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Analgesic therapy for headache: consumption, appropriateness and costs

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Abstract Headache represents not only an individual disease, but also an important pathology for society because its prevalence in the population is about 50.0%. Its physical, emotional, social and economic impacts are often neglected and it is only recently that headache is being considered in a public health perspective, especially its disabling burden, its treatment and its costs. The aim of this work was to investigate the pharmacological treatment of headache and its costs. An anonymous questionnaire on headache was distributed in a waiting room of a general hospital in Rome, Italy. Both patients and visitors were included in the sample with the exclusion of those who had an appointment at Headache Centre of the hospital. The study was conducted on 294 subjects; the mean age was 46.7 years (SD=16.1). The prevalence of headache was 65.6% (95% CI, 60.0%–71.0%). There was no statistically significant difference between patients and visitors, while there was between men and women (53.0% vs. 79.4%; $p<0.05$). In the age group 30–49 years, the prevalence was significantly higher than in the other age groups (86.0%; $p<0.05$). Drugs only to treat headache were used by 67.9% of the sample and Aulin was the most used drug, followed by Novalgina and aspirin used, respectively, by 41.6%, 11.0% and 9.7% of the subjects. The economic evaluation of the pharmacological treatment of headache was conducted on the 101 patients (65.6%) who gave complete information on posology. Since the distribution of costs was strongly skewed to the right due to a few expensive treatments, the mean annual pharmaceutical expenditure per patient is not a good indicator, and we also calculated the median and the mode, the maximum and the minimum. Attention was focused also on two subgroups: those who used self-prescription and those who turned to healthcare specialists. The median annual pharmaceutical expenditure per patient was euro 4.30 for the whole group who used drugs and euro 3.93 and 8.51 for the self-prescription and the prescribed by specialist groups, respectively. In conclusion, considering the possible danger which may arise from inappropriate use of drugs and the costs of therapy, our data suggest that consultation with a specialist would be particularly helpful in patients with headache.

Key words Headache • Pharmacotherapy • Costs

Introduction

Although it is often an idiopathic pathology not dependant on more severe ones, headache should be considered as a real social disease [1]. Patients suffering from headache are often subjected to great medical expenses, absence from their work and problems with their personal relationships [2–4]. Besides, even if epidemiological studies do not agree completely about this [5–9], the European annual prevalence of "not occasional headache", i.e. that not linked to specific circumstances, seems to be about 50.0% of the population [1]. Consequently, headache represents not only an individual disease, but also an important pathology for the whole society. Nevertheless, headache troubles are perceived as a minor or even banal problem by the majority of people and by many physicians. Therefore, the physical, emotional, social and economic impacts are neglected when compared to those of other less frequent but more dramatic neurological diseases [10]. Recently, experts have begun to consider the problem in a public health perspective, in particular the disabling burden of headache, the treatment and the management of patients and the global costs derived from disease [11].

The present work was aimed at the analysis of the pharmacological treatment of headache in the general population, by concentrating on two aspects of the problem: the use of drugs and the pharmaceutical expenses.

Materials and methods

The target of our research was the adult population in the waiting room of a hospital in Rome. We included both the visitors and the patients who were in the hospital, with the exclusion of those who had an appointment at Headache Centre of the hospital. They were requested to anonymously complete a questionnaire divided in two parts: the first included questions about headache and therapies used; the second part included personal data (sex, age, civil status, education, profession) and their life-style (residence in city or countryside, transportation used, distance between home and the workplace, sports, quality of sleep, and food, coffee, alcohol and tobacco consumption).

The prevalence of headache was calculated for the entire sample, for men and women, and for visitors and patients separately. The prevalence rates of headache are presented as cases per 100 participants. Age-specific prevalence rates were calculated for four age groups: 18–29 years, 30–49 years, 50–69 years, and 70–79 years. We calculated the 95% exact confidence intervals (95% CIs) using the binomial distribution. The χ^2 test was used when appropriate; a value of $p<0.05$ was considered to be statistically significant.

Regarding the treatment of headache, we calculated the proportion of subjects using pharmacological or alternative therapies, the frequency distribution for the most used drugs and the proportion who chose self-prescription, compared to those applying to health professionals. We finally calculated the annual average pharmaceutical expense for patients, the mode, the median and the expense range.

