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Original Research Article

A study of assessment of knowledge, attitude and practice of antibiotic stewardship among healthcare providers in a tertiary care hospital of Sangli

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ABSTRACT

Background: Antimicrobials are routinely used for variety of clinical conditions but are also misused leading to drug resistance bacteria in clinical practice. Consultants can gain the knowledge about it and can also have the depth of problem faced, their prescribing behavior mainly depends on their attitude and understanding of condition. Our aim of this study is to evaluate the knowledge and beliefs about antibiotics prescribing among health care workers in a tertiary care hospital of Sangli.

Methods: Our present study was conducted in the Bharati hospital, BV (DU) medical college and hospital, Sangli. Ethical clearance from the institutional ethics committee was obtained and it was, cross-sectional questionnaire-based study carried out in the form of a survey in which a pretested, semi-structured, validated questionnaire was provided to junior residents, senior residents and faculty of different specialties and responses were recorded. Questionnaire comprises of 9 in knowledge, 10 in attitude and 10 in practice section.

Results: Out of all participants 84.5% believed that no need of antibiotics for running and blocked nose. Majority 89.6% were expressed that sample culture should be sent before starting antibiotics. 90.4% participants believed that education of patients will help. Only 76.8% strictly adhere to the antibiotic policy of our hospital.

Conclusions: The present study on antibiotic usage gives useful information about the knowledge, attitudes and practices of prescribers and help plan suitable educational modifications that aim at improving the antimicrobial prescribing and minimizing the development of drug resistance in our developing country.

Keywords: Antimicrobial stewardship, Attitude, Knowledge, Practice

INTRODUCTION

Antibiotics are the most frequently prescribed group of drugs in our developing country like India. Overuse, irrational use and poor compliance with antibiotics has resulted in development of various adverse drug reactions and along with it, occurrence of drug resistant bacteria in community.¹

Emergence of resistance of antibiotics is increased by overuse of antimicrobial prescriptions. Almost majority of the prescriptions are prescribed without proper prescription from consultants, physicians or doctors globally.² In developing countries like India, condition is much more severe than other developed countries, because of availability of the over the counter drugs (OTC) and self-medication.^{1,2} Along with that, this scenario has

increased much financial burden on health system of India.¹ It is mainly because of lack of consultants, doctors concern about long term drug resistance with dispensing of antibiotics without proper prescription in majority of countries.³ Despite with this dreadful conditions and enormous spread of drug resistance, the effective bulletin of information to consultants regarding antibiotic misuse remains questioned or challenging.⁴ Nowadays there are upcoming hospital based programmes, known as “Antibiotic Stewardship programmes” which are mainly channelized to optimize antibiotic use in hospitals, can guide consultants on proper antibiotic use, improve the frequency of accurate prescribing, improve quality care of patients, decrease the emergence of resistance/failure of treatment, prevention of various adverse drug reactions, drug interactions, dropdown the financial expenses on unnecessary usage of drugs. According to WHO, education of healthcare workers and medical students on “Antimicrobial stewardship” is an integral part of all antimicrobial resistance containment procedures.^{5,6}

Our present study designed to assess knowledge, attitude and understanding of antibiotic use in residents, consultants, physicians and other doctors in a tertiary care Bharati hospital of BV MC and hospital, Sangli, Maharashtra.

METHODS

The study was carried out in the Bharati hospital, BV (DU) MC and H Sangli. All questions were prepared by doing pilot study and were analyzed, screened in detail and pre-tested, validated by the expert staff. Based on their feedback from them, certain questions were modified and reframed.

In a working environment of Bharati hospital a tertiary care centre, all junior residents, senior residents, consultants and physicians working in various department were approached. A proper informed consent was taken as per protocol, then later performa of our research plan were given to them and told to answer those questions legitimately by going through it. Filled performa were collected after 2-3 days and were analyzed for the further processes of our research study.

Before initiating the study, it was presented to institutional human ethics committee (IEC) and approval was taken (Approval no BV (DU) MC&H/Sangli/IEC/462/21). Total duration of study was 3 months from January 2022 to March 2022. Based upon Kumar et al prepared questions to assess knowledge, attitude and perception of antibiotic stewardship programme among health care workers.

Inclusion criteria

All residents, consultants, physicians of different specialties in Bharati hospital of BV (DU) MC and hospital, Sangli, Maharashtra were included in the study.

Exclusion criteria

Interns and those residents, consultants, physicians who were not willing to participate in study, who had incomplete responses and who didn't return the questionnaire response sheet were excluded.

