HEADACHE DEMYSTIFIED: EVALUATION, EXAMINATION, TREATMENT

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Why A Lecture on Headaches

- Trauma
- URI
- Brain tumor
- Post traumatic
- K bleed
- CVA
- Sinus congestion
- Post traumatic
- Hypoxia
- Glaucoma
- Brain abscess
- Vascular disease
- Psychiatric
- Sleep deprivation
- Hangover
- Migraine
- Dural leak
- Temporal arteritis
- Angina
- Allergic reaction
- Drug seeker
- Meningitis
- Caffeine-w/d
- Dehydration
- Pheochromocytoma
- Malignancy
- Cocaine abuse
- Hypoxia
- Seizure
- Vagal stimulation
- Carbon monoxide exposure
- Cervical radiculopathy
- Hyperglycemia
- Tension stress
- Cluster chemical exposures
- MTH
- Too much television
- Dental abscess
- TMJ
- ETOH
- Giant cell arteritis
- Hypoglycemia
- Heat/cold exposure
- Medications

Learning Objectives

1) Define Headaches
   - Primary Headache
   - Secondary Headache
   - Emergency Headache

2) Perfect Assessment & Exam
   - Systematic
   - Succinct
   - Pearls

3) Explore Treatments
   - Medications
   - Interventions
   - Complimentary
   - Innovations & Research
Historical/Background

- The first recorded classification system that resembles the modern ones was published by Thomas Willis in De Cephalalgia in 1672.
- In 1787, Christian Baur divided headaches into primary headaches: idiopathic & secondary headaches: symptomatic, and defined 84 categories.
- National Institutes of Health (NIH), 1962.
- International Headache Society, ICHD 1988, ICHD-II 2003 (accepted by WHO).

Headache (Cephalalgia) Defined

"Headache" is pain in any part of the head, including scalp, face (jaw, orbitotemporal), neck and interior of the head.

It can be a symptom of a number of different conditions of the head and neck.

The brain tissue itself is not sensitive to pain because it lacks pain receptors. Rather, the pain is caused by disturbance of the pain-sensitive structures around the brain.

Nine areas of the head and neck have these pain-sensitive structures, which are the cranium (the peristeum of the skull), muscles, nerves, arteries and veins, subcutaneous tissues, eyes, ears, sinuses and mucous membranes.

Approximately 90% of all benign headaches fall under a few categories, including migraine, tension-type, and cluster headache.

International Classification of Headache Disorders (ICHD-2)

- Primary Headache Disorders
  - Migraine
  - Chronic tension headache
  - Cluster headaches
  - Hemicrania continua

- Secondary Headache Disorders
  - Medication overuse headache
  - Post-traumatic headaches
  - Metabolic headaches (associated with hormonal/metabolic disorders)
  - Vascular/infection/withdrawal/pyschosomatic

- Cranial Neuralgias, Central & Primary Facial Pain, Other Headaches
## Primary

1. Migraine, including:
   - 1.1 Migraine without aura
   - 1.2 Migraine with aura
2. Tension-type headache, including:
   - 2.1 Infrequent episodic tension-type headache
   - 2.2 Frequent episodic tension-type headache
   - 2.3 Chronic tension-type headache
3. Cluster headache and other trigeminal autonomic cephalalgias, including:
   - 3.1 Cluster headache
4. Other primary headaches

## Secondary

5. Headache attributed to head and/or neck trauma, including:
   - 5.1 Chronic post-traumatic headache
6. Headache attributed to cranial or cervical vascular disorder, including:
   - 6.1 Headache attributed to subarachnoid haemorrhage
   - 6.2.1 Headache attributed to giant cell arteritis
7. Headache attributed to a non-vascular intracranial disorder, including:
   - 7.1 Headache attributed to idiopathic intracranial hypertension
   - 7.4 Headache attributed to intracranial neoplasm
8. Headache attributed to a substance or its withdrawal, including:
   - 8.1.3 Carbon monoxide-induced headache
   - 8.2 Medication-overuse headache
   - 8.2.1 Ergotamine-overuse headache
   - 8.2.2 Triptan-overuse headache
   - 8.2.3 Analgesic-overuse headache
9. Headache attributed to infection, including:
   - 9.1 Headache attributed to intracranial infection
10. Headache attributed to disorder of homoeostasis
11. Headache or facial pain attributed to disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cranial structures, including:
   - 11.2.1 Cervicogenic headache
   - 11.3.1 Headache attributed to acute glaucoma
12. Headache attributed to psychiatric disorder

