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An Epidemiological Study to Assess Migraine Prevalence in a Sample of Italian Population Presenting to Their GPs

M. Roncolato[a] L. Fabbri[a] G. Recchia[a] L. Cavazzuti[a] G. Visona[a]
O. Brignoli[b] G. Medea[b]

[a]Medical Department, GlaxoWellcome, Verona, and [b]Italian Society of General Practitioners (SIMG), Brescia, Italy

Key Words
Migraine prevalence · Migraine epidemiology

Abstract
This multicentre, observational, cross-sectional study was conducted to determine migraine prevalence in a sample of population presenting to their GPs. The study covered all the patients who visited the GPs practice, for any reason, on 5 consecutive days of 2 different weeks. A total of 71,588 patients were interviewed by 902 GPs. The prevalence of migraine in this sample was 11.6%.

Introduction

Although headache is a very common complaint [1], only few sufferers seek specific medical assistance. Migraine is one of the most frequently encountered varieties of headache. Internationally, recent epidemiological studies have estimated that the prevalence of migraine among Germans is 11.5% [2], while in the Santiago area in Chile it is 7.3% [3]. In Italy, epidemiological quantitative studies have been conducted in the past on selected, small population samples [4, 5]. An epidemiological survey on 1,500 inhabitants of the Republic of San Marino found a migraine occurrence rate of 9.3% in the male population and 18% in the female population [6]. Until now, no nationwide survey has been conducted on a numerically adequate population sample, hence the need to perform a study on a large case series suitable to definitely disprove or confirm previous findings.

The aim of this survey was to estimate the prevalence of migraine in a sample of Italian population over the age of 14 who visited their GPs for any reason. In the same sample, we also analyzed the characteristics of this disorder and associated demographic factors.

We conducted an observational, multicentre, cross-sectional study.

Patients and Methods

Sample

Sample size was not predetermined. Participation in the study was proposed to general practitioners who were members of a national general practitioners' society (Società Italiana di Medicina Generale), and the sample population consisted of all patients over 14 years of age in the lists of those practitioners who chose to participate in the study.

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Dr. Maurizio Roncolato
Neurology and Psychiatry Department, GlaxoWellcome Italy
Via A. Fleming 2, I–37135 Verona (Italy)
Tel. +39 045 921 8140, Fax +39 045 921 8193
E-Mail mar2799@glaxowellcome.co.uk

Procedure

The study covered all patients who visited their general practitioner, for any reason, on 5 consecutive days of 2 different weeks (the first 3 days of the first week, and the last 2 days of the second week). All patients were asked if they suffered from headache. If they did not, the doctor only recorded personal data; if they did, the doctor completed a questionnaire that was aimed at making sure that the diagnostic criteria for migraine, with or without aura, established by the International Headache Society (IHS) [7] were met.

Case Definition

Patients were classified as 'migraineurs' only if the pain had at least 2 of the following features: throbbing quality, unilaterality, moderate to severe intensity and accentuation with physical activity. Besides these features, at least 1 of the following associated symptoms had to be present: nausea, vomiting, photophobia, phonophobia, and attack duration of between 4 and 72 h. Finally, patients had to confirm the occurrence of at least 5 attacks with the above features.

It is well known in clinical practice that some patients suffer from attacks with features very similar to those we used to define migraine, in accordance with IHS criteria. In these subjects, symptoms may not include all the features described in the IHS international classification; nonetheless, they may overlap with the clinical profile of migraine. Therefore, we decided to define as 'probable migraineurs' those patients who only met 3 of the 4 criteria used to define migraine (pain, associated symptoms, history of 5 attacks).

Features of Migraine

First of all, the doctor was required to ascertain to whether the patient was suffering from migraine with aura, or without aura. Then the frequency of attacks was recorded using 4 grades (less than 1 attack per month, 1–3 attacks per month, 1–3 attacks per week, attacks every day). The intensity of attacks was recorded using 3 grades (mild, moderate, severe), while 4 grades were used for clinical disability (no interference with routine activities, slight interference, serious interference, bed rest required).

Statistical Analysis

Subjects under 14 years of age were excluded from the analysis.

