Chapter 13
Treatment of Medication Overuse Headache

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Introduction

The treatment of medication overuse headache (MOH, rebound) is often the bane of a clinician's existence. This need not be the case with simple and direct approaches based on a number of key points: (1) Prevention of MOH is always better than treating it after it occurs. (2) Treatment is predicated on absolute detoxification from overused medications. Partial measures are doomed to failure. (3) Prevention will not work fully, and migraine-specific medications will not work fully until the wean is completed. (4) Do not get fancy. Use preventive medications that have evidence for effectiveness in prevention of episodic migraine, the underlying disorder behind MOH. (5) Multiple visits with education and reinforcement will be necessary during the wean and after. (6) Strict limits on as-needed acute medications are key.

The general story for MOH is that a patient with episodic migraine transforms to chronic daily headache (CDH), that is headache at least 15 days per month, in the setting of overuse of acute medications. Once that patient crosses the Rubicon to CDH, a number of clinical changes occur that interfere with treatment. These include reduced responsiveness to preventive and migraine-specific acute medications, non-restorative sleep disturbances, worsening of comorbid psychiatric issues, neck pain, vasomotor instability, and variability of headache symptoms across time.

Weaning the patient off the overused medications, providing preventive medication, initiating behavioral support, and prescribing acute medications with strict limits usually cuts the Gordian knot of CDH, restoring the effectiveness of prophylaxis and acute medications. General principles of treating MOH are listed in Table 13.1.

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Table 13.1 General principles of treating medication overuse headache (MOH)

- Prevention of MOH is always better than treating MOH after it occurs
- Treatment is predicated on absolute detoxification from overused medications. Partial measures are doomed to failure
- Prevention will not work fully, and migraine-specific medications will not work fully until the wean is completed
- Do not get fancy. Use preventive medications that have evidence for effectiveness in prevention of episodic migraine
- Multiple visits with education and reinforcement will be necessary
- Strict limits on as-needed acute medications are key

Prevention of MOH

Almost all patients who complain to care providers about episodic headaches have disabling migraines. This remarkable fact has been shown over and over again, as those with pure tension-type headaches do not generally present in medical offices. The disability or impact of disabling migraines drives patients to the office to seek help, and the average patient in the average primary care provider who is complaining of stable, episodic headache has disabling episodic migraines until proven otherwise.

Optimal treatment of episodic migraine is with migraine-specific medication for disabling migraine. Stepping patients through lower-level treatments in the hopes of finding less-expensive treatment has been shown to be a bankrupt strategy. The best approach is to match patient need and disability to level of treatment, so-called stratified care.

The consequence of not matching intensity of treatment to severity of disability is lack of complete response. That is, if a patient with disabling migraine is given a subtherapeutic medication, the likelihood is that the patient will only get partial relief and not obtain a pain-free or migraine-free response. Partial relief of migraine is linked to headache recurrence and, therefore, to repeat dosing. Repeat dosing propagates the attack, prolonging the attack.

The likelihood of transformation from episodic migraine to CDH is predicted by the interaction of two major factors, the number of headache days per month and the number of days of acute treatment per month. As the headache days increase above 10 per month, the probability for transformation to CDH dramatically increases.

If a patient begins the year with 6–10 headache days per month, the odds ratio for developing rebound over the next year is 6 compared with lower frequencies of headache. If a patient begins the year with 11–14 headache days per month, the odds ratio for transforming to MOH goes up to 20. And as the number of acute treatment days goes up, so too does the risk of MOH.

