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Original Research Article

A study of knowledge, attitude and practice on use of antibiotics and its resistance among the doctors and interns at urban tertiary care hospital: an interventional study

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ABSTRACT

Background: Infections due to resistant micro-organisms considerably increase the mortality rate, treatment cost, disease spread and duration of illness. The development of antibiotic resistance (AMR) is increasing steadily increasing over the last 10-15 years, which is a real threat to disease management. Many studies states that about 20-50% of antibiotic use unnecessary so decreasing the use of antibiotics is the first step to curb the AMR.
Methods: A questionnaire based prospective interventional study among the doctors. Systemic random sampling was applied. The pre tested structured questionnaire was used. Data's were summarised in the excel sheet, analysed by proportions, percentages and other statistical methods like Student t test, Fisher test and Chi square test were used to check the association. The $p>0.05$ was considered as significant.
Results: Out of 200 doctors, preliminary screening of 170 was included in the study and finally 156 participants were actively selected for analysis of results. Out of 156 participants, 55.1% were MBBS Intern and 44.9% were doctors. High significance ($p=0.0001$) were found between pre and post knowledge, attitude and practice of doctors.
Conclusions: Further modes of studies have to perform to identify the determinants of attitude behaviour and motivation that lead people to use and misuse antibiotics. For effective outcome many more qualitative and quantitative studies are required. In addition, health care system should follow proper regulation and prescription policy as well as controls for prescription of antibiotic drugs.

Keywords: Antibiotic resistance, Attitude, Knowledge, Practice, Prescription, Systemic random sampling

INTRODUCTION

Infections due to resistant micro-organisms considerably increase the mortality rate, cost of treatment, disease spread and duration of illness.[1-3] Until the end of 20th century, Pharmaceutical companies were consistently able to develop new antibiotics that were active against most of the resistant bacterial strains. The development of antibiotic resistance among organism is increasing day by day and it has been steadily increasing over the last 10-15 years, which is a real threat to disease management.[4] Many studies states that about 20-50% of antibiotic use are unnecessary so decreasing the use of antibiotics are the first step to curb the antibiotic resistance (AMR).[5-7]

To rein in this threat of AMR a national antibiotic policy was developed, national surveillance database for antibiotic use was established and national centre for

disease control (NCDC) is deputed to focus on AMR in the country.[8,9] Recently and for the first time WHO published list of antibiotic resistant "priority pathogen" causing greatest risk to human health; this is because our treatment option is running out as AMR is growing. The development of new antibiotics can bring to an end of antibiotic resistance in certain level, and it is equally important to use antibiotics wisely in humans, as well as to prevent unwanted use of these agents in food-animal production and also promote a rational use of antibiotics.

In order to initiate and to achieve effective outcome it is necessary to understand knowledge, attitude and practice (KAP) of doctors about the problem related to antibiotic resistance with this we are motivated to study KAP on use of antibiotics and its resistance among the doctors and interns.

METHODS

This was a prospective interventional study was done among the doctors and interns at HSK Hospital and Research centre, Bagalkot, Karnataka, after getting approval from IEC. This study was conducted from February 2018 to July 2018 for a period 6 months. By using Open Epi Software Version 2 we got, sample size as 145 round of to 156. Systematic random sampling was applied to select the Doctors for the study. The 19 item of self-administered questionnaire collected information among doctors and knowledge, attitudes and practice about antibiotic prescribing, their perception of the importance of the problem of antibiotic resistance, their knowledge of the national prevalence of antibiotic resistance and local prevalence of antibiotic misuse, their beliefs about the causes of antibiotic resistance, and about current and potential interventions design to improve antibiotic stewardship.

