PRIMARY CARE
Team 435

Objectives:

- **Common types of a headache "A migraine, Tension headache, Cluster headache"**
- **A brief comment on migraine, tension headache, cluster headache, benign intracranial tension, temporal arteritis, space-occupying headaches.**
- **Clinical approach to a patient with a headache**
- **Red Flags and indications for further investigations, like CT brain, and MRI**
- **When to refer to a specialist**
- **Types of investigations to be requested if needed**
- **Roles of primary health care physician in the management of "Drug treatment and Prophylaxis," like propranolol, topiramate, amitriptyline, ...**

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References : canadian family physician guidelines , UP to date

[Color index : Important | Notes | Extra]

❖ Introduction: HEADACHE..

- is pain localized to any part of the head, behind the eyes or ears, or in the upper neck.
- Is among the most common medical complaints.
- Is one of the most common neurological problems presented to Family physicians and neurologists.
- Almost half **(50%)** of the adult population have had a headache at least once within the last year.
- Headache on 15 or more days every month affects **1.7–4%** of the world's adult population.
- The lifetime prevalence is 66%:

Tension-type headache	46% to 78% (THE most common)
Migraine	14% to 16% (2nd most common)
Cluster headache	0.1% to 0.3%

❖ Misconceptions uptodate

- Acute or chronic sinusitis appears to be an uncommon cause of recurrent headaches, and many pts turn out to have migraine.
- Patients frequently attribute headaches to eye strain. A study suggested that headaches are only rarely due to refractive error alone.
- Nevertheless, correcting vision may improve headache symptoms in some of these patients.
- Hypertension can cause headaches in case of HTN emergencies but not true for typical migraine or tension headaches.

❖ The main two categories of headache: the red ones are the most common

Primary headaches	Secondary headaches
Migraine	Space-occupying mass
Tension type	Vascular lesion
Medication overuse headache	Infection
Benign exertional headache	Metabolic disturbance
Cluster	Systemic problem.
Other trigeminal autonomic cephalalgias	

❖ General practice points for managing primary headache in adults:

• Rule out secondary headache when diagnosing a primary headache disorder.
• Neuroimaging is not indicated in patients with recurrent headache with the clinical features of migraine, normal neurologic examination findings, and no red flags.
• Migraine is by far the most common headache type in patients seeking help for headache from physicians.
• Migraine is historically underdiagnosed and undertreated.
• Migraine should be considered in patients with recurrent moderate or severe headaches and normal neurologic examination findings.
• Migraine should be considered in patients with a previous diagnosis of recurring "sinus" headache.
• Patients consulting for bilateral headaches that interfere with their activities are likely to have migraine rather than tension type headache and might require migraine-specific medication.
• Comprehensive migraine therapy includes management of lifestyle factors and triggers, acute and prophylactic medications, and migraine self-management strategies.

Objective no.1 Common types of a headache "A migraine, Tension headache, Cluster headache"

Objective no.2 A brief comment on migraine, tension headache, cluster headache, benign intracranial tension, temporal arteritis, space-occupying headaches.

	Migraine headache	Tension headache	Cluster headache
location	Adults: Unilateral in 60-70% "alternating", Children and adolescents: Bilateral in majority	Bilateral, temporal & forehead may extend to neck and shoulders	Unilateral same side, usually begins around the eye or temple
onset	Gradual "crescendo pattern", worsens within hours	Gradual, worsens within hours	Gradual, quickly worsens within minutes
duration	4 to 72 hours	30 minutes to 7 days	15 minutes to 3 hours
Characteristics	Pulsating, Throbbing	Pressure or tightness "like a band" which waxes and wanes	Deep, continuous, excruciating, and explosive in quality
Severity	Very severe, aggravated by routine physical activity	Mild to moderate.	Severe
Associated symptoms	Nausea, vomiting, photophobia, phonophobia; may have Pre-episodic aura,	None	Autonomic symptoms occur on the same side of pain "Ipsilateral": lacrimation, redness of the eye; stuffy nose; rhinorrhea, pallor; sweating; Horner syndrome
Patient appearance	Patient prefers to rest in a dark, quiet room	Patient may remain active or may need to rest	Patient remains active