Therefore, if a patient with a tendency to multiday migraine is given an inadequate treatment, the outcome will be a prolonged attack and several days of acute treatment. If that patient had been given an adequate triptan or ergot, or migraine-specific medication plus nonsteroidal anti-inflammatory drug (NSAID), the outcome would have likely been a sustained pain-free response, one and done, with a

Table 13.2 When to add daily preventive medication to prevent medication overuse headache (MOH)

- Odds ratio for developing MOH:
  - 6–10 headache days per month, odds ratio 6
  - 11–14 headache days per month, odds ratio 20
    - Therefore, add daily prophylaxis at 10 headache days per month, and consider at 6–10 headache days per month
- Add daily prophylaxis when acute treatments exceed 2 days per week (5/month for butalbital)
- Acute medication days are additive. Add the number of days of each acute treatment, and if this exceeds 10 days per month, add prevention

truncated duration of attack and fewer acute treatments. That appropriate intervention helps prevent MOH.

If headache days per month climb above 10 days per month, it is mandatory to start preventive medication and drive the number of headache days per month down. If acute treatment days reach a critical level associated with risk for transformation and chronification, once again, prophylaxis is indicated. This requires knowing which medications appear to be associated with precipitation of MOH at which frequency.

Also, acute treatment days are additive. It is important to add all of the acute treatment days together. If a patient is taking 5 days of aspirin–acetaminophen–caffeine tablets, 5 days of opioids, and 2 days of triptans, it adds up to 12 days of acute treatment per month which places that patient in a critical danger zone for transformation into rebound. Intervention with prophylaxis becomes imperative. Some thoughts on translating these facts in terms of when to add daily preventive medication to prevent MOH are listed in Table 13.2.

A large multiyear, population-based study, the American Migraine Prevalence and Prevention (AMPP) study, followed up patients with episodic migraine over time to evaluate who was taking what medication for how long and who developed MOH. Butalbital use appeared most complicit in precipitating MOH, associated with transformation in as little as 5 days of use per month. Next came opioids, associated with rebound at as infrequent as 8 days per month. Triptans and combination analgesics seemed to trigger MOH at 10 days per month.

NSAIDs had a double-peak effect. With use of <5 days per month, NSAID use appeared protective against development of MOH. At use somewhere between 10 and 15 days per month, NSAIDs appeared to provoke rebound.

The hierarchy is important to bear in mind, because with butalbital, use even less than 2 days per week can trigger MOH, while for other acute medications, vigilant monitoring on frequency of acute medication use will yield dividends in alerting the clinician on when to pull the trigger on preventive medication (see Table 13.3).

Four simple rules in preventing rebound are as follows: (1) Use migraine-specific treatments (triptans, ergots) in the absence of vascular disease for acute treatment of episodic migraine. NSAIDs can be added for synergy and also can work in monotherapy. (2) Keep acute treatment days to no more than 2 days per week. (3) Add prevention at 10 headache days per month or when acute treatment days

Table 13.3 Hierarchy of acute medication days and risk for medication overuse headache (MOH)

- Butalbital, as little as 5 days/month
- Opioids, as little as 8 days/month
- Triptans, NSAIDs, analgesics, as few as 10 days/month

Table 13.4 Four simple rules to prevent rebound

1. Use migraine-specific treatments (triptans, ergots) in the absence of vascular disease for acute treatment of episodic migraine. NSAIDs can be added for synergy and will sometimes work in monotherapy
2. Keep acute treatment days to ≤2 days/week. Butalbital can cause MOH at 5 days/month
3. Add prophylactic medication at 10 headache days/month or >2 acute treatment days per week. Consider prevention when headache frequency appears to be climbing and is in the 6–10-day/month range
4. Do not use butalbital or opioids as acute treatments for migraine. Period. Neither occasionally nor repeatedly

Table 13.5 Seven steps in the treatment of medication overuse headache (MOH)

1. Educate the patient
2. Wean the offending medication
3. Initiate prophylaxis
4. Initiate non-pharmacologic/behavioral interventions where appropriate
5. Set a quit date after which patient will not treat low-level headaches
6. Establish acute treatment with limits on usage
7. Establish a time to follow up, more frequently during acute withdrawal, regularly for several years after withdrawal

exceed 2 days per week. Consider daily prophylaxis if headache frequency is climbing in the 6–10-headache-day/month range. (4) Do not use butalbital or opioids as acute treatments in migraine, either occasionally as rescue or repeatedly. The four rules are listed in Table 13.4.

