

# Evaluation of self-medication prevalence, diagnosis and prescription in migraine in Kerman, Iran

Behnaz Sedighi, MD, Siavash Ghaderi-Sohi, MD, Sara Emami, MD.

## ABSTRACT

**Objective:** To investigate different diagnosis aspects, prescribed drugs and self-medications of migraine in Iran.

**Methods:** We selected 210 migraineurs from high school and university students in Kerman, Iran over a period of 6 months in 2002 by multistage randomized screening based on the International Headache Society criteria. We classified them into 2 groups on the basis of whether they had consulted a physician or not. We then evaluated the physician prescriptions, and prevalence of self-medications.

**Results:** Only 49% of migraineurs consulted a physician, and only 53% were correctly diagnosed by physicians according to the International Headache Society criteria. Our study shows that 69% of general practitioners diagnoses were wrong. In spite of indications for prophylactic

treatment, it was not prescribed in 76% of the patients, and 50% of the general practitioners prescribed it without any indications. Furthermore, 91% of patients used self-medication; Acetaminophen and Codeine were the most common.

**Conclusion:** General practitioners' misdiagnosis and mismanagement of the migraineurs, and easy access to various drugs in Iran, have led to a high rate of self-medication. Self-medication with Codeine, with regard to its side effects, such as increase of secondary headaches and dependency is the major problem. Consequently, medical education systems, physician reevaluating methods, and the concept of self-medication among patients have to be revised.

Neurosciences 2006; Vol. 11 (2): 84-87

Migraine is a chronic illness with a 10% average prevalence.<sup>1</sup> Despite producing no permanent disturbance in most cases, it has significant effects on the quality of life. Studies show that 4 - 7 working days are lost by a migraine patient in a year.<sup>2</sup> The efficacy of most available drugs, despite of laboratory achievements, is not more than 70-75%.<sup>3,4</sup> However, some of these drugs can be 100% effective if they are prescribed and used correctly.<sup>4</sup> The most important factor for inefficiency of treatments is the

noncompliance of patients.<sup>4,6</sup> Approximately 20% of patients do not even fill their prescriptions<sup>7</sup> and if they do so, in 10-90% of them, secondary noncompliance is observed.<sup>8</sup> Unfamiliarity of the physicians, especially general practitioners (GPs), regarding all aspects of migraine diagnosis, and treatment, may be mentioned as the basic reason for the patients' self-medication;<sup>9</sup> consequently, side-effects, drug dependency and useless costs ensue.<sup>6-10</sup>

From the Department of Neurology (Sedighi), Shafa Hospital, Kerman, Department of Pathology of Cancer Institute (Ghaderi-Sohi), Imam Khomeini Medical Center, Tehran University of Medical Sciences, and from Eram Teb Noor Company (Emami), Tehran, Iran. (Formerly affiliated to Kerman University of Medical Sciences [Ghaderi-Sohi, Emami], Kerman, Iran).

Published simultaneously with special permission from Saudi Medical Journal.

Address correspondence and reprint request to: Dr. Behnaz Sedighi, Associate Professor of Neurology, Department of Neurology, Shafa Hospital, Kerman University of Medical Science, Kerman, Iran. Tel. +98 (341) 2459108. E-mail: behnaz.sedighi@gmail.com

Since there is a world-wide lack of authoritative studies regarding self-medication and the reasons for noncompliance in migraine,<sup>10</sup> we performed this study to investigate different diagnosis aspects, prescribed drugs and self-medications in Iran.

**Methods.** In 2002, 4521 high school and university students were screened by multi-stage randomized sampling in Kerman. This sampling community was selected as migraine attacks begin at adolescence, and in 80% of occasions before 30 years old.<sup>1</sup> They were screened under the supervision of a neurologist; and those who had migraine according to the International Headache Society (IHS) criteria<sup>11</sup> were selected whether or not they had previously visited physicians and whether or not they had previous migraine diagnosis. Cases with any systemic diseases and any other reason for headache were excluded according to IHS criteria. The patients were then divided into 2 groups based on their previous physician consultation. For the group who had previous consulted a physician, variables such as the probable self-medications before consulting a physician, compatibility of physician diagnosis with IHS criteria, prescribed drugs for attacks and prophylaxis, self-medication after consulting a physician, and other alternative medicines were evaluated. In patients without previous physician consultation, all mentioned variables, except those related to consulting a physician, were evaluated.

