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Physical Diagnosis 137

Headaches

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Headaches

Who gets them, and what to do about it when they do

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Part I

This two-hour credit course will delve into the world of Headaches. Far from being merely an ache in the head, a headache can be an expression of the body that gives you clues to underlying conditions that need the attention of a healthcare practitioner.

Objectives for this course include

- Review headache remedies from a spinal manipulation perspective
- Explore alternative remedies from Deepak Chopra, M.D., Louise Hay and more
- Evaluate the emotional and mind-body connections put forth from Candace Pert, PhD.
- List 14 different categories of foods that can trigger a Migraine
- Discover the eastern diagnosis of underlying conditions for headaches, including emotional and spiritual blockages
- Create a treatment plan for addressing the headache and its underlying condition
- Discover possible underlying conditions that could surprise you
- Identify the accurate diagnosis code for various headaches
- Educate your patients on home remedies for their headaches
- Examine the economic impact of headaches
- Discriminate between headache pains and locations
- Recognize migraine headaches, even when head pain is not present
- Specify musculoskeletal treatments to reduce or eliminate headache symptoms

Headache Statistics and Economic Impact

Headache is an oft-encountered complaint in practice and practically no one has been spared from it. For some, headaches not only ruin but also run their lives. In fact, neurologists claim that more than 1/3 of office consults are due to headaches—a complaint that is by far the most common of all reported maladies (WHO, Factsheet 277, 2004). Just imagine, twenty-one to forty-five million Americans suffer from headache with 15% experiencing their first **migraine** attack by age 15. Roughly 90% have complained of headache with 4% Americans experiencing it daily. Depending on gravity and frequency, it can impact your financial, emotional and social life.

Headache is the 7th leading cause of complaint and accounts for 18.3 million physician consultations annually. By far the more popular treatments are OTC and prescriptive medication

but for those who suffered complications (allergies, toxicities and side effects), natural therapies are proving to be effective alternatives.

In the past, treatment for headache offered symptomatic relief. For instance, headache caused by clogged sinuses is treated with pain relievers when the more logical treatments are inhalation therapy, decongesting agents or mucolytics.

Migraine headache, which is a bane for a significant percentage of the American population, can now be treated non-medically with the same desired results. Manual manipulation such as chiropractic spinal manipulative therapy, massage, acupuncture, acupressure and other modalities like aromatherapy and relaxation techniques are fast, effective and safe. Alternative treatments such as these are welcomed by those who suffer from intractable pain, have contraindications or who dislike the side effects of drugs such as propranolol and topiramate.

The most common types of headaches are:

- Migraine
- Sinus
- Structural/Tension
- Cluster

Signs and Symptoms

Caused by many factors including stress, infection, postural defects and dehydration, headache is often described as:

- throbbing,
- pounding,
- dull,
- sharp,
- constricting,
- mild,

- debilitating,
- frequent,
  - persistent,
  - occasional,
  - progressive,
- localized,
- generalized,
- bilateral,
- sudden
- chronic

It may be accompanied by other signs and symptoms such as fever, nausea, vomiting, visual changes, gait imbalance and neck rigidity which provide valuable clues to the real etiology of the headache. Some headaches can be prevented by avoiding the known triggers but the truth is, headaches are complicated and can wreak havoc on productivity.

Workplace Absenteeism

Headache is one of the most common excuses for workplace absenteeism. The World Health Report 2001 cites migraine, a form of headache as belonging to the top 20 causes of disability for adults of all ages. Migraine is pervasive, and reportedly 10-15% suffer from mild to severe forms of this headache. Statistics vary but some studies report that more than half suffer more than one attack per month or an average of 284 hours per year.

Roughly 13% report suffering weekly attacks and 25% report a higher rate of 4 or more headache attacks per month; an unfortunate occurrence that causes 34% of sufferers to face unfair discrimination from co-workers (Steiner et al. 2003, Cephalagia).

What seems rather strange is despite its pervasiveness and the stress resulting from the pain and debilitation, headaches continue to be treated as a trivial complaint; hence it continues to be under diagnosed, mis-diagnosed, mis-treated and untreated.

Economic Costs

The economic costs are great, with employers losing 13 billion annually. The average number of attacks per year is between 34-37.4% with 24% of sufferers seeking emergency room treatment and 58% requiring bed rest. In the U.S., 112 million bedridden days have been reported for migraine alone with 84 work hours lost on the average. This translates to 2.2 – 5.8 days per month.

While 11% of sufferers saw a neurologist, 2/3 of all cases remained undiagnosed. In fact, for **cluster headaches**, definitive diagnosis may come over six years after the initial consult with patients seeing an average of over 4 doctors before finding relief. Patients shift from one pill to another, often in tandem with other drugs which eventually cause some form of liver or kidney toxicity when used over long periods of time.

Chronic headache sufferers take 2.5 times more prescription drugs than those who complain of less frequent and less persistent attacks. Surprisingly, Botox, usually injected to paralyze facial muscles for cosmetic purposes is effective for some types of headache.

The perplexing nature of headache, doctor or therapist hopping, and cost of medicine escalate costs of this disease especially when each attack lasts for days and succeeding attacks occur fairly soon after the previous one. Surprisingly, **23% never saw a doctor or any health practitioner** for their symptoms while some continued taking medication they found not particularly effective just to "take off the edge".

There are a number of undiagnosed and mis-diagnosed sufferers who could improve and resume productive lives by replacing pills and migraine shots with alternative methods.
Canada considers migraine a hidden epidemic; bolstered by the fact that 92% of sufferers have reported disability requiring anything between bed rest and hospitalization.

The costs of headache are both direct and indirect. In the U.S. this lost productivity is estimated to be between from 5.6 – 17.2 billion annually. Canada reports lower values at 500 million annually with costs estimated to be roughly $3,025 per patient. In both countries, indirect costs are higher than direct costs.

Direct costs represent expenses for

- drugs,
- medical consults
- diagnostic tests and
- treatment fees.

Migraine is disruptive and the prescribed drugs may not work causing treatment delays and more absence from work (**indirect costs**) or at the very least, reduction in hours worked. Roughly 25% considers the pain tolerable enough to continue working but may not be able to concentrate on the job at hand.

The cost of illness should also take into account the deterioration of quality of life; a lot of sufferers report that their disease made them feel isolated and unappreciated at work.

Apart from seeking conventional medical treatment, a growing number of sufferers rely on chiropractic manipulation or physiotherapy alone or in combination with drugs. As early as 1978, the study of Parker G. B. et. al., published in the Australian and New Zealand of Journal of Medicine showed that that cervical manipulation by a chiropractor provided greater pain relief (with the same reduction in frequency and duration) when compared to similar manipulations done by an allopath or physiotherapist.

Later studies conducted in 1998 showed that spinal manipulation was as effective as amitriptyline for prophylaxis and treatment of migraine. Costs rise when a patient “hops” from one treatment to another without actually completing therapy (poor compliance).

Classifications of Headache

Headache is a common complaint brought to the attention of chiropractors after standard medical practice fails. To initiate proper treatment, the medical history should be examined very well, since it gives valuable clues to triggers and conditions that cause headache.

Broadly speaking, the headache can result from trauma, infection, psychological problems and stress, or stem from neurological and medical problems like vascular abnormalities, endocrine imbalance, tumors/cancer, degenerative causes, and auto-immune or allergic nature. It can also be congenital, metabolic (dehydration, acidosis etc.) or toxic in nature.

To complicate matters, headache can run the spectrum ranging from

- Gradual (progressive) to sudden
- Throbbing, band-like, dull to stabbing
- Mild to excruciating
- Acute to chronic
- Episodic to cluster
- Unilateral to bilateral
- Localized to diffuse and shifting (e.g. frontal, temporal, orbital etc)
- Primary or secondary (discussed above)
- With or without associated symptoms and
- With or without aggravating factors.

The complete medical history should include:

- Information regarding drugs that offered relief
- Triggers and activities that worsened the symptoms

- Family history of similar symptoms
- Prodrome or aura.

Headaches

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Part II

There are many ways to classify headache. Migraine, considered by some as a type of headache, merits its own classification in medical diagnosis codes. All of the specific codes are listed later in this course separately so that you may print them out easily.

All headaches have specific 5 digit codes assigned on the basis of specificity, duration, radiation, and possible cause, among others. Ninety percent of headaches are primary in nature; meaning that the condition is not caused by any underlying medical condition.

Primary Headaches

Tension

Over 75% of headache sufferers or over 90% of adults have complained of headache at one time or another. Tension headache can be infrequent episodic (once a month), frequent episodic (1-4 times a month) or chronic (more than 15 days per month).

Typically, tension headache is described as a steady ache or as a tightening around the head which can be brief or protracted – even lasting for days. Often associated with stress or other psychological factors, this kind of headache is **not** worsened by physical activity. However, it may be bilateral and accompanied by light and noise sensitivity.

When headache becomes chronic, there is a greater tendency to take prescription drugs or OTC to control the pain on a daily basis. Overuse leads to "rebound headache" which worsens as the drug's effect wears off. *This kind of headache responds well to chiropractic manipulation.*

Typically, a tension headache will respond to an upper cervical, occipital, or cranial adjustment. Depending upon your technique, the goal is to relax the sternocleidomastoid as well as the sub-occipital musculature. If you practice Applied Kinesiology, you will want to insure that all of the cervical muscles are facilitated.

In many cases, tension headaches are actually the result of jaw clenching. Especially if the patient complains of waking every morning with a headache, and hypertension has been ruled out as a cause, then check for TMJ tightness. Many times the patient has been clenching through the night and creating the headache, only becoming aware of it as s/he awakens.

If you perform emotional release techniques, these headaches can respond well to this approach. Releasing the reaction to the stressor is the key. While the patient nor the doctor may be able to change the stressor, emphasize to the patient that changing his/her reaction to the stress IS under their control and can be modified.

Migraine

Less frequent than tension headache, migraine affects 20-25 million people in the United States, most of them women. Reportedly 6% of males experience in contrast to three-fold that

rate at **18% for females**. It can be very painful and debilitating and may or may not be associated with nausea, vomiting, light sensitivity, sound sensitivity and "aura" which is typically described as seeing patterns or blinking lights. The latter affects 20% of migraine sufferers.

Migraine sufferers often experience extreme pain that may not be relieved by painkillers. It is unilateral in 60% of cases and may last between 4-72 hours. **Pain is described as throbbing and aggravated by physical activity – two characteristics that differentiate it from tension-type headache.** Fortunately, migraine attacks hardly occur on a daily basis.

Cervicogenic

Cervicogenic pain is literally pain that originates from the upper cervical segment of the spinal cord (C1-C3) and is recognized as referred pain in the head. Disorders of this nature arise from:

- sudden, awkward neck movement and
- prolonged upward or downward head positions

which puts pressure on the occipital or cervical region and may be accompanied by restricted neck movement on the affected side. This type of pain is extremely receptive to chiropractic manipulation.

This type of pain can also radiate to the shoulder and arm region. Those engaged in jobs where the head and arm position is sustained (painting the ceiling, mopping the floor, weeding, hairdressers) are more susceptible to this type of pain.

