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RESEARCH ARTICLE

A Questionnaire-based Study to Assess the Knowledge, Attitude and Perception of Resident Doctors about Antimicrobial Stewardship at a Tertiary Care Centre

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ABSTRACT

This study is aimed to identify the knowledge, attitude, and perception (KAP) of the resident doctors at a tertiary care centre about antimicrobial (AM) stewardship education so that it will be easy to address the lacunae which are identified during the training curriculum of the resident doctors. A questionnaire-based survey was carried out in the final year junior residents at a tertiary care teaching center in Maharashtra. Each respondent completed the given questionnaire in the given time. A scoring system was used to rate the KAP of the respondent as poor, average and good. 58.3% of the respondents prescribed antimicrobials for viral infection. 83.3% did not agree that antimicrobial resistance is associated with an increase in mortality, morbidity and prolonged hospitalization of the patient. The attitude of the resident doctors towards antimicrobial education is good but the deficiencies in the knowledge and perception need to be improved further. Increasing awareness about its seriousness is the initial step to curb the antimicrobial resistance. Also, various campaigns should be started to educate the general population as well along with the health care workers about antimicrobial stewardship and antimicrobial resistance. So, there is a need for new interventions to address these lacunae.

Keywords: KAP; Antimicrobials; Antimicrobial stewardship; Resident doctors

INTRODUCTION

Irrational and inappropriate use of antibiotics has become the mainstay of antibiotic resistance. In developing countries, antibiotic resistance is considered as emerging global problem due to the misuse of antibiotics.[1] COVID-19 and various other factors had led to a higher antimicrobial resistance with the pandemic impacting antibiotic stewardship and pushing back years of work to control it. Antibiotic overuse can lead to resistance and along with that it leads to adverse reactions and economic burden on the patient as well as the healthcare system.[2]

Many strategies have been implemented for rational and appropriate use of antibiotics like antibiotic stewardship, prescription audit, integrated approach, hospital formulary.[1] Antimicrobial stewardship is an integrated approach to promote the rational and appropriate use of antibiotics by preferred route and for suitable duration of therapy.[3,4] It is aimed to reduce the antimicrobial resistance and also to select the appropriate antimicrobial drugs to treat the infection. Raising awareness about the seriousness and the impact of antimicrobial resistance is now considered a crucial step to stop the spread. For this, various campaigns such as educating the health care workers, pharmacists, and general public about antibiotic stewardship should be implemented.

Many studies have been conducted about the antimicrobial resistance and stewardship, but these studies differ as they are conducted in different setup with different physician, prescription pattern, antibiotic policy, formulary, patient load etc. The present study delineates the knowledge, attitude, and perception of resident doctors about antimicrobial stewardship so that loopholes can be stitched in time.

Understanding the KAP of our resident doctors will facilitate better and more effective antimicrobial use for them.

This study can help us to understand the knowledge of our resident doctors and helps us to bridge the gap of lacunae. Also, to know the scope of improvement, better education can be given to them which can help to improve the appropriate antimicrobial treatment pattern for patients and decrease the antibiotic resistance, misuse/overuse of antibiotics and adverse drug reactions.

MATERIAL AND METHODS

This was the questionnaire based prospective observational study conducted among the final year junior resident doctors at a tertiary care teaching centre in Maharashtra. After obtaining permission from Institutional Ethics Committee Letter No.215/2019 dated 10/10/2019, the pretested and validated questionnaire were given to the resident doctors of various departments.

The questionnaire was divided into 3 sections, first section was knowledge consisting of 5 questions. It was about the rational AM prescribing pattern. The second section was about the attitude of the resident doctors regarding the AM stewardship program. This section has the answers such as agree, don't know and disagree. Also, some questions were negatively framed in this section. Third section was about the perception of resident doctors as to how they can rate their skills of prescribing AM. The questionnaire was given to the resident doctors via google form online as well as the printouts to make it feasible for all the resident doctors to fill it without any reference materials or assistance. The collected data was analysed using MS Excel and SPSS software. Total KAP scores were calculated at the end and were analysed by statistical tests for the significance.

RESULTS

A total of 55 resident doctors participated and completed the questionnaire study. Resident doctors working in various departments of a tertiary care teaching hospital were included in the study. Participant's knowledge, attitude and perception were evaluated in this study.

The knowledge of resident doctors about prescribing antibiotics in the given clinical scenario is shown in Table 1. Almost 72% of participants prescribed AM for viral infection too. As AM resistance is the emerging trend, 78% of participants are of the opinion that efficacy will be better if the antibiotic is newer. Other questions of knowledge apart from these were fairly answered by the participants.

The attitude of the resident doctors towards AM use is shown in Table 2. 89% of resident doctors are of the opinion that AM pharmacology should be integrated with the clinical case scenario for better understanding of the rational use. Also, almost 71% are of the attitude that educating the nurses and pharmacists can play a pivotal role in shaping the AM stewardship. Rational use of antibiotics should be established at the institute level according to 94% of participants.

Table 1: Knowledge of resident doctors about prescribing antibiotics in given clinical case

		Correct	Wrong
1	Antimicrobial for viral infection	40 (72.72%)	15 (27.27%)
2	Prolonged prophylactic therapy and prolonged empiric antimicrobial treatment without clear evidence of infection	51 (92.72%)	4 (7.3%)
3	Antimicrobial for the patients with positive clinical culture in the absence of disease	39 (70.5%)	16 (29.5%)
4	Do you think frequent use of antibiotics will decrease the efficacy of treatment when using antibiotic again	35 (63.3%)	20 (36.7%)
5	Is the efficacy better if antibiotics are newer and the price is higher?	43 (78.1%)	12 (21.82%)

The good perception of resident doctors towards the AM use is shown in Table 3. Almost 71% of resident doctors were competent enough to select the best antimicrobial for the given clinical case scenario.