Regarding the probability of forgetting the consumed drugs (recall bias), a list of all possible drugs, which could have been consumed in migraine, had been prepared beforehand to show to the patients at the time of interview if needed. In this study, any drug consumption without prescription, before or after consultation, was considered self-medication, and patients with the diagnosis of migraine according to IHS criteria who visited a physician and were not diagnosed as migraine were considered as wrong diagnoses.

**Results.** We found 210 migraineurs (79 men, 131 women) with mean age of 19 years (14-30 years). Among them, 103 patients (49.5%) had consulted physicians regarding the attacks. The mean age of these patients was high ( $p=0.00$ ). Consultation with physicians had no significant difference between the gender ( $p=0.7$ ). Fifty-six percent of patients visited a neurologist, 28% visited a GP, and the remaining 12% visited other specialists. Only 53% of the patients who consulted a physician were correctly diagnosed according to IHS criteria. Diagnosis of 69% of GPs was wrong and only 72% of neurologists had the correct diagnosis.

Special drugs were prescribed for the attacks in 81 patients and prophylaxis in 52 patients. In 5 (10%) patients in which prophylactic treatment was prescribed, there was no indication for it, while 39 of patients that had indication according to IHS criteria, it was not prescribed. Only 50% of GPs and 93% of neurologist correctly prescribed prophylactic treatment ( $p=0.01$ ). Propranolol was prescribed for 42 patients as prophylactic treatment. In 21%, the prescribed dose was less than 20 mg. Ergotamine was prescribed in 21 patients while in 81% the consuming method that was advised was wrong. Codeine was prescribed for 44 patients (43%). Other prescribed drugs for severe attacks and prophylaxis are presented in **Table 1**.

There were 107 patients (50.5%) who did not visit any physician, and 73 of them declared availability of the drugs as the main reason. One hundred and ninety-two patients (91%) had used self-medication. This was observed in 90% of patients who visited a physician and 93% of those who had not visited a physician. There was no significant difference between the 2 groups ( $p>0.05$ ). The 2 most commonly consumed drugs as self-medications were Acetaminophen and Codeine (**Table 1**). Except for a patient that was consuming propranolol daily, self-medication was in the form of drug consumption for each attack (**Table 1**). Only 8 patients did not take any drugs and only 10 consumed just the prescribed drugs by the physician.

Alternative medicine was used by 69 patients and 34 were in the group who visited a physician, and 35 in the other group. Herbal therapy was used in 74% of patients and local materials in 22% while only 3% used yoga and 1% used meditation. Finally, 51% believed that migraine attacks are uncontrollable while 12.5% had no idea. However, their belief did not have any influence on consulting a physician ( $p=0.76$ ).

**Discussion.** In our study, only 50% of migraine patients had visited a physician. This rate is equivalent to the 51% acquired by Caro et al,<sup>12</sup> higher than 40% by Amayo et al.<sup>9</sup> Availability of analgesics, as mentioned by Amayo et al,<sup>9</sup> was the main factor for not consulting a physician. In this study, 72% of patients visited a specialist at the onset. Inappropriate referrals to specialists in addition to wasting their time for screening - a process for which GPs are trained - enforce useless costs to the health system of the country.

Evaluating the function of GPs may justify the patients' preference in visiting specialists. In our study, 69% of GPs were unable to diagnose migraine correctly, based on IHS criteria and consequently they prescribed wrong treatments. In patients with correct

**Table 1** - Frequency of different drugs used as self-medication or prescribed by physicians for migraine attacks and prophylaxis.\*

