Diagnosis and Management of Migraine Headache

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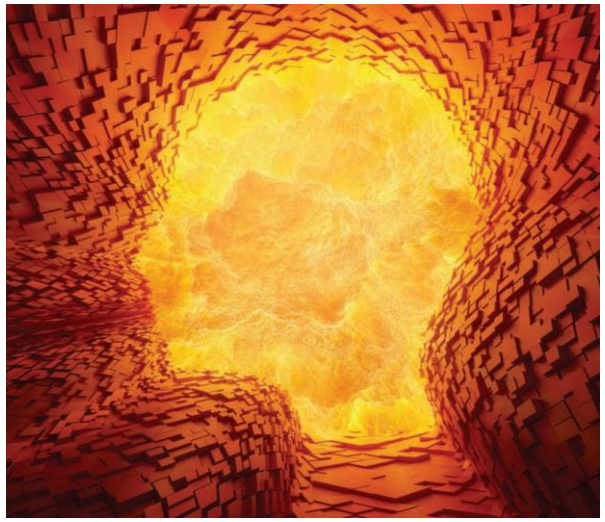

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The first nurse specialist course on headache and facial pain

Tehran University of Medical Sciences

IHA IRANIAN HEADACHE ASSOCIATION

Epidemiology

- Migraine the second most prevalent neurologic disorder (after tension-type headache),
- Female-to-male ratio : 3:1
- Prevalence peaks between the ages of 35 and 39 years,
- The onset of migraine before the age of 35 years in 75% persons

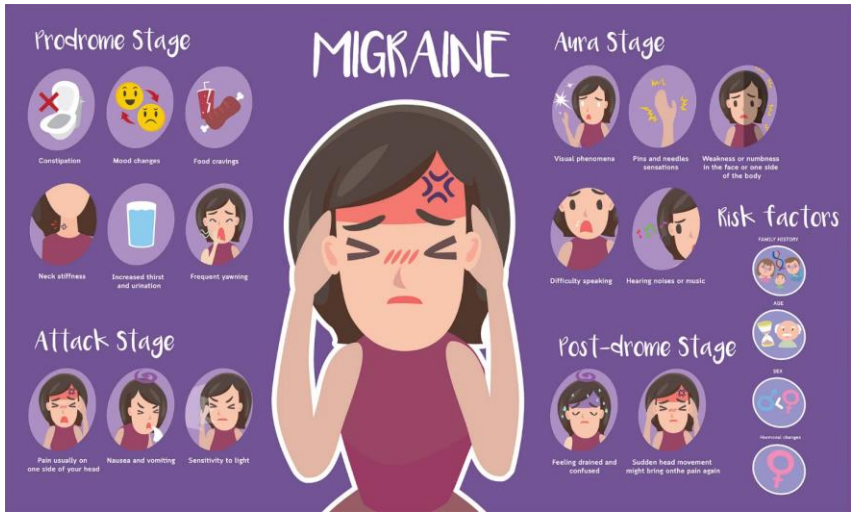
Epidemiology

- Affects considerable proportion of children,
- 1-year prevalence 7% among school-age children
- Onset of migraine after the age of 50 years should arouse suspicion of a secondary headache disorder

What is migraine?

- Migraine typically presents with self-limited, recurrent severe headache associated with autonomic symptoms

