Overview of Course

This course analyzes the diagnostic classifications of headaches comparing clinical presentations, medical management, and therapeutic interventions for the adult population. Manifestations of headaches and management subsequent to post-traumatic injuries in pediatric populations are examined.

Goals and Objectives

1. Compare the prevalence of headaches in the United States to other countries.
2. Distinguish the characteristics of the headache classifications: tension-type, migraine, cluster, and medication overuse headaches.
3. Describe the proposed physiologic and anatomic causes of headaches.
4. Compare the various methods of medical management for headaches.
5. Determine musculoskeletal interventions indicated to alleviate headache symptoms.
6. Identify complementary therapies including yoga and mind-body practices which may be appropriate to incorporate in therapeutic programs.
7. Explain the role of pacing interventions in self-management of headaches.
8. Describe the physical and psychological manifestations of headaches in children and adolescents.
9. Identify the characteristics of post-traumatic headaches in adolescents.
10. Summarize the management strategies for post-traumatic headaches.

Course Outline/Schedule

3 hour live interactive webinar

<table>
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<tr>
<th>Topic</th>
<th>Time</th>
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<td>Prevalence of Headaches Internationally</td>
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<tr>
<td>Classification of Headaches</td>
<td>0:16-0:20</td>
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<td>Tension-Type Headache: Characteristics, Pathophysiology, Medical Management</td>
<td>0:21-0:30</td>
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<tr>
<td>Migraine: Characteristics, Causes, Pathophysiology, Medical Management</td>
<td>0:31-0:40</td>
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<tr>
<td>Cluster Headache: Characteristics, Pathophysiology, Medical Management</td>
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<tr>
<td>Medication Overuse Headache: Characteristics, Pathophysiology, Medical Management</td>
<td>0:51-1:00</td>
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<tr>
<td>Pharmacological Management</td>
<td>1:01-1:10</td>
</tr>
<tr>
<td>Medical Management</td>
<td>1:11-1:15</td>
</tr>
<tr>
<td>Musculoskeletal Interventions</td>
<td>1:16-1:30</td>
</tr>
<tr>
<td>Interactive Discussion of Clinical Applications</td>
<td>1:31-1:40</td>
</tr>
<tr>
<td>Complementary Therapies</td>
<td>1:41-1:50</td>
</tr>
<tr>
<td>Pediatric Physiologic Interventions</td>
<td>1:51-2:00</td>
</tr>
<tr>
<td>Pediatric Psychologic Manifestations of Headaches</td>
<td>2:01-2:10</td>
</tr>
<tr>
<td>Post-Traumatic Headache in Adolescents</td>
<td>2:11-2:20</td>
</tr>
<tr>
<td>Interactive Discussion of Clinical Applications</td>
<td>2:21-2:30</td>
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<tr>
<td>Exercise Time</td>
<td>2:31-2:40</td>
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</table>
Emphasis of Course

- The goal is to provide the clinician with an understanding of the various types of headaches, their presentation, pathophysiological mechanisms and medical management to enhance development of comprehensive therapeutic plans to achieve therapeutic goals.

Headache in the United States

- Cephalalgia (Headache) is the 5th leading cause of department visits in the US and is among the top 20 reasons for outpatient medical visits.
- The burden is highest among females ages 18 - 44 where it is the 3rd leading cause of emergency visits.
- Peak gender prevalence ratio of 3:1 females to males occurs at midlife.
- The burden is lowest among males 75 or older.

Prevalence Internationally

<table>
<thead>
<tr>
<th>Country</th>
<th>Prevalence Internationally</th>
<th>Ages</th>
<th>Gender Frequency</th>
<th>Associated Demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>17.23%</td>
<td>Over 30K (multiple studies)</td>
<td>12 and older</td>
<td>Female 3x greater</td>
</tr>
<tr>
<td>Spain</td>
<td>9.69%</td>
<td>95K</td>
<td>16-70 years old</td>
<td>Female 3x greater</td>
</tr>
<tr>
<td>Germany</td>
<td>13.4%</td>
<td>10K</td>
<td>18-65 years old</td>
<td>Female almost 3x greater</td>
</tr>
<tr>
<td>China</td>
<td>23.8%</td>
<td>5K</td>
<td>18-65 years old</td>
<td>Female greater 2-3x greater</td>
</tr>
</tbody>
</table>

- Similar global averages among world countries.

