MIGRAINE RELATED DIZZINESS AND OTHER HEADACHE DISORDERS

Fallon Schloemer, DO
Assistant Professor of Neurology
Medical College of Wisconsin

A Practical Guide to Dizziness and Disequilibrium
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LECTURE OBJECTIVES

• Accurately recognize and diagnosis migraine, including various subtypes associated with dizziness

• Understand migraine treatment and management

• Recognize other headache conditions that are misdiagnosed or undiagnosed

• Become more familiar with comorbid conditions that contribute to headache and related dizziness

WHAT IS HEADACHE?
WHY DO WE CARE??

• Headache is one of the most common public health concerns worldwide.
• Cost of lost productivity and work hours due to headache is enormous.
• Headache is the most common reason for neurologic consultation.
• Despite the pain, disability and cost, headache is often underdiagnosed and treated.

WHAT’S THE BIG DEAL?

HEADACHE CLASSIFICATION SYSTEM

• International Classification of Headache Disorders, Third Edition
  - Designed to provide diagnostic consistency for research purposes
  - Provides diagnostic criteria to guide treatment and management
• Divided into 3 parts:
  - Part one: the primary headaches
  - Part two: the secondary headaches
  - Part three: painful cranial neuropathies, other facial pains and other headaches
  - Appendix

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THE ART OF TAKING A HEADACHE HISTORY

• Establish a rapport
  - “Patients respond to physicians who respond”

• Ask the right questions and keep an eye out for “red flags”
  - Where in the head does it hurt and how does it radiate?
  - How long does the headache last and is it short-lasting or long-lasting?
  - How severe is the pain?
  - What type of pain is it? What is the nature of the pain?
  - What factors can precipitate or worsen the headaches? Are there any triggering or relieving factors?
  - Are there any accompaniments/symptoms to the head pain?

• Other questions to consider
  - Ask for any visual or sensory aura?
  - Ask if it is just one type or more than one type of headache?
  - Ask if the headache is precipitated or significantly worsened by the Valsalva maneuver? Ask if there is postural worsening?
  - Ask about the personal history, habits and occupation?
  - Ask for a family history of headaches?
  - Ask about the impact of the headache on the patient’s lifestyle?
  - Ask about medication overuse?
  - Ask about investigations that have been done so far? And the treatment that has been taken so far?
  - Ask if there is anything else that the patient wants to tell you? Ask if there are any other complaints or medical problems?

CASE 1

• 40 year-old female complains of intermittent headaches that started in her teen years.

• These are usually right-sided, but occasionally will feel pain above both eyes.

• Pain is described as throbbing and severe, with associated light and sound sensitivity. Prior to onset of pain, she complains for neck stiffness/pain.

• She also complains of associated nasal stuffiness with pain worsened by bending forward or other routine activity. When severe, she does get nauseated and has occasionally thrown up.
CASE 1

- What type of headache does patient describe?
  - Cervicogenic headache
  - Migraine without aura
  - Sinus headache
  - Migraine without aura
  - Tension-type headache
  - Cluster headache

PHASES OF MIGRAINE

MIGRAINE WITHOUT AURA DIAGNOSTIC CRITERIA

A. At least five attacks fulfilling criteria B-D
B. Headache attacks lasting 4-72 hr (uninterrupted or unsuccessfully treated) \( \geq 2 \)
C. Headache has at least two of the following four characteristics:
   1. unilateral location
   2. pulsating quality
   3. moderate or severe pain intensity
   4. aggravation by or causing avoidance of routine physical activity (e.g., walking or climbing stairs)
D. During headache at least one of the following:
   1. nausea and/or vomiting
   2. photophobia and phonophobia
E. Not better accounted for by another ICHD-3 diagnosis.
CASE 2

- 32 year-old female suffering from severe headaches since age 15.
- Attacks have become more frequent and occur 2-3 times per month.
- Headaches usually unilateral and always preceded by colorful zigzag lines on one side of her visual field. She is photo and phono sensitive with the headaches.
- Visual disturbance lasted 30 minutes, followed by dizziness (described as rooming spinning), nausea and difficulty speaking.
- The difficulty speaking and dizziness lasted for an hour, while the headache which started during the other symptoms lasted all day.