- 15–30% of people living with migraine experience episodes with aura



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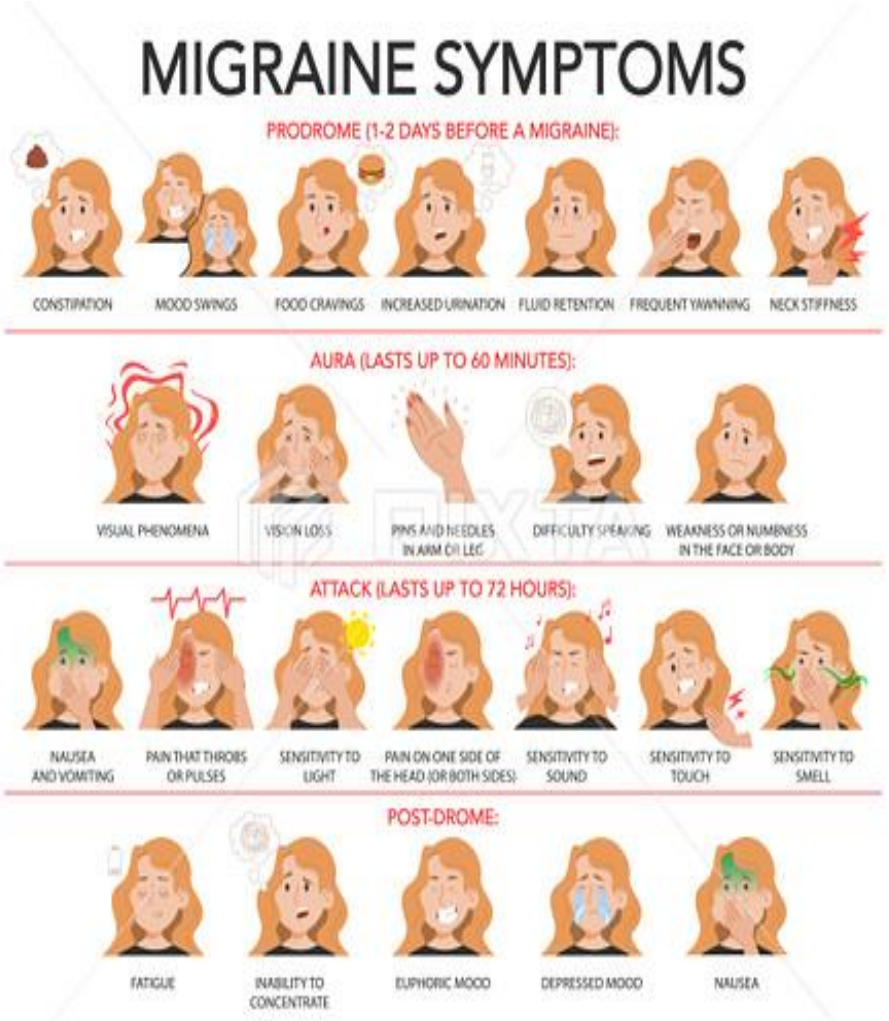
What is migraine?

- Frequently experience episodes without aura
- Severity of the pain, duration of the headache, and frequency of attacks are variable
- Migraine attack lasting longer than 72 hours is termed status migrainosus

What is migraine?

- Four possible phases to a migrain attack,
  - Prodrome, which occurs hours or da before the headache
  - Aura, which immediately precedes th headache
  - Pain , also known as headache phas
  - Postdrome, the effects experienced following the end of a migraine attacl



Prodrome phase

- Two hours to two days before the start of pain or the aura
- Include a wide variety of phenomena:
  - Altered mood,
  - Irritability,
  - Depression
  - Euphoria
  - Fatigue
  - Craving for certain food(s),
  - Stiff muscles (especially in the neck),
  - Constipation or diarrhea
  - Sensitivity to smells or noise

Aura phase

- Reversible focal neurologic symptom
- Visual scintillations and scotoma
- Spreading hemisensory symptoms or speech dysfunction
- Develop gradually over a period of 5 to 60 minutes
- Aura phase is usually followed by the headache within 60 minutes,
- Aura symptoms may occur during or in the absence of a subsequent headache.

Pain phase

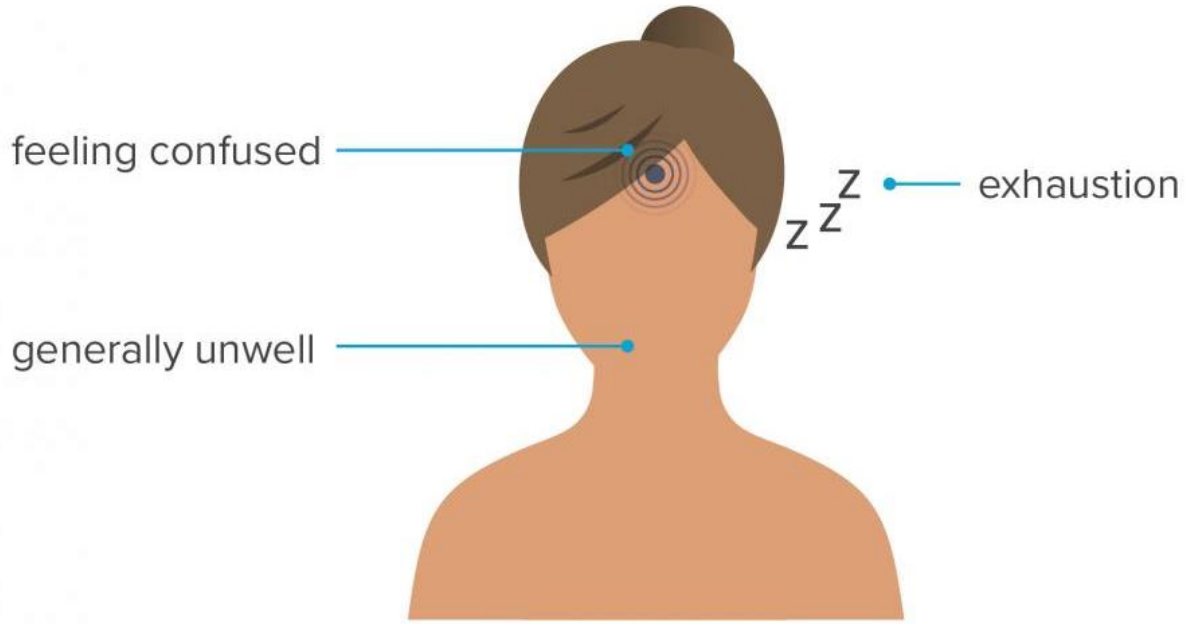
- Unilateral, throbbing headache
- Moderate to severe in intensity
- Comes on gradually
- Aggravated by physical activity during a migraine attack

