



**KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING ANTIBIOTIC
PRESCRIPTION PATTERN AMONG PG'S AND FACULTY OF K. D
DENTAL COLLEGE – A CROSS-SECTIONAL STUDY**

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ABSTRACT

Introduction:- Assessment of Knowledge, Attitude and Practices (KAP) of antibiotics prescription pattern among dentists may help in developing guidelines to improve antibiotics use and decrease resistance. Antibiotic overuse and misuse among dentists is usually seen.

Objectives:- The study was conducted to compare the Knowledge, Attitude and Practices of pg's and faculty regarding antibiotic prescription.

Methods:- A cross-sectional, questionnaire based survey was conducted at K.D. Dental College and Hospital, Mathura among 98 dentists (82 pg's and 16 faculty). A self prepared questionnaire was distributed amongst the participants so as to assess their Knowledge,

Attitude and Practices regarding antibiotic use and its resistance. Data was analysed using descriptive statistics and chi-square test.

Results: - Out of total 98 participants, there were 28 pg's and 8 faculty were males & 54 pg's and 8 faculty were females . In total 90.24 percent of pg's knew about the antibiotic resistance while 93.75 percent of faculty thought that antibiotic resistance was due to unnecessary use. About 62.50 percent of faculty prescribed antibiotics when their patient requested, 97.56 percent of pg's took medical history before prescribing antibiotics and 100 percent of faculty took medical history.

Conclusion:-The present study showed that faculties had sufficient Knowledge & Attitude about antibiotic usage as compared to pg's and even the faculties had better practice for antibiotic prescription. So, the pg's need to focus more on trending antibiotics into practice.

Keywords: Antibiotic, KAP survey, Antibiotic resistance

INTRODUCTION

As the doorway into the antibiotic era opened with the discovery of Penicillin, the capability of dentists and medical professionals, to treat dental infections increased dramatically.¹ Antibiotics are one among the most commonly prescribed drugs by dentists for prophylactic and therapeutic management of oro-dental infections [1]. Thus, antibiotics, with analgesics, account for the vast majority of medicines prescribed by dentists [2].

Around 70% to 80% of antibiotic prescriptions are unnecessarily prescribed by the health professionals. Imprudent uses of these drugs have resulted to antimicrobial resistance, which is now emerging as one of the major threats to health care globally. Resistance is a serious issue leading to serious difficulty in treating infections caused by bacteria. The problem of resistance is compounded in developing countries due to many reasons which

include self-medication without prescription, over the counter (OTC) availability of antibiotics, high medical consultations fees, insufficient regulation of antibiotics, and lack of satisfaction with medical practitioners [6].

If the doctors are made aware of their prescribing practices, they will adopt the guidelines. KAP (Knowledge, Attitude and Practice) studies can be used to analyze the prescribing practices of doctors [8].

Numerous studies have been conducted all around the world regarding antibiotic prescription patterns [9]. However, there is no information available regarding antibiotic prescription pattern of study among pg's and faculty of a dental college. Hence, this study was conducted to evaluate knowledge, attitude and practices regarding antibiotic prescription pattern among pg's and faculty of K.D Dental College.

MATERIALS AND METHOD

A cross sectional study was carried out with the aim to investigate the Knowledge, Attitude and Practices of the Pg's and faculty of KDDC, Mathura city towards antibiotic prescription. Pg's and faculty who are actively engaged in treatment of dental patients in various departments of KDDC, Mathura were included in this study. A self-administered questionnaire to explore general information and questions related to antibiotics use in certain dental clinical procedures was provided to the Pg's and faculty. The questions were close ended. The questionnaire comprises of ten questions in table no.3 was distributed to the Pg's and Faculty.

The data was numerically coded and entered into SPSS - version 20 (SPSS Inc., Chicago, IL, USA) database and analyzed using cross-sectional descriptive statistics. Chi square test was used to assess the significance in the difference in the proportion of responses with P value <0.05 was considered statistically.

RESULTS

A total of 10 pretested closed ended questions were made and gave to 98 dental practitioners via personally. Overall 82 postgraduate dental practitioners and 16 faculty took part in this survey. Out of 98 participants 36 (36.73%) participants were males and 72 (73.46%) were females (Table 1) and 82 (83.67%) participants

were Pg's and 16 (16.32%) participants were faculty were given (Table 2).

Their response to the given questions is mentioned in Table 3. Within the limitations of the present study the descriptive statistics was used for representing each category of response and kappa statistics was used to assess the reliability. Kappa statistic was discovered to be 0.82 and the same questionnaire was used in the main study.