## Neuralgias and other headaches

- 13.1 Trigeminal neuralgia
- 13.2 Glossopharyngeal neuralgia
- 13.3 Nervus intermedius neuralgia
- 13.4 Superior laryngeal neuralgia
- 13.5 Nasociliary neuralgia
- 13.6 Supraorbital neuralgia

## Incidence/Epidemiology

- Lifetime headache prevalence of 99% in females and 94% in males.
- 10,000,000 primary care visits/3,000,000 ED visits per year.
- The annual US direct medical costs attributed to migraine were estimated at >$1 billion.
- Primary headaches account for 90% of all headache complaints, and of these, episodic tension headache is most common.
- Women are three times more likely to experience migraines than men.
- Cluster headaches are felt to affect less than 0.5% of the population, and are more likely to occur in men.

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**CLINICAL PEARL**

**Primary Headaches**

- Headache is itself the disease.
- No organic lesion in the background.
- Treat the Headache.

**Secondary Headaches**

- Headache is only a symptom of the underlying disease.
- Treat the underlying disease.

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**Walter is about to experience a nice visit from the migraine fairy**
There are 5 steps to a successful headache evaluation:

1) Take a clinical history and decide which category of headache you are dealing with.
2) Perform a quick, problem orientated neurological examination.
3) Formulate your differential diagnosis.
4) Arrange brain scans/other diagnostics/ or refer to ED.
5) Make a final diagnosis and commence treatment/management.

Oldcaart

- Onset: When did the headache begin?
- Location: Where does your head/face/neck hurt? Focal or radiate?
- Duration/Disability: How long has it been going on? Change in work or lifestyle (disability).
- Characteristics: temporal characteristics (burning, shooting, crushing, “worst headache”), positional, timing characteristics (time of year, day, month), changes over time. Other HEENT sx?
- Aggravating Factors: What makes your pain worse?
- Relieving Factors: What makes your pain better?
- Treatments tried: Medications, therapies, surgery?
No demonstrable organic disease or structural neurologic abnormality.

Laboratory and imaging test results are generally normal.

Physical and neurologic examinations are also usually normal.

During the headache attack however, cluster and migraine patients might have some abnormal clinical findings, and many patients with tension-type headache have demonstrable tightness in the cervical muscles, with limitation of neck motion, scalp tenderness, or both.

Characteristics of common headache syndromes

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Migraine Headache</th>
<th>Tension Headache</th>
<th>Cluster Headache</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Unilateral in 60 to 70 percent; bilateral in 10 to 20 percent</td>
<td>Bilateral</td>
<td>Always unilateral, usually begins around the eye or temple</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Gradual onset, irregular pattern, throb or squeezing pain; aggravation by neck movement or physical activity</td>
<td>Pressure or tension behind the eyes and temples</td>
<td>Pain begins suddenly, often after a period of a few minutes; pain is deep, constant, and may be associated with nausea and vomiting in quality</td>
</tr>
<tr>
<td>Patient appearance</td>
<td>Patient prefers to rest in a dark, quiet room</td>
<td>Patient may remain active</td>
<td>Patient remains active</td>
</tr>
<tr>
<td>Duration</td>
<td>4 to 72 hours</td>
<td>Variable</td>
<td>20 minutes to 3 hours</td>
</tr>
<tr>
<td>Associated symptoms</td>
<td>Headache, nausea, vomiting, photophobia, phonophobia may have non-migrainous etiology, and may be associated with sensory or cause symptoms of motor disability</td>
<td>None</td>
<td>Ipsilateral lachrymation and redness of the eyes; stuffy nose; phonophobia; piloerection; Horner’s syndrome; focal signs; symptoms care; sensitivity to alcohol</td>
</tr>
</tbody>
</table>

Patient With Undifferentiated Headache

- P - pulsatile quality
- O - over 4-72 hours
- U - unilateral
- N - nausea/vomiting
- D - disabling intensity

Consider referral to neurologist or neurosurgeon if diagnosis uncertain.
CLINICAL PEARL

1) Is this a new headache?
2) How often do you get severe headaches? (defined as, without treatment it is difficult to function)
3) How often do you get other (milder) headaches?
4) How often do you take headache relievers or pain pills?
5) Has there been any recent change in your headaches?

