HEADACHE AND ITS TREATMENT

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GOD HAS DONE MARVELS FOR ME. MY HEART LEAPS WITH JOY AS I LOOKBACK AND FEEL HOW THE GOD HAS WORKED MARVELS FOR ME. I HAVE SEEN AND EXPERIENCE THE COUNTLESS BLESSING SHOWERED ON ME BY PARENTS, MY PROJECT GUID, FRIENDS AND ALL MY WELL-WISHER KNOWING THE GOD HAD IS THER, ALWAYS GUIDING ME AND LEADING ME TO GREATER HEIGHTS. I TAKE THIS OPPORTUNITY TO EXPRESS MY DEEP SENSE OF GRATITUDE TO ONE AND ALL.

It is my pleasure to submit this project report a brief studies on “HEADACHE AND ITS TREATMENT” which was undertaken for partial fulfillment of degree courses of pharmaceutical science. It has been performed and completed as per the direction of syllabus.

For the compliance of project my need was fulfilled by my guide, Shri J. R. Patel who directed me the way of working and gave me vary helpful guidance and nice co-operation.

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At this stage, how can I forget my parents, my brother Nirav and my family for their moral support and constant encouragement for completion of my work.

BIRAVA U. SHAH

(FINAL B. PHARMA)
DEDICATED TO
MY MUMMY, PAPA
AND
MY GRAND MOTHER
## INDEX

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Contents</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Diagnosis</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>General Clinical Consideration</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Classification</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>1. Primary type of Headache</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>2. Secondary type of Headache</td>
<td>24</td>
</tr>
<tr>
<td>5</td>
<td>Treatment of Headache</td>
<td>31</td>
</tr>
<tr>
<td>6</td>
<td>Conclusion</td>
<td>42</td>
</tr>
<tr>
<td>7</td>
<td>References</td>
<td>44</td>
</tr>
</tbody>
</table>
INTRODUCTION
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Headache is one of the most common human ailments and the most common complaint of patients evaluated by neurologists. Most headaches are mild and transient and are either ignored or treated by the patient with over-the-counter medications. Headache can also be severe and disabling, however and generate 3 to 5 percent of patients. The pathophysiology of headache is already reviled. While there are many different kinds of headaches 129 have been classified, tension-type and migraine headaches are most common, affecting upwards of 75 percent of the population.

Headache can occur as the result of:

1. Distention, traction, or dilation of intracranial or extra cranial arteries.
2. Traction or displacement of large intracranial veins or their dural envelope.
3. Compression, traction, or inflammation of cranial and spinal nerves.
4. Spasm, inflammation, or trauma to cranial and cervical muscles.
5. Meningeal irritation and raised intracranial pressure.
6. Other possible mechanisms such as activation of brainstem structures.
The primary headache syndromes of migraine, tension-type and cluster, Migraine and cluster headache are episodic and recurring conditions. Tension-type headache is usually episodic but may be chronic, occurring daily or almost daily for more than 15 days a month.

None of these headache are associated with demonstrable organic disease or structural neurologic abnormality. Laboratory and imaging test results are generally normal; Similarly, physical and neurologic examination results are also usually normal, but abnormalities found are not related to the headache. During the headache, however, cluster and migraine patients may have some abnormal clinical findings, and many patients with tension-type headache will have demonstrable tightness in the cervical muscles, with limitation of neck motion and/or scalp tenderness.

Secondary headaches are usually of recent onset and associated with abnormalities found on clinical examination. Laboratory testing and/or imaging studies will confirm the diagnosis. Recognizing headache related to a condition or disease is critical not because treatment of the underlying problem will usually eliminate the headache but also because the condition causing the headache may be life-threatening.
DIAGNOSIS
DIAGNOSIS

- The diagnosis of primary headache syndromes is based on the history of the condition and the symptoms described by the patient.
- Any abnormal physical or neurologic examination findings must be investigated.
- Laboratory studies may be useful in excluding metabolic or endocrine factors that may play a role.
- A high erythrocyte sedimentation rate in a patient older than 50 years with new headache onset suggests temporal arteritis.
- This diagnosis must be confirmed by temporal artery biopsy. Scans can performed to exclude intracranial causes of headache or to rule out lesions that cause neurologic or visual abnormalities associated with headache.
- Computerized tomography scanning of the paranasal sinuses is useful in evaluating the role of acute or chronic sinus infection in the etiology of the headache.
- Magnetic resonance imaging is currently the best scan for viewing the posterior fossa and occipital areas of the brain.
GENERAL CLINICAL CONSIDERATIONS
The quality, location, duration, and time course of the headache and the conditions that produce, exacerbate, or relieve it should be carefully reviewed. Ascertaining the quality of cephalic pain is occasionally helpful for diagnosis. Most tension-type headache are described as tight "bandlike" pain or as dull, deeply located, and aching pain. Jabbing, brief, sharp cephalic pain, often occurring multifocally (ice pick-like pain), is the signature of a benign, nondescript disorder. A throbbing quality and tight muscles about the head, neck, and shoulder girdle are common nonspecific accompaniments of vascular headaches.

Pain intensity rarely has diagnostic value although from the patient's perspective, it is the single aspect of pain that is most important. Although meningitis, subarachnoid hemorrhage, and cluster emergency departments with the most severe headache of their lives usually have brain tumor is not usually distinctive or severe.

Data regarding location of headache may be informative. If the source is an extraanial structure, as in giant cell arteritis, the correspondence with the site of pain is fairly precise. Inflammation of an extracranial artery causes pain and exquisite underness localized to upper cervical vertebrae induce less sharply localizes pain, but pain that is still referred in a regional distribution. Intracranial lesions in the posterior fossa cause pain that is usually
occipitonuchal, and supratentorial lesions most induce front temporal pain.

Duration and time-intensity curves of headaches are diagnostically useful. A ruptured aneurysm results in head pain that peaks is an instant, thunderclap-like; much less often, unruptured aneurysm may signal their presence in the same way. cluster headache attacks reach their peak over 3 to 5 min remain at maximal levels for about 45 min and then taper off. migraine attacks build up over hours are maintained for several hours to daya, and are characteristically relieved by sleep. sleep distruption and early morning headaches that improve during the day are characteristics of headaches produced by brain tumors.

The analysis of facial pain requires a different approach. Trigeminal and, less commonly, glossopharyngeal neuralgia are frequent causes of facial pain. "Neuralgias" are painful disorders characterized by paroxysmal, fleeting, often electric shock-like epslodes that are frequently caused by demyelinating lesions of nerves (the trigeminal or glossopharyngeal nerves in nerves in cranial neuralgains). certain maneuvers characteristically trigger paroxysms of pain. However, the most common cause of facial pain by far is dental; provocation by hot, cold, or sweet foods is typical. The application of a cold stimulus will repeatedly induce dental pain, whereas in neuralgic
disorder, refractory period usually occurs after the initial response so that pain cannot be repeatedly induced. That effect of eating on facial pain may provide insight into its cause. Is it the chewing, swallowing, or taste of the food that elicits pain? Chewing points toward trigeminal neuralgia, temporomandibular joint dysfunction, or giant cell arteritis ("jaw claudicating"). Whereas swallowing and taste provocation point toward gloss pharyngeal neuralgia. Pain upon swallowing is common among patients with carotidynia (see below) because the inflamed, tender carotid artery abuts the esophagus during deglutition.