Cluster

Unlike migraine which affects more women than men, about 85% of those who suffer from cluster headaches are men. Fortunately, it only affects 1% of the population. Unlike migraine

which affects the person once or twice a week and seldom on a daily basis, **cluster headaches can attack at close intervals for weeks or months**. It is particularly distressing because the excruciating pain can last two hours.

In fact, it is also called the "alarm clock headache" because the severe pain can cause one to wake from deep sleep and may recur at similar times as though on "schedule". Oftentimes, there is a history of smoking and drinking. In fact, alcohol can trigger attacks.

Unlike other headaches which are unilateral or bitemporal, **cluster headache pain is felt at its worst around the eyes**. The eyes often get red and watery and may be associated with sinus congestion.

Secondary Headache

Secondary headache accounts for 10% of incidence for all headaches and arise from other medical conditions which characteristically do not respond permanently to any chiropractic manipulation. The patient may obtain temporary relief, but until the underlying issue is addressed, the headache may return.

Among these conditions are

- Infection
- Tumors (increased intracranial pressure)
- Clots and bleeding (increased intracranial pressure)
- Hypertension, especially in the morning
- Dehydration

R. C. Schafer, DC, PhD, FICC's best-selling book: **"Clinical Chiropractic: Upper Body Complaints"** has another classification which is intuitive and helpful in practice since it

incorporates the symptoms most often complained of. The practitioner can (at one glance) categorize the patient's symptoms and plan effective solutions based on what had been tried in the past. In other words, eliminate what hasn't worked, and evaluate what is remaining. Rarely does a patient go to a chiropractor at the initial onset of headache. More often than not, the chiropractor is the "treatment of last resort" when medical interventions have failed.

Clinically, a headache that presents with blurred vision, projectile vomiting, nuchal rigidity and paralysis, gait disturbances, abnormal reflexes, altered mental state, loss of consciousness, speech disturbances, seizures or paresthesias poses serious concern. At this point the patient needs to get admitted and undergo a complete neurological examination, CT scan, spinal tap or other procedures based on the signs and symptoms presented especially if there is history of fever or trauma.

The differential diagnosis aside from the different types of headache and migraine are:

- Meningitis
- Cancer/tumor
- Stroke/bleed
- Brain abscess
- Subdural or epidural hematoma
- Aneurysm
- Concussion
- Skull fracture and other conditions.

Some head conditions like an ear infection, arteritis, sinusitis and glaucoma can also present with headache. Prompt diagnosis (point of origin, radiation, recurrence duration) is essential especially when more serious conditions, especially those classified as medical emergencies are being considered.

Assignment

Take 3 minutes to note the last time you experienced a headache yourself.

Diagnose it: what kind do you think it was? What could you do for it next time?

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Part III

Structural Headache

Causes and Mechanisms of Action

The trigeminal nerve, the cranial nerve that begins at the base of the brain, is responsible for sending out pain, touch, pressure, temperature and vibration information to the brain basically through 3 branches from the:

1. Scalp

2. Meninges which line the brain and the
3. Face including the ears, mouth, neck and throat.

This is why any pressure such as glaucoma or brain tumor, infection and inflammation such as meningitis, bleeds that encroach on the base of the brain such as subarachnoid bleeds, and injuries like whiplash can cause headache. The brain tissue itself does not "feel" pain but the nocireceptors (pain sensitive nerve endings) which react to triggers such as stress, food or odor sensitivity etc) send "pain" messages via the trigeminal nerve to the thalamus which through complex pathways cause reactions such as vomiting, change in sensorium etc.

Pain can be felt through several mechanisms and knowing which pathway caused the pain enables the practitioner to provide fast relief whenever possible. The mechanisms are usually structural in nature:

- ***Cervical muscle spasm*** – accounts for the majority of headache cases and may be caused by stress, subluxation, depression, emotional tension, eye strain and/or gastrointestinal dysfunction. The cervical spasm usually occurs at the level of the sub-occipital area which is caused by local factors or a reflex action from a lesion or dysfunction occurring some distance from where the pain is felt.

- ***Compression*** on pain sensitive tissue which can also be due to subluxation resulting from accidents, other kinds of traumatic injury or as a result of poor posture or prolonged positioning of the head. Compression on the vertebral nerves, cervical nerves or anything that blocks the flow of cerebrospinal fluid also causes pain.

- ***Inflammation (vascular) or traction headache*** is caused by cervicoarthritis, myositis, infections (eye, ear, nose, throat, sinuses), masses and arteritis. TMJ dysfunction and headache of vascular origin such as hypertension, migraine and toxic syndromes are also caused by inflammation.

Some of the causes of structural pain are:

- Trauma
- Inflammation
- Infection
- Tumors
- Cervicoarthritis
- Temporal Arteritis
- Glaucoma
- Hypertension
- Post-concussion
- Sub-arachnoid bleeding
- Meningitis
- Sinusitis

Signs and Symptoms

The practitioner must get a complete and thorough history that gives valuable clues as to whether the cause of pain or cephalgia is primary, secondary, intracranial or extra cranial. Both medical doctors and chiropractors must be vigilant for symptoms of underlying pathology. Asking questions, taking history, and observing the patients behaviors when unaware you are watching can be telling. Make notes of

- Primary location of pain, duration and incidence (localized, generalized/spreading, steady, intermittent, transient, recurrent, acute, chronic)

- Not all patients are adept at describing what they feel. To help those who are verbally challenged, ask the patient to "grade" the symptom by using a scale of 1-10.

- Character of pain (sharp/piercing, dull, pulsating, relieved by …, worsened by …, brought on by …)

Signs noted by a skilled practitioner will aid in determining what therapy is most suitable in preventing pain, relieving pain within the shortest time possible, and increasing duration of analgesia.

For instance, **cluster type headaches and tumors may present with the same unilateral pain that lasts for hours.** However pain caused by tumors (benign or cancerous) may be accompanied by vomiting, gait disturbance, visual change and other symptoms. Subarachnoid bleeding and meningitis may both be progressive but the latter is often accompanied by nuchal rigidity and fever.

Signs and Symptoms to look for are:

- ❖ Trigger points
- ❖ Change in sensorium
- ❖ Gait disturbances
- ❖ Periorbital swelling; increased intraorbital pressure (fundoscopy)
- ❖ Spasm
- ❖ Abnormal sensitivity to pain/analgesia
- ❖ Photophobia
- ❖ Aura
- ❖ Nausea, dizziness and/or vomiting
- ❖ Reddening of the eye and tearing
- ❖ Seizure
- ❖ Earache
- ❖ Neck stiffness
- ❖ Fever
- ❖ Syncope and visual disturbances.

Clinical Analysis

The presenting signs and symptoms and thorough history enables the clinician to determine whether the condition is life-threatening because of organic brain damage. Serious conditions are often accompanied by distinguishing signs such as:

- Pupillary disturbance or inequality
- Projectile vomiting
- Nuchal rigidity

- Change in sensorium (especially after trauma)
- Paresthesia, paralysis, palsy
- Hyperglyccemia
- Abnormal reflexes and
- Change in gait

Symptoms that accompany headache may appear shortly after onset. The clinician should also determine whether the patient has been taking headache medicine on a regular and sustained basis. For instance, a patient who has been on OTC headache medicine for days and stops can suffer from rebound headache.

Both chiropractors and acupuncturists believe that proper stimulation following the dermal distribution of nerve endings alleviates pain and heals diseases. Along this line of thought, leading chiropractors believe that headache relief is achieved by manipulation of areas depending on point of pain origin. To illustrate:

1. Subluxation at the level of the upper and mid-cervical region causes pain felt in the forehead and above the eyes.
2. Referred pain from the atlas area and the lumbar area may be referred to the suboccipital region and feel like a headache.
3. Temporal pain is referred from T4.
4. Pain with nausea and vomiting may be due to gastrointestinal problems or may be referred from the T6-T8 areas.
5. Pain at the crown area is frequently referred from T11 and T12. It can also suggest visceral problems such as kidney imbalance.
6. Pain over the right eye specifically can be a Gall Bladder toxicity. T4 and T5 should be evaluated.
7. Headache pain described as feeling like a “tight headband” can be from Liver Toxicity and severe liver stress

Confirmatory findings

Laboratory and X-ray findings help the clinician gauge the severity of the condition and localize the source of pain.

- Roentgenographic evidence (X-ray, MRI, CT scan as needed)
- Laboratory work-up including cerebrospinal fluid analysis for pus and blood
- EEG (when there is palsy, paresthesia or paralysis)

Other Techniques:

- Saliva testing
- Applied Kinesiology
- Cranial and Neuro Exams

After the work-up and thorough history, the clinician can determine whether the condition or injury is:

- Acute
- Chronic or recurrent
- Somatic, Visceral, Physiological or Psychological

Rapid changes, especially those associated with respiratory problems and spasms, may indicate medical emergencies such as meningitis, hematoma/hemorrhage and brain abscess. For accurate diagnosis the site of pain must be determined. When pain originates above the tentorium cerebelli, the distribution is usually along the trigeminal nerve and is felt on the forehead and temples. On the other hand, pain originating below the tentorium cerebelli follows the vagal, glossopharyngeal and cervical nerves distribution and is felt in the occipital and suboccipital area.

Headaches classified according to cause of pain

1. Headache from spasms result from local lesions or more commonly from a more distal disorder. Ninety percent of cases arise from upper cervical subluxation or fixation, emotional stress and the like.

2. Headache from compression can result from inflammation (edema) or from pressure mass. This type of lesion may "press" on the nerves or may obstruct the flow of cerebrospinal fluid.

3. Traction headache such as headaches of vascular origin (hypertensive, migraine, toxic syndrome), allergies, infections, several diseases of the eye, myositis, osteoarthritis and sinuses or distention of the meningeal arterioles produce pain that is often acute and pulsating.

4. Referred/Systemic Syndromes

Examples of systemic syndromes are hangover, toxicosis, septicemia and dehydration which are usually accompanied by visual and hearing hypersensitivity. Though dehydration and hangover are easily treatable, toxicosis is more serious since it produces a demyelination of the nerves. This loss of "insulation" results to hypersensitivity. Hypoxia and inhalation of toxic chemicals are rare causes of headache.

Headache is also a common complaint of those who are suffering from adrenal dysfunction, are harboring intestinal parasites or are taking steroid medication. Secondly, GI tract disorders like ulcer can manifest as referred pain around the temporal and suboccipital area through the autonomic pathway. The presence of occult blood in the stools is confirmatory.

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Part IV

Treatments

Treatment for tension (TTH) type/cervicogenic headache can be drug, non-drug (alternatve/complimentary) or mixture of both. A combination of pharmacologic and non-pharmacologic treatments is advised for faster results, greater efficacy and fewer side effects.

