

# Headache

Group : B5

Done by:-

1-Abdellrahman ashour

2-Ahmad joudeh

3-Moayed alhawi

4-Barjas khzouz

5-Aaqlh daraghmeh

6-Randa sami

7-Malak khaled

8-Alaa almatar



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# Headache

\*\*\*It is a **common presenting complaint** but unless it is accompanied by other symptoms or neurological signs, it is seldom associated with significant neurological disease.

\*\*\*Nevertheless, patients suffering from headache usually fear serious brain disease and in order to manage them effectively it is important to be aware of this.

The likely underlying cause of headache can usually be identified after taking a careful history and performing the appropriate general and neurological examinations.

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Unless the history is suggestive of structural disease or another secondary cause, patient with headache who are normal on neurological exam are unlikely to have serious disorder.

**Headache is the 8th most common outpatient diagnosis for family physicians and the 13th for general internists .**

**□ Although headaches often interfere with daily activities at home or in the workplace, many people do not seek medical attention for their headaches. Consequently, many headache sufferers remain undiagnosed and possibly undertreated.**

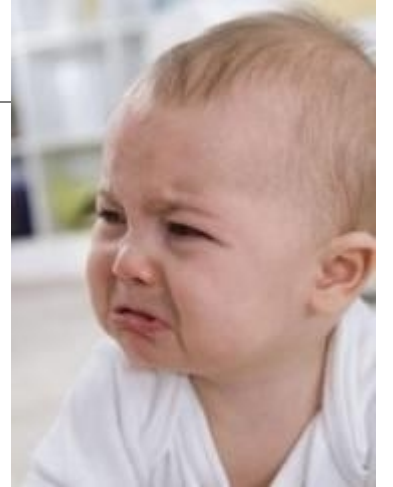
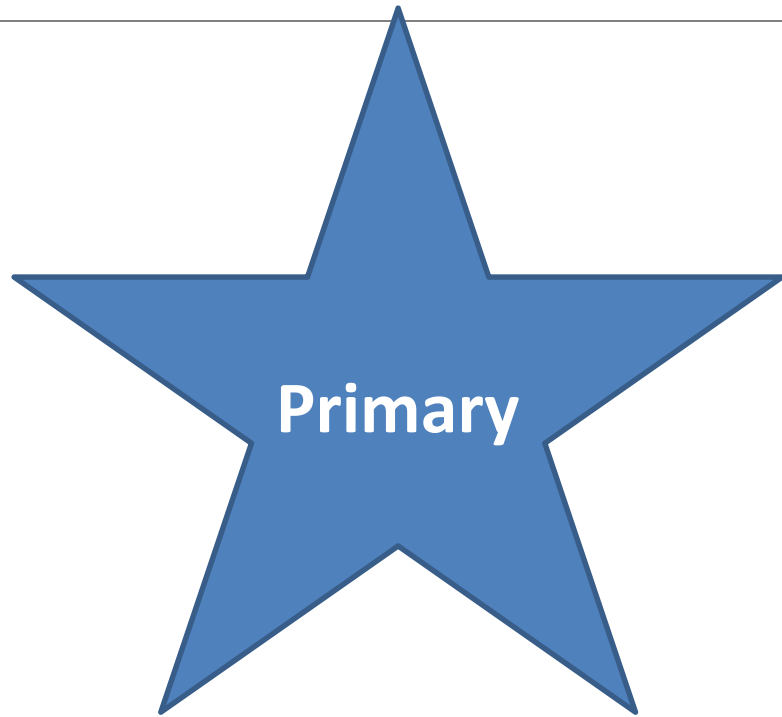
**□ It has been estimated that almost half of the adult population have had a headache at least once within the last year**

**□ Worldwide, a minority of people with headache disorders are diagnosed appropriately by a health-care provider.**

**□ Headache has been underestimated, under-recognized and under-treated throughout the world.**

# Headache Classification

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# Headache Classification

**\*\*\*primary headaches >90%**

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**(uncertain pathogenesis)** benign, recurrent headaches having **no** organic disease as their cause, result from etiologies that lead directly to head pain (such as migraine and tension-type headaches).

**\*\*\*secondary headaches** comprise the minority of presentations **(with a defined pathophysiological basis)**

however, given that their underlying etiology may range from sinusitis to subarachnoid hemorrhage.

