Lecture 20

Editing file

MED438
KING SAUD UNIVERSITY

PRIMARY HEALTHCARE TEAMWORK

Approach To A Patient With Headache

Objectives:

- ★ Describe common types of function a headache “A migraine, Tension headache, Cluster headache”
- ★ Design an appropriate clinical approach to patient with headache
- ★ Identify the red Flags of headache (e.g. intracranial tension, temporal arteritis, space-occupying headaches) and indications for further investigations, like CT brain, and MRI
- ★ Discuss the family physician role in the management of headache “Drug treatment and Prophylaxis,” .
- ★ Explain types of investigations and referral to be requested if needed

Color index:

Original text Important Doctor’s notes Golden notes Extra

Guideline for primary care management of headache in adults

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Abstract

Objective To increase the use of evidence-informed approaches to diagnosis, investigation, and treatment of headache for patients in primary care.

Quality of evidence A comprehensive search was conducted for relevant guidelines and systematic reviews published between January 2000 and May 2011. The guidelines were critically appraised using the AGREE (Appraisal of Guidelines for Research and Evaluation) tool, and the 6 highest-quality guidelines were used as seed guidelines for the guideline adaptation process.

Main message A multidisciplinary guideline development group of primary care providers and other specialists crafted 91 specific recommendations using a consensus process. The recommendations cover diagnosis, investigation, and management of migraine, tension-type, medication-overuse, and cluster headache.

Conclusion A clinical practice guideline for the Canadian health care context was created using a guideline adaptation process to assist multidisciplinary primary care practitioners in providing evidence-informed care for patients with headache.

Headache is one of the most common reasons patients seek help from family physicians. The estimated lifetime prevalence of headache is 66%: 14% to 16% for migraine, 46% to 78% for tension-type headache, and 0.1% to 0.3% for cluster headache.[1-3] In Canada, at least 2.6 million adult women and nearly 1 million men experience migraine.[4] About 90% of migraine sufferers report moderate to severe pain, with 75% reporting impaired function and 33% requiring bed rest during an attack.[5] The economic effects of headache are also substantial. It is estimated that headache accounts for 20% of work absences.[6]

Vast quantities of over-the-counter medications are taken for headache disorders, and treatment is often suboptimal.[1,7] Although most migraine sufferers use acute treatment to relieve their headaches, a substantial number of people who might benefit from prophylactic therapy do not receive it—more than 1 in 4 migraineurs are candidates for preventive therapy.[5,8]

Better information and education for patients and health professionals is essential to improving management of headache in primary care, which should lead to prompt diagnosis and more effective treatment.[9] To help address this, a consortium of organizations and clinicians from Alberta developed the *Guideline for Primary Care Management of Headache in Adults*.[10]

EDITOR'S KEY POINTS

- Headache is a common reason why patients seek help from family physicians, and treatment is often suboptimal. This article outlines the development and key recommendations of the clinical practice guideline created by a multidisciplinary guideline development group to assist Canadian primary care practitioners with providing evidence-informed care for patients with headache.

- Migraine, which is historically underdiagnosed, is by far the most common headache type in patients seeking help for headache. Neuroimaging, sinus or cervical spine x-ray scans, and electroencephalograms 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. Comprehensive migraine therapy includes management of lifestyle factors and triggers, acute and prophylactic medications, and migraine self-management strategies. Treatment of tension-type, cluster, and medication-overuse headache is also outlined.

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La traduction en français de cet article se trouve à **www.cfp.ca** dans la table des matières du numéro **d'août 2015** à la **page e353.**

Scope

The Alberta guideline is intended to assist any primary care practitioner responsible for the assessment and management of headaches in adults. The guideline's main focus is primary headache disorders (eg, migraine, tension-type, and cluster headache) and medication-overuse headache. Some advice is also provided for the diagnosis and investigation of secondary headache disorders and the management of cervicogenic headache and temporomandibular joint disorder. The guideline will be helpful to a range of primary health care professionals, including family physicians, physical therapists, occupational therapists, nurses, nurse practitioners, pharmacists, psychologists, and chiropractors.

Development

Leadership. The lead organizations involved in developing the guideline were Toward Optimized Practice (TOP), which develops and disseminates primary care guidelines in Alberta, and the Institute of Health Economics (IHE). Three multidisciplinary committees were formed to coordinate guideline production.

- The Steering Committee provided operational oversight.
- The Guideline Development Group (GDG) formulated the recommendations and comprised 9 family physicians, 2 neurologists, an osteopathic physician, a chiropractor, 2 physical therapists, an occupational therapist, a nurse, a pharmacist, 2 psychologists, and a health technology assessment specialist.
- The Advisory Committee advised the Steering Committee on strategic matters and included representatives from the Alberta College of Family Physicians, the Alberta College of Physicians and Surgeons, Alberta Health Services, Alberta Health, the Pain Society of Alberta, and a chronic pain patient advocacy group, as well as experts in guideline development and dissemination.

A research team of health technology assessment researchers with methodologic expertise from the IHE assisted the Steering Committee and GDG.[11]

Literature review. The Alberta guideline was developed using a guideline adaptation process, which takes advantage of existing high-quality guidelines and allows guideline developers to modify the recommendations from these seed guidelines to meet the needs of the local health care setting.[12] Guideline adaptation is a popular alternative to de novo guideline development owing to the need to reduce duplication and constrain costs in the creation of evidence-informed guidelines.[13-15]

The research team collaborated with experienced medical librarians to systematically search for existing clinical practice guidelines (CPGs) published between January 2000 and May 2011. The search identified 64 guidelines, 18 of which were deemed relevant after application of specific selection criteria developed by the research team and content experts from the GDG.[11] The quality of the guidelines was appraised independently by 2 reviewers (C.M. and N.A.S.) using the AGREE (Appraisal of Guidelines for Research and Evaluation) instrument,[16,17] which was modified to reduce the subjectivity of the item scoring and to enable the differentiation of good- from poor-quality guidelines.[18] Although an updated AGREE tool was published in May 2009,[19,20] the research team elected to use the original instrument in order to maintain consistency with previous guidelines produced by TOP and the IHE. Of the 18 potentially eligible guidelines, 6 were scored as good quality and were chosen as seed guidelines.

Two reviewers (C.M. and N.A.S.) extracted the following information into standardized evidence tables: the source of the guideline, the recommendations, the number and types of studies used to create the recommendations (eg, 5 randomized controlled trials), and the strength of the recommendations. A total of 187 recommendations were tabulated. Discordant recommendations were highlighted in the tables.

Practice recommendations. The GDG reviewed the 6 seed guidelines, their companion documents, and the evidence tables during 13 half-day meetings: 1 face-to-face meeting and 12 Web conferences using WebEx (Cisco Systems Inc), which allowed all GDG members to view documents simultaneously and to register their preferences using an online voting system. The 2 GDG cochairs (W.J.B. and P.T.) led all sessions and conducted roundtable discussions for every recommendation to ensure that each GDG member had a voice in the process.

In some cases, the GDG requested additional evidence to resolve uncertainties or disagreements regarding interpretation of the evidence from the seed guidelines or when new interventions were considered that had not been included in the seed guidelines. These "parking lot" requests triggered examination of individual research studies cited by the seed guidelines, as well as additional systematic reviews on headache disorders identified by a supplementary search for literature published between January 2000 and October 2010.[11] The parking lot items were referred for further analysis to ad hoc GDG subcommittees that included one or both cochairs, one IHE researcher, and at least one volunteer from the GDG with expertise in the relevant area. Consensus-based decisions made by the subcommittees were then presented to the GDG for final approval. Occasionally new recommendations were generated from parking lot item discussions. A special GDG subcommittee, which included a neuroradiologist, was created for the diagnostic imaging recommendations. The 23-month guideline development process resulted in 91 draft recommendations.