There is a growing body of evidence that numerous complementary medicine techniques are useful in diminishing the intensity and duration of headache. After an accurate diagnosis, the patient can be treated with:

- Simple analgesics (ibuprofen, paracetamol)
- Chiropractic spinal manipulation
- Psychological treatment/relaxation techniques
- EMG biofeedback
- Amitriptyline (drug of choice for prevention of chronic tension-type headache)
- Acupuncture
- Massage
- Homeopathic therapies

Chiropractic Care for Headaches

Not all headaches can be relieved by spinal manipulation or chiropractic intervention. In practice, it is often easy to tell whether the patient improved because of spinal manipulation but it is difficult to prove in clinical trials. For instance, did the patient improve because of the intervention or did he improve because he refrained from known triggers such as aspartame and chocolate? As in every condition, the treatments and interventions comingle and overlie each other, and most often the resulting success is some combination of all.

Somatic pain such as that caused by tension headache can be relieved by chiropractic manipulation. For instance, let's take a closer look at the pathology of stress-caused headache:

Stress (anger, fear, etc)→

Muscular tension and contraction (involuntary contraction when during fight-or-flight states →

Tightening or contraction of the muscles of the head and neck →

HEADACHE→

Chronic muscular tension →

Causing uneven stress on the skeletal frame →

Posture compensation→

Misalignment causes worsening of contraction→

more PAIN…

Quite obviously, a “somatic” generated pain such as this will respond well to

1. Spinal manipulation
2. Joint mobilization
3. Deep flexor exercises
4. Low-load craniocervical mobilization
5. Trigger point therapy
6. Massage

especially if muscles or the skeleton has not been seriously injured to the point of no return over time. Chronic damage and inflammation leads to calcification which is more difficult to treat. Realigning the spine corrects the muscular tension and short circuits the cycle of pain.

Objectives of spinal manipulation to reduce Headaches

The technique of spinal alignment is useful for both preventive and therapeutic cure in the management of headache. In fact there is a reported 36% decrease in the use of analgesics among chronic sufferers who underwent spinal manipulation. The objectives of spinal alignment are:

- Reduce pressure due to subluxation
- Improve blood flow
- Reduce nerve irritation

Effectiveness of spinal manipulation rests on correct diagnosis for patients presenting with head or neck pain. Patients who suffer from cervicogenic ailments report fast improvement in severity of pain – faster than when treated with soft tissue therapy (massage) or analgesics. Relief was more sustained, episodes became less frequent and severity lessened.

Some patients suffering from episodic type headache without any neck pain component did not improve with both spinal manipulation and massage but improved with amitryptyline (30 mg.) over the six-week treatment period. However, those who were on the latter reported more adverse effects. In fact 82% reported such effects while only 4% reported adverse effects from Chiropractic

manipulation. Not surprisingly, post-treatment, those on spinal manipulation reported further improvement and more sustained results while those strictly on drug therapy suffered more recurrence.

Muscular Therapies

Christopher Quinn, DC, Clint Chandler, BS, and Albert Moraska, PhD of the Boulder College of Massage Therapy studied the effects of massage on patients who complained of non-migraine headache, specifically tension headache. Tension headache arises from isometric contraction of muscles of the head and neck which can lead to decreased blood flow triggering pain nerve endings. Massage therapy increases blood/nutrient flow and decreases trigger point sensitivity.

Basically, tension-headache sufferers were subjected to structured deep and soft tissue massage (1 hour daily for two weeks) directed towards the head and shoulders. Patients reported decrease in frequency and duration within a week after the start of the massage protocol but did not report any change in intensity. Some patients reported decrease in neck pain up to 6 months after the treatment period.

Another study with similar results was conducted for 4 weeks which included Trigger Point treatment and therapeutic massage of the:

- Upper trapezius
- Sternocleidomastoid
- Suboccipital
- Splenius capitis
- Levator scapulae
- Temporalis
- Stretching
- Muscle energy techniques

Homeopathic Treatment

Jonice M. Owen and Bart N. Green studied several homeopathic remedies which are matched to the patient's constitution, complaints, vitality and symptoms.

Classical homeopathy uses diluted preparations, and treatment is not expected to be radical or immediate but rather achieved over time. Over 3,000 remedies are available with some combinations registered as proprietary brands but the most popular strength is 30C potency, a highly diluted solution.

Migraine headaches have so many underlying causes that they don't often respond well to homeopathic care or chiropractic adjusting. One study showed that less than 60% of migraine patients using individualized homeopathic remedies improved within the 4-6 months trial period. A study by Brigo showed that a single dose 30C/4x was superior to placebo treatments for migraine. Another study showed less than 30% improvement among those who complained of chronic headache. Lars Bendtsen suggested in a review of headache remedies published in Therapeutic Advances in Neurological Disorders that psychological, physical and pharmacologic treatments should be analyzed for efficacy since various combinations can be used optimally to best match the patient's condition.

The results were analyzed according to the following parameters:

- Frequency
- Severity
- Intensity
- Duration and
- Level of medication required to cope with attacks.

There were no reports of homeopathic treatment having adverse results or being less effective than placebos.

(Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2646987/pdf/main.pdf)

The most popular homeopathic remedies for other headaches are:

- **Belladonna** – used for throbbing frontal headache or for pain described as sharp, shooting and unbearable. Pain is often accompanied by light and sound sensitivity as well as flushed face and dilated pupils.
- **Nux vomica** – most commonly used. Especially good for treating alcohol and other intoxications such as food poisoning or food allergies which are of generalized nature and usually accompanied by nausea, retching and vomiting.
- **Sanguinaria** – used for headache emanating from the occiput (usually severe and "boring").
- **Glonoine** – used like Belladona
- **Cinchona** – usually used when there is anemia
- **Iris versicolor** – used when headache is centered around the eyes and accompanied by blurred vision.
- **Gelsimium** – best for headaches resulting from eyestrain (may be accompanied by temporary blindness)
- **Onosmodium** – also like Gesimium but better for headache associated with dull aching neck pain. Pain is often "band-like" and may be accompanied by dizziness.
- **Cocculus** – good for constant headache
- **Spigelia** – good for headache that follows the "neuralgic" course and worsened by movement or positional changes.
- **Cimicifuga** – good for sharp headaches usually resulting from fatigue and possibly hormonal headaches.
- **Silicea** – usually used for severe headache resulting from mental strain.

Herbal

Chinese traditional doctors, Ayurvedic practitioners, nutritionist, chiropractors and aromatherapists use the following herbs and botanicals to reduce headache:

- Lavender (inhaled or massaged)
- Ginger (as tea)
- Peppermint (as tea or inhaled for clogged sinuses)
- Chamomile (as tea)
- Valerian root (capsule; may induce drowsiness)
- Mustard oil (directly applied to head)

Attitude and Attention

Best-selling author and alternative practitioner Deepak Chopra, M.D., present another way to remove headache pain.

- Close your eyes and stand with hands in front of you, palms upward.
- Focus on your breathing and slowly begin to focus your energy on your heart. Feel your heartbeat and focus your energy there.
- Tell your heart to slow down.
- Now move the focus of your energy slowly from your heart out to your fingertips.
- Feel your fingertips throb with your heart beat.

At this point, you have redirected blood from your brain to your extremities. You have slowed down your heart rate and your blood pressure and your headache, according to Dr. Chopra, should be gone.

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Part V

Migraine Headaches

Worldwide, the WHO (World Health Organization) states that migraine is the 19th leading cause of disability worldwide, affecting 87% of those who complain of headache.

Causes of Migraine

The actual cause of migraine is poorly understood although research shows that environmental and genetic factors play a part. The latter predisposes to the hyper-excitability of the neurovascular system. This painful, lingering kind of headache results from:

- Blood vessel dilatation and
- Release of neurotransmitters around these blood vessels (e.g. temporal artery)

Imbalances in brain neurotransmitters like serotonin, a substance that regulates pain sensation may be involved in addition to pathways involving the brainstem and the trigeminal nerve. It has been observed that during migraine attacks, serotonin levels are low – a condition

that causes the trigeminal nerve system to release neuropeptides or chemicals which cause inflammation, stimulate the meninges to sense pain and cause further enlargement of the blood vessel.

Migraine also stimulates the sympathetic system; hence symptoms like nausea and vomiting, decreased peripheral blood flow (cold extremities) and increased sensitivity.

Migraine is a chronic condition that can be triggered by a host of factors:

- **Food** – MSG, aspartame, preservatives, processed food, alcoholic beverages, cheeses, peanut butter, onions, too much caffeine
- **Hormonal changes** – premenstrual or postmenstrual tension, pregnancy, oral contraceptives or oral replacement
- **Medication** - vasodilators
- **Auditory, olfactory or visual Stimuli** – strong smells (thinner, perfume), bright or intense light and noise
- **Stress and fatigue**
- Change in **sleep pattern** or lack of sleep
- **Environmental changes** – change in weather or pressure
- **Sexual activity**

Migraine is one disease with a strong familial history: 90% of sufferers have relatives who suffer from the same ailment and if one or both parents have migraine, children are liable to get it, too. Migraine can start at any age with some getting their first attack during the early teens. As adults, more women are affected, though more boys suffer from migraine during adolescence.

Signs and Symptoms

Migraine is unilateral in 60% of cases and bilateral in 40%. It has 4 progressive stages although not all stages can be experienced.

1. Prodrome

Chronic sufferers often know when an attack is coming. A day or two before an attack, a sufferer may experience subtle, familiar signs that may include any or all of the following: depression or irritability, constipation/diarrhea, food cravings, and neck stiffness.

2. Aura

Migraine may or may not be associated with aura. The most common is *visual* where bright lights or shapes are perceived. In extreme cases, temporary loss of vision is experienced. Pins-and-needles sensation, speech difficulties and motor disturbances may also be experienced. Aphasia and hemiplegia are disturbing but transient symptoms that can be mistaken for an impending stroke.

3. Attack

A migraine can be debilitating and prolonged up to 3 days. During migraine, pain is usually one-sided and throbbing. It may be accompanied by nausea and vomiting as well as extreme sensitivity to light, sounds and odors. Other signs and symptoms common during an attack is blurring of vision, diarrhea and fainting or light-headedness.

4. Postdrome

Just as there is a prodrome, a postrome can occur after an attack. Typically, the sufferer feels either exhausted or paradoxically, mildly euphoric.

Diagnosis

Diagnosis of migraine is usually made after a thorough medical history, physical exam and complete neurological evaluation. It can mimic many other neurological and systemic diseases. The doctor must be astute in diagnosing the disease, especially if the patient does not have all 4 stages. Advise patients to keep a record of attacks to determine risk factors such as food.

However, if the quality of pain rapidly or radically changes, the patient should see the doctor as soon as possible. Symptoms indicative of more serious disease are: severe onset of debilitating headache, fever, neck rigidity (possible infection such as meningitis), confusion, numbness, seizures, double vision and slurred speech.