Chi square test which was used to assess the significance in the difference in the proportion of responses showed that with P value <0.05 being statistically significant, statistically significant differences were observed in questions 1,2,3,4 and 9 among postgraduate and faculty which indicated there was a need of awareness and that knowledge was deficits regarding correct and standardized use of antibiotic regimen.

Table 1: Gender-wise distribution of study participants

Gender	Frequency	Percentage
Male	36	36.73%
Female	72	73.46%
Total	98	100.0%

Table 2: Participants distribution

PG/Faculty	Frequency	Percentage
PG	82	83.67%
Faculty	16	16.32%
Total	98	100.0%

Table 3: Question-wise response of participants

S.no	Questions	Options	PG (N%)	Faculty(N%)	P-Value
1	What is the most common route of antibiotic administration?	Oral	82(100.00%)	16(100.00%)	0.000*
		Intravenous	0(0%)	0(0%)	
2	Do you know about antibiotic resistance?	Yes	74(90.24%)	1(6.25%)	0.000*
		No	8(9.76%)	15(93.75%)	
3	Antibiotic resistance is due to?	Using antibiotic when they are not necessary	28(34.15%)	15(93.75%)	0.000*
		Not completing the full course of antibiotic	45(54.88%)	1(6.25%)	
		Using antibiotic without physician prescription	6(7.32%)	0(0.00%)	
		Using the same antibiotic with a different brand	3(3.65%)	0(0.00%)	

4	Do you think frequent use of antibiotics will decrease efficacy of treatment when using antibiotic again?	Yes	75(91.46%)	8(50.00%)	0.000*
		No	7(8.54%)	8(50.00%)	
5	Would you prescribe antibiotic for reversible pulpitis?	Yes	37(45.12%)	9(56.25%)	0.415
		No	45(54.88%)	7(43.75%)	
6	Would you prescribe antibiotics prior to extraction?	Yes	50(60.98%)	8(50.00%)	0.414
		No	32(39.02)	8(50.00%)	
7	Do you prescribe antibiotics to pediatric patients?	Yes	65(79.27%)	12(75.00%)	0.703
8	Do you receive emergency calls?	No	17(20.73%)	4(25.00%)	0.795
		Yes	59(71.95%)	11(68.75%)	

		No	23(28.05%)	5(31.25%)	
9	Do you prescribe antibiotics when your patient requests you to prescribe antibiotic?	Yes	11(13.41%)	10(62.50%)	0.000*
		No	71(86.59%)	6(37.50%)	
10	Do you take medical history of the patient before prescribing antibiotics?	Yes	80(97.56%)	16(100.00%)	0.528
		No	2(2.44%)	0(0.00%)	

DISCUSSIONS

DISTRIBUTION OF STUDY SUBJECTS ON THE BASIS OF GENDER

In the present study, out of 98 (100%) study subjects, 36 (36.73%) participants were males and 72 (73.46%) were females. In the studies conducted by Dr. N. Arunakiry Natarajan *et al.*, [1] Amit Kumar Garg *et al.*, [2] T.Harsha Vardhman *et al.*, [5] Sarraf Deependra Prasad *et al.*, [8] Abdelmoneim Ismail Awad *et al.*, [9] K Al –Johani *et al.*, [10] Amisha N . Parekh *et al.*, [16] Javier Aragonese *et al.*, [18] 69% , 55.3% , 70% , 73.5% , 31.3% , 41.3% , 44.8% and 36.7% subjects were males respectively ; and 30.9%, 44.7%, 30%, 26.5%, 68.7%, 58.7%, 55.2% and 63.3% subjects were females respectively.

DISTRIBUTION OF STUDY SUBJECTS

The present study was conducted among 98 (100%) study subjects in which group 1 consisted of 82 (83.67%) pg's and group 2 consisted of 16 (16.32%) faculty. In the studies conducted by Amit Kumar Garg *et al.*, [2] T.Harsha Vardhan *et al.*, [5] K Al-Johani *et al.*, [10] Sumit Mohan *et al.*, [15]

Aditya Shinde *et al.*, [17] 46.7% , 15% , 69.8% , 58.7% and 58.7% subjects were BDS respectively; and 53.3% , 85% , 10.3% , 41.2% and 41.2% were MDS respectively.

KNOWLEDGE OF STUDY SUBJECTS REGARDING MOST COMMON ROUTE OF ANTIBIOTIC ADMINISTRATION

In the present study, out of 98 (100%) study subjects, all of them responded that most common route of antibiotic administration was oral route. The p-value was found to be 0.00 and result was found to be statistically significant. Similarly, in studies conducted by K Al-Johani *et al.*, [10] Sumit Mohan *et al.*, [15] Aditya Shinde *et al.*, [17] 99.2%, 100.0%, 100.0% participants gave response as oral route.