The number of migraineurs used to assess prevalence was obtained by adding the number of definite diagnoses to that of probable diagnoses.

Sample characteristics and screening results were summarised by descriptive statistics.

The risk ratio represents the ratio between female and male prevalence in a specific age range group and expresses how much more likely it is for females to be affected by migraine than males.

Results

Sample

During the first trimester of 1996, 72,038 subjects were interviewed. From this number, 450 questionnaires concerning subjects under 14 years of age were excluded, for a total of 71,588 assessable cards. The proportion of males was 38.9%; mean age was 51 years, slightly higher for males (53 years) than for females (50 years) (table 1).

Table 1. Demographic characteristics of the sample

Sample size		71,588
Sex	males	27,609 (38.9%)
	females	43,184 (61.1%)
	NA	795
Age, years	mean ± SD	51 ± 18
	range	15–99
	median	52
	Q1–Q3	30–66
Age (males)	mean ± SD	53 ± 18
Age (females)	mean ± SD	50 ± 18

NA = Not ascertained; SD = standard deviation; Q1–Q3 = 1st and 3rd quartiles.

Table 2. Prevalence of migraine in the sample according to age and sex

Age, years	Males, %	Females, %	Risk ratio	95% CI
15–19	4.1	14.4	3.47	2.49–4.84
20–24	5.3	16.5	3.12	2.44–4.01
25–29	7.3	19.1	2.63	2.16–3.20
30–34	10.3	21.5	2.08	1.79–2.43
35–39	10.0	25.1	2.51	2.16–2.91
40–44	9.3	25.1	2.72	2.34–3.16
45–49	7.9	23.6	2.98	2.56–3.48
50–54	6.4	20.1	3.13	2.62–3.75
55–59	4.7	15.4	3.31	2.71–4.03
60–64	3.1	11.0	3.60	2.85–4.53
65–69	2.2	7.1	3.19	2.47–4.13
70–74	1.3	4.8	3.63	2.56–5.14
>74	0.9	2.2	2.45	1.58–3.81

Prevalence of Migraine in the Sample

The prevalence of migraine according to age and sex is greater in females than in males, irrespective of age range (risk ratio 2.1–3.6). The disorder was most commonly found in the middle age range, with the highest prevalence in the 30- to 39-year range for males, and the 35- to 44-year range for females (table 2).

If we consider the number of patients diagnosed with migraine (n = 4,960) and those suffering from probable migraine (n = 3,333), the prevalence of the disorder is 11.6% (6.9% definite migraine; 4.7% probable migraine). Prevalence according to sex is 5.0% in males and 15.8% in females.

Table 3. Features of migraine in the sample

	Males		Females	
	n	%	n	%
Frequency of attacks				
<1/month	313	24.0	1,132	17.4
1–3/month	622	47.6	3,557	54.7
1–3/week	337	25.8	1,594	24.5
1/day	34	2.6	214	3.3
NA	86		349	
Pain intensity				
Mild	52	4.0	169	2.6
Moderate	577	44.1	2,461	37.9
Severe	678	51.9	3,871	59.5
NA	85		345	
Interference with daily activities				
None	114	8.7	414	6.4
Slight	432	33.1	1,919	29.4
Heavy	520	39.9	2,577	39.7
Total	238	18.3	1,587	24.4
NA	88		349	
Use of prophylaxis				
Yes	117	9.6	705	11.5
No	1,108	90.4	5,410	88.5
NA	167		731	

NA = Not available; sex not ascertained: n = 55.

Features of Migraine

Frequency of Attacks. Most patients suffered from 1 to 3 attacks monthly (47.6% of males; 54.7% of females), although higher frequencies were found in 28.4% of males and 27.8% of females, respectively (table 3).

Pain Intensity. Pain intensity was moderate to severe in most cases (96.0% of males; 97.4% of females). However, it should be stressed that attacks occurring in a single patient may differ both in intensity and type, if migraine and tension headache coexist in the same patient [8].

Clinical Disability. More than half the patients were forced to reduce their activities significantly (58.2% of males; 64.1% of females). This is mainly reflected in loss of productivity and in the indirect costs associated with the disorder.

