Migraine Treatment Guide

MIGRAINESOCIETY.CA

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I have gathered together the most recent knowledge on migraine treatment from the Migraine World Summit, the Mayo Clinic, American Migraine Foundation and Migraine Canada along with suggestions from our own experts — people living with migraine. The most important thing to remember is that it will likely take a combination of several treatments and medications, a multi-modal approach, to chip away at chronic migraines. Don't give up hope — something will help, but it requires patience and tenacity.

— **Maya Carvalho**, founder of **Canadian Migraine Society**, **maya@migrainesociety.ca**

Medical disclaimer: this guide is designed to be used as a discussion tool to help you collaborate on a treatment plan with your physician and educate yourself about what is available in Canada. Any changes to your treatments or medications MUST be discussed with your physician.

1. Lifestyle Changes: SEEDS (Sleep, Exercise, Eat, Diary, Stress)

Sleep (S)

• Try to aim for 7–8 hours of sleep a night. The migraine brain likes routine so go to bed and wake up at the same time every night. Do not take naps if possible.
• Keep your room cool and dark, and remove TVs, screens and blue light devices. Using a nightlight with a real book is better for your brain than the reading settings on your phone (Dr. Christine Lay, migraineagain.com).
• Get out of bed if you cannot sleep after 20–30 minutes so your body associates the bed with sleep. Try meditation or progressive muscle relaxation if you find that helpful.
• If you have persistent problems with sleep you may want talk to your physician about getting checked for sleep apnea and restless leg syndrome. (Dr. Christine Lay, migraineagain.com).
• Sleep CBT (Cognitive Behavioural Therapy) is effective and should be considered if basic adjustments to your routine don't work.

Exercise (E)

• Exercise can be very challenging with migraine pain so start very slowly and do whatever activity you can tolerate, when you do NOT have a migraine.
• Try to build up to 30 minutes three (3) times per week. If you can do more — great.
• Moderate exercise is better than intense exercise which is often triggering for many people living with migraine. Walking is a good place to start and can be the best activity for many patients as it is gentle and aerobic if the pace is good.
• Consider YouTube videos to learn new exercises and get motivated.
• Consult a physiotherapist if you have co-morbid conditions which restrict your exercise.

Eat (E)

• You can find out your food triggers by analyzing your migraine diary or by doing an elimination diet under the supervision of a healthcare practitioner. Do NOT search for food triggers at the expense of eating and drinking regularly to maintain a healthy diet. Research shows food triggers tend to be overestimated.(Dr. Elizabeth Leroux)
• In general it is better to increase proteins and decrease simple carbohydrates and processed foods. Try to eat three (3) meals a day at regular times and do not skip meals — this is often overlooked. Some patients find gluten-free diets and keto diets helpful, but even a healthy Mediterranean diet is perfectly fine. It is more important to find something you can realistically (and happily!) maintain.
• Stay hydrated with 7–8 glasses of water a day (you can add cucumber, mint, herbal teas to make it more palatable) and by limiting caffeine to 200mg/day.

Diary (D)

• A Headache Diary is essential to track your migraine patterns, duration and frequency. Your neurologist will also want to see your Headache Diary.
• A printable version is available at migrainecanada.org
• Two apps are available: Migraine Buddy as well as Canadian Migraine Tracker.

Stress (S)

• Stress can be a migraine trigger for many migraine patients. Often, stress contributes to trigger stacking meaning that it may not be a trigger on its own, but when combined with something else, can tip a chronic migraine patient over the edge. There are many tools available to teach us how to manage stress:
• Spoon Theory — this may help you pace yourself and expend your energy wisely.
• MBSR (Mindfulness Based Stress Reduction)
• CBT (Cognitive Behavioural Therapy) including ACT (Acceptance Commitment Therapy)
• Biofeedback, Breathing Exercises, Cardiac Coherence
• Psychotherapy

2. Preventive treatments

These medications are meant to reduce the frequency and/or intensity of your monthly migraines. If you are experiencing 4–6 migraine attacks per month, if your migraine frequency is increasing, or if your acute medications are not effective, you may want to discuss preventive medications with your physician. Your doctor will most likely start you at a low dose and titrate up slowly. It can take 2–3 months at the final dose to determine if these medications are working. It may take multiple preventive medications to have an effect if you have chronic migraine and it may take a bit of trial and error to find the right dose of each medication. In Canada, anti-CGRPs and Botox are only available after trying two (2) oral preventives.

