

Questionnaire based survey on practicing OTC antimicrobials among 1st and 2nd year medical student of RIMS in Ranchi, India

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ABSTRACT

Background: OTC (over the counter) drugs are defined as “Drugs available freely on the counter without prescription of a registered medical practitioner The WHO has also pointed out that responsible self-medication can help prevent and treat ailments that do not require medical consultation and provides a cheaper alternative for treating common illnesses. Studies have also found that educated people have a greater tendency to practice self-medication than illiterates. several studies have been carried out in different populations to evaluate the practice of self-medication there is a paucity of studies on self medication of antimicrobials among medical students.

Methods: This was a questionnaire based study of one months duration. A prevalidated questionnaire was distributed to 258 students, to assess practice of otc anti-microbials in 1st (2nd semester) and 2nd (5th semester) year medical undergraduate students of Rajendra Institute of Medical science, Ranchi.

Results: The results of this study showed that out of 258 students 208 (80.6%) students used antimicrobials as OTC. Out of 258 from both the year, 225 students had knowledge about OTC anti-microbials drug. Most common reason for practicing OTC anti-microbials was the minor ailment 86 (41.3%). Again most common indication was diarrhea 69 (33.3%). In this study we observed that the most common source of information regarding OTC anti-microbials were senior students 63 (30.4%) and most commonly used anti-microbials as self-medication were ciprofloxacin 92 (44.3%).

Conclusions: This study highlights the very high prevalence of OTC anti-microbials use among medical students, inappropriate use due to the lack of knowledge. At the higher i.e. policy-making level, there is an urgent need to legislate and enforce laws which can restrict access to the supply of medicines without prescription by pharmacies and strict rules regarding pharmaceutical advertising. Again, there is a need for an impactful public enlightenment campaign to educate the people about the disadvantages and life-threatening complication of Otc anti-microbials. And at last emphasis should be given on rationalized use of anti-microbials.

Keywords: Anti-microbials, Medical students, Over the counter

INTRODUCTION

Selman Woksman, coined the word antibiotic in 1941 to describe any small molecule made by a microbe that antagonizes the growth of other microbes.¹ The significance of these medicine is more evident in developing countries as infective disease is more

predominate here. It is the most commonly used as well as misused drugs. Here misuse word is used for irrational use of antimicrobials, under it OTC (Over the counter) also comes. OTC drugs are defined as “Drugs available freely on the counter without prescription of a registered medical practitioner.” Literal meaning of OTC drug is self medication of a self diagnosed disease. OTC drugs use

become the global issue now a days, because of its disadvantage like disease recognized may not be correct, there is delay in meeting proper treatment to a serious illness which may appear mild initially, the side-effects of the medication are not known, inappropriate usage of antibiotics leading to drug resistance, taking the same drug with different trade names, can lead to drug interactions etc. In 2011, WHO set the theme of world health day “as Combat Antimicrobial resistance, no action Today, no cure tomorrow”.² In 2012, WHO has again emphasized the rational prescribing in the undergraduate medical curriculum.³ However, as we know everything in this world has some advantage along with disadvantage. The WHO has also pointed out that responsible self-medication can help prevent and treat ailments that do not require medical consultation and provides a cheaper alternative for treating common illnesses.⁴ Studies have also found that educated people have a greater tendency to practice self-medication than illiterates.⁵ An interesting finding is that though educated groups well aware with that antibiotics come under schedule ‘H’, i.e. prescription medicines instead, they used it for self-medication (86.6% and 53.3%).⁶

Though several studies have been carried out in different populations to evaluate the practice of self-medication there is a paucity of studies on self medication of antimicrobials among medical students.⁶ This is particularly relevant to the distribution of medicines in developing countries including India.⁷ Undergraduate medical students are future practitioner and the practice of self-medication among doctors develops during their training period as obvious from some studies of self-medication among medical students. These studies have reported high prevalence ranging from 57.7% to 76%.^{8,9}

There are a number of reason for increased practice of self-medication among medical student. Since they study about the drugs in their textbook, drugs are more easily available to them from pharmacy because of their profession than that of general population. Self-medication is also reported to be quite popular among Indian medical students.¹⁰ Practice of self-medication among 1st year medical student is almost equal to general population because till then they are not exposed to the knowledge of pharmacology. But second year onwards, they may differ from the general population because they are exposed to knowledge about diseases and drugs. By viewing all these circumstances, we have planned a study to know about the level of knowledge and practice of OTC antimicrobial drugs among undergraduate medical student. As they are our future doctor, so it would be better to aware them about the appropriate and rational use of drugs. So that incidence of antibiotic resistance gets decreased and ultimately stopped.

