

What is Medication Overuse Headache?

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Medication Overuse Headache (MOH) occurs when a person is regularly overusing acute headache medications, resulting in increased headache. The headaches should usually improve, or stop, once a patient stops using the offending drug. Medication overuse (MO) is usually defined as the use of acute medications for at least 10 days per month (or 15 or more days, depending upon the drug class). Unfortunately, MO is often confused with MOH, but not all patients with MO will suffer an increase in headache frequency. It is important in a patient's medical history to attempt to determine if the frequent use of the acute medication actually did result in an increase in headache frequency.



Discussing the Diagnosis With The Patient

It is important to present the possibility of MOH to the patient in a non-confrontational, non-pejorative manner. Patients may overuse medications for a variety of reasons, but the majority of those with MO or MOH do so because the usual preventive approaches have been inadequate.

MOH: Clinical Characteristics

Most patients with MOH have chronic migraine (15 or more headache days per month, with 8 or more days that are migrainous in nature). For instance, a patient may report that she experienced migraine attacks 10 days per month, but once she began using a certain drug, the headache usually recurred the very next day. This resulted in 20 days per month of headache. If a patient is overusing acute medications (MO), but does not report an increase in headaches, they do not suffer from MOH.

Which Medications Induce MOH?

Opioids and butalbital medications appear to be the most likely to induce MOH. Analgesics that contain a significant amount of caffeine (such as a combination of acetaminophen-aspirin-caffeine) often induce MOH. Many patients consume various combinations of acute medications. Triptans may induce MOH, but less frequently than opioids or butalbital medications. Simple NSAIDs or acetaminophen may cause MOH, but are less likely to than the other medications listed above. The newer “gepants” and “ditans” may have a lower incidence of MOH, but only time will tell.

Pathophysiology of MOH

MOH does induce structural and functional changes in the brain. Prolonged administration of certain acute medications may increase cortical spreading depression, a wave of sustained neuronal inactivation moving through intact brain tissue. Peripheral and central sensitization may occur as well, and these may be the primary driver of MOH. A lowering of inhibitory pain control may also be a factor. The serotonergic system helps modulate pain pathways, and this system may also be affected. There is some evidence for genetic differences in individuals with MOH. Structural imaging has revealed differences in gray matter volume in certain patients with MOH. White matter integrity may be disrupted as well. Functional MRI has indicated connectivity changes in certain areas of the brain involved in processing pain. The dopaminergic system involved in reward is affected by MOH. These structural changes may be reversible.

Risk Factors for Developing MOH

Migraine and tension-type headache are more susceptible to MOH than cluster headache. People with migraine are more likely to experience MOH than those with “pure” tension-type headache without migraine features. Women may be at a higher risk than men, and those under age 50 probably experience MOH at increased rates.

- Other possible risk factors include:
- Cigarette smoking
- Sedentary lifestyle
- Ingestion of tranquilizers
- Depression and anxiety
- Substance abuse
- A family history of substance use disorder or MOH
- Chronic migraine or high frequency of episodic migraine

Associated Conditions

Anxiety and depression are more prevalent in those with MOH, and OCD (a subset of anxiety) is significantly more prevalent. Patients with substance use disorders are at higher risk for overusing acute headache medications. There may be an association with a triad of MOH, obesity, and hypertension. Sleep disorders are also encountered more frequently.

Treatment of MOH

It is important to educate the patient regarding MOH. Even very simple advice and information may be all that is necessary. The patient needs to understand that MOH is very real and that treating the condition will play an active role in improving their headache situation. Each patient requires a personalized approach. Withdrawal of the offending medications may be accomplished slowly, or all at once. Opioids, butalbital compounds, and analgesics with high amounts of caffeine should be tapered. Triptans can often be abruptly discontinued.

The vast majority of patients may be treated as outpatients. Inpatient admission is occasionally necessary. Outside of medications, many approaches to MOH may help the patient. These include psychotherapy, physical therapy, meditation, yoga, exercise, biofeedback, massage, and others. It often “takes a village” to help those with MOH.

In addition to educating the patient and withdrawing from the offending medication, many patients will require additional acute and preventive medications. In the hospital, various IV regimens may be employed though most patients do not require IV treatment. These include IV dihydroergotamine, corticosteroids, antiemetics (such as metoclopramide), and NSAIDs (ketorolac). Patients usually require medication to transition through the withdrawal period. Possibilities include muscle relaxants, NSAIDs, oral corticosteroids, and others.

Deciding whether or not to suggest a patient use preventive medications depends upon many factors. If the patient has simple MOH and is able to transition off of the medication, preventive medication may not be necessary. Most patients do have long-standing headaches and have been on various preventive medications, which may include onabotulinumtoxinA and CGRP monoclonal antibodies. These patients will require preventive medications.

Deciding which preventive approach to take also depends upon a number of factors. These include the headache history and characteristics, reactions to various medications in the past, psychiatric and medical comorbidities, associated GI comorbidities, weight, sleep, fatigue, family history of response to medication, and other factors including cost and access. The patient's input is, of course, paramount in choosing different approaches. If the patient has not had Botox injections, or the CGRP monoclonal antibodies, these are options to consider.

You should try to limit the acute medications given to patients. We do not want to relapse into MOH once again. Limited amounts of non-addicting medications include triptans, NSAIDs, gepants, DHE, and others.

Long-term Outlook

At least 50% of patients do well, particularly if they do not relapse into MOH once again. The following increases the risk of relapse: a high amount of acute medication, cigarette smoking, excessive alcohol consumption, opioid or butalbital overuse, insomnia, and moderate to severe anxiety and/or depression. Close follow-up with the patient improves the chance of long-term success.

References for the patient

1. The American Migraine Foundation and its Move Against Migraine Facebook support group is excellent
2. In addition, there are several other support/chat groups, including one for the newer CGRP medications.
3. The AHS and NHF websites are also helpful for patients.

References

1. Vandenbussche N, Laterza D, Lisicki M, et al (2018) Medication-overuse headache: a widely recognized entity amidst ongoing debate. The Journal of Headache and Pain 19:50 (Open Access)
2. Rossi P, Jensen R, Nappi G, Allena M (2009) A narrative review on the management of medication overuse headache: the steep road from experience to evidence. The Journal of Headache and Pain 10:407-417 (Open Access)
3. Robbins, L (2016) Deconstructing the art of headache medicine. Practical Pain Management (open access)
4. Trucco M, Meineri P, Ruiz L, Gionco M (2010) Medication overuse headache withdrawal and prophylactic therapeutic regimen. Headache 50:989-997
5. Thorlund K, Sun-Edelstein C, Druyts E, et al. (2016) Risk of medication overuse headache across classes of treatments for acute migraine. The Journal of Headache and Pain 17:107.