

Migraine attacks in the pharmacy: a survey in Piedmont, Italy

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Abstract Headache patients often consult a pharmacist in an attempt to obtain momentary pain relief without having been given any previous expert advice. A specific questionnaire was distributed to the pharmacies in order to assess the patterns of use and dispensing of analgesic medications to the headache patient who turns to the pharmacist for relief of a painful attack. This study aimed at identifying migraine patients who self-medicated, with further end points including whether these patients shared any particular clinical characteristics, the most common type of analgesic medications used, and what, if anything, was recommended by the pharmacist; lastly, which health care professional, if any, routinely managed the patient's headaches. A total of 9,100 questionnaires were distributed to the pharmacies and the complete 3,065 were included in the database. The ID Migraine Screener Test was used to classify subjects into 4 groups: “Definite migraine” (3/3 positive answers: $n = 1,042$; 34 %), “Probable migraine” (2/3: $n = 969$; 31.6 %), “Unlikely migraine” (1/3:

$n = 630$; 20.5 %), and “Other headaches” (0/3: $n = 424$; 13.8 %). Only Definite and Probable migraines ($n = 2,011$) are considered in this paper. Amongst the drugs usually taken by the patients, NSAIDs were more common in the Probable migraine group (60.7 %) than in the Definite migraine (44.7 %) group ($p < 0.001$). On the contrary, triptans were more commonly used by the Definite migraine group (42.9 %) than the Probable migraine (23.7 %) group ($p < 0.001$), and combination drugs were preferentially ($p < 0.001$) chosen by the Definite (13.8 %) rather than the Probable migraine group (8.7 %). A total of 29.2 % of respondents reported that for the management of their headaches, they did not avail themselves of any type of professional healthcare, such as their general practitioner, a headache specialist, or a Headache Center.

Keywords Community pharmacy · Headache · ID Migraine Screener Test · Migraine · Questionnaire

Abbreviations

NSAIDs Nonsteroidal anti-inflammatory drugs

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Introduction

It is common for patients with headache, in particular those suffering from migraine, to alleviate pain with analgesic medications, which in some cases may lead to a misuse, if not an abuse, of analgesics [1, 2]. These patients often consult a pharmacist in an attempt to obtain momentary pain relief without having been given any previous specific expert advice. The Italian Headache Foundation (FICEF Onlus), in collaboration with the Order of Pharmacists of

Turin, Regional Deputy, and the Department of Scienza e Tecnologia del Farmaco, University of Turin, promoted and disseminated the project “Questionnaire on the use of analgesic medications given to the migraine patient by the pharmacist”.

A specific questionnaire was distributed to the pharmacies in the Piedmont area in an attempt to assess the patterns of use and dispensing of analgesic medications, to the headache patient who turns to the pharmacist for relief of a painful attack. This study aimed at identifying patients suffering from migraine who self-medicated, with further end points including whether these patients shared any particular clinical characteristics, the most common type of analgesic medications used, and what, if anything, was recommended by the pharmacist; lastly, which healthcare professional, if any, routinely managed the patient's headaches.

Patients and methods

A specific questionnaire was distributed to the pharmacies in the Piedmont area, between December 2012 and March 2013; the areas investigated included the provinces of Turin, Asti, Alessandria, Cuneo, and Novara. Inclusion criteria were as follows: reporting the presence of a headache attack and asking the pharmacist for help to relieve the pain. The questionnaire covered the following points: gender; age; the three questions in the ID Migraine Screener Test [3, 4]: (nausea or vomiting [Yes, No], photosensitivity [Yes, No], and limited daily activities during headache [Yes, No]); the frequency of attacks in the previous 3 months; any drugs usually taken to relieve an acute attack: nonsteroidal anti-inflammatory drugs (NSAIDs), ergot derivatives, triptans, combination drugs, and any other analgesics; class of medicines eventually recommended by the pharmacist on consultation; which healthcare professional, if any, is responsible for the management of this patient's headache: none, their general practitioner, a headache specialist, a Headache Center.

Statistical analysis

Data analysis was performed by calculating descriptive statistics presented as count and percentages. In order to verify the existence of significant associations between the different groups of respondents, identified by the ID Migraine Screener Test, a chi-square test was performed for two rows by two columns contingency tables. For tables of larger dimensions, a Freeman–Halton extension of Fisher's exact test was applied, and when a significant relationship occurred, comparisons between column

proportions were performed by *z* test with adjusted *p*-values Bonferroni method. All analyses were carried out using the Software IBM-SPSS Statistics Analysis System package (version 21).

