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Original Research Article

A Questionnaire-Based Cross-sectional Survey on Use of Antibiotics Among in General Public of Darbhanga Bihar

Dr. Asha Kumari[1], Dr.Amit Kumar Jha[2]

1Assistant Professor & HOD, Department of Pharmacology, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India

2Associate Professor, Department of Pharmacology, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India

Corresponding Author: Dr. Asha Kumari

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Abstract

Aim: A questionnaire-based survey on use of antibiotics among in Darbhanga Bihar.

Methods: This Community based descriptive, cross-sectional study was carried out in the Department of Pharmacology, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India.1000 participants were included in this study. Family member more than 15 year of age were included. Those families who are not ready to take part in the study were excluded from this study.

Results: After collection of data, 1000 Questionnaire were analysed. Among them 610 were female responders and 390 were male responders. The present study showed that 77% (n=770) of the study population was unaware of antibiotics and its resistance. 23% (n=230) of participants were aware of antibiotics and antibiotic resistance. Of the total, 61% (n=610) population believed antibiotics were not harmful and among these, females 56% were less likely to perceive antibiotics as harmful compared to males. The study showed that 66% (n=660) population were known to continue the full course of antibiotics as prescribed by doctors, and females were more likely to continue the course 59% compared to males 41 %. We found that 81% (n=810) population were not instructed by doctors about the hazards of not taking the full course of the antibiotics prescribed. Around 66% (n=660) of study participants self-medicate (over the counter or OTC) antibiotics i.e. take antibiotics without doctor's prescription. Females showed a higher tendency towards OTC antibiotics 57%. OTC antibiotics were mainly taken for common cold and body-ache and the most common reason for not taking doctor's prescription was high consultation fees. Nearly 70% (n=700) of the participants reported sharing antibiotics with family members and others, of whom males showed more tendency of sharing the antibiotics 55**%.** In this study, 61% of the study population were unaware about antibiotics disposal and threw unused antibiotics in the trash. The proper method of disposal of unused drugs was demonstrated to the population. In

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feedback 100% said this activity of bringing awareness of antibiotic use and medicine take back program is going to help them in future.
Conclusion: The unawareness among the population about antibiotics use, resistance, and disposal. The participants were educated about resistance, proper use and disposal of antibiotics. Medicine take-back program for disposal or reuse of antibiotics was initiated.
Keywords: OTC,

Introduction

Antibiotic resistance is a major threat worldwide.[1] Global utilization of antibiotic drugs elevated by 35% between 2000 and 2010.[2] Literature review revealed that there was high demand of antibiotic usage among low and middle- income countries.[3]
Self-medication is one of the commonest causes for the antibiotic resistance which is due to advises from families, friends, neighbours and the pharmacist, previous prescribed drug, or suggestions from the advertisement in newspapers or popular magazines etc.[4] The common cause for antibiotic resistance may be due to antibiotic misuse which is also called as antibiotic abuse or overuse. Over the counter availability of antibiotics, low-socio economic status and antibiotic being sold without a prescription by pharmacists are also documented as reasons for antibiotic resistance.[5]

In addition to the as mentioned reasons, inadequate treatment duration, improper selection of drug and dosage newer antibiotics to solve the antibiotic resistance.[6,7] Less knowledge about antibiotic resistance among undergraduates, health care professionals, pharmacists lead to irrational usage of antibiotics among patients and is reported worldwide.[5]
Today's students are tomorrow's doctors. Hence in order to prevent antibiotic resistance, health care professionals should follow a rule of five rights of medication namely:

- Right drug
- Right patient
- Right dose
- Right duration
- Right route

And also, one should give a proper counselling about antibiotic usage and resistance.[8]
Further, a large number of foreign studies are available about knowledge, attitude, practice of antibiotic usage and resistance among undergraduates when compared to Indian studies.[5,9-11]
However periodic evaluation of usage of antibiotic knowledge is mandatory among health care professionals. This prompted me to evaluate knowledge, attitude and behaviour of antibiotic usage and resistance among undergraduate students.