Many patients with facial pain do not experience stereotypic neuralgias; the term atypical facial pain has been used in this setting.
CLASSIFICATION OF HEADACHE
CLASSIFICATION OF HEADACHE

classification of the primary types of headaches are as follows:

1. Migraine
   - Migraine without aura
   - Migraine with aura
   - Ophtalmoplegic migraine
   - Retinal migraine
   - Childhood periodic syndromes that may be precursors to or associated with migraine
   - Migrainous disorder not fulfilling above criteria

2. Tension-type headaches
   - Episodic tension-type headache
   - Chronic tension-type headache

3. Cluster headaches and chronic paroxysmal hemicrania
   - Cluster headache
   - Chronic paroxysmal hemicrania

4. Miscellaneous headache:
   - not associated with structural lesion
     - Idiopathic stabbing headache
     - External compression headache
     - Cold stimulus headache
     - Benigh cough headache
     - Benigh extertional headache
     - Headache associated with sexual activity
   - Headache associated with head trauma
     - Acute posttraumatic headache
     - Chronic posttraumatic headache
- **Headache associated with vascular disorders**
  - Acute ischemic cerebrovascular disorder
  - Intracranial hematoma
  - Subarachnoid hemorrhage
  - Unruptured vascular malformation
  - Arteries
  - Carotid or vertebral artery pain
  - Venous thrombosis
  - Arterial hypertension
  - Other vascular disorder

- **Headache associated with nonvascular intracranial disorder**
  - High CSF pressure
  - Low CSF pressure
  - Intracranial infection
  - Sarcodosis and other noninfectious inflammatory diseases
  - Related to intrathecal injections
  - Intracranial neoplasm
  - Associated with other intracranial disorder

- **Headache associated with substances or their withdrawal**
  - Headache induced by acute substance use or Exposure
  - Headache induced by chronic substance use or exposure
  - Headache from substance withdrawal (acute use)
  - Headache from substance withdrawal (chronic use)

- **Headache associated with noncephalic infection**
  - Viral infection
  - Bacterial infection
  - Other infection
- **Headache associated with metabolic disorder**
  - Hypoxia
  - Hypercapnia
  - Mixed hypoxia and hypercapnia
  - Hypoglycemia
  - Dialysis
  - Other metabolic abnormality

- **Headache or facial pain associated with disorder of facial or cranial structures**
  - Cranial bone
  - Eyes
  - Ears
  - Nose and sinuses
  - Teeth, Jaws, and related structures
  - Temporomandibular joint disease

- **Cranial neuralgias, nerve truck pain, and differentiation pain**
  - Persistent (in contrast to tic like) pain of cranial nerve origin
  - Trigeminal neuralgia
  - Nervus intermedius neuralgia
  - Superior laryngeal neuralgia
  - Occipital neuralgia
  - Central causes of head and facial pain other than tic douloureux

- **Headache not classifiable**
1. Migraine:

A large percentage of headache patients will be diagnosed as having migraine, a specific subtype of headache afflicting approximately 10% to 20% of the population. Migraine is a specific neurological syndrome that has a wide variety of manifestations. At the most basic level, migraine without aura can be defined as a throbbing (unilateral) headache with associated nausea, mood and appetite change. A migraine attack usually lasts from hours to days and is followed by prolonged pain-free intervals. Migraine also may be preceded by a focal neurological phenomenon called an "aura". The aura is most commonly experienced as a visual alteration, but it may involve sensory and/or motor changes. Auras also may occur without an associated headache. As many as 6 percent of all men and up to 18 percent of all women, the average 12 percent of the population suffer from migraine. The international headache society (his) defined the major types of migraine are follows:

1. Migraine Without aura (common migraine)
2. Migraine with aura (classic migraine)
   - Migraine with typical aura
   - Migraine with prolonged aura
   - Familial hemiplegics migraine
   - Basilar migraine
   - Migraine aura without headache
   - Migraine with acute-inset aura
fig; path physiology of migraine with 'Aura'

PG: Prostaglandins; CGRP: Calcitonin gene related peptide;
VIP: Vasoactive intestinal peptide; NA: noradrenaline; 5-HT; 5-hydroxy tryptamine.
3. Ophthalmoplegic Migraine

4. Retinal Migraine.

What cause headaches, especially migraine is not exactly known. However, it is known that certain factors trigger headaches are given in Table 1, modulation of trigger factors may have a significant beneficial impact on the overall migraine pattern.

One theory is that certain events or substances can set off an imbalance of naturally occurring chemicals in the brain, causing the blood vessels of the head to expand. The area around this blood vessels becomes inflamed and irritates nerve endings. This dilation and irritation may account for the throbbing pain, showing migraine, tension type and cluster headaches.

Migraine is believed to be a hereditary condition, it is also more prevalent among women than men. Approximately 75 percent of suffers are females. Although migraine can occur at any age, it often begins in adolescence. During advancing years, migraine generally occurs with diminishing frequency. The duration of migraine attacks varies. Treatment plans may vary, depending on the
frequency of the attacks, their causes and whether the benefits of certain treatments out weigh the risks.

5-HT is a transmitter in the central nervous system and present in high concentration in localized regions of the mid brain. 5-HT receptors occur mainly in the brain, the subtypes being distinguished on the basis of their regional distribution and their pharmacological specificity. Their functional mainly as inhibitory presynaptic receptors and are linked to inhibition of acetylated cyclase. The 5-HT subtypes, which is expressed in cerebral blood vessels, is be lived to be important in migraine and is the target for sumatriptan, an agonist at 5-HT receptors, used to treat acute attacks. Sumatriptan is an effective agent in the acute treatment of migraine attacks. The drug has been studied in more than 10,000 patients world wide in more than 6 clinical trials. Contraindicated inpatients with ischaemic hear disease because of tendency to cause chest pain owing to coronary artery spasm. Newer compounds, e.g. zolmoptriptan, alnitidan, are claimed to be faster acting by mount and do not cause chest pain. Serotonergic mechanism of migraine is given.

The most extensive clinical studies to date have analysed the effects of flunarizine, a relatively weak ca2 + channel antagonist. In
addition, a number of case reports and a small clinical trials have suggested that diltiazem, verapamil, nifedipine and nimodipine decrease the frequency and severity of migraine. These agents sometimes are used to treat acute migraine. Side effects develop in 20% to 160% of the patients. But usually are mild and consist of constipation and mild orthostatic hypotension.

2. **Tension-type headaches (TTH)**

   Tension-type headaches are typically a steady ache rather than a throbbing one and affect both sides of the head. TTH is a non-specific headache. Which is not vascular or migrainous and is not related to organic disease. It is caused by tightening of the muscles in the back of the neck and scalp.

   There are two general classifications of TTH:

   1. **Episodic-TTH:**

      It is usually triggered by some kind of environmental or internal stress. This in turn stimulates a spontaneous, overexcitable state and lasts for the period of time in which the individual is stressed.

   2. **Chronic-TTH.**
It is the daily or continuous headache which may have some variability in the intensity of the pain during a 24 hour cycle. It is always present and there may be some soreness, constricting band sensation, weight or pressure-like sensations and often a sensation of a tight skull cap. Many of these patients complain of early or frequent awakening, assign of underlying depression.

3 **Vascular headaches:**

It refers to a group of headache conditions in which blood vessel dilation or swelling is the major component in the production of pain. The blood vessels in the tissue surrounding the head swell and become distended, thus causing the pain. It is usually throbbing in character and physical exertion increases the pain.

