- In this study 9 mg/kg/day divided TID with food

COMPLEMENTARY AND INTEGRATIVE APPROACHES

- Biofeedback
- Cognitive behavioral therapy
- Massage
- PT
- Acupuncture
- Multi-disciplinary approach!

OTHER MIGRAINE TREATMENTS

- Botox
- Greater occipital nerve blocks
- Transcranial Magnetic Stimulation
  - FDA approved as of 12/2013
- Transcranial Electrical Nerve Stimulation
  - FDA approved as of 3/2014
- CGRP antagonists… current trials

TRANSCRANIAL ELECTRIC NERVE STIMULATION

- Transcutaneous supraorbital neurostimulation
  - 20 min daily for migraine prevention
  - Decrease of > 50 migraine attacks in 81%
  - Decrease of > 50% migraine days in 75%
  - Patient satisfaction - 81%
  - $350

http://www.cefaly.us/en/efficacy/data
**TRANSCRANIAL MAGNETIC STIMULATION**

- Magnetic field induces very mild electrical currents in the brain tissue to excite and depolarize neurons in the brain
- Used for the acute treatment of migraine with aura
- 39% pain-free at 2 hours
- 29% pain-free at 24 hours
- 75% with reduction in headache frequency with regular use
- $800 for 3 month rental

Lipton, 2010.

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**SPECIAL CONSIDERATIONS**

- Chronic daily headache
  - Many of the same preventative medications are used
  - Can also consider Botox every 3 months
  - Need to consider medication overuse
  - Strong need for multidisciplinary approach

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**QUESTIONS**
REFERENCES

• Kabbouche M & Khoury CK. Management of primary headache in the emergency department and inpatient headache unit. Semin Pediatr Neurol 2016; 40-43.
• Kedia, S. Complementary and integrative approaches for pediatric headache. Pediatric Neurology 2016(23); 44-52.
• Gelfand, AA & Goadsby,. The role of melatonin in the treatment of primary headache disorders. Headache 2016; 1-18.

EPISODIC TENSION TYPE HEADACHE

A. At least 10 episodes of headache occurring on <1 day per month on average (<12 days per year) and fulfilling criteria B-D
B. Lasting from 30 min to 7 days
C. At least two of the following four characteristics:
   • Bilateral location
   • Pressing or tightening (non-pulsating) quality
   • Mild or moderate intensity
   • Not aggravated by routine physical activity such as walking or climbing stairs
D. Both of the following:
   • No nausea or vomiting
   • No more than one of photophobia or phonophobia
E. Not better accounted for by another ICHD-3 diagnosis.
NEW DAILY PERSISTENT HEADACHE

A. Persistent headache fulfilling criteria B and C
B. Distinct and clearly-remembered onset, with pain becoming continuous and unremitting within 24 hr
C. Present for >3 months
D. Not better accounted for by another ICHD-3 diagnosis.

SPECIAL CONSIDERATIONS

- New daily persistent headache
- Trial course of Solumedrol (1000mg x 3 days)
- If no concerns for underlying infection
- Pregabalin may be helpful as preventative but often have to fail topiramate / amitriptyline first
- Occipital nerve blocks every 2 weeks x 3

MEDICATION OVERUSE HEADACHE

- Greater than 10 days a month for triptans
- Greater than 15 days a month for analgesics
- Diagnosed if headache disappears after medication cessation
- New category – probable medication overuse
**TRIGEMINAL AUTONOMIC CEPHALGIA**

- Pain felt in same distribution
- V1 distribution
- Unilateral
- Accompanied by cranial nerve autonomic features
- All activate the trigeminal system
- All disinhibit the trigeminofacial reflex responsible for the cranial nerve findings
- Pathway includes brainstem connection at superior salivary nucleus
- All have hypothalamic activation
- Cycling occurs there