## Primary headaches

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Your worry is the headache itself, not anything else.

Make up around 90% of headache cases

Primary headaches are not life-threatening but are still a significant source of morbidity

## Secondary headaches

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The underlying cause must be diagnosed

Make up the other 10% of total headache cases

Secondary headaches in certain conditions may be life-threatening (threat to patient's life, vision or other neurological functions)

# Migraine

Migraine is a **chronic, genetically linked type** of primary headache that affects more than 10% of adults

Migraine headaches usually present **in late childhood or early adulthood**, but the diagnosis may be delayed several years.

The incidence is much **higher in women than men among adults**, but the **ratio is equal in children**.

**Inherited (autosomal dominant probably)**

**Pathogenesis isn't clearly identified : but generally speaking >>there appears to be neurochemical disruption, specifically involving serotonin, dopamine, and norepineprine metabolism.**

**>>> the body becomes more sensitive to a stimuli that can cause a headache attack!**



Every person with **migraines** has a unique set of **triggers**>>>Triggering factors of Migraine:

# Triggers

Table 2 : Triggers of Acute Migraine Attacks\*

Hormonal	Menstruation, ovulation, oral contraceptives, hormonal replacement
Dietary	Alcohol, nitrate-laden meat, monosodium glutamate, aspartame, chocolate, aged cheese, missing a meal, religious fasting
Psychological	Stress, post stress (weekend, vacation), anxiety, worry, depression
Physical- Environmental	Glare, flashing lights, visual stimulation, fluorescent lightening, odors, weather changes, high altitude, head bath/hair wash
Sleep related	Lack of sleep, excessive sleep
Drugs	Nitroglycerin, histamine, reserpine, hydralazine, ranitidine, estrogen
Miscellaneous	Head trauma, physical exercise, fatigue

# Features of migraine

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- 1) Headache lasting 4–72 hours.
- 2) Pulsating, one-sided and moderate or severe intensity of pain.
- 3) Aggravated or inhibited by physical activity.
- 4) Presence of 2 of 3 key characteristics: inability to function, photophobia/phonophobia, nausea/vomiting
- 5) Resulted from hyper excitability to the nervous system

## POUND Mnemonic

- Pulsatile quality of headache
- One-day duration (4-72 hours)
- Unilateral location
- Nausea or vomiting
- Disabling intensity



## Classification of migraine:

- 1) Migraine **with aura** (classical migraine)
- 2) Migraine **without aura** (common migraine) >> the commonest
- 3) Menstrual migraine (2 days before menstruation till the last day of menses) >> mostly due to estrogen withdrawal.
- 4) Status migrainosus (lasts upon 72 hours and doesn't resolve spontaneously )

# Migraine Without Aura:(Common Migraine)

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- Most common cause of migraine **(80%)**.
- Attack lasts 4 to 72 hours with or without treatment
- Has two of the following: **unilateral location, pulsating quality, and moderate to severe intensity, aggravated by activity** .
- During headache associated with **nausea/vomiting or photophobia/phonophobia**.