Questions 2 and 3 can be helpful for identifying patients with medication overuse (e.g., patients who use symptomatic medications more than three days per week and/or who have daily headaches).

Question 5 is particularly helpful for identifying patients who may have an important secondary cause of headache: a patient with a stable pattern of headache for six months is unlikely to have a serious underlying cause.

Adopted from the American Academy of Neurology
What are the warning signs/sx of Secondary Headaches?

- Abnormal Exam findings (e.g., neurological examination, Swelling of the optic nerves, SBP>180)
- New onset headache in >50 y/o
- Immunocompromised state (HIV, cancer)
- Sudden or worst headache of your life
- Fever
- Stiff neck or Menningeal signs
- Headaches not responding to treatment / steadily worsening

Characteristics of headache that presents as an emergency

**Thunderclap Headache**
- About 15% of our acute headache cases have this abrupt onset of severe headache.
- Most people report onset to maximal headache within 2 seconds.

**Headache and Fever**
- About 15% of our acute cases have this.

**Headache with Focal Neurology**
- About 22% of acute onset headaches had this type of headache and the focal symptoms included: Visual symptoms, numbness, speech difficulty, weakness, vertigo, epileptic seizures, confusion

**A Previous Headache Disorder that is difficult to control**
- 28% of acute headache admissions have this type, and almost all will have a diagnosis of migraine at discharge.

**DDX: Emergency Headache**

**Headache Red Flags: SNOOPS**

S - systemic symptoms (fever, weight loss, rash, stiff neck)
N - neuro symptoms (confusion, altered level of consciousness)
O - onset (sudden, abrupt or split second)
O - older patient (new onset or progressive, especially if >50 yrs)
P - previous history of headaches (1st headache? New or different? Change in attack frequency, severity or clinical features?)
S - secondary risk factors (HIV, systemic cancer)
Neuralgias & Other Headaches

- Trigeminal neuralgia
- Glossopharyngeal neuralgia
- Temporal Mandibular Joint dysfunction
- Supraorbital neuralgia
- Occipital Neuralgia

Mini-Mental State Examination (MMSE)

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
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<tbody>
<tr>
<td>1.</td>
<td>Orientation to time, place, person, and self</td>
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<tr>
<td>2.</td>
<td>Name, age, ability to recite the months and days of the week</td>
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<tr>
<td>3.</td>
<td>Abstraction of the patient’s name</td>
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<td>4.</td>
<td>Serial 7s</td>
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<td>5.</td>
<td>Registration, ability to repeat a list</td>
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<td>6.</td>
<td>Recall of objects</td>
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<td>7.</td>
<td>Attention and calculation, ability to count backwards</td>
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<tr>
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Total score: 30

3 minute neurological examination

- Romberg
- Tandem gait
- Heel - Toe
- Pronator drift
- Finger - Nose & RAM
- Face
- Fundoscopic
- DTR’s

* Symmetrical muscle strength

http://youtu.be/IeyNPwP9GwA
Extended Examination
- Test for nuchal rigidity or neck stiffness
- The Jolt test for meningeal irritation
- Horner Syndrome (carotid dissection)
- Cranial palpation in the neuralgias
- A Blood Pressure recording is mandatory, especially in Thunderclap Headache
- Listen for bruit at neck, eyes, and head for clinical signs of arteriovenous malformation.
- Rash, Ear, nose throat exam in meningitis
- Sensory examination of the scalp - you may identify sensory change in occipital neuralgia or supraorbital neuralgia
- Examine the spine and neck muscles

CLINICAL PEARL

2000 Practice Guidelines: Brain Imaging in Patients with Headache
+ In non-acute headache w/unexplained findings on neuro exam
- In migraine with normal neuro exam
(?) Tension headache, new headache in >50 y/o, progressively worsening headache, CT versus MRI

American Academy of Neurology, AAFP, ACP-ASIM

Case Studies

Case 1
A 38-year-old woman presents with pulsatile, unilateral headaches that occur twice a month. The headaches last between 4 and 14 hours and are disabling to the point that she has to lie down and go to sleep. She has no visual auras. The neurologic examination is entirely normal.