Oral Daily Preventive Medications (pills): these are anti-depressants, anti-epileptics, beta blockers, and calcium channel blockers that have been found to be effective in decreasing migraines. As of 2023 a new class of medications called gepants became available in Canada (see Gepants in Section 3 below for more information).Some gepants are preventive medications and others are acute, and some fall into both categories. First Line drugs have more proven efficacy than Second Line, and Second Line more than Third Line. Patients must understand that the evidence decreases as you move down the line so prescribing these drugs is less common. Some of these drugs have now been FDA approved for migraine. Patients will often be required to try Daily Preventive Medications before getting authorization for Botox and anti-CGRPs.

FIRST LINE — strong evidence for migraine prevention:
- Elavil (Amitriptyline)
- Aventyl (Nortriptyline)
- Lopressor (Metoprolol)
- Inderal (Propranolol)
- Topamax (Topiramate)
- Atacand (Candesartan)
- Qulipta (Atogepant)

SECOND LINE — moderate evidence for migraine prevention:
- Effexor (Venlafaxine)
- Isoptin (Verapamil)
- Neurontin (Gabapentin)
- Corgard (Nadolol)

THIRD LINE — low evidence for migraine prevention or high risk of side effects:
- Sibelium (Flunarizine)
- Sandomigran (Pizotifen)
- Depakote (Valproic Acid/Divalproex)
- Zestril (Lisinopril)

EXPERT/SPECIALIST ONLY — limited or no evidence but may be suggested by experts for refractory situations. Some may be used to address your comorbid conditions rather than your migraines directly.
- Namenda (Memantine)
- Lamictil (Lamotrigine)
- Vimpat (Lacosamide)
- Zanaflex (Tizanidine)
- Lyrica (Pregabalin)
- Celebrex (Celecoxib)
- Timolol Eye Drops (Timolol Opthalmic Maleate Solution)

Anti-CGRP Biologics (monoclonal antibodies): These are the first preventive drugs designed specifically to treat migraine. Calcitonin Gene Related Peptide is a protein that transmits pain signals along the trigeminal nerve into the brain stem and, ultimately, up through the brain itself. Researchers and doctors believe that CGRP is "important in generating and maintaining the headache associated with migraine," (Dr. David Dodick) These are new drugs that have only been available in Canada since 2018 and many are still on their way!
- Aimovig (Erenumab) — migraine prevention
- Emgality (Galcanezumab) — migraine prevention and cluster headache prevention
- Ajovy (Fremanezumab) — migraine prevention administered through auto-injector or syringe
- Vyepti (Eptinezumab) — migraine prevention quarterly anti-CGRP given through IV

Botox: Botox is indicated specifically for patients with chronic migraine, not episodic. A patient must experience 15 or more headache days per month to qualify. Using a very small needle, the doctor injects small amounts of Botox through the skin into the muscles. Each treatment typically involves 31 injections in seven key areas of the head and neck. Areas injected include the bridge of the nose, the forehead, the temples, the back of the head, the neck, and the upper back (just above the shoulder blades). One treatment typically lasts for approximately 10–12 weeks. It can take three treatments to see the maximum benefit from Botox. In the

meantime, you can continue your regular medications with no risk of a drug interaction. (American Migraine Foundation)

3. Acute medications

Migraine is a spectrum disorder. Episodic Migraine is defined as 0–14 migraine days per month. Chronic Migraine is defined as a minimum of fifteen headache days per month — at least eight of which are migraine. Here are three important principles:

1. Treat Early Principle: As a rule of thumb, a migraine attack will be easier to control if treated early in the attack cycle, when the pain is milder.

2. Combination Principle: The latest thinking is that a combination of a Triptan, NSAID and Anti-Nausea medication (specifically Metaclopramide or Prochlorperazine) taken at the same time might be the most effective treatment for intense migraine attacks (Migraine World Summit).