Each recommendation in the Alberta guideline came from 1 or more seed guidelines, was based on evidence from systematic reviews or quasi-systematic reviews, or was created by the GDG members, based on their collective professional opinion and an analysis of relevant evidence. The original wording of the recommendations was retained whenever possible, and designations were used (eg, *SR* for systematic review, *CS* for case series) to maintain a link to the evidence cited by the seed guidelines. The principles outlined in the GuideLine Implementability Appraisal tool, which is designed for appraising the implementability of CPGs, were used as a guide when crafting the recommendations.[21,22] Standardized definitions for the types of recommendations made in the Alberta CPG were constructed from the evidence-rating scales used by the seed guidelines. The recommendations were categorized as *do* when the evidence supported the intervention, *do not do* when the evidence suggested the intervention was ineffective or harmful, or *do not know* when the evidence was equivocal, conflicting, or insufficient.

A series of companion documents were created, adapted, or adopted to support the implementation of the guideline. These included a quick reference algorithm, a summary document, patient education sheets, and practice tools (a medication table, a headache history form, a patient diary, and a video demonstrating physical examination of the neck).[10]

The draft guideline was reviewed by the Advisory Committee, a focus group of primary care physicians, and attendees at 2 Alberta physician conferences. The patient information sheets were reviewed by focus groups of patients and laypeople. The feedback was incorporated into the final documents, which were approved by the GDG in February 2012.

Main message

The seed guidelines are listed in **Table 1**.[23-31] The Alberta guideline's 91 recommendations are organized into 6 sections. The full guideline and accompanying documents are available from the TOP website.[10] The quick reference algorithm* information is provided in **Figure 1** and **Tables 2** to **4**.[10] Some general practice points are summarized in **Box 1**.

Section 1: headache diagnosis and investigation. **Box 2** presents important elements of the history for patients presenting with first-time headache or a change in headache pattern. **Box 3** presents an approach to the physical examination specifically for primary care providers.[29]

*The original **quick reference algorithm** is available in an easy-to-print format at **www.cfp.ca**. Go to the full text of the article online and click on **CFPlus** in the menu at the top right-hand side of the page.

Table 1. Seed guidelines used to create the *Guideline for Primary Care Management of Headache in Adults*

AUTHOR GROUP	DETAILS
US Headache Consortium,[23-26] 2000	US: Neuroimaging in patients with nonacute headache[23]; pharmacologic management of acute migraine attacks[24]; pharmacologic prevention of migraine[25]; behavioural and physical treatment of migraine[26]
European Federation of Neurological Societies,[27] 2009	Europe: Pharmacologic treatment of migraine
French Society for the Study of Migraine Headache,[28] 2004	France: Diagnosis and management of migraine in adults and children
Scottish Intercollegiate Guidelines Network,[29] 2008	UK: Diagnosis and management of headache in adults
European Federation of Neurological Societies,[30] 2006	Europe: Treatment of cluster headache and other trigeminal autonomic cephalalgias
European Federation of Neurological Societies,[31] 2010	Europe: Treatment of tension-type headache

UK—United Kingdom, US—United States.

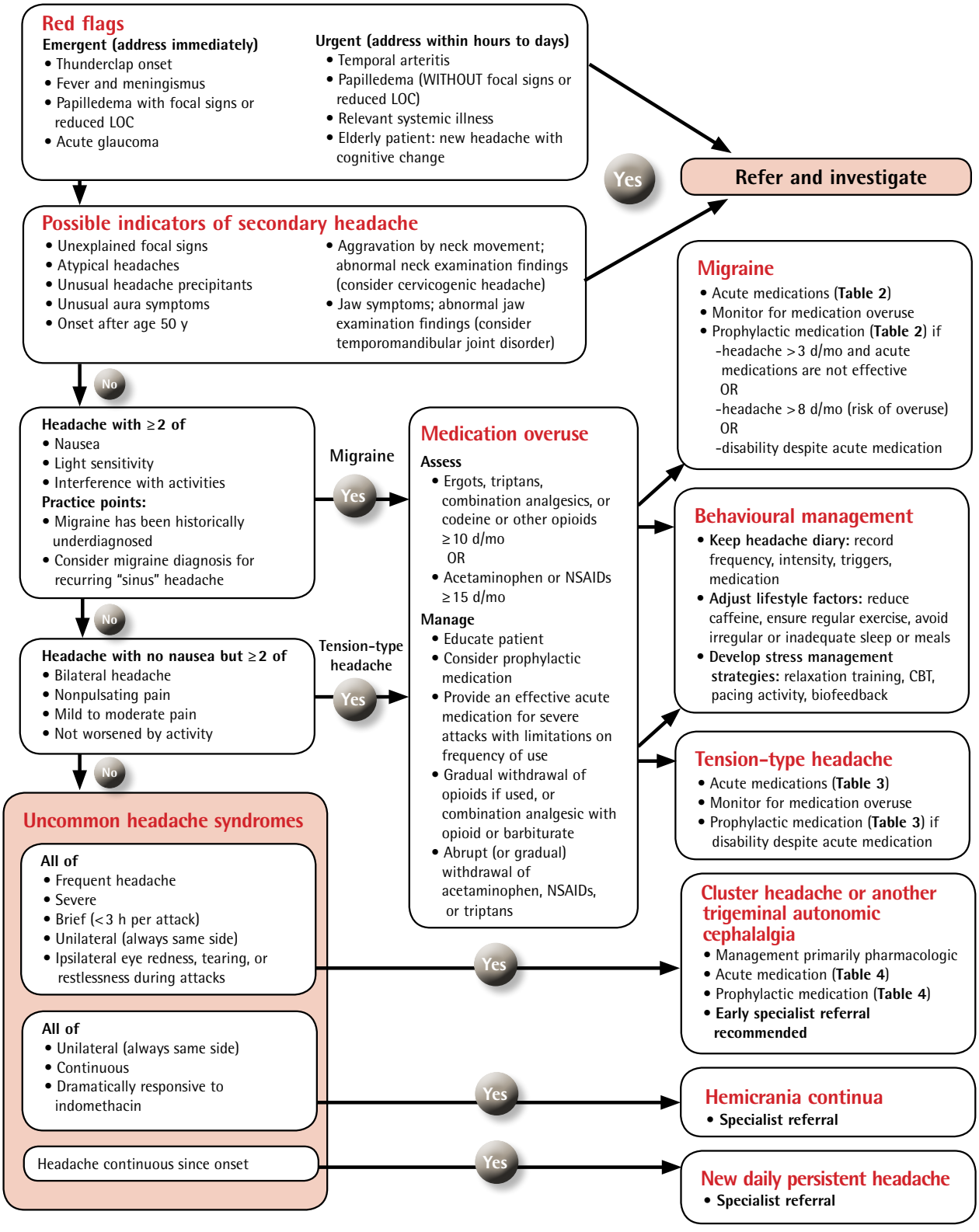
Box 4 presents red flags and other potential indicators of secondary headache.[29] **Table 5** presents a simplified strategy for diagnosing primary headache disorders.[32,33]

Section 2: migraine. A comprehensive approach to migraine management is summarized in **Box 5**. Section 2 of the guideline contains recommendations for lifestyle management, acute treatment, prophylaxis, menstrual migraine, and migraine treatment during pregnancy. The full guideline provides a detailed medication table for migraine that includes available formulations, usual doses, relative and absolute contraindications, and adverse events. **Boxes 6** and **7** show the indications and considerations for prescribing prophylactic drugs for migraine.[28,29] Recommended medications are outlined in **Table 2**.[10]

Section 3: tension-type headache. This section contains recommendations on lifestyle, acute and prophylactic drug therapy, and management of tension-type headache during pregnancy. Recommended medications are outlined in **Table 3**.[10]

Section 4: medication-overuse headache. Migraine sufferers are particularly prone to developing medication-overuse headache. Recommendations for diagnosis and management of medication-overuse headache are shown in **Boxes 8** and **9**.[29]