Pain phase

- Pain may be bilateral in more than 40% of cases
- Bilateral pain is common in migraine without aura
- Pain usually lasts 4 to 72 hours in adults
- In young children frequently lasts less
- Frequency of attacks is variable
- Pain is frequently accompanied by nausea vomiting, sensitivity to light, sensitivity to sound, sensitivity to smells, fatigue, and irritability

Postdrome

- Constellation of symptoms occurring once the acute headache has settled.
- Sore feeling in the area where the migraine was,
- Impaired thinking for a few days after the headache has passed
- Feel tired
- Cognitive difficulties
- GI symptoms,
- Mood changes,
- Weakness



Types of migraine

- Migraine with aura
- Migraine without aura(most common type of migraine)
- Chronic migraine(debilitating and disabling condition that affects around 2 in 100 people)
- Migraine with brainstem aura
- Vestibular migraine
- Hemiplegic migraine
- Menstrual migraine

Migraines with aura

- Distinguished by recurrent, slowly developing attacks with lateralized and reversible visual, sensory, speech/language, motor, brainstem, or retinal symptoms;

- Attacks are accompanied or followed by headache and migraine symptoms

Migraine without aura

- Recurrent attacks with symptoms that include unilateral, pulsating pain of moderate/severe intensity

- Worsens with routine physical activity and is accompanied by nausea and/or light/noise sensitivity

Chronic migraine

- Having headache on at least 15 days per month, with eight of these having migraine symptoms, for at least three months

- The pattern of chronic migraine will vary depending on your individual circumstances.
  - some people it may return to episodic migraine,
  - some people find it stays the same
  - others find that it gets worse.

Distinguishing features of EM and CM[6]

	EM	CM
Headache frequency	<15 days/month	≥15 days/month
Diagnosis	• Headaches lasting 4–72 hours • Unilateral • Pulsating • Moderate/severe intensity • Made worse with routine physical activity • Nausea and/or light/noise sensitivity	Same as EM, plus history of ≥15 headache days/ month for the past 3 months with migrainous features ≥8 days/month

Migraine with brainstem aura

- Occurs with neurological symptoms that include at least two of the following:
  - Slurring of speech (dysarthria)
  - Sensation of movement (vertigo)
  - Ringing in the ears (tinnitus)
  - Double vision (diplopia)
  - Unsteadiness when walking as if drunk (ataxia)
  - Temporary decreased consciousness (syncope)
  - Pins and needles and /or numbness affecting both arms and/or legs
  - Changes in eyesight in both eyes such as patterns or flashing lights

Migraine with brainstem aura

- Migraine with brainstem aura symptoms often develop gradually and occur with or before a typical migraine headache in those who experience it.

Vestibular migraine

- Type of migraine people experience a combination of vertigo, dizziness or balance problems with other migraine symptoms

Vestibular migraine

- According to the ICHD-3 the diagnosis of vestibular migraine needs:
  - At least five episodes
  - A present or past history of migraine
  - Vestibular symptoms (vertigo or dizziness) lasting between five minutes and 72 hours
  - Migraine headache or other migraine associated symptoms in at least half of the episodes.

Menstrual migraine

- More than half of women with migraine report menstruation (having a period) as a trigger for their migraine attacks.
- Menstrual migraine refers to migraine attacks that are linked to menstruation
- more severe and less responsive to treatment
- last longer than other types of migraine

Diagnosis

- Diagnosis based on clinical criteria provided by the International Classification of Headache Disorders, 3rd edition (ICHD-3)

- ICHD-3 provides diagnostic criteria for the three main categories of migraine:
  - Migraine without aura,
  - Migraine with aura,
  - Chronic migraine

Diagnostic Criteria for Migraine without Aura

Type of Migraine	Diagnostic Criteria
Migraine without aura	At least five attacks that meet the following four criteria:
	Headache lasting 4–72 hours (when untreated or unsuccessfully treated)
	Headache with at least two of the following four characteristics: Unilateral location Pulsating quality Moderate or severe pain intensity Aggravation by or causing avoidance of routine physical activity (e.g., walking or climbing stairs)
	Headache accompanied by at least one of the following symptoms: Nausea, vomiting, or both Photophobia and phonophobia
	Not better accounted for by another ICHD-3 diagnosis