# Migraine with Aura (Classic Migraine)

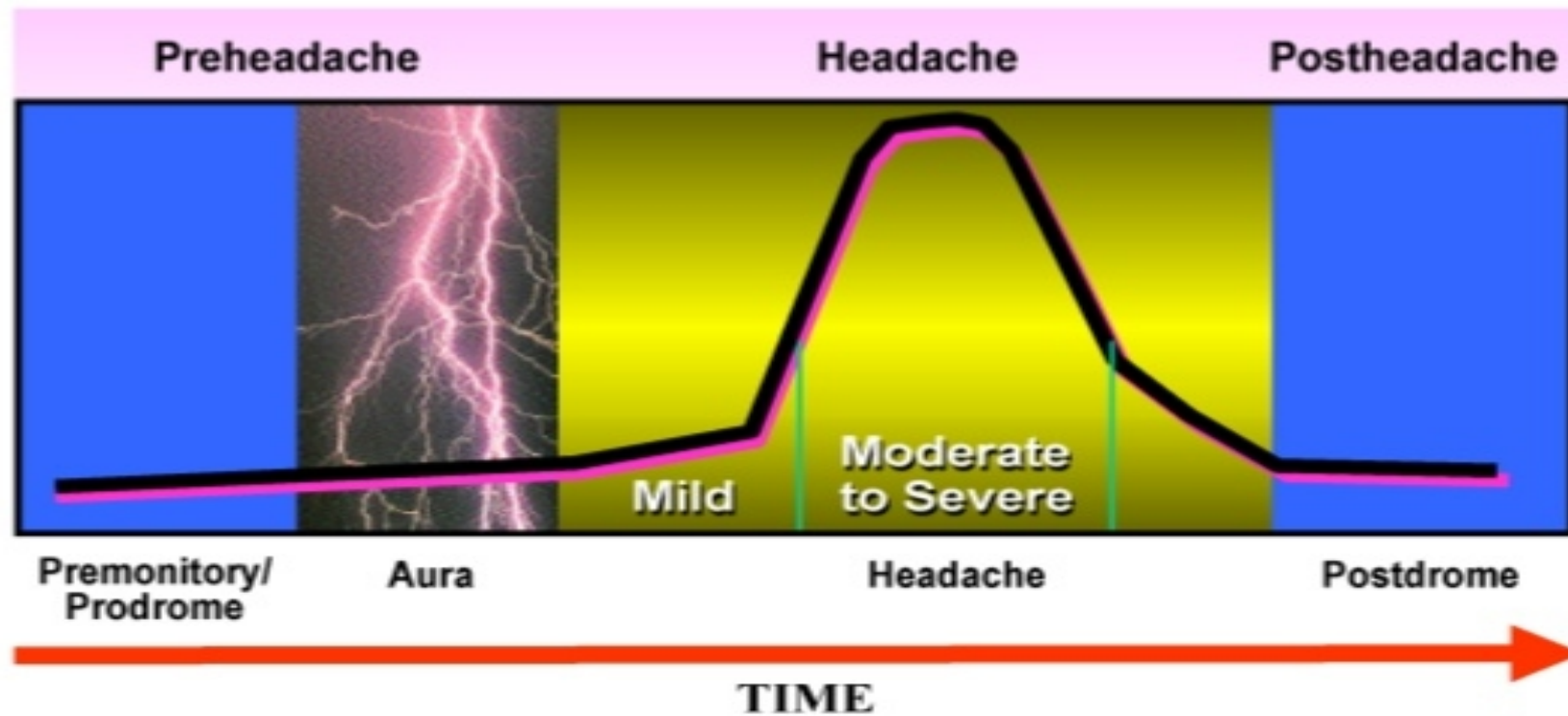
>>is a recurring **headache** that strikes after or at the same time as sensory disturbances called **aura**.  
These disturbances can include :

\*vision changes like flashes of light or scotoma , tingling in your hand or face, unilateral paresthesia, dysphasia,hemiparesis.

>at least one **aura** develops **gradually** over more than 4 minutes and **no single aura lasts longer than 60 minutes.**

> headache begins during aura or follows with a symptom-free interval of less than 60 minutes.

# The Stages of a Migraine Attack



# FOUR PHASES OF MIGRAINE

Unlike most headaches, migraine has distinct stages, although not all sufferers experience each one—a perplexing facet of the disorder.

60%

## PRODRÔME

**TYPICAL FEATURES:** Difficulty concentrating, yawning, fatigue, and sensitivity to light and noise.

**DURATION:** A few hours to a few days

30%

## AURA

**TYPICAL FEATURES:** Visual illusions of sparks and lights, often followed by blind or dark spots in the same configuration as the earlier bright hallucinations.

**DURATION:** 20 to 60 minutes

100%

## HEADACHE

**TYPICAL FEATURES:** Excruciating pain accompanied by sensitivity to light and sound, nausea and vomiting.

Sometimes the pain affects half the head.

**DURATION:** 4 to 72 hours

70%

Percentage who report undergoing each phase

## POSTDRÔME

**TYPICAL FEATURES:** Persistence of sensitivity to light and movement, as well as lethargy, fatigue and difficulty focusing; some patients describe this as a "zombie" phase.

**DURATION:** A few hours to a few days

# Tension headache





# Tension-Type Headache

- Tension-type headache (T-TH) is **the most common cause of headache**, with a prevalence of between 30%–80% in the general community, due to heightened CNS pain pathways. T-THs are usually mild or moderate in severity and are **often self-treated**.
- They are usually episodic, but can develop into daily or near-daily headaches.
- In some patients, both T-TH and migraine are present.

