MIGRAINE/TENSION HEADACHE

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Overview

An estimated 4 million Canadians suffer from migraines (3 million women, 1 million men) with half of them undiagnosed and a quarter misdiagnosed.[3,7] Migraines can have a significant impact on patient's professional, social, and personal lives. The severity of the headache partly dictates management and can be classified as mild (aware of discomfort but able to continue with minimal change to daily activities), moderate (inhibits daily activities but not incapacitating), severe (incapacitating) and status (severe lasting >72 hours).

Diagnostic Considerations

Table 1: Common Primary Headache Disorders[2,4]

Symptom	Migraine +/- aura	Tension	Cluster
Diagnostic criteria	1. ≥2 of unilateral, pulsating/throbbing, moderate/severe intensity, aggravated by routine activity **AND** 2. 1 of nausea/vomiting or photo/ phonophobia 3. **≥5 attacks** of the above 4. With aura: a) ≥1 gradual onset of visual, sensory or speech symptoms over >4 minutes **OR ≥2** symptoms in succession b) mix of pos (e.g., flickering lights) and neg (e.g. numbness) symptoms c) fully reversible symptoms d) duration >4 and <60 minutes e) migraine occurs within 60 minutes	1. ≥2 of pressing/ tightening (non-pulsating) quality, mild-moderate intensity, bilateral, not aggravated by routine activity **AND** 2. **absence of N/V** (may have anorexia) **AND** 3. **≤1 of** photophobia and phonophobia	1. severe unilateral orbital, supraorbital and/or temporal pain **AND** 2. **≥1 of** conjunctival injection, lacrimation, nasal congestion, rhinorrhea, forehead and facial swelling, miosis, ptosis, eyelid edema, agitation (unable to lie down)
Duration/ frequency	4 to 72 hours	30 minutes to 7 days less than 15 days/ month	15 minutes to 3 hours untreated attack every other day to 8/day
Location	Unilateral (70%) Bifrontal or global (30%)	Bilateral	Unilateral usually starting around eye or temple
Other qualities	- gradual onset after sustained exertion - abates with sleep - prodromal symptoms (irritability, hyperactivity, inability to think or concentrate, food cravings, hyperosmia) - often has family history		- quality of pain is deep, continuous, excruciating, and explosive - quick onset, crescendos within minutes

Investigations

Investigations are not usually required for migraines or tension headaches; however, one must first exclude secondary causes as well as rule out other coexisting primary headache disorders.[7] Please see investigations outlined in One Pager "Approach to Undifferentiated headache."

Migraine Headache

Table 2: Management[1,4,6]

Non-Pharmacological	Pharmacological (acute) †	Pharmacological (prophylaxis)
• Avoid triggers o environmental (temperature, H&N injury, odours, light, weather, altitude, noise, motion, physical strain) o lifestyle (stress, sleep, poor diet, smoking) o hormonal (puberty, menstruation, OCP, menopause, pregnancy) o emotional (anxiety, anger, disappointment/depression, excitement) o medications such as vasodilators (e.g. nitroglycerin, nifedipine) or hormonal (e.g. OCP, HRT) o diet (citrus, caffeine, chocolate, nitrites, aged cheese, alcohol, aspartame, MSG) • Rest in quiet, dark room	Mild: • Usually self-managed with OTC medications → early treatment decreases duration/ severity/disability • acetaminophen/ASA/caffeine, NSAIDs, triptans (5HT agonists), adjuncts‡ • Triptans more effective in halting pain at mild stage; second dose unlikely to be helpful if first dose = no effect o Onset of action and dosage form helpful in individualizing therapy as differences in efficacy between triptans is small Moderate: o Triptans, NSAIDS, dihydroergotamine (DHE), ergotamine‡ o Butorphanol nasal spray (i.e. when DHE, triptans not effective) Moderate-Severe: o Prochlorperazine, chlorpromazine, DHE, ketorolac IM, MgSO4 IV, triptans, adjuncts‡ Rescue/Status: o Hydrate first with 250-500mL D5W with ½ NS before using neuroleptics and monitor for orthostatic hypotension and acute EPS o DHE if meet criteria: o For protocol: http://www.icsi.org/headache/headache__diagnosis_and_treatment_of_2609.html o If no DHE: o chlorpromazine, IV valproate, IV $MgSO_4$ or prochlorperazine o if no relief, try opiates then dexamethasone as last resort	Criteria for use: • ≥3 mod-severe attacks/mo without adequate response to symptomatic therapy • >8 headache day/mo even if acute meds effective (because risk of medication overuse headache) • Less frequent but impairs QoL • Patient interest Adequate prophylaxis trial = 8 doses at target dosage o Can reassess therapy in 6-12 months & attempt to taper and d/c Success with prophylactic therapy: o Reduction in headache frequency by ≥ 50% o Reduction level acceptable to patient (consider disability, QoL) Refer to Table 4 for drug therapy agents • If unsuccessful, switch to different first-line or different drug in same class: o Consider 2nd or 3rd line agents o For cases refractory to monotherapy consider combination therapy (e.g. BB + topiramate or divalproex sodium or amitriptyline; topiramate + amitriptyline o Consult specialist Alternative therapies: • Biofeedback, CBT, relaxation, acupuncture • Herbal / vitamin / mineral therapies: (e.g. butterbur, riboflavin, magnesium, co-enzyme Q10) • Considerations for co-morbid conditions: • Overweight - topiramate (Topamax) • Hypertension - BB (pt < 60yr); candesarten, lisinopril • Depression/anxiety – amitriptyline, venlafaxine • Pregnancy – avoid drug therapy if possible; if needed consider Mg, BB* • If menstruation-associated, use prophylactic NSAIDs, triptans, ergots, estradiol patch 50-100µg 48h prior to onset and continue for 7d or try estrogen-OCP (variable effect), GnRH agonists (limited effect)