4 **Cluster headaches:**

Cluster headaches come in groups or clusters lasting weeks or month. The pain is extremely severe but the attack is brief, lasting no more than an hour or two. The pain centers around a one eye and this eye may be inflamed and watery. There may also be nasal congestion on the affected side of the face. Term "Cluster headache" refers to the characteristic grouping of attacks. The headaches occur in group or clusters and the cause is unknown. Cluster is one of the least common
type of headaches. It is vascular in nature and is caused by swelling of the blood vessels of the head.

The pain of cluster headaches is generally very intense and severe and is often described as having a burning or piercing quality. It may be throbbing or constant. The scalp may be tender and the arteries often can be felt increasing their pulsation. Although the pain of a cluster headache starts suddenly, a minimal type of warning of the one coming headache may occur, including a feeling of discomfort or a mild one-sided burning sensation. The pain of cluster headache is almost always one-sided and during a series, the pain remains on the same side, when a new series starts, it can occur on the opposite side. The pain is localized behind the eye or in the eye region. It may radiate to the forehead, temple, nose, cheek or upper gum on the affected side.

5. Sinus headache:

The headache of sinus origin or acute sinusitis is usually associated with constant pain and tenderness over the affected sinus, a deep dull ache and exaggerated by head movements of straining. Nasal symptoms are prominent, including sinus pain which is usually accompanied by other symptoms of sinus disease such as nasal discharge. Ear sensations or fullness and facial swelling. Allergic reactions and turner in the sinuses also can produce inflammation,
swelling and blockage of the sinuses. However, vascular headaches can cause similar symptoms. The vast majority of people who think they are experiencing "sinus" problems are actually suffering from a vascular type of headache. When sinus disease is the cause of headache, an accompanying fever is often present and X-rays will indicate some sinus blockage.

6. Ice cream headaches:

Short-lived headaches may occur after eating very cold foods of foods high in nitrites or monosodium glutamate. Headache is associated with nerves and blood vessels around the brain, certain nerves of the face, mouth land throat and the muscles in the head and neck (unpublished data). When the nerves in these structures become over stimulated, inflamed or damaged, pain signals flash along neural path ways to the brain and the person experiences a headache.

7. Thunderclap headaches:

There have been articles in the medical literature describing a sudden, severe headache which may mimic a thunderclap in its intensity and severity32. Some researchers feel it may be a warning of an impending rupture of an aneurysm or weak blood vessel.
8. Headaches in children:

Headache is a frequent symptom in children but deciding whether it is organic or functional can be a difficult task. Headaches in kinds are almost always related to stress situations at school, competition, family friction or excessive demands by parents. Children exhibiting car or motion sickness, especially there is history of migraine in the family, will often develop migraine later. A high percentage of children with migraine have ECG abnormalities, diffuse slowing, focal slowing or paroxysmal changes.
Secondary headaches

Headaches that are symptoms of another disease are known as secondary headaches. Headache diagnosis may be difficult, since many disorders have overlapping characteristics. The classifications of the secondary type of headaches are as follows:

1. Analgesic rebound headache
2. Ergotamine rebound headache
3. Headache due to muscle contraction
4. Headache of delusional
5. Cranial neuralgia
6. Hangover headache
7. Caffeine withdrawal headache
8. Early morning hypertensive headache
9. Systemic infections and constipation
10. Tumor headache
11. Hematomas and abscess
12. Lumber puncture
13. Headache due to eye, ears, nose and sinus disorders
1. **Analgesic rebound headaches:**

   Usage of analgesic on a daily or almost daily basis, will actually perpetuate the headache process. When used in this manner, these pills may decrease the intensity of the pain for a few hours. However, the analgesics appear to feed into the pain system in such a way that chronic headache may result. If under these circumstances the patient dose not completely stop pills, despite any other treatment undertaken, the chronic headache is likely to continue unabated. What usually happens when the analgesics are discontinued is that the headache may get worse for several days and there may be nausea and vomiting. However, after a period of three to five days and sometimes longer, these symptoms begin to improve.

2. **Ergotamine rebound headache:**

   Ergotamine abuse is a particular danger with migraine sufferers using the drug every day. However, the reason the headaches recur so often may be the constant use of ergotamine titrate on a daily basis. A patient having rebound headaches may have a rough time for several days when the medication is stopped, but if given enough time, the daily headaches will disappear.
3. **Headache due to muscle contraction:**

   (i) Acute muscle contraction headache; This is often self treated, physicians rarely being consulted. Single attacks are mild, short lived, non-throbbing with a generalized distribution. Attacks last for two to four hours duration and lack associated phenomenon such as nausea, photophobia or autonomic symptoms. This is a case in which, the muscle contraction to be a reflex response to vascular pain, When a pain is produced around the vascular bed of the head, skeletal muscles in adjacent areas may contract, if the pain stimulus is brief, the muscles contraction is also short. However, if the painful stimulus persists, long lasting contraction of the muscles of the head and neck and even of jaws and face may take place.

   (II) Chronic muscles contraction headache: Mean age of onset of the headache is 30 years with preponderance in females. The pain is dull in intensity, aching, pressure like constricting or giving a sense of fullness, location of the pain is frontal, temporal or from frontal to temporal.

4. **Headache of delusional:**

   This type of Headache generally found in neurotic patients, who suffered with continual pain. The pain of these patients is analogous to
other somatic disturbances in hysterical patients, for example paralyses or impaired special senses. A more definite psychiatric entity is the uncommon complaint of bizarre headache heard from the psychotic patients. In these patients the headache is part of an overtly expressed delusional system.

5. Cranial neuralgia:

Neuralgia is a condition of paroxysmal pain in the distribution of a nerve without demonstrable neuralgic deficit and more specifically, cranial neuralgia designates a neuralgia confides to the head. The pain feels like sudden electric shocks and it will appear for only a few seconds at a time or may be almost continuous.

6. Hangover headache:

The alcoholic metabolite acetaldehyde directly irritates the meanings and causes intra crania; pain as it toxic to the tissues.

7. caffeine Withdrawal headache:

Withdrawal of regular intake of caffeine will result in rebound headache. Phosphodiesterase is inhibited by caffeine which is present in
small amount in coffee. This produces a marked increase in cerebra; vascular resistance and reduce cerebral blood flow and the CSF pressure, which results in of hypertensive headache.

8. **early morning hypertensive headache:**

The headache Occurs in the morning up on arising and subsides during the day. Some studies have shown that rapidly advancing hypertension which causes cerebral edema might results in headache, dulling of consciousness and focal neurological signs. This was further confirmed by a study in which headache was found to be associated with diastolic pressure over 120 to 130 mm of Hg.

9. **Systemic infections and constipation:**

constipation causes headache in many people, Because it has been shown that constipation headache can occur in persons whose spinal cords have been cut, this type of headache is not caused by nervous impulses from the colon. It possibly results from adsorbed toxic products or from changes in the circulatory system resulting from loss of fluid in to the get.
10. **Tumor headache:**

The location of tumor or other masses does not seem to correlate will with the presence or absence of headache although lesions of the posterior fosse of skull are particularly productive of severe headache. Speed of the tumor growth seem to ioniversally occurs in association with increased intra cranial pressure.

11. **Hematomas and abscess:**

Non neoplastic space occupying lesions are often acute and surrounded with edema. They are usually present with signs on the neurologic examination and often with impaired state of consciousness, but the patient with subdural heamatoma occasionally present with headache as the only finding.