Treatment of Established MOH

There are seven steps to the treatment of MOH : (1) Educate the patient. (2) Wean the offending medication. (3) Initiate prophylaxis. (4) Initiate non-pharmacologic/behavioral interventions where appropriate. (5) Set a quit date after which the patient will not treat low-level headaches. (6) Establish acute treatment with limits on usage. (7) Establish a time to follow up, more frequently during acute withdrawal, regularly for several years after withdrawal (Table 13.5).

Educate the Patient

Education requires differentiating overuse, abuse, dependence, and addiction. Most patients who transform to rebound do so inadvertently and are not addicts. Early on, reassuring the patient, when appropriate, that he or she is not being accused of being a drug abuser or addict is critically important.

It is key to manage expectations in several ways during the education discussions. Improvements require time. Remind the patient that it took a long time to get into MOH and may take months to exit daily headache.

Emphasize that the treatment of MOH does not eliminate migraine. Rather, it reduces daily headache, and may reduce frequency, severity, and duration of acute attacks.

The analogy frequently made to MOH/CDH patients is that in rebound, in their transformed state, they have raisin bread, that is, background headache, the bread studded with the raisins of migraine. What clinicians hope to accomplish is to dissolve away the bread and leave just the raisins, the episodic migraines, to treat. Point out that successful treatment of MOH involves the "re-transformation" back to episodic from chronic and daily but does not eliminate episodic migraine attacks.

Headaches may get worse for several weeks before they get better, so patience is a necessity. Treatment plans try to mitigate increased pain, but some persistence and motivation by a patient is required.

Explain the importance of sticking to the program and the need for long-term follow-up. Recidivism and falling back into MOH can occur, so return visits are necessary to address issues as they arise.

To enhance support, educate the family and significant others. They can be quite helpful.

Remember, the patient needs to want the plan. You may know the patient needs to be weaned, the family may recognize the need for a wean, and the referring doctor may want you to help get the patient out of rebound, but unless the patient is invested in complete detoxification and appropriate treatment, proceeding is futile. You cannot detoxify a patient against their will.

Playing tough love is often useful. Another point well made is that unless the patient puts the clinician up against the wall and insists on being detoxified, it is well worth resisting.

Remember, preventive medications are unlikely to be effective unless a wean takes place. Previously ineffective prophylaxis will miraculously become effective after wean. Taking a strong stance that wean is paramount, and obtaining a strong patient buy-in, is necessary for successful treatment of MOH.

Therefore, allow the patient to try other approaches to the treatment of MOH. Most will go into a Halley's comet-like orbit, availing themselves of a myriad of interventions before ending up, sometimes years later, back in the clinician's office, ready, finally, for the wean and overall plan.

There is no spontaneous remission from rebound. Only a carefully planned and implemented treatment strategy that involves complete detoxification from overused medications will work. Table 13.6 is a summary of education of the patient in MOH.

Table 13.6 Education of the patient in medication overuse headache (MOH)

- Differentiate overuse, abuse, dependence, and addiction, and reassure the patient (when appropriate) that they are not being accused of being a drug abuser or addict
- Manage expectations
  - Improvements require time
  - Treatment does not eliminate migraine. Rather, it reduces daily headache, and may reduce frequency, severity, and duration of acute migraine attacks
  - Headaches may get worse for several weeks before they get better
- Explain importance of sticking to the program and long-term follow-up
- Arrange for follow-up visits
- Educate family and significant others to enhance support
- Insist on patient commitment to the program. Allow patients to leave and explore other alternatives if they are not fully invested
- There is no spontaneous remission from rebound

Weaning the Overused Medications

The entire Cleveland Clinic Headache Center and all authors of this manual believe that absolute detoxification or wean from overused medications is the crucial step in treating patients in MOH. Any compromise in this regard will increase the likelihood of failure.