Headache Classification

- The International Classification of Headaches was developed by the International Headache Society and recently updated in 2013 to be utilized as a standard classification for diagnosis, clinical practice, and specificity of research during drug trials and pathophysiology or biochemistry studies.

Headache Classification cont.

- Primary Headache
  - Occurs independent of other medical conditions
  - Tension Type
  - Migraine
  - Cluster
  - Medication Overuse

- Secondary Headache
  - Caused by underlying medical condition
  - Tumor
  - Trauma
  - Infection

Red Flags

- These are warning characteristics that a headache may be due to an underlying medical condition requiring additional evaluation by the physician.
  - Thunderclap headache
  - Progressively worsening headache
  - Atypical aura lasting more than one hour
  - Orthostatic headache
  - Headache triggered by cough, Valsalva, or sneeze
  - Persistent morning headache with nausea
  - Impaired level of consciousness
Characteristics of Headaches

- Classification of primary headaches is related to:
  - Frequency
  - Duration
  - Location of Pain
  - Sensations Experienced
  - Symptoms
  - Impact on Activity
- Having patient maintain headache diary prior to therapy session will assist in identifying the specific type of headache.

Common Types of Primary Headaches

- Tension Type Headache (TTH)
- Migraine
  - With Aura
  - Without Aura
- Cluster Headache
- Medication Overuse Headache

Common finding among all types is normal clinical evaluation

Tension Type Headache (TTH)

- Previously referred to as Stress Headache
- Ordinary Headache
- Muscle Spasm Headache
- This is not the same as Cervicogenic Headache though some symptoms may seem similar.

Tension Type Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>10 or less episodes on average in one year</td>
</tr>
<tr>
<td>Duration</td>
<td>Lasts 30 minutes to 7 days</td>
</tr>
<tr>
<td>Pain Location</td>
<td>Originates in posterior cervical region spreading across top of head to eyes</td>
</tr>
<tr>
<td>Sensations</td>
<td>Bilateral tightness, pulsing</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Pain is increased or relieved with specific positions. No gastrointestinal symptoms</td>
</tr>
<tr>
<td>Activity</td>
<td>Not aggravated by activity</td>
</tr>
<tr>
<td>Etiology-</td>
<td>Trigger: Neck or temporomandibular joint (TMJ) dysfunction, Poor Posture, Fatigue, Stress</td>
</tr>
</tbody>
</table>

Pathophysiology of Tension Type Headache

- Several theories with none widely supported related to the cause of the headache pain.
- Most easily diagnosed type of headache clinically during evaluation.
- While previously referred to as psychogenic or psychomyogenic, recent studies refute this indicating an underlying biologic mechanism.
- Peripheral pain mechanisms in cervical region are the likely cause.

Pathophysiology Tension-Type cont.

- Injury to or arthritis of cervical spine results in tension of posterior cervical musculature increasing pressure on face and head nerves.
- Poor Posture contributes to overuse of these muscles which triggers headache.
- Central Sensitization of pain over time occurs.
Pathophysiology Tension Type cont.

- Psychological or physical stresses lead to somatization manifesting as abnormal muscle contractions in the cervical area.
- Stress such as unresolved personal, professional, or social conflict
- Hormonal changes
- Awkward positioning of cervical spine

Medical Management of Tension-Type

- Pharmacological and therapy interventions indicated.
- If therapy evaluation does not indicate TTH, referral to other healthcare professional for additional diagnostic tests and treatment may be necessary.
- Therapy is directed at the cause of pain:
  - Increase cervical mobility and flexibility
  - Strengthen cervical and scapular stabilizers
  - Improve posture and endurance
  - Ergonomic assessment

Migraine

- This type of headache has a high prevalence, socioeconomic impact, and personal burden.
- Migraine with aura:
  - Presents with transient neurological symptoms preceding the headache.
  - Patients may experience premonitory and resolution phases in days before/after the headache.
  - Migraine can also occur without aura.
  - Previously termed common migraine

