Tropical Journal of Pharmaceutical Research October 2014; 13 (10): 1713-1717
ISSN: 1596-5996 (print); 1596-9827 (electronic)

Available online at http://www.tjpr.org
http://dx.doi.org/10.4314/tjpr.v13i10.21

Original Research Article

Assessment of the Determinant of Choice of 'Over the Counter' Analgesics among Students of a University in Abbottabad, Pakistan

T Li[1], G Murtaza[2], S Azhar[2], B Nasir[3], H Raza[3], SH Shah[4], K Farzana[5], AK Khan[6], S Mir[6], Y Li[1], ZU Nisa[7], X Xu[8]*

[1]Beijing University of Chinese Medicine, Beijing, China, [2]Department of Pharmacy, COMSATS Institute of Information Technology, Abbottabad 22060, [3]Faculty of Pharmacy, Bahauddin Zakariya University, Multan, [4]Department of Statistics, University of Balochistan, Quetta, [5]Department of Pharmaceutical Sciences, Riphah International University, Lahore, [6]Department of Chemistry, [7]Department of Development Studies, COMSATS Institute of Information Technology, Abbottabad 22060, Pakistan, [8]Zhengzhou Traditional Chinese Medicine Hospital, Zhengzhou, China

For correspondence: **Email: xgxzhengzhou@126.com, gmdogar356@gmail.com; **Tel:** 00923142082826; **Fax:** 0092992383441*

Received: 6 April 2014 *Revised accepted: 4 September 2014*

Abstract

Purpose: *To ascertain the preference of COMSATS Institute of Information Technology, Abbottabad, Pakistan (CIIT) students for various 'over the counter' analgesics.*
Methods: *This cross-sectional survey study on self-medication of ibuprofen in students of CIIT was conducted in July - August 2013 using a self-administered questionnaire. Five hundred students with an average age of 20 - 25 years cooperated in this inquisition. The questionnaire contained 18 questions including socio-demographic queries, economical status, perception of the frequency of pain, their locality, and behavior and knowledge of participants on the use of ibuprofen regarding its therapeutic and adverse effects, and interactions.*
Results: *Out of the 500 participants in the study, 70.4 % were female. The response rate was 68.2 %. Ibuprofen (54 %) was the most used analgesic of all the NSAIDs among the respondents. Approximately, 11.2 % of the respondents reported that they suffer from pain almost every day. The younger and more educated respondents had better level of awareness about the ibuprofen's indications as compared to those who had low level of education. Of the respondents, 29.6 % were not aware of any side effect caused by ibuprofen. Approximately, 22.4 % of the respondents had no knowledge of the interactions of ibuprofen while 61.2 % of the participants consult a physician about painkillers.*
Conclusion: *Although many of the students undergo almost daily pain and favor ibuprofen over other NSAIDs analgesics among but they still lack information on its appropriate handling and safety. The overall result of the survey indicates very low level of information about the drug interaction.*

Keywords: *Pain, OTC, analgesic, ibuprofen, questionnaire based survey, awareness*

Tropical Journal of Pharmaceutical Research is indexed by Science Citation Index (SciSearch), Scopus, International Pharmaceutical Abstract, Chemical Abstracts, Embase, Index Copernicus, EBSCO, African Index Medicus, JournalSeek, Journal Citation Reports/Science Edition, Directory of Open Access Journals (DOAJ), African Journal Online, Bioline International, Open-J-Gate and Pharmacy Abstracts

INTRODUCTION

Self-medication is the use of drugs to treat self-diagnosed maladies and is one of the major causes which ultimately become the major factor for irrational use of medicines [1]. Globally, self-medication practices are more frequently observed for over the counter (OTC) medicines [2]. Studies have found that, respondents use OTC medicines without any prescription and

most of them take as a minimum of one OTC medicine in conjunction with prescribed medicines [3,4]. Young persons prefer oral painkillers were despite their knowledge about their side effects [5]. An analytical cohort study launched among students of Tennessee Medicaid recipients reported that most of the hospitalized patients suffering from ulcers were those who were regularly taking an OTC NSAIDs than those who were not taking also the chances of ulcers amplified with using higher doses [6]. Another study showed that use of OTC NSAID was the most common reason for peptic ulcer disease among young hospitalized patients who were admitted for the treatment of bleeding in upper GIT. According to this study, 69 % of the people use these NSAIDs to relief headache [7]. Some studies have reported that the major factor responsible for self-medication is the level of education since the educated community prefer the OTC medicines to avoid visiting to physician [8,9]. Several other studies have investigated self-medication among students in different parts of the world [10-13]. In some developing countries, poor implementations of drug policies make many non-OTC products available from a pharmacy without a prescription. However, sometimes certain situations also act as compelling factors (such as unavailability of physician) to request an OTC product or a non-prescription medicine [14,15].