Is Wean Really Necessary?

Four randomized controlled studies have been run on patients with daily headaches, two each for topiramate and onabotulinumtoxinA (onabot, Botox), in which patients with MOH were not completely excluded. That is, these studies examined whether topiramate and onabot could reduce headache days in a mixed group of patients, those with primary International Classification of Headache Disorders (ICHD) chronic migraine and those with secondary MOH. Patients with opioid and barbiturate MOH were mostly excluded from the studies, and in the onabot studies, patients with continuous headaches without any headache-free time in a given month were also excluded. Thus, these were not studies of all typical MOH patients.

In post-hoc analyses, since this issue was not the primary end point, the studies found that topiramate in one study and onabot in both did reduce the number of headache days, compared to placebo or sham, in those patients with MOH. Thus, it is established that these medications can have some benefit even without a wean.

However, there are a number of concerns, first about interpretation and then about clinical recommendations. It is wise to remember that the benefit data were post-hoc analyses, and the studies were not powered specifically and primarily to examine the effectiveness of these interventions in MOH patients. Large groups of typical rebound patients were excluded, namely those with opioid and barbiturate overuse, and those with continuous headache. Finally, the studies did not examine

Table 13.7 Four levels of weaning patients in medication overuse headache (MOH)

1) Conventional outpatient slow wean with slow addition of preventive medication
2) Conventional outpatient quick discontinuation with bridging medications and quick addition of preventive medication (cold turkey of rebound meds with bridge)
3) Day-hospital approach using infusions as the bridge and quick addition of preventive medication
4) Inpatient wean using infusions as the bridge and quick addition of preventive medication

whether the patients would have done better with topiramate or onabot *plus* a wean from overused medications rather using those medications without the wean.

There are numerous reasons to vigorously wean patients from acute medications in MOH. The first is the relatively well-established observation that wean alone can be very helpful in restoring episodic headache in the majority of patients weaned. The second is that well-designed studies have shown that patients who are weaned and given preventive medications and other interventions for their daily headache do better than those left alone, who generally do not improve. The third reason to wean patients is overall health, that is, to avoid other potential medical consequences of overuse, such as gastrointestinal (GI) bleeds, analgesic nephropathy, barbiturate-worsened depression, and so forth. Finally, medication overuse often results in a tussle with the care provider, impeding a therapeutic alliance.

For all of these reasons, it remains the consensus that the wean of overused medications is the single most crucial step in the care of MOH patients.

Which Setting is Best for the Treatment of MOH?

One of the first questions in approaching the wean is the determination of how much can be done in a conventional outpatient setting. There are basically four levels of treatment: (1) conventional outpatient slow wean with slow addition of preventive medications, (2) conventional outpatient quick discontinuation with bridging medications and quick addition of preventive medication, (3) day-hospital approach using infusions as the bridge, and (4) inpatient wean using infusions as the bridge. The four levels of treatment for weaning patients in MOH are summarized in Table 13.7.

How does one determine which level a patient with MOH will require? A few clinical guidelines may be helpful.

Patients who can usually be treated as conventional outpatients include those who have a shorter duration of medication overuse, use only one to two substances at low doses, have the support of family or friends, and/or are highly motivated themselves.

Non-opioids and triptans can be abruptly discontinued in some people, and this plays into using a conventional setting. Opioids, barbiturates, caffeine, ergots, and benzodiazepines can sometimes be withdrawn slowly, often over about 5 weeks, depending on duration of use and dosage.