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



CBT—cognitive behavioural therapy, LOC—level of consciousness, NSAID—nonsteroidal anti-inflammatory drug.
Adapted from Toward Optimized Practice.[10]

Table 2. Migraine medications: *A) Acute migraine medications. B) Prophylactic migraine medications.*

A)

TYPE	ACUTE MEDICATIONS
First line	Ibuprofen 400 mg, ASA 1000 mg, naproxen sodium 500-550 mg, acetaminophen 1000 mg
Second line	Triptans: oral sumatriptan 100 mg, rizatriptan 10 mg, almotriptan 12.5 mg, zolmitriptan 2.5 mg, eletriptan 40 mg, frovatriptan 2.5 mg, naratriptan 2.5 mg • Subcutaneous sumatriptan 6 mg if the patient is vomiting early in the attack. Consider for attacks resistant to oral triptans • Oral wafer: rizatriptan 10 mg or zolmitriptan 2.5 mg if fluid ingestion worsens nausea • Nasal spray: zolmitriptan 5 mg or sumatriptan 20 mg if patient is nauseated Antiemetics: domperidone 10 mg or metoclopramide 10 mg for nausea
Third line	Naproxen sodium 500-550 mg in combination with a triptan
Fourth line	Fixed-dose combination analgesics (with codeine if necessary; not recommended for routine use)

B)

PROPHYLACTIC MEDICATIONS	STARTING DOSE	TITRATION,* DAILY DOSE INCREASE	TARGET DOSE OR THERAPEUTIC RANGE†	NOTES
First line				
• propranolol	20 mg twice daily	40 mg/wk	40-120 mg twice daily	Avoid in asthma
• metoprolol	50 mg twice daily	50 mg/wk	50-100 mg twice daily	Avoid in asthma
• nadolol	40 mg/d	20 mg/wk	80-160 mg/d	Avoid in asthma
• amitriptyline	10 mg at bedtime	10 mg/wk	10-100 mg at bedtime	Consider if patient has depression, anxiety, insomnia, or tension-type headache
• nortriptyline	10 mg at bedtime	10 mg/wk	10-100 mg at bedtime	Consider if patient has depression, anxiety, insomnia, or tension-type headache
Second line				
• topiramate	25 mg/d	25 mg/wk	50 mg twice daily	Consider as a first-line option if the patient is overweight
• candesartan	8 mg/d	8 mg/wk	16 mg/d	Few side effects; limited experience in prophylaxis
• gabapentin	300 mg/d	300 mg every 3-7 d	1200-1800 mg/d divided into 3 doses	Few drug interactions
Other				
• divalproex	250 mg/d	250 mg/wk	750-1500 mg/d divided into 2 doses	Avoid in pregnancy or when pregnancy is possible
• pizotifen	0.5 mg/d	0.5 mg/wk	1-2 mg twice daily	Monitor for somnolence and weight gain
• onabotulinumtoxinA	155-195 units	No titration needed	155-195 units every 3 mo	For chronic migraine only (headache on ≥ 15 d/mo)
• flunarizine	5-10 mg at bedtime	No titration needed	10 mg at bedtime	Avoid in patients with depression
• venlafaxine	37.5 mg/d	37.5 mg/wk	150 mg/d	Consider for migraine in patients with depression
Over the counter				
• magnesium citrate	300 mg twice daily	No titration needed	300 mg twice daily	Effectiveness might be limited; few side effects
• riboflavin	400 mg/d	No titration needed	400 mg/d	Effectiveness might be limited; few side effects
• butterbur	75 mg twice daily	No titration needed	75 mg twice daily	Effectiveness might be limited; few side effects
• coenzyme Q10	100 mg 3 times daily	No titration needed	100 mg 3 times daily	Effectiveness might be limited; few side effects

ASA—acetylsalicylic acid.
*Dosage can be increased every 2 wk to avoid side effects. For most drugs, slowly increase to the target dose; a therapeutic trial requires several months. The expected outcome is reduction not elimination of attacks.
†If the target dose is not tolerated, try a lower dose. If the medication is effective and tolerated, continue it for at least 6 mo. If several preventive drugs fail, consider a specialist referral.
Adapted from Toward Optimized Practice.[10]

Section 5: cluster headache. Cluster headache is managed with a number of pharmacologic therapies. These can be initiated and monitored in primary care, but early specialist referral is recommended because this headache type is uncommon, disabling, and challenging to manage. Recommended medications are outlined in **Table 4**.[10]

Section 6: other headache disorders. This section of the guideline focuses on hemicrania continua, cervicogenic headache, and headache secondary to

Table 3. Medications for tension-type headache

MEDICATION	DOSE
Acute	
Ibuprofen	400 mg
ASA	1000 mg
Naproxen sodium	500-550 mg
Acetaminophen	1000 mg
Prophylactic	
First line	
• amitriptyline	10-100 mg/d
• nortriptyline	10-100 mg/d
Second line	
• mirtazapine	30 mg/d
• venlafaxine	150 mg/d

ASA—acetylsalicylic acid.
Adapted from Toward Optimized Practice.[10]

Table 4. Medications for cluster headache: *Consider early specialist referral.*

MEDICATION	DOSE
Acute	
Subcutaneous sumatriptan	6 mg
Intranasal zolmitriptan	5 mg
100% oxygen	12 L/min for 15 min through non-rebreathing mask
Prophylactic*	
First line	
• verapamil	240-480 mg/d (higher doses might be required)
Second line	
• lithium	900-1200 mg/d
Other	
• topiramate	100-200 mg/d
• melatonin	Up to 10 mg/d

*If the patient has more than 2 attacks daily, consider transitional therapy while verapamil is built up (eg, 60 mg of prednisone for 5 d, then reduced by 10 mg every 2 d until discontinued).
Adapted from Toward Optimized Practice.[10]

Box 1. General practice points for managing primary headache in adults

The following are general practice points for the management of 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
- Neuroimaging, sinus or cervical spine x-ray scans, and electroencephalograms 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 of migraine or tension-type headache
- Migraine is by far the most common headache type in patients seeking help for headache from physicians
- Migraine is historically underdiagnosed and undertreated; many patients with migraine are not diagnosed with migraine when they consult a physician
- Migraine should be considered in patients with recurrent moderate or severe headaches and normal neurologic examination findings
- 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
- Consider a diagnosis of migraine in patients with a previous diagnosis of recurring "sinus" headache
- Medication overuse is considered to be present when patients with migraine or tension-type headache use combination analgesics, opioids, or triptans on ≥ 10 d/mo or acetaminophen or NSAIDs on ≥ 15 d/mo
- Comprehensive migraine therapy includes management of lifestyle factors and triggers, acute and prophylactic medications, and migraine self-management strategies
- A substantial number of people who might benefit from prophylactic therapy do not receive it

NSAID—nonsteroidal anti-inflammatory drug.

Box 2. Important elements of the headache history in patients presenting with headache for the first time or those with a change in headache pattern

Explore the following important elements of the headache history:

- Headache onset (thunderclap, head or neck trauma), previous attacks (progression of symptoms), duration of attacks (< 3 hours, > 4 hours, continuous), days per month with headache
- Pain location (unilateral, bilateral, associated neck pain, etc)
- Headache-associated symptoms (nausea, vomiting, photophobia, conjunctival injection, rhinorrhea, etc)
- Relationship of headache attacks to precipitating factors (stress, posture, cough, exertion, straining, neck movement, jaw pain, etc)
- Headache severity and effect on work and family activities
- Acute and preventive medications tried, response, and side effects
- Presence of coexistent conditions that might influence treatment choice (insomnia, depression, anxiety, hypertension, asthma, and history of heart disease or stroke)

Based on expert opinion of the Guideline Development Group.

temporomandibular joint disorders. Treatment of these conditions will likely involve referral to an appropriately trained therapist or specialist.