Data were collected about their current specialty, the frequency with which they prescribed antibiotics, and past training in antibiotic prescribing. To assess the knowledge of the prevalence of antibiotic resistance, doctors were asked about the prevalence of resistance in the hospital for specific bacterium (Methicillin resistant *Staphylococcus aureus* and *E. coli*) antibiotic combinations relevant to clinical practice.[16]

Inclusion criteria

Doctors and interns of departments like medicine, surgery, orthopaedics, skin, paediatrics and microbiology were included.

Exclusion criteria

Other healthcare professionals of remaining departments were excluded.

Study procedure

The study respondents were verbally informed about the studies. The questionnaire was distributed to the participants and collects it back on the same day. After one week awareness were provided by the means of leaflets and oral discussion on recent Antibiotic resistance. Again the same questionnaire was collected from the same participants.

Flow of study procedure

Baseline KAP about antibiotics use in selected doctors. Afterwards, awareness to the doctors is provided by leaflets and oral discussion about antibiotic resistance followed by questionnaire.

Statistical analysis

Percentages were calculated for the categorical data. Data analysis will be done using the statistical methods like percentages, proportion, Student t-test and Chi square test, Fisher test to arrive at a conclusion for finding the significant differences.

Measures and scores

For each questions scoring were given, and for each right answers higher score has given, followed by low score for appropriate answer and no score for wrong answers.

Knowledge question score: 13 item of questions were used to assess the knowledge, in which 62 is the total score one can score, the score ≥31 were categorized as good knowledge and below 31 categorized as average knowledge.

Attitude question score: 16 item of questions were used to assess the Attitude, in which 48 is the total score one can score, the score ≥24 were categorized as Positive attitude and below 23 categorized as negative attitude.

Table 1: Operational definitions.

Antibiotic resistance	It's an emerging medical threat in India with increasing nosocomial infection due to antimicrobial resistance due to irrational dose, duration and off-label uses may create havoc in the future. It's up-to healthcare professionals to analyze and advice on rational use of antimicrobials with regional guidelines.
Knowledge	The facts, information and skills acquired through experience or education.
Attitude	A settled way of thinking
Practice	Actual application or use of an idea, belief, or method, as opposed to theories relating to it.

Practice question score: 21 items were used to assess the practice, in which 60 is the total score one can score, the score ≥30 were categorized as good practice and below 29 categorized as poor practice.

RESULTS

Demographic details of study participants

In present study 200 doctors (MBBS-Intern, PG, MD/MS, and doctors) were enrolled, after the preliminary screening 170 (85%) were also included in the study and finally 156 participants were actively selected for analysis of results and 14 doctors were discounted from the middle of the study.

Assessment of knowledge

Pre-awareness for antibiotic prescription information

In the beginning of this study most of the doctors, out of 156 participants, about 120 (76.92%) of doctors have not undergone any awareness/training programmes relevant to antibiotic prescription and practice. Only 36 (23.03%) of doctors have undergone training programme. In which 31 (19.9%) of MBBS intern received training suitable for antibiotic prescription. This baseline information indicates that majority of doctors were not having any awareness and training programme for the recent updates and antibiotic prescription practice as shown in Table 1a.

Post- awareness for antibiotic prescription information

After baseline information (pre) obtained from 156 doctors, all these doctors were subjected for awareness/training about the rationality of antibiotic prescription and antibiotic resistance practice related information in the form of pamphlets, brochure and presentation followed by discussion provided to all. During this awareness programme 106 (68.69%) doctors have participated actively. Only 50 (32%) doctors were not actively participated. And 43 (27.6%) of doctors already had training programme. Of which, 63 (40.4%) MBBS interns have received training suitable for antibiotic prescription (Table 1a).