12. **Lumber puncture:**

Removing small amount of fluid from the spinal canal particularly if the patients remain in the upright position often causes intense intracranial headache. Removing this quantity of fluid removes the floatation for the brain that is normally provided by CSF, Therefore
the weight of the brain stretches the various dural surfaces and there by elicits the pain, which causes the headaches.

13. **Headache due to eyes, ears, nose and sinus disorders:**

infection or other irrigative processes in widespread area of the nasal structure usually cause headache that id referred behind the eyes, or in the case of frontal sinus infection to the frontal surface of the forehead or skull. Similarly otitis, mastoiditis, pharyngitis and other localized diseases of the ear or pharyngitis and other localized diseases of the ear or pharynx rarely present with generalized headache. In addition a variety of ophthalmic diseases, such as iritic and conjunctivitis, may produce headache but they are rarely diagnostic problems.

14. **Headache due to allergic states:**

Exposure to certain exogenous agents seems to be a major source of headache in some individuals for example nitrites, sodium glutamate, pollution and other inorganic metals. Disturbance of the immunologic mechanism is one of the sources of headache. Food allergy is the major source of migraine, a variety of foods have been implicated such as cereals, chocolates and dairy products.
TREATMENT
OF
HEADACHE
TREATMENT OF HEADACHE

Treatment of headaches involves pharmacological and non-pharmacological measures and this may show synergistic effect. Pharmacological therapy for both types of headaches will be given in Table III. Non-pharmacological therapy includes Relaxation exercises, Yoga and Meditation, psychological counseling, quitting smoking etc.

➢ NON PHARMACOLOGICAL THERAPY

- **Relaxation exercises:** Engage in deep breathing exercises, such as walking, running, bicycling, swimming or playing tennis, four to five times a week. They not only have been shown to make a significant difference in reducing headaches but also will give you a general sense of well being. Ice packs are most effective to treat headache, the better. Besides applying it to the painful area, try placing it on the back of the neck, fore-head and temples. Heat can sometimes-hasten relaxation, increase blood flow and relax muscles. Rest in a dark room often a nap can give the brain an opportunity to get back to normal. Also relaxation technique including biofeedback.

- **Relaxation techniques:** Like biofeedback, These techniques can significantly reduce the effect of stress on your body, including, but not limited to, your headache.
- **Biofeedback:** Biofeedback helps control the body's responses, including blood flow, blood pressure, and pulse rate. Techniques for achieving biofeedback include relaxation techniques, imagery, and self-hypnosis.

- **Psychological Counseling:** Chronic tension type headaches can be manifestations of underlying depression or anxiety, which can be offset with counseling.

- **Quitting Smoking:** Smoking is a risk factor for every type of headache because it constricts blood vessels and depletes oxygen and blood flow to the head.

- **Regular Habits:** Getting enough sleep, eating a healthy diet, and having a regular exercise schedule all help to reduce tension type headache risk.

- **Yoga and Meditation:** Meditation goes a long way in reliving stress, perhaps the most common factor for general well being and for curing headaches.

- **Non pharmacological Approaches for All Migraineurs:** Migraine can often be managed to some degree by a variety of non pharmacological approaches. The measures that apply to a given individual should be used routinely since they provide a simple, Cost-effective approach to migraine anagement. Patents with migraine do not
encounter more stress than headache-free individuals; over responsiveness to stress appears to be the issue. Since the stresses of everyday living cannot be eliminated, lessening one's response to stress by various techniques is helpful for many patients. These include yoga, transcendental meditation, hypnoses, and conditioning techniques such as biofeedback. For most patients, this approach is, at best, an adjunct to pharmacotherapy. Avoidance of migraine trigger factors may also provide significant prophylactic benefits. Unfortunately, these measures are unlikely to prevent all migraine attacks. When these measures fail to prevent an attack, then pharmacologic approaches are needed to abort an attack.

- **Pharmacologic Treatment of Acute Migraine:** The mainstay of pharmacologic therapy is judicious use of one or more of the many drugs that are effective in migraine. The selection of the optimal regimen for a given patient depends on a number of factors, the most important of which is the severity of the attack. Mild migraine attacks can usually be managed by oral agents; the average efficacy rate is 50-70% Severe migraine attacks may require potential therapy. Most drugs effective in the
treatment of migraine are members of one of three major pharmacologic classes: anti-inflammatory agents, 5-HT1 agonists, and dopamine antagonists.

In general, an adequate dose of whichever agent is chosen should be used as soon as possible after the onset of an attack. If additional medication is required within 60 min because symptoms return or have not abated, the initial does should be increased for subsequent attacks. Migraine therapy must be individualized for each patient; a standard approach for all patients is not possible. A therapeutic regimen may need to be constantly refined and personalized until one is identified that provides the patient with rapid, complete, and consistent relief with minimal side effects.

**Treatment of tension-type headache:**

Tricyclic antidepressants (low does therapy, 10-80 F mg.)

- Amitriptyline
• Nortriptiline

Requires close medical supervision and dietary restrictions
  • Antidepressants
    • Imipramine

Antidepressants are good patients with depression and pain syndromes.

Muscles relaxants (intermittent use during flare-ups, consider Cyclobezaprine 10-30mg.)

Anti-inflammatory agents

Analgesics (for short term 1-2 weeks only if needed, while stabilizing patients)
- Non opioid analgesics
  Asprine

- Enteric and rectal forms have slower onset and effervescent form has faster onset.

- Acetaminophen

- Ibuprofen

 Ibuprofen may have fewer gastrointestinal side effects than other NSAIDs

- Neuroleptic
  - Procloprozine
    Has antiemetic effect. Monitor for orthostatic hypotension when administering IV/IM.
• Chlorpromazine

Has antiemetic effect. Monitor for dizziness and drowsiness.

Use Myofacial Pain Protocol including stretching, Fluorimethane Spray & Stretch, moist heat and ice.

Behavior modification therapy, biofeedback, stress management.

➢ Abortive treatment of cluster headache:
  o Oxygen inhalation (100% oxygen at 7-10 liters/min. for 15 min.)
  o Samaritan (6mg. sc.) or DHE-45 (1mg I.M)
  o Ergotamine preparation (1-2 mg.)
  o Analgesics and anti-inflammatory agents (rarely useful and can cause rebound phenomenon)

➢ Prophylactic treatment of cluster headache
  o Episodic Cluster headache
    Methysergide (4-6 mg/day, maximum 6 months)
Methysergide

calcium channel blockers (verapamil 240-480 mg./day)
- Verapamil
- Nimodipine

Higher doses needed for cluster headaches.
calcium channel blockers are good for patients with prolonged aura.
Steroids (short course with rapid taper, 40-60mg./day for 2 weeks)
Lithium carbonate (dose to attain usual therapeutic range)
Ergotamine tartarate (2-4 mg./day for a short period)

- Methyl ergonovine

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Methyl ergonovine
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- Indomethacin (75-150 mg./day for CPH)

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Indomethacin
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- Corticosteroids
  - Dexamethasone

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Dexamethasone
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- Prednisone

- Miscellaneous
  - Lidocaine

- Chronic cluster headache

  Lithium carbonate (dose to attain usual therapeutic range)
  Verapamil (240-480 mg./day) Intermittent courses of methysergide of prednisone Temporary or permanent denervation of trigeminal nerve a small percentage of chronic cluster headache where, patients may become resistant to all forms of medical therapy. In this situation, selective lesions made in the trigeminal pain pathways may have to be used for pain relief.
CONCLUSION
Conclusions

- Headache is an almost universal experience.

- Most headache are mild and transient and either ignored or treated by the patient with over-the-counter medications.

