MIGRAINE & OTHER PRIMARY HEADACHES

Aaron K. Farrow, M.D.
Assistant Professor
Department of Neurology
The University of Oklahoma Health Sciences Center

FINANCIAL DISCLOSURES

- I have no financial relationships to disclose
- I will be making treatment recommendations during this presentation

MIGRAINE & OTHER PRIMARY HEADACHES LEARNING OBJECTIVES

- Differentiate primary and secondary headaches
- Explain when and how to perform a diagnostic evaluation in a patient with headache
- Relate a practical definition of migraine
- Describe how the following symptoms relate to migraine:
  - Abdominal pain
  - Confusion
  - Chest pain
  - Hemiparesis
  - Vertigo
  - Aphasia
  - Syncope
  - Headache
- Describe the appropriate abortive & prophylactic therapies for migraine
- Identify other primary headaches syndromes & their treatments
HEADACHE LESION LOCALIZATION: MENINGES / TRIGEMINAL NERVE / C2-4

- Meningeal stretching
  - Increased intracranial pressure
  - Decreased intracranial pressure
- Meningeal irritation
  - Meningitis (acute and chronic)
  - Subarachnoid hemorrhage
- Meningeal ischemia (scalp tender)
  - Giant-cell (temporal) arteritis
- Meningeal pain-nerve* sensitization
  - Migraine
  - Other primary headache disorders
  - Medication overuse

*Trig. = trigeminal nerve
C2 = 2nd cervical nerve root
C3 = 3rd cervical nerve root
C4 = 4th cervical nerve root

DIFFERENTIAL DIAGNOSIS: PRIMARY VS. SECONDARY HEADACHES

- Primary headache
  - A condition in which headache is a primary manifestation & no underlying disease is present
  - Due to chronic conditions w/ recurrent acute attacks, e.g., migraine, “tension-type,” trigeminal autonomic cephalalgias (= TACs, including cluster)
  - Scans or blood tests are NOT necessary
- Secondary headache
  - A condition in which headache is a secondary manifestation of an underlying disease process
  - Often due to diseases that require both urgent & prolonged care, e.g., tumor, intracranial hemorrhage
  - Scans or blood tests ARE necessary

WHEN TO PURSUE FURTHER WORKUP: COMMON RED FLAGS IN HEADACHE

- SNOOP for the answer
  - Systemic symptoms or Secondary risks
    - Fever, weight loss
    - HIV, cancer, immunosuppression, autoimmune
  - Neurologic signs on exam
  - Onset is sudden or abrupt (first & worst)
  - Older age at onset (> 50)
  - Pattern change
Differential Diagnosis: Primary Headaches

- Migraine
- Tension-type headache
- Trigeminal autonomic cephalalgias (TACs)
  - Cluster headache
  - Paroxysmal hemicrania & hemicrania continua
  - Short-acting unilateral neuralgiform headache attacks
    - Short-acting unilateral neuralgiform headache attacks with conjunctival injection and tearing (SUNCT)
    - Short-acting unilateral neuralgiform headache attacks with cranial autonomic symptoms (SUNA)
- Other primary headache syndromes

**“Given abundant similarities between epidemiology, clinical features, & treatment response patterns of migraine & tension-type headache, it’s reasonable to believe they share common pathophysiology.”** Cady et al. Headache 2002;42:204-216

Migraine: What It Is Not

Migraine does not mean headache

- “Headache is never the sole symptom of migraine, nor indeed is it a necessary feature of migraine attacks.”
  - Oliver Sacks, *Migraine, Revised & Expanded*, 1992

A book intended for laypersons with multiple descriptions of the varied symptoms (“phenomenology”) of migraine. Heavy reading, but very informative.