3. Overuse Monitoring Principle: Due to the high number of migraine days involved in chronic migraine, you must work with your doctor to figure out a plan for when to take each of these medications without increasing your risk of Rebounds or Medication Overuse Headache (MOH). The general rule of thumb is to not use a COMBINED total of all your acute meds more than 2–3 days per week, or ideally 10 days per month. MOH does not necessarily occur in ALL patients so please discuss your individual situation with your doctor.

Triptans: Triptans must be taken at the first sign of migraine to be most effective. Pain should be significantly reduced after 2 hours. You may need to try multiple triptans before finding one that works for you. Most doctors recommend not taking triptans more than 8–10 days per month to avoid MOH. All triptans are available in generic form.

- Axert (Almotriptan)
- Relpax (Eletriptan)
- Frova (Frovatriptan)
- Amerge (Naratriptan)
- Maxalt (Rizatriptan)
- Maxalt wafer
- Imitrex (Sumatriptan)
- Imitrex Nasal Spray
- Imitrex Injection
- Zomig (Zolmitriptan)
- Zomig Rapimelt Dissolving Tablet
- Zomig Nasal Spray

Ergotamines: These are most effective when taken shortly after the start of symptoms for migraines that tend to last longer than 24 hours. Side effects can include worsening of migraine-related vomiting and nausea. Patients with coronary artery disease, high blood pressure, kidney or liver disease should avoid DHE. (Mayo Clinic) DHE has the advantage of not causing MOH and can be used during MOH withdrawal protocols.

- DHE Nasal Spray (Migranal)
- DHE Subcutaneous Injection
- DHE IV therapy — only in-patient in hospital or clinic settings to break intractable migraine. Not readily available in Canada at this point in time.

Gepants: This is a class of oral small molecule CGRP receptor antagonists in which one is an acute medication, one is a preventive medication, and one is both acute and preventive. They are similar to the preventive anti-CGRP monoclonal antibodies, however, unlike large molecule antibody injections which stay in a patient's

system for months, these small molecule medications are eliminated within days. Unlike triptans, gepants do not have a vasoconstrictive effect which means that they may be a good alternative for people who have heart disease or stroke risk. There is some early indication that Gepants do not cause Medication Overuse Headache making them a good option for people on the higher end of the chronic migraine frequency spectrum.
· Ubrelvy (Ubrogepant) — FDA approved December 2019 (oral tablet). This gepant is an Acute migraine medication. This medication has been available in Canada as of April of 2023.
· Qulipta (Atogepant) — FDA approved September 2021 (oral tablet). This gepant is a Preventive migraine medication. This medication has been available in Canada as of March of 2023.
· Nurtec (Rimegepant) — FDA approved February 2020 (oral dissolving tablet). This gepant is both an Acute and Preventive migraine medication, but is currently only approved for Acute use in Canada. Available in Canada in as of April 2024.

Ditans: This is a class of oral migraine medications that are 5-HT1F (serotonin 1F) receptor agonists used for the acute treatment of migraine. These medications are able to cross the blood-brain barrier and affect the central nervous system. Like Gepants and unlike triptans, ditans do not have a vasoconstriction effect, making them a good alternative for people who have heart disease or stroke risk. Ditans can be sedating so it is advised that people not drive or do activities that require mental alertness for eight hours after taking them.
· Reyvow (Lasmiditan) — FDA approved October 2019 (oral tablet). Not available in Canada

Triptan combined with NSAID:
· Suvvex/Treximet (combination of Naproxen and Sumatriptan) — This is a good example of The Combination Principle and has been available in the US for years. This has only been available in Canada since Sept 2020.

Timolol Eye Drops: Timolol Opthalmic Maleate Solution
- These drops were traditionally used for glaucoma but have been used by headache specialists over the past few years. They fall into the beta-blocker category of medications but because they are delivered via eye drops rather than an oral pill, the effects can be felt quickly, sometimes within 15 minutes. They are contraindicated for people with asthma, COPD or heart disease. Timolol eye drops seem to work particularly well for those with Vestibular Migraine.