Diagnostic Criteria for Migraine with Aura,

Migraine with aura	At least two attacks that meet the following three criteria:
	One or more of the following fully reversible aura symptoms: Visual Sensory Speech, language, or both Motor Brain stem Retinal
	At least three of the following six characteristics: At least one aura symptom spreading gradually over a period ≥5 minutes Two or more aura symptoms occurring in succession Each aura symptom lasting 5–60 minutes At least one unilateral aura symptom At least one positive aura symptom Headache accompanying the aura or following the aura within 60 minutes
	Not better accounted for by another ICHD-3 diagnosis

Diagnostic Criteria for Chronic Migraine

Chronic migraine	Headaches (suggestive of migraine or tension headaches) on ≥15 days/month for >3 months that fulfill the following criteria:
	Occurring in a patient who has had at least five attacks meeting the criteria for migraine without aura or the criteria for migraine with aura or both
	On ≥8 days/month for >3 months, features of migraine without aura or of migraine with aura or believed by the patient to be migraine at onset that is relieved by a triptan or ergot derivative
	Not better accounted for by another ICHD-3 diagnosis

Diagnosis

- Diagnostic workup include :
  - Physical examination(no abnormal findings)
  - Red flags on physical examination:
    - fever, neck stiffness, and weight loss

Diagnosis

- Differential diagnosis of migraine :
  - Other primary headache disorders(tension type headache)
  - Some secondary headache disorders(post-traumatic headache)

Diagnosis

- Features suggestive of secondary headache disorder :
  - Recent head trauma,
  - Progressively worsening headache,
  - Thunderclap headache (the sudden onset of an extremely severe headache).