Diagnosing primary headache syndromes		
Description of Headache syndrome:		
A. Patients with recurrent headache attacks and normal neurologic examination findings		
Diagnose migraine without aura (migraine with aura if an aura is present) if they have at least 2 of the following: -nausea during the attack. -light sensitivity during the attack . -some of the attacks interfere with their activities.	Diagnose episodic tension-type headache: have at least 2 of the following: -bilateral headache -non-pulsating pain -mild to moderate intensity -headache is not worsened by activity	Diagnose cluster headache or trigeminal autonomic cephalalgia if it meets ALL following criteria: -frequent -severe -brief (duration < 3 h) -unilateral -ipsilateral conjunctival injection, tearing, horner syndrome. Neurologist referral recommended

B. Patients with headache on ≥ 15 d/mo for > 3 mo and with normal neurologic examination findings : (Chronic)	
• Diagnose chronic migraine if headaches meet migraine diagnostic criteria (above) or are quickly aborted by migraine-specific medications (triptans or ergots) on ≥ 8 d/mo	Diagnose chronic tension-type headache if headaches meet episodic tension-type headache diagnostic criteria (above), except mild nausea might be present
• Chronic migraine with Medication Overuse Headache MOH "Also called analgesic rebound headache " Can be diagnosed if: 1. the patient uses ergots, triptans, opioids, or combination analgesics on ≥ 10 d/month 2. Or use of acetaminophen or NSAIDs on ≥15 d/month - MOH appears to be Highest with opioids containing combination analgesics, and aspirin/ acetaminophen/ caffeine combinations, Intermediate with triptans, Lowest with NSAIDs. If MOH suspected, the pt should also be evaluated for the presence of the following: - Psychiatric comorbidities - Psychological and physical drug dependence - Use of inappropriate coping strategies Hence *Appropriate Coping strategies for headache: 1- Self-management strategies[1] 2- Patient (Headache) diaries	

❖ Management of MOH- Patient education:

- Acute medication overuse can increase headache frequency.
- When medication overuse is stopped, headache might worsen temporarily and other withdrawal symptoms might occur .
- Many patients will experience a long-term reduction in headache frequency after medication overuse is stopped .
- Prophylactic medications might become more effective .

❖ Strategy for cessation of medication overuse :

- ➢ Abrupt withdrawal should be advised for patients if suspected medication overuse headache (MOH) caused by simple analgesics (acetaminophen, NSAIDs) or triptans.
- ➢ Gradual withdrawal should be advised for patients if suspected medication overuse headache caused by opioids and opioid-containing analgesics.
- ➢ Patient follow-up and support.

C. Patients with continuous daily headache for > 3 months with normal neurologic examination findings	
Diagnose hemicrania continua (neurologist referral recommended) if the headache: 1. is strictly unilateral 2. is always on the same side of the head (ptosis or miosis might be present on examination)	Diagnose new daily persistent headache if the headache is unremitting since its onset. - It is important to consider secondary headaches in these patients. Neurologist referral recommended

[1] (eg, identification and management of controllable headache triggers, relaxation exercises, effective stress management skills, and activity pacing)

3. **responds dramatically to indomethacin**	
***Regarding Hemicrania:- attacks usually happen three to five times a day.** **Some people will have these headaches steadily for months or years.** **Like migraines, they can cause:** - **Vomiting/nausea** - **Phono/Photo Phobia** - **Throbbing pain**	

❖ Temporal arteritis:

General characteristics:

Vasculitis of unknown cause

The temporal arteries are most frequently affected, but it may involve other arteries,

Clinical features

1. Constitutional symptoms of malaise, fatigue, weight loss, and low-grade fever
2. Headaches —may be severe
3. Visual impairment[2]
4. Jaw pain with chewing
5. **Tenderness over temporal artery**; absent temporal pulse

❖ space-occupying headache:

a headache indicating a high risk of a space-occupying lesion of the brain or idiopathic intracranial hypertension include: A new headache with features suggestive of **raised intracranial pressure**, including **papilloedema**, **vomiting**, **posture-related headache**, or headache **waking the patient from sleep**

❖ Sinus headache :

Pain usually behind the forehead and/or the cheekbones.