Table 13.8 Conventional outpatient slow wean with slow addition of preventive medications

1. Slow taper of rebound medications and caffeine over about 4–6 weeks
2. Begin onabotulinumtoxinA (this is the only FDA-approved medication for chronic migraine)
   – 155 units at onset of taper and q 3 months thereafter *OR*:
3. Add preventive medications slowly over the same 4–6 weeks
   A. Tricyclics (e.g., amitriptyline (Level B evidence for episodic migraine); nortriptyline and doxepin by consensus):
      – 10 mg at night; increase by 10 mg per week to target dose of approximately 50 mg qhs
   B. Beta-blockers (e.g., propranolol or timolol (FDA approved and Level A evidence), metoprolol (Level A evidence), nadolol (Level B evidence))
      – For example, nadolol, begin with 40 mg and increase by 40 mg per week
   C. Anti-epilepsy drugs
      – Topiramate (FDA approved, Level A for episodic migraine, Category D in pregnancy)
      – 25 mg qhs and increase by 25 mg per week to target dose of 50 mg BID
      – Valproate (VPA; FDA approved, Level A evidence for episodic migraine)
      – 250 mg extended release at night, increase by 250 mg to target dose of 500 mg to 1 g qhs. VPA should not be used in women of child-bearing age or patients withdrawing from butalbital or benzodiazepines with liver induction
4. Set a quit date, generally in week 4. Following this date, the patient should no longer treat low-level headaches with the previously overused rebound medication or the newly provided acute migraine-specific medication
5. Provide migraine-specific acute treatment for severe migraines, maximum 2 days per week. Never use the same medication that is being weaned, and if possible, change classes of acute medication
6. In difficult weans, a steroid course can put a patient over the hump

As dosage escalates, intensity of treatment may increase as well. As number of acute medications overused goes up, so too does the complexity of the withdrawal and the potential for drug–drug interactions as preventive medications are added.

Comorbid medical and psychiatric conditions can complicate preventive treatment strategies. For example, asthma precludes use of beta-blockers, obesity mitigates use of weight-gaining medications such as tricyclics and valproate, and kidney stones and glaucoma suggest extreme caution for the use of topiramate (if it should be used at all). Vascular disease contraindicates the use of triptans and ergots, and a history of a GI bleed precludes use of NSAIDs. The more the comorbidity, the more attractive onabotulinumtoxinA appears, as the only Food and Drug Administration (FDA)-approved preventive medication for chronic migraine.

Conventional Outpatient Slow Wean with Slow Addition of Preventive Medications

The trick for this approach is gradual wean of the rebound medications at the same time titrating prophylaxis upward to a target dose. Conventionally, this is done over 4–6 weeks, although onabot can be substituted on day 1 and given q 3 months (see Table 13.8).

Butalbital mixtures, aspirin–acetaminophen–caffeine combinations, and hydrocodone–acetaminophen combinations, all frequently overused medications, can be tapered by reducing the number of tablets per day by 1 per week. Tricyclics and topiramate fit this schedule nicely for prevention, increasing by 1 tablet per day per week. Tricyclics allow for dosage escalation by 10 mg per week and topiramate by 25 mg per week. Once again, a reasonable alternative is administration of onabotulinumtoxinA instead on day 1 and q 3 months thereafter instead of using daily preventive medications.

A "quit date" is also set for the patient, following which the patient is instructed not to treat any low-level headache. Acute, migraine-specific drugs are provided for treating severe headaches, with limits on frequency of use.

The quit date means that the patient should not use the weaned rebound medication or the newly introduced acute migraine-specific as-needed medication to treat low-level headaches. In general, when selecting the new medication, try to avoid the class of medication previously overused. For example, if a patient is in triptan rebound and can tolerate dihydroergotamine in its various forms, that is a good switch. If a patient is in NSAID rebound, avoid combinations containing NSAIDs.

For simplicity's sake, limit the new acute as-needed medications to 2 days of use per week. It is simple to remember and execute.

Occasionally, a patient will "hit the wall" during the taper of rebound medications, or go into a particularly nasty withdrawal headache. In those circumstances, a run of high-dose oral steroids can sometimes put the patient over the final hump of detoxification.