- Headaches can also be severe and disabling, however and generate 3 to 5 percent of patients.

- There are many kinds of headaches, in which tension type and migraine headaches are most common, affecting upwards of 75 percent of all headache sufferers.

- Headache diagnosis may be difficult, changing concepts of headache pathogenesis have helped develop new headache treatments.

- Available without prescription, OTC pain relievers contain powerful, effective ingredients. There are several different group of OTC pain relievers.

- The most appropriate way to select a medication or combination of medications is to weigh the desired effect against potential side effects.

- Patients also take care of trigger factors.

- Non pharmacological therapy may also be helpful to patients who suffering with various types of headaches.
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INDEX

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Contents</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Diagnosis</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>General Clinical Consideration</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Classification</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Primary type of Headache</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>2. Secondary type of Headache</td>
<td>24</td>
</tr>
<tr>
<td>5</td>
<td>Treatment of Headache</td>
<td>31</td>
</tr>
<tr>
<td>6</td>
<td>Conclusion</td>
<td>42</td>
</tr>
<tr>
<td>7</td>
<td>Reference</td>
<td>44</td>
</tr>
</tbody>
</table>
INTRODUCTION
INTRODUCTION

Headache is one of the most common human ailments and the most common complaint of patients evaluated by neurologists. Most headaches are mild and transient and are either ignored or treated by the patient with over-the-counter medications. Headache can also be severe and disabling, however and generate 3 to 5 percent of patients. The pathophysiology of headache is already reviled. While there are many different kinds of headaches 129 have been classified, tension-type and migraine headaches are most common, affecting upwards of 75 percent of the population.

Headache can occur as the result of

1. Distention, traction, or dilation of intracranial or extra cranial arteries.
2. Traction or displacement of large intracranial veins or their dural envelope.
3. Compression, traction, or inflammation of cranial and spinal nerves.
4. Spasm, inflammation, or trauma to cranial and cervical muscles.
5. Meningeal irritation and raised intracranial pressure.
6. Other possible mechanisms such as activation of brainstem structures.
The primary headache syndromes of migraine, tension-type and cluster, migraine and cluster headache are episodic and recurring conditions. Tensions-type headache is usually episodic but may be chronic, occurring daily or almost daily for more than 15 days a month.

None of these headache are associated with demonstrable organic disease or structural neurologic abnormality. Laboratory and imaging test results are generally normal; Similarly, physical and neurologic examination results are also usually normal, but abnormalities found are not related to the headache. During the headache, however, cluster and migraine patients may have some abnormal clinical findings, and many patients with tension-type headache will have demonstrable tightness in the cervical muscles, with limitation of neck motion and/or scalp tenderness.

Secondary headaches are usually of recent onset and associated with abnormalities found on clinical examination. Laboratory testing and/or imaging studies will confirm the diagnosis. Recognizing headache related to a condition or disease is critical not because treatment of the underlying problem will usually eliminate the headache but also because the condition causing the headache may be life-threatening.
DIAGNOSIS
DIAGNOSIS

- The diagnosis of primary headache syndromes is based on the history of the condition and the symptoms described by the patient.
- Any abnormal physical or neurologic examination findings must be investigated.
- Laboratory studies may be useful in excluding metabolic or endocrine factors that may play a role.
- A high erythrocyte sedimentation rate in a patient older than 50 years with new headache onset suggests temporal arteritis.
- This diagnosis must be confirmed by temporal artery biopsy. Scans can performed to exclude intracranial causes of headache or to rule out lesions that cause neurologic or visual abnormalities associated with headache.
- Computerized tomography scanning of the paranasal sinuses is useful in evaluating the role of acute or chronic sinus infection in the etiology of the headache.
- Magnetic resonance imaging is currently the best scan for viewing the posterior fossa and occipital areas of the brain.
GENERAL CLINICAL CONSIDERATIONS
GENERAL CLINICAL CONSIDERATIONS

The quality, location, duration, and time course of the headache and the conditions that produce, exacerbate, or relieve it should be carefully reviewed. Ascertaining the quality of cephalic pain is occasionally helpful for diagnosis. Most tension-type headache are described as tight "bandlike" pain or as dull, deeply located, and aching pain. Jabbing, brief, sharp cephalic pain, often occurring multifocally (ice pick-like pain), is the signature of a benign, nondescript disorder. A throbbing quality and tight muscles about the head, neck, and shoulder girdle are common nonspecific accompaniments of vascular headaches.

Pain intensity rarely has diagnostic value although from the patient's perspective, it is the single aspect of pain that is most important. Although meningitis, subarachnoid hemorrhage, and cluster emergency departments with the most severe headache of their lives usually have brain tumor is not usually distinctive or severe.

Data regarding location of headache may be informative. If the source is an extraanial structure, as in giant cell arteritis, the correspondence with the site of pain is fairly precise. Inflammation of an extracranial artery causes pain and exquisite underness localized to upper cervical vertebrae induce less sharply localizes pain, but pain that is still referred in a regional distribution. Intracranial lesions in the posterior fossa cause pain that is usually
occipitonal, and supratentorial lesions most induce front temporal pain.

Duration and time-intensity curves of headaches are diagnostically useful. A ruptured aneurysm results in head pain that peaks is an instant, thunderclap-like; much less often, unruptured aneurysm may signal their presence in the same way. Cluster headache attacks reach their peak over 3 to 5 min remain at maximal levels for about 45 min and then taper off. Migraine attacks build up over hours are maintained for several hours to days, and are characteristically relieved by sleep. Sleep disruption and early morning headaches that improve during the day are characteristics of headaches produced by brain tumors.

The analysis of facial pain requires a different approach. Trigeminal and, less commonly, glossopharyngeal neuralgia are frequent causes of facial pain. "Neuralgias" are painful disorders characterized by paroxysmal, fleeting, often electric shock-like episodes that are frequently caused by demyelinating lesions of nerves (the trigeminal or glossopharyngeal nerves in nerves in cranial neuralgains). Certain maneuvers characteristically trigger paroxysms of pain. However, the most common cause of facial pain by far is dental; provocation by hot, cold, or sweet foods is typical. The application of a cold stimulus will repeatedly induce dental pain, whereas in neuralgic
disorder, refractory period usually occurs after the initial response so that pain cannot be repeatedly induced. That effect of eating on facial pain may provide insight into its cause. Is it the chewing, swallowing, or taste of the food that elicits pain? Chewing points toward trigeminal neuralgia, temporomandibular joint dysfunction, or giant cell arteritis ("jaw claudicating"). Whereas swallowing and taste provocation point toward gloss pharyngeal neuralgia. Pain upon swallowing is common among patients with carotidynia (see below) because the inflamed, tender carotid artery abuts the esophagus during deglutition.

