

Migraine and Tension-Type Headache in Medical Students: A Questionnaire Study

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ABSTRACT

The purpose of our study was to perform an epidemiological study of migraine and tension-type headache (TTH) in medical students (MS) at University of Zagreb Medical School and to determine whether there are differences in prevalence, trigger factors, health care utilization and self-medication between sixth year and first year MS. This study included 314 students who answered a questionnaire from October to November 2003. The prevalence of migraine was 8.86% in first year students and 10.90% in sixth year students while the prevalence of TTH was 60.13% and 57.69% respectively. Female students suffered from migraines significantly more often than male students ($p=0.017$). Female students with migraine linked their headaches to their menstrual cycle significantly more often than female students with TTH ($p=0.011$). Significantly more first year students have visited a doctor concerning their headaches than sixth year students. Also, there is a significantly higher level of self-medication amongst sixth year students. Our study has shown that a relatively large percent of MS suffers from TTH; a low percent is seeking medical advice for headaches, the majority is self-medicated, and an unacceptably low percentage is taking triptans for migraine.

Key words: headache, medical students, migraine, tension-type headache, questionnaire study

Introduction

Headache is a prevalent disorder in both adolescents and young adults. Many population-based studies have estimated the 1-year prevalence and life-time prevalence of both migraine and tension-type headache (TTH). For migraine, percentages range from 1 to 25% for 1-year prevalence and from 3 to 28% for life-time prevalence¹. For TTH, percentages range from 10 to 87% for 1-year prevalence and from 12 to 78% for life-time prevalence¹. For children and adolescents 1-year prevalence ranges from 10 to 72% for TTH and 1 to 11% for migraine¹. Such a noticeable variability has been explained through methodological differences such as study population selection and differing diagnostic criteria, as well as through ethnic and geographical differences among study populations². Certain epidemiological facts about headaches have been established through various articles published during the last decade. These include the higher prevalence of headache (both migraine and TTH) in women³⁻⁵ and their greater severity in women^{3,6}.

Many authors have found that there is a high level of self-medication amongst headache patients⁷⁻⁹. Some au-

thors have also found that only a small percentage of such patients visit a doctor concerning their symptoms⁷.

Up to this point, medical students have been the focus of several studies dealing with headache. In these studies the prevalence rate for migraine ranged from 12.2%⁹ to 40.17%⁶ with the prevalence of TTH ranging from 12.2%⁹ to 44.16%¹⁰.

As expected, a positive correlation to the female gender was found in most studies, especially for migraine^{6,11,12}. One article found no correlation between headache prevalence and smoking¹¹, another positive family history of headache in 57.6% of students⁹. Several articles concentrated on the frequency with which the students sought medical help for their headaches, and also on their level of self-medication. Studies so far showed that only a small percentage of medical students seek professional help, and a high percentage of them are self-medicated^{6,7,9}. The aim of our study was to determine whether there are differences in prevalence, trigger factors, health care utilization and self-medication between sixth year and first year medical students.

Methods

This study was observational, individual and uncontrolled. The target population was medical students enrolled in both the first and the sixth (final) year of University of Zagreb Medical School. The study included 314 students (158 first year students and 156 sixth year students) who filled in a questionnaire from October to November 2003.

The questionnaire was designed using a combination of literature sources of similar studies, the International Headache Society classification and advice from epidemiologic researchers.

The questionnaires were distributed at the beginning of classes. Participation in the study was completely voluntary. The students filled out the questionnaires themselves, with the principal investigator present at all times to answer questions. All the students in class on the days that the form was distributed and who agreed to answer it were included in the study.

The questionnaire was divided into three segments. The first contained epidemiological questions such as their gender, age, whether they smoked cigarettes and lived in an urban or rural area. The second segment contained questions about the participant’s headaches, with the first being whether they have had headaches and then the following questions concentrating on the nature of those headaches, asking detailed questions about the symptoms, severity and frequency of attacks. A neurologist who is a headache specialist (V.V) then examined each questionnaire and divided the students, based on the answers, into three groups: students without headaches, students with migraine and students with tension type headache. The final segment of the questionnaire consisted of questions that concentrated on how the students dealt with their headaches, in terms of visits to the doctor and use of medications.