CASE 2

- What is the most likely diagnosis?
  - Atypical/complex migraine
  - Migraine with brainstem aura
    - Hemiplegic migraine
    - Functional neurological disorder
    - Stroke

IT'S NOT SO SIMPLE

International Classification for Headache Disorders (ICHD-3)
MIGRAINE ASSOCIATED VERTIGO

- Migraine with Brainstem Aura
  - Previously named Basilar artery migraine; basilar migraine; basilar-type migraine
  - Migraine with aura symptoms clearly originating from the brainstem, but no motor weakness

MIGRAINE WITH BRAINSTEM AURA

- Diagnostic Criteria
  - Attacks fulfilling criteria for Migraine with Aura and Aura with both of the following:
    - At least 2 of the following fully reversible brainstem symptoms
      - Dysarthria
      - Vertigo
      - Tinnitus
      - Hypacusis
      - Diplopia
      - Ataxia no attributable to sensory deficit
      - Decreased level of consciousness (GCS <13)
    - No motor or retinal symptoms

MIGRAINE WITH BRAINSTEM AURA KEY POINTS

- Long thought to be due to short-term narrowing or spasm of basilar artery
  - Resulted in exclusion of people with this from clinical trials for triptans and migraine
- Migraine is now known as a common but complex genetic disorder involving environmental factors with the nerves rather than the vessels being the cause of aura in migraine
- People suspected of having migraine with brainstem aura should be carefully assessed by doctor for other causes
  - EEG, vascular imaging (MRI/MRA brain)
- For now, migraine specific medications (triptans & ergotamines) are contraindicated
MIGRAINE ASSOCIATED VERTIGO

- Benign Paroxysmal Vertigo
  - Disorder characterized by recurrent brief attacks of vertigo, occurring without warning and resolving spontaneously, in otherwise healthy children
  - Lasts minutes to hours
  - Needs to have one of the following 5 associated symptoms or signs
    - Nystagmus
    - Ataxia
    - Vomiting
    - Pallor
    - Fearfulness
  - Normal neurological exam, audiometric and vestibular functions between attacks
  - May be a precursor to developing migraine as an adult

CASE 3

- 30 year old female presents to clinic for treatment of her migraines.
- She has a 15 year history of headaches described as left sided, throbbing lasting days.
- The headaches are associated with light and sound sensitivity with occasionally vomiting.
- Headaches are 6 days out of the month, ½ of which have associated dizziness and worsening nausea.
CASE 3

- What is the most likely diagnosis?
  - Tension headache
  - BPPV
  - Migraine with brainstem aura
  - Vestibular migraine

MIGRAINE ASSOCIATED VERTIGO

- Vestibular Migraine (VM)
  - Considered the most common cause of recurrent spontaneous vertigo attacks
  - Lifetime prevalence of about 1% in the general population
  - Accounts for 7% of patients seen in dizziness clinics and 9% of patients in migraine clinics
  - Still underdiagnosed
VESTIBULAR MIGRAINE

Prevalence and terms:
- Vestibular migraine
- Migraine with aura
- Migraine without aura
- Vestibular aura

Diagnosis criteria:
1. Two or more spells lasting at least 4 hours
2. Symptoms include:
   - Spontaneous vertigo
   - Positional vertigo
   - Visual-induced vertigo
   - Head motion-induced vertigo
   - Headache motion-induced dizziness
3. Symptoms may last minutes to several days
4. Symptoms may last for hours to several days
5. Symptoms can last minutes, hours to several days

VM CLINICAL CHARACTERISTICS

• Symptoms:
  - Spontaneous vertigo (internal or external)
  - Positional vertigo (occurring after change of head position)
  - Visually-induced vertigo (triggered by complex or large moving visual stimulus)
  - Head motion-induced vertigo (occurring during head motion)
  - Headache motion-induced dizziness with nausea (dizziness characterized by a sensation of disturbed spatial orientation)

• Symptoms can last minutes, hours to several days

• Auditory symptoms like hearing disturbances, tinnitus and aural pressure have been found in 38% of patients, but hearing is usually only mildly or transiently affected

VM EXAM FINDINGS

• Exam generally normal in the symptom-free interval
  - Central vestibular ocular motor abnormalities can occur
    - Gaze-induced nystagmus
    - Saccadic pursuit
  - Central positional nystagmus

