

# Medication overuse headache in India

## INTRODUCTION

Medication overuse headache (MOH) is well-established worldwide as one of the important contributory causes of chronic headache (1, 2). The incidence varies from country to country and is influenced by cultural factors (1). Most headache centres in Europe report MOH in 5–10% of their patients, but some headache centres in the USA have reported the incidence of MOH to be as high as 50–80% (2). From India, however, there have been only two clinic-based references which have hinted that MOH is not as prevalent as in the West (3, 4). There is thus a definite need for more data from this region of the world, particularly since MOH is still a relatively unknown entity in India.

Given the paucity of data on MOH from India, based on observations from a retrospective clinic-based study of patients with MOH, this review attempts to outline the prevalence, demographics and treatment strategies. Such a study does have limitations, and the author is well aware that the findings are clinic-based and the conclusions more a point of view than a consensus. The reasons for suboptimal management and suggestions for remedy of the situation have also been discussed. The basics of MOH diagnosis, the International Headache Society (IHS) criteria and ideal treatment strategies are outside the scope of this review.

## BACKGROUND

India, with a population of approximately 1200 million, is the second most populous country in the world. There are many additional regional barriers to headache care in India that have an impact on MOH prevalence.

Seventy-five per cent of the country's population lives in the villages and, paradoxically, 75% of the country's doctors are in urban areas. The low doctor–patient ratio in the country, particularly in rural areas, makes it difficult for patients to seek appropriate treatment for their chronic headache from qualified medical practitioners. Patients therefore resort to self-medication using over-the-counter (OTC) analgesics that contain caffeine and codeine, which leads to more MOH.

Literacy levels in India are low (61.0%) and with many other pressing health problems such as malaria, tuberculosis and HIV, there is no focus on the headache burden. It is difficult to educate less literate patients and explain the ill effects of overuse of acute medications for headache. Patients with primary headaches therefore continue to suffer and resort to self-medication with OTC analgesics.

There is no provision for proper headache care in the health-care system in India. Private care is too costly, and < 5% of the population can afford treatment in a private hospital. State-run hospitals are overcrowded and overloaded with other pressing

priorities and therefore most headache patients in India resort to self-medication with OTC analgesics.

Given the low literacy levels, low income levels, the numerous myths, misunderstandings, and a faulty attitude towards chronic headache in India, it is often the chemist around the corner who is the most visited headache doctor for many, and his treatment of choice for any headache is the cheap OTC painkiller that most often contains caffeine and codeine. The attitude in India is that the qualified doctor is too expensive for just a headache! This leads to overuse of OTC drugs and more MOH.

On a positive note, headache patients in India prefer first to try out pain balms applied locally and try out alternative therapies, and tend to delay taking a painkiller; these cultural differences may be a reason for less MOH compared with the West.

## METHODS

Unlike in the West, because of population overload and too many other pressing health problems, headache medicine as a subspecialty has still not developed in India, interest in the headache field is low and there are very few headache clinics in the country. So it is not surprising that there is little evidence on MOH from the region. Ravishankar (3) from a headache clinic analysis of 1000 patients noted a small number of MOH sufferers amongst their chronic headache patients. Chakravarty (4) analysed his patients with chronic daily headache (CDH) and found a comparatively low incidence of MOH compared with the West. In his study of CDH cases, Chakravarty states that MOH was documented only in patients with transformed migraine.

This was a retrospective, clinic-based study of MOH from India. Of 6000 patients who presented to our headache clinic between 2000 and 2007, 184 patients had headache that fulfilled the IHS classification criteria for MOH (Fig. 1). Patients diagnosed as probable MOH were included. Patients overusing multiple drugs that could cause overuse headache were not included, as exact consumption details were difficult to obtain. The aim of the study was to document the findings and observations in MOH patients seen in India and compare the findings with those seen in MOH patients from the West.

## DEMOGRAPHICS

The incidence of MOH in our clinic was approximately 3.08%. This was much less than what is seen in clinics in the USA, but similar to Europe and China. Ergotamine, combination analgesics containing caffeine and codeine and triptans were the drugs that contributed to MOH in India. The incidence of ergotamine overuse headache (56.52%) was higher than that due to combination analgesics (38.04%). Triptans were the least overused (5.43%) (Fig. 1). The incidence was higher in women than

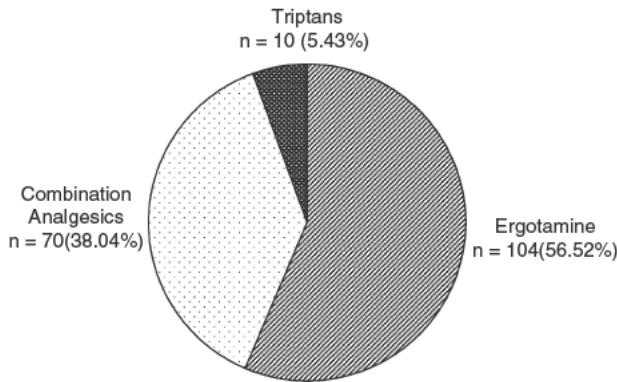


Figure 1 Drugs that were used by medication overuse headache (MOH) patients included in the study (n = 184).

men for all the drugs that were linked with MOH. The demographic drug data are shown in (Table 1). We did not encounter MOH in children. Of 184 patients with MOH, 156 had episodic migraine to begin with, 12 had tension-type headache and 16 had new daily persistent headache. None of our patients had cluster headache or hemicrania continua.

