Headache in the Clinic

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Background

- 50% adult population world wide is affected by HA disorder[1]
- Primary vs Secondary HA
- Most common HA types: tension, migraine, and cluster → 40, 10, 1 % of adult population respectively
- Most HA diagnoses are based on patient history

Tension Headache

- Most common form and affects > 40 % adult pop
- Symptoms/Presentation: bilateral mild to moderate pressure without associated symptoms
- Nociceptors in pericranial myofascial tissues are likely source of these HA's
- Various forms of tension HA

Tension HA cont'd

Table 2.

ICHD-2 Diagnostic Criteria for Episodic Tension-Type Headache

Infrequent
At least 10 episodes occurring fewer than one day per month on average (fewer than 12 days per year) and fulfilling the following criteria:
Headache lasts 30 minutes to seven days
Headache has at least two of the following features: bilateral location, pressing or tightening (nonpulsating) quality, mild or moderate intensity, not aggravated by routine physical activity such as walking or climbing stairs
Both of the following: no nausea or vomiting (anorexia may occur), either photophobia or phonophobia
Headache is not attributed to another disorder

Tension HA cont'd

Frequent
At least 10 episodes occurring on more than one but fewer than 15 days per month for at least three months and fulfilling all of the criteria for infrequent episodic tension-type headache

ICHD-2 = International Classification of Headache Disorders, 2nd ed.

Tension HA Treatment

- Various modalities: hot/cold packs, US/electrical stimulation, trigger pt injections, occipital nerve blocks, stretching/relaxation techniques
- Acupuncture: review of 11 studies w/2317 patients showed evidence to support this treatment
- Medications: NSAIDS, Barbiturates, Analgesics, Ergot alkaloids

Medications

- Barbiturates→ Fiorinal (Butalbital, Aspirin, Caffeine)
- Fioricet (Acetaminophen, caffeine, Butalbital)
- **Abortive** medications: Phenergan, Compazine, and Reglan
- Ergotamine tartrate (alpha adrenergic and serotonin antagonist causing constriction to peripheral and cranial blood vessels

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	*Evidence rating*	*References*
Biofeedback and relaxation techniques can decrease the frequency and severity of chronic daily headaches, and reduce medication use.	B	13
Cognitive behavior therapy in group or individualized settings has been shown to reduce headache frequency and severity, and to improve overall quality of life.	B	14, 15
Amitriptyline may reduce headache duration and severity compared with placebo for chronic tension-type headache.	B	17

Migraine HA

Table 3. ICHD-2 Diagnostic Criteria for Migraine with Typical Aura

At least two episodes fulfilling the following criteria:

- Aura consisting of at least one of the following, but no motor weakness: fully reversible visual symptoms including positive features (e.g., flickering lights, spots or lines) and/or negative features (i.e., loss of vision); fully reversible sensory symptoms including positive features (i.e., pins and needles) and/or negative features (i.e., numbness); fully reversible dysphasic speech disturbance
- At least two of the following: homonymous visual symptoms and/or unilateral symptoms; at least one aura symptom develops gradually over five or more minutes and/or different aura symptoms occur in succession over five or more minutes; each symptom lasts at least five minutes, but no longer than 60 minutes
- A headache that fulfills the criteria for migraine without aura (Table 4), and begins during the aura or follows the aura within 60 minutes

Headache not attributed to another disorder

Migraine HA

Table 4. ICHD-2 Diagnostic Criteria for Migraine Without Aura

At least five episodes fulfilling the following criteria:

- Headache episodes lasting four to 72 hours (untreated or unsuccessfully treated)
- Headache has at least two of the following characteristics: unilateral location, pulsating quality, moderate or severe pain intensity, aggravated by (or causes avoidance of) routine physical activity such as walking or climbing stairs
- During the headache, the patient experiences at least one of the following: nausea or vomiting; and photophobia and phonophobia

