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To Assess Knowledge, Attitude, and Practices of Medical Professionals toward Antibiotics

Palka Mittal[1]*, Anmolika Watal[1], Gaurav Aggarwal[2], Sanjay Bhardwaj[3]

Abstract

Introduction: Antibiotics are wonderful drugs for the treatment of infectious diseases but are in danger because of a reduction in their efficacy. Antibiotic resistance is becoming a public health problem worldwide. There is number of contributing factors that are responsible for antibiotic resistance. Physicians play a vital role in antibiotic usage and prescribing practices. In the present study, we will assess the knowledge, attitude, and practices of medical professionals of Hisar and Mahindergarh District of Haryana, India for antibiotics. **Methods:** A cross-sectional descriptive study was performed on medical professionals who are prescribing antibiotics through survey conducted via mail. **Results:** The study received 100% responses from all the participants. Among which 41% are prescribing antibiotic on 1st day of investigation and 77% are using broad-spectrum antibiotics. Although they have proper knowledge of resistance still the practicing antibiotics is not that much good. There is a lack of policy related to antibiotic usage. All respondents are in favor of eliminating self-medication and excess use of antibiotics. **Conclusion:** The knowledge of antibiotic usage and resistance is good but still, there is a gap between knowledge and prescription practices. There is a need for a policy for antibiotic usage and a general awareness program for common people.

Keywords: Antibiotic resistance, Medical professionals, Prescription, Self-medication

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Introduction

The world is moving toward the burden of different infectious diseases such as pneumonia and tuberculosis and the miracle drugs "antibiotics" are becoming resistant towards a range of bacteria. The antibiotic resistance can be co-related with regular consumption most of the time non-judicially.[1] The antibiotics are losing their efficacy, which is a major problem, but despite this, there is an addition of decline in the development of new antibiotics which makes antibiotic resistance more problematic.[2] Self-medication is always a big issue when we talk about medicines but self-medication in case of antibiotics is creating an alarming situation for a rise in antibiotic resistance. Most of the people are used to self-medication and do not take any prescription from physician before the administration of antibiotic. The use of antibiotic without prescription, with a very little knowledge and poor attitude, are contributing factors in antibiotic resistance.[3] Among several factors which are responsible for antibiotic resistance, use of antibiotic when it is not really required like in common cold is a responsible factor of antibiotic resistance.[4] Along with these factors, prescriber's knowledge is an important factor that is contributing to antibiotic resistance. The prescribers do know about antibiotic resistance, but they do have less knowledge in optimizing the practices of prescribing antibiotics.[5] After looking at different studies it can be concluded that antibiotic resistance is a major problem and need to be resolved on priority basis. Further studies revealed that clinicians have sufficient knowledge of antibiotic use and have good prescription practices but as physicians are playing a major role in antibiotic use, regular incorporation of educational intervention related to antibiotic use and resistance pattern is necessary to update their knowledge and to make them aware about the use of antibiotics just to maintain prevent the resistance and efficacy of antibiotics.[6-9] For the interventional program teaching sessions, suggestions from specialists can act as helpful factors in improving the prescribing practices of antibiotics.[10] Any intervention program in health always results in a fruitful decision if it ensures its implementation and regular use. To make the intervention more effective it is required to provide the program a support with some policies, which are specifically designed for the rationale use and prescribing antibiotics. Judicious use of antibiotic in collaboration with intervention program seems to be more effective in controlling the antibiotic resistance.[11] To control antibiotic resistance, it is required to improve antibiotic prescribing among all the hospitals worldwide, which can be difficult but possible.[12] In a study, physicians acknowledge that misuse of antibiotic is very crucial in causing antibiotic resistance. They suggested clinical audits, support from microbiology, and incorporation of policy for antibiotic use can be an effective way which can help in reducing and controlling antibiotic resistance.[13] The general public should be addressed with the availability of antimicrobial drugs and antimicrobial resistance.[14] The relations between medical professionals and pharmacists should be acknowledged for more effective changes.[15] After going through various studies, physician's act as an actor in the whole scenario as

[1]Department of Public Health, Shri Vishwakarma Skill University, Palwal, Haryana, India

[2]Department of Mechanical Engineering, Mewat Engineering College (Wakf), Nuh, Haryana, India

[3]Department of Research & Development Mazars, Gurgaon, Haryana, India

***Corresponding Author:** Palka Mittal, Department of Public Health, Shri Vishwakarma Skill University, Palwal, Haryana, India. E-mail: palkamittl@gmail.com

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their knowledge, attitude and practice (KAP) to prescribe antibiotic plays an important role in reducing the antibiotic resistance and preventing the pharmacological activity of drug. Looking at the matter, the present study was undertaken to assess the KAPs of medical professionals who use to prescribe an antibiotic in their regular practices.