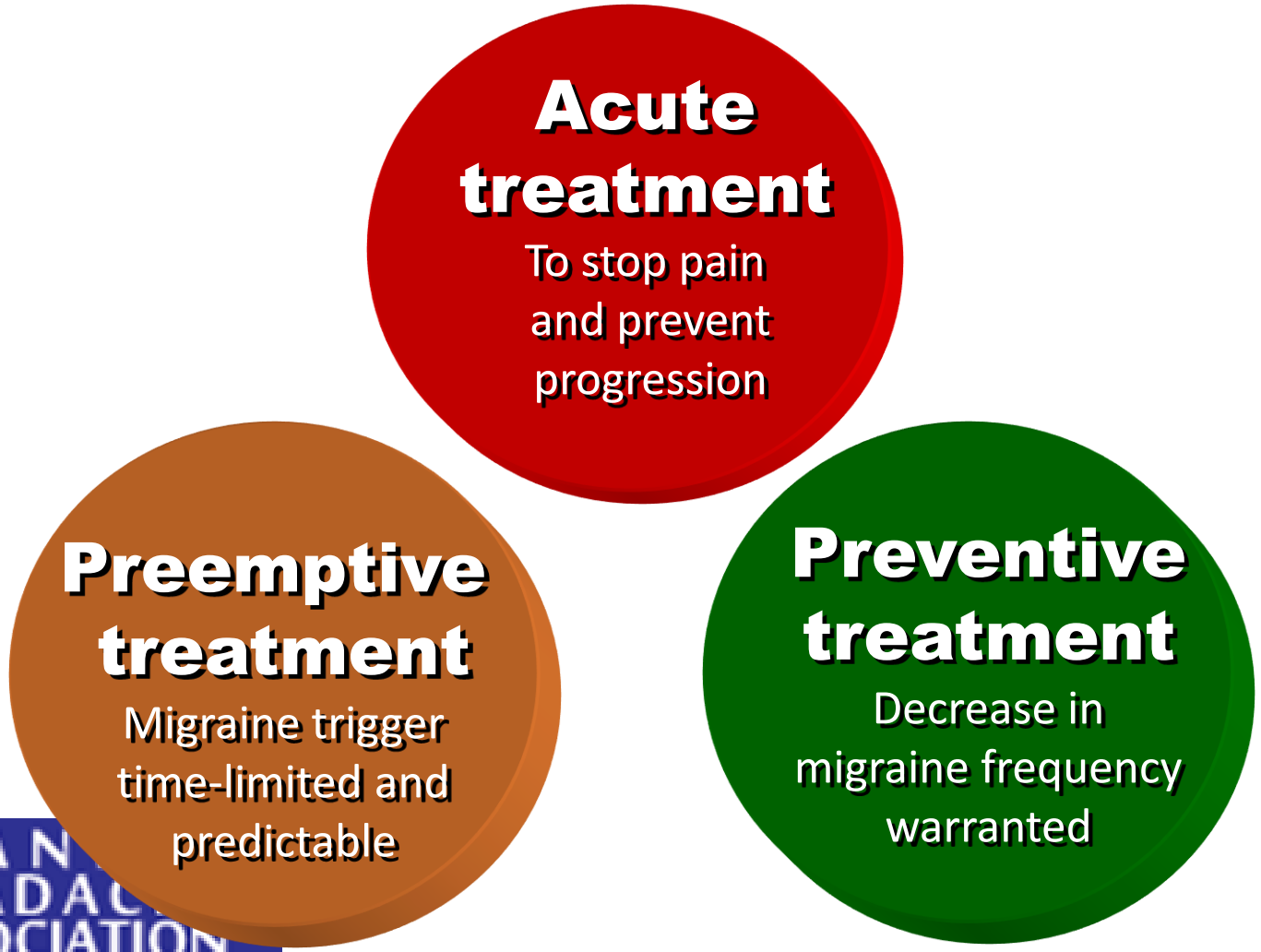
Genetic Features

- Family history of migraine is common
- Heritability approximately 42%

Pathogenesis

- Incompletely understood,
- Involve the trigeminal nerve and its axonal projections to the intracranial vasculature (termed the trigeminovascular system)
- Nociceptive signals from the trigeminovascular system are relayed to areas in the brain that yield the perception of migraine pain

STRATEGIES FOR MIGRAINE TREATMENT



Silberstein SD, Goadsby PJ. *Cephalalgia*. 2002.

Treatment

- Pharmacologic therapy (mainstay of treatment) includes:
  - initial and preventive medications,
- Nonpharmacologic therapies used as adjuncts to medication
- Modest evidence exists for the benefit of noninvasive neuromodulatory devices,
- Biobehavioral Therapies,
- Acupuncture