Box 3. Approach to the physical examination of a patient presenting with headache for the first time or with a change in headache pattern

The physical examination should incorporate the following elements:

- 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, including heel-toe walking (tandem gait)
- Neck examination
  - -posture, range of motion, and palpation for muscle tender points
- Blood pressure measurement
- If indicated by other neurologic symptoms or signs on screening examination, a focused neurologic examination (eg, lower cranial nerve examination in a patient with dysarthria, or plantar responses in a patient with reflex asymmetry)
- If indicated by associated jaw complaints, an examination for temporomandibular disorders
  - -assessment of jaw opening
  - -palpation of muscles of mastication for tender points

Based on the Scottish Intercollegiate Guidelines Network guideline[29] and expert opinion of the Guideline Development Group.

Box 4. Red flags and other potential indicators of secondary headache: *Appropriate referral or investigation should be considered.*

Red flags: emergent (address immediately)

- Thunderclap onset
- Fever and meningismus
- Papilledema with focal signs or reduced level of consciousness
- Acute glaucoma

Red flags: urgent (address within hours to days)

- Temporal arteritis
- Papilledema without focal signs or reduced level of consciousness
- Relevant systemic illness
- Elderly patient: new headache with cognitive change

Other possible indicators of secondary headache (less urgent)

- Unexplained focal signs
- Atypical headaches (not consistent with migraine or tension-type headache)
- Unusual headache precipitants
- Unusual aura symptoms
- Onset after age 50 y
- Aggravation by neck movement; abnormal neck examination findings (consider cervicogenic headache)
- Jaw symptoms; abnormal jaw examination findings (consider temporomandibular joint disorder)

Based on the Scottish Intercollegiate Guidelines Network guideline[29] and expert opinion of the Guideline Development Group.

Implementation and update plans

The guideline has been disseminated through presentations and workshops at provincial, regional, and national conferences. It is also listed in the CMA Infobase,[34] where it was among the 10 most downloaded guidelines for nearly 6 months. It also appears

Box 5. Comprehensive migraine management

Consider the following when managing patients with migraine:

- Pay attention to lifestyle and specific migraine triggers in order to reduce the frequency of attacks. Lifestyle factors to avoid include the following:
  - -irregular or skipped meals
  - -irregular or too little sleep
  - -a stressful lifestyle
  - -excessive caffeine consumption
  - -lack of exercise
  - -obesity
- Use acute pharmacologic therapy for individual attacks
- Use prophylactic pharmacologic therapy, when indicated, to reduce attack frequency
- Use nonpharmacologic therapies
- 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
  - -managing migraine triggers effectively
  - -pacing activity to avoid triggering or exacerbating migraine
  - -maintaining a lifestyle that does not worsen migraine
  - -practising relaxation techniques
  - -maintaining good sleep hygiene
  - -developing stress management skills
  - -using cognitive restructuring to avoid catastrophic or negative thinking
  - -improving communication skills to talk effectively about pain with family and others
  - -using acute and prophylactic medication appropriately

Based on expert opinion of the Guideline Development Group.

Box 6. Pharmacologic prophylaxis for migraine

Prophylactic medication is indicated in the following circumstances:

- Recurrent migraine attacks are causing considerable disability despite optimal acute drug therapy
- Frequency of acute medication use is approaching levels that place the patient at risk of medication-overuse headache
  - -acute medications are used on ≥ 10 d/mo for triptans, ergots, opioids, and combination analgesics
  - -acute medications are used on ≥ 15 d/mo for acetaminophen and NSAIDs
- Recurrent attacks with prolonged aura are occurring (hemiplegic migraine, basilar-type migraine, etc)
- Contraindications to acute migraine medications are making symptomatic treatment of migraine attacks difficult

NSAID—nonsteroidal anti-inflammatory drug.
Based on expert opinion of the Guideline Development Group.

on the Michael G. DeGroote National Pain Centre website[35] and is listed by the US National Guideline Clearing House.[36] A pilot project is under way at the University of Calgary in Alberta to present the headache guideline using interactive webinars.

The evidence base for the Alberta CPG will be assessed annually and will be updated when new evidence is found that changes the recommendations.

Limitations

The guideline adaptation process precluded an in-depth analysis of the validity or a formal assessment of the strength and quality of the underlying empirical evidence, which made categorizing the strength and type of recommendations problematic. To counter this problem, standardized definitions were constructed for the types of recommendations made in the Alberta CPG (eg, what constituted a *do* or *do not do* recommendation) from the overlapping evidence-rating scales used by the seed guidelines, and designations were used (eg, *SR* for systematic review) to maintain a link to the evidence type referenced by the seed guidelines in support of their recommendations.[10,11]

The lack of high-quality scientific evidence for headache investigations, diagnosis, red flags, and specialist referral meant that many recommendations in these areas relied on the opinions of the GDG or the experts who developed the seed guidelines. However, these

Table 5. Diagnosing primary headache syndromes

DESCRIPTION	HEADACHE SYNDROME
Patients with recurrent headache attacks and normal neurologic examination findings (in some patients other clinical symptoms might also need to be considered)*	• 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† if headache attacks are not associated with nausea, and have at least 2 of the following: -bilateral headache -nonpulsating pain -mild to moderate intensity -headache is not worsened by activity • Diagnose cluster headache or another trigeminal autonomic cephalalgia if headache attacks meet all the following criteria: -frequent -severe -brief (duration < 3 h) -unilateral -ipsilateral conjunctival injection, tearing, or restlessness during the attacks (ipsilateral ptosis or miosis might be present on examination). Neurologist referral recommended
Patients with headache on ≥ 15 d/mo for > 3 mo and with normal neurologic examination findings‡	• 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 -Chronic migraine with medication overuse if the patient uses ergots, triptans, opioids, or combination analgesics on ≥ 10 d/mo or uses plain acetaminophen or NSAIDs on ≥ 15 d/mo -Chronic migraine without medication overuse if patients do not have medication overuse as defined above • Diagnose chronic tension-type headache if headaches meet episodic tension-type headache diagnostic criteria (above), except mild nausea might be present
Patients with continuous daily headache for > 3 mo with normal neurologic examination findings§	• Diagnose hemicrania continua‖ (neurologist referral recommended) if the headache -is strictly unilateral -is always on the same side of the head (ptosis or miosis might be present on examination) -responds dramatically to indomethacin • 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

NSAID—nonsteroidal anti-inflammatory drug.

*Modified from the International Classification of Headache Disorders[32]; data from Lipton et al[33]; and based on expert opinion of the Guideline Development Group.

†If patients do not meet migraine diagnostic criteria.

‡Modified from the International Classification of Headache Disorders[32] and based on expert opinion of the Guideline Development Group.

§Modified from the International Classification of Headache Disorders[32] and based on expert opinion of the Guideline Development Group.

‖This less common headache syndrome should be considered in patients with continuous headache.

Box 7. Pharmacologic prophylaxis for migraine

Consider the following when 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 as to what the likely benefits of pharmacologic prophylaxis will be:
  - -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 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
- Evaluate the effectiveness of therapy using patient diaries that record headache frequency, drug use, and disability levels
- 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
- Provide an adequate drug trial. Unless side effects mandate discontinuation, continue the prophylactic drug for at least 6-8 wk 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 mo of successful prophylactic therapy, but preventive medications can be continued for much longer in patients who have experienced substantial migraine-related disability

Based on Géraud et al[28] and the Scottish Intercollegiate Guidelines Network guidelines.[29]

Box 8. Diagnosis of medication-overuse headache

Consider the following in the diagnosis of medication-overuse headache:

- Consider a diagnosis of medication overuse headache in patients with headache on ≥ 15 d/mo and assess patients for possible medication overuse (use of triptans, ergots, combination analgesics, or opioid-containing medications on ≥ 10 d/mo, or use of acetaminophen or NSAIDs on ≥ 15 d/mo)
- When medication-overuse headache is suspected, the patient should also be evaluated for the presence of the following:
  - -psychiatric comorbidities (depression and anxiety); these might need to be considered in planning an overall treatment strategy
  - -psychological and physical drug dependence
  - -use of inappropriate coping strategies. Rather than relying on medication as a main coping strategy, patients with suspected medication overuse might benefit from training in and development of more adaptive self-management strategies (eg, identification and management of controllable headache triggers, relaxation exercises, effective stress management skills, and activity pacing)
- Headache diaries that record acute medication intake are important in the prevention and treatment of medication-overuse headache

NSAID—nonsteroidal anti-inflammatory drug.
Based on the Scottish Intercollegiate Guidelines Network guideline[29] and expert opinion of the Guideline Development Group.

issues were overcome by using credible seed guidelines, scrupulously listing the evidence type and source for all recommendations, and clearly documenting the subjective contextualization process.