Types of Migraine:

According to the ICHD or the International Classification of Headache Disorders (from the International Headache Society) there are several types of migraines:

1. Migraine without aura

    - Pure menstrual migraine and menstrually-related migraine

2. Migraine with aura

    - Familial hemiplegic migraine and sporadic hemiplegic migraine
    - Basilar-type migraine

3. Common Childhood Precursors of Migraine

    - Cyclical vomiting
    - Abdominal Migraine
    - Benign paroxysmal vertigo of childhood

4. Retinal Migraine

5. Probable Migraine
6. Probable migraine without aura
7. Probable migraine with aura
8. Probable chronic migraine

The following terms are still used by some health practitioners although not listed in the ICD-10 classification:

- Stress Migraine
- Silent, or Acephalgic, Migraine
- Sinus Migraine
- Ocular Migraine
- Seasonal Migraines
- Cyclic Migraine Syndrome
- Gastric Stasis Migraine
- Tension Migraine

Apart from these classification, the *International Headache Society* uses the easy to remember "5,4,3,2,1" to diagnose migraine without aura:

5 – 5 or more attacks annually of
4- 4 hours to…
3 – 3 days (72 hours) duration
2 – at least two of the following characteristics:
- Unilateral
- Pulsating
- Moderate to severe pain
- Aggravated by routine activities

1 – (or more) additional symptom (nausea, vomiting, light or sound sensitivity)

Other diagnostic tests such as MRI, CT scan, EEG and spinal tap are used to rule out other diseases and condition especially if there is reason to consider any of the following differential diagnosis:

- Stroke and postictal seizure
- Bleeding
- Dilated brain blood vessels
- Inflammation of the meninges or membranes of the brain and spinal cord
- Infection
- Sinus blockage
- Tumors

In addition, if bleeding, strokes or seizures are being considered, it is best to have a thorough neurological examination.

Also, pay close attention if the patient has history of hypertension, rash (e.g. typhoid fever) head injury or headache aggravated by sneezing, coughing or anything that can increase intracranial pressure.

Treatment and Prevention of Migraine

The *U.S. Headache Consortium* has long-term and acute-stage goals for managing migraine:

1. Prevent headache
2. Reduce attacks (frequency and severity)
3. Reduce disability
4. Improve Quality of Life
5. Patient Education
6. Prevent escalation of pharmaco-therapeutic agents

According to headache experts, **migraine treatment** can be classified into:

I. Chiropractic - spinal manipulation

We are all familiar with manipulation sometimes helping migraine sufferers, and sometimes not. It depends on so many external factors: diet, food allergies, inflammation, hormonal imbalances and so many other underlying issues. While chiropractic care can ultimately help with those underlying issues, the pain of migraines is often too great to take the time it will take to correct the problems.

Roland Bryans et. al. (J Manipulative Physiol Ther. 2011 (Jun); 34 (5): 274–289) reported that spinal manipulation and massage improved headache in chronic and episodic migraine. Alexander Chaibi et al (J Headache Pain. 2011 (Apr); 12 (2): 127–133) from the Head and Neck Research Centre, Akershus University Hospital give the same recommendation. Furthermore, evidence shows that chiropractic manipulation was equal in efficacy to drug therapy (propranolol & topiramate) for preventing, reducing the intensity, shortening its duration and improving the quality of life.

In the study of Chaibe et. al., the results of non-drug therapies as alternative treatment for migraine was impressive. In particular, "Chiropractic spinal manipulation (SM) is a passive-controlled maneuver which uses a directional high-velocity, low-amplitude thrusts directed at a specific joint past the physiological range of motion, without exceeding the anatomical limit. The application and duration of the different manual treatments varies among those who perform it. Thus, manual treatment is not necessarily as uniform as, for instance, specific treatment with a drug in a certain dose."

This particular observation is crucial because skill is the key factor in ensuring that the spinal manipulation can precisely target the point of pain.

One of the most interesting studies conducted in 1998 at the Northwestern College of Chiropractic compared the effects of spinal manipulation to that of the drug Amitryptiline (J Manipulative Physiol Ther 1998 (Oct); 21 (8): 511–519). Although initially Amytryptiline was slightly more effective than the more benign spinal manipulation

during the 4-week treatment period, its effects were prolonged and its ability to decrease the intensity and duration of pain nearly double that of the Amytriptiline group of migraineurs. ***This makes spinal manipulation the treatment of choice for sufferers who cannot tolerate drug-related side-effects.***

An earlier study conducted in 1978 by Parker G B et al investigating the effects of cervical manipulation of migraine (Australian and New Zealand journal of medicine, (1978 Dec) Vol. 8, No. 6, pp. 589-93) revealed ***that cervical manipulation performed by a chiropractor, physiotherapist or doctor, significantly reduced the symptoms of migraine in terms of duration, frequency and associated disability but chiropractic cervical manipulation proved best in reducing the intensity of pain.***

II. Muscular/Non-Drug Therapy

- Massage – classic, trigger points, myofascial release, stretching
- Physiotherapy – exercise, rehabilitation
- Acupressure and Acupuncture – works through pain meridians that are referred to the spinal and cranial levels.

III. Prescription drugs

Preventive drugs like:

- Beta blockers
- Calcium channel blockers
- Ergotamine
- Antidepressants
- Neuronal stabilizing drugs or anticonvulsants
- Amitriptyline
- Botox
- Herbs and other alternative therapies
- Abortive prescription drugs for pain relief
- Triptans
- DHE45

IV. OTC Palliative or (Pain) abortive medications

OTC medicine and other analgesics such as ibuprofen, naproxen and paracetamol and branded ones such as Excedrin Migraine, Advil Migraine, Tylenol, Motrin, Aleve etc. are some of the more effective, self-administered drugs in the market.

Because of the safety requirements and because there is no physician monitoring the results, OTC drugs are not as "strong" as the prescription counterparts. Combinations like Excedrin or aspirin with caffeine also helps.

Caffeine, with its inherent quality of constricting blood vessels, can help with a vaso-dilating headache such as migraines. Sometimes a trip to Starbucks can be therapeutic!

V. Prophylactic or preventive

- Avoid triggers (eg. Bright lights, alcohol, strong odors)
- Taking appropriate medication
- Press the precise acupressure points
- Psychological re-orientation and stress relief

VI. Adjunctive/Other therapeutic interventions:

- Gluten-free diet
- Botox
- Surgery

Headaches

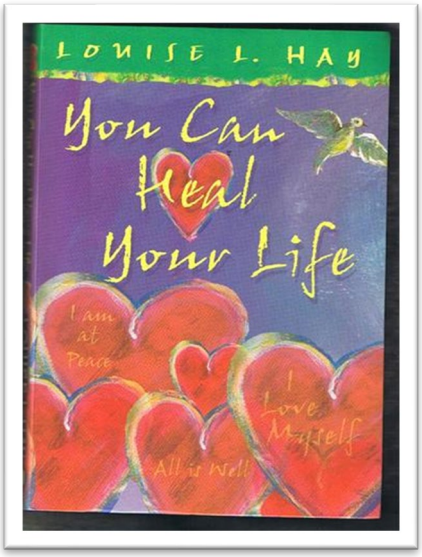
Who gets them, and what to do about it when they do

Part VI

The Mind-Body Connection

I am firmly convinced that much of the pain we suffer is caused by emotional reactions and negative thought processes held in neuro-emotional peptides. When the mind latches on to a weak belief, negative memory or destructive value system the entire body suffers. If you want to fix the pain rather than mask it, you must address the core beliefs or mindset that is causing the problem.

The fact that the word "trauma" has been used to describe both physical and mental damage has been a key part of my theory of how the molecules of emotion integrate what we feel at every level of what I've called our bodymind. As a practical manner, people have a hard time discriminating between physical and mental pain. So often we are "stuck" in an unpleasant emotional event – a trauma – from the past that is stored at every level of our nervous system and even on the cellular level i.e. cells that are constantly becoming and renewing the nervous system. My laboratory research has suggested that all of the senses, sight, sound, smell, taste and touch are filtered, and memories stored, through the molecules of emotions, mostly the neuropeptides and their receptors, at every level of the body & mind. CANDACE PERT, PhD Pharmacology



In her best-selling book, "Heal Your Body, Heal Your Life" author Louise Hay teaches that Migraine headaches happen *because we are creating pressure on ourselves. This can be from allowing outside events to affect us (stress at work, home, love relationships). Migraines appear to happen to people who try to do too much, or are perfectionists. She suggests that people who experience migraines often are guilty of resisting the flow of life.*

Louise Hay also suggests that when it comes to migraine headaches, the new thought pattern to engage in is one that affirms "I relax into the flow of life and let life provide all that I need easily and comfortably. Life is for me." She also suggests this affirmation: "I trust the process of life. Nothing in the past or present interferes with the divine right flow of my life. I am healthy and happy right here and now."

Forgiveness and Letting Go

Holding on to past memories of trauma, guilt, failure, and abuse are the starting point of many of the pains we experience. This applies to migraines and headaches, too. Making the effort to let go of these memories is paramount to getting rid of migraine headaches and keeping them from coming back**.** If you want a simple way to treat your patients, have them begin with the words "I forgive…"

Perfectionism

Personally, I ascribe to the viewpoint that "it doesn't have to be perfect to be perfect." If we see our lives as perfection from a Higher place, whatever your definition is, then having everything in place and "appearing" perfect matters not. Perfectionists have internal conversations that come from a place of low self-esteem and lack of trust of others. Clearing some of these emgrams can be very healing.

Foods that can Trigger Migraines

1) Foods high in tyramine. While this list isn't complete by any means, these foods are anything aged, smoked, fermented or pickled, such as cheeses, sauerkraut, pickles, many meats, brewer's yeast, and more.

2) Foods and beverages containing sulfites such as dried apricots, cocktail onions, grape juice, molasses, bottled lemon juice, and most wines

3) Alcohol and Vinegar. Especially red wine, champagne and dark or heavy drinks. Clear (ideally, distilled) vinegar is ***allowable.*** Don't overdo condiments (ketchup, mustard and mayonnaise) made with vinegar.

4)Aspartame (Nutrasweet) - Saccharin (Sweet 'N Low) may also be a trigger for some. Sucralose (Splenda) has also been implicated in causing headaches in some users as well.

5)Caffeine - Coffee, tea, iced tea and cola. Even decaf coffee and tea (which may contain additional chemical triggers) may be a problem. Also, beware of coffee substitutes. Caffeine in high doses can cause insomnia, irritability, anxiety, and headaches. The over-use of caffeine-containing analgesics causes rebound headaches. Furthermore, individuals who consume high levels of caffeine regularly are more prone to develop withdrawal headaches when caffeine is stopped abruptly.

6) Certain Fruits And Juices - Citrus fruits (oranges, grapefruits, lemons, limes, tangerines, clementines and pineapples) and their juices—as well as bananas. Also avoid raisins (and other dried fruits if preserved with sulfites), raspberries, red plums, papayas, passion fruit, figs, dates and avocados.

7) Certain Vegetables, Especially Onions - This applies to sauerkraut, pea pods and certain beans (broad Italian, lima, fava, and navy, and lentils) as well. Leeks, scallions, shallots, spring onions and garlic are allowed.

8) Cheese and Other Dairy Products - The more aged, the worse (Canadian & New York Cheddar are especially high. (Permissible cheeses include cottage cheese, ricotta, cream cheese and good-quality American cheese.) Beware of cheese-containing foods, including pizza. Yogurt (including frozen yogurt), sour cream and buttermilk are also triggers.