Prescription Anti-inflammatories/NSAIDs:
· Aspirin (Acetylsalicylic acid) — Non-prescription/Over-the-counter
· Cambia (Diclofenac Potassium Powder)
· Indocid (Indomethacin)
· Toradol (Ketorolac)
· Toradol injection (Ketorolac injection)
· Ponstan (Mefenamic Acid)
· Naproxen
· Naproxen Suppository
· Vimovo (Naproxen and Esomeprazole)
· Voltaren (Diclofenac)

Anti-nausea/Anti-emetics:
· Motilium (Domperidone)
· Gravol (Dimenhydrinate)
· Gravol Suppository (Dimenhydrinate suppository)
· Maxeran (Metaclopramide)
· Metonia (Metaclopramide Hydochloride)
· Zofran (Odansetron)
· Zofran (Odansetron) — oral film

· Compazine (Prochlorperazine)
· Compazine suppository (Prochlorperazine suppository)

Muscle relaxants:
· Flexeril (Cyclobenzaprine)
· Robaxin (Methocarbamol)
· Robaxacet (Methocarbamol and Acetaminophen)

Butalbitals: These can cause dependence and MOH and are therefore no longer recommended by most Headache Specialists, however for some patients are the only drug that works.
· Fiorinal (Butalbital, aspirin and caffeine)
· Fioricet (Butalbital, acetaminophen and caffeine) DISCONTINUED

Opioids (short-acting): Opioids should only be used if all other treatments have failed. Most Headache Specialists will be highly reluctant to prescribe any of these drugs because they can induce MOH, lead to dependence and increase central nervous system sensitization. This is a controversial subject, however, and some doctors take a more nuanced view. At a recent Migraine World Summit, Dr. Deborah Friedman said, "There are some people that can take medications for other bodily pain — and they can take them every day — and it doesn't affect their headaches at all." That said, most patients are highly susceptible to MOH and should discuss usage of opioids with their doctor.
· Codeine
· Demerol (Meperidine)
· Dilaudid (Hydromorphone)
· Morphine
· Oxycocet (Oxycodone and Acetaminophen)
· Percocet (Oxycodone and Acetaminophen)
· Statex (Morphine Sulphate)
· Supeudol (Oxycodone)
· Tramadol
· Tramacet (Tramadol and Acetaminophen)
· Tylenol #1, #2, #3, #4 (with Codeine)

Steroids: For some time, headache clinicians have used brief courses (3–7 days) of steroids to treat refractory migraine headaches. Although corticosteroids carry some risk, and although some patients may be unable to take them due to certain underlying conditions such as diabetes, the use of steroids in status migrainosus can be helpful for some patients, especially to avoid recurrence of the headache. (National Headache Foundation)
· Prednisone
· Dexamethasone
· Medrol DosePak

Medical Cannabis: Opinions differ on the efficacy of cannabinoids, some research is positive while other research suggests they may contribute to MOH. If you are interested in trying medical cannabis, you can be referred to a cannabinoid clinic to get a prescription and information for Licensed Producers (LPs) in Canada. You have to right to have as many LPs as you wish even if your clinic suggests otherwise. Some good resources are leafly.com and the FB groups SheCann and MigraineBuds. A great deal of experimentation is required to find the right strain and the right dose, but it can be helpful, especially for comorbid conditions that may be contributing to your migraines. Smoked cannabis should not be used as it carries a risk of lung disease.
· Inhaled vaporized cannabis
· Edible cannabis
· CBD oil or CBD/THC oil

Combinations of Acute Medications: Many patients find that they need to combine multiple classes of medications in order to fully break an intense migraine. Here are a few combinations that have proven successful for patients, please make sure to discuss these ideas with your doctor:

- Triptan + NSAID (e.g. Frova + Cambia)
- NSAID + Anti-emetic (e.g. Toradol + Metaclopramide)
- Triptan + NSAID + Anti-emetic (e.g. Imitrex + Cambia + Prochlorperazine)

4. Interventions

Nerve Blocks: Nerve blocks suppress the pain signals traveling along peripheral nerves and are typically administered to patients via a small-needle syringe at the back of the skull (greater and lesser occipital nerves), temples (auriculotemporal nerves) or above the eyebrows (supraorbital and supratrochlear nerves) and possibly also the temples and jaws. The composition of the solution that is injected differs according to physician experience and preference but most often contains a long-acting local anesthetic and a steroid anti-inflammatory drug (American Migraine Foundation).