Many patients with facial pain do not experience stereotypic neuralgias; the term atypical facial pain has been used in this setting.
CLASSIFICATION
OF
HEADACHE
CLASSIFICATION OF HEADACHE

classification of the primary types of headaches are as follows:

1. Migraine
   - Migraine without aura
   - Migraine with aura
   - Ophtalmoplegic migraine
   - Retinal migraine
   - Childhood periodic syndromes that may be precursors to or associated with migraine
   - Migrainous disorder not fulfilling above criteria

2. Tension-type headaches
   - Episodic tension-type headache
   - Chronic tension-type headache

3. Cluster headaches and chronic paroxysmal hemicrania
   - Cluster headache
   - Chronic paroxysmal hemicrania

4. Miscellaneous headache:
   - not associated with structural lesion
     - Idiopathic stabbing headache
     - External compression headache
     - Cold stimulus headache
     - Benigh cough headache
     - Benigh exertional headache
     - Headache associated with sexual activity
   - Headache associated with head trauma
     - Acute posttraumatic headache
     - Chronic posttraumatic headache
- **Headache associated with vascular disorders**
  - Acute ischemic cerebrovascular disorder
  - Intracranial hematoma
  - Subarachnoid hemorrhage
  - Unruptured vascular malformation
  - Arteries
  - Carotid or vertebral artery pain
  - Venous thrombosis
  - Arterial hypertension
  - Other vascular disorder

- **Headache associated with nonvascular intracranial disorder**
  - High CSF pressure
  - Low CSF pressure
  - Intracranial infection
  - Sarcodosis and other noninfectious inflammatory diseases
  - Related to intrathecal injections
  - Intracranial neoplasm
  - Associated with other intracranial disorder

- **Headache associated with substances or their withdrawal**
  - Headache induced by acute substance use or exposure
  - Headache induced by chronic substance use or exposure
  - Headache from substance withdrawal (acute use)
  - Headache from substance withdrawal (chronic use)

- **Headache associated with noncephalic infection**
  - Viral infection
  - Bacterial infection
  - Other infection
- **Headache associated with metabolic disorder**
  - Hypoxia
  - Hypercapnia
  - Mixed hypoxia and hypercapnia
  - Hypoglycemia
  - Dialysis
  - Other metabolic abnormality

- **Headache or facial pain associated with disorder of facial or cranial structures**
  - Cranial bone
  - Eyes
  - Ears
  - Nose and sinuses
  - Teeth, Jaws, and related structures
  - Temporomandibular joint disease

- **Cranial neuralgias, nerve truck pain, and differentiation pain**
  - Persistent (in contrast to tic like) pain of cranial nerve origin
  - Trigeminal neuralgia
  - Nervus intermedius neuralgia
  - Superior laryngeal neuralgia
  - Occipital neuralgia
  - Central causes of head and facial pain other than tic douloureux

- **Headache not classifiable**
1. Migraine:

A large percentage of headache patients will be diagnosed as having migraine, a specific subtype of headache afflicting approximately 10% to 20% of the population. Migraine is a specific neurological syndromes that has a wide variety of manifestations. At the most basic level, migraine without aura can be defined as a throbbing (unilateral) headache with associated nausea, mood and appetite change. A migraine attack usually lasts from hours to days and is followed by prolonged pain free intervals. Migraine also may be preceded by a focal neurological phenomenon called an "aura". The aura is most commonly experienced as a visual alteration, but it may involve sensory and/or motor changes. Auras also may occur without an associated headache. As many as 6 percent of all men and up to 18 percent of all women, the average 12 percent of the population suffers from migraine. The international headache society (his) defined the major types of migraine are follows:

1. Migraine Without aura (common migraine)
2. Migraine with aura (classic migraine)
   - Migraine with typical aura
   - Migraine with prolonged aura
   - Familial hemiplegics migraine
   - Basilar migraine
   - Migraine aura without headache
   - Migraine with acute-inset aura
fig; path physiology of migraine with 'Aura'

PG: Prostaglandins; CGRP: Calcitonin gene related peptide;
VIP: Vasoactive intestinal peptide; NA: noradrenaline; 5-HT; 5-hydroxy tryptamine.
3. Ophthalmoplegic Migraine

4. Retinal Migraine.

What causes headaches, especially migraine is not exactly known. However, it is that certain factors trigger headaches are given in table I, modulation of trigger factors may have a significant beneficial impact on the overall migraine pattern.

One theory is that certain events or substances can set off an imbalance of naturally occurring chemicals in the brain, causing the blood vessels of the head of expand. The area around this blood vessels becomes inflamed and irritates nerve ending. This dilation and irritation may account for the throbbing pain, showing migraine, tension type and cluster headaches.

Migraine is believed to be a hereditary condition, it is also more prevalent among women than men. Approximately 75 percent of sufferers are females. Although migraine can occur at any age, it often begins in adolescence. During advancing years, migraine generally occurs with diminishing frequency. The duration of margarine attacks varies. Treatment plans may vary, depending on the
frequency of the attacks, their causes and whether the benefits of certain treatments out weigh the risks.

5-HT is a transmitter in the central nervous system and present in high concentration in localized regions of the mid brain. 5-HT receptors occur mainly in the brain, the subtypes being distinguished on the basis of their regional distribution and their pharmacological specificity. Their functional mainly as inhibitory presynaptic receptors and are linked to inhibition if acetylated cyclase. The 5-HT subtypes, which is expressed in cerebral blood vessels, is be lived to be important in migraine and is the target for sumatriptan, an agonist at 5-HT receptors, used to treat acute attacks. Sumatriptan is an effective agent in the acute treatment of migraine attacks. The drug has been studied in more than 10,000 patients world wide in more than 6- clinical trials. Contraindicated inpatients with ischaemic hear disease because of tendency to cause chest pain owing to coronary artery spasm. Newer compounds, e.g. zolmotriptan, alnitidan, are claimed to be faster acting by mount and do not cause chest pain. Serotonergic mechanism of migraine is given.

The most extensive clinical studies to date have analysed the effects of flunarizine, a relatively weak ca2+ channel antagonist. In
addition, a number of case reports and a small clinical trials have suggested that diltiazem, verapamil, nifedipine and nimodipine decrease the frequency and severity of migraine. These agents some times are use to treat acute migraine. Side effects develop in 20% to 160% of the patients. But usually are mild and consist of constipation and mild orthostatic hypotension.

2. **Tension-type headaches (TTH)**

Tension-type headaches are typically a steady ache rather than a throbbing one and affect both sides of the head. TTH is a non-specific headache. Which is not vascular or migrainous and is not related to organic disease. It is caused by tightening of the muscles in the back of the neck and scalp.

There are two general classification of TTH:

1. **Episodic-TTH:**

   It is usually triggered by some kind of environmental or internal stress. This in turn stimulates a spontaneous, over excitable state and lasts for the period of time in which the individual is stressed.

2. **Chronic-TTH.**
It is the daily or continuous headache which may have some variability in the intensity of the pain during a 24 hour cycle. It is always present and there may be some soreness, constricting band sensation, weigh or pressure like sensations and often a sensation of a tight skull cap. Many of these patients complain of early or frequent waking, assign of underlying depression.

3 Vascular headaches:

It refers to a group of headache conditions in which blood vessel dilation or swelling is the major component in the production of pain. The blood vessels in the tissue surrounding the head swell and become distended, thus causing the pain. It is usually throbbing in character and physical exertion increases the pain.

4 Cluster headaches:

Cluster headaches come in groups or clusters lasting weeks or month. The pain is extremely severe but the attack is brief, lasting no more than an hour or two. The pain centers around a one eye and this eye may be inflamed and watery. There may also be nasal congestion on the affected side of the face. Term "Cluster headache" refers to the characteristic grouping of attacks. The headaches occur in group or clusters and the cause is unknown. Cluster is one of the least common
type of headaches. It is vascular in nature and is caused by swelling of the blood vessels of the head.