METHODS

The study was carried out after approval from the Institutional Ethics Committee. This was a cross-sectional

study which was carried out during august 2016 to September 2016 in which a self developed, prevalidated questionnaire items was used. Study population consisted of medical students 1st and 2nd year MBBS Rajendra Institute of Medical Science, Ranchi, India and analysed for those students who had self medicated within one year of recall period.

Out of 291 students, 33 students were found absent. A total of 258 student were taken out of which 130 of 1st year (2nd semester) and 128 of 2nd year (5th semester) during one of their biochemistry and pharmacology lecture classes respectively.

Written consent for participation in the study was obtained. Identity of the students was not revealed. The investigators were present in case the respondents required assistance. Each participant was allotted 10 minutes to answer the given questionnaire. They were asked to complete the same anonymously. Data were collected in a pre-structured format. Collected data were entered in excel sheet and analyzed with proper statistical method. The questionnaire was divided into 7 sections.

	None	1-2 times	3-5 times
a. In the last week.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. In the last 4 week.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. In the last year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 1: Frequency of using OTC AMC in last 1 year.

Name of participant- Year:

Age/Sex

1. Define OTC drugs.....
2. From which source you came to know about OTC anti-microbial drug.
 - Media
 - Books/ Journal
 - Internet
 - Seniors
 - Peers
3. Which OTC anti-microbial you used most commonly.....
4. Which ailment /disease prompted you to take OTC anti- microbial.....
5. Reason for using OTC anti-microbial.
 - Going to doctor cumbersome.
 - Busy life schedule.

- Minor ailment, why seek Dr. advice.
 - Confidence in self –medication.
 - Available freely on the counter.
6. How many times, if ever have you used OTC anti-microbial.

RESULTS

The average age of the students was 19.7 years for both 1st and 2nd year MBBS student. Of 258 subjects, 97 (37.5%) were females and 161(62.5%) were males. There were more males in both the year.

Table 1: Demographic details.

Professional MBBS year	Respondent number	medicated within 1 year	Male	Female
1 st	130	100	83	47
2 nd	128	108	78	50
Total	258	208	161	97

Definition of OTC

Out of 258 from both the year, 225 students had knowledge about OTC AMC drug. Although the percentage was more of 2nd year students. out of 258 only 208 used antibiotics in last one year.

Table 2: Reasons of using OTC AMC drugs.

Reasons of using OTC drugs	Response no (%)
Minor ailment, why seek Dr. advice	86(41.3)
Going to doctor cumbersome	69(33.2)
Busy life schedule	38(18.3)
Confidence in self medication	15(7.2)

In this study minor ailment was the most common reason of using OTC AMC i.e. 41.3% and confidence in self medication was the least (7.2%).

Table 3: Source of information about OTC AMC.

Source of information	Response no. (%)
Book/Journal	60(28.8)
Internet	55(26.4)
Peers	30(14.4)
Seniors	63(30.4)

In this study seniors (30.4%) were the most common source of information about OTC AMC, while peers (14.4%) were least (Table 4).

In this study most, common indication of OTC AMC were diarrhoea (33.3%) whereas others (1.4%) were the least (Table 5).

Table 4: Most common indication.

Indication	Response no. (%)
Diarrhoea	69(33.3)
Fever	64(30.8)
URTI	56(26.9)
Wound infection	9(4.3)
Abdominal pain	7(3.3)
others	3(1.4)

Table 5: Most commonly used anti-microbials.

Most commonly used OTC AMC	Respondent no. (%)
Ciprofloxacin	92(44.3)
Metronidazole	39(18.7)
Azithromycin	42(20.2)
Amoxicillin	26(12.5)
Others	9(4.3)

Frequency of using OTC AMC in last one year

Out of 258, attitude toward the use of OTC AMC was very lax as only 33% (87) student used 3-5 times in last one year, it is more seen in 2nd year students.

DISCUSSION

Worldwide there are a lot of studies were done on OTC drug/self - medication among medical student but there is some paucity of study of use of OTC AMC drug in undergraduate medical student. Some studies have reported prevalence of self-medication varying from 25-56%.^{11,12} They develop these tendency during their initial formative undergraduate period, especially from 2nd MBBS, as they are exposed to the knowledge of pharmacology and microbiology, since then this tendency tend to gradually rise. Some other studies have reported knowledge and attitude of self - medication in medical student with variable result.¹³

Again, result of this study solely dependent on the concerned student. Although student was encouraged to self-fill the questions, but mutual influence between pupil and recall bias can't be ruled out totally.