Objective no.3 Clinical approach to patient with a headache

❖ Important elements in HISTORY : headache for the first time or those with a change in headache pattern

Headache onset (thunderclap, head or neck trauma)

- previous attacks (progression of symptoms)
- duration of attacks (4 hours, continuous)
- days per month with headache

Pain location

associated symptoms

Relationship to precipitating factors (stress, posture etc)

Effect on work and family activities

Response to acute and preventive medications

Presence of coexistent conditions (depression, asthma, etc)

[2] If there's involvement of the ophth artery or optic neuritis hence amaurosis fugax; blindness if not treated early and aggressively

❖ Approach to the PHYSICAL examination

➢ Blood pressure & temp measurement .

➢ Screening neurologic examination .

- general assessment of mental status -cranial nerve examination —fundoscopy, pupils, eye movements, visual fields, evaluation of facial movements for asymmetry and weakness -assessment for unilateral limb weakness, reflex asymmetry, and coordination in the arms
- assessment of gait (tandem gait > heel-toe)

If indicated, a focused neurologic examination can be done.

Neck examination:

- posture, range of motion, and palpation for muscle.

If indicated by associated jaw complaints, an examination for temporomandibular disorders.

Objective no.4 Red Flags and indications for further investigations, like CT brain, and MRI

Objective no.5 When to refer to a specialist

Do not take headache on elderly easily

IF ANY OF THE FOLLOWING IS PRESENT: REFER & INVESTIGATE.	
1 - **Red flags: emergent (address immediately)**	
• **Thunderclap onset (the pt say that it is the worst headache in my life "mostly subarachnoid hemorrhage")** • **Fever and meningismus**	• **Papilledema with focal signs or reduced level of consciousness** • **Acute glaucoma**
2 - **Red flags: urgent (address within hours to days)**	
• **Temporal arteritis** • **Papilledema without focal signs or reduced LOC**	• **Relevant systemic illness** • **Elderly patient: new headache with cognitive change**
3 - **Other possible indicators of secondary headache (less urgent)**	
• **Unexplained focal signs)** • **Unusual aura symptoms** • **Unusual headache precipitants**	• **Onset after age 50y** • **Atypical headaches (not: migraine or tension-type)** • **Other Ass. symptoms: Head trauma, headache awakens from sleep, worse with Valsalva maneuvers**
4 - **Aggravation by neck movement**	
• **Abnormal neck examination findings (consider cervicogenic headache)**	• **Abnormal jaw examination findings (consider temporomandibular joint disorder)**

Objective no.6 Types of investigations to be requested if needed

❖ investigations to be requested if needed "when there is an indication or "RED FLAGS" "

- Neuroimaging (CT, MRI) ,

- Sinus or cervical spine x-ray scans,

- electroencephalograms & labs.

- Investigations: are not recommended for the routine assessment of patients with headache: history and physical and neurologic examination findings are usually sufficient to make a diagnosis.

❖ Therapeutic and Prophylactic management of Headache

Comprehensive migraine management:

- **Pay attention to lifestyle and specific migraine triggers.**
- **Lifestyle factors "TO AVOID" include:**

- irregular or skipped meals - irregular or too little sleep
- a stressful lifestyle - excessive caffeine consumption
- lack of exercise - obesity

- **Use nonpharmacologic therapies for individual attacks.**
- **Evaluate and treat coexistent medical and psychiatric disorders.**
- **Encourage patients to participate actively in their treatment and to employ self-management principles:**

- self-monitoring to identify factors influencing migraine.
- pacing activity to avoid triggering or exacerbating migraine.
- maintaining a lifestyle that does not worsen migraine .
- practising relaxation techniques & stress management skills.
- maintaining good sleep hygiene.
- using CBT to avoid catastrophic or negative thinking.
- improving communication skills to talk effectively about pain with family and others.
- using acute and prophylactic medication appropriately.

Acute Migraine Medication		
	Medication	**Dose**
First line:	Simple analgesics: **Ibuprofen** **ASA** **naproxen sodium** **acetaminophen**	 **400 mg** **1000 mg** **500-550 mg** **1000 mg**
Second line:	**Triptans: oral sumatriptan** **Subcutaneous sumatriptan** **Nasal spray: sumatriptan** **Antiemetics:** **Domperidone** **or metoclopramide**	**100 mg** **6 mg if vomiting early in the attack.** **20 mg if a patient is nauseated.** **10 mg** **10 mg for nausea**
Third line:	**Naproxen sodium** **in combination with a triptan**	**500-550 mg**
Fourth line:	**Fixed-dose combination analgesics (with codeine if necessary; not recommended for routine use)**	