Materials and Methods

Study Design, Participant, and Site

The study was a cross-sectional descriptive study conducted through survey on mail in Hisar and Mahindegarh district of Haryana, India. A total of 44 medical professionals who are practicing in any healthcare establishment and prescribing antibiotics in their practices were chosen randomly on convenient basis.

Study Tool

A survey was done using a questionnaire developed on the Google form. The questionnaire consists of demographic details, knowledge of physician for antibiotic, their attitude toward antibiotic usage, and practices for prescribing antibiotic.

The developed questionnaire was reviewed by a panel of experts and then validated by conducting a pilot study on a sample size of four practicing medical professionals. The demographic section comprises total experience, their designation in the Healthcare Establishment, and the duration since when they are serving in Healthcare Establishment.

The KAP section was assessed by inquiring about how often they prescribe antibiotic, their knowledge about usage of antibiotic as per infection, pharmacodynamics property of antibiotic in comparison to other drugs and antibiotic resistance, etc.

Study Methodology

Before taking the response from respondents, all were informed and explained about the study and its utility via mail. An informed consent was taken from all the participants. After getting the signed inform consent, the questionnaire was sent to all of them via mail and asked to fill the form dully and return back within 2 days. Those who were late in submitting the form on mentioned duration were contacted and requested to fill the form as soon as they can. It required more than two efforts to get all the filled forms.

Statistical Analysis

The data were collected using a questionnaire designed on Google form, which makes it more convenient to convert the data from Google form to an MS-Excel sheet. All the analysis was done on MS-Excel only.

Ethical Consideration

The research protocol was approved by the institutional ethical committee. All the participants were informed about the study. They were assured about the privacy and confidentiality of all the data collected by them and ensured that it will be used only for research purpose. An informed consent was also signed by all the participants.

Results and Discussion

All the 100% of participants responded well. Out of all the 44 participants, all confirmed that they prescribe antibiotics in their practice. Table 1 represents that among all the participants, 70.5% have experienced <3 years, which is majority of respondents and very few have experience more than 9 years. It has been also calculated that majority of medical professionals are serving in the same facility for <1 year.

Figure 1 shows that 41% of respondents prescribe the antibiotic on the first day of investigation, which is a major count.

Figure 2 represents that most of the medical professionals (77%) use to prescribe broad-spectrum antibiotic in comparison to narrow-spectrum antibiotics (23%). Broad-spectrum antibiotics are in common use because many of the respondents use to prescribe the antibiotic on very 1st day of investigation without knowing the responsible bacteria for the disease. The use of broad-spectrum antibiotic not only kills the responsible bacteria but other bacteria also which can further cause antibiotic resistance.[16]

Table 2 depicts the KAP of medical professionals towards antibiotics. Out of the total 44 respondents: 43.2% were agree with the statement that viral infection can also be treated with the use of antibiotics, 2.3% are strongly agree, 15% were neutral with the statement, 27.3% were disagree and very few (11.4%) strongly disagreed. Maximum (61.4%) respondents confirmed that pharmacodynamics property of both the antibiotic and anti-inflammatory drugs is not same and some of them (13.6%) was reported that both the antibiotic and anti-inflammatory have same pharmacodynamics properties. Almost 50% of the respondents

Table 1: Demographic details

Variable	*n=44 (%)*
Total Experience	
0–3 Years	70.5
3–6 Years	18.2
6–9 Years	9.1
9–12 Years	2.3
Length of service in current facility	
0–1 Years	59.1
1–2 Years	20.5
2–3 Years	13.6
3–4 Years	6.8