Pre-knowledge of participants with the scenario of antibiotic prescription

In this study we assessed the confident level of doctors with respect to antibiotic prescription practice. Out of 156 subjects, 109 (69.9%) are confident of making an accurate diagnosis of infection. Total of 47 (36.6%) were unconfident for accurate diagnosis of infection. Similarly 106 (67.9%) were confident in selection of correct antibiotic and 50 (32.1%) are unconfident in making decision for selection of correct antibiotic. In continuation, 108 (69.2%) are confident and 48 (30.8%) are unconfident to select the correct dose and interval of administration of antibiotics. 92 (59%) of doctors were confident and 64 (41.1%) of the doctors were unconfident for using a combination therapy. Nearly, 110 (70.5%) of doctors are confident and 46 (29.5%) are unconfident for choosing between IV and PO administration. Similarly, 110 (70.5) of doctors were very confident and 46 (29.53%) were unconfident for interpreting microbiologic result provided for proper selection of antibiotic. The 105 (67.3) of doctors were confident and 51 (32.7%) were unconfident for planning of antibiotic treatment duration appropriately (Table 1a).

Table 1a: Knowledge of study subject in the scenario of antibiotic prescription.

Knowledge of study subject in the scenario of antibiotic prescription	Pre (n=156)		Post (n=156)	
	C	UC	C	UN
Making an accurate diagnosis	109	29	99	56
Not prescribing an antibiotic if the patient has fever but no severity criteria, and if you are not sure about the diagnosis	73	56	96	54
Choosing the correct antibiotic	106	39	108	47
Choosing the correct dose and interval of administration	108	39	114	40
Using the combination therapy if appropriate	92	48	100	38
Choosing between IV and PO administration	110	33	123	31
Interpreting microbiologic result	110	30	135	19
Planning to streamline/stop the antibiotic treatment according to clinical evaluation and investigations	11	26	113	41
Planning the duration of the antibiotics treatment	105	34	114	40

C- Confidence, UN- Unconfidence

Post-knowledge of participants with the scenario of antibiotic prescription

In this study we assessed the confident level of doctors about the antibiotic prescription practice. Out of 156 subjects 99 (63.5%) were confident of making an accurate diagnosis of infection. Total of 57 (36.9%) were unconfident with accurate diagnosis of infection. Similarly, 108 (69.2%) were confident on selection of correct antibiotic and 48 (27.9%) were unconfident in making decision for selection of correct antibiotic. In continuation, 114 (75.3%) were confident and 42 (24.7%) were unconfident to select the correct dose and interval of administration of antibiotics. There were 100 (67.1%) of doctors are confident and 56 (32.9%) of the doctors were unconfident for using a combination therapy. Nearly, 123

(80.5%) of doctors were confident and 33 (19.4%) are unconfident for choosing between IV and PO administration. Similarly, 135 (86.6%) of doctors were very confident and 21 (13%) were unconfident for interpreting microbiologic result provided for proper selection of antibiotic. Among the doctors 114 (95.2%) were confident and 42 (26.3%) were unconfident for planning of antibiotic treatment duration appropriately (Table 1a).

Pre-knowledge of study subjects on cause of antibiotic resistance

In 156 participants, totally 102 (65.38%) doctors had given feedback as responsibility towards patient play an important role in preventing the cause of antibiotic resistance in patient. In which, 139 (89.1%) doctors had given the reason of self medication and antibiotic misuse as the major cause of antibiotic resistance as shown in Table 1b.

Table 1b: Knowledge of study subject on cause for antibiotic resistance.

Questions	Pre (n=156)			Post (n=156)		
Knowledge of study subject on cause for antibiotic resistance	**Yes**	**No**	**Don't know**	**Yes**	**No**	**Don't know**
Responsibility of patient	102	28	26	135	9	12
Self medication and antibiotic misuse	139	5	12	136	18	2