9) Chocolate - White chocolate (no cocoa) may be okay. Carob, however, is questionable.

10) Fresh Yeast-Risen Baked Goods - Less than one day old: homemade (or restaurant-baked) breads, especially sourdough, as well as bagels, doughnuts, pizza dough, soft pretzels and coffee cake.

11) Monosodium Glutamate - Chinese (and other) restaurant food; soups and bouillons; Accent and seasoned salt; flavored, salty snacks; croutons and bread crumbs; gravies; ready-to-eat meals; cheap buffets; processed meats; veggie burgers; protein concentrates; and low-fat, low-calorie foods. Watch out for hidden MSG such as that found in soy sauce.

12) Nuts – There is various conclusions over which nuts might trigger attacks. If you are sensitive then it is best to avoid all kinds, as well as nut butters. Seeds are okay (except for pumpkin, sesame and sunflower seeds).

13) Processed Meats And Fish – Avoid foods that are aged, canned, cured, fermented, marinated, smoked, tenderized—or preserved with nitrites or nitrates. This includes hot dogs, sausage, salami, pepperoni, bologna (and other lunchmeats with nitrites), liverwurst, beef jerky, certain hams, bacon, pâtés, smoked or pickled fish, caviar and anchovies.

14) Miscellaneous - Perhaps soy products, especially if cultured (miso), fermented (tempeh) or otherwise highly processed (e.g., soy protein isolate/concentrate). Watch out for soy sauce containing MSG. Less risky are items such as unflavored tofu, soy milk and flour. Soy oil is safe. You should keep a food diary to see if tomatoes (and tomato-based sauces), eggplant and mushrooms affect you.

It is also imperative to **drink adequate fluids** since dehydration can cause major headaches and lead to other problems.

Herbs and supplements for migraines

Studies suggest a link between migraines and **magnesium and calcium deficiency**. You may benefit from taking a supplement or increasing the amount of magnesium (halibut, potatoes, wheat bran) and calcium (Fortified ready-to-eat cereals, collards, Ocean Perch) in your diet through the foods you ingest.

Feverfew is believed to inhibit the release of serotonin and prostaglandins, both of which are believed to aid the onset of migraines. Used long-term, studies suggest that feverfew limits the inflammation of blood vessels in the head. Be aware of any potential side effects or reactions. If you stop taking it abruptly you may experience 'feverfew rebound syndrome' which is a return to the previous level of migraines, along with possibly other symptoms of temporary insomnia and anxiety.

Non-Food Migraine Triggers

Non-food migraine triggers are fairly common. While it is difficult to know which combination of factors might increase the risk of getting migraines, it makes sense to pay attention to any external factor they have control over. The top triggers under the patient's control are:

- **Sleep habits** - Sleep deprivation, over sleeping, poor quality sleeping, and frequent awakening at night function as migraine and tension headache catalysts. Conversely, improving sleep habits help to reduce the frequency and duration of migraine headaches. Go to sleep and wake up at the same time each day.

- **Fasting** – Tell patient not to make a habit of skipping meals if they are a frequent migraine sufferer. They will suffer from the lowered blood sugar and provoke the release of hormones that stimulate cortisol, possibly triggering a migraine.

- **Bright lights** - Bright lights can cause migraine headaches so pay attention to exposure to sunlight, television, and flashing lights. Buy a good pair of sunglasses.

- **Female hormones** – Estrogen fluctuations are believed to cause menstrual migraines. To learn more about balancing women's hormones, please take my courses on this site listed below:

Intro to Hormones 101a:

A four hour Introduction to Hormones with an alternative healer's viewpoint on diagnosis and treatments.

Physical Diagnosis 130:

Natural Treatments and Diagnosis of Common Female Disorders, a course where I list specific Lab Names and Brand Names of products that you can use in your practice.

Headaches

Who gets them, and what to do about it when they do

Part VII

Cluster Headaches

Cluster headaches affect around 1 million people in the U.S. and unlike other forms of headache affect men more than women. Typically, it is severe, of short duration, one sided, and most often felt behind the eye. It is called cluster because 4 or more episodes can occur during the day throughout a period of several days with some attacks occurring at night and excruciating enough to keep the patient from sleeping or even capable of rousing him from sleep. Fortunately, unlike migraine attacks, the intervals between a series of episodes and the next are longer.

Causes and Triggers

Like migraine, cluster headache is excruciating but benign and may be caused by vasodilation of blood vessels. Dilated blood vessels pressing on the trigeminal nerve causes pain. The internal carotid artery may be involved which accounts for the pulsation in the eye during attacks. Some believe that the pathophysiology is more of an autonomic response from the stimulation of the hypothalamus. CNS neurotransmitters and imbalance in serotonin account for the pain. Low testosterone levels in men can also cause symptoms.

The mechanism is similar to migraine but the incidence is much lower and seemingly not related to family history. The tearing and reddening of the eye suggest a cholinergic response.

Triggers and precipitating factors are similar to migraine:

- Alcohol – 50% of those who suffer from migraine report adverse reactions with alcohol (Friedman and Mikropoulos, 1958) 5-45 minutes after intake of even small amounts of alcohol (glass of wine)
- Smoking
- Environmental extremes – cold and heat; high altitude; hot baths
- Stress
- Glare
- Hay fever
- Food – dairy, fermented food, chocolate, eggs, high in nitrites/nitrates
- Head trauma (Manzoni et al, 1983)
- Cranio-facial surgery (on the same side as the headache)
- Intake of nitroglycerin
- MSG (monosodium glutamate)
- Household toxins (e.g. insecticides, household cleaners)
- Cocaine

Signs and Symptoms

Patients suffering from cluster headaches typically present with:

- Unilateral pain of severe intensity ($\geq$ 6)
- Pain is described as burning, sharp or steady
- Pain is usually localized behind the eye (orbital) and above the eye (supraorbital) but may also come from the face and neck and goes towards the temples (temporal). It can be a boring or drilling type of pain that can radiate to the shoulders.
- Develops fast and peaks within 10 minutes; the strongest pain may last two hours
- May be episodic or chronic
- Eye and nose on the same side may be affected (swelling, eye redness, congestion, tearing, rhinorrhea)

- Nasal stuffiness
- Lack of sweating on half of the face
- Constricted pupils

During an attack, Horner syndrome may present. This is alarming (due to the ptosis) but temporary. Horner syndrome is a rare condition that affects the nerves to the eye and face. Symptoms are decreased sweating on the affected side of the face,drooping eyelid (ptosis), sinking of the eyeball into the face, and constricted pupil. After the attack there may be neck tenderness or stiffness of the jaw.

Recurrence is frequent and may occur as much as 16 times a day and last for 3 hours. It can attack with regularity – precisely recurring at certain moments of the day. Because of extreme pain, it can rouse a person from sleep leading to fatigue and stress. There is pain-free remission which can last longer than one month. Some patients have experienced remission for years.

Diagnosis

Diagnosis can be made from history and physical examination. Patients are advised to maintain a diary to determine triggers and help prevent attacks.

- A spinal (lumbar) tap can be used to rule out infections
- A CT scan or MRI can rule out the following differential diagnosis:
    - Tumor (cancerous or benign)
    - Aneurysm
    - Convulsion

Treatment and Prevention

Chiropractic

In 2001, researchers at the Duke University Evidence-based Practice Center reported that spinal manipulation is an effective treatment for cluster headache. *Respondents showed almost immediate cessation or improvement of symptoms*. Just like for tension and migraine-type headaches, spinal manipulation was done on the first two cervical vertebrae. Adjustment between the cervical and thoracic spine was also made.

Because spinal manipulation is more benign than drugs, few side effects were seen. Patients reported longer-lasting relief – a finding corroborating the results of a study published in the Journal of Manipulative and Physiological Therapeutics where patients reportedly had sustained relief up to four weeks even after chiropractic manipulation was discontinued. In contrast, those on pain medication did not experience the same benefits.

Muscular

Trigger point therapy can be effectively in conjunction with spinal manipulation. The following muscles may be involved:

1. Splenius muscle (splenius capitis and splenius cervicis) – trigger point for pain that is felt at the back of the eye or travels to the top of the head
2. Suboccipital (pain extends from the back of the eye to the forehead)
3. Sternocleidomastoid – for pain felt "inside" the head similar to migraine
4. Trapezius – pain in the jaw or neck

Pharmacologic Interventions

1. Preventive – beta blockers, anti-convulsive, calcium channel blocker, selective serotonin reuptake inhibitor, tricyclic anti-depressant, anti-depressant. Common brand names of preventive medication are: Topamax, Tegretol, Prozac and Paxil.

2. Abortive (given after pain has started to reduce intensity of symptoms) –acetaminophen and combinations, ergot, triptan drugs; during acute attacks 0.36 to 1.08 mg (one to three inhalations) of ergotamine brings relief in as short as 5 minutes.
3. Migraine headache medicine such as Advil, Excedrin.
4. Oxygen – evidence shows that oxygen inhalation via fitted mask is effective in 80% of cases, especially those that occur at night. This can be repeated five times a day and helps in vasoconstriction and release of serotonin.
5. Prednisone – as a prophylactic, prednisone is effective in 75% of patients suffering from episodic headache.

6. Lidocaine – applied through the nose, this intervention is effective in 60% of cases.
7. Dihydroergotamine (IV)
8. Methysergide – effective in 70% of patients suffering from episodic headache
9. Lithium – helpful in preventing attacks of chronic cluster headache
10. Indomethacin – used for chronic forms of cluster headache
11. Calcium channel blockers
12. Occipital nerve steroid blockade

When pain starts, medication should be taken right away to avoid worsening or prolonging of symptoms. Unfortunately, the headache is often severe enough to be refractive to OTC medications such as plain acetaminophen ibuprofen or aspirin.

Preventative

The best preventive measure is to avoid triggers and to maintain regular hours for sleeping and other activities. Avoidance of stress and practicing relaxation techniques also help.

1. Reflexology
2. Chiropractic
3. Acupuncture
4. Acupressure

Alternative and Complementary Choices

Acupuncture and/or Acupressure

Acupuncture and acupressure can also be used to diminish pain. Both act on the principles of unblocking Qi and correcting imbalance. A study conducted in 2003 showed that acupuncture provided complete relief or reduced the frequency and intensity of pain. Acupuncture lessens the use of corticosteroids and should be given between attacks in chronic cases.

Acupuncture and acupressure can:

- Improve blood circulation
- Release natural painkillers or endorphins
- Cause underlying muscle to relax

Headache acute or chronic arises from many known conditions such as vasodilation, muscular tension, spinal imbalance, stress, infections, congestion and should be differentiated from life-threatening conditions that require emergency medical intervention such as stroke, meningitis or bleeds. Acupressure is an effective remedy for acute or chronic headache arising from what Oriental doctors believe to be a disturbance in energy flow due to blocks, phlegm, wind, blood stasis or increased Yang energy in the head. Acupressure principles are based on which meridians are affected. For instance, some types of cluster headache may be gall bladder or triple heater meridian. However, the classical cluster headache is more of a liver meridian type which can be felt at the top of the head and is sharp and intense.