n: Number, %: Percentage

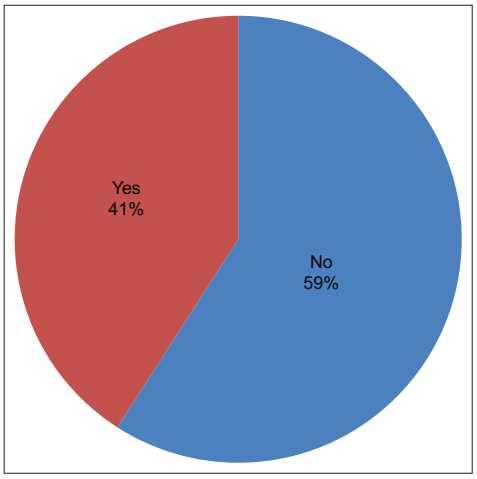

Figure 1: Prescribe antibiotic on first day of patient's investigation

Table 2: KAP of Medical Professionals towards antibiotics

Statement	*Strongly Agree (%)*	*Agree (%)*	*Neutral (%)*	*Disagree (%)*	*Strongly Disagree (%)*
Virus infection as well bacterial infection can be treated by the use of antibiotics	2.3	43.2	15.9	27.3	11.4
Pharmacodynamics of both the antibiotic and anti-inflammatory drugs is same	0.0	13.6	15.9	61.4	9.1
Antibiotic resistance is increasing day by day this is the result of using antibiotic in excess	54.5	36.4	6.8	2.3	0.0
Resistant antibiotic becomes sensitive again at higher doses than before	18.2	50.0	13.6	18.2	0.0
Diseases like common cold needs antibiotics for the treatment	0.0	6.8	11.4	50.0	31.8
Antibiotic resistance is the major problem in current scenario of public heath	61.4	27.3	9.1	0.0	2.3
Awareness program should be conducted to educate the common people for safe use of antibiotic	75.0	22.7	2.3	0.0	0.0
Pharmacist can sell the antibiotics without any prescription	9.1	4.5	4.5	38.6	43.2
Self-medication is increasing day by day, it can lead to antibiotic resistance	59.1	36.4	2.3	2.3	0.0

%: Percentage, KAP: Knowledge, attitude, and practice

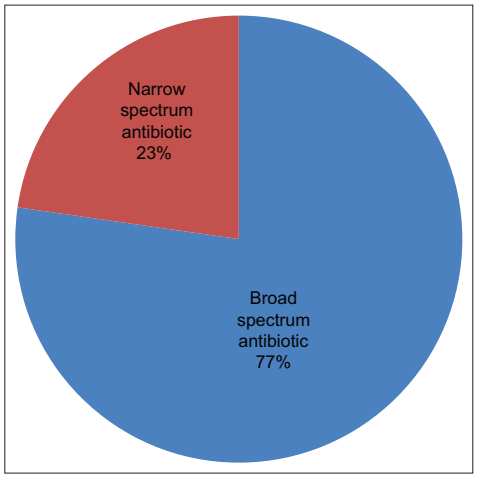

Figure 2: Kind of antibiotics generally prescribed

marked that antibiotic cannot be used in treatment for common cold, which is a big amount in all the respondents, only a few (6.8%) respondents agreed that antibiotics can be used as a treatment for cold. Further study involves respondent's perspective about antibiotic resistance. The maximum of respondents (61.4%) were seems to be confirmed with the fact that antibiotic resistance is increasing day by day and is becoming a major public health problem. Out of all the respondents: 54.5% enlisted excess use of antibiotics as a responsible factor for antibiotic resistance and 59.1% coined self-medication as a cause for antibiotic resistance. Self-medication is a result of dispensing drugs by a pharmacist without any prescription. When we asked medical professionals about the statement that is it correct to sell antibiotics without prescription: 43.2% seems to strongly disagree, 38.6% were disagree, and along with it 9.1% and 4.5% found to be strongly agreed and agree respectively with the statement. After analysis, it was found that respondents were known with antibiotic resistance and concerned with excess use of antibiotic, but at the same time majority of respondents (50%) agree and 18.2% are strongly agree that a resistant antibiotic can become sensitive again if administered with higher dosage. Respondents also believed that intervention to common people can help in reducing antibiotic

Table 3: Policy for Antibiotics

Statement	*Yes (%)*	*No (%)*
Hospital/Clinic in which you working has any regulation or policy to prescribe	15.9	84.1
While prescribing the antibiotic you consider hospital's regulation or policy	13.6	86.4

%: Percentage

resistance. Out of all the responses: 75% were strongly agree and 22.7% were agree with conducting the awareness program for common people to make them understand the safe use of antibiotics.

Table 3 coined the availability of policy for antibiotic usage in the healthcare establishments and implement of policies while prescribing antibiotics. The majority of respondents (84.1%) had no policy in their working areas for antibiotic usage and 15.9% have some policies in their serving areas. Having a policy is not good enough until and unless it is in practice. Only 13% of respondents out of 15.9% who have a policy were considering them while prescribing and using antibiotics.

Conclusion

The present study addresses the KAPs of Medical Professionals towards antibiotic usage and prescribing pattern. After having all the statistical analysis, it is found that all the respondents are aware of antibiotic resistance and its effect on treatment. Even after having a knowledge of antibiotic resistance, the majority of respondents were prescribing antibiotics on the 1st day of investigation and using broad-spectrum antibiotics, both factors can contributing to antibiotic resistance. This kind of practice can only be controlled by implementing a policy for antibiotic usage and prescribing. As found in earlier studies, respondents in the present study also believe that excess use and self-medication can be causative factors for resistance. To stop the self-medication, awareness programs should be run for common people to make them understand what the harms of self and excess medicine usage are. In the study, we found that majority of respondents are not in favor that pharmacist can sell the medicine without a prescription. As pharmacist plays an important role in dispensing

the prescribed medicines and can help maximum in eliminating the self-medication by not giving any medicine without prescription. All the findings in our study were also supported by respondents by their valuable comments. The average of respondents was in favor of the policy for antibiotics and disagreed with the self-medication and excess use of antibiotics.

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