The students were divided into two general groups: group I consisted of first year students and group II of sixth year students. Data analysis was performed using the computer program Statistica For Windows, Release

5.1 1997. StatSoft, Inc., Tulsa, USA (Pearson Chi-square, difference between two proportions) with statistical significance set at $P < 0.05$.

Results

During the academic year 2003/2004 317 students were enrolled in the first year at University of Zagreb Medical School and 206 were enrolled in the sixth. One hundred and fifty eight first year students (49.8%) and 156 sixth year students (75.7%) responded to the questionnaire. Our examinees were between 18 and 27 years of age. They were mostly non-smokers (70.3% of first year students and 62.8% of sixth year students) and came from urban areas (87.3% of first year students and 91% of sixth year students). In our sample, 8.9% of first year students and 10.9% of sixth year students were shown to suffer from migraines, while 60.1% of first year students and 57.7% of sixth year students suffered from TTH. The prevalence of migraine and TTH among first and sixth year medical students is shown in Table 1.

The study also showed that female students suffered from migraines more often than male students ($p = 0.017$). Out of all students experiencing migraine, 68.57% (24/35) had at least one family member who also suffers from migraine. Fourteen female students with migraine reported that their headaches are related to their menstrual cycle (46.7% of all female examinees with migraine) whereas only 28 females with TTH made the same relation (20.4% of all female examinees with TTH), $p = 0.011$. More female students in group II related their headaches (both migraine and TTH) with their menstrual cycle than group I (22.2% vs 16.5%). In both women and men headache prevalence was not correlated to smoking. In addition, more than 50% of both first and sixth year students have identified lack of sleep and stress as the main trigger factors for their headaches. The investigated trigger factors are shown in Table 2. Out of 220 students with headaches only 32 (14,5%) of them have ever consulted a doctor about their headaches. The percentage of professionally treated first and sixth year medical stu-

TABLE 1
THE PREVALENCE OF DIFFERENT TYPES OF HEADACHES AMONG MEDICAL STUDENTS

Headache type		Group I			Group II			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
TTH	n	30	65	95	18	72	90	48	137	185
	%	31.6	68.4	100.0	20.0	80.0	100.0	25.9	70.1	100.0
Migraine	n	0	14	14	1	16	17	1	30	31
	%	0	100.0	100.0	5.9	94.1	100.0	3.2	96.8	100.0
TTH & Migraine	n	0	0	0	1	3	4	1	3	4
	%	0.0	0.0	0.0	25.0	75.0	100.0	25.0	75.0	100.0
Total	n	30	79	109*	20	91	111*	50	170	220
	%	27.5	72.5	100.0	18.0	82.0	100.0	22.7	77.3	100.0

TTH = tension-type headache, $p = 0.186$, Group I = first year medical students, Group II = sixth year medical students

dents is shown in Table 3. Significantly more first year students (20.2%) sought professional help regarding their headaches than sixth year students (9%), $p < 0.05$. Only 9 (8.3%) students in group I and 5 (4.5%) students in group II consulted a neurologist while the others went to general practitioners, specialists in the field of internal medicine, ophthalmologists and even one neurosurgeon and one gynecologist regarding their headaches. There is a high level of self-medication amongst the subjects of this study, the percentage of which is shown in Table 3. Significantly more sixth year students (73.3%) are self-medicated than first year students (59.8%), $p < 0.05$. The most popular analgesic amongst both groups, for self-medicated students, is acetylsalicylic acid with paracetamol in second place and followed by diclofenac and ibuprofen. The most commonly used analgesic amongst both groups, for students who consulted a primary care physician, is acetylsalicylic acid followed by paracetamol and ibuprofen. For students of both groups who consulted a neurologist, the most commonly used analgesic is paracetamol, followed by acetylsalicylic acid. Out of five students who are taking triptans, only one has seen a neurologist and another received advice concerning her headaches from a gynecologist. The remaining three students have not consulted any doctor regarding their headaches, and it has been established, on basis of their questionnaire response, that two of them have

TTH rather than migraine. As a result, only 3 out of a total of 35 students with migraine (8.6%) are taking triptans even though only 11 of them (31.4%) stated that their everyday life is not impaired during the time of their headache, while the others (68.6%) claim that they cannot function well or cannot function at all for the duration of the headache. Table 4 shows the most common analgesics taken by the medical students in our study.