Migraine Prophylactic Therapy			
Medications	**Starting dose**	**Titration,* daily Dose increase**	**Target dose or therapeutic range**
First line **propranolol** **metoprolol** **amitriptyline[3]**	 **20 mg twice daily** **50 mg twice daily** **10 mg at bedtime**	 **40 mg/week** **50 mg/week** **10 mg/week**	 **40-120 mg twice daily** **50-100 mg twice daily** **10-100 mg at bedtime**
Second line **Topiramate[4]**	**25 mg/d**	**25 mg/week**	**50 mg twice daily**
candesartan	**8 mg/d**	**8 mg/week**	**Few side effects; limited experience in prophylaxis**
gabapentin	**300mg/d**	**300mg every 3-7 d**	**Few drug interactions**

Medications for a tension-type headache		
	Medication	**Dose**
An acute Headache	**Ibuprofen** **ASA** **Naproxen sodium** **Acetaminophen**	**400 mg** **1000 mg** **500-550 mg** **1000 mg**
	Tension Prophylactic Therapy	
First line:	**Amitriptyline** **Nortriptyline**	**10-100 mg/d** **10-100 mg/d**
Second line:	**Mirtazapine[5]** **venlafaxine[6]**	**30 mg/d** **150 mg/d**

Flunarizine one of other prophylactics in migraine .. Avoid in depression

Amitriptyline 1st line Prophylactic in migraine if depression anxiety insomnia or tension type headache

Topiramate 2nd line.. but consider 1st line Prophylactic in migraine if overweight

Beta blockers be avoided in asthma

[3] Amitriptyline – TCA's
[4] Topiramate – Anticonvulsant
[5] Mirtazapine – alpha antagonist - SNDI's
[6] venlafaxine SNRI's

What are the effects of drug treatments for chronic tension headache?

Beneficial	↑↑	• Amitriptyline
Likely to be beneficial	↑?	• Noradrenergic and specific serotonergic antidepressants
Unknown effectiveness	??	• Anticonvulsant drugs • Opioid analgesics • Paracetamol • Serotonin re-uptake inhibitors • Tricyclic antidepressants (other than amitriptyline)
Likely to be ineffective or harmful	↓↓	• Benzodiazepines • Botulinum toxin • Non-steroidal anti-inflammatory drugs (NSAIDs)

What are the effects of non-drug treatments for chronic tension-type headache?		
Unknown effectiveness	??	• Acupuncture • Cognitive behavioural therapy

Medications for a cluster-type headache		
	Medication	**Dose**
An acute Headache	**Subcutaneous sumatriptan** **Intranasal zolmitriptan** **100% O2**	**6 mg** **5 mg** **12 L/min for 15 min through a non-rebreathing mask**
	Cluster Prophylactic[7] Therapy	
First line:	**verapamil**	**240-480 mg/d (higher doses might be required)**
Second line:	**lithium**	**900-1200 mg/d**

[7] *If the patient has more than 2 attacks daily, consider transitional therapy while verapamil is built up

Prescribing Prophylactic medication

- Educate patients on the need to take the medication daily and according to the prescribed frequency and dosage.
- Ensure that patients have realistic expectations, explain that :
  - Headache attacks will likely not be abolished completely
  - A reduction in headache frequency of 50% is usually considered worthwhile and successful
  - It might take 4-8 weeks for substantial benefit to occur
- If the prophylactic drug provides a substantial benefit in the first 2 months of therapy, this benefit might increase further over several additional months of therapy.
- Evaluate the effectiveness of therapy using patient (headache) diaries: that record acute medication intake are important to:
  1) prevent and treat medication-overuse headache .
  2) assess the effectiveness of therapy.
- For most prophylactic drugs, initiate therapy with a low dose and increase the dosage gradually to minimize side effects.
- Increase the dose until the drug proves effective, until dose limiting side effects occur, or until a target dose is reached .
- Continue the prophylactic drug for at least 6-8 weeks after dose titration is completed .
- Because migraine attack tendency fluctuates over time, consider gradual discontinuation of the drug for many patients after 6 to 12 months of successful prophylactic therapy 10 mg every 2 d until discontinued.

