A PRACTICAL GUIDE TO
THE DIAGNOSIS AND TREATMENT
OF
HEADACHE SYNDROMES

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There have been many extensive textbooks on headache treatment, diagnosis, and management. However, in this maze of books, few have been of any practical value for the average physician.
Headache is probably one of the most frequent complaints for which a patient will consult a physician. It is also probably the most ignored complaint and most inconsistently treated condition.
What Headache Syndromes Are Most Common?

• Classic Migraine with Aura
• Common Migraine or Atypical Migraine
• Cluster Headache
• Hemiplegic, Complicated, Ophthalmoplegic, and Basilar Migraine
• Change in a Headache Pattern – Beware of SAH
• Indolent Headache – Beware of Tumor
• Cranial Neuralgias
• Traumatic and Post – Concussive Headache
Headache History – The Key to Diagnosis

Be interested and Sympathetic

- Types of Headache
- Onset
- Location
- Timing
- Frequency
- Duration, Severity, and Character
- Prodromes – Auras
- Associated Symptoms

- Precipitating Factors
- Sleep Pattern
- Environmental Factors
- Family History
- Medical History
- Surgical History
- Current Medications and Allergies
- Psychotherapy
Drugs that Provoke Headache

- Nitrates
- Indomethacin
- Oral Progesterone
- Oral Vasodilators
- Vitamin B2
- Nicotinic Acid
Drugs, If Withdrawn, May Serve as Provocative Factors for Headache

- Ergot
- Caffeine
- Amphetamines
- Phenothiazines
Headache Statistics

• 20% of visits to a Neurologist annually in the USA.
• 28 million people in the US have migraine attacks per year.
• 1/3 of migraineurs have never consulted a physician specifically for Migraine.
• 67% of migraineurs see a primary care physician.
• 16% consult neurologists or headache specialists.
Acute Therapy for Migraine

Proven Pronounced Statistical and Clinical Benefit:

- Acetaminophen + Aspirin + Caffeine PO
- Aspirin PO
- DHE SC, IM, IV + antiemetic
- Ibuprofen PO
- Naproxen PO
- Triptans PO, SC, IV, IN
Triptans

Selective 5-HT receptor antagonists.

• Since the introduction of Sumatriptan (Imitrex) in 1993 the treatment of acute migraine has improved dramatically.
Available Triptans in the United States

<table>
<thead>
<tr>
<th>BRAND</th>
<th>GENERIC</th>
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<tbody>
<tr>
<td>Imitrex</td>
<td>Sumatriptan</td>
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<tr>
<td>Frova</td>
<td>Frovatriptan</td>
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<tr>
<td>Amerge</td>
<td>Naratriptan</td>
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<tr>
<td>Zomig</td>
<td>Zolmitriptan</td>
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<tr>
<td>Maxalt</td>
<td>Rizatriptan</td>
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<tr>
<td>Axert</td>
<td>Almotriptan</td>
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<tr>
<td>Relpax</td>
<td>Eletriptan</td>
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Triptans – Clinical Effectiveness

- About ½ of patients will respond initially in 1-2 hours.
- Median time to recurrence is about 10 hours.
- Frequent use of Triptans can lead to rebound headache.
- Limit Triptan dose to 10 per month.
- DHE may have a lower rate of recurrence
Potential for Coronary Artery Vasoconstriction

• Triptans can stimulate 5-HT receptors on coronary arteries and result in constriction, which may become clinically significant in the presence of coronary artery stenosis or vasospastic disease.

• Triptans, as a class, are contraindicated for use in patients with ischemic heart disease, Prinzmetal’s angina, and uncontrolled hypertension.

• Despite the potential risk, the estimated chance of an MI occurring within 24 hours is small but not negligible.
Pregnancy and Breast Feeding

• Triptans are designated category C (risk to humans has not been ruled out) by the FDA.

• Sumatriptan Pregnancy Registry – No consistent pattern of birth defects was detected.