• Unilateral peripheral vestibular signs have been reports
  - Canal paresis
  - Bilateral vestibular failure
  - Mild cochlear loss
  - Mild bilateral sensorineural hearing loss
MIGRAINE TREATMENT

WHAT'S ALL INVOLVED – A COMPREHENSIVE APPROACH

- Education and Reassurance
  - Avoiding triggers and lifestyle modification
  - Keeping headache diary
  - Maintaining a regular schedule
  - Getting adequate sleep and exercise
  - Stopping smoking; Weight loss

- Nonpharmacologic treatments and alternative medicine
  - Relaxation/meditation, cognitive behavioral treatment and biofeedback
  - Physical therapy, acupuncture, massage therapy, etc.
  - Vestibular therapy

- Pharmacologic treatment
  - Acute and preventative

MIGRAINE PREVENTATIVE TREATMENT - WHEN TO CONSIDER

- 3+ moderate or severe headache/month
  - With functional impairment
  - Unresponsive to acute therapy
- 6 to 8 headache days/month even if acute medications are effective
- Contraindications to acute migraine treatments
- Particularly bothersome symptoms (i.e. migraine with brainstem aura, hemiplegic migraine)
- Significant impact on life
- Risk of medication-overuse headache
- Patient preference
GOALS OF TREATMENT

- Quickly restore the patient to normal functioning in a safe, side effect-free, cost effective manner
- Minimize need for additional medication exposure or resource use
- Reduce the frequency, duration and severity of individual events
- Reduce progression of disease

ACUTE MIGRAINE TREATMENT

- Triptans and ergotamines
- NSAIDs
- Combination analgesics
- Neuroleptics/Antiemetics
OTHER PROCEDURES, TOOLS AND GADGETS

OTHER HEADACHE SYNDROMES YOU MAY ENCOUNTER

CERVICOGENIC HEADACHE

• Secondary headache consisting of referred pain perceived in the head from a source in the neck

• Disorder of the cervical spine and its components – bone, disc and/or soft tissue elements
  - Multiple pain-sensitive structures
    - Lining of the cervical spine
    - Joints
    - Ligaments
    - Cervical nerve roots
    - Vertebral arteries

• Need to have evidence of a disorder or lesion within the cervical spine or soft tissues of the neck, known to cause the headache
CERVICOGENIC HEADACHE

- Symptoms and Characteristics
  - Reduced range of motion of neck
  - Pain worsens with certain neck movements or pressure applied to certain spots
  - Pain often one sided and radiate from neck/back of head
  - Headache may or may not be associated with neck pain

- Differential Diagnosis
  - Need to exclude other primary headache disorders (migraine, tension-type) or secondary disorders (vessel dissection, posterior fossa lesions)

- Treatment
  - Nerve blocks, medications, physical therapy and exercise

CERVICOGENIC DIZZINESS

- Syndrome of neck pain accompanied by illusory sense of motion and disequilibrium

- Why does this occur
  - Abnormal afferent signals from the neck can create various sensations of altered orientation in space and disequilibrium
  - Vasomotor changes due to irritation of the cervical sympathetic chain
  - Vertebral artery insufficiency due to vascular compression
  - Altered proprioceptive input from the upper cervical spine

- Treatment
  - Address the cervical issue
  - May require vestibular therapy as well

TENSION-TYPE HEADACHE (TTH)

2. Tension-type headache (TTH)
   2.1 Infrequent episodic tension-type headache
      - Infrequent episodic tension-type headache associated with or without headaches
   2.2 Frequent episodic tension-type headache
      - Frequent episodic tension-type headache associated with or without headaches
   2.3 Chronic tension-type headache
      - Chronic tension-type headache associated with or without headaches
   2.4 Protracted tension-type headache
      - Protracted tension-type headache associated with or without headaches

   2.1.1 Infrequent episodic tension-type headache
   2.1.2 Frequent episodic tension-type headache
   2.1.3 Chronic tension-type headache

   2.4.1 Protracted tension-type headache
   2.4.2 Protracted chronic tension-type headache

   International Classification for Headache Disorders (ICHD-3)
TENSION-TYPE HEADACHE