In developed nations there are growing concerns about the use of OTC and non-OTC medicines, in the same way in developing countries, the tendency of misuse of OTC is reported among high school and university students [16]. At present there is no study available regarding awareness of university students about the ibuprofen. The aim of this survey was to determine level of CIIT student knowledge about NASAIDs with specific reference to ibuprofen. The aim of this survey was to assess the determinant of student choice of over-the-counter NSAIDs available in the market as well as to assess their knowledge related to the warnings, contraindication, incompatibility and side effects of OTC drugs.

EXPERIMENTAL

This cross-section study about self-medication of ibuprofen was conducted in July-August 2013 in COMSATS Institute of Information Technology (CIIT), Abbottabad, Pakistan. Questionnaire was adopted from the previous study [17]. The questionnaire contained 18 questions including socio-demographic queries (like gender, age, education), economical status, perception about the frequency of pain, their locality, and behavior, knowledge of participants about the use of ibuprofen regarding its therapeutic effects, adverse effects, and interactions.

Among these (18) questions of questionnaire, 7 questions were closed while 10 of these were closed having the choice of self-comments. There was only one open question regarding the age of participants. The participants were also asked in questionnaire if they know the adverse effects of ibuprofen. The questionnaire contained several options for each question and the participants were free to select more than one according to their choice. Total number of students enrolled in CIIT was_5,370. Questionnaires were administered to all registered students.

Data analysis

The data were computed and analyzed employing one way ANOVA using Statistical Package for Social Sciences (SPSS, version 15) and descriptive analysis was conducted considering $p < 0.05$ as the significant difference.

RESULTS

Table 1 shows the socio-demographic and economic features of respondents. Most of the participants were females (70.4 %). The age of the respondent ranged from 15 to 25 years. The other characteristics of participants are described in Table 1. A total of 3,663 questionnaires were returned giving a response rate of 68.2 %. Approximately 11.2 % of the participants answered that they experienced pain almost every day whereas 26.5 % never suffered from pain. As far as their pain was concerned, headache was significantly ($p < 0.05$) most common (54.6 %) followed by abdominal pain (20 %), joints pain (9.2 %), muscles pain (4 %), toothache (3.2 %), hip pain (2.6 %) and back pain (1.2 %) while 5.2 % of the participants reported other pain. For treating the pain, significantly ($p < 0.05$) high (43.4 %) number of the subjects answered that they ask the physician to prescribe medication while 32.8 % of the participants answered that they buy an OTC drug themselves. Concerning the use of pain-killing medication, significantly ($p < 0.05$) large number of the participants favored Paracetamol (68.4 %), followed by Brufen (15.8 %), Aspirin (7.8 %), Voltaren (4.6 %), Nalgesin (2 %), Ataralgin (0.8 %), and Valetol (0.6 %). Also, significantly ($p < 0.05$) large percentage (61.2 %)

of the participants used pain-killing medication only on the prescription of a physician.

Table 1: Socio-demographic and economic status of respondents

Variable	Frequency (%)
Age (years)	
15-19	33.8
20-25	66.2
Gender	
Female	70.4
Male	29.6
Education	
12 years	32.8
14 years	34.8
16 years	27.6
MSc/MPhil	4.0
PhD	0.3
Monthly income (Pakistani rupee) *	
0-5000	60.4
5000-9999	21.0
10,000-14,999	6.6
15,000-19,999	5.2
20,000	6.8

*99.65 Pakistani Rupees = One US$

In the study, ibuprofen was majorly used as pain reliever: 54 %. It was also used to treat a variety of other conditions: 28.4 % of the respondents use it for fever, 10.6 % for inflammations and surprisingly 6.6 % as a sleeping aid. The information about ibuprofen use is more correct in younger students as compare to elder ones. The knowledge of ibuprofen side effects is very low in respondents: about 83 % people never know any side effect of ibuprofen, and only 17 % told us about potential side effects of drug. According to this study, 28.8 % people show us that there is no side effect of this drug: 32.4 % know about very few side effects and only 9.2 % of people have knowledge of side effect cause by ibuprofen. Similarly few people know about drug interaction: only 18.4 % students say that ibuprofen may cause blood thinning and 55.2 % people do not know about any interaction of ibuprofen which elaborates that CIIT students lack in the information about over the counter drugs. Participants (39.4 %) accounted that they mainly follow physician's recommendation while purchasing OTC drugs. Approximately, 21 % of the respondents said that they get information and advice from pharmacist for OTC drugs and 5-6 % consult nurse. More than 60 % respondents also consider physician an important source of information for OTC medicine use. Leaflet is also a common source of information for 20.4 % respondents while the fraction of students who consulted with pharmacist was lesser (19 %). Gender difference was an important thing in choosing the OTC drugs: men have a preference for pharmacist, while women did not. Other socio-economic or demographics aspects did not show any considerable influence on the consequences. Majority of the respondents wanted information concerning contraindications and adverse reactions for ibuprofen from physicians. Nurses and leaflets were supposed to be subsequently two most common information sources. Only 20 - 25 % of the respondents stated pharmacists as their informational source.