Acupressure charts provide information on the pathways of each meridian so that a corresponding area can be stimulated to correct the energy block. For instance Liver 3 can be used for pain felt at the top of the head. Surprisingly, this point is quite distant and located between the big toe and second toe. Following the tarsal bones, palpate for the most tender part and press to relieve pain. Breathe deeply as you do this and apply firm, gentle but sustained pressure.

Hypnosis

Studies have shown hypnosis can help to relieve stress and ‘desensitize’ pain.

Homeopathy

Homeopathic treatment for cluster headache is similar to structural/tension headache.

- Belladonna
- Spigella
- Ignatia
- Sanguinaria

Herbs and Supplements

Herbal treatment for cluster headache is similar to structural/tension headache. Some herbs used to treat headaches as analgesic, nervine or calmative are: meadowsweet, pulsatilla, valerian, wild lettuce and wood betony which can be used as capsule, tea, tincture or tablet. Feverfew can also be a great headache reliever.

Invasive procedures (only for headache unrelieved by drugs and other therapies)

- percutaneous glycerol injections into the trigeminal cistern
- trigeminal sensory rhizotomy
- percutaneous radiofrequency trigeminal rhizotomy
- superficial petrosal neurectomy
- trigeminal branch avulsion, and
- decompression of the nervus intermedius

Headaches

Who gets them, and what to do about it when they do

Part VIII

Miscellaneous Headaches

Some headaches cannot be classified into structural, migraine or cluster headache. Some of the known causes like congested sinus cavities, barometric or atmospheric changes in the environment, post-epileptic and trauma headache are often easy to diagnose based on the history and presenting symptoms.

Sinus Pain

The skull contains hollow (sometimes interconnected) areas called sinuses; cavities that lined by mucus cells that filter and humidify air as well as secrete fluid. These sinuses are connected to other cavities and the nose by ducts which can get blocked or infected from inflammation or irritation of the sinus membranes. The resulting unequal pressure within the sinuses and the bone that contain it can cause considerable pain in the head and neck area. The area is usually tender to touch and pain is worsened by movement or change in position.

Sinus-related pain can be due to infection, inflammation or anything that causes blockages or contributes to unequal pressure. Sinus headache is often accompanied by cough, sore throat (sometimes as a result of drainage), pressure around the area of the sinuses, nasal or ear

discharge, ear fullness and teary eyes. Fever and swelling may accompany some types of infection. The triangle surrounding the nose and the sphenoid sinus areas are particularly sensitive because infections can potentially ascend and cause serious infections such as meningitis.

A feeling of fullness or deep and sustained pain are typically tender to palpation on the points where sinuses are located:

- Nose – ethmoid sinus
- Forehead – frontal sinus
- Cheekbones – maxillary sinus
- Behind the eyes – sphenoid sinus

Inflammation

Many things can cause inflammation in the sinuses. It can be due to:

1. **Infection**

   Infection is frequently initially of viral origin although bacterial and fungal infections are also common. Sometimes the bacteria is opportunistic and secondary to the viral infection. In fact, infection of the upper teeth can ascend to the sinuses and cause serious infection. Invasive cancer or tumors can also affect the sinuses and cause blockage.

   Viral infections may be associated with clear and watery nasal discharge. However, when secondarily infected or if the cause is of bacterial origin, the discharge becomes mucoid and yellowish-green or typically purulent. Fungal infections are associated with whitish discharge.

   Infections may be accompanied by fever and chills, fatigue, aches or generalized body malaise. Lymph nodes under the chin or at the jawbone below the ear may be swollen and tender. Facial swelling rarely accompanies the symptoms but when it does is indicative of abscess.

2. **Allergic reaction (including hay fever).** This is just as it sounds. Common allergens include pollen, animal dander, house dust, feathers, mites, chemicals, and a variety of foods. Some allergies primarily cause respiratory symptoms; others can cause such diverse symptoms as headache, fatigue, fever, diarrhea, stomachache, and vomiting. These symptoms occur because, in the presence of an allergen, the immune system releases histamines to fight what it perceives as an invader. Histamines cause a string of reactions, including the swelling and congestion of nasal passages and increased mucus production. This is essentially a hypersensitive, or overactive, response by the body to an external stimulus.

3. **Irritation** from a literal blockage, such as inhaling a foreign object, or frequently small insects.

Diagnosis

Patient history and presenting signs and symptoms are usually diagnostic, especially if there were previous incidents such as headaches associated with allergic rhinitis, hay fever, toothache and the like.

Treatment: Self-care

Congestion is quite common, so to ease this and relieve headache some simple measures have proven effective:

- Use a neti pot or use saline water nasal sprays
- Hydrate by drinking a lot of fluids
- Humidify air
- Patients with high blood pressure and those on other medications may have to refrain from taking anti-histamines in combination with pseudoephedrine.

Prevention

- Drink a lot of fluids
- Wash hands and avoid touching your face, nose or eyes
- Avoid smoking and drinking alcohol
- Avoid triggers or irritants

Barometric Headache (usually low barometric pressure, high temperature)

Barometric pressure headaches can be non-migraine and triggered by changes in environmental pressure. Headache patients report unilateral, vise-like or pressure pain around the forehead and nose region. Pounding pain may also be experienced at the occipital region. If you have never experienced one of these, it is amazing when the weather finally changes how quickly the headache goes away. I had these as a child, and on nights when a big front was moving into North Texas, I would lie awake in pain. Aspirin didn't make a bit of difference (the only drug my family used). And as lie there and eventually began to hear the first patterings of raindrops on the leading edge of the front, within minutes my headache was gone and almost immediately I went into a deep sleep. Fortunately, good chiropractic care seems to have alleviated this problem for me, so I personally suspect that the underlying issue lies in lack of proper cranial movement.

Some people are inherently sensitive to changes in barometric pressure. However, stress, drugs, tension, nicotine and alcohol make the headache worse. Parts of the face, upper neck and scalp are often sensitive or tender to touch.

Those who have Migraines suffer from barometric headache that is severe,

debilitating and prolonged. Migraine-type barometric headache can be bilateral and felt more in the temporal area. Aside from visceral symptoms, it may be accompanied by depression. In certain cases, aura has been reported.

This periodic attack associated with nausea and vomiting lasts 4-72 hours (average 24). Research shows that 12% of the population suffers from migraine and half of this population are sensitive to pressure or weather changes. In fact, weather conditions are one of the most common triggers of migraine.

In 2009, researchers at Beth Israel Deaconess Medical Center confirmed that high temperature and low barometric pressure triggered headache. The study (Journal of Neurolog, March 10, 2009) involving over 7000 emergency room patients with the primary diagnosis of headache were studied by Kenneth Mukamal, M.D. et al. based on temperature, barometric pressure, humidity, and exposure to fine particulate matter (black carbon, nitrogen and sulfur oxides). Exposure to high temperature (within 24 hours) increased chances of having an attack: in fact, for every 5 degrees Celsius (9 degrees Centigrade) rise, risk increased by 7.5%. Low barometric pressure up to 3 days before the attack also triggered symptoms.

As early as 400 BC, ***Hippocrates*** wrote about the possible effects of environment conditions to health. The following are corroborated by modern research:

Because low barometric pressure (inversely felt at high altitude) cause blood vessels in the head to compensate for the decreased oxygen levels. Just like in other types of headache, dilated blood vessels swell to the point where they press on nerve endings and trigger pain sensations.

Treatment for Barometric Headaches

Western Treatments

- Analgesics
- OTC like paracetamol, aspirin, ibuprofen singly or in combination
- Triptans
- Antihistamine
- Amitriptylin and other ani-depressants
- Anti-hypertensive medication
- Anti-seizure medication
- Beta-blockers
- Calcium-channel blockers
- Botox
- Ergot
- Lidocaine nasal drops

Alternative Treatments

Eastern or alternative healing practices involve a holistic approach that includes dietary changes and stress/tension relief. The latter relaxes contracted muscles that trigger headache.

Combining Western and Eastern approaches early, just as symptoms begin and keeping a headache diary shortens episodes, decreases intensity.

The alternative treatments are similar to those discussed in previous sections on Structural, Migraine and Cluster headaches. These are:

- Chiropractor
- Homeopathy – Pulsatilla, Spigilia, Iris versiculor, Belladona and the like
- Massage
- Pressure point (acupuncture and acupressure) therapy
- Steamers (humidifiers)

- Yoga and relaxation
- Nutrition – add the following enzymes bromelein, quercetin and probiotics
- Herbs – Feverfew, Chinese skullcap, Magnesium, Hops

Other ways to ameliorate or prevent pain

- Lie down flat or with head and neck slightly elevated
- Avoid harsh light, strong odors, heat and loud sound.
- Keep hydrated
- Get enough sleep
- Eat regularly and avoid known food triggers such as chocolate
- Be wary of caffeine – some patients benefit from incorporating caffeine into headache management while in some patients, caffeine triggers attacks.
- Avoid stuffy rooms
- Take long walks and exercise lightly to release endorphins. These happy hormones counteract pain.

Headaches

Who gets them, and what to do about it when they do

Part IX

Eastern and Alternative Diagnosis

In Chinese Medicine there are several different kinds of headaches according to the quality of the pain and the location on the head.

The classic acupuncture point for all headache relief is Large Intestine 4, located in the "web" of the hand, in the tissue between the thumb and first (index) finger. Stimulating this point can be done in various ways:

- Acupressure: deep pressure, to the point of painful pressure, held for about a minute on the specific point
- Massage: especially rubbing in small circles on top and bottom of the hand over the specific point
- Acupuncture: licensed acupuncturists may use a needle in this point. Longer duration treatment is often necessary.

- Magnet: tiny magnets on Large Intestine 4 bilaterally can be a helpful thing to send home with your patient. Suggest that the patient stimulate them with a little pressure several times throughout the day. Use them even when a headache is not present as a preventative.

Vertex

The top of the head is associated with our connection to the Universe or God. Pain here is associated with separation from that higher power. It is also associated with the Kidneys and the emotion associated with the Kidneys is Fear.

Both the Gallbladder and Urinary Bladder channels traverse the top of the head. The Gallbladder is associated with Courage, and the Urinary Bladder through its associate with the Kidneys is associated with Fear. Du 20 (Baihui) located at the top of the head is used extensively to 'calm the spirit' in Chinese Medicine.

Forehead

The forehead is associated with the 3rd eye, both in Chakra Theory and Traditional Chinese Medical theory. The 3rd eye is associated with introspection and illumination of your own Inner Being. Pain here is associated with separation from your own Inner Being.

In Chinese Medicine, Yintang, which is located midway between the inner ends of the eyebrows, Du 23 (Shangxing), Du 24 (Shenting) which are located at the hairline directly above Yintang and Du 20 (Baihui) located at the top of the head, all have the action of 'calming the spirit.' Yintang is associated with the eyes; not only the eyes that look outward but the eyes that look inward and is indicated in some emotional disorders.