Migraine WITHOUT Aura

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Acute - Less than 15 days a month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic</td>
<td>Greater than 15 days a month</td>
</tr>
<tr>
<td>Duration</td>
<td>4 - 72 hours</td>
</tr>
<tr>
<td>Pain Location</td>
<td>Unilateral on anterior head</td>
</tr>
<tr>
<td>Sensations</td>
<td>Moderate to severe frontotemporal or retro-orbital pulsating/throbbing pain</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Individual appears systemically ill</td>
</tr>
<tr>
<td></td>
<td>Nausea and/or vomiting</td>
</tr>
<tr>
<td></td>
<td>Photophobia</td>
</tr>
<tr>
<td></td>
<td>Phonophobia</td>
</tr>
<tr>
<td>Activity</td>
<td>Exacerbated with activity resulting in avoidance</td>
</tr>
<tr>
<td>Etiology</td>
<td>Neurobiologic</td>
</tr>
<tr>
<td></td>
<td>Specific individual triggers</td>
</tr>
</tbody>
</table>

Migraine WITH Aura

- Previously referred to as:
  - Hemiplegic Migraine
  - Complicated Migraine
- Debilitating unilateral migraine pain and characteristics are the same as without aura with the addition of aura symptoms presenting themselves.
- Aura is a complex of neurological symptoms experienced within one hour before the headache pain.
- Symptoms develop over greater than 5 minutes gradually spreading lasting up to 60 minutes for each symptom.

Aura Symptoms

- Important to note that during aura there is NO PAIN.
- Unilateral and fully reversible aura symptoms in descending order of prevalence include:
  - Visual disturbance
  - Altered sensation
  - Aphasia and or dysarthria
  - Motor weakness
  - Brain stem symptoms (vertigo, tinnitus, ataxia)
Premonitory Phase

- Migraine with aura is also associated with a premonitory phase in the **hours or up to two days prior to the aura/headache**.
- Individuals experience symptoms that may alert them to an impending migraine.
  - Fatigue
  - Difficulty concentrating
  - Neck stiffness
  - Light/sound sensitivity
  - Nausea
  - Blurred vision
  - Yawning
  - Pallor

Chronology of Migraine WITH Aura

- **Premonitory Phase**
  - Hours or 2 days prior
- **Aura Symptoms**
  - Lasts approximately 5 - 60 minutes
- **Migraine Attack with Headache (Pain)**
  - Lasts 4 - 72 hours, possibly reoccurring up to >15 days a month

Migraine Triggers

- Certain factors influence the body in a manner that induces the development of a migraine.
- Maintaining a journal can assist in identifying these factors as they vary for each person.

Pathophysiology of Migraine WITHOUT Aura

- Previously considered to be primarily vascular in nature, but imaging studies in recent research demonstrate no cerebral blood flow changes.
- Now recognized as a neurobiologic disorder.
- Postulated to be related to sensitization of pain pathways or of central nervous system origin.

Migraine Food Triggers

- Food triggers may include:
  - Tyramine containing foods such as aged cheese, soy sauce, cured meats.
  - Monosodium glutamate
  - Nitrates
  - Alcohol
Pathophysiology of Migraine WITHOUT Aura

- Functional imaging studies identified altered hypothalamus activation which may serve as an initiator of migraine related to its role in nociceptive, autonomic and stress processing mechanisms.

Pathophysiology of Migraine WITH Aura

- During aura, imaging studies have revealed decreased regional cerebral blood flow in the cortex corresponding to the clinically affected area causing oligemia.
- Important to note the vascular supply remains above the ischemic threshold during the episodes.

Pathophysiology of Migraine WITH Aura cont.

- Increased presence of incomplete Circle of Willis may contribute to development of migraine.
- Research has identified a 2x increased incidence of ischemic stroke in individuals with migraine, but the mechanism is unclear.

Migraine with Hemiplegic Aura

- True hemiplegic migraine results in motor weakness which may persist for weeks
- Not “plegia” (paralysis) as name indicates.
- It is often also associated with brainstem symptoms.
- A genetic predisposition has been identified with gene mutations resulting in altered coding of
  - Calcium channel
  - Sodium Channel
  - K/Na-ATPase

Medical Management of Migraine

- Pharmacological, behavioral management, and lifestyle strategies indicated.
- Therapy and musculoskeletal interventions do not appear to manage symptoms in acute attacks. Research varies as to their benefit in reducing frequency and intensity of headaches.