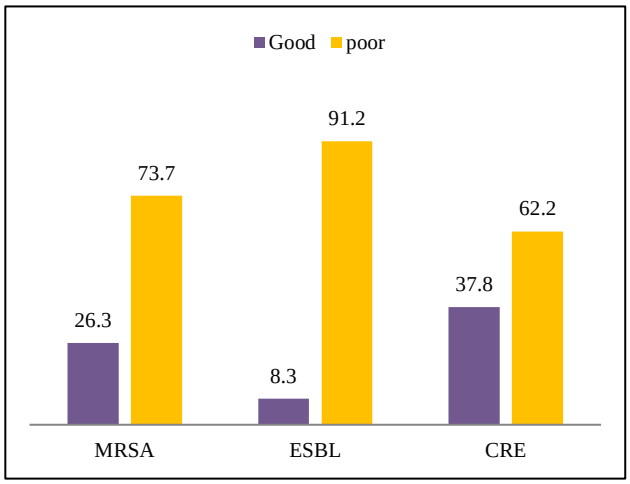

Figure 1a: Knowledge about correct ratio of prevalence of resistant strains.

In present study, three questions were asked to doctors to assess the knowledge about prevalence of resistant strain of MRSA, ESBL and CRE at our hospital. In which, 41 (26.3%) doctors were believed for existence of correct ratio of prevalence of resistant strains of MRSA. Nearly, 115 (73.7%) doctors have poor knowledge of MRSA resistance and prevalence. Similarly, only 13 (8.3%) doctors were having good knowledge of ESBL prevalence and 143 (91.2%) were having very poor knowledge of ESBL prevalence of resistance at our hospital. Similarly, for the CRE resistance prevalence only 59 (37.8%) doctors were aware about the resistance. And remaining 97 (62.2%) had no/poor knowledge about the prevalence of CRE resistance. This information indicates more than 75% of doctors were not aware about the exact prevalence of resistance of above three microbial strains, shown in Figure 1a.

Post-knowledge of study subjects on cause of antibiotic resistance

In 156 Participants, totally 135 (86.5%) doctors have given feedback as responsibility of cause of antibiotic resistance in patient. Out of which 136 (87.2%) doctors are given the reason of self medication and antibiotic misuse were major cause for antibiotic resistance. In present study, three questions were asked to doctors to access the knowledge about prevalence of resistant strain of MRSA, ESBL and CRE at our hospital. In which, 104 (66.7%) doctors were believed for existence of correct ratio of prevalence of resistant strains of MRSA. Nearly 35 (22.4%) doctors have poor knowledge of MRSA resistance and prevalence. And 85 (54.5%) doctors were having good knowledge of ESBL prevalence and 25 (16%) were having very poor knowledge of ESBL prevalence of resistance at our hospital. Similarly, for the CRE resistant and prevalence, about 122 (78.2%) doctors were aware about its resistance. And remaining 39 (25%) have no/poor knowledge about the prevalence of CRE resistance. This information indicates that 34% of doctors are not aware about the exact prevalence of resistance on above three microbial strains after the provided awareness as shown in Figure 1b.

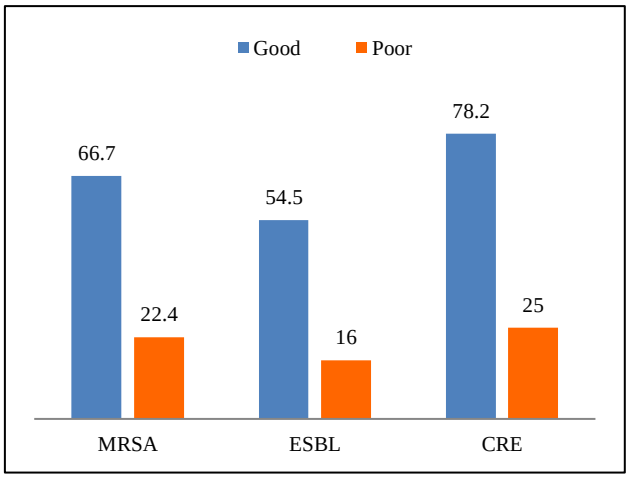

Figure 1b: Knowledge about correct ratio of prevalence of resistant strains.

