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A KAP STUDY REGARDING ANTIMICROBIAL RESISTANCE AND USAGE AMONGST THE SECOND YEAR MEDICAL STUDENTS

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ABSTRACT

Background: Antibiotic resistance (ABR) is an important growing global health issue which needs urgent addressal. Inappropriate use of antimicrobials drives the development of drug resistance. Both overuse, underuse and misuse of medicines contribute to the problem. Irrational use of medicines is a major problem worldwide. **Aims:** To assess the knowledge, attitude and practices (KAP) related to antibiotic resistance and usage in UG students. **Methods and Material:** The participants were briefed about the nature of the study, consent was taken and a pre-tested structured questionnaire administered to them. The questionnaire was distributed to a batch of 200 medical students in their second year of MBBS, whereby their KAP regarding antibiotic use and resistance was assessed by a five point Likert scale, whose responses ranged from "strongly agree" to "strongly disagree", and "always" to "never". Some questions were of true and false type. **Statistical analysis:** The data was analysed by using simple descriptive statistics to generate frequencies, percentages and proportions. **Results:** 96% of study participants have knowledge of Anti Microbial Resistance (AMR). The number of respondents who agreed that ABR was an important and a serious global public health issue was 190 (95%).184 (92%) of students strongly agree that Missing an antibiotic dose contributes to antibiotic resistance.168 (84%) of students strongly disagree that antibiotics are safe drugs, hence they can be commonly used medication. Usually 160 (80%) of students agreed in discontinuing the antibiotic treatment once they start feeling better. 126 (63%) of students approved of giving the leftover antibiotics sometimes to their friend/roommate. 172 (86%) of students believed that Rational

and Judicious use of antibiotics are the solutions to reduce antibiotic resistance. **Conclusions:** This result implicates that improving the students' level of knowledge concerning the causes, consequences and controlling strategies of antimicrobial resistance might be an approach to flourish their attitude and to rationalize their anti-microbial use.

KEYWORDS: Antibiotic Resistance, Indiscriminate Use.

INTRODUCTION

Nowadays, antimicrobial resistance (AMR) is a complex global major public health challenge, particularly in developing countries. The development of AMR is a natural phenomenon in microorganisms. It is accelerated by the selective pressure exerted by misuse of antimicrobial agents in humans.[1-2]

AMR results in reduced drug's efficacy, making the treatment of patients difficult, costly, or even impossible. Ultimately, it ends up with prolonged illness and increased mortality. Decreasing the use of antibiotics and rational antibiotic prescribing is suggested as the most effective strategy for combating antibiotic resistance.[3]

To bring about a decrease in antibiotic use requires interventions at multiple levels involving health care professionals and the general lay public. It has been noted that, despite various interventions, irrational, inappropriate and unnecessary antibiotic prescribing by the doctors is still widespread.[4]

Since AMR is a complex public health challenge, there is no single strategy that fully prevents it. Obviously, rational use of antimicrobials is the main strategy to prevent AMR. Studies reported that rational use of antimicrobials is achieved by changing the prescribing behaviour and knowledge of the healthcare professionals.[5-6]

Thus, it has been emphasised that adequate training should be provided for the undergraduate medical students regarding the proper prescribing, dispensing and the usage of antibiotics. This is the time when knowledge, attitudes, and behaviours of medical professionals are being shaped. Hence early education and adequate training of undergraduate students of medicine, pharmacy and nursing about prudent antibiotic prescribing, dispensing and usage respectively may be significantly effective in minimizing antibiotic resistance.[7] So, this study was undertaken among second year undergraduate medical students, in order to assess

their knowledge and attitude concerning antibiotic resistance and self-reported practices which are related to antibiotic usage.

METHODS AND MATERIAL

The participants were briefed about the nature of the study, consent was taken and a pre-tested structured questionnaire administered to them. The questionnaire was distributed to a batch of 200 medical students in their second year of MBBS, whereby their KAP regarding antibiotic use and resistance was assessed by a five point Likert scale, whose responses ranged from "strongly agree" to "strongly disagree", and "always" to "never". Some questions were of true and false type.

STATISTICAL ANALYSIS

The data was analysed by using simple descriptive statistics to generate frequencies, percentages and proportions.

RESULTS

The response rate was 100 per cent among the 200 medical students who were asked to participate in the survey. In order to simplify the analysis, we reduced the five point response options of the Likert scale into three, such as agree/disagree/uncertain. The results are tabulated as percentages in Fig.