Oliver Sacks also wrote the book *Awakenings*, later turned into a movie in which Robin Williams played the role of Oliver Sacks

Headache vs. Migraine: Symptom vs. Syndrome

- Headache
  - Pain in the head
- Migraine
  - A syndrome of episodic brain dysfunction with systemic manifestations (that may include headache)

Migraine—a “primary headache” disorder—is by far the most common cause of recurrent, episodic headache without sequelae, but actually may present with no headache at all and migraine with NO headache is very common.
THE PARALLELS BETWEEN SEIZURE & MIGRAINE

- **Seizure**
  - Episode of abnormal electrical activity in the brain
- **Epilepsy**
  - Condition in which a person has a predisposition to seizures
- **Migraine attack**
  - Episode of abnormal chemical activity in the brain
- **Migraine**
  - Condition in which a person has a predisposition to migraine attacks

Like many other neurologic conditions, it is likely that epilepsy & migraine are channelopathies, i.e., due to dysfunction of neuronal ion channels with resultant hyperexcitable neurons.

MIGRAINE EPIDEMIOLOGY: STUDIES ARE FLAWED, MISLEADING

- Two major studies suggesting 18% of women & 6% of men have migraine were flawed, misleading, & grossly underestimated prevalence of the migraine "condition"
  - Used very restricted definition of migraine:
    - At least one severe headache in last 12 months
    - Unilateral or pulsatile pain
    - Either (1) nausea/vomiting or phonophobia/photophobia or (2) visual or sensory aura before the headache
- Thus, these studies excluded many migraine types and determined prevalence of migraine attacks within the last year, not the overall prevalence of the migraine condition

Stewart WF et al. JAMA. 1992;267;64-69
Lipton RB et al. Headache. 2001;41:646-657

MIGRAINE EPIDEMIOLOGY: THE TRUTH

- Migraine epidemiology studies should include:
  - Sinus headaches (all experts agree are migraines)
  - Tension/regular headaches (many experts feel are migraines)
  - Migraine with aura other than visual or sensory, e.g., vertigo
  - Nonheadache migraines, e.g., migraine aura without headache, abdominal migraine (all experts agree these exist)
  - Symptoms since birth (once a migraineur, always a migraineur)
- Actually, 75-90% of people have the condition migraine

Migraine definitions are based on opinion & consensus, there is no objective pathology or diagnostic test for migraine, & there is no genetic basis for a gender difference (women admit to symptoms more readily than men & have more attacks than men due to estrogen changes, but do NOT have the migraine gene more often than men)
MIGRAINE: WHAT IT IS
PRACTICAL DEFINITION & DESCRIPTION

Genetic condition in which a person has a predisposition to suffering recurrent transient episodes (attacks) of brain dysfunction with systemic manifestations that may include:

- Headache/neck pain – from mild to severe, variable location
- Focal neurologic symptoms – mimics stroke/TIA
- GI symptoms (upper or lower) – equals IBS, mimics gallstones
- Chest pain – mimics heart attack, equals atypical noncardiac CP
- Autonomic dysfunction – BP, pulse, sinus congestion, etc.

"Triggered" by hormonal or environmental changes or other medical conditions, and consisting of 4 possible phases (prodrome, aura, pain, postdrome).

OU Neurology

CLINICAL PHASES OF A MIGRAINE ATTACK – OVERVIEW

Genetic Predisposition
Prodrome Aura Pain Postdrome

• Entire Migraine – Dysautonomia with GI & vascular changes
  • GI – Nausea, vomiting, diarrhea, constipation, dyspepsia
  • Vascular – BP ↑ or ↓, arrhythmias, vasocostriction/vasodilatation
• Prodrome – Changes in mood, cognition, appetite
• Aura – Focal neurologic symptoms (migratory & progressive)
• Pain – Headache, sensory phobias, sinus congestion (vasodilatation)
• Postdrome – Migraine hangover

After Blau JN. Lancet. 1992

MIGRAINE TRIGGERS:
EXTERNAL & INTERNAL CHANGES

- Environmental changes
  • Barometric pressure (weather, altitude), motion
  • Scents, smoke, fumes
- Hormonal changes
  • Stress (esp. stress "letdown"), exercise, thyroid
  • Estrogen > progesterone—menarche, pregnancy, hormonal contraceptives, menopause, ovulation/menstruation
- Sleep changes
  • Deficiency or excess, change in shift
- Diet changes
  • Hunger, dehydration
  • Alcohol (all types, but esp. red wine)
  • Artificial foods (nitrates/nitrites, MSG, sulfites, aspartame, sucralose)
- Other physiologic changes / medical conditions
  • Head trauma, fever
  • Cerebral blood flow changes (AVM, endarterectomy/angioplasty, ischemia—e.g., paradoxical embolism via PFO)