Trigger Point Injections: Trigger points are concentrated areas in muscle that are very irritable and produce pain not only in the affected muscle, but also in distant areas, called referred pain. Patients who have multiple trigger points are diagnosed with a condition called Myofascial Pain. When these trigger points are located in muscles of the head, neck, and shoulders they can cause headaches. A trigger point injection is a procedure where a medication, usually a local anesthetic, is injected into the trigger point to provide relief. The pain relief should be experienced not only in the affected muscle, but in the area of referred pain as well. (American Migraine Foundation).

Ketamine and Lidocaine Infusions: These infusions are controversial and not yet widely available in Canada. Infusions are given via IV in order to lower the overall chronic pain level in patients. They can be given at varying intervals and for varying durations. “It is biologically plausible that ketamine could be an effective treatment for intractable headache. Ketamine is an antagonist at NMDA receptors, blocking the excitatory action of glutamate (Glu), a neurotransmitter long implicated in the pathophysiology of migraine.” (Lauritsen, C., Mazuera, S., Lipton, R.B. et al. Intravenous ketamine for subacute treatment of refractory chronic migraine: a case series. J Headache Pain 17, 106 [2016]. doi.org/10.1186/s10194-016-0700-3)

SPG Blocks (Sphenopalatine Ganglion Blocks): The evidence supporting SPG Blocks for headache prevention is still very preliminary. The sphenopalatine ganglion (SPG) is a collection of nerve cells that is closely associated with the trigeminal nerve, which is the main nerve involved in headache disorders. In an SPG block, an anesthetic agent is administered to the collection of nerves in the ganglion. The least invasive way to access the SPG is through the nose. (American Migraine Foundation)

5. Neuromodulation Devices

Cefaly Dual : The Cefaly Dual is indicated for the acute and preventive treatment of episodic migraine in adults (18 years or older). Although the FDA categorized the Cefaly as a transcutaneous electrical nerve

stimulation (TENS) unit, it is more specifically an external trigeminal nerve stimulation (eTNS) unit. Since the trigeminal nerve is involved in migraine, it's theorized that stimulation of it can help with migraine prevention. (American Migraine Foundation). For more information visit cefaly.com.

Nerivio: Nerivio is a novel, remote electrical neuromodulation (REN) prescribed wearable that stimulates upper arm peripheral nerves to induce conditioned pain modulation (CPM) — an endogenous analgesic mechanism in which conditioning stimulation inhibits pain in remote body regions. It is indicated for both episodic migraine and chronic migraine in adults and adolescents (12 and older). Not currently available in Canada but the manufacturer is hoping to have it available in Canada in the future. For more information visit theranica.com

gammaCore Sapphire™ A non-invasive, hand-held, electrical vagus nerve stimulator that is indicated for the preventive and acute treatment of cluster headache and migraine headache in adults and adolescents (12 and older). For more information visit gammacorecanada.com.

6. Complementary and Integrative Medicine

Nutritional Supplements: Supplementation is intended to reduce the frequency or intensity of your monthly migraine attacks. The following are most commonly recommended for migraine:

- Magnesium Citrate or Glycinate: 300 mg 2× per day
- Vitamin B2 (Riboflavin): 400 mg per day
- Coenzyme Q10: 100mg 3× per day

Turmeric/Curcumin (anti-inflammatory), Vitamin D and Melatonin have been recommended by some Headache Specialists but are not yet part of the standard migraine protocol. New research shows that a diet rich in Omega 3 fatty acids and low in Omega 6 fatty acids may also be helpful in reducing inflammation and preventing migraine attacks. Feverfew, though sometimes used in migraine treatment, is contraindicated with many medications including anti-inflammatories so discuss with your doctor. Butterbur is no longer recommended in Canada due to the risk of liver toxicity.