Fig. 1. Participants attitude regarding antimicrobial resistance

In this study, it was depicted that 96% of the participants had good knowledge about Anti-Microbial Resistance (AMR). 98% understood that inappropriate use of antibiotics puts their patients at risk. 95% of the respondents conceived that antimicrobial resistance is a local as well as a global problem. Besides, the majority of the participants (92%) agreed that missing an antibiotic dose contributes to antibiotic resistance. 168 students believed that antimicrobials if taken too oftenly are less likely to work in future. Majority of the participants (79.50%) were aware that diseases like influenza and common cold are not of bacterial etiology and hence they did not recommend antimicrobial drugs.

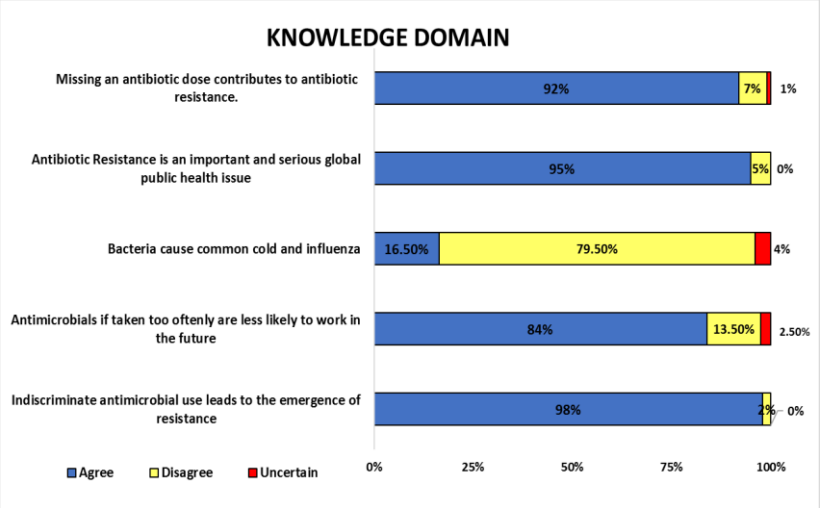

Fig. 1.

Fig. 2. Participants attitude regarding antimicrobial resistance: 168 (84%) of students strongly disagree that antibiotics are safe drugs, hence they can be commonly used medication. 46% believed that adverse effects of antimicrobials are reduced by using more than one antimicrobial at a time. Majority (51%) of them agreed that injudicious use of antimicrobials shortens the duration of illness. 125 students strongly disagree that skipping one or two doses does not contribute to the development of antibiotic resistance.

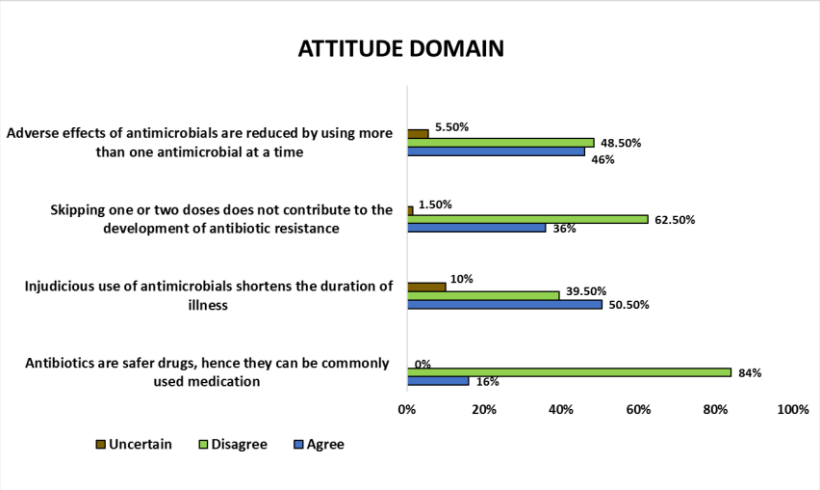

Fig. 2.

Fig. 3. Participants attitude regarding antimicrobial resistance and usage

Usually 160 (80%) students agreed in discontinuing the antibiotic treatment once they start feeling better. 127 (63.5%) of students approved of giving the leftover antibiotics sometimes to their friend/roommate. 68% of participants strongly disagree to discard the remaining, leftover medication. 25% save the remaining antibiotics for the next time. A majority of the

participants always consulted a doctor before starting on an antibiotic and most of them (124) knew that incomplete therapy using antimicrobials can cause resistance. 59% of their participants stated that antibiotics should be prescribed for viral illness. Such misconception may lead to high rate of inappropriate use of antibiotics, which in turn fuels the expanding antimicrobial resistance.