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**MIGRAINE PHASES:**

**PRODROME/PREMONITORY**

1. **Prodrome**
   - Mood changes
     - Irritability, depression, euphoria/hyperactivity
   - Difficulty concentrating
   - Stiff neck
   - Fatigue, malaise, yawning
   - Autonomic/GI symptoms
     - constipation, diarrhea, urinary frequency
   - Anorexia or food cravings
     - esp. foods that increase serum serotonin and/or magnesium, e.g., chocolate, bananas, nuts, peanut butter, sweets, fatty foods

   *May begin hours to days before attack, persist through all 4 phases—likely related to serotonin, magnesium, hypothalamic changes*

   "ICHD-3 suggests elimination of the term "prodrome” & substituting "premonitory" instead"

2. **Aura**
3. **Pain**
4. **Postdrome**

**MIGRAINE PHASES:**

**AURA (1 of 3)**

1. **Prodrome**
2. **Aura**
3. **Pain**
4. **Postdrome**

**MIGRAINE PHASES:**

**AURA (2 of 3)**

1. **Prodrome**
2. **Aura**
3. **Pain**
4. **Postdrome**

**MIGRAINE PHASES:**

**AURA (3 of 3)**

1. **Prodrome**
2. **Aura**
3. **Pain**
4. **Postdrome**

**Types of focal neurologic symptoms**
- Visual—Usually positive (scintillation) followed by negative (scotoma)
  - Shimmering, scintillating, flashing lights
  - Spots, dots, bubbles, lines (zigzag, wavy, heat off pavement)
  - Any color, but often silver, gray, or clear
  - Usually associated w/ motion, e.g., moving, vibrating, coalescing
- Sensory—Usually positive (tingling) followed by negative (numbness)
- Motor—Hemiparesis (= "hemiplegic migraine")
- Cognitive— Aphasia, confusion, amnesia, olfactory hallucinations
- Brainstem/temporal lobe—
  - Vertigo, ataxia, diplopia, tinnitus, dysarthria, consciousness
MIGRAINE PHASES:
AURA (3 of 3)

- More types of neurologic symptoms
  - Autonomic nervous system/insula/brainstem
    - GI symptoms – Nausea/vomiting, anorexia, dyspepsia, abdominal cramping, flatulence, diarrhea, constipation
    - Cranial dysautonomia – Horner syndrome, sinus congestion/epistaxis, facial/scalp flushing (e.g., red ear)
    - Temperature changes – Hypothermia, mild fever
    - Cardiovascular changes – Hypertension, hypotension, syncope, palpitations, arrhythmias

Migraine causes headache & transient hypertension, but hypertension does not cause headache

MIGRAINE PHASES:
PAIN

- Headache characteristics—No specific pattern
  - Location variable
    - Unilateral, bilateral
    - Anterior (frontal, periorbital, etc.), posterior (occipital, neck)
    - Diffuse, focal (e.g., nummular = coin-shaped)
  - Throbbing, pulsating, pounding, pressure, squeezing, dull, aching
  - Severe, moderate, mild, absent
  - Onset usually gradual; duration hours, days, weeks

- Associated symptoms
  - Sensory phobias – photo, phono, kinesio, thermo, osmo
  - Allodynia – pain due to light touch, breeze, hair moving, etc.
  - “Lightheadedness” – vibratory or buzzing paresthesia in head

Trigeminal nerve (CNS) & cervical nerve root sensitization in the meninges results in headache, sensory phobias, neuropathic symptoms

MIGRAINE PHASES:
POSTDROME

- Fatigue, malaise
- Difficulty concentrating
- Mood changes
- Muscle aches
- Scalp tenderness
- Food cravings or anorexia