Headache is not attributed to another disorder

Abortive Therapy

Moderate	Severe	Extremely Severe
NSAIDs	Naratriptan	DHE (IV)
Isometheptene	Rizatriptan	Opioids
Ergotamine	Sumatriptan (SC,NS)	Dopamine antagonists
Naratriptan	Zolmitriptan	
Rizatriptan	Almotriptan	
Sumatriptan	Frovatriptan	
Zolmitriptan	Eletriptan	
Almotriptan	DHE (NS/IM)	
Frovatriptan	Ergotamine	

Prophylactic Therapy

- Consider when:
  - Frequency of migraines > 2x/month
  - Duration of attack > 24 hrs
  - Episodes cause major life disruptions, disability > 3 days
  - Abortive therapy fails, overused
  - Abortive therapy used > 2x/week

Prophylactic Medications

First line	High efficacy	Beta blockers Tricyclic antidepressants Divalproex Topiramate
Low efficacy	Verapamil	
Second line	High efficacy	Methysergide Flunarizine MAOIs
Unproven efficacy	Cyproheptadine Gabapentin	
MAOIs = monoamine oxidase inhibitors		

Evidence Based Practice for Chronic Daily HA

Drug	*Type*	*Study*	*Benefit*
Amitriptyline	Tricyclic antidepressant	RCT; 391 patients[17]	Reduces frequency of headaches by more than 50% in 46% of patients at 16 weeks, although not statistically different from placebo at 12 or 20 weeks
Fluoxetine (Prozac)	Selective serotonin reuptake inhibitor	Cochrane meta-analysis; 13 studies with 636 patients[18]	No superiority to placebo for headache frequency or severity
Gabapentin (Neurontin)	Gamma-aminobutyric acid analogue	RCT; 133 patients[19]	9% absolute difference in headache-free days vs. placebo; average of 4-hour reduction in duration of headache per day
OnabotulinumtoxinA (Botox)	Injectable neurotoxin	Meta-analysis; 27 placebo-controlled trials with 5,313 patients[20]	Reduces number of headaches per month by 2.3 in those with chronic migraine
Propranolol	Beta blocker	Cochrane meta-analysis; 58 studies with 5,072 patients[21]	Reduces migraine frequency vs. placebo with standard mean difference of −0.4; study did not address population with chronic daily headache
Tizanidine (Zanaflex)	Alpha$_2$-adrenergic agonist	RCT; 200 patients[22]	55% reduction in days with severe headache (21% with placebo); 35% reduction in severity (20% with placebo); 35% reduction in duration (19% with placebo)
Valproate (Depacon) and topiramate	Anticonvulsants	Cochrane meta-analysis; 23 studies with 902	Odds ratio of 4.67 for valproate and 3.34 for topiramate to reduce frequency of headaches

Chronic daily HA defined as HA for 15 + days/month for at least 3 months

Cluster Headache/TAC

Table 5. ICHD-2 Diagnostic Criteria for Cluster Headache

At least five episodes fulfilling the following criteria:

- Severe or very severe unilateral orbital, supraorbital, or temporal pain lasting 15 to 180 minutes if untreated
- Headache is accompanied by at least one of the following ipsilateral autonomic symptoms: conjunctival injection or lacrimation, nasal congestion or rhinorrhea, eyelid edema, forehead and facial sweating, miosis or ptosis, restlessness or agitation
- Headache episodes occur from one every other day to eight per day

Not attributable to another disorder

Episodic cluster headache

Fulfills all of the above criteria

At least two cluster periods lasting seven to 365 days and separated by pain-free remissions of more than one month

Chronic cluster headache

Fulfills all of the above criteria

Episodes recur for more than one year without remission periods or with remission periods lasting less than one month

ICHD-2 = International Classification of Headache Disorders, 2nd ed.

Information from reference 4.