<table>
<thead>
<tr>
<th>SUNA</th>
<th>SUNCT</th>
<th>Paroxysmal Headaches</th>
<th>Cluster HA</th>
<th>LASH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>2-600 sec</td>
<td>5-240 sec</td>
<td>2-30 min</td>
<td>15-180 min</td>
</tr>
<tr>
<td>Gender</td>
<td>Males:Females 8:1</td>
<td>Males:Females 8:1</td>
<td>1:3</td>
<td>3:1</td>
</tr>
<tr>
<td>Location</td>
<td>Orbital/periorbital (V1)</td>
<td>Orbital/periorbital (V1)</td>
<td>Orbital/temporal</td>
<td>Orbital/peri-orbital (V1)/temporal</td>
</tr>
<tr>
<td>Autonomic features</td>
<td>At least one Lacrimation, Conjunctival injection</td>
<td>Multiple</td>
<td>Nasal Congestion</td>
<td>Eyelid swelling, ptosis 3-4 hours prior to the HA</td>
</tr>
<tr>
<td>Acute Treatment</td>
<td>Lidocaine</td>
<td>Lidocaine</td>
<td>Indomethacin</td>
<td>ASA</td>
</tr>
<tr>
<td>Preventive Treatment</td>
<td>Gabapentin</td>
<td>Lamictal</td>
<td>Topiramate</td>
<td>Indomethacin</td>
</tr>
<tr>
<td>Severity</td>
<td>Moderate/High</td>
<td>Moderate/High</td>
<td>High</td>
<td>Extremely High</td>
</tr>
<tr>
<td>Attack frequency</td>
<td>1-200/day</td>
<td>1-200/day</td>
<td>1-40/day</td>
<td>1-8/day</td>
</tr>
<tr>
<td>Pain character</td>
<td>Burning/stabbing/sharp</td>
<td>Burning/stabbing/sharp</td>
<td>Sharp/stabbing/throbbing</td>
<td>Stabbing/boring</td>
</tr>
<tr>
<td>Pain duration</td>
<td>&gt; minutes</td>
<td>&gt; minutes</td>
<td>&gt; minutes</td>
<td>&gt; minutes</td>
</tr>
</tbody>
</table>

**Table Note:**
- SUNA: SUNA SUNCT Paroxysmal Headaches Cluster HA LASH
- Duration: 2-600 sec 5-240 sec 2-30 min 15-180 min 1-3 days long
- Gender: Males:Females 8:1 8:1 1:3 3:1
- Location: Orbital/periorbital (V1) Orbital/periorbital (V1) Orbital/temporal Orbital/peri-orbital (V1)/temporal
- Autonomic features: At least one Lacrimation, Conjunctival injection Multiple Nasal Congestion Eyelid swelling, ptosis 3-4 hours prior to the HA
- Acute Treatment: Lidocaine Lidocaine Indomethacin ASA Naproxen
- Preventive Treatment: Gabapentin Lamictal Topiramate Indomethacin Steroids/ Verapamil
- Severity: Moderate/High Moderate/High High Extremely High
- Attack frequency: 1-200/day 1-200/day 1-40/day 1-8/day
- Pain character: Burning/stabbing/sharp Burning/stabbing/sharp Sharp/stabbing/throbbing Stabbing/boring
- Pain duration: > minutes > minutes > minutes > minutes

**Note:**
- SUNA: SUNA SUNCT Paroxysmal Headaches Cluster HA LASH
- Duration: 2-600 sec 5-240 sec 2-30 min 15-180 min 1-3 days long
- Gender: Males:Females 8:1 8:1 1:3 3:1
- Location: Orbital/periorbital (V1) Orbital/periorbital (V1) Orbital/temporal Orbital/peri-orbital (V1)/temporal
- Autonomic features: At least one Lacrimation, Conjunctival injection Multiple Nasal Congestion Eyelid swelling, ptosis 3-4 hours prior to the HA
- Acute Treatment: Lidocaine Lidocaine Indomethacin ASA Naproxen
- Preventive Treatment: Gabapentin Lamictal Topiramate Indomethacin Steroids/ Verapamil
- Severity: Moderate/High Moderate/High High Extremely High
- Attack frequency: 1-200/day 1-200/day 1-40/day 1-8/day
- Pain character: Burning/stabbing/sharp Burning/stabbing/sharp Sharp/stabbing/throbbing Stabbing/boring
- Pain duration: > minutes > minutes > minutes > minutes