Conventional Outpatient Quick Discontinuation with Bridging Medications and Quick Addition of Preventive Medications

In this technique for getting patients off of rebound medications, the key clinical feature is that the patient is not on high doses of potentially dangerous acute medications, because this approach depends on a "cold turkey" of the overused drugs. Following this abrupt discontinuation of the rebound medications, the patient is placed on a bridge of medications for a week to 10 days to blunt the withdrawal symptoms and the withdrawal headaches. At the same time, the patient is quickly placed on migraine preventive medication. This quick establishment of prophylaxis is limited by what prevention can be safely and tolerably established in a matter of days.

If the patient is on high-dose opioids, the chance for precipitating acute narcotic withdrawal is high, so this approach is not acceptable.

If the patient is on high-dose butalbital, the chances for incurring acute barbiturate withdrawal with status epilepticus and the risk of death are also high.

Accordingly, precipitous discontinuation of rebound medications should be limited to patients on no more than three tablets of opioids or butalbital per day. Any

uncertainty on the total number of tablets per day should put a brake on this approach in favor of the slower-taper approach.

If the state of medical practice has a prescription monitoring program (PMP) in which a clinician can look up the number, frequency, and doses of scheduled medication a patient has received in the last year, this registry must be consulted prior to initiation of the wean. These registries include the Ohio OARRS, the Kentucky KASPER, the Michigan MAPS, etc. The health-care provider can find a link as to whether the state offers an accessible PMP at http://www.pmpalliance.org. PMPs are described in greater depth in Chap. 5.

Very often, patient history and the PMP will be in conflict. Always err on the side of the registry when calculating the intake of scheduled medication. This maximizes the likelihood of success without clinical mishap during the wean.

If the clinician is confronted with a patient using only over-the-counter medications or NSAIDs and at low number of tablets per day, this type of rebound is made to order for a quick wean (see Table 13.9). The process, as noted above, has four steps: (1) abrupt discontinuation of the overused medication, (2) bridging medication for 7–10 days to blunt withdrawal and reduce withdrawal headache, (3) establishing preventive medication in the first few days of withdrawal, and (4) providing acute as-needed migraine-specific medication with strict limits on use at the end of the bridge.

Key Points:

- Cold turkey is potentially dangerous in patients on ≥3 tablets per day of butalbital, and can precipitate withdrawal in patients on opioids ≥3 tablets per day
- If your practice is in a state with a Prescription Monitoring Program (PMP) of scheduled medications for every patient, look up the patient and quantify use before initiating a cold turkey (e.g., in Ohio, OARRS; in Kentucky, KASPER; in Michigan, MAPS, etc.). Find the link to your state's PMP at http://www.pmpalliance.org.

Interdisciplinary Day-hospital or Inpatient Approaches with Bridging Infusions and Quick Addition of Preventive Medications

When the complexity of the patients is too great, or the doses of medications too high, it can become obvious that neither traditional outpatient approach will work for a given patient in MOH. Sometimes, the patient will have already failed in trying to do the wean at home. Sometimes the comorbid medical and psychiatric issues combine to make it very difficult to construct a reasonable outpatient plan. Sometimes drug interactions, allergies, contraindications, or intolerances are such that it appears too daunting to engage in the outpatient wean.