The migraine hangover
**MIGRAINE PATHOPHYSIOLOGY**
*A JIGSAW PUZZLE WITH MISSING PIECES*

- **Trigger** → Hypothalamic dysfunction & hyperexcitable cortex (esp. occiput)
- **Prodrome** → Head & neck pain (sensory phobias & cranial arterial changes, e.g., sinus congestion)
- **Aura** →CN V/cervical root sensitization with pain receptor stimulation & release of neuropeptides (e.g., CGRP)
- **Cortical spreading depression** (excitation/depression w/ hyperemia/oligemia, esp. occiput)
- **Dysautonomia** → Platelet & serum serotonin levels decrease during attacks of migraine, tension headache, IBS, & PMS.
- Cerebral serotonin & magnesium decrease during a migraine attack.

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**MIGRAINE IS MUCH MORE COMMON THAN STUDIES WOULD SUGGEST**

- "Regular" / "ordinary" headaches are migraines
- Tension headaches are migraines
  - Frequent co-occurrence in patients and similar epidemiology, clinical features, & treatment responses
  - Actually migraines triggered by stress letdown
- Sinus headaches are migraines
  - Respond to migraine prophylactic agents
  - Respond acutely to triptans (migraine abortive agents)
  - Do not respond to antibiotics
- Not all migraine attacks include headache
  - Aura without headache (visual, sensory, vertigo, etc.)
  - Abdominal migraine (= irritable bowel syndrome)
  - Precordial migraine (= noncardiac atypical chest pain)

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**DOCTORS & MIGRAINE KNOWLEDGE**
*Deficits Due to Lack of Training, Time, & Confidence*

- Training—ineffective, focused on life-threatening HAs
- Time—Hx key to Dx, yet limited time leads to cursory Hx
- Confidence—in self and ability to read patient
  - Cursory Hx & systemic Sxs → fear of structural lesions
  - Normal exam/tests → assumed psychiatric illness
  - Specialization → multiple Dxs rather than 1 unifying Dx
    - Neurologists deal with headaches
    - GI doctors deal with stomach and intestine symptoms
    - Ob-Gyn doctors deal with woman issues
    - ORL / ENT doctors deal with ear, nose, sinus symptoms
    - Cardiologists deal with cardiac causes of chest pain
    - Pain specialists deal with peripheral (not CNS) pain
THE BLIND MEN & THE ELEPHANT
Ancient Indian Parable Retold by American Poet John Godfrey Saxe (1800s)

Very old story from India of 6 blind men who come upon an elephant. Each man feels a different part of the elephant & comes to a different conclusion regarding what he is feeling. None realize they are actually feeling an elephant.

DOCTORS WITH BLINDERS & MIGRAINE
An Unfortunate Modern-Day Medical Story

Like the ancient Indian story, each specialist sees a different symptom of migraine & comes to a different conclusion regarding what the patient has. None of the specialists realize the patient actually has migraine. These 6 are not the only possible false diagnoses. See next slide...

CONDITIONS LIKELY DUE TO (OR RELATED TO) MIGRAINE

- Tension-type headache
- Sinus headache
- Regular/ordinary headache
- Cervicogenic headache
- Premenstrual syndrome
- Irritable bowel syndrome
- Recurrent vertigo/Meniere
- Atypical noncardiac chest pain
- Transient HTN w/ headache
- Transient global amnesia
- Episodic confusion
- POTS (postural orthostatic tachycardia syndrome)
- Syncope of unknown cause
- Postconcussion headache
- Hangover
- Frequent “strokes” or “TIs” w/ normal MRI brain

These conditions cause temporary symptoms that are said to be of unknown cause, but which may be explained by migraine.
MRI BRAIN & MIGRAINE WITH AURA: ANOTHER REASON FOR UNCERTAINTY

- Deep-white matter “UBOs” common in migraine w/ aura
  - White on T2 & FLAIR MRI scans
  - Located at gray-white junction
  - Small, round, indistinct borders
  - Often confused with:
    - Multiple sclerosis plaques
    - Strokes (“small-vessel disease,” “arteritis,” “vasculitis”)
  - Significance & cause unknown
  - Further evaluation not necessary
  - Reassure patient