Drug	Patients consulting physician N=103								Patients not consulting physician N=107							
	Pre-consulting self-medication N=82				Prescribed drugs by physician N=81				Post-consulting self-medication N=57				Self-medication N=99			
	A N=82		P N=4		A N=81		P N=52		A N=57		P N=0		A N=99		P N=1	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Acetaminophen	76	(93)	-	-	50	(62)	-	-	37	(65)	-	92	(93)	-	-	
Codeine	49	(60)	1	(25)	44	(54)	-	-	20	(35)	-	71	(72)	-	-	
NSAID	31	(38)	-	-	26	(32)	4	(8)	25	(44)	-	39	(39)	-	-	
Aspirin	7	(8)	-	-	2	(2)	-	-	3	(5)	-	4	(4)	-	-	
ACA	5	(7)	-	-	6	(7)	1	(2)	7	(12)	-	4	(4)	-	-	
TCA	-	-	-	-	-	-	28	(54)	2	(4)	-	1	(1)	-	-	
Beta blocker	-	-	3	(75)	2	(2)	42	(81)	-	-	-	-	-	1	(100)	
Ergotamine	4	(5)	-	-	21	(25)	1	(2)	1	(2)	-	1	(1)	-	-	
Belladonna	-	-	-	-	-	-	1	(2)	-	-	-	-	-	-	-	
Antidopaminergic	-	-	-	-	-	-	1	(2)	-	-	-	-	-	-	-	
Antihistamines	1	(1)	-	-	-	-	-	-	1	(2)	-	1	(1)	-	-	
Fluoxetine	-	-	-	-	-	-	6	(12)	-	-	-	-	-	-	-	
Sodium valporate	-	-	-	-	1	(1)	4	(8)	-	-	-	-	-	-	-	
Cyproheptadine	-	-	-	-	2	(2)	8	(15)	-	-	-	-	-	-	-	
Benzodiazepines	10	(12)	-	-	4	(5)	9	(17)	8	(14)	-	5	(6)	-	-	
Corticosteroids	-	-	-	-	2	(2)	1	(2)	1	(2)	-	-	-	-	-	

\*Some of the patients had used more than one drug. A - Attack treatment, P - Prophylactic treatment, NSAID - Non-Steroidal Anti-Inflammatory Drug. ACA - Acetaminophen, Caffeine, Aspirin, TCA - Tricyclic anti-depressant.

diagnosis, only in 50% prophylactic treatments were prescribed on the basis of indications. This means that only 15% of GPs succeeded in correct diagnosis and prescribing drugs for the illness, which shows the unfamiliarity of a high percentage of them with migraine, diagnostic criteria and existing treatments. This was also mentioned by Shapero<sup>5</sup> as one of the most important difficulties in migraine treatment.

The other aspect of the problem is the correct diagnosis of migraine only by 70% of the neurologists. This could be due to unavailability of effective referring system in Iran, which leads to the consultation of numerous patients and, consequently, lack of enough time for exact and complete evaluation of patients. Subsequently leading to the missing of many migraineurs with atypical headaches. It also shows that specifying more time for the patients,

explaining the illness to them, the type of treatment and the need for probable drug changes, are effective both in drug compliance and follow up rates.<sup>13</sup> It is obvious that these are among the duties of GPs who are bypassed by most patients in Iran.

In 21% of cases, propranolol was prescribed as a prophylaxis with a dosage of less than 20 mg daily, and there was only one incident of prescribing more than 60 mg daily. However, the least effective dosage for prophylaxis in clinical trials has been 20 mg daily, which could be increased to 180 mg daily.<sup>1</sup> This indicates a caution by physicians in prescribing a higher dose; which causes inefficiency of most treatments despite their correct diagnosis.

Regarding the unavailability of triptan compounds in Iran, the only available effective drugs on 5-hydroxytryptamine (5-HT) receptors are Ergot

compounds. In spite of their proven role in controlling migraine attacks, they have been prescribed only in 21 cases and its consumption method was wrong in 17 cases. Although the prescription of antiemetics, especially Metoclopramide, with Ergot compounds to reduce nausea has been emphasized in most studies and references,<sup>3</sup> there was no such co-prescription. Codeine was prescribed in 44 cases, while its use for migraine treatment has been restricted<sup>2,3</sup> to very severe and infrequent cases which do not respond to regular treatments. Frequent use of these compounds may lead to daily headaches caused by dependency, which are difficult to differentiate from migraine attacks.<sup>10</sup> Most of the used medications in severe migraine attacks in our study were from the group of nonspecific analgesics and non-steroidal anti-inflammatory drugs, which are considered as treatments of mild migraine.<sup>3</sup> Nasal sprays, subcutaneous and intramuscular injections had not been used for any patient. In prophylaxis, except for beta blocker and TCA, other prophylactic compounds were not used or instances for their usage were much less than the expected rate, for example Sodium-Valproate was prescribed for only 4 patients (Table 1). This prescription method can be partly explained by the unavailability of newer drugs and compound medications or their high price in Iran.