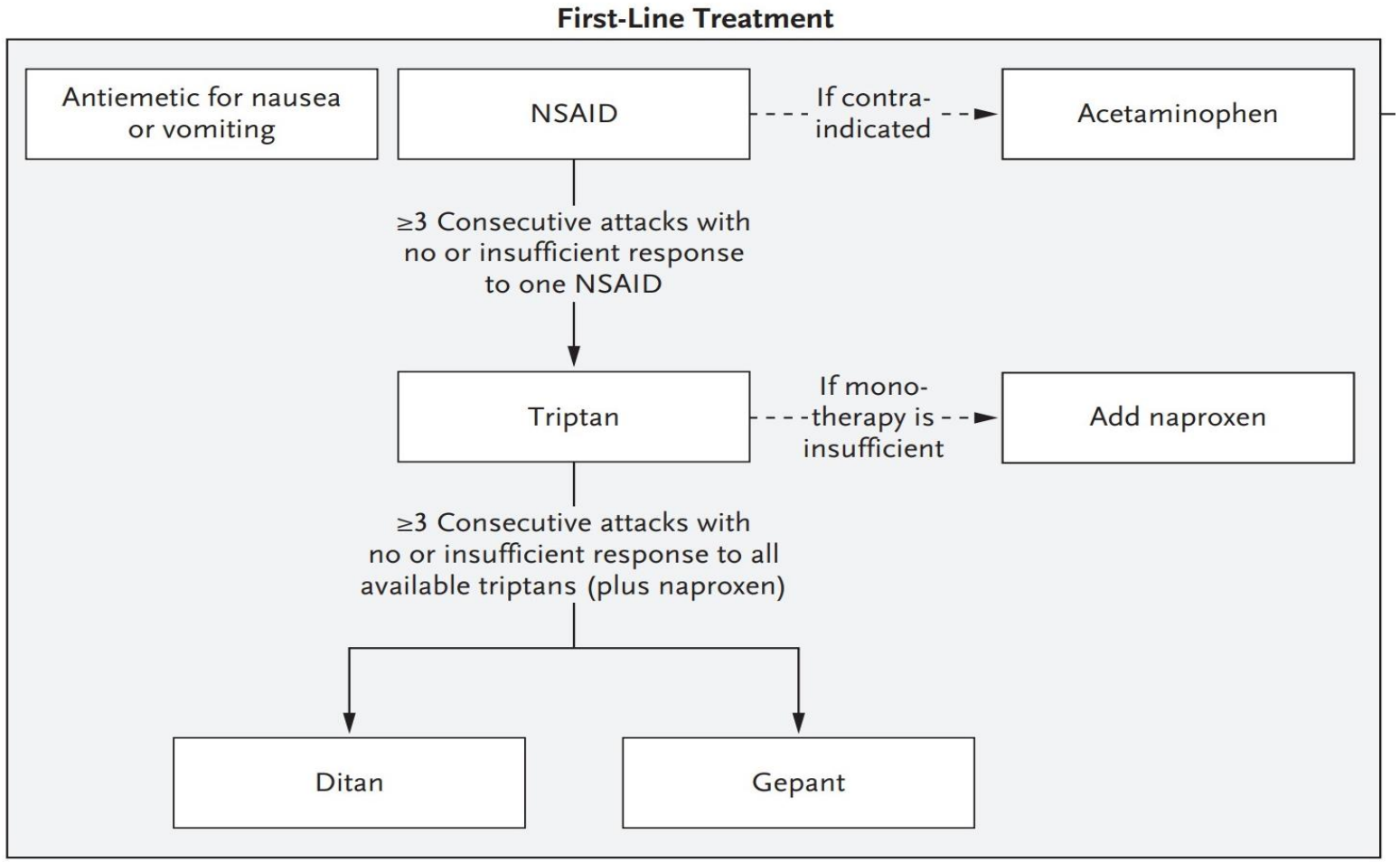
Pharmacologic therapy

- Early Treatment
  - dministered early in the headache phase of an attack
- NSAIDs acetylsalicylic acid, ibuprofen, and diclofenac
- Triptans are considered second-line medications
- Seven oral triptans (almotriptan, eletriptan, frovatriptan, naratriptan, rizatriptan, sumatriptan, and zolmitriptan)

Early Treatment

- Gepants (ubrogepant, rimegepant) : small-molecule CGRP receptor antagonists,
- Ditans (Lasmiditan) : 5-hydroxytryptamine type 1F (5-HT1F) receptor agonists,
- advise against the use of opioids and barbiturates in the treatment of migraine : adverse effects and the risk of dependency

Early Treatment



Preventive treatments:

- Pharmacologic
- Interventional
- Biobehavioral
- Neurostimulation
- Nutraceuticals
- Lifestyle modification

Preventive Treatment

- Migraine is a recurrent disorder; long-term management may require preventive treatment

- Aim is to reduce the frequency, duration, or severity of migraine attacks rather than to cure the migraine

Preventive Treatment

- When preventive treatment should be initiated ?
  - Patients who have at least two migraine days per month
  - Whose lives are adversely affected despite therapy

Preventive Treatment

- Most widely used drug classes
  - Antihypertensive agents (e.g., beta-blockers and candesartan), antidepressant agents (e.g., amitriptyline),
  - Anticonvulsant agents (e.g., topiramate and sodium valproate),
  - Calcium-channel blockers (flunarizine).
- Chronic migraine, topiramate and onabotulinumtoxinA (Botox) has been documented

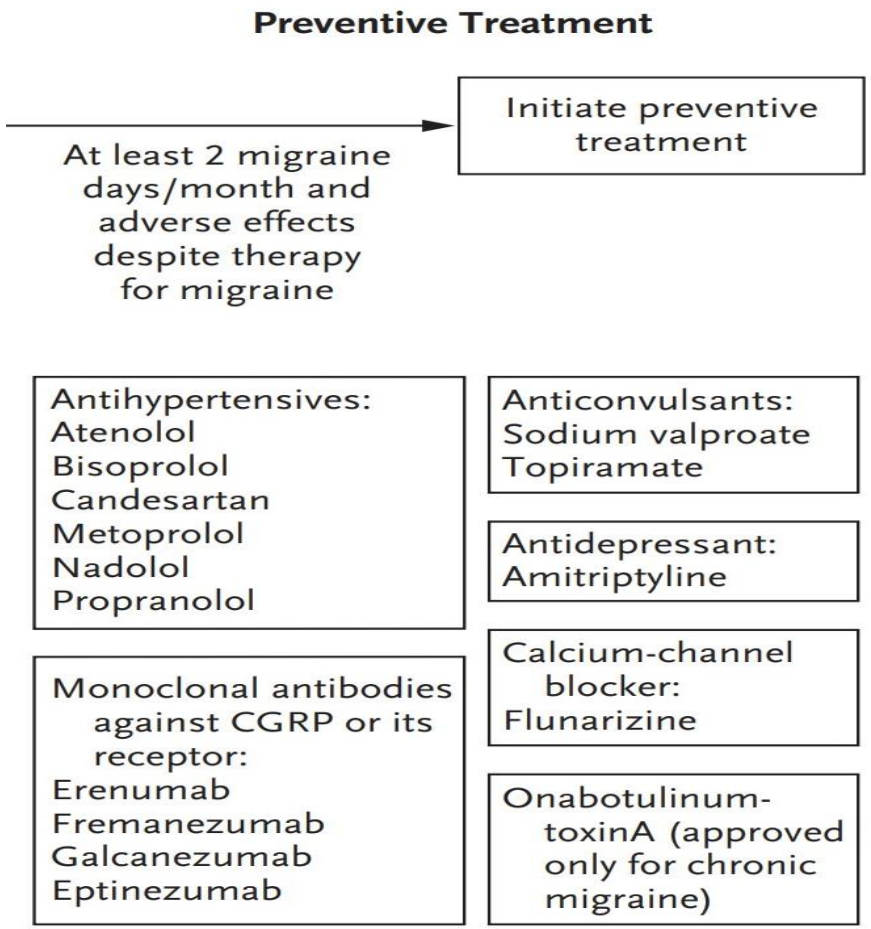
Preventive Treatment

- New mechanism-based preventive therapies four injectable monoclonal antibodies targeting CGRP or its receptor
- All have effectiveness for the preventive treatment of episodic and chronic migraine
- Eptinezumab
- Erenumab
- Fremanezumab
- Galcanezumab