Kruit MC et al. JAMA 2004;291:427

MIGRAINE IS A DISTINCT SYNDROME OF BOTHERSOME, BUT “BENIGN” SPELLS

- Lifelong past history (childhood through adulthood) of multiple different types of similar “spells”
  - Main symptom headache, GI upset, chest pain, visual symptoms, tingling, vertigo, confusion, etc.
  - Associated with mood changes, food cravings, sensory phobias
  - Triggered by stress letdown, weather changes, estrogen changes, dehydration, hunger, etc.
  - Normal tests
  - Complete resolution between spells—though taking daily analgesic, triptan, decongestant, or muscle relaxant makes symptoms constant (= medication-overuse syndrome)

- Family history of spells similar to those suffered by pt

Obtaining accurate past & family histories is challenging due to rationalizations of patient & other physicians

MIGRAINE THERAPY: THE TWO KINDS

**Prophylactic and Abortive Agents**

- Prophylactic agents (preventers)
  - If a patient takes certain medications every day, s/he is likely to have less frequent and less severe migraines

- Abortive agents (stoppers)
  - If a patient takes certain medications as soon as possible at the start of a migraine attack, s/he may either stop the attack or make it less severe
MIGRAINE THERAPY: THE 3 OVERARCHING CONSIDERATIONS

- Avoid medication overuse headache (MOH)
  - Limit use of all combined abortive agents to \( \leq 2 \text{ d/wk} \) (except prescription naproxen)
  - Use prophylactic therapy to enable patient to use abortive therapy \( \leq 2 \text{ d/wk} \)
- Kill 2 birds with 1 stone
  - Choose prophylactic agent(s) that treat other conditions pertinent to the patient
- Aim to prevent ALL migraine symptoms—not just headache

MIGRAINE PROPHYLACTIC THERAPY: GENERAL PRINCIPLES

- Kill 2 birds with 1 stone
  - No agent initially developed for migraine; when choosing an agent, address concurrent conditions (e.g., hypertension, depression, anxiety, patient weight, seizures, osteoarthritis, insomnia, stool consistency)
- Different patients respond differently to different drugs
- Each agent/dose change takes \( \geq 4 \text{ wk} \) to take full effect
- Start low, go slow
  - Start one med, low-dose
  - \( \text{q2-4 wks to maximize efficacy vs. toxicity, but do NOT make automatic increases} \)
  - May eventually need more than one med

MIGRAINE PROPHYLACTIC THERAPY: TOP CHOICES BY MECHANISM

There is no “class effect”—a patient may respond well to a drug after not responding to a different drug in the same category

- Antiepileptic drugs
  - topiramate (Topamax)
  - divalproex (Depakote)
- Tricyclic antidepressants
  - nortriptyline (Pamelor)
  - amitriptyline (Elavil)
  - doxepin
- Serotonin-norepinephrine reuptake inhibitor (SNRI)
  - venlafaxine ER
- Antihistamine
  - cyproheptadine
- Antihypertensive agents
  - candesartan (Atacand)
  - lisinopril (Prinivil, Zestril)
  - nadolol (Corgard)
  - propranolol (Inderal)
- NSAID
  - naproxen (Naprosyn)
- Neutraceuticals
  - magnesium oxide
  - vitamin B2 (riboflavin)
  - melatonin
  - feverfew
MIGRAINE PROPHYLACTIC THERAPY: SIDE EFFECTS

**Side effects that may influence agent choice**

- All antihypertensives → hypotension
- Beta blockers → depression, sedation, asthma
- Tricyclic antidepressants → weight gain, sedation, constipation
- Divalproex → weight gain, hair loss, polycystic ovaries
- Topiramate → weight loss, abnl cognition, nephrolithiasis
- Naproxen → ulcers, renal disease
- Magnesium → loose stools