In pre and post intervention of knowledge, those with age group of 20-30 years had the good knowledge and overall in post intervention should have significant difference (χ^2=11.1; p<0.011 and t=6.969; p<0.001at 95% confidence interval) in knowledge gain. Similarly, while considering experience of professional knowledge within 1 years of experienced doctors, MBBS interns have the significant (χ^2=22.6; p<0.0.000) good knowledge in prescription of antibiotics (Table 5).

Assessment of attitude

Pre-attitude of participants on antibiotic prescription and potential cause of antibiotic resistance

In present study, out of 156 doctors 126 (80.76%) were having good attitude of antibiotics prescription and 30 (19.22%) were having negative attitude of antibiotic prescription habit. In relation to antibiotic resistance, 118 (75.6%) were confident and 38 (24.4%) were unconfident and given reason of resistant that it may be due to too many antibiotics. And total of 117 (75%) were confident and 39 (25%) says due to many broad spectrum antibiotics. About 94 (60.2%) doctors were confident and 62 (39.7) were expressed unconfident for long duration of antibiotic treatment is unnecessary. Most of doctors 78 (50%) were confident and 78 (50%) were unconfident and expressed that low dose (not appropriated dose) is the major reason for antibiotic resistance. Nearly, 93 (59.6%) were confident and 63 (36.4%) doctors were unconfident about excessive use of antibiotics in livestock (animals). 105 (67.3%) were confident and 51 (32.7%) were unconfident of saying not removing the focus of infection as the main reason of resistance. 58 (37.6%) were confident and 98 (62.8%) were unconfident of saying paying too much attention to pharmaceutical representatives rather than real clinical evidence, shown in Table 2.

Post-attitude of participants on antibiotic prescription and potential cause of antibiotic resistance

In present study, out of 156 doctors, 146 (93.6%) were having good attitude of antibiotics prescription and 10 (6.4%) were having negative attitude of antibiotic prescription habit. In relation to antibiotic resistance, 151 (96.8%) were confident and 5 (3.2%) were unconfident and have given reason that resistant may be due to too many antibiotics. Total of 151 (96.8%) were confident and 5 (3.2%) were due to many antibiotics particularly broad spectrum antibiotics. Among the doctors 148 (94.9%) were confident and 8 (5.1%) were expressed that unconfident for long duration of antibiotic treatment unnecessary. Most of doctors 141 (90.3%) were confident and 15 (9.6%) were unconfident and expressed that low dose (not appropriated dose) is major reason for antibiotic resistance. Nearly 139 (89.1%) doctors were confident and 20 (10.9%) doctors are unconfident about excessive use of antibiotics in livestock and animals. 119 (76.3%) were confident and 37 (23.7%) were unconfident of saying not removing the focus of infection as the main reason of resistance. 58 (37.6%) were confident and 44 (28.2%) are confident of saying paying too much attention to pharmaceutical representatives rather than real clinical evidence (Table 2).

Table 2: Attitude.

Questions	Pre (n=156)		Post (n=156)	
Attitude of study subjects on potential cause for antibiotic resistance	**C**	**UN**	**C**	**UN**
Too many antibiotic prescription	118	12	151	1
Too many broad spectrum antibiotics	117	17	151	1
Too long durations of antibiotic treatment	94	18	148	0
Too low dose of antibiotic	78	33	141	3
Excessive use of antibiotics in livestock	93	24	139	3
Poor hand hygiene	83	29	118	31
Not removing the focus of infection	105	19	119	33
Paying too much attention to pharmaceutical representatives	58	46	112	31
Attitude of study subjects about measure on rationalizing antibiotic prescribing	**H**	**UH**	**H**	**UH**
Educational sessions on prescribing	129	10	155	0
Availability of local/national guidelines/policies/ protocol	136	6	154	0
Availability of local/national resistance data	128	7	144	1
Restriction of prescription of certain antibiotics	108	11	138	8
Restriction of prescription of all antibiotics	59	48	114	10
Regular audit and feedback on antibiotic prescribing	107	8	142	6