# Features of Tension-Type Headache

- Pressing or tightening (nonpulsating) “vise-like” pain encircle the entire head.
- Generalized, usually bilateral bandlike distribution of pain of mild to moderate intensity.
- Often with tender muscles(post -cervical, temporal, frontal or posterior neck muscles).
- No other issues/normal neurological examination.
- Can occur infrequently or be chronic(>15 days per month)
- Not aggravated by routine physical activity.

- Dx : clinical.

- Tx : \_\_\_\_\_

1. Attempt to find the causal factor(s). Evaluate the patient for possible depression or anxiety. Stress reduction is important.
  2. NSAIDs, acetaminophen, and aspirin are the standard treatment for mild/moderate headaches, caffeine can be added.
  3. if headaches are severe, medications that are used for migraines maybe appropriate, given the difficulty in distinguishing between these 2 entities.
- PPX : TCA (amitriptyline) the only drug with established prophylactic evidence. Biofeedback or other therapies can also be helpful.

# Cluster headache

- Cluster headaches are **not common**, with a prevalence estimated at about 0.3%–0.4% of the general population. This is one of the few headache types **more prevalent in males**. The name cluster is given to this primary headache disorder due to its classic presentation as a **series of headaches occurring close together over 6–12 weeks**.
- It's thought to be due to overactivation of trigeminal/hypothalamic pathway.
- Subtypes :
  1. Episodic cluster headaches (90%) – last 2-3 months, with remissions of months to years.
  2. Chronic cluster headaches (10%) – last 1-2 years, headaches don't remit.

# Features of Cluster Headache

- **Unilateral periorbital/temporal pain.** The headache is also always on the same side, no matter how many months are between episodes.
- severe, and intense, deep, burning, searing, or stabbing pain.
- Usually begins few hours after the patient goes to bed & lasts for 30-90 minutes, awakens patient from sleep.
- Attacks occur nightly for 2-3 months and then disappear. Remission may last from several months to several years.
- Worse with alcohol and sleep.
- Concurrent symptoms include **ipsilateral lacrimation, rhinorrhea, congestion, miosis, ptosis, conjunctival injection, and facial flushing.**
- **Horner's syndrome** (miosis , ptosis , anhydrosis) may develop and persist after attack.
- One attack every other day (one per 3 days) to eight attacks per day.

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- Dx : clinical. Head imaging to rule out other dangerous causes of headache.
  - Tx : inhaled O2 (high flow 100%), sumatriptan are the 1<sup>st</sup> line of treatment.
  - PPX :
  - Verapamil is the drug of choice.
  - Ergotamine, methysergide, lithium , and corticosteroids (prednisone) are alternative agents.
  - These agents cause resolution (or marked reduction) of the number of headache.

Type of Headache	Migraine	Tension	Cluster
<b>Onset</b>	Gradual (hours)	Gradual (hours)	Rapid (minutes)
<b>Duration</b>	4 to 72 hours	Hours	15 min to 3 hours
<b>Quality</b>	Dull, throbbing	Waxing and waning pressure or tightness	Deep, burning, and stabbing pain
<b>Location</b>	70% unilateral, 30% bilateral	Bilateral	Unilateral; around eyes and temple
<b>Severity</b>	Moderate to severe	Mild to moderate	Extremely severe
<b>Autonomic symptoms</b>	Yes	No	Yes <sup>a</sup>

<b>Nausea or vomiting</b>	Yes	No	No
<b>Photophobia</b>	Yes	No	No
<b>Phonophobia</b>	Yes	No	No
<b>Triggers</b>	Yes	No	No
<b>Other</b>	Premonitory symptoms (30%) and aura (15%)	No	No

**a** Eyes: ipsilateral redness, lacrimation, and Horner's syndrome; nose: rhinorrhea and nasal congestion; other: sweating and pallor.



# Secondary Headaches

Secondary headaches are caused by an **infectious, vascular, traumatic, or other etiology**. The headache is typically one among a constellation of symptoms that suggests a specific etiology.

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## Causes :

1) **Infectious causes:** Headache is a significant presenting complaint for a variety of different infectious diseases.

persons with influenza, particularly influenza A, may present with a headache and fever.

Other milder viral syndromes may also present with a headache.