### DRUGS CAUSING MOH IN INDIA

The commonest drug causing MOH in India is still ergotamine. Triptans are costly for the average Indian migraine patient, combination analgesics and opioids are limited in number and short-acting barbiturates are not used for headache treatment in India. A breakdown of drug taking by our MOH patients is given in Fig. 1.

Of 184 cases of MOH in the study, 104 (56.52%) were due to ergotamine. Ergotamine is cheap, available over-the-counter, and patients continue to self-medicate because of the initial improvement. Many patients wrongly take ergotamine on a daily prophylactic basis. Ergotamine in India is available in combination with paracetamol and caffeine. Suppositories are not popular in India.

Analgesic combinations that contain caffeine or codeine are less common in India. Of 184 patients with MOH, caffeine/codeine combination analgesics as a contributing factor for MOH were seen in 70 (38.04%) patients. Paracetamol and non-steroidal anti-inflammatory drugs such as ibuprofen are common OTC drugs for headache. None of the patients in our study had MOH secondary to simple analgesics.

Triptans are not very popular in India as an acute treatment option for migraine. Sumatriptan and rizatriptan are the only two triptans available. Cost is a major limiting factor, and neurologists are the main prescribers of triptans. Primary care physicians are not major users of triptans. Of 184 patients with MOH in our study, there were only 10 (5.43%) who had MOH following triptans. Due to financial constraints, most patients in India cannot afford triptans for a long-term disorder such as migraine, and therefore triptan use as a cause for MOH is

Table 1 Demographic break-down of patients with medication overuse headache included in the study

Overused drug	No. of patients	Sex	Age (range in years)						Treatment strategies			Outcome		
			n = 184	Female	Male	20-30	30-40	40-50	50-60	60+	Out-patient	In-patient	Improved	No improvement
Ergotamine	104	(56.52%)	76 (73.08%)	28 (26.92%)	23 (22.12%)	12 (11.54%)	37 (35.58%)	32 (30.77%)	0	80 (76.92%)	24 (23.08%)	75 (72.12%)	18 (17.31%)	11 (10.58%)
Combination Analgesics	70	(38.04%)	46 (65.71%)	24 (34.29%)	5 (7.14%)	25 (35.71%)	30 (42.86%)	8 (11.43%)	2 (2.86%)	48 (68.57%)	22 (31.43%)	32 (45.71%)	15 (21.43%)	23 (32.86%)
Triptans	10	(5.43%)	8 (80%)	2 (20%)	1 (10%)	2 (20%)	5 (50%)	2 (20%)	0	7 (70%)	3 (30%)	5 (50%)	4 (40%)	1 (10%)

uncommon and seen only with some refractory chronic migraine patients. It is important to note that insurance does not cover headache care in India because headache is still perceived by providers as a psychological condition.

It is very difficult in India to obtain an estimate of the exact number of tablets consumed or the number of days of usage, since the habit of maintaining a headache diary is not common. Patients do not maintain a headache diary even on a prospective basis.

## CLINICAL FEATURES

The clinical profile of patients with MOH in India was similar to that seen in the West. Commonest was the typical pattern of an intractable CDH that revealed a past history of an earlier episodic migraine with transformation due to overuse of one of the known offending agents. It was also difficult to determine at what point in time and after how many days or how much consumption there developed a chronic headache that fulfilled the criteria for MOH. With the small numbers in this study, it was difficult to differentiate between triptan-overuse headache and ergotamine-overuse headache based on the headache profile.

Misdiagnosis in routine practice by the primary care physician before the patient was seen at the headache clinic was very common. Patients who were seen at our clinic had seen an average of 5.5 physicians of all specialities, and 92 patients were on prophylactic polypharmacy when they consulted us. None of the patients had been cautioned about medication overuse.

One of the striking features, a personal observation that does not have scientific explanation but which deserves mention, was the absence of gangrene/ulcerations secondary to vasoconstriction following ergotamine usage in high doses for many years. This is a complication often seen in the West following ergotamine overuse, but we did not encounter even a single patient with this problem. Whether it is the cold weather in the temperate zones that is an additional factor that contributes to vasoconstriction and ulceration, or whether it has a genetic basis, we do not know. None of our patients had any other systemic secondary effects associated with MOH.

Beck Depression Inventory (BDI) and Hamilton Anxiety Rating Scale (HARS) were routinely administered to all patients, to rule out psychological features associated with MOH. Both depression and anxiety were seen in patients with MOH (Table 2). BDI results showed normal disturbances in four patients, mild mood disturbance in six, borderline clinical depression in 25, moderate depression in 144 and severe depression in five patients. The HARS results showed that 116 patients had a mild level of anxiety, 65 were between a mild and moderate level of anxiety and three patients were between a moderate and severe level of anxiety.