KNOWLEDGE OF STUDY SUBJECTS REGARDING ANTIBIOTIC RESISTANCE

In the present study, out of 98 (100%) study subjects, 74 (90.24%) Pgs knew about antibiotic resistance & only 1 (6.25%) faculty knew about antibiotic resistance while 8 (9.76%) Pgs did not know about antibiotic resistance and 15 (93.75%) faculty did not know about antibiotic resistance. However,

in study conducted by Sarraf Deependra Prasad *et al.*, [8] 81.4% of participants thought that hospitals in general faced serious problems with antibiotic resistant organisms and 61.5% thought that antibiotic resistance does present a significant problem at their hospital. Similarly, in the study conducted by Dawnji SR *et al.*, [12] 90.1% participants knew about antibiotic resistance.

KNOWLEDGE OF STUDY SUBJECTS REGARDING CAUSE OF ANTIBIOTIC RESISTANCE

In the present study, out of 98 (100%) study subjects, 28 (34.15%) of Pgs & 15 (93.75%) faculty thought that antibiotic resistance was due to using antibiotics when they were not necessary and 45 (54.88%) Pgs & only 1 (6.25%) faculty thought that antibiotic resistance was due to not completing the full course of antibiotic. About 6 (7.32%) Pgs & none of faculty thought that antibiotic resistance was due to using antibiotic without physician prescription. About 3 (3.65%) Pgs & none of faculty thought that antibiotic resistance was due to using the same antibiotic with a different brand. However, in study conducted by Mosmi Lomi *et al.*, [6] 11.43% Ugs and 14.29% Pgs thought that adverse effects could be reduced by using more than two antibiotics at a time and also found that 97.14% Pgs and 80% Ugs agreed

with the indiscriminate use of antibiotics leading to emergence of antibiotic resistance. While in the study conducted by Sarraf Deependra Prasad *et al.*, [8] 87.4% participants thought that antibiotics were overused in general and 55.8% participants thought that antibiotics were overused by them. While in the study conducted by T. Harsha Vardhan *et al.*, [5] 93.33% of respondents felt overdose of prescription of antibiotics could lead to resistance and also concluded that 93.33% local clinicians 94% Pgs and 85.2% Ugs agreed that self medication with antibiotics by patients to treat dental problems might be responsible for antibiotic resistance.

ATTITUDE OF STUDY SUBJECTS REGARDING FREQUENT USE OF ANTIBIOTICS WILL DECREASE EFFICACY OF TREATMENT WHEN USING ANTIBIOTIC AGAIN

In the present study, out of 98 (100%) study subjects, 75 (91.46%) of Pgs & 8 (50%) faculty thought frequent use of antibiotics would decrease efficacy of treatment when using antibiotic again. About 7 (8.54%) Pgs & 8 (50%) faculty did not think that frequent use of antibiotics would decrease efficacy of treatment when using antibiotic again. The p-value was found to be 0.00 and result was found to be statistically significant. In the

study conducted by Sarraf Deependra Prasad *et al.*, [8] 42.3% participants thought that patient demand for antibiotics contributed to antibiotic overuse for them. While in the study conducted by Mosmi Lomi *et al.*, [6] 91.43% PGs and 38.57% UGs thought that if the antibiotics were newer and costlier they did not affect the efficacy of drug.

ATTITUDE OF STUDY SUBJECTS REGARDING WOULD THEY PRESCRIBE ANTIBIOTIC FOR REVERSIBLE PULPITIS

In the present study, out of 98 (100%) study subjects, 37 (45.12%) Pgs & 9 (56.25%) faculty did not prescribe antibiotics for reversible pulpitis. About 45 (54.88%) Pgs and 7 (43.75%) faculty did not prescribe antibiotics for reversible pulpitis. The p-value was found to be 0.415 and result was not found to be statistically significant. In the study conducted by K Al-Johani *et al.*, [10] 93.7% participants did not prescribe antibiotic for reversible pulpitis. Result were in contrast to the study conducted by Amisha N. Parekh *et al.*, [16] in which 84.2% PGs and 15.8% UGs preferred to use antibiotics in case of reversible pulpitis and in study conducted by Aditya Shinde *et al.*, [17] 64.81% PGs and 77.92% UGs gave antibiotic for reversible pulpitis. Similarly, in the study conducted by Sumit Mohan *et al.*, [15]

64.81% PGs and 77.92% UGs prescribed antibiotic for reversible pulpitis.