DISCUSSION

There are many studies which had assessed the attitude and perception of medical students.[5,6] The present study is unique in its way to assesses the knowledge, attitude, and perception of resident doctors from a tertiary care teaching hospital. This study will also help us to provide the insight of resident doctors regarding the current knowledge of antimicrobials to be used in the specific case. The respondent's scored average in their knowledge about specific AMs. Among the resident doctors participated in the study, 72.72 % prescribed antimicrobials for viral infection.

Prefabricated clinical case scenario was given to the respondent and only 70.9% resident doctors had average and basic knowledge regarding the case. These findings differ from another study where 39% of the respondents scored above average for the clinical scenario based questions.[7]

A study was done by the pharmacology department amongst the health care workers which emphasized on the importance of clinical case scenario learning.[4] Integration of teaching pharmacology with clinical scenario for rational AM has some time constraint.[6] So when these medical students enter into their general practice or specialized practice, they find it very difficult as to which appropriate AM to prescribe. If we train the resident doctors regarding

Table 2: Attitude of resident doctors about education for antimicrobial stewardship

		Disagree	Agree	Don't know
1	Is there abuse on antimicrobial at present	55 (100%)	-	-
2	Antimicrobial abuse is the leading cause of antimicrobial resistance	55 (100%)	-	-
3	Antimicrobial resistance is not associated with increase in mortality, morbidity and prolonged hospitalization of the patient	4 (7.2%)	8 (14.6%)	43 (78.2%)
4	Antimicrobial stewardship education has no significance for the resident doctors	3 (5.5%)	7 (12.7%)	45 (81.8%)
5	Antimicrobial pharmacology taught in UG should be reinforced by discussing clinical cases	49 (89%)	2 (3.8%)	4 (7.2%)
6	New antimicrobials should be developed in future that deals with the problem of antimicrobial resistance	50 (90.7%)	2 (3.8%)	3 (5.5%)
7	Education of the nurses and pharmacists have no role in antibiotic stewardship	8 (14.6%)	8 (14.6%)	39 (70.8%)
8	Is there need to establish "Rational use of Antibiotics" at institute level?	52 (94.5%)	3 (5.5%)	-
9	Antimicrobial pharmacology teaching should be integrated with PG activities	51(92.8%)	4 (7.2%)	-

Table 3: Perception of resident doctors about the knowledge and skills of prescribing antibiotics

		Yes	No
1	Can you recognize the risk associated with antimicrobial use?	47(85.4%)	8(14.6%)
2	Can you identify the scenario where Antimicrobial is not required?	48(87.2%)	7(12.8%)
3	Are you competent enough to select the best antimicrobial for the following scenario	39(70.9%)	16(29.1%)
	i) Community acquired pneumonia	46(83.6%)	9(16.4%)
	ii) Complicated UTI	39(70.9%)	16(29.1%)
	iii) MRSA infection	49(89%)	6(11%)
	iv) Drug resistant S. typi	45(81.8%)	10(18.2%)
	v) Vancomycin resistant enterococci	45(81.8%)	10(18.2%)
	vi) TB infection	53(96.3%)	2(3.7%)

the antimicrobial stewardship programme, they can more efficiently contribute towards appropriate and rational us of AM in future.[8,9]

About 81.8% of respondents in our study are of the attitude that AM stewardship education must be given. A study done by Huang et al highlighted that 74% of medical students favoured starting the AM stewardship education in china.[10] Majority 89% of the resident doctors are of the opinion that AM pharmacology should be integrated with other clinical subjects so as to have an idea about the rational use of AM and to avoid its misuse/overuse. A similar study was conducted by Vasundara et al[11] which also has shown the similar results. Respondents are of the opinion that the new AM should be developed in near future which is said to be one of the solutions for combating the AM resistance.

As many antibiotics can be purchased Over the Counter (OTC) without prescription, even the high-end antibiotics can be purchased OTC without any prescription.[12] A study was done which had shown high rates of self medication amongst 35% medical students which can lead to irrational use of antibiotics and can further land up into AM resistance.[13]

Our results regarding the attitude and perception supports the study done by Davey et al. which focussed onto training the resident doctors or prescribers about the appropriate and rational AM use.[14] Many initiatives of integrating teaching pharmacology about AM use and the therapy of choice with the clinical case scenario should be undertaken in all the medical and its allied branches. Also, perception of our respondents about the AM education is similar to the findings of the survey done by Abbo et al.[5] Further the prescriber should have also have the thorough knowledge about the AM choice based on patient, investigation which will help him to come to a diagnosis.

Our present study brings about the need for integrating clinical based scenario with AM prescribing for resident doctors as well as undergraduate students to avoid the irrational prescribing practices in future. Innovative teaching methods should also be implemented so as to simplify the AM pattern and to give AM of choice for the particular condition.

The strength of our present study was that the participation was voluntary, and the participants were not allowed to take any kind of help for filling the given questionnaire, so it can help us to get the actual KAP collected. The limitation of our study was that all the participants were from single Medical College, and it was conducted in resident doctors

only.

CONCLUSION

The attitude of the resident doctors towards antimicrobial education is good but the deficiencies in the knowledge and perception need to be improved further. So, there is a need for new intervention to address these lacunae.

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Conflicts of Interest

There are no conflicts of interest.

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