• Sumatriptan is excreted in Breast Milk

• Nursing infants receive about 3.5% of maternal dose. This dose is likely to have little or no pharmacologic effect.
Preventative Medications
Daily Headache

- Tricyclic Antidepressants
- Beta Blockers
- Calcium Channel Blockers
- Valproic Acid
- SSRI’s
- Topiramate (Topamax)
Preventative Medications – Indications for Use

- Recurring migraines that, in the patient’s opinion, significantly interfere with their daily routines, despite acute treatment.
- Frequent headache (2-3 times per week).
- Contraindications to, failure of, or overuse of acute therapies.
Preventative Medications –
Indications for Use (cont)

- Adverse events with acute therapies.
- The cost of both acute and preventative therapies.
- Patient’s preference
- The presence of uncommon migraine conditions; including hemiplegic migraine, basilar migraine, migraine with prolonged aura, or migrainous infarct.
Prolonged Migraine Aura – Diagnostic Criteria

• Migraine with aura symptoms lasting > 60 min, but no more than 7 days.

• Usually occurs with hemisensory or hemiparetic symptoms.
Basilar Migraine – Criteria for Diagnosis

Migraine with aura and two or more of the following symptoms:

- visual field deficits
- dysarthria
- vertigo
- tinnitus
- decreased hearing
- diplopia
- ataxia
- bilateral parathesias
- bilateral paresis
- decreased LOC

Aura usually lasts 5 – 60 minutes but may extend to 3 days.

Treatment: Preventative Medications
Misc. Things to Consider

• Triptans are contraindicated in Basilar Migraine.

• Migraine and Oral Contraceptive use – Controversial

• Migraines may occur for the first time after oral contraceptive use.

• Stroke and Oral Contraceptive use – Controversial
In the Emergency Department – What is the Role of Neuroimaging?

Always start with a non-contrast CT scan

Indications for scan in the E.D.:

- Worst headache of life with or without stiff neck
- Change in a headache pattern
- History of indolent headache
- Headache associated with seizure
- Headache with altered LOC
- Traumatic headache
In the Emergency Department …

What can you do to break the headache cycle temporarily?

- IV hydration
- IV Steroids
- IV DHE
- Triptans
- IM/IV Narcotics

*The above will not solve the problem. To avoid frequent return visits, refer the patient to someone who is skilled in the treatment of headache.*
Case 1

60 yo man with history of migraine with and without aura since his 40’s described as daily in nature with associated photophobia, phonophobia, and nausea. He would occasionally have visual aura of flashing lights for 20 minutes before the headache in both eyes.

He presents with a 12 day history of a right temporal, retro-orbital headache associated with nausea, light and noise sensitivity, but no nausea. He reported blurred vision, visual scotoma in the right eye intermittently for 3-5 hours daily from the time of onset of the headache for 10 days. He had no fever. His PCP gives him a medrol dose pack with no help. His neurologic and eye exam are normal.
What is the diagnosis?

1. Status migrainosis:
   - Migraine lasting longer than 72 hours
   - Headache is different than other headaches
   - Headache fits migraine criteria: unilateral
     - associated with photo and phonophobia

Treatment:
- IV Hydration
- Avoid Opioids
- IV Depacon
- Rebound Headache
- IV Solumedrol
- DHE
2. Because there was a change in headache pattern a diagnosis of migraine is a diagnosis of exclusion.

In this case a differential diagnosis of trauma, stroke, ICH, temporal arteritis, carotid dissection, and venous infarct are all possible.

Imaging in these cases is mandatory.
Case 2

A 27 yo woman presented to the ED with left temporal throbbing headache, left face and arm numbness, and left arm weakness. She had intractable headache with some fluctuation for the past 3-4 weeks. The focal neurologic symptoms lasted for 30 minutes and then completely resolved. BP was 120/70. She had a history of migraine but never had focal neurologic symptoms. She was not pregnant, not on BCP’s, and did not smoke.

What would you do at this point?
MRI was normal
Patient was treated with sumatriptan and DHE
Symptoms resolved and patient was sent home.

The next day she woke up and could not see to the left. Exam revealed a LHH, otherwise exam was normal.

MRI shows R PCA infarct
MRA showed narrowing of the R PCA.
Diagnostic studies for blood markers of inflammation, hypercoaguable testing and CSF examination were all normal.