ATTITUDE OF STUDY SUBJECTS REGARDING WOULD YOU PRESCRIBE ANTIBIOTICS PRIOR TO EXTRACTION

In the present study, out of 98 (100%) study subjects, 50 (60.98%) of Pgs & 8 (50%) of faculty prescribed antibiotics prior to extraction. About 32 (39.02%) of Pgs and 8 (50%) of faculty did not prescribe antibiotics prior to extraction. The p-value was found to be 0.414 and result was not found to be statistically significant. In the studies conducted by Aditya Shinde *et al.*, [17] 77.77% Pgs and 100.0% Ugs prescribed antibiotics before extraction. However, in the study conducted by Sumit Mohan *et al.*, [15] 77.77% Pgs and 100.0% Ugs prescribed antibiotics prior to extraction.

PRACTICE OF STUDY SUBJECTS REGARDING PRESCRIPTION OF ANTIBIOTICS TO PEDIATRIC PATIENTS

In the present study, out of 98 (100%) study subjects, 65 (79.27%) Pgs & 12 (75%) faculty prescribed antibiotics to pediatric patients. About 17 (20.73%) Pg's and 4 (25%) faculty did not prescribe antibiotics to pediatric patients. The p-value was found to be 0.703 and result was not found to be

statistically significant. In the studies conducted by T. Harsha Vardhan *et al.*, [5] 73.32% participants felt antibiotic prescription was absolutely necessary to manage oral diseases. In the study conducted by Aditya Shinde *et al.*, [17] 92.50% PGs and 97.40% UGs prescribed antibiotics to pediatric patients. However, in the study conducted by Sumit Mohan *et al.*, [15] 92.50% of PGs and 97.40% of UGs prescribed antibiotics to pediatric patients.

PRACTICE OF STUDY SUBJECTS REGARDING WOULD THEY RECEIVE EMERGENCY CALLS

In the present study, out of 98 (100%) study subjects, 59 (71.95%) Pgs & 11 (68.75%) faculty received emergency calls. About 23 (28.05%) Pgs and 5 (31.25%) faculty didn't receive emergency calls. The p-value was found to be 0.795 and result was not found to be statistically significant. In the study conducted by Aditya Shinde *et al.*, [17] 92.59% of PGs and 97.40% of Ugs did receive emergency calls. Also, in the study conducted by Sumit Mohan *et al.*, [15] 92.59% of Pgs and 97.40% of Ugs received emergency calls.

PRACTICE OF STUDY SUBJECTS REGARDING PRESCRIPTION OF ANTIBIOTICS WHEN THEIR PATIENT

REQUESTED TO PRESCRIBE ANTIBIOTIC

In the present study, out of 98 (100%) study subjects, 11 (13.41%) Pgs & 10 (62.50%) faculty prescribed antibiotics when their patient requested to prescribe antibiotic. About 71 (86.59%) Pgs & 6 (37.50%) faculty didn't prescribe antibiotics when patient requested to prescribe antibiotics. The p-value was found to be 0.00 and result was found to be statistically significant. In the study conducted by T. Harsha Vardhan *et al.*, [5] 73.32% local clinicians and 65% PGs and 86% UGs did antibiotic prescription depending on patients preference.

PRACTICE OF STUDY SUBJECTS REGARDING TAKING MEDICAL HISTORY OF THE PATIENT BEFORE PRESCRIBING ANTIBIOTICS

In the present study, out of 98 (100%) study subjects, 80 (97.56%) Pgs & 16 (100%) faculty took medical history of the patient before prescribing antibiotics. About 2 (2.44%) Pgs & none of faculty took medical history of the patient before prescribing antibiotics. The p-value was found to be 0.528 and result was not found to be statistically significant. In the study conducted by Javier Aragonese *et al.*, [18] 88.9% and 80% of participants thought that antibiotics could be given to pregnant women

in their second and third trimester. In the study conducted by T. Harsha Vardhan *et al.*, [5] 86.66% local clinicians and 85.4% PGs and 89.7% UGs took past dental/medical history of consumption of antibiotics before prescribing antibiotics. In the study conducted by Aditya Shinde *et al.*, [17] 92.50% PGs and 77.72% UGs recorded medical history of the patient before prescribing antibiotics. Similarly, in the study conducted by Sumit Mohan *et al.*, [15] 92.50% PGs and 77.72% UGs took medical history of the patient before prescribing antibiotics.

CONCLUSION

Dentists should educate themselves and patients about the development of antibiotic resistance. Oral healthcare providers in India are overprescribing, which could be a major contributor to the worldwide problem of antimicrobial resistance. In the present study, faculties had sufficient knowledge & positive attitude about antibiotic usage as compared to pg's and also better practices for antibiotic prescription. So, the pg's need to focus more on trending antibiotics into practice. As a part of the medical fraternity, we dentists should take moral responsibility towards unwanted use of antibiotics and play a determinant role in curtailing the developing antibiotic resistance.

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CONFLICT OF INTEREST

Authors declare that there are no conflicts of interest.

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