Cluster Headache

- This is a rare type of headache often misdiagnosed which occurs almost exclusively in males.
- May also be referred to as Trigeminal Autonomic Cephalalgia
- Autonomic symptoms consistent with alterations in functioning of the Trigeminal nerve occur during acute attacks.
Cluster Characteristics

| Frequency | One every other day up to 8 times a day (attacks occur in series lasting weeks or months (cluster periods)) |
| Duration | 15-180 minutes |
| Pain Location | Unilateral retro-orbital/supraorbital and/or temporal |
| Symptoms | Profuse lacrimation, Nasal congestion, Rhinorrhea, Forehead/facial perspiration, Ptosis |
| All Ipsilateral | Restlessness/agitation |
| Activity | Genetic/Neurobiologic |

Pathophysiology of Cluster

- An autosomal dominant genetic predisposition is noted in a very small percentage of cases.
- Imaging and animal studies indicate hypothalamic activation which may initiate the alteration in parasympathetic outflow to cephalic, ocular, and nasal structures.
- This accounts for the symptoms of eye tearing, nasal congestion, and unilateral orbital pain.

Medical Management of Cluster

- Pain is excruciation deeming it a ‘true medical emergency’ by some researchers.
- The rapid onset to peak pain time limits use of abortive therapies so prophylactic pharmacological management is suggested.
- Treatment with 100% oxygen may alleviate acute symptoms.
- Potential triggers to avoid during a cluster period include: Alcohol, Histamines, Nitroglycerin

Medication Overuse Headache

- Previously referred to as:
  - Rebound Headache
  - Drug Induced Headache
- This type of headache specifically occurs in patients with a pre-existing primary headache disorder who have been overusing medications for greater than 3 months.

Medication Overuse Headache Characteristics

- These headaches are superimposed over the existing primary headache and tend to be more incapacitating.
- Symptoms last for > 15 days a month.
- Typically patients wake up with a headache which increases with activity.

Pathophysiology of Medication Overuse Type

- Typically triggered by overuse of simple analgesics, nonsteroidal anti-inflammatory medications, caffeine, ergotamiones, and triptans.
- Patients may interpret symptoms of the “new” headache as the primary headache and consume additional doses of medication which leads to a cycle of overmedicating.
Medical Management of Medication Overuse Type

- The only effective treatment is to withdrawal from the overused medication.
- Patient education on adverse effects of seemingly mild OTC medications is important to avoid development.
- Have the patient include medication use as part of headache diary to track trends.

General Management of Headaches

- Diagnostic, laboratory, and therapeutic evaluation typically do not yield physical findings which poses challenges for developing a treatment plan.
- Identification of the specific type of headache is critical to determining effective interventions.
- Having the patient create a symptom journal will assist in discovering patterns and triggers.

Management cont.

- A discrepancy appears to exist between outcome measures utilized in research studies and those desired by patients.
- Current research guidelines suggest the assessment measure for positive pain outcomes to be “pain free within 2 hours” while recent surveys reveal patients desire:
  - Relief of headache pain in 30 minutes
  - Ceasing of symptom progression
  - Return to functioning normally within 1 hour
  - Prevention of reoccurrence

Pharmacologic Management of Headaches

- Abortive medications are taken as needed when the headache occurs to alleviate symptoms during an attack.
- Prophylactic/Preventative medications are taken daily to limit the frequency and severity of attacks.
- Typically utilized for patients when the headache disrupts participation in activity.

Pharmacologic Management Tension Type

- Abortive medications to alleviate acute symptoms include:
  - Over the counter (OTC) analgesics
  - Nonsteroidal Anti-inflammatory (NSAIDs)
  - Triptans if also experience migraines
- Prophylactic medications to correct sleep disturbances and depression that are associated with increased frequency of headaches:
  - Anti-depressants.
  - Cervical Epidural Nerve Block

Pharmacologic Management Migraines

- Abortive medications for management of acute symptoms include:
  - Triptans
  - Ergot derivatives
- If migraines significantly limit functional participation in work, school, and life, prophylactic medications include:
  - Beta Blockers
  - Calcium Channel Blockers
  - Anti-depressants
  - Anti-seizure medications
Pharmacological Management of Headache Overuse

- Tapered withdrawal from overused abortive medication is the only effective intervention.
- The goal is to discontinue use of the offending medication for 3-4 months.
- An important component is patient education that symptoms will increase before reliving and they must avoid self medicating.