Preventive Treatment

- Treatment response can be assessed and substitution of another medication
  - After about 2 to 3 months for oral preventive medications
  - After 3 to 6 months for monoclonal antibodies targeting CGRP or its receptor
  - After 6 to 9 months for onabotulinumtoxinA

Preventive Treatment

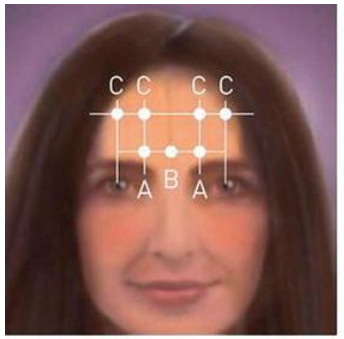


Onabotulinumtoxin A

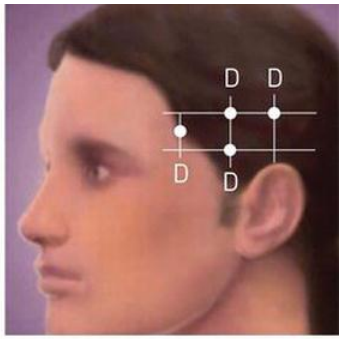
- Injection in 31 standardized sites across the head and neck (155 units total) every 12 weeks,
- Optional additional 40 units of injections in other pain sites in the “follow the pain” protocol
- Assessed for efficacy after the third injection cycle
- Allodynia is considered predictive of a good response to treatment
- Injections should be continued every 12 weeks until the patient reverts to episodic migraine

Onabotulinumtoxin A

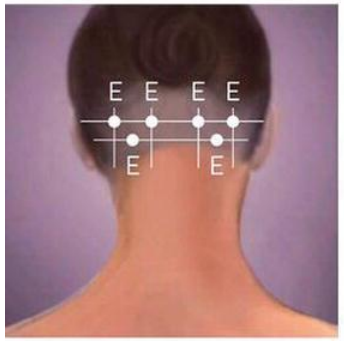
- PREEMPT protocol



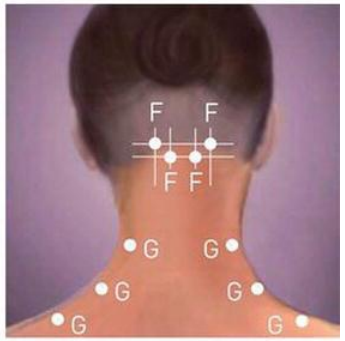
A. Corrugator: 5 Units each side
B. Procerus: 5 Units (1 site)
C. Frontalis: 10 Units each side