Box 9. Management of medication-overuse headache

Treatment plans for patients with medication-overuse headache should include the following:

- Patient education. Patients need to understand that
  - -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
- A strategy for cessation of medication overuse
  - -abrupt withdrawal should be advised for patients with suspected medication-overuse headache caused by simple analgesics (acetaminophen, NSAIDs) or triptans; however, gradual withdrawal is also an option
  - -gradual withdrawal should be advised for patients with suspected medication-overuse headache caused by opioids and opioid-containing analgesics
- Provision of a prophylactic medication while medication overuse is stopped. While many prophylactic agents are used (tricyclics, β-blockers, etc), drugs with the best evidence for efficacy in chronic migraine with medication overuse are
  - -onabotulinumtoxinA, 155 units to 195 units injected at intervals of 3 mo by clinicians experienced in its use for headache
  - -topiramate with slow titration to a target dose of 100 mg/d
- A strategy for the treatment of remaining severe headache attacks with limitations on frequency of use (eg, a triptan for patients with analgesic overuse, dihydroergotamine for patients with triptan overuse, etc)
- Patient follow-up and support

NSAID—nonsteroidal anti-inflammatory drug.
Based on the Scottish Intercollegiate Guidelines Network guideline[29] and expert opinion of the Guideline Development Group.

Adaptation processes are limited by the time lag between the publication of primary studies and their incorporation into guidelines, which means that recently published evidence was not necessarily incorporated into the Alberta CPG and that not all of the treatment options available were covered by the seed guidelines. To help offset this, the research team updated searches regularly throughout the Alberta guideline adaptation process.

There was debate among the GDG members about incorporating newly emerging headache treatments that were not identified in the seed guidelines. A conservative approach was adopted whereby a recommendation for an emerging intervention was created only if it had been assessed in a systematic review.

None of the seed guidelines included formal economic evaluations or cost analyses, nor did they discuss the economic implications of their recommendations. Owing to time and resource constraints, a formal cost analysis or economic evaluation of the effect of the Alberta CPG was not conducted. However, any statements on economic aspects made by the seed guidelines were noted in the accompanying background document.[11]

Conclusion

The format and brevity of the *Guideline for Primary Care Management of Headache in Adults* reflects its intent—to provide Canadian primary care providers across multiple disciplines with a comprehensive suite of resources for assessing and managing headaches in adults. A guideline summary and algorithm, as well as practice tools and patient information sheets, are provided to support comprehensive headache management that emphasizes patient engagement and self-management, as well as evidence-informed interventions.

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Contributors

All authors contributed to the literature review and interpretation, and to preparing the manuscript for submission.

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Competing interests

Dr Becker served on medical advisory boards for AGA Medical, Allergan, Merck, and Pfizer; received speaker's honoraria from Allergan, Merck, Pfizer, Serono, and Teva; and received research support as part of multicenter clinical trials (served as local principal investigator) from AGA Medical, Allergan, Medtronic, and Merck. However, these interests had no influence on the design, data analysis, formulation, or content of the guideline. None of the other authors has any conflict of interest to declare.

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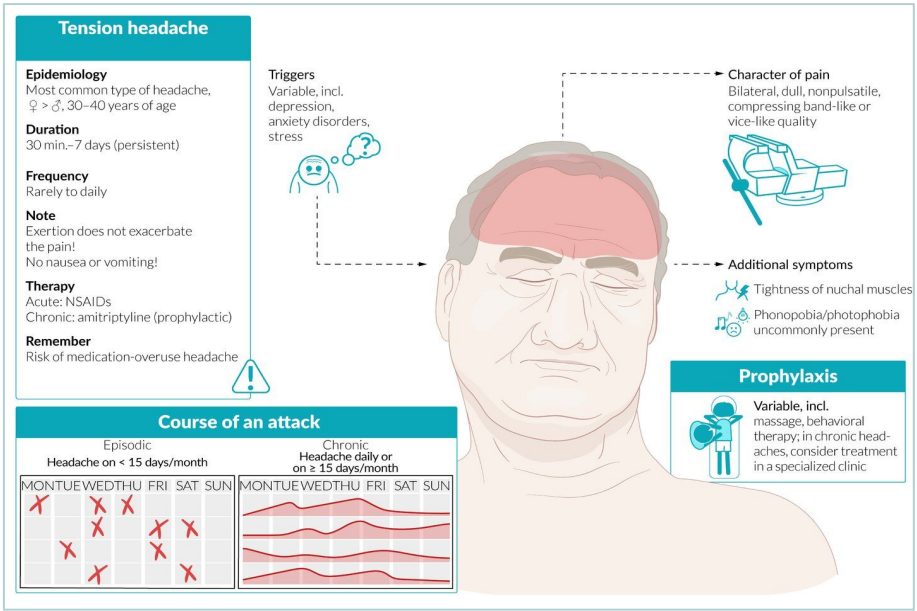
Introduction

- 10-15% is the incidence of headache in the community at anytime in a year.
- We'll discuss the 3 types of functional headaches which are **Tension** ,**Migraine**, **Cluster** headaches.

A. Tension Type Headache



- Symptoms: Band like pressure, tightness and tenderness around scalp and stiff neck and shoulder muscles. (The most common type)
- Diagnosis criteria:
  - **Headache with no nausea but 2 of the following:**
    - Bilateral headache.
    - Mild to moderate pain.
    - Non pulsating pain.
    - Not worsened by activity.
- Investigations: **Diagnosed Clinically**.
  - This type doesn't usually need any sort of investigation.
- **Management:**
  - **Pharmacological (Medications & Prophylaxis):**
    - Acute tension type headache: 1st Paracetamol, 2nd NSAIDs.
  - Higher frequency of headaches above (10 headaches/month or 2-3 headaches/week) we should consider prophylactic measures.
    - The proper prophylactic medication for tension type headaches are **TCA.**
  - **Non-pharmacological Techniques:**
    - Relaxation techniques, avoiding triggers, praying ,calmness in general decrease the headache.
    - Some use bands or acupuncture which can be effective.