Results

Three hundred questionnaires were distributed, 298 (99.3%) had been completed, 4 were excluded because they were compiled by persons in the queue for a visit to the Headache Centre. So, the study has been conducted on a sample of 294 subjects (98.0%), including 170 (57.8%) women and 100 (34.0%) men. The mean age was 46.7 years (SD=16.1). The sample consisted of 126 visitors (42.9%) and 168 ambulatory hospital patients (57.1%). A total of 193 of 294 participants declared that they suffer from headache, indicating a prevalence of 65.6% (95% CI, 60.0%–71.0%). The prevalence of headache was significantly higher in women than in men, respectively 79.4% (95% CI, 73.3%–85.5%) and 53.0% (95% CI, 43.2%- –62.8%) (χ^2 test, $p<0.05$). There was no significant difference in the prevalence of headache between visitors and patients, respectively 61.1% (95% CI, 52.6%–69.6%) and 69.0% (95% CI, 60.9%–77.1%) (χ^2 test, $p=0.16$). The prevalence of headache was significantly higher in the age group 30–49 years than in the others (χ^2 test, $p<0.05$). The specific prevalence rates for the four age groups considered were 61.5% (95% CI, 46.2%–76.8%), 86.0% (95% CI, 79.4%–92.6%), 64.0% (95% CI, 53.1%–74.9%), 37.9% (95% CI, 20.2%–55.6%), respectively.

Of the 193 subjects with headache, 140 (72.5%) reported one or more attacks per month, 43 (22.3%) of them had less than one episode per month and 10 (5.2%) did not answer the question. The difference in the frequency of headache between men and women was not statistically significant (χ^2 test, $p=0.44$).

Of the 193 subjects with headache, 131 (67.9%) had taken drugs for their attacks, 11 (5.7%) used alternative therapies, 23 (11.9%) used both, and 27 (14.0%) did not use any therapy. A total of 93 (60.0%) used one kind of drug, while the other 61 (40.0%) used from 2 to 6 different kinds of drugs.

Of the 154 patients that practiced pharmacotherapy, 64 (41.6%) used Aulin which was the most used drug, followed by Novalgina and aspirin used, respectively, by 17 (11%) and 15 (9.7%). Table 1 shows the main reasons for choosing a drug.

Of the 154 patients that used drugs, 68 (44.2%) followed the advice of healthcare professionals (general physicians, gynaecologists, neurologists, pharmacists), 65 (42.2%) fol-

Table 1 Drugs used and reasons for choice

Drugs	Patients, n (%)	Effectiveness against headache, n (%)	Action on collateral symptoms, n (%)	Simplicity of assumption, n (%)	Ease to buy, n (%)	Intolerance or allergy to other drugs, n (%)	Absence of collateral effects, n (%)
Aulin	64 (41.6)	44 (68.8)	17 (26.6)	27 (42.2)	13 (20.3)	1 (1.6)	9 (14.1)
Novalgina	17 (11.0)	11 (35.3)	5 (29.4)	9 (52.9)	5 (29.4)	0 (0)	7 (41.2)
Aspirin	15 (9.7)	9 (60)	2 (13.3)	3 (20.0)	4 (26.7)	1 (6.6)	2 (13.3)
Others	58 (37.7)	38 (65.5)	10 (17.2)	20 (34.5)	7 (12.1)	4 (6.9)	21 (36.2)

Table 2 Annual pharmaceutical expenditure per patient (in euro)

	Annual pharmaceutical expenditure per patient				
	Mean	Minimum	Maximum	Mode	Median
Self-prescription only (n=44)	10.93	0.34	124.02	1.96	3.93
Prescribed by health specialists only (n=44)	75.71	0.49	2186.64	3.93	8.51

lowed the advice of friends or relatives (self-prescription) and 13 (8.4%) did both.

Reported in Table 2 are the results of the economic evaluation of the pharmacological treatment of headache: for 101 (65.6%) patients that gave complete information on posology and for two subgroups of those who used self-prescription only (44 of 101) and those who turned to healthcare specialists only (44 of 101). We did not consider those who used both.

Discussion

Our final inclusion rate was 98.0% after the exclusion of those who had an appointment at the Headache Centre of the hospital. Our response rate was 99.3%, probably high because the investigation was carried out in the waiting room of a Rome hospital and the subjects had more time to compile the questionnaire and perhaps they were more motivated.

In our study, the prevalence of headache was 65.6%, higher than that reported in other studies. Probably due to the fact that 57.1% of the sample was patients waiting for a visit in an outpatients clinic, although compared with visitors, patients do not have any significant difference of the prevalence rate of headache.

Nevertheless, as found in other studies [8], the prevalence ratio between women (79.4%) and men (53.0%) was 1.5 and the most affected age group was 30–49 years (86.0%).

The main reason for choosing a particular drug was its effectiveness: 40.0% used between 2 and 6 different drugs and 42.2% relied on self-prescription; both of these could indicate an abuse and inappropriate use of drugs. The high frequency of self-prescription could be related to less severe attacks and these subjects may be able to control headache episodes with non-prescription drugs.

Therefore, considering the possible danger arising from an inappropriate consumption of drugs and the costs of therapy, our data suggest that consultation with a specialist could be particularly helpful in patients with headache [12]. Nevertheless, it seems opportune to encourage patients to consult members of the medical profession and to inform the profession, particularly general physicians and pharmacists, on the best way to manage these patients.

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