D. Temporalis: 20 Units each side



E. Occipitalis: 15 Units each side



F. Cervical paraspinal: 10 Units each side
G. Trapezius: 15 Units each side

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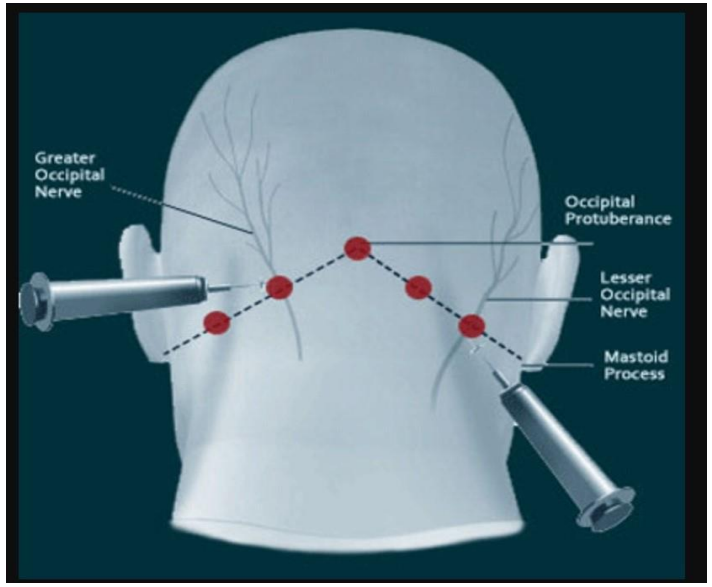
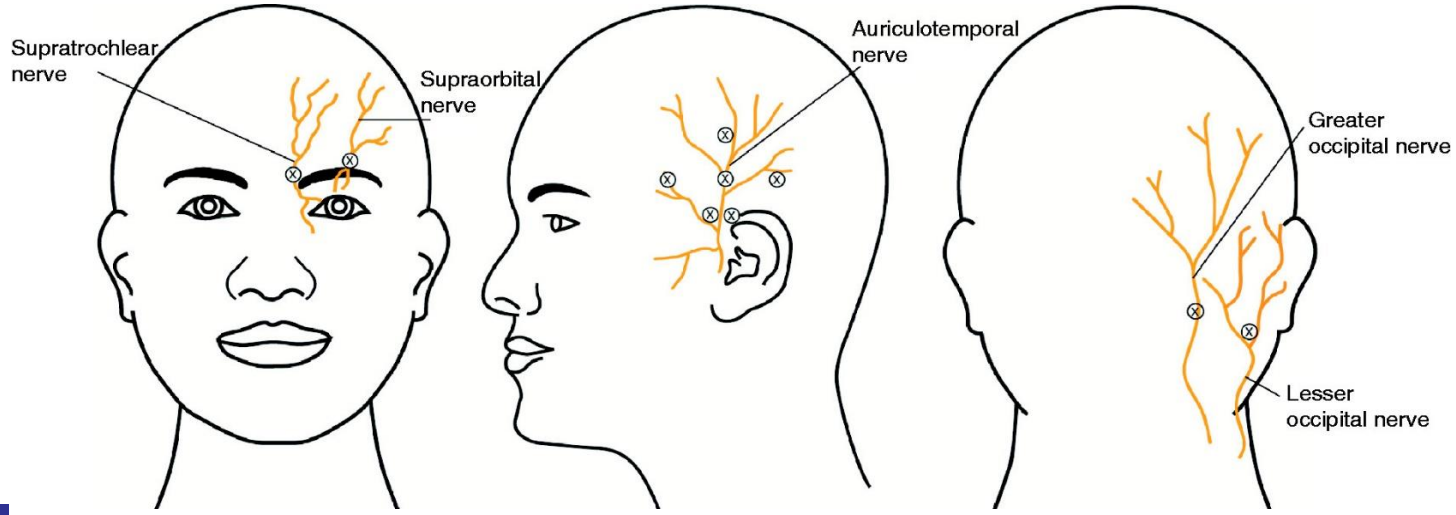
Interventions

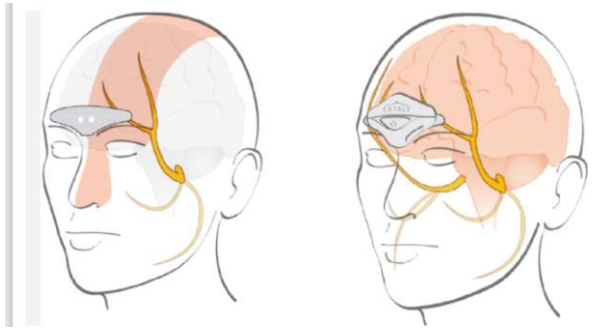
- Occipital nerve blocks :
  - additional treatment for chronic migraine
  - Local injections with either lidocaine or bupivacaine
  - measured between one week and three months



Interventions

- Supra-orbital,
- Auriculotemporal,
- Maxillary nerve blocks





Neuromodulation

- Three devices use for preventive migraine treatment:
  - eTNS(external trigeminal nerve stimulation)
  - nVNS(noninvasive vagus nerve stimulator)
  - Stms(single-pulse transcranial magnetic stimulation)

Biobehavioral therapies

- Cognitive behavioral therapy
- Biofeedback
- Relaxation therapies
- Mindfulness-based meditation
- Physical Treatments(Acupuncture)

Medication overuse headache

- MOH develops when a person uses high levels of acute medicines (painkillers) for at least three months
  - paracetamol and NSAIDs (simple analgesics) on 15 or more days per month
  - ergotamine, triptans, opioids (codeine-based medicines) as well as combination painkillers on 10 or more days per month.

Migraine in Children and Adolescents

- Ibuprofen is considered the initial drug of choice

- If ibuprofen is ineffective, oral triptans and the combination of sumatriptan and naproxen sodium may be tried

Migraine in Children and Adolescents

- There is less evidence supporting the use of preventive medications, such as topiramate, amitriptyline, and propranolol in children and adolescents

- Children and adolescents may benefit from biobehavioral therapies, such as biofeedback, relaxation, and cognitive behavioral therapy

Nurse Practitioner role in patient management

- key role in educating patients regarding treatment adherence and expectation management

- Counseling patients regarding medication options, reducing medication overuse, lifestyle choices, trigger management, and the importance of keeping a detailed diary of headache intensity, frequency, and duration is essential