MIGRAINE PROPHYLACTIC THERAPY: TOP CHOICES BY AGE & IN PREGNANCY

- **Children & Young Adults**
  - topiramate
  - nortriptyline / amitriptyline
  - nadolol / propranolol
- **Older Adults**
  - candesartan (Atacand) / lisinopril
  - nortriptyline / amitriptyline
  - divalproex (Depakote)
  - venlafaxine (Effexor)
- **All Ages—primary or adjunct**
  - naproxen → peri-predictable triggers / other pain
  - magnesium oxide → constipation
  - melatonin → insomnia
- **Pregnancy**
  - magnesium oxide (class B)
  - cyproheptadine (class B)

MIGRAINE ABORTIVE THERAPY: GENERAL PRINCIPLES

- **Triptans**—migraine-specific serotonin agonists—are most effective (bind to subsets of serotonin 1 receptor—1D & 1B).
- Triptans may cause vasoconstriction; safety uncertain if:
  - Migraine associated w/ aphasia, hemiplegia, or vertigo
  - Vascular disease or risk factors (including hypercoagulability)
  - Patient < 12 or > 65 years of age
- Analgesics may also be effective as abortive therapy
- Narcotics are generally NOT indicated for headache—limit use to:
  - Pregnant women—only use acetaminophen (B) or narcotics (C)
  - Elderly & patients with vascular disease
- Take all abortive therapy early, e.g., triptan efficacy 2/3 when HA mild, 1/3 when HA moderate
- Take analgesics and triptans ≤ 2 d/wk to avoid medication-overuse headaches
MIGRAINE ABORTIVE THERAPY: SEROTONIN (5-HT) AGONISTS

TRIPTANS
Selective 5-HT(1D/1B) agonists
- eletriptan (Relpax)
- rizatriptan (Maxalt & Maxalt MLT)
- zolmitriptan (Zomig & Zomig ZMT)
- almotriptan (Axert)
- sumatriptan (Imitrex PO, PN, SC)

Fast onset/Short half-life
- eletriptan (Relpax)
- rizatriptan (Maxalt & Maxalt MLT)
- zolmitriptan (Zomig & Zomig ZMT)
- almotriptan (Axert)
- sumatriptan (Imitrex PO, PN, SC)

Slow onset/Long half-life
- frovatriptan (Frova)
- naratriptan (Amerge)

ERGOTS
Nonselective 5-HT(1D) agonists
- Cafergot (PO, PR)
- DHE
  - DHE-45 IV, IM
  - Migranal PN

TRIPTAN + NSAID
- sumatriptan/naproxen sodium (Treximet)

In most cases, start with the highest recommended triptan dose, e.g., sumatriptan 100 mg, eletriptan 40 mg, rizatriptan 10 mg. Take as early as possible at onset; may repeat x 1 after 2 h; do not exceed 2 tabs / 24 h; do not exceed 2 d / week.

MIGRAINE ABORTIVE THERAPY: NON-NARCOTIC ANALGESICS

While all these agents can be effective when used as early as possible at migraine onset, they all cause medication overuse headache if used > 2 days per week

Nonspecific single-agent analgesics
- Aspirin, acetaminophen (Tylenol), ibuprofen or other NSAIDs

Nonspecific combination analgesics
- Excedrin Migraine (acetaminophen, aspirin, caffeine)
- BC Powder (acetaminophen, aspirin, caffeine)
- Goody’s Headache Powder (aspirin, salicylamide, caffeine)
- Midrin, Amdrine, Duradrin, Epdrin (acetaminophen, dichloralphenazone, isometheptene)
- Fiorinal (aspirin, butalbital, caffeine)
- Fioricet, Esgic (acetaminophen, butalbital, caffeine)

MIGRAINE ABORTIVE THERAPY: PARENTERAL AGENTS IN HOSPITAL/ED

- Normal saline – 1 L IV bolus
- Magnesium sulfate – 1 g IV
- Diphenhydramine (Benadryl) – 25 mg IV
- Valproic acid (Depacon) – 500 mg IV
- Prochlorperazine (Compazine) – 10 mg IV
- Metoclopramide (Reglan) – 10 mg IV
- Methylprednisolone (Solumedrol) – 125 mg IV
- Dihydroergotamine (DHE) – 0.5-1.0 mg IV or IM

These IV agents are preferable to oral, IV, or transdermal analgesics for ED & hospitalized patients with headache

These agents may be repeated q8h PRN.