Physical Therapies:

- Physiotherapy: If your migraine attacks are linked to tight neck and upper back muscles, then physiotherapy can help by teaching you how stretch, stabilize and strengthen these areas.
- Alexander Technique: The Alexander technique is a gentle approach that aims to re-educate the mind and the body through a series of movements so the body uses muscles more efficiently. The relationship between head and spine is key. When the neck muscles work well, the head should balance lightly at the top of the spine. (*The Guardian*)
- Osteopathy: this is a complementary therapy that focuses on the manual therapy of the joints, spine, and muscles. In addition, osteopathy aims to address the body's nervous system, circulation, and lymphatic system.
- Massage Therapy — Swedish massage, Myofascial Release, and Shiatsu are all helpful for releasing muscle tension and improving circulation which can help migraine.
- Bowen Therapy — The Bowen Technique is a gentle therapy that is applied to areas of the body, using thumbs and fingers in a specific process or order.

- Yoga: Restorative yoga, chair yoga, and therapeutic yoga can be helpful in reducing the frequency and intensity of migraines if done on a regular basis. Yoga was shown to increase vagal tone and decrease sympathetic response in a 2014 study. (www.ncbi.nlm.nih.gov/pmc/articles/PMC4097897)
- Tai-Chi: Part meditation, part exercise, Tai Chi has been shown in to calm the body's fight-or-flight response, leading to a wide range of health benefits if done on a regular basis (www.migraineagain.com)

Behavioural Therapies:

- Psychotherapy: talking to a therapist can be very useful in moving through the feelings of grief and stress that accompany any chronic illness, and developing coping skills for thriving.
- CBT (Cognitive Behavioural Therapy): a type of psychotherapy in which you become aware of inaccurate or negative thinking in order to help you identify and cope with specific challenges.
- MBSR (Mindfulness Based Stress Reduction): an eight-week program designed to help people be aware and present in the moment and in doing so, manage stress associated with many conditions such as chronic pain and anxiety.
- ACT (Acceptance and Commitment Therapy): a type of psychotherapy which helps you become aware of and accept your thoughts and feelings and commit to making changes, increasing your ability to cope with and adjust to situations. (*Mayo Clinic*)
- Progressive Muscle Relaxation: a relaxation technique in which you focus on slowly tensing and then relaxing each muscle group. (*Mayo Clinic*)
- Biofeedback: this technique uses electrical sensors to give you feedback about your body and thus help you control your heart rate and relax your muscles.
- Pain Reprocessing Therapy: a psychological approach that helps the brain learn to understand and react to signals from the body in a healthier way. This process attempts to help stop the ongoing cycle of chronic pain. See Alan Gordon's *The Way Out*.

Complementary Therapies:

- Acupuncture — Acupuncture was developed in ancient China, and involves piercing specific areas of the body with a needle to alleviate pain. There is evidence that acupuncture reduces the frequency of headache in individuals with migraine, and that the effect may be similar to that observed with preventive medications. (*American Migraine Foundation*)
- Ice/Heat Therapy — Some people respond better to ice, some to heat, and most to a combination. There are Ice Hats available to cover your head and your sub-occipital.
- Low-Level Laser Therapy — This non-invasive chronic pain therapy can be helpful for issues such as arthritis, tendinopathy and chronic neck and back pain. LLLT stimulates injured tissue and enhances its function at the cellular level. It may mimic the effects of anti-inflammatory drugs.
- Green Light Therapy — Harvard Medical School researchers at Beth Israel Deaconess Medical Center have found that exposing migraine sufferers to a narrow band of green light significantly reduces photophobia and can reduce headache severity. (*Harvard Medical School*)
- Migraine Glasses — Theraspecs, Axon Optics, Avalux, Somnilight, and Blue-Light glasses for digital screens, etc. Some experimentation is required.
- Essential Oils — These can be used for nausea, relaxation, sleep and muscle relaxation. Be careful if scent is a trigger for you. Lavender and peppermint are the oils most commonly used. Saje, Doterra and Migrastil are trusted suppliers according to our members, but they can also be found at health food and natural product stores.

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