Table 13.9 Cold turkey of rebound medications with bridge

1. Day 1: Cold turkey abrupt termination of acute rebound medications
2. Day 1: Initiate a therapeutic bridge therapy for 7–10 days
   - NSAIDs can be used repetitively and in a scheduled manner. They are not good options in patients in NSAID rebound, obviously. Options include, among others:
     - Nabumetone: 750 mg per day
     - Naproxen: 500 mg b.i.d.
   - Steroids can be used, such as:
     - Dexamethasone 4 mg b.i.d. for 4 days, qd for 4 days
     - Prednisone: 80 mg qd (days 1 and 2), 60 mg qd (days 3 and 4), 40 mg qd (days 5–7); this is a 1-week bridge. Note that a methylprednisolone dose pack is probably too low a dose for use as a bridge
   - Triptans can be used repetitively and in a scheduled manner. They are not good options in patients in triptan rebound, and this is not an FDA-approved use of triptans. Reported protocols include:
     - Sumatriptan: 25 mg t.i.d. for 10 days or until the patient is 24 h headache-free, whichever comes first
     - Naratriptan 2.5 b.i.d. for 1 week
   - Ergots:
     - DHE nasal spray b.i.d. or t.i.d. for 7–10 days
     - Methylergonovine 0.2 mg b.i.d. or t.i.d. for 7–10 days
3. Also beginning on Day 1: Initiate onabot or start daily prophylaxis over 2 days. This quick start is limited by tolerability issues, and probably excludes topiramate, for example. Among preventive agents, it should be possible to add rapidly:
   - Tricyclics:
     - Doxepin or nortriptyline 25 mg qhs (day 1), 50 mg qhs (day 2)
   - Beta-blockers:
     - Metoprolol 25 mg day 1, 50 mg day 2
     - Nadolol 40 mg qd day 1, 80 mg day 2
   - OnabotulinumtoxinA:
     - With this approach, the onabot is administered on day 1 and q 3 months
4. At the end of the bridge, provide migraine-specific treatment such as a triptan with strict limits, maximum 2 days per week
5. If the patient has difficulty, and steroids were not used as the bridge, an additional steroid run can sometimes put the patient over the hump

In these circumstances, an interdisciplinary headache program with infusion capabilities becomes the reasonable way to go. These programs are spread out in the USA, and some are available in Europe. They generally include participation by, at a minimum, a team consisting of neurology, primary care, psychology, skilled nursing, and physical therapy. Some teams include psychiatrists, pharmacists, nutritionists, occupational therapists, pain medicine specialists, rehabilitation specialists, pain anesthesiologists, and others.

The overall game plan in these programs is to (1) wean the rebound meds as quickly as safe, (2) use intravenous medications as the bridge during the withdrawal, (3) use the interdisciplinary team to work with the patient and put together a menu of preventive and acute medications and behavioral treatments for the post-wean

Table 13.10 Interdisciplinary headache program with infusions

1. Stop the overused acute medications as quickly as possible
   - Benzodiazepines, butalbital, and opioids require special handling
   - 100 mg butalbital = 30 mg phenobarbital
   - Each butalbital combination tablet contains 50 mg butalbital
   - Convert and taper the phenobarbital
2. Start intravenous bridge and choose from a menu such as:
   - Repetitive intravenous (IV) dihydroergotamine (DHE; contraindicated with vascular disease)
   - Repetitive antinauseant such as a neuroleptic (e.g., metoclopramide), a 5-HT_3 antagonist (e.g., ondansetron), and/or antihistamine (e.g., diphenhydramine)
   - Repetitive valproate
   - Repetitive ketorolac
   - Repetitive steroids
3. Start daily prophylaxis medication or onabotulinumtoxinA as quickly as possible
4. Interdisciplinary education
5. Behavioral evaluation and treatment
6. Limit acute as-needed medications to 2 days per week at discharge

Table 13.11 Partial list of interdisciplinary headache programs for referral

- Albert Einstein/Montefiore Headache Program, the Bronx, NY (inpatient)
- The Interdisciplinary Method for Assessment and Treatment of Chronic Headache (IMATCH), Cleveland Clinic (day hospital)
- The Michigan Headpain and Neurological Institute (MHNI), Ann Arbor, MI (inpatient)
- The Diamond Headache Clinic, Chicago, IL (inpatient)
- The University of South Florida, Tampa, FL (day hospital)
- Cedars Sinai Inpatient Headache Program, Los Angeles, CA (inpatient)
- Instituto Neurologico “C Besta” Headache Program, Milan, Italy (day hospital)

episodic migraine state, and (4) teach healthy habits to maximize the likelihood of success (see Table 13.10).