Post-measures on rationalizing antibiotic prescribing

In present study, out of 156 doctors, 155 (99.4%) doctors expressed that continuation education sessions will be helpful to understand about the rationalization of antibiotic prescription. About 154 (98.7%) doctor's states as helpful with availability of local/national guidelines /policies/protocol to ensure the rationalizing antibiotics. Similarly, 138 (88.5%) doctors expressed that certain restriction of prescription un-necessaries. Some of doctors

114 (73.1%) saying those on restriction of prescription of all antibiotics are helpful. And the 142 (91%) doctors expressed that regular antibiotic use and misuse audit and feedback and awareness programme will definitely ensure the rationalising of antibiotic prescription habit (Table 2).

In the measure of attitude towards their education about antibiotic prescription most of doctors had significant positive attitude (χ^2=11.1; p<0.011 and t=10.848; p<0.001 at 95% confidence interval) in post intervention studies itself. Especially, MBBS interns have shown more positive attitude in learning, and improving in prescription of rational antibiotics to reduce the resistance (Table 4).

Assessment of practice

Pre-practice of study subject on inappropriate prescription of antibiotics in the hospital

In the present study, out of 156 doctors, 91 (58.4%) doctors expressed that 10-50% of antibiotic prescription were unnecessary or inappropriate and remaining 65 (41.6%) were not sure about the inappropriate use of antibiotics. In contrast, 41 (26.3%) was MBBS Interns and 50 (32.1%) doctors (PG/MD/MS) were saying 10-50% antibiotics are inappropriate prescriptions at our hospital.

Post-practice of study subject on inappropriate prescription of antibiotics in the hospital

Among of 156 doctors, 140 (89.2%) doctors expressed that 10-50% of antibiotic prescription were unnecessary or inappropriate and remaining 16 (10.25%) not sure about the inappropriate use of antibiotics. In contrast, 68 (43.3%) of MBBS Interns and 72 (45.9%) doctors (PG/MD/MS) were saying 10-50% antibiotics were inappropriate prescription at our hospital.

Table 3a: Practice.

Questions	Pre (n=156)		Post (n=156)	
Practice for rationalising antibiotic prescribing	**H**	**UH**	**H**	**UH**
Computer aided prescribing	70	34	130	4
Presence of an antimicrobial management team	100	6	129	17
Readily accessible microbiological advice	120	3	119	12
Readily accessible advice from ID physician	117	4	120	1
Readily accessible advice from a pharmacist	93	12	116	13
Readily accessible advice from infection control team	114	8	140	12
Advice from senior colleague	123	4	138	9
Speaking to a pharmaceutical representative	72	25	115	26

H- helpful, UH- unhelpful

Pre practice of study subjects for rationalizing antibiotic prescribing

Out of 156 participants, 70 doctors (44.9%) expressed that computer aided prescribing were helpful in rationalizing the prescription and 100 (64.1%) doctors showed interest on the presence of an antimicrobial management team in each hospital definitely helpful to combat of irrational use of antibiotics. About 120 (76.9%) doctors expressed about facility for readily accessible microbiological advice for rationalisation of antibiotic prescription. About 117 (75.9%) doctors have expressed that drug information system at each hospital and discussions with physician were very helpful in rationalisation. Similarly, 93 (59.6%) of doctors have expressed obtaining correct information on Clinical Pharmacist help to access the rationality of an antibiotic prescriptions. Nearly 114 (73.1%) and 123 (78.84%) have advised for infection control team help and taking senior colleague advice, will be great helpful. Only 72 (46.15%) said helpful on speaking to a pharmaceutical representative as shown in Table 3a.

Table 3b: Practice.