## 2) Rheumatologic causes:

The most concerning of these is **giant cell arteritis (temporal arteritis)**, characterized by pain in the region of the temporal artery, age >50, and a history of polymyalgia rheumatica.

Other rheumatologic problems that may present with headache include: **temporomandibular joint disorders, degenerative disc disorders of the cervical vertebra, and neuritis, or neuralgia of the greater occipital nerve.**

- **Giant cell arteritis (temporal arteritis) =** granulomatous arteritis, usually affecting the superficial temporal artery, in those over 50 years, female predominance, pain over the thickened, tender, nonpulsatile, temporal artery. Associated with jaw claudication, proximal muscle pain while combing hair, polymyalgia rheumatica up to 50% of cases, weight loss, lethargy, visual loss in 25% of untreated cases either transient or permanent. High ESR

# Intracranial

## mass

A presentation of **an abrupt onset** of headache along with focal neurologic findings may suggest an intracranial lesion. Although rare, tumors can account for new onset headaches. Subdural hematomas should be suspected in the elderly with a new onset of headache or in a patient with a recent history of trauma.

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- In **elderly**, brain tumor is usually **metastatic from lung or breast carcinoma**.
- Primary brain tumors are more common in adults younger than 50 years.
- *Headache is caused either by direct pressure on the brain or elevated ICP.*
- **Typical presentation is headache that worsens over over weeks to months.**
- **headache is usually present on awakening initially, then it becomes continuous.**

# In cases of Brain Tumor

- headache is often worse with sneezing, bending, coughing.
- Diagnostic tools include CT with IV contrast or MRI(best test).



# Other causes

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**Vascular events**, including stroke, aneurysm leak or rupture, or subarachnoid hemorrhage may present with **sudden onset, severe headache,** and **focal neurologic changes**, often with other systemic findings related to the event.

# Subarachnoid Hemorrhage (SAH)

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- Extravasation of blood in subarachnoid space activates meningeal nociceptors causing occipital pain and meningismus.
  - **SAH accounts for 10% of all strokes and is most common cause of death from a stroke.**
  - Causes are saccular aneurysms (80%), blood dyscrasias, arteriovenous malformations, mycotic aneurysms, cavernous angiomas.
  - Risk factors include increased age, hypertension, smoking, excessive alcohol consumption and sympathomimetic drugs.

# Clinical Features of SAH

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- Sudden **“thunderclap” headache**
- Can be associated with exertional activities
- Nausea/vomiting-75%
- Neck stiffness-25%
- Seizures-10%
- Meningismus-50%
- Subhyloid or retinal hemorrhages
- Oculomotor nerve pulsity with dilated pupil.
- Restlessness and altered level of consciousness.

# Sinusitis and “Sinus Headache”

- Many people with headache or facial pain incorrectly diagnose themselves with “sinus headache.” Migraines and cluster headaches have symptoms related to the nose and sinuses, with rhinorrhea, pain behind the eye (frontal sinus), and facial tenderness. **Rhinosinusitis must also have findings of purulence in the nasal cavity, nasal obstruction, altered smell (hypo or anosmia) and/or fever.**

Persons treating presumed sinus headaches with **decongestants** often report incomplete resolution of their pain, and present in the primary care office seeking **antibiotics**. It is the case that **70%–80% of patients presenting with sinusitis causing a headache may actually have migraine headaches**





# History and physical examination



# History

- **Site of pain** = unilateral or bilateral, frontal, temporal or occipital.
- **Onset of pain** = sudden ( acute), gradual (subacute), intermittent (recurrent), continuous ( chronic daily).
- **Character of pain** = dull pressure, throbbing, stabbing, pulsating.
- **Radiation of pain** = neck, eye
- **Time of pain** = how long have you had this headache, duration of attack, frequency, morning.