CASE 1:

Ahmed is a 14-year-old boy. He attends your clinic accompanied by his mother. He presents with a two months history of headaches that he describes as “banging” and that make his head “very sore”.
He says that in the past two months, he has had 6 of these headaches. He also says that light hurts his eyes when he has the headaches. He does not feel nauseous or vomit during the headaches.
Mother tells you that when Ahmed has the headaches, he is unable to go to school and that the headaches last from 2 to 4 hours. She gives Ahmed paracetamol and if that doesn’t work she also gives him ibuprofen. This combination of medication helps.

What is the most likely diagnosis?
MIGRAINE

With or without
Without aura

How would you manage this pt?
Reassure: a serious underlying cause is unlikely. Migraines are a well-recognised problem. What causes them is not known for certain + Explain the risk of medication overuse headache.
For acute management of migraine
Pt preference, comorbidities and risk of adverse events.
First line: Simple analgesics (Ibuprofen 400 mg, ASA 1000 mg, naproxen sodium 500-550 mg, acetaminophen 1000 mg)
Second line: Triptans
Mild to moderate attacks — not associated with vomiting - simple analgesics (NSAIDs, acetaminophen) or combination analgesics
Moderate to severe attacks — not associated with vomiting -oral migraine-specific agents are first-line, including oral triptans and the combination of sumatriptan-naproxen.
When complicated by vomiting — non oral migraine-specific medications including subcutaneous sumatriptan OR nasal sumatriptan, non oral antiemetic agents
Migraine lifestyle and triggers to avoid .(above)
Encourage patients to participate actively in their treatment (Relaxation sessions, CBT, identify triggers, etc. (above)

CASE 2:

Aliya is a 28-year-old woman who was diagnosed with migraine with aura 6 months ago. She has, on average, 1 migraine attack per week, for which she takes an NSAID and an anti-emetic. Because Aliya has migraine about 4 times per month, she is unlikely to develop medication overuse headache. You are therefore happy with her current treatment plan.
However, during an attack, she is unable to work or continue her normal daily activities. She also worries a lot about when the next attack is going to happen and their frequency causes her to take a lot of time off work.

You want to confirm that she is not a taking combined hormonal contraceptive for contraception purposes. Why?
The Centers for Disease Control and Prevention (CDC), 2017 (medical eligibility criteria) recommends that **the combined hormonal contraception should not be used in women with migraine with aura at any age.** why?
There is an increased risk of ischaemic stroke in people with migraine with aura. This risk is increased in women using combined hormonal contraception.

You suggest propranolol as prophylaxis. How would you assess the effectiveness of propranolol?
Headache diary

When would you review the need to continue this prophylaxis?
-It might take 4-8 wk for substantial benefit to occur
-If the prophylactic drug provides substantial benefit in the first 2 mo of therapy, this benefit might increase further over several additional months of therapy
6-12 months after the start of prophylactic treatment.

She wants to become pregnant in the future, but still needs migraine prophylaxis, what should you do?
Seek specialist advice if prophylactic treatment for migraine is needed during pregnancy.
Offer pregnant women paracetamol for the acute treatment of migraine.
Migraine without aura often improves during pregnancy. However, migraine with aura is more likely to continue throughout pregnancy.

CASE 3:

Abdullah is a 31-year-old man. He has a history of severe headaches, which are the worst pain he has ever felt. When he gets these headaches, he has pain on one side of his head, around his eye and along the side of his face. He also experiences watery eye and nasal congestion, on the same side as the headache.
He experienced the headache for the first time two weeks ago. The CT scan done was normal and you have been asked to evaluate him.
He tells you that, since his first severe headache 2 weeks ago, he has experienced 6 more headaches. He says that on average his severe headaches last from 30 to 90 minutes.

What advice and support can you offer about his diagnosis?
Management primarily pharmacologic
Offer O2 or a subcutaneous or nasal triptan for the acute treatment.

What prophylaxis for cluster headache could you offer him?
Prophylactic medication: consider offering him verapamil.
Seek specialist advice before starting verapamil. Early specialist referral recommended

What medications would you not offer for the acute management of his cluster headache attacks?
You would not offer paracetamol, NSAIDS, or opioids as there is no evidence to suggest that they would have any clinical benefit in the treatment of cluster headache.

SUMMERY

Figure 1. Quick reference algorithm from the *Guideline for Primary Care Management of Headache in Adults*