Does this patient have migraines?

This woman has 4 features of the POUNDing mnemonic, and therefore a 95% likelihood of having a definite migraine or possible migraine-type syndrome. She should therefore be diagnosed as having migraine headache, and proper migraine therapy should be initiated.

In the absence of any other findings, neuroimaging is not indicated.
Case Studies

Case 2

A 27-year-old man developed a severe, rapid-onset headache and mild neck stiffness while performing pushups. He reports no prior illness. The neurologic examination identifies no abnormal findings, but the symptoms persist 2 hours after onset.

Should you request neuroimaging for this patient?

The young man with a thunderclap headache has a very high probability of serious pathology (i.e., subarachnoid hemorrhage).

He is clearly at significant risk and merits urgent CT scanning and lumbar puncture.

Headache that could not be clearly defined as a common primary headache disorder.

Headache aggravated by exertion.

Case Studies

Case 3

A 45-year-old man tells his family physician, again, about his 10-year history of intermittent unilateral headache of grade 5/10 severity and 4-5 hours’ duration. An aura does not herald the onset, and no vomiting or photophobia occur. You reassess his physical examination finding mild weakness (power, grade 4/5) and increased reflexes in the right leg and arm.

What features distinguish this case from the preceding 2 cases?

The history suggests some features of migraine headache, but only 2 features (unilateral headaches that last more than 4 hours) of the POUNDing mnemonic are present (<50% likelihood).

Thus, the clinician should be considering other diagnoses.

Case Studies

Case 3

The clinician should be considering other diagnoses -

This patient has chronic headaches, and the probability of having a significant intracranial abnormality is low, however, he has abnormal findings on neurologic examination, which raises the probability of significant intracranial abnormality.

The difference between this case and the preceding 2 cases is that there is an important neurologic finding on the physical examination.

The finding on examination increases the suspicion of intracranial pathology, and most physicians would obtain neuroimaging.
**Treatments/Management**

**Medications/Pharmacological**
- Abortive
- Prophylactic
- Infusions (ketamine, lidocaine, DHE)
- Steroids
- Oxygen therapy

**Interventions**
- Nerve blocks (SNRB, occipital nerve block, trigeminal NB), Botoc: (PREEMPT protocol), implantables (occipital nerve stimulators, deep brain stimulator)

**Complementary/Behavioral**
- CBT, acupuncture, PT, TENS cervical traction, massage, cranio-sacral work, stress management, trigger avoidance, headache diary, biofeedback, yoga, and nutritional counseling/nutraceuticals.

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**Headache triggers**

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**Hormones**
- Menses
- Oxidation
- Hormone replacement (progesterone)

**Sensory stimuli**
- Strong light
- Flickering lights
- Odors
- Sounds, noise

"Have you got something that says, "I've got a headache"?"
### Stress
- Let-down periods
- Times of intense activity
- Loss or change (death, separation, divorce, job change)
- Moving
- Crisis

### Changes of environment or habits
- Weather
- Travel (crossing time zones)
- Seasons
- Altitude
- Schedule changes
- Sleeping patterns
- Dieting
- Skipping meals
- Irregular physical activity

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### Migraine treatment
- Prophylaxis
  - Beta blockers
  - Calcium channel blockers
  - Tricyclic antidepressants
  - Anticonvulsants
- Acute episodes
  - Nonsteroidal anti-inflammatory drugs (NSAIDs)
  - Antidepressants
  - Triptans
  - Dihydropyridines

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Prophylactic Migraine Drugs

Beta Blockers
- Atenolol 50-100 mg
- Metoprolol succinate or tartrate 50-150 mg
- Nadolol 20-160 mg
- Propranolol 80-240 mg
- Timolol maleate 10-20 mg

Calcium Channel Blockers
- Amlodipine besylate 10-20 mg
- Diltiazem 80-240 mg
- Nimodipine 60-120 mg
- Verapamil 180-480 mg