- **Exacerbating & relieving factors =**
  - coughing, sneezing, straining at stool
  - Emotions, stress
  - Light, sounds
  - Talking, chewing, cold weather
  - Sleeping
  - Caffeine, Alcohol
  - Hydration
  - Menstruation & pregnancy
  - Exercise
  - Sexual intercourse

- **Severity of pain** = out of 10, wake from sleep, affects daily activities.
- **Associated symptoms** =
  - fever, rash, photophobia, neck stiffness & pain.
  - Vomiting and nausea
  - Weight loss & appetite
  - Eye problems, periorbital pain
  - Seizures
  - Sleep disturbance

- Loss of consciousness
- Focal neurological deficit
- Memory problems
- Rhinorrhea, lacrimation, nasal blockage, ptosis
- purulence in the nasal cavity, nasal obstruction, altered smell (hyposmia or anosmia), and/or fever.
- Arthritis, jaw claudication, proximal muscle pain

# Questions to ask when obtaining a headache history.

**\*\*\*H: How severe is your headache on a scale of 1–10 (1**

**= minimal pain , 10= severe pain)?**

**\*\*\*How did this headache start (gradually, suddenly, other)?**

**\*\*\*How long have you had this headache?**

**\*\*\*E: Ever had headaches before?**

**\*\*\*Ever had a headache this bad before (first or worst headache)?**

**\*\*\*Ever have headaches just like this one in the past?**

**\*\*\*A: Any other symptoms noted before or during your headache?**

**\*\*\*Any symptoms right now?**

**\*\*\*D: Describe the quality of your pain (throbbing, stabbing, dull, other)**

**\*\*\*Describe the location of your pain.**

**\*\*\*Describe where your pain radiates.**

**\*\*\*Describe any other medical problems you may have.**

**\*\*\*Describe your use of medications .**

**\*\*\*Describe any history of recent trauma or any medical or dental procedures.**

**\*\*\*D: Describe the quality of your pain  
(throbbing, stabbing, dull, other)**

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**\*\*\*Describe your use of medications .**

**\*\*\*Describe any history of recent trauma or  
any medical or dental procedures.**



# Physical examination

Physical examination is performed in an attempt to identify a secondary, organic cause for the patient's headache. Additionally, special attention should be paid to any **red flags** identified during the headache history.

A general physical examination should be performed, including:

**vital signs, general appearance, and examinations of the head, eyes** (including a funduscopic examination), **ears, nose, throat, teeth, neck, and cardiovascular regions.**

Particular attention should be given to palpation of the head, face, and neck.



# Red flags

- 1\* Headache beginning **after 50** years of age.
- 2\* Very **sudden onset** of headache.
- 3\* Headaches **increasing in frequency** and **severity**.
- 4\* **New-onset** headache in patient with risk factors for HIV infection or cancer.
- 5\* Headache with **signs of systemic illness:**  
(fever, stiff neck, rash).

# Red flags

6\* **Focal neurologic signs** or symptoms of disease (other than typical aura).

7\* **Papilledema.**

8\* Headache **following head trauma.**

## Laboratory finding and image studies:

- Neuroimaging should be considered in patients with non-acute headache and an **unexplained abnormal finding on neurologic examination.**
- Neuroimaging is **not** usually warranted for patients with migraine and **normal neurologic examination.**

# Diagnostic Studies

- Emergent CT scan of head.
- CT is greater than 90% sensitive for acute bleeding-less than 24 hr.
- Sensitivity decreases to 50% by the end of the first week.

CTs doesn't exclude any thing at the first hour, if negative repeat it 3-6 have later

# Diagnostic Studies

- When CT is negative a lumbar puncture should be performed.
- The CSF should be spun and the supernatant fluid should be observed for:  
**xanthochromia (develops after 12 hrs).**
- **CSF xanthochromia with negative CT is diagnostic.**





# Diagnostic Studies

- Patients with persistent bloody CSF without xanthochromia should go vascular imaging.
- **Up to 90% of patients with SAH have cardiac arrhythmias or ECG findings suggestive of ischemia.**
- Typical ECG changes include ST-T wave changes, and QT prolongation.

<b>CT scan</b>	<b>MRI</b>
<b>Need to identify an acute hemorrhage</b>	<b>Need to evaluate the posterior fossa</b>
<b>Generally more readily available at most medical centers</b>	<b>More sensitive at identifying pathologic intracranial processes</b>
<b>Generally less expensive at most medical centers</b>	<b>More expensive</b>

# Differential diagnosis:



- Temporal arteritis
- mass lesion
- Subarachnoid hemorrhage
- subdural hematoma
- Medication overuse
- Meningitis
- Stroke
- Intracranial hemorrhage

# Treatment

Treatment of headache is best individualized based on a thorough history , physical examination, and the interpretation of appropriate ancillary testing.

