

# Patient Handout

## Migraine and Cluster Headaches: What You Need to Know

### What is migraine?

Migraine is a relapsing and remitting neurologic disorder that predominates the prime years of life and is characterized by recurrent headache attacks lasting 4 to 72 hours. The headaches are frequently one-sided, pulsating, and moderate-to-severe in intensity. Migraine attacks are frequently associated with nausea (with or without vomiting), light sensitivity, and noise sensitivity. Very importantly, they are typically worsened or aggravated by routine physical activities. About 25% to 30% of patients with migraine will experience a warning sign called *migraine aura*, occurring within an hour of the onset of the pain. This usually presents as a visual abnormality such as a shimmering spot or wavy lines in the field of vision and lasts less than an hour. Less commonly, difficulty speaking or tingling or numbness in the face or an extremity may also occur. The major hallmark of migraine is the decreased ability to function in everyday situations.

### Why does migraine occur? What causes it?

Migraine patients have sensitive central nervous systems, frequently due to hereditary factors. The migraine brain tends to react to even subtle changes in internal or external factors. Stress, weather changes, hormonal fluctuations, certain foods, alcoholic beverages, and exposures to bright lights, obnoxious smells, or noises have all been reported to trigger or increase the risk of having a migraine attack. When an attack is triggered, a series of complex events takes place in the brain that leads to: 1) release of inflammatory proteins and chemicals into the lining of the brain (the dura) and the spaces around blood vessels in and around the brain, 2) dilation of blood vessels in the head, and 3) enhanced pain signal transmission to the brain. This often causes the migraine patient to withdraw from any stimulation or activity during an attack. They may require bedrest in a darkened, quiet room for several hours or even a full day or more if inadequately treated.

### How do you know if a headache is a migraine and not something more serious or life-threatening?

Characteristics of headaches due to a serious medical condition that requires urgent evaluation, such as tumor, aneurysm, bleeding into the brain, or meningitis include: 1) sudden onset of pain called “thunderclap” headache, 2) steadily worsening, unrelenting pain in a specific location over days to weeks, 3) headaches associated with fever, seizures, neck stiffness, focal neurologic signs or symptoms (other than typical aura), or mental status changes, 4) onset of new or different headaches in patients with history of cancer, autoimmune illness, or compromised immunity, and 5) a new headache syndrome brought on by exertion, heavy lifting, straining, or intercourse. Patients who have any of these features require immediate medical evaluation.

### Are there treatments that can acutely reverse a migraine or turn it off?

Many patients can achieve migraine relief from simple or combination analgesics such as products containing aspirin, acetaminophen, or nonsteroidal anti-inflammatory drugs (NSAIDs) including ibuprofen, naproxen, and ketoprofen. Beyond that, there are 4 classes of prescription medications that are migraine specific, meaning they reverse or reduce the migraine activity in and around the brain. They include ergots, triptans, ditans, and gepants. These different classes of medications work to inhibit one or more components of the cascade of events that cause migraine symptoms.

### Are there treatments that will prevent migraine from occurring in the first place?

There are no absolute cures or surgical procedures that take away migraine completely. But there are several preventive treatments which, if taken regularly, may significantly reduce headache frequency, duration, and severity. These treatments can be instrumental in improving the migraine patient’s quality of life and ability to function normally. The prescription medication classes with the best evidence for preventing migraine include tricyclic antidepressants, beta-blockers, antiepileptic drugs, and the newest classes that are calcitonin gene-related peptide (CGRP) active medications, which are either monoclonal antibodies given by injection/infusion either monthly or quarterly, or a gepant (rimegepant) dissolved under the tongue. For patients with very frequent migraines (more than 14 days per month, also called *chronic migraine*) that do not respond to simpler medical approaches, botulinum toxin injections may be given, but should only be administered by clinicians with special training and experience in using the drug for this indication. Patients with 4 or more moderate-to-severe migraine days per month should be considered for preventive medication.