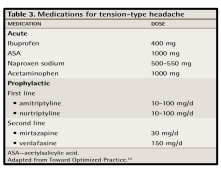
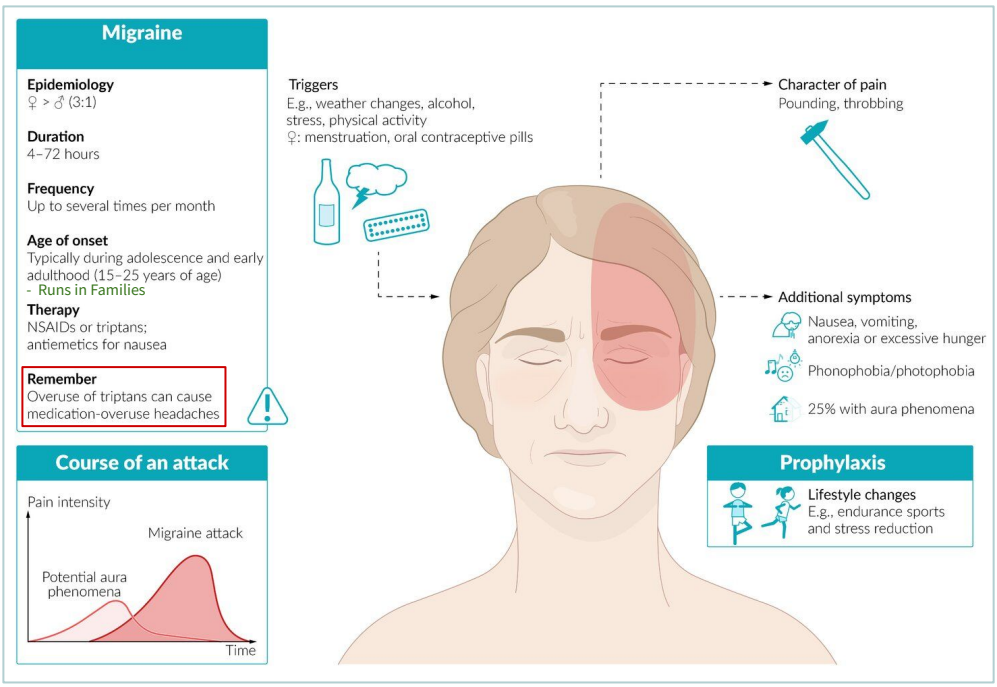


Table 3. Medications for tension-type headache

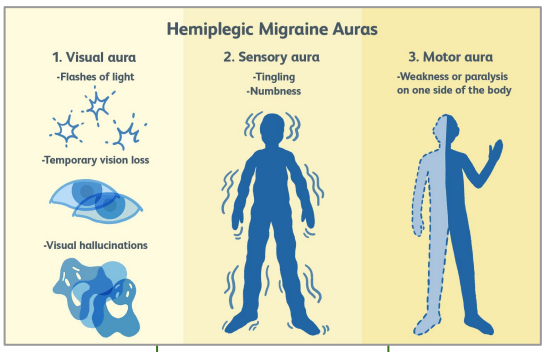
MEDICATION	DOSE
Acute	
Ibuprofen	400 mg
ASA	1000 mg
Naproxen sodium	500–550 mg
Acetaminophen	1000 mg
Prophylactic	
First line	
• amitriptyline	10–100 mg/d
• nortriptyline	10–100 mg/d
Second line	
• mirtazapine	30 mg/d
• venlafaxine	150 mg/d

ASA—acetylsalicylic acid.
Adapted from Toward Optimized Practice.[12]

B. Migraine Headache



- **Diagnosis:** Diagnosis of migraine **with aura (Classical migraine)** is easier than migraine without but clinically we see more cases of migraine **without aura (Common migraine)**
  - Diagnose migraine without aura 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.
- **Investigations: We diagnose clinically** but if we suspect something else esp during acute attacks further investigation might be justified.
- **Non Pharmacological Management (Triggers):** triggers are important in this type of headache. Any change in the lifestyle of the patients can lead to migraine (lack of sleep, increase in sleep & hunge etc..)
- Consider the following when managing patients with migraine:
  - Pay attention to lifestyle and specific migraine triggers in order to reduce the frequency of attacks. Lifestyle factors to avoid include the following:
    - Irregular or skipped meals.
    - Irregular or too little sleep.
    - A stressful lifestyle.
    - Excessive caffeine consumption.
    - Lack of exercise.
    - Obesity.
- **Pharmacological Management:**
  - First line NSAIDs.
  - Second line: Triptans. (AKA Migraine abortive)
- **First line prophylactic medications are Beta-Blocker.**



Prodrome is before the aura

B. Migraine Headache Acute & Prophylactic Medications

Table 2. Migraine medications: *A) Acute migraine medications. B) Prophylactic migraine medications.*

A)

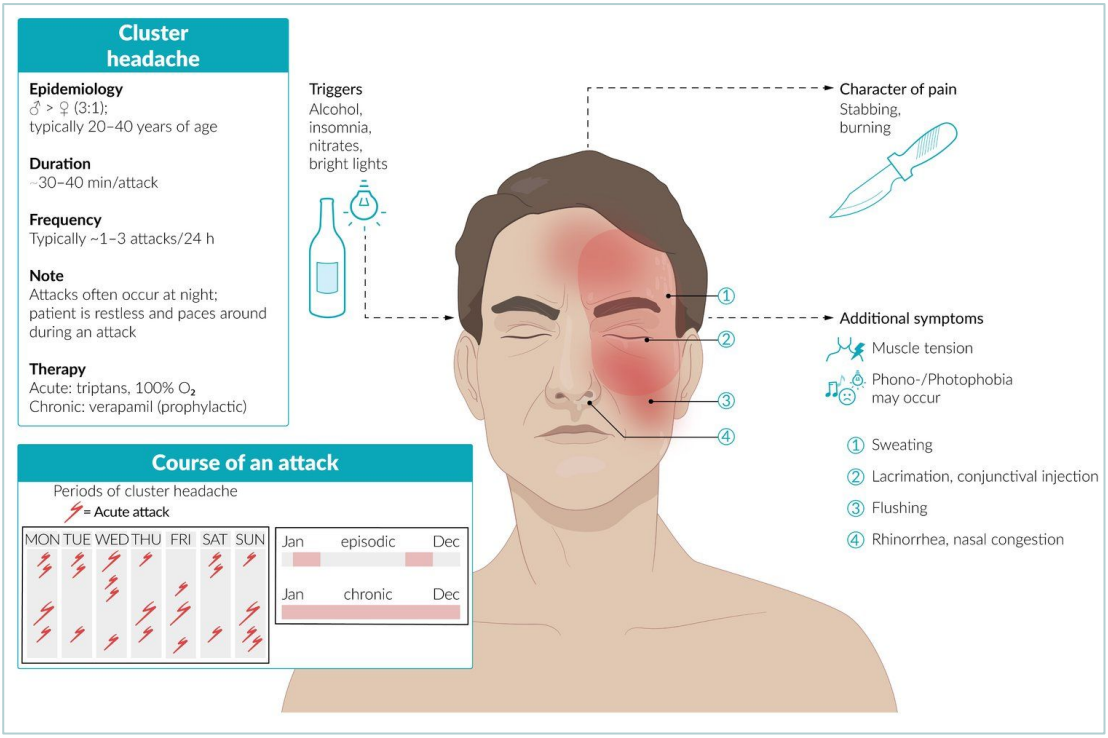
TYPE	ACUTE MEDICATIONS
First line	Ibuprofen 400 mg, ASA 1000 mg, naproxen sodium 500-550 mg, acetaminophen 1000 mg
Second line	Triptans: oral sumatriptan 100 mg, rizatriptan 10 mg, almotriptan 12.5 mg, zolmitriptan 2.5 mg, eletriptan 40 mg, frovatriptan 2.5 mg, naratriptan 2.5 mg • Subcutaneous sumatriptan 6 mg if the patient is vomiting early in the attack. Consider for attacks resistant to oral triptans • Oral wafer: rizatriptan 10 mg or zolmitriptan 2.5 mg if fluid ingestion worsens nausea • Nasal spray: zolmitriptan 5 mg or sumatriptan 20 mg if patient is nauseated Antiemetics: domperidone 10 mg or metoclopramide 10 mg for nausea
Third line	Naproxen sodium 500-550 mg in combination with a triptan
Fourth line	Fixed-dose combination analgesics (with codeine if necessary; not recommended for routine use)

B)