Table 2 shows that CIIT students occasionally suffer from pain (only 11.2 % people suffer daily pain), when those people need any OTC medicine to treat the pain, they mostly prefer to consult with physicians. They also think that physician is the very best origin of information related to contraindications and side effects (61.2 %). They prefer to take paracetamol and ibuprofen orally to relieve pain than other pharmaceuticals. They have very little knowledge about drug interaction, adverse reactions, contraindications and indication of ibuprofen (83 %).

Table 2: Self-reported pain

Frequency of pain	%
Almost never	26.5
Less than once a month	20.4
About once a month	20.0
Several times a month but not weekly	7.8
At least one day in a week	14.4
Almost every day	11.2

The respondents of present study with an age of 20 - 24 years reported more frequent pain in their head as compared to other body parts, while one previous study exhibits that old people majorly suffer from the pain of joints, back and legs particularly in an age of 41 - 60 years. Our study focuses on the OTC drugs and cognition of ibuprofen in young CIIT students. According to our study, 54 % of the respondents knew about the ibuprofen indications, 83 % of the respondents did not know about side effects, and only 20.4 % of the students read leaflets for side effects and adverse reactions. Likewise, many side effects are reported due to the limited knowledge about NSAIDs. Our data exhibits that most of females do not know the adverse effect of ibuprofen and they have very little knowledge about over the counter drug or analgesic medicines. This study shows that 27.6 % of the respondents take painkilling drugs by the recommendation of pharmacist, so it is the responsibility of pharmacist to consider all the

factors during dispensing of over the counter drugs. According to our survey, paracetamol and ibuprofen are the medicines that are commonly used by CIIT students but many of them do not know the anti-inflammatory effect of ibuprofen. Similarly maximum students also do not know the side effects of ibuprofen.

DISCUSSION

Our study focuses on the OTC drugs and cognition of ibuprofen in young CIIT students. The respondents of present study with an age of 20-24 years reported more frequent pain in their head as compared to other body parts, while one previous study [1] exhibits that old people majorly suffer from the pain of joints, back and legs particularly in an age of 41-60 years. According to our study, 54 % of the respondents knew about the ibuprofen indications, 83 % of the respondents did not know about side effects, and only 20.4 % of the students read leaflets for side effects and adverse reactions. Likewise, many side effects are reported due to the limited knowledge about NSAIDs [4]. Our data exhibits that most of females do not know the adverse effect of ibuprofen and they have very little knowledge about over the counter drug or analgesic medicines. This study shows that 27.6 % of the respondents take painkilling drugs by the recommendation of pharmacist, so it is the responsibility of pharmacist to consider all the factors during dispensing of OTC drugs as suggested previously [11]. According to our survey, paracetamol and ibuprofen are the medicines that are commonly used by CIIT students but many of them do not know the anti-inflammatory effect of ibuprofen. Similarly, majority of the students do not know the side effects of ibuprofen.

Body pain is most prevalent health-related issue [17,18] in any human age and race of the world. Regarding pain prevalence, the outcomes of our study are in agreement with other studies. In two other studies, 86 % and 83 % of the respondents were found suffering from some type of pain [8,17]. Before this study, there was no data about the occurrence and treatment of pain in Pakistani population, there are some studies in literature about the prevalence of pain in other populations, such as 20 % incidence of chronic pain in the old population of Czech Republic [17]. Moreover, two other studies have reported very poor knowledge about ibuprofen among population groups of Australia and Jordan [18]. These results are in accordance with the outcomes of our study.

Though the respondents of this study majorly rely on physician's recommendation for controlling pain, they preferably use ibuprofen and paracetamol tablets. However, they themselves have poor knowledge about the pharmacology of ibuprofen. The possible side effects of NSAIDs include the risk of congestive heart failure, renal impairment, and ascites (1). It is evident from our study that 32.8 % of respondents who used ibuprofen took this NSAID from a pharmacy without prescription. Therefore, the dispensing pharmacist should recommend OTC pain-killers after considering all concerned factors. In a prior study, 23 % of hospitalized patients used analgesic medicines in the year before being admitted to hospitals [6]. These patients were found to be unfamiliar with side effects of those medicines since they have never read product information leaflets [11,14].