Discussion and Conclusions

Previous studies have already explored the subject of headaches in specific populations, including that of medical students (MS). These studies have shown that there is a higher prevalence of headache in women than in men^{8,11} that students rarely seek medical consultation concerning their symptoms^{6,7} and that there is a high level of self-medication amongst them^{7,9}. All of these studies concentrated on MS as a whole, or on students enrolled in a particular year of medical school. Our study was specifically designed to not only give epidemiological data on headaches in MS in Croatia but also to compare both the prevalence and various aspects of headaches in first year students with students enrolled in their final year at medical school.

In MS, a relatively high prevalence of headache has been found by various authors^{6,8-11}. For lifetime preva-

TABLE 2
THE PERCENTAGE OF HEADACHE TRIGGER FACTORS AMONG MEDICAL STUDENTS

	Lack of sleep n (%)	Stress n (%)	Sun exposure n (%)	Hunger n (%)	Alcohol n (%)	Weather changes n (%)
Group I	59.63	58.72	22.94	17.43	16.51	33.94
Group II	51.85	57.41	14.81	25.00	19.44	37.96

Group I = first year medical students, Group II = sixth year medical students

TABLE 3
THE PREVALENCE OF PROFESSIONALLY TREATED MEDICAL STUDENTS AND SELF-MEDICATION

	Seek professional help				Self-medication			
	TTH n (%)	Migraine n (%)	TTH & Migraine n (%)	Total number n (%)	TTH n (%)	Migraine n (%)	TTH & Migraine n (%)	Total number n (%)
Group I	15 (15.79)	7 (50)	0 (0)	22 (20.18)*	45 (51.72)	7 (8.05)	0 (0)	52 (59.77)*
Group II	4 (4.44)	4 (23.53)	2 (50)	10 (9.01)*	59 (58.41)	13 (12.87)	2 (1.98)	74 (73.27)*

* $p < 0.05$, Group I = first year medical students, Group II = sixth year medical students
TTH = tension-type headache

TABLE 4
THE MOST COMMON ANALGESICS TAKEN BY MEDICAL STUDENTS

	Number of students				
	ASK	Paracetamol	Diclofenac	Ibuprofen	Triptans
Group I	35	29	13	3	2
Group II	27	14	14	14	3

ASK = acetylsalicylic acid, Group I = first year medical students, Group II = sixth year medical students

lence these numbers ranged from 12.2% to 40.17% for migraine and from 12.2% to 44.16% for TTH^{6,8}. A population-based survey in Croatia found a lifetime prevalence of migraine to be 19% (22.9% for women and 14.8% for men)¹³. Our study has shown a lower prevalence of migraine (8.9% in first year students and 10.9% in sixth year students) with a somewhat higher prevalence of TTH than in most studies conducted on MS (60.1% in first year students and 57.7% in sixth year students).

However, if taken into consideration various population-based studies which have estimated the life-time prevalence of migraine between 3 and 28% and TTH between 12 and 78%¹ our findings are well within that range. Although it is known that stress and anxiety may activate the mechanisms that cause headaches¹⁴ and medical students are exposed to a high level of stress during their education, we have found no significant difference in the prevalence of either type of headache between first year students and sixth year students ($p=0.186$). It is however possible that the lower response rate amongst first year students than sixth year students (50% vs 76%) might have produced an artificially lower or higher prevalence of headaches in this subpopulation.

In both our groups we have found a higher prevalence of migraine in women as compared with men ($p=0.017$). In group I 12.6% of female students had migraine and none of our male students. In group II 13.8% of female students had migraines whereas only 2.5% of men suffered from the same condition. This is comparable with other studies^{6,8,9}.

Our study has shown a significant correlation between the onset of migraine in female students and their menstrual cycle. More of our female examinees with migraine said that their headaches are connected to their menstrual cycle, as compared to female examinees with TTH. This correlates to previous studies which have shown an increased frequency and intensity of migraines during menses^{15,16}.

