

ORIGINAL ARTICLE

Knowledge, Attitude and Practice About Use of Antibiotic by Medical Students : A Cross Sectional Pilot Study on Para-clinical Students in HFRCMC

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Abstract :

The prevalence of self-medication with antibiotics is quite high in developing countries as opposed to developed countries due to easy availability and poor regulatory controls for selling these drugs. Antibiotics are often taken erroneously for certain ailments, without having the appropriate knowledge of their use. This carries potential risks for the individual as well as the community, in form of several side effects such as antibiotic resistance. Therefore the prevalence of self-medicated antibiotics in developing countries needs to be studied. To assess knowledge, attitude and practice of antibiotic usage among undergraduate medical students, a descriptive cross-sectional study was carried out in Holy Family Red Crescent Medical College, Dhaka. Total 150 students of third and fourth year MBBS were included in the study. Data was collected using self-administered pre-tested questionnaires ensuring before the teaching sessions on antibiotics in MBBS curriculum to evaluate the unbiased response of the participants. Almost 90% of the respondents wrongly believed to treat common cold most of the time by antibiotic. About 77% students were uncertain about the treatment outcome due to injudicious use of antibiotics. Almost 70% respondents strongly disagreed about development of antibiotic resistance due to skipping 1-2 doses. About 62% students believed that more than one antibiotic combination might reduce the adverse effects of single antibiotic. Only 46% participants think they had individual role in antibiotic resistance. The prevalence of self-medication with antibiotics among the medical students was high despite the awareness of adverse effects. The study showed remarkable lack of awareness of medical students at para-clinical phase regarding individual role and use of antibiotic in development of resistance. The academic input of knowledge and course content of Pharmacology may contribute in the improvement of attitude and practice, which should be evaluated in follow up studies.

Introduction :

Antibiotics are responsible for most dramatic improvement in medical therapy in history. After

use of these medications the rate of mortality and morbidity is becoming decreased when prescribed based on evidence of microbial infection. Self medication has been defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of treatment¹. Microbial infection are most common types of infection which usually requires the use of antibiotics for treatment^{1,2}. In recent years the use of non prescribed antibiotics had become a major global public health problem^{3,4}.

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More than 50% of antibiotics worldwide are purchased privately without a prescription, from pharmacies or street vendors in the informal sector. Moreover the irrational use of antibiotics make emergence and spread of resistances. The rapid increase in drug resistant streptococcus pneumonia infections is a particular concern in pediatrics because pneumococci are the leading cause of bacterial meningitis, pneumonia, bacteraemia and otitis media in children⁵.

Studies from America, Asian and European countries indicate that between 22% and 70% of parents have misconception about the appropriate applications and efficacy of antibiotics and often use them without a prescription^{6,7}. Self medication has also been noted in the United States of America and Europe particularly for common colds and upper respiratory tract symptoms which are self limiting and mostly caused by viruses⁸. Acute respiratory tract infection was the condition associated most frequently with non prescription antibiotic use, a result which substantiates findings from other Asian countries⁹.

Another important factor linked to the use of antibiotics is store leftover antibiotics at home which may be available because of over prescription or patient non compliance with a course of treatment¹⁰.

A cross sectional study was conducted in Rajshahi city Bangladesh to evaluate the prevalence of self medication with antibiotics for the treatment of various diseases and author found that the high percentage of antibiotics was Metronidazole (50.43%), followed Azithromycin (20.75%), Ciprofloxacin (11.53%) due to dysentery, diarrhea, food poisoning, common cold, fever¹¹.

However, in another study found that age of index child was linked to a greater likelihood of parental non prescription use. When younger

child become ill, parents may be more careful to visit a doctor, whereas when the children are older, parents may have more knowledge about common illness and be more inclined to administer medical treatment themselves¹².

A descriptive study in South India has found that self medication antibiotics more common in medical students due to easy availability from different sources like senior brothers, from textbook but most of the students are unaware to know about limitation, contraindication and drug resistances. So that they give information to their relatives, friends and family over phone and this are another influencing factor to taking self medication drugs¹³.

Another cross sectional study conducted in Egypt among the medical students where commonly found that lack of individual practice of taking medicine as per prescription, following any prescription 14.4% properly maintain, 63.3% always discontinued the drug on feeling improvement, and 13.6% always repeated the prescription without seeking medical advice. Also 60% said that they increased the dose without medical advice¹⁴.

Irrational use of antibiotics can cause of significant adverse effects such as resistant against microorganisms, treatment failures, drug toxicity, increase treatment cost, prolonged hospitalization periods and increase in morbidity¹⁵. Antibiotics represent one of the most prescribed drugs worldwide and their resistance is a major public health threat, so we need more research on antibiotics usage patterns to help develop appropriate intervention.

Materials and method :

This was a cross-sectional, questionnaire based pilot study which was done in the Department of Pharmacology & Therapeutics of Holy Family Red Crescent Medical College, selected as a

tertiary teaching hospital in Dhaka city. The study was conducted from May - June, 2016 ensuring before the teaching sessions on antibiotics in MBBS curriculum to evaluate the unbiased response of the participants. The questionnaire was validated by subject experts for its content and relevance. The questionnaire was distributed to 150 students in their third year and fourth year of MBBS course during the lecture classes of para-clinical phase (before completing syllabus on antibiotics in Pharmacology) classes. Each participant was allotted 20 minutes to answer the questionnaire in the form of options which he/she feels is appropriate to answer. They were asked to complete the questionnaire anonymously. Informed consent was obtained from the participants, to utilize their data for research purposes.