Material and methods

This Community based descriptive, cross-sectional study was carried out in the Department of Pharmacology, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India.1000 participants were included in this study.
Family member more than 15 year of age were included. Those families who are not ready to take part in the study were excluded from this study.

Data collection and analysis: Questionnaire data collected was analyzed. Descriptive analysis was performed on all the variables to obtain the frequency and percentage.

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Results

After collection of data, 1000 Questionnaire were analysed. Among them 610 were female responders and 390 were male responders.

Public perception of the use of antibiotics

The present study showed that 77% (n=770) of the study population was unaware of antibiotics and its resistance. 23% (n=230) of participants were aware of antibiotics and antibiotic resistance. Of the total, 61% (n=610) population believed antibiotics were not harmful and among these, females 56% were less likely to perceive antibiotics as harmful compared to males. The study showed that 66% (n=660) population were known to continue the full course of antibiotics as prescribed by doctors, and females were more likely to continue the course 59% compared to males 41 %. We found that 81% (n=810) population were not instructed by doctors about the hazards of not taking the full course of the antibiotics prescribed. Around 66% (n=660) of study participants self-medicate (over the counter or OTC) antibiotics i.e. take antibiotics without doctor's prescription. Females showed a higher tendency towards OTC antibiotics 57%. OTC antibiotics were mainly taken for common cold and body-ache and the most common reason for not taking doctor's prescription was high consultation fees. Nearly 70% (n=700) of the participants reported sharing antibiotics with family members and others, of whom males showed more tendency of sharing the antibiotics 55%.

Awareness of disposal of unused antibiotics

In this study, 61% of the study population were unaware about antibiotics disposal and threw unused antibiotics in the trash. The proper method of disposal of unused drugs was demonstrated to the population.

Medicine take-back program for community

Unused and unwanted antibiotics were collected during the visit. If medicines were spoiled or expired, they were properly disposed. Antibiotics in good condition were handed over to consultants and used to treat poor and needy patients who cannot afford costly antibiotics.

Awareness of the use of antibiotics for community

At the end of the visit, participants were instructed on the proper use of antibiotics and told to take antibiotics only when the doctor prescribes them, take the full course of antibiotics, avoid self-medication of antibiotic, not to take antibiotics for viral infection (common cold, sore throat, etc), not to share antibiotics with others and that unnecessary use of antibiotics may cause harm (resistance). In feedback 100% said this activity of bringing awareness of antibiotic use and medicine take back program is going to help them in future

Table 1: Questionnaire data of community

Item(Questions)	Yes (n=1000)	No (n=1000)
1. Do you know, what is antibiotic and antibiotic resistance	230(23%)	770 (77%)
2. Do unnecessary use of antibiotics cause any harm to you	390(39%)	610(61))
3. Do you take all course of antibiotic as prescribed by doctor.	660(66%)	340(34%)
4. Are you been instructed by doctors, the hazards if you don't take the full course of antibiotics	190(19%)	810(81%)
5. Do you self medicate (OTC) antibiotics	660(66%)	340(34%)
6. Do you give left over antibiotics to family members or others?	700(70%)	300(30%)

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Table 2: Interview with responders (feedback)

Item(Questions)	Yes (n=1000)	No (n=1000)
Do you find this activity is going to help you?	1000(100%)	0
Is this medicine take back program is going to help you?	1000(100%)	0

Discussion

Antibiotic resistance is causing major health issues in India due to the high burden of infectious diseases, unregulated sale of antibiotics, financial incentives for healthcare providers to prescribe antibiotics, patient expectations, rising incomes, and limited public health response.[12-15] The medical curriculum does not adequately focus on rational antibiotic prescribing. Physicians have been reported to overprescribe antibiotics because of financial incentives and patient expectations.[16] Despite being costly, the consumption of antibiotics like carbapenems is increasing, possibly because of inappropriate prescribing and non-prescription sales.[17] Evidence from China shows that eliminating financial incentives leads to an immediate reduction in the prescription of antibiotics.[18] Self-administration of antibiotics bought without a prescription is also a serious concern.[19] Thus, the smart use of antibiotics is the key to control the spread of resistance.[20] Most of the major resistance control strategies recommend educating the general public to promote appropriate antibiotic use.[21]