A high level of self-medication has been observed by many authors who have chosen medical students as their target population^{7,9}. An equal number of studies have also shown that medical students rarely consult a physician concerning their headaches^{6,7-9}. Heinisch⁷ reported an extremely low percentage of students who sought medical help (only 6.8%) which is similar to the findings of Sanvito et al⁶ who reported that 7.1% of his examinees consulted a doctor regarding their headaches. That percentage was somewhat higher (23.3%) in the study conducted by Deleu et al⁹ who also reported that 72.9% of students took unprescribed medication, whereas Heinisch⁷ found an even higher level of self-medication amongst his students (89.9%). Our study has similar findings to report. Only 14.6% of all of our examinees with headaches sought medical help and 67% of all students with headaches are taking various analgesics without ever having consulted any kind of doctor in connection to their head-

aches. Furthermore, only 25.7% of all students with migraines visited a neurologist regarding their headache.

In addition to a summarized analysis of health care utilization, we have attempted to differentiate whether there would be a difference in this behavior between first year students and sixth year students. Our hypothesis was that students enrolled in their final year at medical school would be better informed about the nature and treatment of their headaches and would thus seek professional advice and use prescribed medication (especially triptans for migraine attacks) more often than their first year counterparts.

Our hypothesis, however, proved incorrect. More first year students visited a doctor concerning their headaches (15.8% of students with TTH and 50% of students with migraine) than sixth year students (only 4.4% of students with TTH and 23.5% of students with migraine) and the difference was significant. The situation was similar when it came to taking unprescribed medication. More than half of all first year students with headaches are using self-medication but the percentage for sixth year students is even higher because nearly 75% of them are using various unprescribed drugs to relieve their pain. Only 3 out of 35 students with migraine (two sixth year students and one first year student) are taking triptans, while two students are taking triptans for TTH instead of migraine. Even though medical students have access to professionally written papers in Croatian¹⁷ as well as newly published evidence based guidelines for treatment of primary headaches¹⁸ it would seem that the management of their headaches is somewhat inadequate. In addition, our findings seem to prove that first year students are more responsible than sixth year students when it comes to consulting a professional in regards to their headache. Connected to that is also the finding of less frequent use of self-medication amongst first year students. Sixth year students are more likely to skip visiting a doctor and to resort to self-diagnosis and self-medication. This could perhaps be attributed to the fact that they tend to rely on their own medical knowledge, even though 60% of all sixth year students with migraine have admitted that they cannot function well or cannot function at all during their headache attack, in spite of the medications they are taking.

Our study has shown that a relatively large percent of medical students suffers from TTH; a low percent is seeking medical advice for headaches, the majority is self-medicated, and an unacceptably low percentage is taking triptans for migraine. The results of this study will be used to improve the knowledge of headache treatment in medical school.

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MIGRENA I TENZIJSKA GLAVOBOLJA U STUDENATA MEDICINE

SAŽETAK

Svrha ovog rada bila je provesti epidemiološku studiju migrene i tenzijske glavobolje u studenata medicine na medicinskom fakultetu u Zagrebu, te utvrditi postoje li razlike u prevalenciji, poticajnim čimbenicima, korištenju zdravstvene zaštite i uzimanju nepropisanih lijekova između studenata šeste i prve godine medicine. Anketom je obuhvaćeno 314 studenata. Prevalencija migrene među studentima prve godine je 8,86% a među studentima šeste godine 10,90%, dok je prevalencija tenzijske glavobolje 60,13% na prvog godini te 57,69% na šestoj. Studentice češće pate od migrene u odnosu na svoje muške kolege ($p=0,017$). Studentice s migrenom su značajno češće dovodile svoju glavobolju u vezu s menstruacijom nego studentice s tenzijskom glavoboljom ($p=0,011$). Značajno više studenata prve godine posjetilo je doktora u svezi svojih glavobolja nego studenata šeste godine. Također, studenti šeste godine u značajno većem omjeru uzimaju lijekove za glavobolju bez prethodnog savjetovanja s liječnikom. Naša je studija pokazala da relativno velik postotak studenata medicine pati od tenzijskih glavobolja; tek malen postotak njih potraži savjet liječnika, većina uzima lijekove »na svoju ruku«, a neprihvatljivo malen broj studenata uzima triptane za migrensku glavobolju.