PROPHYLACTIC MEDICATIONS	STARTING DOSE	TITRATION,* DAILY DOSE INCREASE	TARGET DOSE OR THERAPEUTIC RANGE†	NOTES
First line				
• propranolol	20 mg twice daily	40 mg/wk	40-120 mg twice daily	Avoid in asthma
• metoprolol	50 mg twice daily	50 mg/wk	50-100 mg twice daily	Avoid in asthma
• nadolol	40 mg/d	20 mg/wk	80-160 mg/d	Avoid in asthma
• amitriptyline	10 mg at bedtime	10 mg/wk	10-100 mg at bedtime	Consider if patient has depression, anxiety, insomnia, or tension-type headache
• nortriptyline	10 mg at bedtime	10 mg/wk	10-100 mg at bedtime	Consider if patient has depression, anxiety, insomnia, or tension-type headache
Second line				
• topiramate	25 mg/d	25 mg/wk	50 mg twice daily	Consider as a first-line option if the patient is overweight
• candesartan	8 mg/d	8 mg/wk	16 mg/d	Few side effects; limited experience in prophylaxis
• gabapentin	300 mg/d	300 mg every 3-7 d	1200-1800 mg/d divided into 3 doses	Few drug interactions
Other				
• divalproex	250 mg/d	250 mg/wk	750-1500 mg/d divided into 2 doses	Avoid in pregnancy or when pregnancy is possible
• pizotifen	0.5 mg/d	0.5 mg/wk	1-2 mg twice daily	Monitor for somnolence and weight gain
• onabotulinumtoxinA	155-195 units	No titration needed	155-195 units every 3 mo	For chronic migraine only (headache on ≥15 d/mo)
• flunarizine	5-10 mg at bedtime	No titration needed	10 mg at bedtime	Avoid in patients with depression
• venlafaxine	37.5 mg/d	37.5 mg/wk	150 mg/d	Consider for migraine in patients with depression
Over the counter				
• magnesium citrate	300 mg twice daily	No titration needed	300 mg twice daily	Effectiveness might be limited; few side effects
• riboflavin	400 mg/d	No titration needed	400 mg/d	Effectiveness might be limited; few side effects
• butterbur	75 mg twice daily	No titration needed	75 mg twice daily	Effectiveness might be limited; few side effects
• coenzyme Q10	100 mg 3 times daily	No titration needed	100 mg 3 times daily	Effectiveness might be limited; few side effects

ASA—acetylsalicylic acid.
*Dosage can be increased every 2 wk to avoid side effects. For most drugs, slowly increase to the target dose; a therapeutic trial requires several months. The expected outcome is reduction not elimination of attacks.
†If the target dose is not tolerated, try a lower dose. If the medication is effective and tolerated, continue it for at least 6 mo. If several preventive drugs fail, consider a specialist referral.
Adapted from Toward Optimized Practice.[10]

C. Cluster Headache



- **Cluster Headache:** Least prevalent but the most serious. Patient usually feel that they have neurological condition accompanied with neurological symptoms such as (ptosis, tearing of the eye, redness of eye, runny nose, nasal congestion...) usually of short duration and sometimes they wake up with severe headaches. this type affects males more than females unlike the first two.
- **Diagnosis Criteria:**
  - Diagnose cluster headache or another trigeminal autonomic cephalalgia if headache attacks meet **all the following criteria**:
    - Unilateral.
    - **Severe.** (Wake him from sleep)
    - Frequent.
    - Brief (duration <3 h).
    - Ipsilateral conjunctival injection, tearing, or restlessness during the attacks (ipsilateral ptosis or miosis might be present on examination). Neurologist referral recommended.
- **It's important to exclude SAH because they might have similar presentation.**
- **Pharmacological Management:** Does not differ much from migraine.
  - **Acute treatment:** Triptans, 100% O^2 or some anti-epileptics.
  - **Prophylactic:**
    - First line: Verapamil.
    - Second line: Lithium.

Headache Red Flags

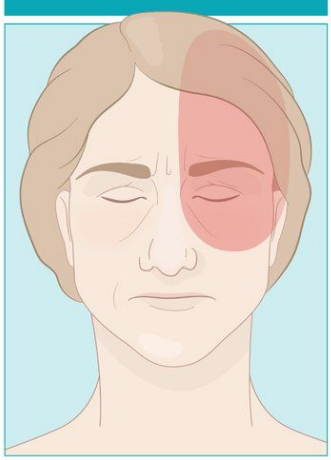
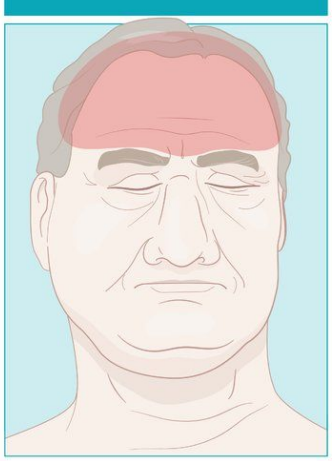
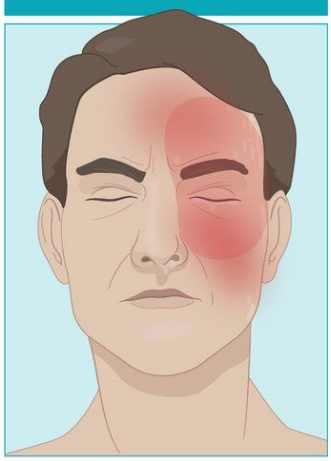
- Red flags and other potential indicators of secondary headache: Appropriate referral or investigation should be considered.
- **Red flags: Emergent (address immediately)**
  - Thunderclap onset.
  - Fever and meningismus.
  - Papilledema with focal signs or reduced level of consciousness.
  - Acute glaucoma.
- **Red flags: Urgent (address within hours to days)**
  - Temporal arteritis: (Fever, painful temporal artery, jaw pain, visual problems & acute vision loss) improve with steroids.
  - Papilledema without focal signs or reduced level of consciousness.
  - Relevant systemic illness. (HTN)
  - Elderly patient: new headache with cognitive change.
- Other possible indicators of secondary headache (less urgent)
  - Unexplained focal signs.
  - Atypical headaches (not consistent with migraine or tension-type headache.)
  - Unusual headache precipitants.
  - Unusual aura symptoms.
  - Onset after age 50 (with new onset & more severe at early morning maybe tumors)
  - Aggravation by neck movement; abnormal neck examination findings (consider cervicogenic headache).
  - Jaw symptoms; abnormal jaw examination findings (consider temporomandibular joint disorder)