Questions	Pre (n=156)			Post (n=156)		
Practice of study subjects on potential intervention to combat AMR	**U**	**NU**	**US**	**U**	**NU**	**US**
Antimicrobial usage policy	143	2	11	155	1	0
Reduction of antibiotic use for OP setting	131	15	10	149	0	7
Establish national action plan	137	2	17	155	0	1
Develop institution guidelines for antimicrobial use	136	4	116	149	0	7
Education on antimicrobial	142	2	12	153	0	3

U- Useful, NU-Not useful, NS- Not sure

Post-practice of study subjects for rationalizing antibiotic prescribing

Out of 156 participants, 130 doctors (83.3%) expressed that computer aided prescribing was helpful in rationalizing the prescription and 129 (82.7%) doctors showed interest that presence of an antimicrobial management team in each hospital definitely will be helpful to combat irrational use of antibiotics. About 119 (76.3) doctors have expressed that facility for readily accessible microbiological advice would be more helpful for rationalisation of antibiotic prescription. Most of doctors that is, 120 (76.9%) have expressed that drug information system at each hospital and discussions with physician were very helpful in rationalisation. Similarly

116 (74.4%) of doctors have expressed obtaining correct information on clinical pharmacist help to access the rationality of an antibiotic prescriptions. Nearly, 140 (89.7%) and 138 (88.5%) are advised for infection control team help and taking advice from senior colleague will be great helpful. Only 115 (73.7%) says helpful on speaking to a pharmaceutical representative (Table 3a).

Table 4: Pre and post intervention of KAP among doctors against antimicrobial resistance.

	χ^2 value	P value	Result
Pre-knowledge with age	1.07*	0.785	Insignificant
Post-knowledge with age	11.1*	0.011	Significant
Pre-knowledge with gender	0.526**	0.47	Insignificant
Post-knowledge with gender	0.819*	0.365	Insignificant
Pre-knowledge with education	3.011**	0.082	Insignificant
Post-knowledge with education	1.24*	0.266	Insignificant
Pre-knowledge with experience	5.22*	0.39	Insignificant
Post-knowledge with experience	22.6*	0.000	Significant
Pre-attitude with education	5.08**	0.02	Significant
Post-attitude with education	2.49*	0.12	Insignificant
Pre-attitude with experience	1.63**	0.89	Insignificant
Post-attitude with experience	8.29*	0.014	Significant
Pre-practice with education	3.83**	0.05	Significant
Post-practice with education	0.45**	0.50	Insignificant
Pre-practice with experience	9.03*	0.108	Insignificant
Post-practice with experience	19.34**	0.0016	Significant

*Fisher test; **Chi-square test

Table 5: Summary of pre and post KAP.

	N	Mean	SEM
Pre knowledge	156	40.11±9.553	0.765
Post knowledge	156	45.94±6.456	0.492
Pre attitude	156	36.20±6.557	0.525
Post attitude	156	42.32±3.209	0.257
Pre practice	156	41.01±8.857	0.709
Post practice	156	51.06±8.078	0.647
Pre total score	156	192.61±35.372	2.832
Post total score	156	227.57±18.236	1.460

Pre-practice of study subject on potential intervention to combat AMR

In final stage of this study, doctors of 143 (91.7%) believed that Antimicrobial usage policy at national level as useful. About 131 (84%) of doctor perceived that Reduction of antibiotic use for OP setting will be useful. Doctors of 137 (87.8%) and 136 (87.2%) believed in establishing national action plan updates and institutional action plan was helpful. About 142 (91.02%) doctors saying that regular education on Antimicrobial therapy for prescribers will be helpful in combat of AMR (Table 3b).

Post-practice of study subject on potential intervention to combat AMR

In final stage of this study, 155 (99.4%) of doctors believed in proper development of Antimicrobial usage policy at national level will be helpful. The 149 (95.5%) perceived that reduction of antibiotic use for OP setting as very helpful. Doctors of 137 (87.8%) and 136 (87.2%) perceived that establishing national action plan updates and institutional action plan was helpful. Doctors of 142 (91.02%) saying regular education on Antimicrobial therapy for prescribers on up-to date was helpful in combat of AMR (Table 3b).