The pain of cluster headaches is generally very intense and severe and is often described as having a burning or piercing quality. It may be throbbing or constant. The scalp may be tender and the arteries often can be felt increasing their pulsation. Although the pain of a cluster headache starts suddenly, a minimal type of warning of the one coming headache may occur, including a feeling of discomfort or a mild one-sided burning sensation. The pain of cluster headache is almost always one sided and during a series, the pain remains on the same side, when a new series starts, it can occur on the opposite side. The pain is localized behind the eye or in the eye region. It may radiate to the forehead, temple, nose, cheek or upper gum on the affected side.

5. Sinus headache:

The headache of sinus origin or acute sinusitis is usually associated with constant pain and tenderness over the affected sinus, a deep dull ache and exaggerated by head movements of straining. Nasal symptoms are prominent, including sinus pain which is usually accompanied by other symptoms of sinus disease such as nasal discharge. Ear sensations or fullness and facial swelling. Allergic reactions and turner in the sinuses also can produce inflammation,
swelling and blockage of the sinuses. However, vascular headaches can cause similar symptoms. The vast majority of people who think they are experiencing "sinus" problems are actually suffering from a vascular type of headache. When sinus disease is the cause of headache, an accompanying fever is often present and X-rays will indicate some sinus blockage.

6. Ice cream headaches:

Short-lived headaches may occur after eating very cold foods of foods high in nitrites or monosodium glutamate. Headache is associated with nerves and blood vessels around the brain, certain nerves of the face, mouth and throat and the muscles in the head and neck (unpublished data). When the nerves in these structures become over stimulated, inflamed or damaged, pain signals flash along neural pathways to the brain and the person experiences a headache.

7. Thunderclap headaches:

There have been articles in the medical literature describing a sudden, severe headache which may mimic a thunderclap in its intensity and severity32. Some researchers feel it may be a warning of an impending rupture of an aneurysm or weak blood vessel.
8. Headaches in children:

Headache is a frequent symptom in children but deciding whether it is organic or functional can be a difficult task. Headaches in kinds are almost always related to stress situations at school, competition, family friction or excessive demands by parents. Children exhibiting car or motion sickness, especially there is history of migraine in the family, will often develop migraine later. A high percentage of children with migraine have ECG abnormalities, diffuse slowing, focal slowing or paroxysmal changes.
Secondary headaches

Headaches that are symptoms of another disease are known as secondary headaches. Headache diagnosis may be difficult, since many disorders have overlapping characteristics. The classifications of the secondary type of headaches are as follows:

1. Analgesic rebound headache
2. Ergotamine rebound headache
3. Headache due to muscle contraction
4. Headache of delusional
5. Cranial neuralgia
6. Hangover headache
7. Caffeine withdrawal headache
8. Early morning hypertensive headache
9. Systemic infections and constipation
10. Tumor headache
11. Hematomas and abscess
12. Lumber puncture
13. Headache due to eye, ears, nose and sinus disorders
1. **Analgesic rebound headaches:**

Usage of analgesic on a daily or almost daily basis, will actually perpetuate the headache process. When used in this manner, these pills may decrease the intensity of the pain for a few hours. However, the analgesics appear to feed into the pain system in such a way that chronic headache may result. If under these circumstances the patient does not completely stop pills, despite any other treatment undertaken, the chronic headache is likely to continue unabated. What usually happens when the analgesics are discontinued is that the headache may get worse for several days and there may be nausea and vomiting. However, after a period of three to five days and sometimes longer, these symptoms begin to improve.

2. **Ergotamine rebound headache:**

Ergotamine abuse is a particular danger with migraine sufferers using the drug every day. However, the reason the headaches recur so often may be the constant use of ergotamine titrate on a daily basis. The patient having rebound headaches may have a rough time for several days when the medication is stopped, but if given enough time, the daily headaches will disappear.
3. **Headache due to muscle contraction:**

   (i) Acute muscle contraction headache; This is often self treated, physicians rarely being consulted. Single attacks are mild, short lived, non-throbbing with a generalized distribution. Attacks last for two to four hours duration and lack associated phenomenon such as nausea, photophobia or autonomic symptoms. This is a case in which, the muscle contraction to be a reflex response to vascular pain, When a pain is produced around the vascular bed of the head, skeletal muscles in adjacent areas may contract, if the pain stimulus is brief, the muscles contraction is also short. However, if the painful stimulus persists, long lasting contraction of the muscles of the head and neck and even of jaws and face may take place.

   (II) Chronic muscles contraction headache: Mean age of onset of the headache is 30 years with preponderance in females. The pain is dull in intensity, aching, pressure like constricting or giving a sense of fullness, location of the pain is frontal, temporal or from frontal to temporal.

4. **Headache of delusional:**

   This type of Headache generally found in neurotic patients, who suffered with continual pain. The pain of these patients is analogous to
other somatic disturbances in hysterical patients, for example paralyses or impaired special senses. A more definite psychiatric entity is the uncommon complaint of bizarre headache heard from the psychotic patients. In these patients the headache is part of an overtly expressed delusional system.

5. Cranial neuralgia:

Neuralgia is a condition of paroxysmal pain in the distribution of a nerve without demonstrable neuralgic deficit and more specifically, cranial neuralgia designates a neuralgia confined to the head. The pain feels like sudden electric shocks and it will appear for only a few seconds at a time or may be almost continuous.

6. Hangover headache:

The alcoholic metabolite acetaldehyde directly irritates the meanings and causes intra crania; pain as it toxic to the tissues.

7. caffeine Withdrawal headache:

Withdrawal of regular intake of caffeine will result in rebound headache. Phosphodiesterase is inhibited by caffeine which is present in
small amount in coffee. This produces a marked increase in cerebral;vascular resistance and reduce cerebral blood flow and the CSF pressure, which results in of hypertensive headache.

8. early morning hypertensive headache:

The headache Occurs in the morning up on arising and subsides during the day. Some studies have shown that rapidly advancing hypertension which causes cerebral edema might results in headache, dulling of consciousness and focal neurological signs. This was further confirmed by a study in which headache was found to be associated with diastolic pressure over 120 to 130 mm of Hg.

9. Systemic infections and constipation:

constipation causes headache in many people, Because it has been shown that constipation headache can occur in persons whose spinal cords have been cut, this type of headache is not caused by nervous impulses from the colon. It possibly results from adsorbed toxic products or from changes in the circulatory system resulting from loss of fluid in to the get.
10. Tumor headache:

The location of tumor or other masses does not seem to correlate will with the presence or absence of headache although lesions of the posterior fosse of skull are particularly productive of severe headache. Speed of the tumor growth seem to ioniversally occurs in association with increased intra cranial pressure.

11. Hematomas and abscess:

Non neoplastic space occupying lesions are often acute and surrounded with edema. They are usually present with signs on the neurologic examination and often with impaired state of consciousness, but the patient with subdural heamatoma occasionally present with headache as the only finding.

12. Lumber puncture:

Removing small amount of fluid from the spinal canal particularly if the patients remain in the upright position often causes intense intracranial headache. Removing this quantity of fluid removes the floatation for the brain that is normally provided by CSF, Therefore
the weight of the brain stretches the various dural surfaces and there by elicits the pain, which causes the headaches.

13. **Headache due to eyes, ears, nose and sinus disorders:**

infection or other irrigative processes in widespread area of the nasal structure usually cause headache that id referred behind the eyes, or in the case of frontal sinus infection to the frontal surface of the forehead or skull. Similarly otitis, mastoiditis, pharyngitis and other localized diseases of the ear or pharyngitis and other localized diseases of the ear or pharynx rarely present with generalized headache. In addition a variety of ophthalmic diseases. such as iritic and conjunctivitis, may produce headache but they are rarely diagnostic problems.