RARELY need analgesics. ALMOST NEVER need narcotics.

In pregnant women, may use metoclopramide (class B).
### PRIMARY HEADACHE SYNDROMES:
#### TRIGEMINAL AUTONOMIC CEPHALALGIAS

<table>
<thead>
<tr>
<th>TYPE OF TAC</th>
<th>KEY FEATURES</th>
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<tbody>
<tr>
<td>Cluster</td>
<td>- More common in men (3x-y) / mean age at onset 31 (27-37)</td>
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<td>- Symptoms occur in “clusters” (seasonal &amp; diurnal)</td>
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<td>- Duration 60 min, frequency 1-3/day</td>
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<td>- Severe unilaterial orbital pain</td>
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<td>- Agitation/restlessness common (90%), N/V, sensory phobias</td>
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<td></td>
<td>- Abortive Rx – oxygen (7-10 L/min x 15-20 min) or triptans</td>
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<td></td>
<td>- Prophylactic Rx – verapamil or lithium</td>
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<td>Paroxysmal hemicrania</td>
<td>- More common in women (3x)</td>
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<td>- Duration 15 min, frequency ≤ 5/day</td>
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<td>- Prophylactic Rx – indomethacin</td>
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<td>Hemicrania continua</td>
<td>- More common in women (2x)</td>
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<td></td>
<td>- Present &gt; 3 mos, intermittent exacerbations of variable intensity</td>
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<td></td>
<td>- Prophylactic Rx – indomethacin</td>
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<tr>
<td>SUNCT</td>
<td>- More common in men (3x), V1 distribution</td>
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<td></td>
<td>- Duration 5 sec to 5 min, frequency 3 to 200/day</td>
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<tr>
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<td>- Prophylactic Rx – lamotrigine</td>
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All TACs have cranial dysautonomia – lacrimation, conjunctival injection, nasal congestion, rhinorrhea, ptosis, or eyelid edema.

### OTHER PRIMARY HEADACHE SYNDROMES:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>KEY FEATURES</th>
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</thead>
<tbody>
<tr>
<td>New-onset Persistent Daily Headache</td>
<td>- Abrupt onset daily headache, associated migrainous features</td>
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<tr>
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<td>- Continuous &gt; 3 months without secondary cause or trauma</td>
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<td>- Date-locked</td>
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<tr>
<td>Hypnic Headache</td>
<td>- Alarm clock headache (develops during sleep)</td>
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<tr>
<td></td>
<td>- Dull, bilateral or bilateral</td>
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<tr>
<td></td>
<td>- 15 min – 3 hours after waking &gt; 4 nights/week</td>
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<tr>
<td></td>
<td>- Old &gt;&gt;&gt; young</td>
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<tr>
<td>Primary Headache with Sexual Activity</td>
<td>- Associated with primary exertional</td>
</tr>
<tr>
<td></td>
<td>- Young &gt;&gt;&gt; old</td>
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<tr>
<td></td>
<td>- Pre-organic: dull headache, neck pain that builds in intensity</td>
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<tr>
<td></td>
<td>- Orgastic: sudden, severe, explosive headache with abrupt onset</td>
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<td></td>
<td>- Maximal intensity</td>
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</tbody>
</table>

All TACs have cranial dysautonomia – lacrimation, conjunctival injection, nasal congestion, rhinorrhea, ptosis, or eyelid edema.
MIGRAINE & OTHER 1° HEADACHES
LEARNING OBJECTIVES

- Differentiate primary and secondary headaches
- Explain when and how to perform a diagnostic evaluation in a patient with headache
- Relate a practical definition of migraine
- Describe how the following symptoms relate to migraine:
  - Abdominal pain
  - Chest pain
  - Vertigo
  - Syncope
- Describe the appropriate abortive & prophylactic therapies for migraine
- Identify other primary headaches syndromes & their treatments