Medical Management of Headaches

- Management of headaches includes both pharmacological and non-pharmacological interventions depending upon the specific diagnosis, level of disability, and patient preference.
- In general, management is aimed at preventing the headaches as opposed to aborting the symptoms.
- For positive outcomes, assess the response to medications in addition to therapeutic, lifestyle, and behavioral interventions.

Peripheral Nerve Blocks (PNB)

- The benefits of nerve blocks for headache management is variable in the research.
- The intervention may be effective in the management of primary headache disorders (tension type, migraine, and medication overuse type), cervicogenic headaches, and cranial neuralgias.
- Goals of the PNB are to relieve an acute attack, terminate a headache cycle, or transition out of the medication overuse pattern.

Peripheral Nerve Blocks cont.

- Injection of medication near the Greater/Lesser Occipital, Supraorbital or Supratrochlear nerve produces anesthesia.
- Recommended medication: lidocaine and/or bupivacaine.
- Corticosteroid may be added for management of cluster headaches.
- Symptom relief may last several weeks or months.

Botulinum Toxin A

- Botulinum toxin A is an FDA approved treatment for the prophylactic management of chronic migraines defined as greater than 15 headaches per month.
- Review of research indicates:
  - Small to modest benefit in decreasing chronic migraines.
  - No decreased in frequency of chronic tension headaches.
  - Speculated that a placebo effect may account for headache improvement.

Surgical Treatment

- Surgical alteration of migraine trigger sites identified with botox injection appears to result in long term elimination or reduction in frequency, duration, and intensity of migraines.
- Nerve decompression is achieved through surgical modification to musculature and other structural components surrounding the nerve.
- Example – removal of corrugator muscle group.
Lifestyle Changes

- Lifestyle management is beneficial for tension type and migraine headaches.
  - Optimizing sleep
  - Regular exercise
  - Stress reduction
  - Ensuring regularity of meals
  - Identification of triggers

Regular aerobic exercise may decrease the intensity of headaches.
Healthy diet with identification of food triggers can avoid migraines.
- Aged cheese
- Wine
- Chocolate
- Food additives
- Excess caffeine

Caffeine

Small amounts may alleviate acute symptoms of migraine.
Consumption of excessive caffeine may trigger migraines.

Dietary Fatty Acid Levels

- Omega 6 and 3 fatty acids are located in vascular, immune, myelin, glial and neuronal cell membranes and function to regulate pain-related biochemical pathways.
- Lipid mediators derived from Omega 6 elicit pronociceptive effects.
- Lipid mediators derived from Omega 3 elicit antinociceptive effects.

A recent study analyzing biochemical lipid outcomes and headache characteristics focused on increasing dietary intake of Omega 3 and lowering intake of Omega 6 fatty acids.
Positive results on management of headache were achieved:
- Decreased headache pain duration and frequency
- Improved quality of life assessment scores
- Increased antinociceptive pathway markers

Musculoskeletal Interventions

- Identification of the specific type of headache is critical as manual therapy interventions are unlikely to be beneficial for most of the primary types of headaches.
- Manual therapy, postural retraining, and ergonomic assessment are beneficial components for management of tension type headaches focusing on cervical/scapular mobility and strength.
Musculoskeletal Interventions cont.
• These conditions perpetuate and aggravate each other through musculoskeletal mechanisms.
• Potential common CNS activation of the trigeminal nerve pathway may contribute to increased risk for combined presence of the pathologies.

Cervicogenic Headaches
► Clinicians may also treat patients with headaches not meeting diagnostic criteria for the 4 primary categories.
► Cervicogenic headaches are secondary headaches arising from musculoskeletal dysfunction in the upper three cervical segments.
► Hypothesized that the trigeminocervical pathway conducts pain from the upper three cervical nerve roots through spinal cord to converge with trigeminal nerve
► This results in pain that may be mistakenly perceived as face/head pain.

Cervicogenic Headaches cont.
► Must be distinguished from other headache types to establish effective intervention plan.
► Characteristics include:
  ► Exacerbation of pain with neck movement and/or external pressure over upper cervical or occipital region
  ► Sustained or awkward neck positions provoke pain
  ► Ipsilateral neck, shoulder, or arm pain.
  ► Unilateral moderate non-throbbing neck pain.