After obtaining the proper informed consent from subjects, they were given questionnaire based Performa and told to fill the details (Table 1-3).

Statistical analysis

The results were entered and analyzed response wise and their percentage, proportions and means are used for descriptive statistics with the help of Microsoft excel 2010 spread sheet software.

RESULTS

All residents, consultants, physicians of different specialties were given the questionnaire form to fill it and submit. It had nine questions in knowledge, ten in attitude and ten in practice section. Out of 124 participants, 118 questionnaire filled form were recovered and were used for analysis. Rest 4 forms were partially filled and 2 of them did not return us the filled form, were excluded from our analysis.

The 84.5% of participants had knowledge of not to prescribe antibiotics in running and blocked nose. The 62.2% of participants were in belief that response rate will better if antibiotics are expensive. The 74.5% were in opinion that overprescribing antibiotics is better than under prescribing them. The 94.2% of participants were in opinion that prescription is must before purchasing antibiotics. The 51.3% of participants were not aware of the availability and advantage of antibiotic policy in our hospital. 78.2% were in favour of taking the blood samples for culture and sensitivity, prior to antibiotic administration. Only around half of the participants 54.5% were aware of antibiotic escalation and de-escalation. 89.4% believed higher antibiotics use should be reserved and could be used only after approval of antibiotic justification form, from Unit head of department. 62.4% participants believed antibiotics resistance drug can be sensitive to it again (Table 1).

The 85.4% of participants believed antibiotic policy will be useful in reducing antimicrobial resistance. Combining different antibiotics will decrease the antimicrobial resistance was seen in 92.6% participants. Only 68.2% were in favour of consulting the clinical microbiologists before antibiotic prescription. The mandatory attitude for culture and sensitivity was seen in only 54.4% of participants. 89.6% were in attitude of sending the samples prior to starting antibiotics. De-escalation of drugs from higher to lower class is beneficial in reducing antimicrobial resistance was seen in 58.2%. The 77.6% believed irrational prescription will alter development of

global drug resistance. The 5.8% were not in opinion of dispensing the antibiotics by pharmacists without proper prescriptions. Majority 98.2% participants were in favour of educating patients regarding correct use of it. 82.6% were in opinion that costs of medicines should be considered before prescribing antibiotics (Table 2).

Concerning the practice aspect only 26.4% were had the copy of antibiotic policy with them. 75.8% were of the opinion that they will consult the unit chief or HODs before prescribing higher antibiotics. Only 24.4% follow de-escalation process on antibiotics. The 76.8% were of

opinion that they strictly follow the antibiotic policy in their clinical practice. 78.2% not in favour of escalating to higher antibiotics inspite of being sensitive to lower antibiotics. Only 28.4% consult the clinical microbiologists before choosing the drugs. Majority 90.4% of participants do educate the patients on correct use of antibiotics. Only 46.8% were in opinion of sending the sample for culture and sensitivity in every case before putting on antibiotics. Majority 90.2% were sure of choosing the correct dose of antibiotics. Combination of antibiotics was favored by 92.6% of participants whenever required (Table 3).

Table 1: Participants knowledge about antimicrobial drug resistance.

Questions	Yes (%)	No (%)
Patients with running and blocked nose needs antimicrobial treatment	15.5	84.5
The response rate is better if antibiotics are newer and expensive	62.2	37.8
It is always preferable to over-prescribe antimicrobials than under-prescribe?	74.5	25.5
Patients should be able to purchase antibiotics without a proper prescription?	5.8	94.2
Are you aware of the advantage of having antibiotic policy in our hospital?	48.7	51.3
Sample for culture and sensitivity should be taken prior to antibiotic administration	78.2	21.8
Are you aware of antibiotic escalation and de escalation	54.5	45.5
Higher antibiotics use should be reserved and could be used only after approval of antibiotic justification form, from Unit head of department.	89.4	10.6
Antimicrobial resistant drug can become sensitive again to it	62.4	37.6

Table 2: Participants attitude towards antimicrobial drug resistance.

Questions	Yes (%)	No (%)
Our hospital has antibiotic policy useful in reducing antimicrobial resistance	85.4	14.6
Combining different antibiotics will decrease the antimicrobial resistance	92.6	7.4
Clinical microbiologists should be consulted when required about the antibiotic prescription	68.2	31.8
Culture and sensitivity test should be mandatory in all infections	54.4	45.6
Culture samples should be sent prior to starting antimicrobials	89.6	10.4
De-escalation of drugs from higher to lower class is beneficial in reducing antimicrobial resistance	58.2	41.8
Irrational prescription will not alter the development of global drug resistance	22.4	77.6
Dispensing of antimicrobials by pharmacists, without prescription should be allowed for minor conditions	24.2	75.8
Patients should be educated regarding correct use of antimicrobials	98.2	1.8
Medication costs should be considered before starting the antimicrobials	82.6	17.4

Table 3: Participants practice assessment towards antimicrobial drug resistance.