14. **Headache due to allergic states:**

Exposure to certain exogenous agents seems to be a major source of headache in some individuals for example nitrites, sodium glutamate, pollution and other inorganic metals. Disturbance of the immunologic mechanism is one of the sources of headache. Food allergy is the major source of migraine, a variety of foods have been implicated such as cereals, chocolates and dairy products.
TREATMENT OF HEADACHE
TREATMENT OF HEADACHE

Treatment of headaches involves pharmacological and non-pharmacological measures and this may show synergistic effects. Pharmacological therapy for both types of headaches will be given in Table III. Non-pharmacological therapy includes Relaxation exercises, Yoga and Meditation, psychological counseling, quitting smoking, etc.

NON PHARMACOLOGICAL THERAPY

- **Relaxation exercises:** Engage in deep breathing exercises, such as walking, running, bicycling, swimming or playing tennis, four to five times a week. They not only have been shown to make a significant difference in reducing headaches but also will give you a general sense of well-being. Ice packs are most effective to treat headache, the better. Besides applying it to the painful area, try placing it on the back of the neck, forehead and temples. Heat can sometimes-hasten relaxation, increase blood flow and relax muscles. Rest in a dark room often a nap can give the brain an opportunity to get back to normal. Also relaxation technique including biofeedback.

- **Relaxation techniques:** Like biofeedback, these techniques can significantly reduce the effect of stress on your body, including, but not limited to, your headache.
o **Biofeedback:** Biofeedback helps control the body's responses, including blood flow, blood pressure, and pulse rate. Techniques for achieving biofeedback include relaxation techniques, imagery, and self-hypnosis.

o **Psychological Counseling:** Chronic tension type headaches can be manifestations of underlying depression or anxiety, which can be offset with counseling.

o ** Quitting Smoking:** Smoking is a risk factor for every type of headache because it constricts blood vessels and depletes oxygen and blood flow to the head.

o **Regular Habits:** Getting enough sleep, eating a healthy diet, and having a regular exercise schedule all help to reduce tension type headache risk.

o **Yoga and Meditation:** Meditation goes a long way in reliving stress, perhaps the most common factor for general well being and for curing headaches.

o **Non pharmacological Approaches for All Migraineurs:** Migraine can often be managed to some degree by a variety of non pharmacological approaches. The measures that apply to a given individual should be used routinely since they provide a simple, Cost-effective approach to migraine anagement. Patents with migraine do not
encounter more stress than headache-free individuals; over responsiveness to stress appears to be the issue. Since the stresses of everyday living cannot be eliminated, lessening one's response to stress by various techniques is helpful for many patients. These include yoga, transcendental meditation, hypnoses, and conditioning techniques such as biofeedback. For most patients, this approach is, at best, an adjunct to pharmacotherapy. Avoidance of migraine trigger factors may also provide significant prophylactic benefits. Unfortunately, these measures are unlikely to prevent all migraine attacks. When these measures fail to prevent an attack, then pharmacologic approaches are needed to abort an attack.

- **Pharmacologic Treatment of Acute Migraine:** The mainstay of pharmacologic therapy is judicious use of one or more of the many drugs that are effective in migraine. The selection of the optimal regimen for a given patient depends on a number of factors, the most important of which is the severity of the attack. Mild migraine attacks can usually be managed by oral agents; the average efficacy rate is 50-70%. Severe migraine attacks may require potential therapy. Most drugs effective in the
treatment of migraine are members of one of three major pharmacologic classes: anti-inflammatory agents, 5-HT1 agonists, and dopamine antagonists.

In general, an adequate dose of whichever agent is chosen should be used as soon as possible after the onset of an attack. If additional medication is required within 60 min because symptoms return or have not abated, the initial does should be increased for subsequent attacks. Migraine therapy must be individualized for each patient; a standard approach for all patients is not possible. A therapeutic regimen may need to be constantly refined and personalized until one is identified that provides the patient with rapid, complete, and consistent relief with minimal side effects.

**Treatment of tension-type headache:**

- Tricyclic antidepressants (low dosage therapy, 10-80 mg.)
  - Amitriptyline
• Nortriptiline

• Requires close medical supervision and dietary restrictions
  ▪ Antidepressants
  ▪ Imipramine

• Antidepressants are good patients with depression and pain syndromes.

Muscles relaxants (intermittent use during flare-ups, consider Cyclobenzaprine 10-30mg.)

Anti-inflammatory agents

Analgesics (for short term 1-2 weeks only if needed, while stabilizing patients)
- Non opioid analgesics
  
  Aspirin

  - Enteric and rectal forms have slower onset and effervescent form has faster onset.

- Acetaminophen

- Ibuprofen

  Ibuprofen may have fewer gastro intestinal side effects than other NSAIDs

- Neuroleptic
  
  - Procloprozine

  Has antiemetic effect. Monitor for orthostatic hypotension when administering IV/IM.
• Chlorpromazine

![Chemical Structure of Chlorpromazine]

Has antiemetic effect. Monitor for dizziness and drowsiness

Use Myofacial Pain Protocol including stretching, Fluorimethane Spray & Stretch, moist heat and ice.

Behavior modification therapy, biofeedback, stress management.

➢ Abortive treatment of cluster headache:
  o Oxygen inhalation (100% oxygen at 7-10 liters/min. for 15 min.)
  o Samaritan (6mg. sc.) or DHE-45 (1mg I.M)
  o Ergotamine preparation (1-2 mg.)
  o Analgesics and anti-inflammatory agents (rarely useful and can cause rebound phenomenon)

➢ Prophylactic treatment of cluster headache
  o Episodic Cluster headache
    Methysergide (4-6 mg/day, maximum 6 months)
Methysergide

calcium channel blockers (verapamil 240-480 mg./day)
  o Verapamil

  o Nimodipine
  o Higher doses needed for cluster headaches.
  o calcium channel blockers are good for patient with prolonged aura
Steroids (short course with rapid taper, 40-60mg./day for 2 weeks)
Lithium carbonate (dose to attain usual therapeutic range)
Ergotamine tartarate (2-4 mg./day for a short period)

- Methyl ergonovine

Methyl ergonovine

- Indomethacin (75-150 mg./day for CPH)

Indomethacin

- Corticosteroids
  - Dexamethasone

Dexamethasone
- Prednisone

- Miscellaneous
  - Lidocaine

- Oxygen
  - Is more effective when given at maximum pain intensity.

- Chronic cluster headache

  Lithium carbonate (dose to attain usual therapeutic range)
  Verapamil (240-480 mg./day) Intermittent courses of methysergide of prednisone Temporary or permanent denervation of trigeminal nerve a small percentage of chronic cluster headache where, patients may become resistant to all forms of medical therapy. In this situation, selective lesions made in the trigeminal pain pathways may have to be used for pain relief.
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- Headaches can also be severe and disabling, however and generate 3 to 5 percent of patients.
- There are many kinds of headaches, in which tension type and migraine headaches are most common, affecting upwards of 75 percent of all headache sufferers.
- Headache diagnosis may be difficult, changing concepts of headache pathogenesis have helped develop new headache treatments.
- Available with out prescription, OTC pain relievers contain powerful, effective ingredients. There are several different group of OTC pain relievers.
- The most appropriate way to select a medication or combination of medications is to weigh the desired effect against potential side effects.
- Patients also take care of trigger factors.
- Non pharmacological therapy may also be helpful to patients who suffering with various types of headaches.
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REFERENCES


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