Complementary Therapies
► Should be combined with pharmacologic and musculoskeletal management to maximize outcomes.
► Implementation of techniques as preventative mechanisms should be assessed over approximately 3-6 months for effectiveness.
► Use of these strategies to manage acute symptoms may be beneficial also.

Complementary Therapy Tension Type
► Interventions focus on improving mood, relaxing muscle tone, and shifting pain perception.

<table>
<thead>
<tr>
<th>Progressive Relaxation</th>
<th>Guided Imagery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Behavioral Therapy</td>
<td>Biofeedback</td>
</tr>
<tr>
<td>Feldenkrais</td>
<td>Behavioral Therapy</td>
</tr>
<tr>
<td>Acupuncture</td>
<td>Craniosacral Therapy</td>
</tr>
<tr>
<td>Thi Chi</td>
<td>Qigong</td>
</tr>
<tr>
<td>Yoga</td>
<td>Herbal Supplements</td>
</tr>
</tbody>
</table>
Complementary Therapy Migraines

- Self awareness of triggers and aura beneficial to attempt to avoid migraines.
- Acute symptoms may also be managed with:
  - Biofeedback
  - Behavioral Therapy
  - Acupuncture
  - Craniosacral Therapy (possible long term benefits)

Self Management Interventions for Headaches

- Focused patient education should be incorporated into therapeutic programs. Some examples include:
  - Identification and minimizing of triggers
  - Appropriate medication use to avoid overuse
  - Relaxation and stress management
  - Normalization of sleep
  - As self management develops, confidence increases resulting in decreased medication use as a primary coping tool.

Self Management cont.

- Clinicians particularly occupational therapy professionals can explore with patients behavioral strategies to minimize migraine triggers such as overscheduling or perfectionistic thinking, and altered sleep patterns.
- Training in relaxation strategies, lifestyle assessment, pacing, and cognitive-behavioral therapy can aid patients in developing self-efficacy which correlates to decreased migraine-related disability.
- Need to explore barriers to implementation of management strategies.

Activity Pacing

- This coping strategy which is utilized by individuals with fibromyalgia, rheumatoid arthritis and chronic pain is also applicable to headache sufferers to enhance quality of life by managing intensity and duration of headaches.
- Pacing is:
  - “Self regulation of tasks and activities in order to keep physical exertion and mental stress levels below the individual’s headache threshold”*
  - It avoids overscheduling by prioritizing and planning activities so that there is a balance between activity and rest.

Pediatric Headaches

- Primary headache types can occur in children/adolescents but is often misdiagnosed because of challenges in the diagnosis process.
- Children may have difficulty describing symptoms for accurate classification.
- Many characteristics particularly of migraine do not develop until later in life with headaches presenting with different characteristics in pediatric patients.

Pediatric Headache Treatment

- Treatment is similar to adults including lifestyle modification, behavioral management, abortive and preventative medications.
Migraine Variants

- Specific syndromes may present in children which are associated with migraine but do not meet criteria for primary categories.
- These are more common in children with familial history of migraine and have been indicators of children who go on to develop migraines later in life.
- The reason for this is unknown.

Migraine Variants cont.

<table>
<thead>
<tr>
<th><strong>Cyclic Vomiting Syndrome</strong></th>
<th><strong>Abdominal Migraine</strong></th>
<th><strong>Paroxysmal Torticollis</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Episodes of intense vomiting followed by complete resolution lasting 1 hour up to 5 days.</td>
<td>Moderate to severe dull middle abdominal pain associated with vaso motor symptoms lasting 1 hour up to 3 days.</td>
<td>Episodes of unilateral head tilt lasting minutes to several days.</td>
</tr>
<tr>
<td><strong>Cause</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triggered by lack of sleep, stress, and co-existing illness.</td>
<td>Idiopathic</td>
<td>Abnormality of calcium channel gene</td>
</tr>
<tr>
<td><strong>Onset Age</strong></td>
<td><strong>Treatment</strong></td>
<td></td>
</tr>
<tr>
<td>3-5 years old</td>
<td>Sleep induction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Antiemetics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preventative medications</td>
<td></td>
</tr>
<tr>
<td>7-10 years old</td>
<td>Trigger avoidance - maybe prodome for migraine</td>
<td></td>
</tr>
<tr>
<td>2-8 months</td>
<td>Preventative medications</td>
<td>Pharmacologic management</td>
</tr>
</tbody>
</table>

Pediatric Comorbidities

- A variety of concurrent diagnoses may exist with headaches in this population. It is important to identify relationships to develop effective treatment plans.
- Depression/Anxiety
- Sleep Disorders
- Attention Deficit Hyperactivity Disorder
- Epilepsy
- Tourette syndrome

Pediatric Psychological Manifestations

- Correlation between primary headache anxiety and depression.
- Increased risk of anxiety disorder developing in children with migraine.
- Increased risk of migraines developing if anxiety or depression disorder is present.