Results

A total of 9,100 questionnaires were distributed to the pharmacies in the Piedmont area and solicited a good percentage of response (36.1 %). Meaning that a total of 3,285 questionnaires had been filled in and collected, 220/3,285 were incomplete and were, therefore, excluded, the remaining complete 3,065 were included in the database. The subdivision of these questionnaires according to province showed that Turin had submitted 2,024 questionnaires (66.0 %), Asti 131 (4.3 %), Alessandria 281 (9.2 %), Cuneo 569 (18.6 %), and Novara 60 (2.0 %). A gender subdivision revealed that 2,154/3,065 (70.3 %) respondents were females and 911/3,065 (29.7 %) males. The average age of respondents was 44.1 ± 13.5 .

Amongst the migraine symptoms considered in the ID Migraine Screener Test, nausea or vomiting were reported by 1,626 patients (53.1 %), photosensitivity by 2,014 (65.7 %), and limited daily activities by 2,054 (67.0 %). When the answers to the questions in the ID Migraine Screener Test were subdivided according to gender, nausea or vomiting were reported by 60.2 % of women and 36.2 % of men, photosensitivity by 69.2 % of women and 57.5 % of men, and limited daily activities by 71.3 % of women and 57.0 % of men. The ID Migraine Screener Test was used to classify subjects into four groups: “Definite migraine” (3/3 positive answers), “Probable migraine” (2/3), “Unlikely migraine” (1/3), and “Other headaches” (0/3): 424 of patients had Other headaches (13.8 %), 630 Unlikely migraine (20.5 %), 969 Probable migraine (31.6 %), and 1,042 Definite migraine (34.0 %).

The distribution of the types of headache, according to the ID Migraine Screener Test for males and females, is shown in Table 1. The percentage of males, for any type of headache identified using the ID Migraine Screener Test, never exceeded 30 %. Furthermore, although there were more or less 10 % more females than males for both Other headaches and Unlikely migraine, data on Probable migraine showed that 72.4 % were females against 27.6 % of males and that for Definite migraine, 81.6 % were females against 21.1 % of males. From these data, it can be concluded that, in agreement with the literature, females are more subject to headache (Freeman–Halton extension of Fisher's exact test: $p < 0.001$) and that the most evident difference was observed in the Probable and Definite migraine groups ($p < 0.05$ with the *p*-values Bonferroni adjustment procedure).

Table 1 Distribution of the types of headache, according to the ID Migraine Screener Test, for males and females

	Other headaches	Unlikely migraine	Probable migraine	Definite migraine	Total
Gender					
Male					
Count	189	263	267	192	911
% Within gender	20.7	28.9	29.3	21.1	100.0
% Within ID migraine	44.6	41.7	27.6	18.4	29.7
Female					
Count	235	367	702	850	2,154
% Within gender	10.9	17.0	32.6	39.5	100.0
% Within ID migraine	55.4	58.3	72.4	81.6	70.3
Total					
Count	424	630	969	1,042	3,065
% Within gender	13.8	20.6	31.6	34.0	100.0
% Within ID migraine	100.0	100.0	100.0	100.0	100.0

This paper takes into consideration only data on those patients who reported an ID Migraine Screener Test score compatible with Probable migraine (2/3) or Definite migraine (3/3), i.e. a total of 2,011 respondents. The mean number of headache attacks in the 3 months prior to the survey administration was 13.5 ± 18.5 , ranging from a minimum of 0 in 6 individuals to a maximum of 90 attacks in 45 cases. A total of 1,552/2,011 respondents were females with a mean number of attacks in the 3 months prior to the pharmacy consultancy of 14.4 ± 19.3 , 0 in 5 cases and 90 in 39; there were 459 males with a mean number of attacks prior to the pharmacy consultancy of 10.6 ± 14.9 , 0 in 1 case and 90 attacks in 6. There were 969 respondents for Probable migraine (2/3) with a mean number of attacks of 12.1 ± 17.3 , 4 cases with 0 attacks and 18 with 90 attacks; whilst for Definite migraine (3/3), there were 1,042 respondents, with a mean number of attacks of 14.8 ± 19.5 , 2 cases with 0 attacks and 27 cases with 90.