Antiepileptic Drugs
- Divalproex sodium 250-1500 mg
- Gabapentin 300-1800 mg
- Pregabalin 50-200 mg
- Topiramate 25-150 mg
- Zonisamide 100-200 mg

Antidepressants
- Amitriptyline 25-150 mg
- Citalopram 20-60 mg
- Desipramine 25-100 mg
- Doxepin 25-150 mg
- Duloxetine 30-90 mg
- Fluoxetine 20-60 mg
- Nortriptyline 25-100 mg
- Phenelzine 15-45 mg
- Protriptyline 5-10 mg
- Sertraline 50-150 mg
- Venlafaxine 37.5-150 mg

Nonsteroidal Anti-inflammatory Drugs
- Celecoxib 200-400 mg
- Flurbiprofen 100-200 mg
- Indomethacin 75-150 mg
- Naproxen sodium 500-1000 mg

Serotonin Agonist
- Methysergide maleate 2-8 mg

Serotonin Antagonist/Antihistamine
- Cyproheptadine 4-12 mg
Migraine Abortive Agents

**Combination Drug**
Isomethptene/dichloralphenazone/acetaminophen Two capsules at onset, then one or two in 1 hr

**Anti-Inflammatory Drugs**
Ibuprofen 600-800 mg q 4 hr prn, Ketorolac oral 10 mg, repeat once in 2 hr prn, Ketorolac IV/IM 30 mg, repeat once in 1 to 2 hr prn, Ketorolac, nasal 1 spray q 8 hr (maximum 4 sprays – 63 mg/d), Meloxicam sodium 200 mg, repeat once in 2 hr prn, Naproxen sodium 550 mg, repeat once in 2 hr prn

**Ergotamine Drugs** (dihydroergotamine DHE)
DHE mesylate, nasal 1 puff in each nostril, repeat in 15 min. This is the dose for 1 day. DHE mesylate, IV, IM, and SC 0.5-1 mg, repeat in 1 hr. (Maximum dose is 3 mg in 24 hr). Ergotamine tartrate/caffeine, oral 2 tabs at onset, repeat every 0.5 hr up to a maximum of 5 tabs. Ergotamine tartrate/caffeine suppository 1/2 to 1 at onset, repeat once in 1 hr. Ergotamine tartrate, sublingual 1 at onset, repeat once in 0.5 hr prn

**Triptan Drugs**
Almotriptan 12.5 mg, repeat once in 2 hr prn. Eletriptan 40 mg, repeat once in 2 hr prn. Frovatriptan 2.5 mg, repeat once in 2 hr prn. Naratriptan 2.5 mg, repeat once in 3-4 hr prn. Rizatriptan 10 mg, repeat once in 2 hrs prn. Sumatriptan, oral 50-100 mg, repeat once in 2 hr prn. Sumatriptan, nasal 20 mg (1 puff), repeat once in 2 hr prn, Sumatriptan, oral 2.5 mg or 5 mg, repeat once in 2 hr prn, Zolmitriptan, nasal 2.5 mg or 5 mg (1 puff), repeat in 2 hr prn

**Triptan/NSAID**
Sumatriptan/naproxen 85 mg/500mg at onset and repeat in 2 hrs prn

**Ketamine**
Which Medications Produce MOH?

Interventions

- Nerve Blocks
  - Occipital
  - Cervical spine
  - Cervical medial branch
  - Peripheral nerve blocks (e.g., V2/V3 for Trigeminal Neuralgia)

- Trigger Point Injections
  - Botox via PREEMPT
  - Other myofascial TP injections (cervical paraspinals, scalene)

- Infusions (DHE, Lidocaine, Depakote, Magnesium, Ketamine)

- Implantable Devices
  - Occipital nerve stimulator
  - Deep brain stimulator
  - IT infusion pump

Recommended injection sites for chronic migraine:

<table>
<thead>
<tr>
<th>Head/Neck Area</th>
<th>Recommended Dose (Number of Sites)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frontal/Parietal</td>
<td>20 Units divided in 4 sites *</td>
</tr>
<tr>
<td>Cervical</td>
<td>10 Units divided in 2 sites</td>
</tr>
<tr>
<td>Occipital</td>
<td>3 Units at 3 sites</td>
</tr>
<tr>
<td>Cephalic</td>
<td>60 Units divided in 6 sites</td>
</tr>
<tr>
<td>Cervical Paraspinal</td>
<td>40 Units divided in 4 sites</td>
</tr>
<tr>
<td>Occipital Paraspinal</td>
<td>20 Units divided in 2 sites</td>
</tr>
<tr>
<td>Total Dose</td>
<td>100 Units divided in 34 sites</td>
</tr>
</tbody>
</table>