Pediatric Sleep Disorders

- While lack of sleep or disrupted sleep habits may be a trigger for migraines in adults, in children it is recognized as a primary management strategy to resolve migraine attacks.
- Melatonin appears to reduce the frequency, intensity and duration of headache attacks in children.
- Sleepwalking appears to be more prevalent in children who suffer from migraines.

Athlete Assessment

- Following head trauma immediate assessment includes neurological checks and evaluation with a concussion assessment tool.
- Removal from participation and emergency medical care may be necessary based on severity of injury.
- After ruling out life threatening causes, detailed analysis of headache should occur to determine interventions.
Post Traumatic Headaches

- Develops in individuals sustaining head trauma resulting in concussion with either no loss of consciousness or less than 30 minutes of loss of consciousness.
- Glasgow Coma Scale (GCS) >13
- Headache develops within the first 7 days post injury or recovery of consciousness.
- Chronic type can last greater than three months.
- Symptoms represent an accentuation of the pre-existing primary headache so symptoms most typically resemble tension type or migraine.

Acute Treatment

- If secondary headache, typically self limiting not lasting more than 3 months.
- Good sleep hygiene
- Pharmacological Management
  - Avoid overuse of analgesics
  - Prophylactic medications indicated for symptoms of primary headache disorder.
- Melatonin if sleep disruption present

Management of Post Traumatic Headaches cont.

- Prolonged symptoms may be exacerbation of tension or migraine headache with management directed at those diagnoses.
- Behavioral interventions to manage pre-existing primary headache disorder.

1. The following statement is TRUE regarding the prevalence of headaches across the world:
   A. Less industrialized countries demonstrate decreased incidence of headaches.
   B. Global averages for headache incidence reflects comparable data.
   C. Inconsistency in study design hinders comparisons in various countries.
   D. Headache rates are greatest among males in regions with high economic growth.

2. Headaches triggered by cough, sneeze, positional changes, or bowel movement:
   A. Are classified as primary headaches
   B. May be the symptom of underlying medical condition
   C. Do not correlate with other physical examination findings
   D. Often present in a stable, consistent pattern over years
3. One common finding among all types of primary headaches is:
   A. Normal clinical physical examination findings
   B. Cervicogenic origin of symptoms
   C. Trigeminal Autonomic pathway stimulation
   D. Greater incidence in males

4. The etiology of tension type headaches may be related to
   A. Hereditary factors
   B. Medication side effects
   C. Hypothalamic biologic clock
   D. Somatization

5. Migraine headaches typically present with
   A. Unilateral postorbital pain with rhinorrhea
   B. Bilateral tightening pain
   C. Debilitating unilateral pulsating pain with aura
   D. Mild positionally aggravated pain

6. Which of the following methods of pharmacologic management is correctly paired with its category of management?
   A. Prophylactic Treatment – beta blockers for cluster headache
   B. Abortive treatment – Triptans for tension type or migraines
   C. Abortive treatment – Calcium Channel blockers for cluster headache
   D. Prophylactic Treatment – High Dose NSAIDs for tension type or migraines

7. Review of literature indicates that botulinum toxin A is associated with a small prophylactic benefit for the management of:
   A. Episodic migraine
   B. Chronic tension type headaches
   C. Chronic migraine
   D. All forms of headache

8. Complementary therapies which are effective as part of a self-management program for tension and migraine headaches include all of the following EXCEPT:
   A. Biofeedback
   B. Yoga Exercise
   C. Behavioral Management
   D. Ergonomic Modification
Using a Smartphone Headache Diary Applications. Prevents common triggers such as oversleeping.

C. Assists in managing intensity and duration of headaches to enhance quality of life

D. All of the above

References


References cont.


References cont.