†Avoid opiates and barbiturates as they provide only short-term analgesia and do not address pathophysiology of migraine headaches

‡adjuncts include resting in a dark, quiet room, IV rehydration, antiemetics, etc.

** consult www.motherisk.org for further information*

Tension Headache[4]

Table 3: Management

Pharmacological (acute)	Pharmacological (prophylaxis)
• Acetaminophen, ASA, NSAIDs, adjunctive therapy (stress management, PT) • Risk of developing chronic daily headache with medication overuse (>9d/mth)	• Reserved for frequent tension headaches (>15/mth) • TCAs effective in reducing frequency and severity o First-line: amitriptyline (start 10-12.5mg QHS, increase by 10-12.5mg q2-3w to maximum 150mg) o Second-line: other TCAs (nortriptyline, protriptyline), venlafaxine XR (150mg/d), mirtazapine (15-30mg/d), topiramate, gabapentin

Table 3: Pharmacologic Management (Acute)[1,4,6]

Drug Class/Name	Dosage	Considerations	Safety Concerns
Acetominophen	• 650-1300mg PO q4-6h • Max 4g/d	• First line for mild-moderate attacks • Safe in pregnancy & breastfeeding	• Hepatotoxicity (risk factors: chronic use of high doses, esp. in heavy EtOH users; acute overdose) • Potential to affect warfarin (esp. with chronic use of higher doses)
NSAIDs: • Ibuprofen • Naproxen • Diclofenac	 - 400-800mg PO q4-6h; max 3.2g/d - 500-750mg PO q6-8h; max 1250mg/d - 50-100mg PO once at onset	• Considered 1st line for mild-moderate attacks • Breastfeeding*: generally safe depends on individual drug • Pregnancy*: class C during first and second trimesters, some class D for GA >=30 weeks	• Common adverse effects: o GI: dyspepsia, PUD, bleeding (risk increased with concomitant warfarin use) o Renal (worsens underlying HTN, ARF due to renal vasoconstriction) o Cardiovascular (NSAIDs interfere with antiplatelet activity of ASA, exacerbates HF, may increase BP) o Hepatic (transaminitis)
Triptans: • Almotriptan • Eletriptan • Frovatriptan • Rizatriptan • Naratriptan • Sumatriptan • Zolmitriptan	 - 6.25-12.5mg PO; may rpt in 2h; max 25mg/24h - 20-40mg PO; may rpt in 2h; max 40mg/24h - 2.5mg PO; may rpt in 4h; max 5mg/24h - 5-10mg PO; may rpt in 2h; max 20mg/24h - 1-2.5mg PO; may rpt in 4h; max 5mg/24h - 50-100mg PO; may rpt in 2h; max 200 mg/24 h or 6mg SC; may rpt in 1 hr; max 12 mg/24h or 5-20mg nasal spray; may rpt in 2h; max 40mg/24h - 2.5-5mg PO q2h; max 10 mg/24h or 2.5 - 5mg nasal spray q2h max 10mg/d	• 1st line for moderate – severe attacks; also effective for mild attacks • Pregnancy*: suma – likely safe; caution with all others • Breastfeeding* - likely safe	• CI: ischemic heart disease, uncontrolled HTN, hemiplegic or basilar migraine • Do not use with concurrent MAOIs (except eletriptan, frovatriptan and naratriptan OK) • Caution with SSRIs or SNRIs (increased risk serotonin syndrome); within 24h of ergotamine, dihydroergotamine use or a different 5-HT_1 agonist (i.e. triptan) • Severe hepatic impairment