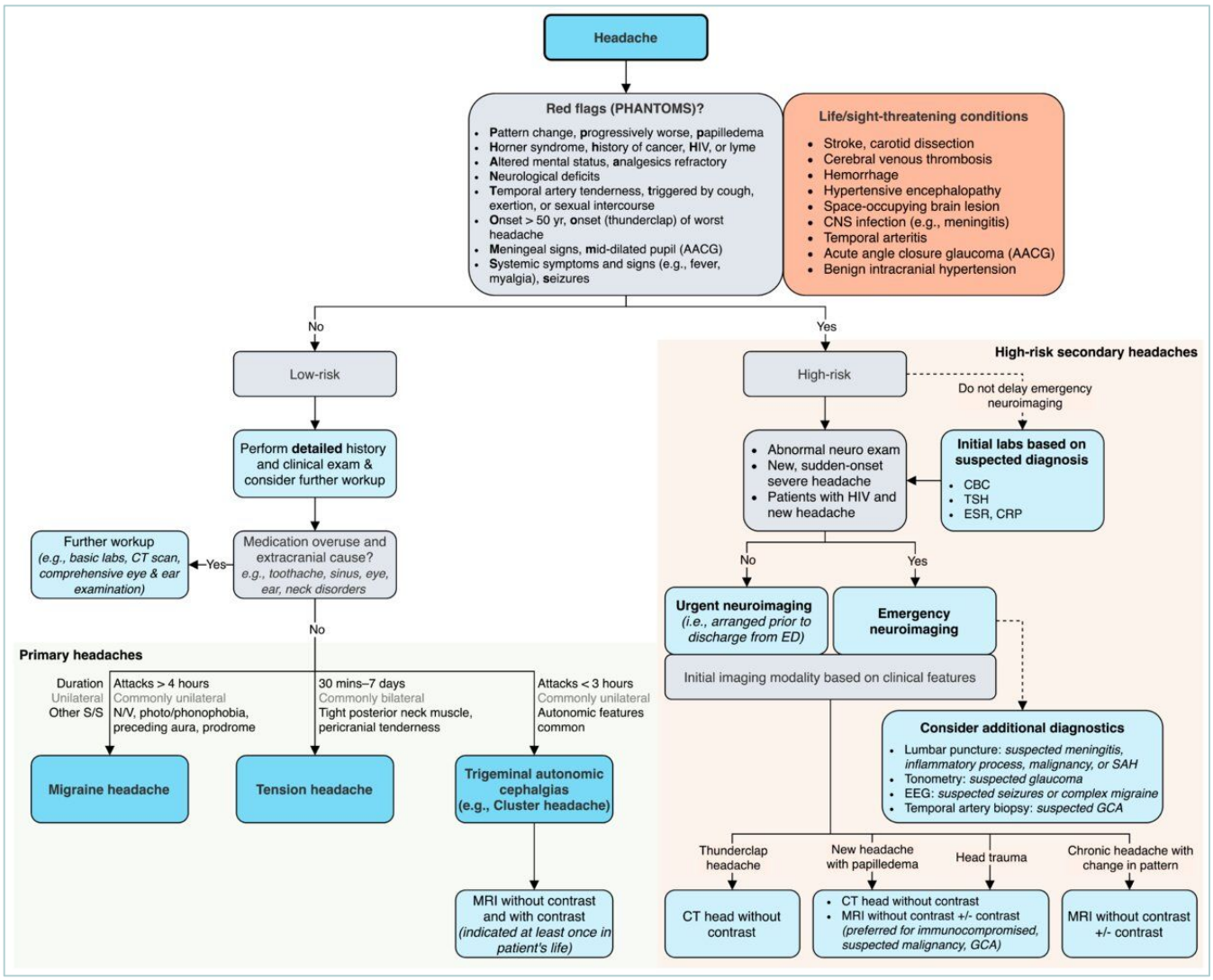
Secondary Headache Causes

- Vascular.
- Infections.
- Systematic. (SLE or HTN)
- Intracranial pathologies such as (aneurysms ,aneurysm ruptures and tumors).
- Psychiatric.
- Drug induced.
- Less serious types:
  - Otitis media.
  - Tooth problem.
  - Trigeminal neuralgia.
  - Cervical spondylosis.
  - Soft tissue mass or abscess.
  - Sinusitis.

Notes & Summary

	Tension headache	Migraine headache	Cluster headache
Sex	F>M	F>M	**M>F**
Duration	30 minutes to a couple of days	4–72 hours	- 30–180 minutes - Shortest, recurring attacks
Frequency	- Occasionally to daily - Episodic or chronic	Occasionally to several times a month	- 1–3 episodes ever 24 hours - Usually occur in a cyclical pattern (clusters)
Localization	Holocephalic or bifrontal & Can be unilateral	- Mostly unilateral (60%) - Common migraine is bilateral	- Mostly unilateral - Localized to the **periorbital** and/or temporal region
Character	- **Dull**, nonpulsating, **band-like** or vise-like pain - Constant	**Pulsating**, boring/hammering pain	- Often burning or piercing pain - Attacks develop within several minutes - Often wakes patients up from sleep
Intensity	Mild to moderate (Mildest)	Moderate to severe (In between)	- **Severe**, agonizing pain - Because of the severity of pain, some patients report experiencing suicidal thoughts (hence the name "suicidal headache").
Additional symptoms	- **No autonomic symptoms** (vomiting, nausea, phonophobia, or photophobia) - Tightness in the posterior neck muscles - Pericranial tenderness	- **Nausea, vomiting** - **Hyperacusis** - **Photophobia** - **Phonophobia** - **Preceding aura** - **Prodrome**	- **Ipsilateral autonomic symptoms: conjunctival injection and/or lacrimation, rhinorrhea and nasal congestion** - Partial Horner syndrome: **ptosis and miosis**, but no anhidrosis
Triggers/Exacerbating factors	- Stress - Lack of sleep, fatigue - Routine activities (e.g., climbing stairs) do not exacerbate symptoms.	- Stress - Fluctuation in hormone levels: oral contraceptives, menstruation - Certain types of food (e.g., those containing tyramines or nitrates such as processed meat, chocolate, cheese) - Exacerbated by exertion	Alcohol

	Migraine headache	Tension headache	Cluster headache
			
Character	Unilateral; throbbing, hammering	Bilateral; dull, "band-like" compression	Unilateral; piercing, stabbing, burning
Course	Slowly progressing headache that may last up to 72 hours	Initially episodic, may progress to chronic form with daily headaches	Clustering of attacks lasting for weeks followed by periods of remission (75% of cases)
Additional symptoms	Often accompanied by nausea/vomiting, phonophobia/photophobia, Aura phenomena may occur	Photophobia/phonophobia may occur, **no** nausea, **no** vomiting	Autonomic symptoms (lacrimation, rhinorrhea, sweating)
Note	♀ > ♂; age of onset: 15–25 years; exercise exacerbates headache	♀ > ♂; age of onset: 30–40 years; exertion **does not** exacerbate the headache!	Attacks often occur at night ♂ > ♀; age of onset: 20–40 years; short duration of attacks(30–40 min)
Remember	High risk of medication-overuse headache!	Autonomic symptoms are absent!	



Lecture Quiz

Q1: a 28 Y.O female has a throbbing, one sided headache three times a month. It occurs suddenly, persists for two days and sometime causes her to miss work. She has been having the headaches intermittently for six years and associates it with lack of sleep and stress. This is what type of headache ?

A. Migraine with aura
B. Migraine without aura
C. Tension-type headache
D. Cluster headache

Q2: A 31 Y.O male presents to your office reporting that he has onset of a severe, unilateral headache that has been intermittent for one week, usually occurring at night after he goes to sleep. The pain awakens him and forces him to "pace the floor". He has also been experiencing a "runny nose and runny eye" with this. Past medical history is otherwise unremarkable. He is taking no medications. His family history is hypertension in both parents. He denies tobacco or drug use, but drinks two to three beers on weekend nights. His physical exam is normal. What is the likely diagnosis ?

A. Migraine without aura
B. Tension headache
C. Cluster headache
D. Subarachnoid hemorrhage

Q3: A 45 Y.O female with a 15 years history of migraine headaches is now having two months of a daily headache she now attributes to job stressors. She has been taking an ergotamine preparation for acute treatment for her headaches but is now getting no relief. She is unable to work because of the pain. Your next recommendation should be :

A. Try injectable form of sumatriptan for the headache
B. Increase the dose of the ergotamine
C. Institute a low dose of a Beta blocker
D. Stop the ergotamine

Q4: A 60 Y.O female with a 30 year history of migraine headaches with visual auras presents for her clinic visit. She take ibuprofen for her headaches and has never taken prophylaxis medications. She reports that her headaches have become more frequent over the last three months and notes stiffness in her shoulders and neck that she thinks is just "old age". What would you suggest next ?

A. Start a beta blocker as prophylaxis
B. Refer for MRI of brain
C. Send her for audiology testing
D. Measure an erythrocyte sedimentation rate (ESR)

Q5: A 30 Y.O man with a history of migraines since adolescence has been having daily headaches over the past few months despite taking an average of four fiorinal (aspirin/butalbital/caffeine) on a daily basis. Which of the following should you recommend ?

A. Replace fiorinal with oxycodone
B. Start verapamil in addition to the fiorinal
C. Replace fiorinal with sumatriptan
D. Discontinue all medications

Answers: Q1:B | Q2:C | Q3:D | Q4:D | Q5:D

THANKS!!

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Send us your feedback:
We are all ears!