# Editorials

# Medication-overuse headache:

## painkillers are not always the answer

### INTRODUCTION

Paradoxically, liberal use of analgesics to treat primary headache disorders, especially migraine, often results in the development of a daily headache, which itself is indistinguishable from the original headache and frustratingly refractive to analgesia. So-called medication-overuse headache[1] (MOH) is common, affecting approximately 1.5–3.0% of the population and is also regarded as a major cause of disability in adults under the age of 50 years.[2] This editorial will discuss how to avoid MOH and provide alternative treatment strategies.

### WHAT IS MEDICATION-OVERUSE HEADACHE?

MOH (also known as rebound-headache) is a secondary headache disorder, defined as:

*'Headache occurring on 15 or more days per month developing as a consequence of regular overuse of acute or symptomatic headache medication (on 10 or more, or 15 or more days per month, depending on the medication) for more than 3 months.'*[1]

MOH has no distinguishable features and therefore mirrors the pre-existing primary headache for which analgesics are being used.

### WHO GETS MEDICATION-OVERUSE HEADACHE?

MOH typically occurs in patients with a background of primary headache who regularly use analgesics. In approximately two-thirds of patients there is a background of migraine and, in a third, tension-type headache. Medication-overuse headache is rare in patients with cluster headache. Although frequent headaches may be the initial reason for analgesic use, MOH may occur when analgesics are used for other chronic pain conditions (such as fibromyalgia and lower back pain).[3]

### WHY DO SOME PATIENTS GET MEDICATION-OVERUSE HEADACHE?

The exact cause of MOH remains unknown, but probably relates to chronification of pain in susceptible individuals exposed to certain psychosocial and socioeconomic stressors. Genetics play an important role and variants in certain molecules associated with the modulation of pain are likely to be contributory.[4] Many of these gene variants are present in patients with migraine.

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### HOW TO DIAGNOSE MEDICATION-OVERUSE HEADACHE

There are no specific tests for MOH and often diagnosis is made retrospectively following withdrawal of analgesics and subsequent improvement of headache. Typically patients slip into a state of MOH: as headache frequency increases, so does analgesic use, which in turn causes headache and increased analgesic use, and so the cycle continues. Therefore, it is important to discuss previous analgesic use in detail and how this and indeed the headaches have changed over time. Before attributing daily headache to MOH, other causes of secondary headache must be excluded. All patients should have their blood pressure checked and clinical evidence of raised intracranial pressure (for example, papilloedema) should be excluded. If there are any new neurological symptoms (such as limb weakness or change in cognition or personality) that are progressing, then a neurological referral is warranted. Patients with obstructive sleep apnoea often develop daily headache. Idiopathic intracranial hypertension, although rare, should always be considered if the patient is young, obese, and female.[5]

### HOW TO TREAT PATIENTS WITH MEDICATION-OVERUSE HEADACHE

Medication-overuse headache is not easy to treat and there is significant reluctance among some patients to reduce their daily analgesics, despite recognising that this is a problem. Patients often report that they are unable to cope when analgesics are reduced and that they would rather continue as they are. This is particularly a problem in the case of triptans as these are contraindicated in patients with ischaemic heart disease or cerebrovascular disease and therefore may need to be stopped in some patients who over many years have come to rely on them. Opioid-based medication presents a different problem and if possible should be avoided in patients with a background of migraine. With time, opioid use often increases, which may lead to both physiological and psychological dependence and hinder withdrawal.

As treatment of MOH is often difficult, prevention is therefore important. Patients should be educated about MOH and doctors should always ask about a background of migraine in patients with chronic pain and prescribe medication appropriately. I advise patients not to take painkillers on more than 2 or 3 days in a given week to avoid development of MOH. Opioids should be avoided where possible. Alternatives, such as physiotherapy, acupuncture, or electrical stimulation, are the preferred option.[6] Patients should be advised to keep a simple diary to record monthly headache days and painkiller use.