This study suggest a high prevalence (80.6%) of self-medication with respect to AMC in undergraduate student which is lower than that, (84%) who studied prevalence of OTC drug use in 685 medical including intern.¹⁴ Again this prevalence is also lower than study, (92%) in 200 students and (87%) but it is higher than that study (30%) and (38.8%).^{10,15-17} The most important reason for higher prevalence of OTC AMC use in our study is availability of almost all category of drug including AMC freely over the counter. It could be because of the fact that medical students can obtain the drugs easily by virtue of their profession and image of white coat professionals. Other factors favouring self medication are acquired knowledge

of medicines, convenience and saving time due to no need of consulting a doctor. Again it is also point of interest that higher level of education and professional status are one of the predictive factor for self-medication.¹⁸ Which shows similarity with a study.¹⁹ In this study male students (53.4%) use more OTC AMC than female (46.6%), this finding shows similarity with previous study, among medical student and Arabian Gulf.¹⁴

It is also observed in this study that most of self medication is for minor common ailments like diarrhea (33.3%), fever (30.8%), common cold and cough (26.9%), abdominal pain (3.3%) and others (5.7%) which is in accordance with previous studies in University students but there seemed to be gaps in the understanding of correct uses of these therapeutic agents, for instance, treatment of fever, diarrhea, common cold, abdominal pain etc.^{8,19} In this respect, responses of students constitute gross misuse of antimicrobials. Self medication with antimicrobials in cases of diarrhea seen high (33.3%) and this seems to be a usual trend with this demographic population as reported in similar studies.²⁰⁻²² In fact, the WHO reported that most antimicrobials are not only ineffective against some organisms that cause diarrhea but may aggravate the situation on the long run. The use of these therapeutic agents in the treatment of diarrhea has also been recognised as contributory to the acquisition of drug resistance by disease causing organisms.²³⁻²⁵ Previous studies have shown that about 60% and more of their participants believed that antibiotics should be prescribed during cold of viral etiology.²⁶ Such wrong and blind beliefs may lead to inappropriate antibiotic consumption, which in turn result in the bacterial resistance because of irrational approach.²⁷ The common cold is a viral illness for which the etiology can be shown in most cases. i.e. Rhinovirus. Bacterial co-infections are very rare. Antibiotic treatment is not necessary in otherwise healthy young adults with common colds.²⁸

Mostly they used ciprofloxacin (44.3%), azithromycin (20.2%), metronidazole (18.7%), amoxicillin (12.5%) and others 4.3%, similar study shows the most common antibiotic used was amoxicillin which was quite different from our finding.²⁹ In our study it was found that seniors constitutes the most important source of information for self-medication (30.4%) this was especially higher among 1st year MBBS students, followed by book/ journal (28.8%), internet (26.4%) and peers (14.4%) which shows similarity with study, this finding shows caring nature of seniors toward their juniors, so that they can avoid inappropriate use of anti-microbials.¹⁵ However the frequency of use of textbooks and related materials major source of information increased from first year (5%) to 2nd year students (51%) suggesting that medical students rely more and more on the objective sources of information with progressive gain in knowledge about medicines. In the course to address public misconceptions about the use of antimicrobials a number of campaigns had been developed and implemented in most countries.³⁰⁻³² For example, the 'Know Your Medicine' campaign launched

in Malaysia, was centred on antibiotics. In our study it is also seen that in spite of high prevalence, the frequency of self medication with respect to antimicrobials is not high with about 33% reporting 3 to 5 times in one year recall period.

Strength of our study is high response rate (88.6%) i.e. out of 291, a total of 258 students participating in this study.

CONCLUSION

The present pilot study may be utilized to plan suitable educational interventions/small group exercises that aim at improving the rational and appropriate antimicrobial prescribing, to the patients in order to minimize the development of drug resistance.

Inference from this study can also be drawn that there is need of a review of educational programs especially the section of clinical pharmacology to include modules on self-medication and rational use of medicines.

At the higher i.e. policy-making level, there is an urgent need to legislate and enforce laws which can restrict access to the supply of medicines without prescription by pharmacies and strict rules regarding pharmaceutical advertising.

Again, there is a need for a impactful public enlightenment campaign to educate the people about the disadvantages and life-threatening complication of OTC AMC.

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