For the self-medication rate in this study (91.4%) was one of the highest compared to other studies such as MacGregor et al<sup>14</sup> (42.3%) and Caro et al<sup>12</sup> (51%). This high rate is probably due to drug availability without prescription in Iran, and improper diagnosis and treatment by physicians; and the latter could be the reason for the same rate of self-medication in the 2 groups.

In our study, alternative medicines were used a little less than that recorded by MacGregor et al,<sup>14</sup> and methods such as yoga, hypnotherapy and acupuncture, which had proven effective on migraine,<sup>15-17</sup> had not been used, or incorrectly used.

In conclusion, improper function of physicians has led to the belief among a high percentage of migraineurs that migraine attacks are uncontrollable. Thus, revisions are inevitable and, to alleviate these problems, we must consider 3 points: 1. Changing the education methods for raising physicians' information and organizing re-education courses for them to get acquainted with new methods of diagnosis and treatment. 2. Changing drug consumption methods and limiting patients' access to drugs without prescription and 3. Establishing a correct referral system.

## References

1. Victor M, Ropper AH. Adams and Victor's Principles of Neurology. 7th ed. New York: McGraw-Hill; 2001. p. 182-189.
2. Goadsby PJ, Silberstein SD, editors. Blue books of practical Neurology "Headache". Oxford: Butterworth-Heinemann; 1997. p. 75-139.
3. Raskin NH, Peroutka SJ. Headache, including migraine and cluster headache. In: Braunwald E, Fauci AS, Kasper D, Hauser SL, Longo DL, Jameson JL, editors. Harrison's Principles of Internal Medicine. 15th ed. New York: McGraw-Hill; 2001. p. 73-78.
4. Steiner TJ, Catarci T, Hering R, Whitmarsh T, Couturier EGM. If migraine prophylaxis dose not work, think about compliance. *Cephalalgia* 1994; 14: 463-464.
5. Shapero G. The difficulties of making rational treatment choices in migraine for the primary care physician. *Cephalalgia* 1999; 19 (Suppl 24): 7-10; discussion 10-Z.
6. Mulleners WM, Whitmarsh TE, Steine TJ. Non compliance may render migraine prophylaxis useless, but once-daily regimens are better. *Cephalalgia* 1998; 18: 52-56.
7. Rashid A. Do patients cash prescriptions? *Br Med J* 1982; 282: 24-26.
8. Aronson JK, Hardman M. Patient compliance. *Br Med J* 1992; 3: 1009-1011.
9. Amayo EO, Jowi JO, Njeru EK. Migraine headaches in a group of medical students at the Kenyatta National Hospital, Nairobi. *East Afr Med J* 1996; 73: 594-597.
10. Eng EL, Lachenneger J. Codeine, self-medication in a headache patient. *Headache* 1996; 36: 452-455.
11. International Headache Society classification committee. Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. *Cephalalgia* 1988; 8: 13-96.
12. Caro G, Caro JJ, O'Brien JA, Anton S, Jackson J. Migraine therapy: development and testing of a patient preference questionnaire. *Headache* 1998; 38: 602-607.
13. Dowson A, Jagger S. The UK migraine patient survey: quality of life and treatment. *Curr Med Res Opin* 1999; 15: 241-253.
14. MacGregor EA, Vohrah C, Wilkinson M. Analgesic Use: a study of treatment used by patient for migraine prior to attending the city of London Migraine Clinic. *Headache* 1990; 30: 571-574.
15. Gallagher RM, Warner JB. Patient motivation in the treatment of migraine. A non medical study. *Headache* 1984; 24: 269-271.
16. Liguori A, Petti F, Bangrazi A. Comparison of pharmacological treatment versus acupuncture treatment for migraine without aura-analysis of socio-medical parameters. *J Tradit Chin Med* 2000; 20: 231-240.
17. Mathews M, Flatt S. The efficacy of hypnotherapy in the treatment of migraine. *Nurs Stand* 1999; 14: 33-36.