### WITHDRAWING ACUTE MIGRAINE MEDICATION

Drug withdrawal is often easier said than done and the majority of patients get worsening headaches before they get better. Patients should therefore be advised that

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*"Education and prevention are key. Frequent use of opioids should be avoided in patients with migraine and … in patients with chronic pain with a background of migraine."*

'things are going to get worse before they get better'. Timing of withdrawal is also important and should be determined by the patient depending on their work or home commitments. An explanatory letter to their employer is welcomed although withdrawal is probably best attempted during periods of annual leave.

Withdrawal regimens are determined by what painkillers are being over-taken. In the case of simple analgesics (paracetamol, non-steroidal anti-inflammatory drugs) and triptans, withdrawal should be abrupt. Opioids, however, must be withdrawn slowly and more carefully, and occasionally as an in-patient. A recent study[7] showed complete withdrawal of painkillers for a minimum of 8 weeks led to a significant reduction in daily headaches. Partial withdrawal, for example, limiting painkillers to a maximum of 2 days in a given week, was also beneficial but less so than complete withdrawal.

During the withdrawal process the majority of patients have a worsening of their headaches and this may continue for 2 weeks or more. There may also be associated symptoms of nausea, sleep disturbance, and anxiety. The real difficulty arises in patients who develop worsening headaches despite 8 or more weeks of withdrawal.

## ADJUNCT THERAPY FOR MEDICATION OVERUSE-HEADACHE

It is now accepted that addition of corticosteroids or non-steroidal anti-inflammatory drugs during the withdrawal process are not helpful[8] and should not be used as a substitute. It remains unclear what role cognitive behavioural therapy, including mindfulness, and acupuncture have, but some patients certainly benefit. Frustratingly, migraine preventives are typically ineffective in patients with a combination of chronic migraine and MOH. The two exceptions to this are topiramate,[9] which is poorly tolerated in a quarter of patients, and botulinum toxin (Botox),[10] which can usually only be administered in specialist headache clinics.


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## CONCLUSION

MOH is a common cause of secondary headache, especially in patients with a background of migraine, and is associated with significant morbidity. Although drug withdrawal is often difficult and uncomfortable for patients, the long-term benefits once achieved are substantial. Education and prevention are key. Frequent use of opioids should be avoided in patients with migraine and probably also in patients with chronic pain with a background of migraine.


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## REFERENCES


1. Headache Classification Committee of the International Headache Society. The International Classification of Headache Disorders, 3rd edition. *Cephalalgia* 2018; **38(9):** 629–808.
2. Steiner TJ, Stovner LJ, Vos T, *et al.* Migraine is first cause of disability in under 50s: will health politicians now take notice? *J Headache Pain* 2018; **19(1):** 17.
3. Bahra A, Walsh M, Menon S, Goadsby PJ. Does chronic daily headache arise de novo in association with regular use of analgesics? *Headache* 2003; **43(3):** 179–190.
4. Cargnin S, Viana M, Sances G, *et al.* A systematic review and critical appraisal of gene polymorphism association studies in medication-overuse headache. *Cephalalgia* 2018; **38(7):** 1361–1373.
5. Wakerley BR, Tan MH, Ting EY. Idiopathic intracranial hypertension. *Cephalalgia* 2015; **35(3):** 248–261.
6. Wakerley BR, Davies S. Migraine management: beyond pills. *Br J Gen Pract* 2018; DOI: https://doi.org/10.3399/bjgp18X698969.
7. Carlsen LN, Munksgaard SB, Jensen RH, Bendtsen L. Complete detoxification is the most effective treatment of medication-overuse headache: a randomized controlled open-label trial. *Cephalalgia* 2018; **38(2):** 225–236.
8. de Goffau MJ, Klaver ARE, Willemsen MG, *et al.* The effectiveness of treatments for patients with medication overuse headache: a systematic review and meta-analysis. *J Pain* 2017; **18(6):** 615–627.
9. Diener H-C, Bussone G, Van Oene JC, *et al.* Topiramate reduces headache days in chronic migraine: a randomized, double-blind, placebo-controlled study. *Cephalalgia* 2007; **27(7):** 814–823.
10. Dodick DW, Turkel CC, DeGryse RE, *et al.* OnabotulinumtoxinA for treatment of chronic migraine: pooled results from the double-blind, randomized, placebo-controlled phases of the PREEMPT clinical program. *Headache* 2010; **50(6):** 921–936.