## TREATMENT STRATEGIES

Withdrawal of the offending drug on an out-patient basis was the commonest strategy employed. For various reasons, patients in

Table 2 Psychological profile of patients with medication overuse headache included in the study

Beck Depression Inventory	Hamilton Anxiety Rating Scale		
	Moderate depression	Mild-moderate level	Mild level
Severe depression 05 (2.72%)	Borderline clinical depression 25 (13.59%)	Moderate-severe level 3 (1.63%)	Mild level 116 (63.04%)
Moderate depression 144 (78.26%)	Normal disturbances 4 (2.17%)	Mild-moderate level 65 (35.33%)	
	Mild mood disturbance 6 (3.26%)		

India are unwilling to undergo in-patient treatment for their chronic headache. Dihydroergotamine (DHE) in any form is not available in India. Unlike in the West, withdrawal symptoms were seen in only 42 patients with MOH. None of the patients needed intravenous fluid replacement or oxygen during the withdrawal phase. Naproxen sodium was given on a twice-daily basis during the withdrawal phase.

Of 184 patients with MOH in the study, 49 patients were treated on an in-patient basis and 135 on an out-patient basis. All patients received amitriptyline in a 10-mg dose and steroids were used in 56 out of 135 out-patients and in 18 out of 49 in-patients. Only 20 of 49 patients were treated with the DHE protocol. For those patients who were unable to procure DHE, parenteral chlorpromazine, valproate and steroids were used as alternatives. The choice of treatment strategy was based on patient preference and not on the drug that was being overused. Of 184 patients, 112 showed 50% improvement in their headaches, 37 did not improve despite treatment and 35 patients were lost to follow-up.

Cognitive behaviour therapy was incorporated in the treatment protocol. Patients and family members were educated about the disorder and were addressed on proper dosing measures. Lifestyle modification and relaxation techniques were the other measures incorporated in the treatment process. Approximately 25% of patients benefited from the combination of pharmacotherapy and psychotherapy.

### SUGGESTIONS TO REDUCE MOH IN INDIA

Listed below are some factors that need to be addressed when dealing with MOH in India:

1. Physicians who treat headache patients need to be educated about MOH diagnosis and treatment. Promoting awareness of this entity amongst the lay will also help in reducing medication overuse. Teaching in medical colleges should include lectures on MOH.
2. The IHS criteria for MOH are rather rigid in terms of days of consumption. Low literacy levels and absence of the headache diary make it difficult to acquire the necessary details. Doctors treating headaches must educate their patients to maintain a diary.
3. Patients are unwilling to wait without alternative treatment for 2 months during the withdrawal phase when the offending drug is removed. They insist on receiving alternative treatment. So the IHS criteria for definite MOH can never be fulfilled in the Indian setting. The Appendix criteria should therefore be included as the main criteria.
4. Chronic headache patients come to doctors seeking a cure. Illiterate patients do not understand, do not follow the instructions and over-consume in fear of the next attack. Patient education must be modified when dealing with less literate patients.
5. Patients in India are reluctant to be hospitalized for in-patient management of MOH. They have to be treated on an out-patient basis. The financial situation makes it difficult for patients to be hospitalized for headache. Acute OTC drugs are cheaper than prophylactics. There is no place in the healthcare system for headache care on priority basis. As a result, patients resort to self-medication. The healthcare system needs to address these issues.
6. DHE needs to be made available to use for detoxification during in-patient treatment of MOH.

### CONCLUSIONS

MOH is a major problem in India, but the prevalence is lower than in the West (3, 4). Ergotamine is the main drug that is overused. Triptans are costly for most migraine patients in India and therefore not overused. The practice of applying local pain balms, delaying taking painkillers and resorting to alternative treatment options probably accounts for the reduced incidence of MOH compared with the West.

Awareness needs to improve, physicians need to be educated on the recognition of MOH and there is a need for more centres that can handle and treat refractory chronic headaches due to MOH. With the phasing out of ergotamine, the high cost of the triptans, the reduced numbers of combination analgesics and the growing interest and focus on headache medicine, it is to be hoped that MOH will not only be seen less often but will also become one of the treatable causes of chronic headache in India.

K Ravishankar

*The Headache and Migraine Clinic, Jaslok Hospital and Research Centre, Lilavati Hospital and Research Centre, Mumbai, India*

### References

- 1 Diener HC, Limmroth V. Medication-overuse headache: a worldwide problem. *Lancet Neurol* 2004; 3:475–83.
- 2 Dodick D, Freitag F. Evidence-based understanding of medication-overuse headache: clinical implications. *Headache* 2006; 46 (Suppl. 4):S202–11.
- 3 Ravishankar K. Headache pattern in India—a headache clinic analysis of 1000 patients. *Cephalgia* 1997; 17:316–17.
- 4 Chakravarty A. Chronic daily headaches: clinical profile in Indian patients. *Cephalgia* 2003; 23:348–53.