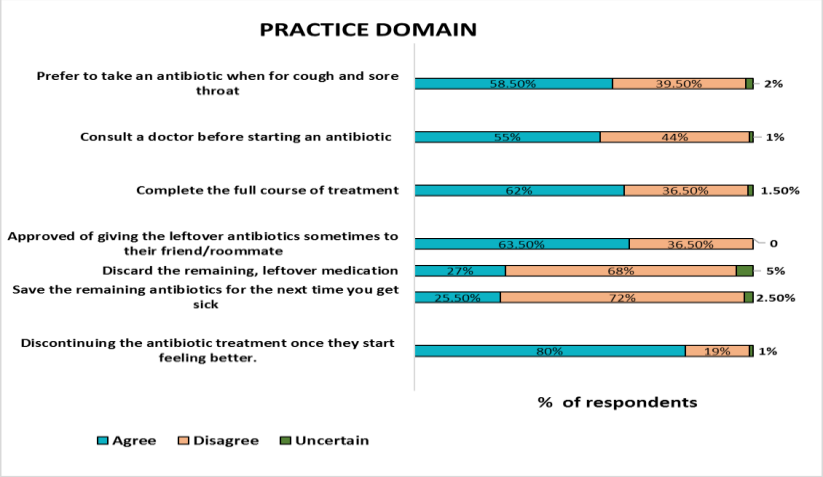

Fig. 3.

DISCUSSION

Responses from 200 students of MBBS students showed that most of them were well aware of the global as well as the nationwide problem of antimicrobial resistance, and most of the students answered majority of the questions correctly.

Rational use of antimicrobials is the main strategy to prevent AMR, which is achieved by changing the prescribers' behaviour and knowledge.[8]

In this work, it was depicted that 96% of the participants experienced a good knowledge which is supporting to other studies done in India, Malaysia, Portugal, Trinidad and Tobago.[9-11]

In this study it has been found that 98% of total respondents agree that indiscriminate use of AMA leads to development of bacterial resistance and there results are consistent with similar studies done by Mahajan M et al. Tarao MS et al, and Akram A et al, but the study conducted by Afzal K et al, found that total 85% of respondents believed that cause of bacterial resistance is due to its indiscriminate uses.[12-14]

Though in some questions, their lack of proper awareness is absent. For example, many students told that skipping 1- 2 doses of antibiotic doesn't lead to development of resistance, which is not true. Also, many students agreed that adverse effect of one antimicrobial agent can be reduced by simultaneous use of another antimicrobial, which is not true also.

Another area which need to be corrected is that most of the students do not discard the leftover antimicrobials after the course/illness is completed, rather they tend to use those in future for their own illness or illness among friends without consulting senior physicians, which can lead to antimicrobial resistance in future.

Studies done previously by Zafar SN et al, showed that around 60% of the participants believed that antibiotics should be prescribed for viral diseases like sore throat and cough, and such misconception may lead to high rate of inappropriate Use of antibiotics, which in turn fuels the expanding antimicrobial resistance, while in this study only 39% of the total respondents believe that antibiotics should not be taken in cough and sore throat and around 2% is uncertain but around 80% are well aware that bacteria does not cause common cold and influenza. So proper education regarding practice of antibiotics is necessary.[15]

Around 19% of total population of this study never stop taking antibiotics in spite of feeling better after taking 2-3 doses of antibiotics which was comparatively low as compared to other studies conducted by Mahajan M et al and by Afzal K etal.[12,16]

Since now a day there is no restriction on Over The Counter (OTC) dispensing of antibiotics without prescriptions so any antibiotics can be purchased OTC without prescriptions. These kind of practices may Cause abuse of antibiotics among the populations leading to development of resistance.[13] Besides, the majority of the participants (54%) agreed to consult a doctor before starting the antibiotics and not to dispensing without prescription. It was similar as compared to another study, in which 60% of the participants thought that antibiotics should never be purchased as over the counter drugs.[17] The strength of our study is that it gives us the insight of KAP in the budding health-care professionals, which guides us to know the pattern and will help us to narrow down the gap between academic knowledge and professional practice. Moreover, we can improve the KAP of these students by giving practical pharmacology sessions every 6 months to make them updated on medicines, especially antibiotics, not only in the final year but also in internship.

CONCLUSION

Overall knowledge of antimicrobial resistance and proper use of antimicrobials appears good among MBBS student of this institution, though some areas need to be improved. Pharmacology training appears to make students more aware of this problem. Regular education is important to make them more aware.

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