Pre and post intervention of KAP among doctors against antimicrobial resistance with respect to their age, gender, education qualification and experience were analysed with appropriate test (Fisher test and Chi square test) and summarised in Table 4.

In pre and post intervention measure of practice towards their experience about antibiotic prescription for most of doctors has significant Good practice (χ^2=19.34; p<0.0016 and t=11.134; p<0.001 at 95% confidence interval) in post intervention studies itself. Especially, MBBS interns have shown more good practice in improving the prescription habit to rationalise the antibiotic therapy (Table 5).

DISCUSSION

This study reveals that most of the MBBS interns have realised that antibiotic resistance is an important problem globally and national health policy makers and government should take strict actions to rationalise the antibiotic use. Present findings are consistent with similar studies done in other parts of the works.[13,14]

In this study most of the doctors (65-80%) viewed antibiotic resistance as a national problem and as well as at our clinical practice. The recent studies have found a higher level of awareness of the problem of antibiotic resistance training for the better awareness of antibiotic resistance in our hospital setup, although one survey of internal medicine doctors found that previous personal experience with resistance was the best predictor of better recognition of the problem of antibiotic resistance in patients.[13-15]

It indicates that from our study, institutions should advocate and arrange for more frequent educational activities and workshops to train fresh graduates regarding current and latest guidelines in the field of antibiotic resistance in order to keep them up to dated with the latest protocol and resistance pattern on local patient's data. Especially concerning intravenous-oral switch criteria, antibiotic combination choice criteria and optimal duration of antibiotic treatment.

Attitude regarding the different components of antibiotic prescribing process and pattern varied according to the scenario studies in our questionnaires. In present study, MBBS interns were most confident, when making a diagnosis and less confident in streamlining or stopping antibiotics therapy, planning the correct duration of treatment or using a combination therapy appropriately.

The high level of confidence reported in our study in making the current diagnosis is not much supported by proper evidence, as misdiagnosis has been shown to be the leading cause of unnecessary antibiotics prescription.[16]

However restriction of prescription of some antibiotics was perceived as helpful by the major of respondents. This step of antibiotics restriction should be very necessarily perceived by the doctors at our hospital and required necessary initiation. Availability of advice from an infection disease specialist and a daily based microbiologist and clinical pharmacist including audit and feedback strategies were also highly valued by participated doctors. These findings are consistent with an Australian and Indian studies survey on medical staff attitudes to an antibiotic approval and stewardship programme.[17,18]

The government, medical institutions, hospital and policy makers need to take intensive action to crab the every-growing problem of antibiotic resistance and MBBS students, residents and junior doctors should be the earliest targets of these interventions. So that they can inculcate good prescribing habits early in the course of their practice. However, our study has some limitations. In our case the participants are not representative of the population at large as the study population comprised only young medical graduates and junior residents with less senior doctors were respondents. Also the possibility that participants were more inclined to give more favourable answer cannot be ruled out.

Since the study was based on self-reporting, we cannot be much sure that the answer given by them truly reflects their attitude and practice. But the study highlights very significant issues that need to be tackled urgently and appropriately.

CONCLUSION

The finding demonstrates that participant doctors have a lack of awareness on antibiotic use and resistance. Further qualitative and quantitative studies are needed to identify the determinants of attitude behaviour and motivation that lead people to use and misuse antibiotic. In addition, the government should require its health care system to develop proper regulation and prescription policy as well as controls for prescription of antibiotic drugs. Pharmacist plays a key role in raising awareness about the use of antibiotics and on growing antibiotic resistance with in population.

Finally, public health strategies-including educational programme should be developed, targeting specific area of antibiotics and identification of population at risk in term of improper antibiotic consumption.

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