Questions	Yes (%)	No (%)
Do you have a copy (soft or hard) of antibiotic policy of our hospital?	26.4	73.6
Do you take opinion of consultants before prescribing higher antibiotics?	75.8	24.2
Do you follow de-escalation process on antibiotics?	24.4	75.6
Do you follow strictly the antibiotic policy in your practice?	76.8	23.2
Do you escalate to higher antibiotics inspite of being sensitive to lower antibiotics?	21.8	78.2
Do you take help of clinical microbiologist to choose drugs?	28.4	71.6
Do you educate the patients on correct use of antibiotics?	90.4	9.6
Do you send sample for culture and sensitivity test in every case before starting antibiotics?	46.8	53.2
Are you sure of choosing correct dose of antibiotics?	90.2	9.8
Are you sure about choosing the combination of antibiotics whenever required?	92.6	7.4

DISCUSSION

Our study was carried out to evaluate knowledge, attitude and practice (KAP) of resident doctors, physicians towards antibiotic resistance and prescription. Majority of the participants were in the opinion that antibiotic resistance is causing serious health issue which needs to be addressed vigorously in order to avoid irreversible damages in peoples of community in treating various infections. In such similar studies like Yashin et al, Jorak et al participants expressed the same concern of indiscriminate use of various antibiotics.^{7,8} Patients with running and blocked nose need not require antimicrobial treatment was expressed by 84.5% participants. Such similar findings were also observed in Yashin et al study where participants 89.7% believed that such symptoms need not be given antibiotics.⁷ Such irregular and overuse of antibiotics will result in development of drug resistance to prevailing organisms, for which choosing a particular antibiotic would be challenging task for doctors.⁹

As such OTC are dispensed without proper prescription, so many antibiotics can be purchased as OTC from the pharmacies without particular indication prescriptions.^{10,11} Such kind of clinical practices may cause antibiotic abuse among general population leading to antimicrobial drug resistance. As such development of drug resistance is far fast in progress in people, than discovery of new drugs from various clinical trials throughout the world. Already we are in short of many antibiotics for chronic diseases like tuberculosis, malaria, viral infections and various new evolving infections.

In study total of 94.2% participants agree that all antibiotics should be prescribed with proper prescription from doctors showing diagnosis and indications, which is reinforced by similar results as obtained by Tarao et al.¹² Practitioners prescribing medications should be regularly informed about antibiotics resistance pattern and its injudicious use.¹²

Clinical practice associated with increased patient satisfaction and good compliance to treatment, which is observed as restrictive attitude towards self-medication, McKinstry et al. Doctors, specialists, residents can educate their patients during consultations as 90.4% in study expressed that they make efforts to explain in details how antibiotics to be used and avoid self-medication/OTC drugs resulting in development of resistance in coming days.¹³

Antibiotic policy is one of the important documents, which has to be followed strictly, as in study 76.8% participants agreed that they follow as policy details, as par with Kumar et al study where there was no antibiotic policy in their hospital study leading to development of drug resistance.¹⁴

Limitations

Non adherence of prescribing as per our antibiotic policy of our hospital strictly. It would be better that if we could

compare present study with KAP of residents, doctors, consultants after training in antibiotics Stewardship programme.

Strength

It is the first kind of such study in our hospital, which will help in strict implementation of preformed antibiotic policy in their clinical practice. In a medical college, having such studies will uplift all postgraduates, residents to control the growing spurt of antimicrobial resistance at national level in coming days and will help in proper prescription of antibiotics in patients.

CONCLUSION

Our study focused mainly the need for improving the prescribing pattern as per inbuilt antibiotic policy to prevent the drug resistance for all residents, physicians, and consultants. Our study also showed the differences in their KAP domain concerned with antibiotic stewardship in their clinical practice. Much importance should be on prescribing pattern of antibiotics as per culture and sensitivity report and with help of opinion of clinical microbiologist whenever required. Proper patient education regarding correct adherence of the antibiotics course and its benefits to community should be explained in detail. Implementation of an antimicrobial stewardship program for medical college students should be ensured in order to improve and standardize the prescribing pattern of our budding doctors, to tackle the current war against antimicrobial drug resistance for the benefit of the patients.

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