A 35-years-old male with no prior history of headaches presented with a 2 week history of sever right-sided headaches behind the eye.

The patient also reported a previous episode of blurry vision in his left eye a week before the onset of right-sided headache.

During this time the patient was fasting for religious reason and stated that the headache was accompanied with vomiting without nausea which subsided after a meal.

He did not report any previous episodes.

PH/E

BP=120/80,PR=74,T=37,RR=17,W=70,L=170,

HE APPEARED MILDELY ANXIOUS . heart=S1,S2=NORMAL,LUNG=NORMAL,ABDOMEN=NORMAL,

Upon central system(CNS)EXAMINATION

PUPILE were equal , round an reactive to light , cranial nerves II-XII were intact , reflexes were symmetric and intact bilaterally .Glasgow scale of 15 , and no meningeal signs or photophobia.

Emergent Brain CT scan w/o contrast was requested ; wich was normal Brain MRI w/o GD was prescribed.

The initial diagnosis of headache secondary to hypoglycemia while fasting was made . The Patient was requested to discontinue fasting until his symptoms resolved along with 50 mg of sumatriptan . A follow-up appointment was scheduled for 1 week.

The patients symptoms worsened and presented to the emergency room(ER) the following day with sudden onset of aphasia , with right-sided hemiparesis and fluctuating loss of consciousness(loc).

He reported intermittent headaches , generally worse in the back of the head and right-sided blurriness . He did not have any neck stiffness . or back pain . The patient reported that he was asymptomatic in the morning but noted unsteady gait , as day progressed . he then began to have worsening dysphasia and dysarthria ; however, he was able to follow commands and instructions.

Given the severity of his symptoms,the patient was admitted to the hospital for further evaluation .

Initially , he was empirically managed with intravenous(IV) ceftriaxone 2 gr Q12 h, and vancomycin 1 g q 12 h, and acyclovir 800 mg q 6 h , for suspected viral encephalitis.

Computed tomography (CT)angiogram of the head and neck showed no acute intracranial abnormality.

The patients CT was non-diagnostic and magnetic resonance imaging (MRI) confirmed no acute intracranial abnormalities.

LP revealed an opening pressure of 35,protein 2.89 g/l , white blood cell(WBC)133(106/l)with 53% lymphocytes , red blood cell(RBC)38,000(106/L).

Electroencephalogram (EEG) was recorded in a confused patient during wakefulness and drowsiness . there was mild to moderate diffuse slowing of the background which appeared nonspecific secondary to a mild encephalopathic process . In addition, there was a continuous delta slowing over the left hemisphere through the recording thatcould be due to structural lesion or postictal changes , electrographic seizures or evidence of non-convulsive status epilepticus.

The patient received 10 days of IV acyclovir which showed improvement in the repeat LP ; PROTEIN 0.67 G/L,WBC 28(106/L) with 94% lymphocytes , RBC 73(106/L)

WITH NEGATIVE CSF infectious workup . Antibody screening was conducted and ruled out autoimmune encephalitis.

Ten days after admission , he was discharged with 10 days of valacyclovir 500 mg twice a day(BID).for a total of a 20-day course of anti-viral.

The patient presented to the out patient clinic after concluding the valacyclovir . neurological examination was within normal limits ana the patient had complete resolution of VIRAL ENCEPHALITIS.

Evaluation of headache in adults

استاد راهنما:

آقای دکتر شفیعی – متخصص نورولوژی

عضو هیئت علمی گروه مغز و اعصاب

ارائه دهنده:

دکتر اسمی-دستیار پزشکی خانواده

INTRODUCTION

the most common medical complaints,

The clinical features

Migraine , Tension-type headache , Trigeminal autonomic cephalalgias , Other primary headache disorders ,

CLASSIFICATION

90 percent of all primary headaches

migraine, tension-type, and cluster headache.

cluster headache remains an uncommon diagnosis (<1 percent).

Migraine

recurrent attacks -throbbing or pulsatile quality.- nausea, vomiting, photophobia, phonophobia, or osmophobia.