### Are there ways to improve migraine frequency and/or severity without medication?

Migraine patients can sometimes reduce their headache burden through application of healthy habits such as getting better sleep, exercising regularly, eating healthy, staying well hydrated, managing stress, and avoiding triggers or risk factors if any are identifiable. The migraine brain likes stability and routine, so regular sleep and wake times, mealtimes, and exercise can be very helpful.

### When should migraine patients see their doctor about their headaches?

Patients should consult with their physician for any of the following problems:

- Headache attacks that are severe or come on quickly
- Headache attacks that are accompanied by any of the following (and the patient has not discussed these symptoms with their doctor before):
  - Confusion
  - Dizziness
  - Fever
  - Numbness
  - Persistent vomiting
  - Shortness of breath
  - Slurred speech
  - Stiff neck
  - Symptoms affecting your ears, nose, throat, or eyes
  - Unrelenting diarrhea
  - Vision loss
  - Weakness
- Headache attacks that persist more than 72 hours, worsen, or won’t stop
- Headache attacks that interfere with normal activities of daily life (eg, work, household chores, social/leisure activities)
- Prescription or over-the-counter (OTC) pain relievers are taken more than 2 days a week
- The recommended dosage of OTC medications is not adequate for headache relief
- Coughing, sneezing, bending over, exercise, or sexual activity cause headaches
- Headache attacks that began after a head injury or other trauma
- Unacceptable or unanticipated side effects from medication are occurring
- A change or worsening in the character, intensity, or frequency of headaches
- More than 4 moderate-to-severe migraine days per month (these patients should consider adding or changing a preventive medication)
- Prolonged aura (more than an hour) or has seizures, loss of consciousness, motor weakness, or double vision with their headache attacks
- Prolonged bouts of uncontrollable or recurrent migraine, especially if this goes on for more than 72 hours or emergency room/urgent care treatment is required

### What is the difference between migraine and cluster headache?

Compared to migraine, cluster headaches behave much differently. As the name implies, clusters of headaches occur over intervals of time, lasting anywhere from a week to a year or longer in duration, but usually somewhere between 2 weeks and 3 months. During these cluster periods, the patient will have recurrent, severe, or very severe headache attacks at frequencies of once every other day to as many as 8 attacks per day. In between cluster periods, the patient goes into complete remission. Scientists have not determined exactly what causes or triggers cluster attacks to begin or end, but there are structural or functional differences that have been noted in some cluster headache brains, including in the hypothalamus. Cluster headache pain is strikingly severe and almost strictly one-sided, especially behind the eye, forehead, and temple. Attacks are associated with other unique symptoms such as nasal congestion, clear runny nose, bloodshot eye, increased tear production, and sometimes drooping of the eyelid all noted on the same side as the headache pain. Untreated attacks last anywhere from 15 to 180 minutes. Many, if not most attacks occur during sleep, waking the patient up to miserable pain throughout the night.

Unlike migraine, cluster headache patients may become agitated and exhibit increased physical activity during attacks. They have trouble sitting still and tend not to sleep in bed. They may sit up and rock in their chairs, pace the floor, and aggressively massage or even repeatedly strike themselves in the region of their head pain. Suicidal ideation is prevalent amongst cluster headache patients during cluster periods. One variant of cluster headache called *chronic cluster*, may go on for more than a year or recur after an unusually short remission of less than 3 months.

### What medications are available to treat cluster headache?

The best acute treatments for cluster headache are non-oral versions of triptans, especially injectable or intranasal sumatriptan and intranasal zolmitriptan, and high-flow inhaled oxygen through a face mask. Preventive medications include verapamil, lithium, and galcanezumab (one of the new CGRP monoclonal antibodies). Sometimes a brief course of corticosteroids can provide short-term relief while waiting for the preventive medications to take effect, but they are not intended for long-term prophylaxis due to the potential for adverse effects with extended exposure.

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