The pain medications usually taken for acute attacks were NSAIDs in 1,054 (52.4 %), Ergot derivatives in 184 (9.1 %), triptans in 677 (33.7 %), combination drugs in 228 (11.3 %), other analgesics in 326 (16.2 %). The distribution of answers for each medicine was in Probable migraine sufferers: NSAIDs in 588 (60.7 %), Ergot derivatives in 79 (8.2 %), triptans in 230 (23.7 %), combination drugs in 84 (8.7 %), other analgesics in 175 (18.1 %). In patients with Definite migraine were NSAIDs in 466 (44.7 %), Ergot derivatives in 105 (10.1 %), triptans in 447 (42.9 %), combination drugs 144 (13.8 %), other analgesics in 151 (14.5 %). NSAIDs were more commonly used in the Probable migraine group (60.7 %) than in the Definite migraine (44.7 %) group (chi-square test: $p < 0.001$); likewise, there were more other analgesics used ($p < 0.034$) in the Probable migraine group (18.1 %) than in the Definite migraine group (14.5 %). On the contrary,

triptans were more commonly used by the Definite migraine group (42.9 %) than the Probable migraine (23.7 %) group ($p < 0.001$) and combination drugs were preferentially ($p < 0.001$) chosen by the Definite migraine group (13.8 %) rather than the Probable migraine group (8.7 %). When the percentage of patients who used Ergot derivatives were taken into consideration, there was no statistically significant difference between the two groups ($p = 0.142$).

In any case, NSAIDs were chosen by 52.4 % of respondents, in both groups, followed by triptans (33.7 %). Each respondent had the possibility to provide more than one answer to the question on pain medications taken regularly for an acute attack; the distribution of the number of pain medications taken was 0 in 0.3 %, 1 in 79.1 %, 2 in 18.4 %, 3 in 1.8 %, and 4 in 0.2 %.

Table 2 shows the frequency of multiple responses given as to the types of pain medications taken regularly for an acute attack.

A review of the frequency distribution of the pain medications taken for an acute attack in the respondents classified as Probable migraine (Table 2) showed that 19.8 % of patients took more than one type of medication for the treatment for migraine attacks; the most frequent choices were NSAIDs in 50.9 % followed by triptans in 19.9 %. The frequency distribution of the medications chosen during an acute attack by the Definite migraine group (Table 2) showed that 26.2 % of the respondents used several types of pain medication during an attack, the most common were NSAIDs (in a lower percentage (35.5 %) than the Probable migraine group) and triptans (where the percentage rose to 34.0 % compared to 23.8 % in the Probable migraine group).

Table 3 shows the classes of pain medication recommended by the pharmacists. When the frequencies for the

Table 2 Frequency of multiple responses as to the types of analgesic medications taken regularly for an acute attack subdivided for all migraines (i.e. probable migraine + definite migraine), probable migraine and definite migraine

Medicines used for acute attacks	All migraines			Probable migraine			Definite migraine		
	Answers		% of cases	Answers		% of cases	Answers		% of cases
	n	%		n	%		n	%	
NSAIDs	1,054	42.7	52.6	588	50.9	60.9	466	35.5	44.8
Ergot derivatives	184	7.5	9.2	79	6.8	8.2	105	8.0	10.1
Triptans	677	27.4	33.8	230	19.9	23.8	447	34.0	43.0
Combination drugs	228	9.2	11.4	84	7.3	8.7	144	11.0	13.8
Other analgesics	326	13.2	16.3	175	15.1	18.1	151	11.5	14.5
Total	2,469	100.0	123.1	1,156	100.0	119.8	1,313	100	126.2

Table 3 The classes of pain medications recommended by the pharmacists subdivided for all migraines (i.e. probable migraine + definite migraine), probable migraine and definite migraine

Class of pain medications recommended by the pharmacist	All migraines		Probable migraine		Definite migraine	
	Answers		Answers		Answers	
	n	%	n	%	n	%
None	647	32.2	250	25.8	397	38.1
NSAIDs	943	46.9	520	53.7	423	40.6
Ergot derivatives	21	1.0	10	1.0	11	1.1
Triptans ^a	94	4.7	32	3.3	62	6.0
Combination drugs	80	4.0	35	3.6	45	4.3
Other analgesics	182	9.1	102	10.5	80	7.7
Dietary supplements	10	0.5	4	0.4	6	0.6
Herbal products	5	0.2	3	0.3	2	0.2
Homeopathic remedies	29	1.4	13	1.3	16	1.5
Total	2,011	100	969	100	1,042	100

^a under prescription

Probable migraine group were taken into consideration, it was observed that NSAIDs were recommended in 53.7 % of the cases against only 3.3 % of triptans (under prescription) and that the pharmacist refrained from recommending anything in 25.8 % of the consultations. Similarly, evaluating the frequency distribution of the advice given by the pharmacists, it was observed that NSAIDs were recommended only 40.6 % of the time; there was a slight increase in the number of times triptans (under prescription) were recommended (6.0 %) as well as a rise in how many respondents were not given any medical advice at all by the pharmacists (38.1 %). When offered, the advice given by the pharmacists showed a statistically significant difference (chi-square test: $p < 0.001$) depending on the type of migraine (Probable or Definite).