Characteristics of migraine, tension-type, and cluster headache syndromes

Symptom	Migraine	Tension-type	Cluster
Location	Adults: Unilateral in 60 to 70%, bifrontal or global in 30% Children and adolescents: Bilateral in majority	Bilateral	Always unilateral, usually begins around the eye or temple
Characteristics	Gradual in onset, crescendo pattern; pulsating; moderate or severe intensity; aggravated by routine physical activity	Pressure or tightness which waxes and wanes	Pain begins quickly, reaches a crescendo within minutes; pain is deep, continuous, excruciating, and explosive in quality
Patient appearance	Patient prefers to rest in a dark, quiet room	Patient may remain active or may need to rest	Patient remains active
Duration	4 to 72 hours	30 minutes to 7 days	15 minutes to 3 hours
Associated symptoms	Nausea, vomiting, photophobia, phonophobia; may have aura (usually visual, but can involve other senses or cause speech or motor deficits)	None	Ipsilateral lacrimation and redness of the eye; stuffy nose; rhinorrhea; pallor; sweating; Horner syndrome; restlessness or agitation; focal neurologic symptoms rare; sensitivity to alcohol

Diagnostic criteria for migraine

Migraine without aura
A. At least five attacks fulfilling criteria B through D
B. Headache attacks lasting 4 to 72 hours (untreated or unsuccessfully treated)
C. Headache has at least two of the following characteristics:
Unilateral location
Pulsating quality
Moderate or severe pain intensity
Aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs)
D. During headache at least one of the following:
Nausea, vomiting, or both
Photophobia and phonophobia
E. Not better accounted for by another ICHD-3 diagnosis
Migraine with aura
A. At least two attacks fulfilling criteria B and C
B. One or more of the following fully reversible aura symptoms:
Visual
Sensory
Speech and/or language
Motor
Brainstem
Retinal
C. At least three of the following six characteristics:
At least one aura symptom spreads gradually over ≥5 minutes
Two or more symptoms occur in succession
Each individual aura symptom lasts 5 to 60 minutes
At least one aura symptom is unilateral
At least one aura symptom is positive*
The aura is accompanied or followed within 60 minutes by headache
D. Not better accounted for by another ICHD-3 diagnosis

Features of migraine in children and adolescents
Attacks may last 2 to 72 hours¶
Headache is more often bilateral than in adults; an adult pattern of unilateral pain usually emerges in late adolescence or early adulthood
Photophobia and phonophobia may be inferred by behavior in young children

Headache triggers

Diet
Alcohol
Chocolate
Aged cheeses
Monosodium glutamate
Aspartame
Caffeine
Nuts
Nitrites, nitrates
Hormones
Menses
Ovulation
Hormone replacement (progesterone)
Sensory stimuli
Strong light
Flickering lights
Odors
Sounds, noise

Stress
Let-down periods
Times of intense activity
Loss or change (death, separation, divorce, job change)
Moving
Crisis
Changes of environment or habits
Weather
Travel (crossing time zones)
Seasons
Altitude
Schedule changes
Sleeping patterns
Dieting
Skipping meals
Irregular physical activity

Tension-type headache

mild to moderate intensity, bilateral , nonthrobbing headache ,

Cluster headache

unilateral, often severe headache attacks and typical accompanying autonomic symptoms.

severe unilateral orbital, supraorbital, or temporal pain accompanied by autonomic

Phenomen.

Secondary headache

underlying condition –

EVALUATION

Rule out serious underlying pathology

Determine the type of primary headache

Episodic tension-type headache diagnostic criteria

Description: Episodes of headache, typically bilateral, pressing or tightening in quality and of mild to moderate intensity, lasting minutes to days. The pain does not worsen with routine physical activity and is not associated with nausea, but photophobia or phonophobia may be present. Increased pericranial tenderness may be present on manual palpation.
A. At least 10 episodes of headache fulfilling criteria B through D. Infrequent and frequent episodic subforms of TTH are distinguished as follows:
Infrequent episodic TTH: Headache occurring on <1 day per month on average (<12 days per year).
Frequent episodic TTH: Headache occurring on 1 to 14 days per month on average for >3 months (≥ 12 and <180 days per year).
B. Headache lasting from 30 minutes to seven days.
C. At least two of the following four characteristics:
Bilateral location.
Pressing or tightening (nonpulsating) quality.
Mild or moderate intensity.
Not aggravated by routine physical activity such as walking or climbing stairs.
D. Both of the following:
No nausea or vomiting.
No more than one of photophobia or phonophobia.
E. Not better accounted for by another ICHD-3 diagnosis.