* Each site injection site = 0.1 mL = 0.8 Units BOTOX
* Space injections bilaterally
Interventions

OCCIPITAL NERVE STIMULATOR

DEEP BRAIN STIMULATOR

Complimentary Management

- Acupuncture/Acupressure
- Aromatherapy
- Biofeedback
- Meditation
- Massage
- Herbs, vitamins and minerals
- Nutrition
- Exercise/Stress Reduction/Trigger Identification (avoidance)
Complimentary Management

Acupuncture for recurrent headaches: a systematic review of randomized controlled trials

Melchart, D., Linde, K., Fischer, P., et al. - Department of Internal Medicine II, Klinikum rechts der Isar, Technische Universität, Germany


Design: Systematic Review using electronic databases (Medline, Embase, Cochrane Field for Complementary Medicine, Cochrane Controlled Trials Register), personal communications and bibliographies.

To assess whether there is evidence that acupuncture is effective in the treatment of recurrent headaches.

Findings:

1. Twenty-two trials, including a total of 1042 patients, met the inclusion criteria.
2. Fifteen trials were in migraine patients, six in tension headache patients, and in one trial patients with various headaches were included.
3. The majority of the 14 trials comparing true and sham acupuncture showed at least a trend in favor of true acupuncture.
4. The eight trials comparing acupuncture and other treatment forms had contradictory results.
5. Overall, the existing evidence suggests that acupuncture has a role in the treatment of recurrent headaches.
Complimentary Management

Lavender
Peppermint
Bay
Melissa
Jasmine
Eucalyptus
Rosemary

Massage therapy is effective in reducing the number of headaches per week in chronic tension headache sufferers.

Active muscle trigger points may be the underlying etiology of many tension headaches.

Massage can undo clenched muscles and help you relax, so it can be especially good for stress or tension headaches.

Gentle massage to head, neck, and shoulder muscles.

Complimentary Management

NEUTRACEUTICALS

- Feverfew 50-100 mg daily
- Butterbur 50-100 mg bid
- Riboflavin 400 mg daily
- Magnesium dicitrate 600 mg daily
- CoQ10 100 mg tid

Disclaimer: suggestions from existing research, any prescribing should be done understanding the unique patient medical history/intolerances/medications/allergies.

http://www.migrainetrust.org/assets/x/50129
Alternative headache treatments: nutraceuticals, behavioral and physical treatments

Sun-Edelstein, C., Mauskop, A. - Department of Clinical Neurosciences, St Vincent's Hospital, Melbourne, Vic., Australia.

*Headache.* 2011 Mar;51(3):469-83

**Design:** Systematic Review of the available scientific literature

Review body of literature that explored the evidence supporting the efficacy of various complementary and alternative medicine approaches in the management of headache disorders.

**Findings:**

1) Vitamins & Supplements (magnesium, riboflavin, coenzyme Q10, and alpha lipoic acid).
2) Herbal Prepartations (feverfew, and butterbur).
3) Cognitive behavioral therapy & Biobehavioral training (biofeedback, relaxation training).
4) Physical Treatments, were not well defined in the literature (acupuncture, oxygen therapy, transcutaneous electrical nerve stimulation, occlusal adjustment, cervical manipulation, physical therapy, massage, chiropractic therapy, and osteopathic manipulation).