Limitations of the study

The limitation of this survey-based study is its small sample size. Moreover, we collected data about pain only without discussing it in detail like acute or chronic nature of pain, thus the severity of pain and accordingly selection of analgesic is not discussed here.

CONCLUSION

This study elaborates that the respondents have very little knowledge about over the counter drugs and most of them do not know about any side effect of ibuprofen, such persons, therefore should need pharmaceutical care and it is the responsibility of pharmacist to tell her or him about possible side effects contraindication drug-drug interaction and dosage of medicine accordingly.

ACKNOWLEDGEMENT

The authors thank Petra Matoulkova, Charles University, Prague, Department of Social and Clinical Pharmacy, Hradec Kralove, Czech Republic for providing help in the construction of the questionnaire used in this study. This research was supported by subject research of Beijing University of Chinese Medicine, hold by Tiangang Li.

REFERENCES

1. *Donkor ES. Self-Medication Practices with Antibiotics among Tertiary Level Students in Accra, Ghana: A Cross-Sectional Study. Int J Environ Res Public Health 2012; 9: 3519-3529.*

2. Gazibara T. Pharmacotherapy and over-the-counter drug use among elderly in Belgrade, Serbia. Geriatric Nursing 2013; 34: 486-490.
3. Rosvold EO. Self-reported use of medicines among university students in Oslo. Norway Norsk Epidemiol 2008; 18(2): 195-199.
4. Shankar P, Partha P, Shenoy N. Self-medication and non-doctor prescription practices in Pokhara valley, Western Nepal: a questionnaire-based study. BMC Family Prac 2002; 3(17): 562-570.
5. Hsiao FY. Survey of medication knowledge and behaviors among college students in Taiwan. Am J Pharm Educ 2006; 70: 30-34.
6. Francisco E.S. Selective Outpatient Management of Upper Gastrointestinal Bleeding in the Elderly: Results from the SOME Bleeding Study. Am J Gastroenterol 1999; 1(4): 1242-1247.
7. McElnay JC, Micheal CR. Non-prescription drug use by elderly patients. Int J Pharm Prac 1996; 4(6): 871-876.
8. Awad A. Self-medication with antibiotics and antimalarials in the community of Khartoum State, Sudan. J Pharm Sci 2005; 8: 326-331.
9. Sapkota AR. Self-medication with antibiotics for the treatment of menstrual symptoms in southwest Nigeria: A cross sectional stud. BMC Public Health 2010; 10: 61-66.
10. Sarahroodi S. Antibiotics self-medication among southern Iranian university students. Int J Pharmacol. 2010; 6: 48-52.
11. Syed NZ. Self-medication amongst university students of Karachi: Prevalence, knowledge and attitudes. J Pak Med Assoc 58: 214-217. .
12. Fadare JO, Tamuno IJ. Antibiotic self-medication among university medical undergraduates in Northern Nigeria. Public Health Epidemiol 2011; 45: 217-220.
13. Olayemi OJ, Olayinka BO, Musa A.Z. Evaluation of antibiotic self-medication pattern amongst undergraduate students of Ahmadu Bello University (Main Campus). Res J Appl Sci 2010; 7: 35-38.
14. Walubo A. The current status and trend of clinical pharmacology in developing countries. BMC Pharmacol. Toxicol. 2013; 14: 49-56.
15. Azhar S. The role of pharmacists in developing countries: the current scenario in Pakistan. Human Res Health 2009; 7(1): 54-61.
16. Nabeel N. Self-medication amongst university students of Karachi: prevalence, knowledge and attitudes. J Pak Med Assoc 2008; 58(4): 214-217.
17. Matoulkov P, Dosedăl M, Rÿékova B, Kubăna A. Information and awareness concerning ibuprofen as an ingredient in over the counter analgesics: a questionnaire-based survey of residents of retirement communities. Acta Pol Pharm 2013; 70(2): 333-338.
18. Chen J, Murtaza G, Nadeem N, Shao X, Siddiqi BG, Shafique Z, Ahmad S, Amjad ST, Haroon S, Tanoli M, Zhou M. A questionnaire based survey study for the evaluation of knowledge of Pakistani university teachers regarding their awareness about ibuprofen as an over the counter analgesic. Acta Pol Pharm 2014; 71(2): 337-342.