Clinical features and treatment of the trigeminal autonomic cephalalgias

	Cluster headache	Paroxysmal hemicrania	SUNCT* and SUNA¶	Hemicrania continua
Sex predominance	Male (4:1)	No (1:1)	Female (1.7:1)	Female (2:1)
Pain				
Type	Stabbing	Stabbing or throbbing	Stabbing or burning	Stabbing, throbbing, burning, or aching
Severity	Excruciating	Excruciating	Severe to excruciating	Mild to severe
Site	Orbital or temporal	Orbital or temporal	Orbital or temporal	Orbital, frontal, and/or temporal
Typical attack frequency	1 every other day to 8 daily	5 to 40 daily	1 to 200 daily	Continuous (with exacerbations)
Duration of attack	15 to 180 minutes	2 to 30 minutes	1 second to 10 minutes	Months to years (untreated)
Autonomic features?Δ	Yes	Yes	Yes (conjunctival injection and prominent with SUNCT)	Yes
Restlessness and/or agitation?	Yes	Yes	Sometimes	Yes
Associated migrainous features?◊	Yes	Yes	Rare	Frequent
Triggers	Alcohol	Stress, exercise, alcohol	Tactile stimuli (eg, touching face, shaving, brushing teeth)	Alcohol
Indomethacin responsive?	No	Yes	No	Yes
Abortive treatment	Triptans (intravenous or nasal) Oxygen	None	Lidocaine (intravenous) for frequent and debilitating symptoms	None
Prophylactic treatment	Verapamil Glucocorticoids Galcanezumab Lithium	Indomethacin Verapamil NSAIDs	Lamotrigine Oxcarbazepine Topiramate Gabapentin	Indomethacin

Diagnostic criteria for cluster headache

Cluster headache: Diagnostic criteria for cluster headache require the following:

A. At least five attacks fulfilling criteria B through D

B. Severe or very severe unilateral orbital, supraorbital, and/or temporal pain lasting 15 to 180 minutes when untreated; during part (but less than half) of the active time course of cluster headache, attacks may be less severe and/or of shorter or longer duration

C. Either or both of the following:

1. At least one of the following symptoms or signs ipsilateral to the headache:

a) Conjunctival injection and/or lacrimation

b) Nasal congestion and/or rhinorrhea

c) Eyelid edema

d) Forehead and facial sweating

e) Miosis and/or ptosis

2. A sense of restlessness or agitation

D. Attacks have a frequency between one every other day and eight per day; during part (but less than half) of the active time-course of cluster headache, attacks may be less frequent

E. Not better accounted for by another ICHD-3 diagnosis

Episodic cluster headache: Diagnostic criteria for episodic cluster headache require the following:

A. Attacks fulfilling criteria for cluster headache and occurring in bouts (cluster periods)

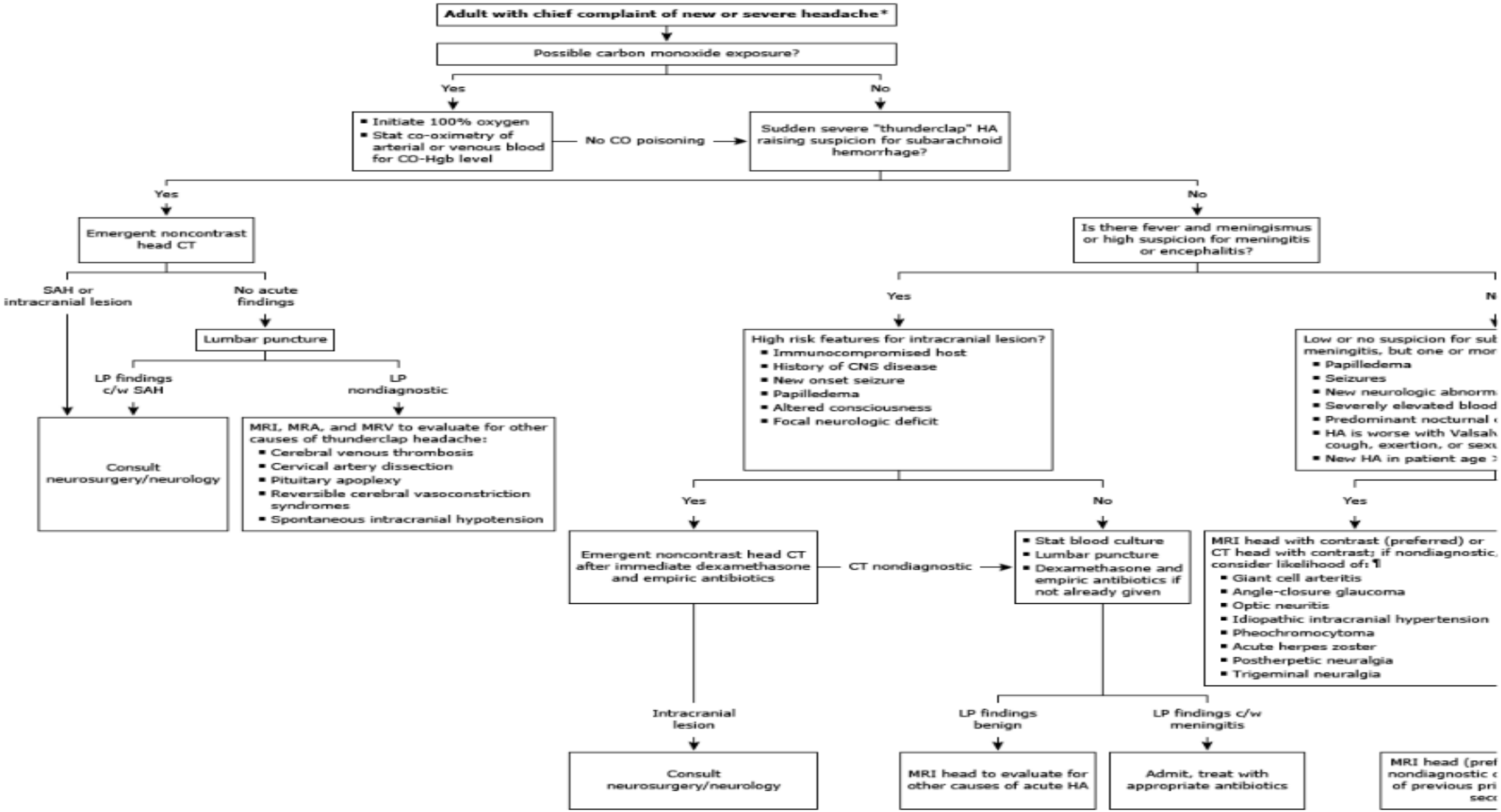
B. At least two cluster periods lasting from seven days to one year (when untreated) and separated by pain-free remission periods of three months or more

Chronic cluster headache: Diagnostic criteria for chronic cluster headache require the following:

A. Attacks fulfilling criteria for cluster headache

B. Attacks occurring without a remission period, or with remissions lasting less than three months, for at least one year

Urgent evaluation of headache in adults without history of trauma



Low-risk features

Age ≤50 years

Features typical of primary headaches

History of similar headache

No abnormal neurologic findings

No concerning change in usual headache pattern

No high-risk comorbid conditions

No new or concerning findings on history or examination

Danger signs:(SNNOOP10)