Headache resolved and the patient was discharged but still had LHH.

Repeat MRA after 3 months was negative. Patient remained with LHH
Clinical Questions:

1. What is the diagnosis in this case?
2. What is the mechanism of stroke?
3. Is it safe to administer sumatriptan and DHE concurrently in a migraine patient to abort an acute headache?
Differential Diagnosis:

- Migrainous Infarction
- Vasculitis
- Hypercoaguuable state
- Posterior Reversible Encephalopathy Syndrome (PRES)

Complications related to medication used to treat headache.
Diagnostic workup not suggestive of vasculitis or hypercoaguable state.

PRES is unlikely as BP was normal throughout her clinical course.

Perhaps stroke might be due to the use of sumatriptan and DHE together.
One should use caution when using vasoconstrictive medications in patients with acute migraine.

Triptans should be used with caution especially in combination with other drugs that can cause vasoconstriction such as DHE.
Case 3

48 yo woman seen for a third opinion with a 20 year history of only menstrual headache preceded by a visual aura followed by generalized headache associated with photo and phonophobia. Headache would last 2-3 days.

For 3 months she had daily headache described as left sided pressure or throbbing associated with photo and phonophobia, no nausea, aura, or other triggers.

Seen by 2 headache specialists and tried on multiple migraine medications and had an occipital nerve block; none of which helped.
Neurologic examination is normal
MRI/MRA normal
Blood tests normal

Dx: Hemicrania Continua

This diagnosis is easily missed due to similarity to migraine and to new daily persistent headache
Hemicrania Continua

Pain is almost always unilateral
Pain is throbbing in nature
Exacerbations of pain have triggers:
  - Stress
  - Alcohol
  - Inadequate sleep
  - Bright lights
  - Skipping a meal
  - Strong smells
  - Weather change
Hemicrania Continua

Similar to chronic migraine exacerbations can last 20 minutes to several days.

Similar to migraine there is associated photo or phonophobia. Visual auras are rare.

Indomethacin responsiveness defines Hemicrania Continua.

Dose is 50-300mg daily in divided doses.
Case 4

52 yo woman with a 5 year history of facial pain that only occurs at night awakening her from sleep about 2 in the morning. She describes a burning or pressure pain in the right upper teeth which then spreads to the entire right face associated with nausea, vomiting once, light and noise sensitivity, but no eye redness or tearing.

Pain lasts 20-30 minutes. Pain may recur a second time within a 2 hour span. Pain may occur daily for 6-8 weeks and then go away for about 6-9 months before returning. She was seen by a neurologist and told she had trigeminal neuralgia and wants a second opinion.
What is the diagnosis?

Causes of Nocturnal Headache:

Primary Headache disorders: Cluster
Paroxysmal Hemicrania
Migraine
Causes of Nocturnal Headache (Con’t.)

Secondary Headache disorders:

- Medication Overuse
- Pheochromocytoma
- Nocturnal seizures
- Temporal Arteritis
- OSA
- Brain tumor
- Nocturnal HTN
- Subdural Hematoma
- Hydrocephalus
In this case the diagnosis is Cluster Headache

Dx. Criteria:
At least 2 cluster periods lasting from 7 days to one year and separated by pain free remission periods of > 1 month

Cluster is misdiagnosed more than 80% of the time when first seeing a physician.

Duration of headache untreated is 15 – 180 minutes

Nocturnal awakening and duration of the bouts are all typical of cluster.
What is the distribution of pain?

Periorbital pain and orofacial pain are common in Cluster

Pain behind the eye and over the temple are also common

Pain is described as sharp, stabbing, piercing, burning, or pulsating
Other signs and symptoms of Cluster:

Conjunctival injection
Lacrimation
Nasal congestion / Rhinorhea
Eyelid edema
Forehead/facial swelling
Treatment of Cluster Headache

$\text{O}_2$ 8-12 L/min
Triptans – dose is limited to twice daily, no more than 6/month

Preventative treatment:
Steroids
Verapamil
Depakote
Topamax
Thank you