Results :

Total 150 undergraduate medical students of para-clinical phase participated in the study and 94% of them (142) were aware of antibiotic resistance by indiscriminate use.

Almost 90% of the respondents (136) wrongly believed to treat common cold most of the time .by antibiotic. About 77% students (116) were uncertain about the treatment outcome due to injudicious use of antibiotics

Reply with tick () mark in single answer			
	True	False	Uncertain
1. Indiscriminate antimicrobial use leads to the emergence of the growing problem of resistance	142	-	08
2. Antimicrobial resistance means that if they are taken too often, antimicrobials are less likely to work in the future	136	09	05
3. Common cold and influenza can be successfully treated with antibiotic for most of the time	81	51	18
4. Antibiotic resistance is an important and serious public health issue	126	09	15
5. Ineffective treatment can occur due to indiscriminate and injudicious antimicrobial use	34	-	116

Almost 70% respondents (105) strongly disagreed about development of antibiotic resistance due to skipping 1-2 doses. About 62% students (93) believed that more than one antibiotic combination might reduce the adverse effects of single antibiotic.

Reply with tick () mark in single answer			
	Strongly agree	Strongly disagree	Uncertain
1. Antibiotics are safe drugs, hence they can be commonly used medication	33	83	34
2. Skipping 1 or 2 doses does not contribute to the development of antibiotic resistance	18	105	27
3. Adverse effects of antimicrobials are reduced by using more than one antimicrobials at a time	93	35	22
4. Injudicious use of antimicrobials shorten the duration of illness	18	113	19
5. In cough and sore throat, antibiotics are the first choice of drug for early treatment and prevent emergence of resistance	61	62	27

Only 47% of the respondents (71) never stopped taking the full course of antibiotic even after feeling better after 2-3 doses. Most of the respondents never discard the leftover or remaining medication (68%) and kept the remaining antibiotics for same sickness for next time (16%).

Almost 74% respondents (112) completed full course of antibiotic without assessing improvement.

If doctor prescribes a course of antibiotic for you, after taking 2-3 doses you start feeling better ...			
	Always	Sometimes	Never
a Do you stop taking the further doses of the course?	29	42	71
b Do you save the remaining antibiotics for the next time you get same sickness?	25	41	84
c Do you discard the remaining, leftover medication?	19	29	102
d Do you give the remaining medication to your friend / housemates if they get same illness?	26	47	77
e Do you complete the full course of treatment without assessing improvement?	112	29	09

About 72% respondents always consulted with doctor and 70% always checked the expiry date before starting antibiotics. Only 46% participants think they had individual role in antibiotic resistance.

Reply with tick () mark in single answer				
		Always	Sometimes	Never
1.	Do you consult a doctor before starting an antibiotic?	108	34	08
2.	Do you check the expiry date of the antibiotic before taking it?	16	28	17
3.	Do you prefer to read further about the other uses and risks of antibiotic from the notes within the packet?	93	43	14
4.	Do you think you have any individual role that may cause antibiotic resistance?	69	45	36
5.	Do you think you have any role that can prevent the emergence of antimicrobial resistance?	95	39	16

Discussion :

The attitude of undergraduate students towards self-medication was high. The major reason seems to be self-confidence, because of their skills and medical knowledge gained from their medical study. Although these information may not be enough at this level of study to judge and give decisions regarding medication. Important disadvantages of self-medication would be the risk of making a wrong diagnosis, inappropriate drug use and its adverse effects.

In present study, almost 90% of the respondents wrongly believed to treat common cold most of the time by antibiotic. Even they responded to take antibiotics against Influenza. About 77% students were uncertain about the treatment outcome due to injudicious use of antibiotics. These results showed the status of knowledge and attitude of the undergraduate medical students about use of antibiotics before academic teaching classes of Pharmacology in MBBS course.

As almost 74% respondents completed full course of antibiotic without assessing improvement and 72% respondents always consulted with doctor, and 70% always checked the expiry date before starting antibiotics; these findings are encouraging to understand the awareness of the medical students. The surrounding ethical practices might had contributed in the awareness and motivation.

Ideally, it is the government's responsibility to establish that any population uses self-medication responsibly. Drugs that are available without the need for prescription by physician or trained medical personnel should only be the ones which are safe to use. The government should also ensure that users are educated properly about not only the use of the drug but also the correct dosages, duration of use and potential side effects associated with them as antibiotics are tailored not only according to the disease but also according to the individual patient profile. our findings have important significance in concern of current prevalence of self medicated antibiotics in Bangladesh that could help the drug regulatory authority of Bangladesh to implement restrictions for the distribution, selling and uses of antibiotic.

Conclusion :

This study explores the prevalence and practices of self-medication with antibiotics and knowledge about the possible side effects of such practices among medical students of one medical college of Dhaka city. The results obtained can help in providing a framework for designing programs that will create awareness about the risks of self-prescribed antibiotics. The prevalence of self-medication with antibiotics among the medical student was high, The majority of the study population was aware of potential adverse effects of antibiotics and yet the practice of using self-prescribed antibiotics was seen. The study showed remarkable lack of awareness of medical students at para-clinical phase regarding individual role and use of antibiotic in development of resistance. The academic input of knowledge and course content of Pharmacology may contribute in the improvement of attitude and practice, which should be evaluated in follow up studies.

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