Abortive Therapies

- O2
- 5-Hydroxytryptamine (5-HT1) rec antagonists (tryptans or ergot alkaloids w/metoclopramide)
- Dihydroergotamine (IV vs IM)

Prophylactic Therapies

- CCB (Verapamil) combined w/Ergotamine, Lithium
- Lithium has been suggested 2/2 cyclical nature of CH, similar to Bipolar d/o
- Some small controlled trials have found that anticonvulsants (Topiramate, Divalproex) are effective
- Steroids can terminate cycle and prevent recurrence (high dose for few days → taper
- Nerve Blocks, deep brains stimulation, ablative procedures

Additional Recommendations

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	*Evidence rating*	*References*
Biofeedback and relaxation techniques can decrease the frequency and severity of chronic daily headaches, and reduce medication use.	B	13
Cognitive behavior therapy in group or individualized settings has been shown to reduce headache frequency and severity, and to improve overall quality of life.	B	14, 15
Amitriptyline may reduce headache duration and severity compared with placebo for chronic tension-type headache.	B	17
Selective serotonin reuptake inhibitors have no proven benefit for headache prophylaxis over placebo or tricyclic antidepressants in patients with chronic daily headache.	A	18
Tizanidine (Zanaflex) has some benefit in reducing the frequency, severity, and duration of chronic migraine and chronic tension-type headache.	B	22
Gabapentin (Neurontin) increases the number of headache-free days in patients with chronic daily headache when compared with placebo.	B	19
Valproate (Depacon) and topiramate (Topamax) reduce the rate of migraine attacks by at least 50%.	A	23
Propranolol reduces the frequency of migraine headache, although its effectiveness for chronic migraine is unclear.	C	21
All patients with chronic daily headache should be counseled about medication overuse, which can complicate the course of the headache.	C	9, 24

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to http://www.aafp.org/afpsort.

Secondary HA

Table 7. Red Flag Signs and Symptoms in the Evaluation of Acute Headache

Danger sign or symptom	*Possible diagnoses*	*Tests*
First or worst headache of the patient's life	Central nervous system infection, intracranial hemorrhage	Neuroimaging
Focal neurologic signs (not typical aura)	Arteriovenous malformation, collagen vascular disease, intracranial mass lesion	Blood tests, neuroimaging
Headache triggered by cough or exertion, or while engaged in sexual intercourse	Mass lesion, subarachnoid hemorrhage	Lumbar puncture, neuroimaging
Headache with change in personality, mental status, level of consciousness	Central nervous system infection, intracerebral bleed, mass lesion	Blood tests, lumbar puncture, neuroimaging
Neck stiffness or meningismus	Meningitis	Lumbar puncture
New onset of severe headache in pregnancy or postpartum	Cortical vein/cranial sinus thrombosis, carotid artery dissection, pituitary apoplexy	Neuroimaging
Older than 50 years	Mass lesion, temporal arteritis	Erythrocyte sedimentation rate, neuroimaging
Papilledema	Encephalitis, mass lesion, meningitis, pseudotumor	Lumbar puncture, neuroimaging
Rapid onset with strenuous exercise	Carotid artery dissection, intracranial bleed	Neuroimaging
Sudden onset (maximal intensity occurs within seconds to minutes, thunderclap headache)	Bleeding into a mass or arteriovenous malformation, mass lesion (especially posterior fossa), subarachnoid hemorrhage	Lumbar puncture, neuroimaging
Systemic illness with headache (fever, rash)	Arteritis, collagen vascular disease, encephalitis, meningitis	Blood tests, lumbar puncture, neuroimaging, skin biopsy
Tenderness over temporal artery	Polymyalgia rheumatica, temporal arteritis	Erythrocyte sedimentation rate, temporal artery biopsy
Worsening pattern	History of medication overuse, mass lesion, subdural hematoma	Neuroimaging
New headache type in a patient with:		
Cancer	Metastasis	Lumbar puncture, neuroimaging
Human immunodeficiency virus infection	Opportunistic infection, tumor	Lumbar puncture, neuroimaging
Lyme disease	Meningoencephalitis	Lumbar puncture, neuroimaging

References

1. Hainer BL, Matheson EM. Approach to Acute Headache in Adults. American Academy of Family Physicians 2013; 87 (10).

2. 2. Yancey JR, Sheridan, R, Koren KG. Chronic Daily Headache: Diagnosis and Management. American Academy of Family Physicians 2014; 89 (8).

3. Medscape Website