Temporal

The sides of the head are associated with courage, especially courage to face your world. Migraine Headaches, usually located in the front quadrants, right or left, indicates a separation from your world. The involvement of the eyes in Migraines indicate not only an unwillingness to look without, but to avoid looking within.

Most Migraine sufferers report, not only severe pain behind the eye, but also acute sensitivity to light. In Chinese Medicine, a number of Meridians run through this area. The Gallbladder Channel is associated with courage. The San Jiao channel is involved with processing of water (the elixir of Life), and the Small Intestine Channel is involved with deriving nourishment from the world. Both the San Jiao Channel and the Small Intestine Channel are connected to the Heart, whose emotion is Joy and where the Mind is located. Lack of Joy (with one's self) is strongly indicated by pain in this area. There is also Anger indicated by the Gallbladder channel's link with the Liver.

Occipital

The back of the head represents your past. Some say also this is an area of spirituality. Pain here represents something in your past that is not complete and remains unforgiven. The back of the head is traversed by the Gallbladder Channel and the Urinary Bladder Channels indicating Anger born of Fear. The Back of the Head is thought to be the seat of Spiritual Experiences. The only way to see them is through inner sight. Pain in the back of the head represents an unwillingness to look deep within for the source of Light & Truth.

Headaches that affect the entire head

Chronic headaches all over the head are due to Kidney Ying deficiency. The Kidney nourishes the brain but lacks this ability when the Ying is deficient. This can give rise to dull headaches in the whole head accompanied by a feeling of emptiness of the head.

Acute headaches affecting the whole head are due to invasion of external wind. These are severe and sharp in character. Sometimes, they are accompanied by a tight pulling sensation.

If the area of the headache changes all the time and the headache is experienced in different parts of the head at different times, it either indicates the presence of Wind Evil or Liver Wind. This pain will be accompanied by a pulling sensation.

Assignment: 5 minutes

Sit quietly with your hands lying in your lap. Release the keyboard and mouse. Quiet any other distractions. Make note of where you might feel tension or pain in your body, especially in the following areas:

- Headache
- Upper traps
- Cervical
- Occipital
- Jaw
- Lumbar
- Forehead and eyes

Now take 5 long deep breaths. You might find it difficult to stay focused and stay on task throughout the brief time it takes for 5 breaths. Just observe yourself, and gently get back to counting breaths. After you have completed five breaths, make a note of your pains, including tension and headache, if any.

Many times tension can be attributed to lack of oxygen in the muscles. If you or your patient is stressed and holding your breath, rather than breathing normally, headaches and pain can be the result. Reminding your patients of this can be life changing for them.

Headaches

Who gets them, and what to do about it when they do

Part X

Coding and Case History

"In my experience, cervical migraine is the type of headache most frequently seen in general practice and also the type most frequently misinterpreted. It is usually erroneously diagnosed as classical migraine, tension headache, vascular headache. Such patients have usually received an inadequate treatment and have often become neurotic and drug-dependent".
Frykholm, neurosurgeon, Sweden (1972)

"Manipulation is effective in patients with cervicogenic headache".

Duke University Evidence-Based Practice Center, USA (2001)

R51, the ICD-10 basic code, should not be used alone for reimbursement purposes as there are multiple codes below it that contain a greater level of detail. This is equivalent to the older code of 784.0 in ICD 9.

R51 on it's own was replaced in the 2021 ICD-10 code set with the code(s) listed below. The National Center for Health Statistics (NCHS) has published an update to the ICD-10-CM diagnosis codes which became effective October 1, 2020. This code was replaced for the FY 2021 (October 1, 2020 - September 30, 2021).

R51.0 - Headache with orthostatic component, NEC
R51.9 - Headache, unspecified

The ICD-10-CM code R51.0 might also be used to specify conditions or terms like orthostatic headache or postural headache.

ICD codes specify the following for discernment in coding:

CLUSTER HEADACHE-. a primary headache disorder that is characterized by severe strictly unilateral pain which is orbital supraorbital temporal or in any combination of these sites lasting 15 180 min. occurring 1 to 8 times a day. the attacks are associated with one or more of the following all of which are ipsilateral: conjunctival injection lacrimation nasal congestion rhinorrhea facial sweating eyelid edema and miosis. international classification of headache disorders 2nd ed. cephalalgia 2004: suppl 1
HEADACHE-. the symptom of pain in the cranial region. it may be an isolated benign occurrence or manifestation of a wide variety of headache disorders.
MIGRAINE DISORDERS-. a class of disabling primary headache disorders characterized by recurrent unilateral pulsatile headaches. the two major subtypes are common migraine without aura and classic migraine with aura or neurological symptoms. international classification of headache disorders 2nd ed. cephalalgia 2004: suppl 1
VASCULAR HEADACHES-. secondary headache disorders attributed to a variety of cranial or cervical vascular disorders such as brain ischemia; intracranial hemorrhages; and central nervous system vascular malformations.
TENSION TYPE HEADACHE-. a common primary headache disorder characterized by a dull non pulsatile diffuse band like or vice like pain of mild to moderate intensity in the head; scalp; or neck. the subtypes are classified by frequency and severity of symptoms. there is no clear cause even though it has been associated with muscle contraction and stress. international classification of headache disorders 2nd ed. cephalalgia 2004: suppl 1
HEADACHE DISORDERS-. various conditions with the symptom of headache. headache disorders are classified into major groups such as primary headache disorders based on characteristics of their headache symptoms and secondary headache disorders based on their etiologies. international classification of headache disorders 2nd ed. cephalalgia 2004: suppl 1

HEADACHE DISORDERS PRIMARY-. conditions in which the primary symptom is headache and the headache cannot be attributed to any known causes.
HEADACHE DISORDERS SECONDARY-. conditions with headache symptom that can be attributed to a variety of causes including brain vascular disorders; wounds and injuries; infection; drug use or its withdrawal.
POST TRAUMATIC HEADACHE-. secondary headache attributed to trauma of the head and/or the neck.
POST DURAL PUNCTURE HEADACHE-. a secondary headache disorder attributed to low cerebrospinal fluid pressure caused by spinal puncture usually after dural or lumbar puncture.

G43.001 is a billable diagnosis code used to specify a medical diagnosis of migraine without aura, not intractable, with status migrainosus. The code G43.001 is valid during the fiscal year 2021 from October 01, 2020 through September 30, 2021 for the submission of HIPAA-covered transactions.

The ICD-10-CM code G43.001 might also be used to specify conditions or terms like common migraine with status migrainosus, migraine without aura or status migrainosus.

The Index to Diseases and Injuries is an alphabetical listing of medical terms, with each term mapped to one or more ICD-10 code(s). The following references for the code G43.001 are found in the index:

- Migraine (idiopathic) - G43.909
- without aura - G43.009
- not intractable
- with status migrainosus - G43.001
- without mention of refractory migraine - G43.009
- with status migrainosus - G43.001

ICD Code	Description
G43	*migraine*
G43.0	*migraine* without aura
G43.00	*migraine* without aura, not intractable
G43.001	*migraine* without aura, not intractable, with status migrainosus Common *migraine* with status migrainosus; *migraine* without aura;
G43.009	*migraine* without aura, not intractable, without status migrainosus *migraine* without aura, not refractory; *migraine* without aura;
G43.01	*migraine* without aura, intractable
G43.011	*migraine* without aura, intractable, with status migrainosus
G43.019	*migraine* without aura, intractable, without status migrainosus Refractory *migraine* without aura; *migraine* without aura;
G43.1	*migraine* with aura
G43.10	*migraine* with aura, not intractable
G43.101	*migraine* with aura, not intractable, with status migrainosus Retinal *migraine*;
G43.109	*migraine* with aura, not intractable, without status migrainosus Complicated *migraine*; *migraine* with typical aura; *migraine* aura without headache; *migraine* with ischemic complication; *migraine* with aura; Retinal *migraine*; Basilar *migraine*;
G43.11	*migraine* with aura, intractable
G43.111	*migraine* with aura, intractable, with status migrainosus

ICD Code	Description
G43.119	*migraine* with aura, intractable, without status migrainosus Intractable retinal *migraine*; Refractory *migraine* with aura; Basilar artery *migraine*, refractory; Retinal *migraine*; Basilar *migraine*;
G43.4	Hemiplegic *migraine*
G43.40	Hemiplegic *migraine*, not intractable
G43.401	Hemiplegic *migraine*, not intractable, with status migrainosus Hemiplegic *migraine*;
G43.409	Hemiplegic *migraine*, not intractable, without status migrainosus Non-familial hemiplegic *migraine*; Hemiplegic *migraine*; Familial hemiplegic *migraine*;
G43.41	Hemiplegic *migraine*, intractable
G43.411	Hemiplegic *migraine*, intractable, with status migrainosus Intractable hemiplegic *migraine*; Refractory *migraine* with aura; Hemiplegic *migraine*;
G43.419	Hemiplegic *migraine*, intractable, without status migrainosus Intractable hemiplegic *migraine*; Refractory *migraine* with aura; Hemiplegic *migraine*;
G43.5	Persistent *migraine* aura without cerebral infarction
G43.50	Persistent *migraine* aura without cerebral infarction, not intractable
G43.501	Persistent *migraine* aura without cerebral infarction, not intractable, with status migrainosus
G43.509	Persistent *migraine* aura without cerebral infarction, not intractable, without status migrainosus *migraine* with persistent visual aura;
G43.51	Persistent *migraine* aura without cerebral infarction, intractable
G43.511	Persistent *migraine* aura without cerebral infarction, intractable, with status migrainosus

ICD Code	Description
G43.519	Persistent *migraine* aura without cerebral infarction, intractable, without status migrainosus
G43.6	Persistent *migraine* aura with cerebral infarction
G43.60	Persistent *migraine* aura with cerebral infarction, not intractable
G43.601	Persistent *migraine* aura with cerebral infarction, not intractable, with status migrainosus
G43.609	Persistent *migraine* aura with cerebral infarction, not intractable, without status migrainosus
G43.61	Persistent *migraine* aura with cerebral infarction, intractable
G43.611	Persistent *migraine* aura with cerebral infarction, intractable, with status migrainosus
G43.619	Persistent *migraine* aura with cerebral infarction, intractable, without status migrainosus
G43.7	Chronic *migraine* without aura
G43.70	Chronic *migraine* without aura, not intractable
G43.701	Chronic *migraine* without aura, not intractable, with status migrainosus Chronic *migraine* without aura with status migrainosus; Transformed *migraine*; Chronic *migraine* without aura;
G43.709	Chronic *migraine* without aura, not intractable, without status migrainosus Transformed *migraine*; Chronic *migraine* without aura; Chronic *migraine* without aura, non-refractory; *migraine* without aura;
G43.71	Chronic *migraine* without aura, intractable
G43.711	Chronic *migraine* without aura, intractable, with status migrainosus
G43.719	Chronic *migraine* without aura, intractable, without status migrainosus Chronic intractable *migraine* without aura; Refractory *migraine* without aura; Transformed *migraine*; *migraine* without aura;