There were no statistically significant differences between the Probable migraine and Definite migraine groups when the distribution of the classes of pain medications was subdivided by gender.

Table 4 shows the answers to the last question in the questionnaire, i.e. “who is responsible for the management of your headache problem?” A total of 29.2 % of respondents reported that they did not avail themselves of any type of professional health care, such as their general practitioner, a headache specialist, or a Headache Centre, whilst 7.0 % reported that they took advantage of more than one professional health care advisor/centre and the most frequent choice fell to their general practitioner (39.4 % of cases). The percentage of individuals who did not seek advice at all rose to 39.1 % in the Probable migraine group, whilst 5.0 % of respondents consulted more than one person; the most frequent choice was their general practitioner (39.1 %), whilst headache specialists and Headache Centres had a similar frequency percentage of around 13 % (Table 4).

There was a steep drop to 20 % in the percentage of individuals who did not seek advice in the Definite migraine group (Table 4), whilst 8.9 % turned to more than one health care professional. However, the most frequent choice was still their general practitioner (39.7 %) followed by a Headache Centre (27.4 %). Therefore, it may be concluded that the behaviour of individuals in the Probable migraine group differed from that of those in Definite migraine group (chi-square test: $p < 0.001$): 39.1 % of those in the Probable migraine group and 20 % of the Definite migraine group did not consult anybody; 21.8 % of the Definite migraine group consulted a specialist against 13.1 % of those in the Probable migraine group; 27.4 % of the Definite migraine group were under the care of a Headache Center against 13.6 % of individuals in the Probable migraine group. Both of these categories consulted their general practitioner ($p = 0.78$): 39.7 % in the Definite migraine group and 39.1 % in the Probable migraine group.

Discussion

The pharmacist is a common reference figure for those who suffer from headaches and often need urgent remedies to

Table 4 Frequency of answers to the question “who is responsible for the management of your headache problem”? subdivided for all migraines (i.e. probable migraine + definite migraine), probable migraine and definite migraine

Who is responsible for the management of your headache problem?	All migraines			Probable migraine			Definite migraine		
	Answers		% of cases	Answers		% of cases	Answers		% of cases
	n	%		n	%		n	%	
None	587	27.3	29.2	379	37.3	39.1	208	18.3	20.0
General practitioner	793	36.8	39.4	379	37.3	39.1	414	36.5	39.7
Headache specialist	354	16.4	17.6	127	12.5	13.1	227	20.0	21.8
Headache Center	418	19.4	20.8	132	13.0	13.6	286	25.2	27.4
Total	2,152	100.0	107.0	1,017	100.0	105.0	1,135	100.0	108.9

alleviate an acute attack. Our survey demonstrated that women predominate in those who seek advice for headache in the pharmacy (70.3 % of our sample population). This percentage rises steeply when other headaches (55.4 %) are compared to Definite migraine (81.6 %), in parallel the well-known datum of an higher percentage of females in migraine population. Nevertheless, it is worth of note that usually women, in any case, go to the pharmacy more often than men do [5].

In our study group, the headache sufferers that consulted the pharmacist reported having a mean of 13.5 attacks over the 3-month period that preceded our survey. This frequency of attacks, in itself, defines a population that necessitates migraine prophylaxis, in as much as they have more than 3 crises per month and, consequently, need more than only acute pain treatment.

The most commonly used pain medications for an attack of migraine were NSAIDs, even if the percentage of triptans used was higher in the Definite migraine group than in the Probable migraine group. However, the most striking datum to come to light in this study was the fact that as many as 30.0 % of the individuals that met the ID migraine criteria for migraine sufferers reported that they were not under the care of any kind of professional healthcare worker or center, but that they took a “do-it-yourself” attitude.

The Probable migraine group had a higher percentage of self-prescription (39.1 %) than did the Definite migraine group (20.0 %). About 40 % of migraine attacks were treated by local general practitioners, whilst 13.1 % of the Probable migraine group turned to a headache specialist as did 21.8 % of the Definite migraine group. Unfortunately, only 20.8 % of migraine sufferers consulted a Headache Center, i.e. 13.6 % of the Probable migraine group and 27.4 % of the Definite migraine group.

Although this is a preliminary survey and covers only one of the Italian regions, it makes quite an adequate

account of a problem that seems to be widespread in numerous countries throughout the world. We are of the opinion that the volume of adequate and correct information given to the headache sufferers, physicians, and pharmacists alike must be enhanced so as to counter the trend of do-it-yourself medication [6] and to stave off the possibility of creating a vicious circle that might well lead to an abuse of non-specific painkillers and make headache pain chronic.

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Conflict of interest All the authors certify that there is no actual or potential conflict of interest in relation to this article.

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