Prophylaxis. Although more than a quarter of the patients suffered from more than 1 attack per week, prophylaxis appeared to be an uncommon practice, as it was used only by 9.6% of males and 11.5% of females.

Discussion

The number of subjects who reported headache was 17,903, i.e. 25% of the sample (n = 71,588).

Our study found an 11.6% prevalence of migraine in the sample of population considered. This represents a mid-range value among those found by epidemiological studies conducted in other nations [9–14]. We are aware that our data could suffer from recall bias, but the prevalence in our sample is similar to that found by other authors [15], so we believe that the bias error, even if present, is not relevant. Headache is a frequently underestimated disorder; in fact, of all the subjects interviewed, 17,903 (25%) reported headache, but only 2.6% of them sought medical advice specifically for this symptom. Two important conclusions can be drawn from this: firstly, most patients consider headache a 'normal' aspect of living under certain physiological conditions (e.g. menstrual migraine); secondly, self-prescription is a deep-rooted tendency among headache sufferers. It has been recently estimated that approximately two-thirds of migraine sufferers commonly use self-prescription [16]. An interesting finding of our study is that migraine represents more than half (54%) of the varieties of headache. It should be emphasized that the patients that we classified as migraineurs belonged to two different categories: those with a definite diagnosis, who met the IHS criteria (n = 4,960), and those with a probable diagnosis (n = 3,333), who lacked 1 diagnostic criterion. We decided to put these two categories together, as these patients are clinically and therapeutically very similar. Moreover, it is difficult to finely discriminate, even within the same patient, in conditions with protean manifestations such as a migraine attack, which comprises not only an acute phase, but also a prodromal as well as a post-attack phase [17].

Although virtually all the attacks recorded were of moderate to severe intensity (97.1%), only 63.2% of patients reported that they significantly interfered with their day-to-day working activities. With regard to the intensity and frequency of attacks, prophylaxis is only used by a few patients (11.2%). This finding lends itself to several explanations. Firstly, no standard guidelines are currently available as to when and how to begin prophylaxis. On the one hand, a number of authors maintain that at least 2 attacks monthly are required to begin prophylaxis [8, 18]. On the other hand, some investigators recommend a case-by-case evaluation, based not only on the frequency of attacks, but also on their intensity and associated clinical disability, before prophylaxis is begun; according to these investigators, prophylaxis could also occa-

Table 4. Study summary results

	Number	Percent
Sample size	71,588	100.0
Headache	17,903	25.0
Migraine fulfilling IHS	4,960	6.9
Migraine probable	3,333	4.6
Migraine total prevalence	8,293	11.6
Migraine prevalence by sex		
Male		5.0
Female		15.8

sionally be indicated for patients suffering from 1 attack monthly, provided it is of particular severity [18]. Secondly, the side effects of drugs represent an additional obstacle to the wider use of prophylaxis; these effects often make it difficult to tailor treatment to the needs of the single patient [19].

In terms of acute treatment, most patients take a single drug containing one active ingredient, as recommended. However, a surprisingly significant proportion of patients (21.9%) takes no medication whatsoever. The latter finding might be explained by the fact that patients find most treatments unsatisfactory and regard migraine, and more generally headache, as a 'normal' episodic aspect of living.

Among the drugs used for acute attacks, most patients take NSAIDs (89.1%), whereas specific drugs such as triptans are reserved for a small proportion of attacks (2.4%). This is in accordance with those authors who reserve therapy with triptans for severe and/or drug-resistant attacks [20], but partially contrasts with the Italian experience reported in the Italian guidelines for headache therapy [21].

Conclusions

As shown by this study, the prevalence of migraine in a large sample of population (n = 71,588) was 11.6%, which means that in Italy approximately 6,522,000 people suffer from this disorder (table 4). Taking into account a similar additional number of patients with other types of headache, this disorder affects over 10 million people in Italy, most frequently young and middle-aged individuals. This produces a significant impact on the costs society must sustain for the global care of the illness. Better therapeutic control, based not only on pharmacological therapy but also on the integrated assistance of headache sufferers, would dramatically reduce social costs while improving the poor quality of life of these individuals [22].

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