ICD Code	Description
G43.8	Other *migraine*
G43.80	Other *migraine*, not intractable
G43.801	Other *migraine*, not intractable, with status migrainosus
G43.809	Other *migraine*, not intractable, without status migrainosus *migraine* variants; Lower half *migraine*; *migraine* variants, not intractable; *migraine* variant with headache; Acute confusional *migraine*;
G43.81	Other *migraine*, intractable
G43.811	Other *migraine*, intractable, with status migrainosus
G43.819	Other *migraine*, intractable, without status migrainosus Intractable allergic *migraine*; Allergic *migraine*; *migraine* variants; Refractory *migraine* variants; Refractory acute confusional *migraine*; Acute confusional *migraine*;
G43.82	Menstrual *migraine*, not intractable
G43.821	Menstrual *migraine*, not intractable, with status migrainosus Menstrual *migraine*;
G43.829	Menstrual *migraine*, not intractable, without status migrainosus Menstrual *migraine*;
G43.83	Menstrual *migraine*, intractable
G43.831	Menstrual *migraine*, intractable, with status migrainosus Menstrual *migraine*;
G43.839	Menstrual *migraine*, intractable, without status migrainosus Intractable menstrual *migraine*; Menstrual *migraine*;

ICD Code	Description
G43.9	*migraine*, unspecified
G43.90	*migraine*, unspecified, not intractable
G43.901	*migraine*, unspecified, not intractable, with status migrainosus
G43.909	*migraine*, unspecified, not intractable, without status migrainosus *migraine*; *migraine* due to estrogen contraceptive; Stroke co-occurrent with *migraine*;
G43.91	*migraine*, unspecified, intractable
G43.911	*migraine*, unspecified, intractable, with status migrainosus
G43.919	*migraine*, unspecified, intractable, without status migrainosus Refractory *migraine*;
G43.A0	Cyclical vomiting, in *migraine*, not intractable
G43.A1	Cyclical vomiting, in *migraine*, intractable
G43.B	Ophthalmoplegic *migraine*
G43.B0	Ophthalmoplegic *migraine*, not intractable Ophthalmoplegic *migraine*; Ophthalmic *migraine*;
G43.B1	Ophthalmoplegic *migraine*, intractable Intractable ophthalmic *migraine*; Ophthalmoplegic *migraine*, refractory; Ophthalmoplegic *migraine*; Ophthalmic *migraine*;
G43.D	Abdominal *migraine*
G43.D0	Abdominal *migraine*, not intractable Abdominal *migraine* - symptom; Abdominal *migraine*;

ICD Code	Description
G43.D1	Abdominal *migraine*, intractable Refractory abdominal *migraine*; *migraine* variants; Refractory *migraine* variants; Abdominal *migraine*;
G44.89	Other headache syndrome Allergic *migraine*;
I63.9	Cerebral infarction, unspecified Stroke co-occurrent with *migraine*;
R11.15	Cyclical vomiting syndrome unrelated to *migraine*
T38.4X5	Adverse effect of oral contraceptives *migraine* due to estrogen contraceptive;
T38.4X5A	Adverse effect of oral contraceptives, initial encounter *migraine* due to estrogen contraceptive;
T38.4X5D	Adverse effect of oral contraceptives, subsequent encounter *migraine* due to estrogen contraceptive;
T38.4X5S	Adverse effect of oral contraceptives, sequela *migraine* due to estrogen contraceptive;
Z82.0	Family history of epilepsy and other diseases of the nervous system FH: *migraine*;
Z86.69	Personal history of other diseases of the nervous system and sense organs H/O: *migraine*; History of *migraine* with aura;

Case Study Reproduced from:

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OBJECTIVE: Objective clinical measures for use as surrogate markers of cervicogenic headache (CGH) pain have not been established. In this analysis, we investigate relationships between objective physical examination (PE) measures with self-reported CGH outcomes.

METHODS: This is an exploratory analysis of data generated by attention control PE from an open-label randomized clinical trial. Of 80 subjects, 40 were randomized to 8 treatments (spinal manipulative therapy or light massage control) and 8 PE over 8 weeks. The remaining subjects received no PE. Physical examination included motion palpation of the cervical and upper thoracic regions, active cervical range of motion (ROM) and associated pain, and algometric pain threshold evaluated over articular pillars. Self-reported outcomes included CGH and neck pain and disability, number of CGH headaches, and related disability days. Associations between PE and self-reported outcomes were evaluated using generalized linear models, adjusting for sociodemographic differences and study group.

RESULTS: At baseline, number of CGH and disability days were strongly associated with cervical active ROM ($P < .001$ to .037). Neck pain and disability were strongly associated with ROM-elicited pain ($P < .001$ to .035) but not later in the study. After the final treatment, pain thresholds were strongly associated with week 12 neck pain and disability and CGH disability and disability days ($P <$ or $= .001$ to .048).

CONCLUSIONS: Cervical ROM was most associated with the baseline headache experience. However, 4 weeks after treatment, algometric pain thresholds were most associated. No one PE measure remained associated with the self-reported headache outcomes over time.

Discussion

We have noted that, at baseline, the study participants' subjective headache experience was most associated with PE measures of inclinometric cervical active ROM and elicited pain. However, this pattern shifted at week 12, 4 weeks after the final treatment. At week 12, the measure most associated with study participants' CGH subjective outcomes was the final examination pain pressure threshold.

Inclinometric cervical active ROM and elicited pain might be expected to be more associated with higher CGH and neck pain levels early on due to potential associated splinting or muscle injury. This association did not appear in all participants because 11 (~25%) of 40 participants reported no pain on cervical ROM at baseline. However, visual inspection of the raw data shows that those who had pain elicited by cervical active ROM also had worse subjective outcomes at baseline.

Later on, after the application of manual medicine, it is expected that the relationship of baseline inclinometric cervical active ROM and elicited pain with headache/neck pain would decrease. However, with the improvement of many study participants, zero pain reported on cervical ROM increased from 11 to 20 (~50%) out of the 40 participants at their final PE; it is difficult to establish any type of linear relationship with this type of floor effect.

Differences observed between groups at low dose may be more pronounced at a higher dose as they were with the subjective outcomes. Inasmuch as these PE outcomes are associated with the subjective patient-reported outcomes, we might see a stronger association between the 2 at a higher dose. Future studies that include cervical ROM and associated pain as secondary outcomes, measured by a blinded study physician, will allow clinicians to assess these higher dose relationships.

The fact that pain pressure threshold over paraspinal tissues and joints is associated with headache/neck pain disability and frequency at 12 weeks, but not consistently throughout, is puzzling. This can be explained, in part, by the fact that the pain pressure threshold increases as the patient improves, thus avoiding the floor effect limitation that occurs in the other PE measures. In addition, the development of a relationship at 12 weeks between pain pressure threshold and persistent headaches may have occurred because other musculoskeletal components potentially associated with the neck pain and headaches were not fully affected by thrust manipulation. Perhaps SMT improved joint mobility without fully ameliorating other soft tissue components of CGH such as paraspinal trigger points. Although we were underpowered to detect this type of result, both treatment groups experienced this change in association. Still, it is likely that those who continue to have a low pain pressure threshold tolerance are more likely to have persistent symptoms and thus be candidates for further manual care.

No one PE measure remained associated with the self-reported headache discomfort questions over time. This is likely due to patient improvement or a widespread floor effect. Thus, no single objective PE surrogate measure for CGH clinical research is suggested by this study as a useful longitudinal outcome.

A different analytical approach to the data would have been to do a prediction analysis of the data to assess if these baseline PE measures are predictive of treatment outcome, as has been done by Jull and Stanton,47 who found no consistent predictors of reduction in CGH. This will be our next analysis.

It is interesting to note that study subjects in both groups remained restricted on cervical

extension after treatment (20° or 55° out of 75°, restriction on average). Cleland et al48 reported restricted cervical extension as predictive of success with SMT. Restricted cervical extension may be a part of the pathophysiology of the CGH. In addition, perhaps decreased cervical ROM on extension is indicative of a population who might experience chronic CGHs and could be a future focus of treatment assessment.

Limitations

The treating physicians who performed the attention control PE were not blinded to treatment arm after baseline. As a result, there might be significant bias in physician expectation of improvement based both on time in the study and upon treatment group assignment. However, the lack of differences between groups mitigates this concern to some degree.

With this sample size, 20 patients per treatment arm, there was minimal power to detect an association between PE and subjective outcome measures or the effect of treatment on the observed associations. The results obtained here need to be repeated by larger studies with blinded assessors to further flush out the pathophysiology of CGH.

There might be an observable relationship between patient-reported CGH measures and PE measures with a higher treatment frequency. It is possible that this potential relationship might be different between the SMT and LM groups. We plan to look at this in future studies.

The PE measures, excluding pain pressure threshold and cervical extension, all had a floor effect. As study subjects improved, the values hovered closer and closer to 0 (or normal), allowing for small amounts of variance. Although the study design excluded subjects whose CGH pain scored lower than 25 to mitigate a floor effect, baseline PE pain scores still had a maximum average of 2.3 on a 0-to-10 pain scale. Even the cervical active ROM scores were within 8° of normal ROM, on average, at baseline. Surrogate measures are difficult to find under these constraints.

Subjects answered questions about their experience over the past 4 weeks after the fact introducing a potential recall bias. Optional headache diaries were provided but not collected throughout the study to prevent this risk of bias. We chose not to require this to decrease study patient burden, thus relying on collecting the patient's subjective experience every 4 weeks throughout the study.

Generalizability beyond randomized clinical trial protocol is not clear. Subjects enrolled in the study went through a telephone screen and 2 baseline examinations and had to meet study criteria before enrollment. Larger clinical trials on headache populations that gather longitudinal PE data will help to establish the generalizability of these results.

Conclusions

At 12 weeks, a lower pain pressure threshold was indicative of those that still had the most intense subjective experience with headache pain vs cervical active ROM and pain with movement. This relationship is different from that at baseline, where the reverse was true. It is also important to note that cervical extension remained restricted throughout the study, indicating a possible direction for the study of pathophysiology behind CGHs. Although this is useful information for the practicing clinician who may use these PE indicators to track patient progress, no consistent surrogate PE measure for the CGH experience is indicated.

Yet, clinically important changes over time were observed in PE indicators for self-reported CGH pain and disability outcomes. This is an important step toward establishing objective measures of CGH pain and disability for clinical studies.

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No conflicts of interest were reported for this study. This study was supported by the National Center for Complementary and Alternative Medicine, Department of Health and Human Services (grant no. R21 AT002324).

Practical Applications

- Cervical ROM and ROM-elicited pain measures are predictive of subjective CGH experience at baseline.
- Pain pressure threshold measures are predictive of subjective CGH experience after treatment.
- Restriction of cervical active extension ROM may be typical for this population and is a possible focus for treatment assessment.
- Knowing which objective measures are indicative of CGH pain is important for clinical research as well as the practicing physician

Resources:

2020 ICD list for ICD 10 coding clarification: https://icdlist.com/?t=icd10&s=migraine

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