**Take Home**

- Most headaches are primary headaches.
- Identify red flags
- Quick focused physical exam
- Treatments: pharmacological, behavioral, psychological.
- When to refer the refractory headache patient
The Keeler Migraine Method

Three Part Individualized Treatment Plan:

1) Lifestyle Modifications
   - sleep hygiene
   - exercise
   - trigger management
   - stress management
   - hormonal influences (menstruation/pregnancy)

2) Prevention
   - medication options
   - hormonal adjustment
   - nutraceuticals
   - mind-body therapies

3) Rescue “plan your plan”
   - your “go-to” treatment (abortive medicines)
   - organized resources
   - rescue environment

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The Keeler Migraine Method

Eating
   - omega-3 fatty acids instead of omega-6
   - anti-inflammatory foods
   - consistency/timing/“healthy diet”
   - avoid triggers (red wine, cheese, chocolate)

Exercise
   - pacing, variety, start with physical therapist
   - higher endorphin levels
   - higher pain thresholds
   - improve sleep
The Keeler Migraine Method

Sleep
- good sleep hygiene (behavioral modification)
- avoid habitual use of sleep medication
- natural remedies (melatonin, chamomile tea, valerian, kava kava)
- limit caffeine

Work
- minimize workplace triggers (stress, computers, physical strain, shift work, lighting): ADA
- rescue in the workplace (medications, space, ride home)

IMATCH

Interdisciplinary Method of Assessment and Treatment of Chronic Headaches

http://my.clevelandclinic.org/headache_center/imatch.aspx

A New Outpatient Approach

A team approach which includes physical therapy, pain and stress management techniques and medication adjustments.

Three week full-day treatment program
- infusion therapy
- physical therapy
- medical interventions
- psychological treatment
Multi-factorial Model

Cognitive Behavioral Therapy

- goal setting
- infusion therapy
- group physical therapy
- individual physical therapy
- diet instruction
- sleep hygiene
- assertiveness training
- cognitive behavior therapy
- biofeedback
- crisis planning
- relaxation therapy
- activity pacing training
- self esteem groups
- intimacy groups
- mindfulness
- family meetings

- Identifying maladaptive thoughts, beliefs, attitudes
- Cognitive restructuring
- Emotional regulation
- Behavior modification
- Self-monitoring
- Alternative coping strategies
- Homework
- Relapse Prevention
Behavioral & non-pharmacologic treatments of headache

Lake, AE. – Michigan Head-Pain and Neurological Institute, Ann Arbor, Michigan, USA.


**Design:** Systematic Review (Standard medical/scientific literature databases 1977-2011).

Reviewed the available literature, applying a cognitive-behavioral analysis & multiaxial assessment of relevant behavioral domains:

1) headache frequency & severity
2) analgesic and abortive use & misuse
3) behavioral & stress-related risk factors
4) comorbid psychiatric disorders
5) degree of overall functional impairment

**Findings:**

1) Controlled studies of CBTs for migraine, such as biofeedback and relaxation therapy, have a prophylactic efficacy of about 50%, roughly equivalent to propranolol.
2) Cluster headache responds poorly to behavioral treatment.
3) The persistent overuse of symptomatic medication impedes the effectiveness of behavioral and prophylactic medical therapies.
4) Behavioral treatment can help sustain improvement after analgesic withdrawal, however, and prevent relapse in cases of analgesic overuse.
5) Cognitive factors (e.g., an enhanced sense of self-efficacy and internal locus of control) appear to be important mediators of successful behavioral treatment.
6) Continuous daily pain may be more refractory to behavioral treatment as a solo modality than CDH marked by at least some pain-free days or periods of time.
7) The combination of behavioral therapies with prophylactic medication creates a synergistic effect, increasing efficacy beyond either type of treatment alone.

Stanford Headache Center

Dr. Robert Cowan is Professor of Neurology and Director of the Headache Program at Stanford University.

Prior to joining Stanford he was the founding medical director of the Keeler Center for the Study of Headache (Ojai, CA) and senior clinical research scientist in molecular neurobiology at Huntington Medical Research Institutes (Pasadena, CA).
Stanford Headache Center

Dr. Meredith Barad is a Clinical Instructor for the Division of Pain Management, Anesthesia at Stanford Hospital and Clinics.

Her current clinical research involves the development of pathways for the treatment of headache both in the hospital and clinic setting.

THANK YOU

Resources

- American Headache Society: http://www.americanheadachesociety.org/
- Johns Hopkins Medical Center: http://www.hopkinsmedicine.org/neurology_neurosurgery/specialty_areas/headache/
- National Headache Foundation: http://www.headaches.org/
- World Health Organization: http://www.who.int/topics/headache_disorders/en
Select References