In our study none of the family denied to take part in the activity. We have included family members more than 15 year of age, so that they can understand the importance and actively participate in the study. In this study, we observed that 81% (n=810) population were not instructed by doctors about the hazards of not taking the full course of antibiotics prescribed. Similarly, the study of Kotwani et al. highlighted the poor doctor–patient relationships and its implication on the inappropriate use of antibiotics. Both student teacher groups were not satisfied by the information provided by doctors on the use of medicines and antibiotics.[22] Health professionals however do play an important role in educating people about potential risk of antibiotics use, as people are more likely to trust and consider their therapeutic advice and medical knowledge. When a patient is diagnosed with an infection that needs to be treated with antibiotic drugs, the medical professional should provide proper instructions on its usage such as dose, frequency of dose, treatment course and the harmful effects of its misuse.[23]

The present study showed that 77% (n=770) of the population studied were unaware of knowledge of antibiotics and its resistance. In stark contrast, only 9% of unawareness was seen in the Chinese population.[24] These variations may be due to the level of public health awareness, education, living standards and the economy of the country.[20] The awareness campaigns are one of the best tools to change the way people use medicine, but in India there is lack of such awareness campaigns. In the studied population, 61% (n=610) of the participants believed antibiotics were not harmful, and females 56% were less likely to perceive antibiotics as harmful compared to males. In contrast to our findings, the study performed by Desai A. J. et al.[20] showed only 28% participants believed antibiotics were not harmful, while the studies of Andre et al.[25] and Vanden et al.[26] showed that 28% and 58% population respectively believed that antibiotics were not harmful. Such unawareness and misguided use is a danger to public health. Unawareness about the effect of antibiotics overuse, consumption of OTC antibiotics without prescription can cause serious resistance.[27-29] In this study, 66% (n=660) participants self-medicated with OTC antibiotics i.e. consumed antibiotics without doctor's prescription. Women showed a higher tendency towards use of OTC antibiotics 57%, which agrees with the findings of Desai A. J. et al.[20]This study showed that OTC antibiotics were mainly taken for common cold and body-ache and the most common reason for not taking doctor's prescription

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was high consultation fees. Antibiotics should be used only to treat bacterial infections, as they are not effective against viral infections like the common cold, most sore throats and the flu. Repeated, widespread and improper use of antibiotics are primary causes of spread of drug-resistant bacteria.[20]In this study, 70%(700) participants reported sharing antibiotics with family members and others, of whom males showed more tendency of sharing the antibiotics, 55%, a higher percentage as compared with previous studies.[20,30] In our study 89% people had completed higher secondary education and 85% had completed graduation.

In the present study, 61% population were unaware about proper antibiotics disposal and threw unused antibiotics in the trash as it is, similar to the study of Sonowal et al[31] who showed 61% subjects were unaware about disposal of medicines. The participants were instructed that unwanted or expired antibiotic drugs are to be taken out of their containers and mixed with undesirable substances (coffee grounds, kitty litter, spoiled food), placed in an empty can or plastic bag or sealed in an opaque container and discarded in the trash on the same day the trash is collected, safely secured from children, pets and others. These are to be later incinerated or placed in government-approved solid waste landfills.[32]After completion of data collection, we initiated a medicine take-back program for disposal (if spoiled or past the expiration date) or reuse of antibiotics in good condition for the poor and needy patients.

Conclusion

The present study showed unawareness among the population about antibiotics use, resistance, and disposal. The participants were educated about resistance, proper use and disposal of antibiotics. Medicine take-back program for disposal or reuse of antibiotics was initiated. The present study was performed on a small population and may not provide full information about the scale of the problem. More systematic efforts are required on a larger scale to assess and increase awareness among the general public and the professionals in healthcare facilities, livestock and aquaculture sectors alike, to reduce the misuse of antibiotics.

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