

A CROSS SECTIONAL STUDY OF ANTIBIOTIC USAGE AMONG MEDICAL STUDENTS

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Abstract

Background: Antibiotics/antimicrobials constitute a major tool against infectious diseases in India especially due to host and environment factors like malnutrition, multiple vitamin deficiencies, overcrowding, illiteracy, poverty, poor sanitary facilities, low standards of personal hygiene and inadequate vector control.

Methods: This was a cross-sectional questionnaire based study. It was done to assess the knowledge, attitude and practice regarding antibiotic use and resistance. A pre-validated questionnaire prepared after a review of similar studies and scrutinized by subject experts has been used.

Results: 80.00% of respondents agreed that antibiotic resistance is an important and serious public health issue in the hospital. 80.00% were aware that bacteria are not responsible for causing common cold and influenza.

Conclusion: In our study, most of the students had good knowledge and were aware of the problem of antimicrobial resistance, but still used antibiotics for self-medication.

Keywords: Knowledge, Medical student, Antibiotic.

Introduction

Globally, rational approach to use of antibiotics/antimicrobials has been on agenda. Appropriate and judicious use antimicrobial medicines is important for three reasons (a) Better therapeutic results (b) Saving costs (c) Minimize emergence of resistance to antibiotics.¹

Antibiotics/antimicrobials constitute a major tool against infectious diseases in India especially due to host and environment factors like malnutrition, multiple vitamin deficiencies, overcrowding, illiteracy, poverty, poor sanitary facilities, low standards of personal hygiene and inadequate vector control. Improper usage of antibiotics also entails substantial wastage of resources and therapeutic failure is yet another problem. Simple antibiotics often work better than new generation antibiotics, but the latter are abused by most practitioners due to lack of regulation, poor knowledge, desire to give magical cures in private sector and neglect of possibility of developing resistance. The low-cost antibiotics are in disuse because of small margins earned by pharmacists. Adding to this chaos is the preferences by quacks and pharmacists for high priced antibiotics. In India, legally only allopathic doctors are allowed to prescribe antibiotics. But non-allopathic doctors are prescribing them as well. Antibiotics are also dispensed as Over – The – Counter (OTC) in many pharmacies. Antibiotic usages also tend to change as new drugs and brandshits the market. Antibiotics are also used in dairy and poultry. This widespread use has led to emergence of resistance of some bacteria to certain

drugs from region to region. Years ago, a multidrug resistant ‘Superbug’ had caused a furor².

In India national media quoted ICMR stating that 50% antibiotics usage in India is inappropriate, and this should be a call for action from all stakeholders.³ There are now guidelines about use of antibiotic/antimicrobial drugs at Global and national level. The Government of India has published National Treatment Guidelines for Antibiotic Use in Infectious Diseases.

In the developed health systems antibiotics are used cautiously and responsibly. WHO EU has published a list of critically important antimicrobials for human use.⁴ In fact, they are used mostly after culture sensitivity tests. This is possible because of laboratory facilities in all settings, proper documentation and much better access to health facilities. Indian OutPatient-Departments (OPDs) in teaching hospitals and health Centers are overcrowded and have no scope for culture sensitivity tests before prescribing antibiotics in the general settings. It is, therefore, all the more necessary to exercise diligence and follow protocols for diagnosis and appropriate selection of antibiotics thereafter.

Materials and Methods

This was a cross-sectional questionnaire based study. It was done to assess the knowledge, attitude and practice regarding antibiotic use and resistance. A pre-validated questionnaire prepared after a review of similar studies^{5,6} and scrutinized by subject experts has been used. It consists of 19 questions divided into three parts: first-

Knowledge about antibiotic use and AMR as true/false response; second- attitude on antibiotic abuse and its influence recorded on five point Likert scale ranging from strongly agree to strongly disagree; third- self reported practices with regard to their antibiotic usage using Likert scale ranging from always to never. The results obtained were expressed in proportions.

Results

Table 1: Knowledge regarding antibiotic use

K1	Indiscriminate and injudicious use of antibiotics can lead to	True	False
a	Ineffective treatment	84.00%	16.00%
b	Increased adverse effects	82.00%	18.00%
c	Emergence of bacterial resistance	80.00%	12.00%
d	Exacerbation of illness	70.00%	30.00%
e	Additional burden of medical cost to the patients	90.00%	10.00%
K2	Bacteria cause common cold and influenza	20.00%	80.00%
K3	If taken too often, antibiotics are less likely to work in the future	84.00%	16.00%
K4	Antibiotic resistance is an important and serious global health issue	92.00%	8.00%

100 students were assessed regarding their knowledge of antibiotic usage and resistance, out of which 30% (n= 30) were males and 70.00% (n= 70) were females.

Table 2: Practice regarding antibiotic

P1	The 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 treatment?	8.00%	56.00%	36.00%
b	Do you save the remaining antibiotics for the next time you get sick?	22.00%	38.00%	42.00%
c	Do you discard the leftover medications?	18.00%	48.00%	42.00%
d	Do you give the leftover antibiotics to your friends if they get sick?	10.00%	48.00%	42.00%
e	Do you complete the full course of antibiotics?	56.00%	38.00%	6.00%
P2	Do you consult a doctor before starting an antibiotic?	72.00%	26.00%	3.00%
P3	Do you check the expiry date of the antibiotic before using it?	80.00%	18.00%	2.00%
P4	Do you prefer to take an antibiotic when you have cough and sore throat?	16.00%	54.00%	30.00%

Discussion

Self medication among medical students is more common because they have better knowledge about diseases and greater access to medicine.⁴ Antibiotics are the most commonly used medicines in self-medication. This leads to adverse drug reactions, drug interactions, masking the

correct diagnosis, and development of added infections. If they have chosen the wrong antibiotic or incorrect dosage, it can lead to drug resistance.^{5,6}

80.00% of respondents agreed that antibiotic resistance is an important and serious public health issue in the hospital. 80.00% were aware that bacteria are not responsible for causing common cold and influenza. Various studies have similarly reported that more than 60% of their participants believed that antibiotics should be prescribed for viral illnesses.^{4,7} Previous studies have shown high rates of self medication amongst medical students with respect to antibiotics.^{7,8} A similar study done in South India reported that 33% of the medical students were also not likely to finish the antibiotic course once started.⁹

There is a need to curb the progressing antimicrobial resistance. This could be achieved by organizing regular educational campaigns among the general population as well as among the health care personnel about antibiotic resistance.

Antibiotics are available as over the counter drugs which is a major threat to the public health. There is a need for further education of consumers, pharmacists, students of health care sector and practitioners regarding rational prescribing and completion of full course of antibiotics. The principles of protocol development for antibiotic use in health care facilities should form an integral part of undergraduate teaching.

Conclusion

In our study, most of the students had good knowledge and were aware of the problem of antimicrobial resistance, but still used antibiotics for self-medication.

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