Systemic symptoms including fever
Neoplasm history
Neurologic deficit (including decreased consciousness)
Onset is sudden or abrupt
Older age (onset after age 50 years)
Pattern change or recent onset of new headache
Positional headache
Precipitated by sneezing, coughing, or exercise
Papilledema
Progressive headache and atypical presentations
Pregnancy or puerperium
Painful eye with autonomic features
Post-traumatic onset of headache
Pathology of the immune system such as HIV
Painkiller (analgesic) overuse (eg, medication overuse headache) or new drug at onset of headache

Specific features suggesting a secondary headache source

-Strictly unilateral pain that does not switch sides

-Impaired vision or seeing halos around light

-Visual field defects

-Sudden, severe, unilateral vision loss

-Blurring of vision on forward bending of the head

-Headache that is relieved with recumbency and exacerbated with upright posture

-Need for emergency evaluation

-Sudden onset "thunderclap" headache

-Acute or subacute neck pain or headache with Horner syndrome and/or neurologic deficit

-Headache with suspected meningitis or encephalitis

-Headache with global or focal neurologic deficit or papilledema

-Headache with orbital or periorbital symptoms

New or recent onset headache

-Older age

-Cancer

-Febrile or with Lyme disease

-Immunosuppression

Older patients

-Giant cell (temporal) arteritis

-Trigeminal neuralgia

-Chronic subdural hematoma

-Acute herpes zoster and postherpetic neuralgia

-Brain tumor

-Hypnic headache

-Primary cough headache

Pregnancy - Fever

intracranial, systemic, or local infection

Chronic headache

-Chronic migraine headache

-CHRONIC TTH

-Medication overuse

-Hemicrania continua

SUMMARY AND RECOMMENDATIONS

-Distinguishing primary headache syndromes

-Initial evaluation

-Low risk headache features

-High-risk headache features

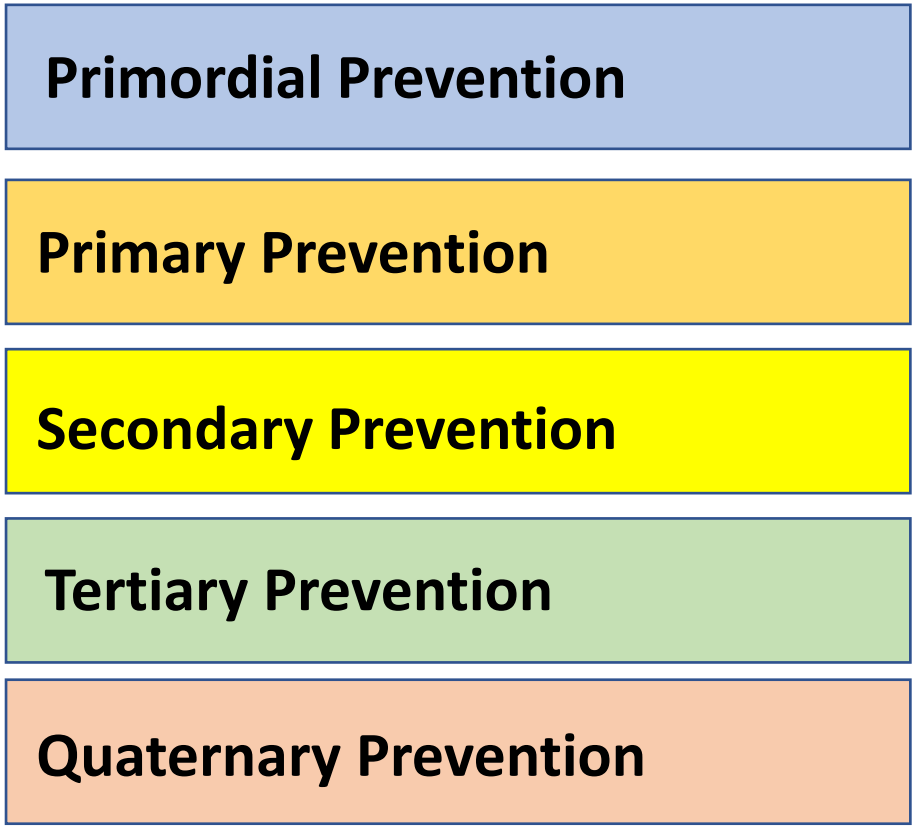
-Neuroimaging test selection

Etiologies of thunderclap headache

Most common causes of thunderclap headache:
Subarachnoid hemorrhage
Reversible cerebral vasoconstriction syndromes (RCVS)
Conditions that less commonly cause thunderclap headache:
Cerebral infection (eg, meningitis, acute complicated sinusitis)
Cerebral venous thrombosis
Cervical artery dissection
Spontaneous intracranial hypotension
Acute hypertensive crisis
Posterior reversible leukoencephalopathy syndrome (PRES)
Intracerebral hemorrhage
Ischemic stroke
Conditions that uncommonly or rarely cause thunderclap headache:
Pituitary apoplexy
Colloid cyst of the third ventricle
Aortic arch dissection
Aqueductal stenosis
Brain tumor
Giant cell arteritis
Pheochromocytoma
Pneumocephalus
Retroclival hematoma

Differential diagnosis of headache with fever