**Secondary headaches require accurate diagnosis and therapy directed at the underlying etiology.**

# guidelines for treatment of migraine patients:

- 1\*\*\* Educate migraine sufferers about their condition and its treatment , and encourage them to participate in their own management.
- 2\*\*\* Use **migraine-specific agents** (triptans, dihydroergotamine [DHE], ergotamine, etc) in patients with more **severe migraine** and in those whose headaches **respond poorly to ( NSAIDs ) or combination analgesics such as aspirin plus acetaminophen plus caffeine.**

3\*\*\*Select a non-oral route of administration for patients whose migraines present early with nausea or vomiting.

4\*\*\*Consider a self-administered rescue medication for patients with severe migraine who do not respond well to ( or fail )other treatments.

**the goals of therapy for the acute episode should be clear to both the provider and the patient.**

1. Treat the headache rapidly.
2. Prevent recurrence.
3. Provide symptom relief or at least increased level of function in two hours.
4. Minimize the use of second-line drugs.
5. Optimize in-home care.
6. Minimize the utilization of healthcare resources, including hospitalization.
7. Minimize the adverse effects from the therapies.

# Migraine treatment:



- Medication treatment may be “**stepwise**,” going from basic or simplest to more complex, or “**stratified**,” with the aim of identifying the most effective treatment, and using it as the first-line intervention .
- **Triptans are generally considered the first-line medications for moderate to severe migraine. OTC medications such as acetaminophen, aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), or combination anti-migraine drugs (which usually include caffeine) may be helpful, especially for milder episodes and when taken early.**





# Migraine - Treatment



- **Abortive**
  - 5-hydroxytryptamine receptor agonists:
    - *Imitrex (sumatriptan)*
      - Oral, SC, nasal spray
    - *Maxalt (rizatriptan)*
    - *Zomig (zolmitriptan)*
    - *Amerge (naratriptan)*
  - Ergotamine: sublingually or in combination with caffeine by mouth.
  - Butorphanol
  - *Midrin*
  - NSAIDs
  - Lidocaine

# Migraine - Treatment



- **Symptomatic**
  - Prochlorperazine
  - Dihydroergotamine
  - Chlorpromazine
  - Haloperidol
  - Lorazepam
- **Preventative**
  - Antidepressants
  - *Bellergal*  
(ergotamine)
  - NSAIDs
  - $\beta$ -blockers
  - Calcium channel blockers

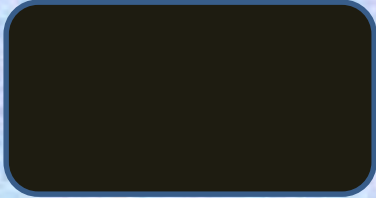


**The goal of therapy in migraine prophylaxis is a reduction in the severity and frequency of headache by 50% or more.**

# If migraine attacks are frequent, prophylaxis should be employed:

\*\*\*Clinical criteria for migraine prophylaxis include:

1. Headaches >2 days a week, on average
2. Recurring migraines that, in the patient's opinion, significantly interfere with his or her daily routine
3. Failure of, or contraindication to, acute therapies
4. Patient preference
5. Significant cost of acute therapies
6. Presence of uncommon headache conditions including hemiplegic migraine, migraine with prolonged aura or migrainous infarction
7. Cognitive-behavioral therapy, biofeedback, relaxation and stress management training also have known benefit.

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- **Behavioral strategies** include resting in a dark, quiet place, massage, or heat or ice applied to the head or neck.
  - Treatment in some cases may be chosen to treat symptoms, e.g., antiemetics.

- **Migraines in children often respond well to NSAIDs such as Naproxen, ibuprofen, or aspirin, in the highest appropriate doses.**
- **Women with menstrual-related migraines also often respond well to the prostaglandin inhibition of NSAIDs.**

# Tension type headache treatment

Initial medical therapy of episodic tension-type headache often includes **aspirin**, **acetaminophen** or **NSAIDs**.

**Prophylaxis should be considered for persons who experience 15 or more T-THs per month.**

# Cluster Headaches treatment :

\*\*\*Cluster headaches are infrequently seen, but are invariably debilitating.

\*\*\*Treatment options for acute episodes include **oxygen therapy (first-line treatment)**, triptans and intranasal lidocaine

**Verapamil may be used for prophylaxis.**