Diagnostic criteria:
A. At least 10 episodes of headache occurring on >1 day/month or overall (>12 days/year) and fulfilling criteria B–D
B. Lasting from 30 minutes to 7 days
C. At least two of the following four characteristics:
   1. Bilateral location
   2. Pending or worsening (increasing) quality
   3. Mild to moderate intensity
   4. Not aggravated by routine physical activity such as walking or climbing stairs
D. Both of the following:
   1. No nausea or vomiting
   2. No more than one of photophobia or phonophobia
E. Not better accounted for by another ICHD-3 diagnosis.1

TTH TREATMENT

• Pharmacologic:
  - Amitriptyline (TCA), venlafaxine (SNRI)
  - Simple and combined analgesics (avoid med overuse!)
• Nonpharmacologic:
  - Relaxation, biofeedback, physical therapy
• Avoidance of trigger factors:
  - Stress (mental or physical)
  - Irregular or inappropriate meals
  - High intake of caffeine
  - Dehydration
  - Sleep disorders
  - Reduced or inappropriate physical exercise
  - Psychological problems
  - Working in healthcare!

TEMPOROMANDIBULAR DISORDERS (TMD)

• Collective term embracing a number of clinical problems that involve the chewing muscles, the temporomandibular joint (TMJ) and associated structures, or both.
  • Headache may result from temporomandibular structures, or pain may be referred to the temporomandibular joint, secondary to a primary headache diagnosis.
HEADACHE ATTRIBUTED TO TMD

- Diagnostic Criteria:
  - Clinical evidence of a painful pathological process affecting elements of the temporomandibular joint(s), muscles of mastication and/or associated structures on one or both sides
  - Evidence of causation demonstrated by at least two of the following:
    - the headache has developed in temporal relation to the onset of the temporomandibular disorder, or led to its discovery
    - the headache is aggravated by jaw motion, jaw function (e.g., chewing) and/or jaw parafunction (e.g., bruxism)
    - the headache is provoked on physical examination by temporalis muscle palpation and/or passive movement of the jaw

- Pain generators:
  - disc displacements, joint osteoarthritis, degenerative disease and/or hypermobility, and regional myofascial pain

TMD HEADACHE TREATMENT

- Cognitive behavioral therapy
  - Relaxation
  - Hypnosis
  - Biofeedback

- Physical therapy

- Medications
  - NSAIDs
  - Muscle relaxers
  - Antidepressants and anticonvulsants

- Interventions
  - Joint injections
  - Surgery

TMD ASSOCIATED VERTIGO

- Vertigo may result from painful stimuli caused by TMJ tissue ➔ arterial constriction in the temporal region and decreases blood supply to the inner ear vestibular region

- Vertigo associated with TMD has been well reported

- Importance of identifying risk factors for vertigo that can be modified through specific interventions.
“DOCTOR, I HAVE A SINUS HEADACHE!”

- Up to 90% of sinus headaches may be migraine

- Why the confusion?
  - Migraine involves activation of the trigeminal nerves

- Misdiagnosis can lead to overuse of medications, unnecessary surgeries, and unsatisfied patients.

DOES “SINUS HEADACHE” EXIST?

A COMMON ENCOUNTER

- 30 year-old female presents to ENT with concerns of sinusitis and headache

- Sinusitis occurs several times a year, each lasting a day or up to a week
  - Associated nasal drainage, nasal congestion, face and forehead pain
  - Begins with a cold and progresses to thick discolored drainage
  - OTC sinus meds and antibiotics do help
  - Had CT done once that showed “stuff in her maxillary”
A COMMON ENCOUNTER

• On further questioning she describes 2 types of headache
  - The headache that occurs with sinus infections
  - A monthly headache that is throbbing and will make her feel sick to her stomach – pain is more severe than her “sinus headache”
  - Par cells over sinuses and does have congestion and drainage

• She does have a family history of migraines; father has had sinus surgeries

PATIENT’S THOUGHTS

• It’s clearly my sinuses
  - Location is the same
  - Associated nasal symptoms
  - Radiographical evidence
  - Improvement with sinus medications
  - Family history of sinus disease/Surgery

• What does the patient expect?
  - A cure!

• What can we do?
  - Treat the sinuses, but also recognize there are different types of headaches and the similarity of symptoms.
  - Educate!
  - Know when to refer

THANK YOU!