Intracranial infection
Meningitis
Bacterial
Fungal
Viral
Lymphocytic
Encephalitis
Brain abscess
Subdural empyema
Systemic infection
Bacterial infection
Viral infection
HIV/AIDS
Other systemic infection
Other causes
Familial hemiplegic migraine
Pituitary apoplexy
Rhinosinusitis
Subarachnoid hemorrhage
Malignancy of central nervous system


Primordial Prevention
Primary Prevention
Secondary Prevention
Tertiary Prevention
Quaternary Prevention

Primary Prevention

RISK factor for tension headache:

1. Being assigned female at birth
2. Being between the ages of 15 and 35
3. Experiencing physical stress or muscle tension
4. Having depression or anxiety
5. Not getting enough sleep or waking up through the night
6. Skipping meals through the day

RISK FACTOR for cluster headaches:

1. Were assigned male at birth
2. Drink alcohol
3. Smoke cigarettes or use tobacco products
4. Experience trouble sleeping through the night
5. Have a history of head trauma or brain injury

Risk Factor for migraine:

1. Being assigned female at birth
2. Being between the ages of 30 and 39
3. Experiencing stress , anxiety , or depression
4. Living with epillepcy(a condition that causes seizures)
5. Mensturating or experiencing changes in hormone levels
6. Having sleep difficulties such as insomnia or waking up often during the night
7. Overusing many pain medications or not taking medications as directed
8. Not follow your treatment plan
9. Missing meals
10. Drinking too much alcohol or caffeinated beverages
11. Being exposed to bright lights loud noises , or potent smells

Secondary Prevention

Avoiding triggers:

1. Emotional stress
2. Hormonal changes in people assigned female at birth , such as menstruation or taking birth control pills.
3. Weather changes
4. Sleeping problems
5. Strong odors
6. Bright light
7. Alcohol
8. Food and drinks that contain caffeine

Secondary Prevention

Sleeping well

1.Aiming for at least 7 hours of sleep per night

2.Going to bed and getting up at the same times each day

3.Keeping your bedroom calm , quiet , cool , and free of distractions

4.Avoiding screen time(e.g watching tv or scrolling on your phone)before bed

5.Limitting coffee and alcohol at least 3 hours before sleeping

6.Getting exercise during the day to induce sleep

Staying hydrated

Managing stress

Trying complementary methods(yoga,acupuncture,biofeedback)

Taking medications

Tertiary Prevention

- 1- درمان بموقع و مقتضی براساس آخرین و جدیدترین مطالعات
- 2- درمان کوموربیدیتی های همراه واقدامات پیشگیرانه جهت کنترل بیماری
- 3-مراقبت و مونیتورینگ بموقع بیماران

Quaternary Prevention

- 1- مونیتورینگ و فالواپ بموقع بیماران و ارایه خدمات درمانی مقتضی
- 2- عدم انجام اقدامات پاراکلینیکی و دارویی که تاثیر خاصی بر پیش آگهی و عوارض بیماری ندارد