These programs, as noted, can be inpatient or provided in a day-hospital setting (see Table 13.11 for a partial list). Outcomes for the patients who complete the programs are generally favorable. When concern over safety is paramount, an inpatient program with round-the-clock monitoring should be selected. When the wean is expected to be more conventional, day-hospital programs offer similar treatment, similar outcomes, and lower costs.

The trick is recognizing when to initiate the referral to one of these programs. If the therapeutic alliance is strong enough to withstand a failure of conventional outpatient wean, an outpatient trial of weaning is reasonable. If the clinician feels there is only one shot at getting a patient detoxified and turned around, an interdisciplinary program is more likely to be successful.

Behavioral Treatment of MOH

Almost all patients who have ended in MOH will benefit from behavioral evaluation and treatment. These interventions, which are pillars of the wean and restoration of the episodic migraine pattern, are covered extensively in Chaps. 15 and 19.

Follow-up and Prognosis of MOH

There is a fixed rate of recidivism after a patient returns to an episodic pattern of migraine following a wean from MOH. That is, patients can fall back into rebound again, and do so frequently unless properly followed.

There are a few clinical pearls that may prevent this recurrence of overuse. The first is that MOH occurs regardless of what ailment for which the acute medications are used.

A patient who has been in opioid rebound, weaned, and back in episodic migraine, treated with tramadol for a bad back, will develop MOH again if the opioid use reaches 8 days per month or more, regardless of the fact that it is being taken for the back pain.

Frequently, patients do not understand this, and careful monitoring and guidance is necessary to prevent accidental overuse for another problem. A headache diary is crucial to counting the number of days of intake of acute relief medications per month.

The second is that patience is a virtue. It takes at least 3 months for patients to come out of rebound, longer for opioids. Counseling on the time necessary for recovery is a crucial part of follow-up.

The third pearl is that the prognosis for recovery from MOH is good. Across multiple studies, more than half of the patients weaned and cared for were still in an episodic pattern at 5 years. Sharing this good prognosis is an important part of treatment.

Finally, for those patient requiring an interdisciplinary program, prognosis overall is also good. Most get relief during the actual program, and the majority hold on to the recovery if follow-up is adequate.

A few further clinical pearls on prognosis and follow-up of MOH are listed in Table 13.12.

Table 13.12 Further clinical pearls on prognosis and follow-up of medication overuse headache (MOH)

• It does not matter what a patient takes acute relief medications for; if the frequency of use exceeds a critical number of days per month, daily headache can ensue
• Carefully monitor patient intake of acute relief medications with a diary
• Complete restoration to an episodic pattern of migraine following wean can take 3 months or more
• Prognosis for recovery from MOH is good

Conclusions

- The best way to view a patient coming into the office in MOH is not as a CDH person, but as an episodic migraine patient trying to come out. The job of the clinician is to provide guidance enabling the reverse transformation from daily headache back to an episodic pattern
- The accomplishment of this clinical reversal is one of the most satisfying endeavors in clinical medicine. Patients are immensely grateful at getting their lives back and being provided skills and tools for avoiding another plunge back into rebound
- MOH can be prevented by simple steps, beginning with having patients keep a headache diary to monitor frequency of acute medication use
- Avoidance of butalbital and opioids greatly enhances likelihood of avoiding rebound
- Use of migraine-specific medications, such as triptans and DHE, should be limited to no more than 2 days per week. When use begins to climb, or headache days per month approaches 10, preventive medication should be added to drive down frequency, severity, and duration of migraine attacks, and to make them more amenable to treatment
- Treatment of MOH patients requires absolute detoxification or wean, establishment of daily preventive medication or onabotulinumtoxinA, behavioral evaluation and treatment, and, after the wean, acute migraine-specific treatment used no more than 2 days per week
- Follow-up of MOH patients is important to avoid a backslide into rebound. Remember that overuse of acute medications, regardless of what illness is being treated, can reignite rebound

Suggested Reading

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