Ergotamine: • Oral Cafergot® (ergot 1mg/caffeine 100mg) • Suppository (ergot 2mg/ caffeine 100mg) • SL (2mg ergot) Dihydroergotamine (DHE): • intranasal (4 mg dihydroergotamine/mL) • 1 mg/mL injectable Butorphanol nasal spray 10mg/mL	 - 2 tab po stat, then 1 tab q30-60min; max 6tab/24h, 10tab/wk - 1 supp; max 2 supp/attack or 3 supp/wk - 1 tab q30min; max 6mg/d, 10mg/wk or 2d/wk - 1 spray/nostril stat; repeat q15min prn; max 4 sprays/ attack; 6 sprays/24h; 8 sprays /wk - 0.5-1mg q1h SC, IM (or IV); repeat q1h; max 3 mg/24 h (6mg/wk) - 1 spray in 1 nostril; may repeat in 3-5hr; max 16 sprays/24hr	• Ergotamine considered 2nd line due to decreased efficacy and increased toxicity • Dihydroergotamine considered 1st line for severe attacks • Pregnancy* - contraindicated • Breastfeeding*: not recommended (may cause vomiting, diarrhea, weak pulse, unstable BP in infant) • Discontinuation may cause rebound headaches	• Do not use within 12 hr of triptans (or 24h for naratriptan) • Ergot toxicity (ergotism) possible with concurrent caffeine, grapefruit juice, potent CYP3A4 inhibitors (e.g. ketoconazole, erythromycin, diltiazem) • Ergotism and chronic daily headache with overuse; limit to 1-2 days/week • Contraindicated in cardiac disorders, uncontrolled HTN, PVD, PUD, hemiplegic or basilar migraine • Caution in renal or liver disease
Adjuncts o IV chlorpromazine (CPZ) o IV prochlorpromazine o IV Magnesium sulfate o IV Valproate sodium o IV/IM dexamethasone	 - 5mg q5-10min until relieved (5mg/mL=25mg/mL CPZ + 4mL NS); max 25mg/dose - 2mg q3-5min until relieved (2mg/mL=10mg + 4mL NS); max 10mg/dose - 1g IV - 300-500mg in NS at 20mg/min - 10 – 25mg	• Used acutely as rescue therapy for severe migraines	

Table 4: Pharmacologic Management (Prophylaxis)[8]

Preventative therapies for migraine are aimed at reducing attack frequency, severity, and duration. They may also improve effectiveness of treatment for acute attacks and, thereby, improve function and reduce disability.[6]

Drug	Dose	Drug	Dose
Evidence level A		**Evidence level B**	
Topiramate	25mg qhs (max 200mg/day)	Venlafaxine	75-150mg/d, start 37.5mg
Divalproex sodium	250mg BID (500 –1500mg/day)	Gabapentin	300mg BID (900 -3600mg/day)
Botulism	100 U	Propranolol	20mg BID (40 – 160mg/day)
Riboflavin	400mg po OD	Lisinopril	20mg po OD
Butterbur	50mg BID (100 – 150mg/day)	Nadolol	80mg OD (80-240mg/day)
		Flunazarine	5mg po OD (5 -10mg/day)
		Candasarten	16mg po OD
		Evidence level C	
		Verapamil	40mg TID (40 – 80mg TID)

Bottom Line

A good clinical history is one of the most important tools to diagnosing and differentiating between primary headache disorders. A variety of acute and prophylactic treatment is available depending on the severity and frequency of symptoms.

References can be found online at http://www.dfcm.utoronto.ca/programs/postgraduateprograme/One_Pager_Project_References.htm