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Research Article

**ANALYSIS OF WRITING ANTIBIOTIC PRESCRIPTIONS AS A
HABITS AND KNOWLEDGE OF DENTISTS IN PAKISTAN**Dr. Iqra Rehman Alvi¹, Dr. Umm-e-Aiman², Dr. Shahzadi Huma Amjad³¹Dental Surgeon at RHC 110/TDA, Layyah²Dental Surgeon at THQ Hospital, Sadiqabad³Dental Surgeon at THQ Hospital Kotli Sattian, Rawalpindi**Abstract:**

Introduction: Bacterial resistance is increasing and one contributing factor is use of antibiotics. We are facing not only epidemics but pandemics of antibiotic resistance. Dentists constitute one group prescribing antibiotics and information on the knowledge, understanding and correct usage of antibiotics in clinical practice by dentists is scarce. **Objectives of the study:** The basic aim of the study is to analyze writing antibiotic prescriptions as a habits and knowledge of dentists in Pakistan. **Material and methods:** This study was conducted in the hospitals of Layyah, Sadiqabad and Rawalpindi during Sep 2007 to Dec 2007. It was descriptive study on antibiotic Prescription by dentists of major cities of Pakistan. A self-completed questionnaire containing both closed and open ended questions was developed. **Results:** Ninety-four (67.1%) of the respondents had attended a CPD course on antibiotic use in the last one year, 8.6% at least once in the last two years, and 7.1% in the last five years while 4.3% reported not having had any since commencement of dental practice. **Conclusion:** It is concluded that antibiotic prescription habits of dentists vary in different cities of Pakistan. There is a trend to overprescribe in many cases. There is a need to develop guidelines and start continuing development programs in dentistry to improve knowledge amongst dentists, and to prevent antibiotic resistance.

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INTRODUCTION:

Bacterial resistance is increasing and one contributing factor is use of antibiotics. We are facing not only epidemics but pandemics of antibiotic resistance. Dentists constitute one group prescribing antibiotics and information on the knowledge; understanding and correct usage of antibiotics in clinical practice by dentists is scarce¹. In Pakistan, the changing focus of health care from traditional to western scientific practices has resulted in free access to pharmaceutical agents for health care providers and communities in the absence of proper regulatory mechanisms². Research has often focused on patients' contribution to inappropriate use of medication while less attention has been paid to the role of professionals, especially dentists to this growing problem. Antibiotics and analgesics are the most commonly prescribed medicine by dental practitioners. As antibiotics do not cause a direct effect on host cells, they are often prescribed on a "just in case" basis Dentist prescribe antibiotics for the treatment of acute infections, treatment of non-odontogenic infections, prophylaxis of local and systemic spread³. It is also seen that many dental patients 'expect' an antibiotic prescription, and therefore they may influence their prescription. Studies on the knowledge of antibiotics prescription reveal that factors other than sound knowledge may influence their prescription practice⁴. Due to lack of guidelines, differences in prescription practices have been common. Recent changes in antibiotics use for prophylaxis of IE have also resulted in differences in practice amongst dentist in different countries⁵.

Theoretical background

Often dentists prescribe broad spectrum antibiotics instead of selecting them based on specific indications. Antibiotics are often given without signs and symptoms of infection, to delay appointments, to prevent infection, to avoid later criticism and to ensure everything was done. Recent use of antibiotics and over prescription are well documented risk factors for the colonization with resistant strains of micro-organism. Antibiotic resistance is a cause of major concern, as more and more resistant strains are being seen. This makes it difficult to eliminate infections. Many infections now contain bacteria that do not respond to conventional treatment and require more specific and potent antibiotics. The reason suggested for this is the overuse of antibiotics, in which case, certain strains of bacteria are able to survive due to mutational changes⁶.

Objectives of the study

The basic aim of the study is to analyze writing antibiotic prescriptions as a habits and knowledge of dentists in Pakistan.

MATERIAL AND METHODS:

This study was conducted in the hospitals of Layyah, Sadiqabad and Rawalpindi during Sep 2007 to Dec 2007. It was descriptive study on antibiotic Prescription by dentists of major cities of Pakistan. A self-completed questionnaire containing both closed and open ended questions was developed. The questionnaire included (i): general information, (ii): perception and knowledge of antibiotic resistance, (iii): reported management of oral problems, (iv): perceptions about oral infections and (v): perceptions of how people perceive oral problems. The socio-demographic characteristics of the dentists were summarized using frequencies and percentages; cross tabulations were used to compare the respondents' score about practice regarding oral diseases with practice types; logistic models were performed to study the association between respondents' characteristics and score on reported practice regarding oral diseases.

Ethical statement

Permission from the Head of department will be taken. Also, consent from the patient will be taken verbally.

Statistical analysis

The data of respiratory function were compared between the smoker and non-smoker groups using the independent t-test for normally distributed data or the Mann-Whitney U test for other distributions. Differences were considered statistically significant at $p < 0.05$.

RESULTS:

Ninety-four (67.1%) of the respondents had attended a CPD course on antibiotic use in the last one year, 8.6% at least once in the last two years, and 7.1% in the last five years while 4.3% reported not having had any since commencement of dental practice. The most common source of the CPD was from drug sales representatives with 28.6%; self-directed learning with 25.7%; conferences with 14.3%; journal clubs with 5.7%; dental schools with 4.3%; hospitals/clinics with 1.4% and a combination of the above with 10.0%. The PHDOs and the female respondents were significantly more influenced by the patients into prescribing antibiotics than their respective counterparts ($P = 0.001$, Table 1).

Table 01: Analysis of questionnaire according to frequency distribution

Variable	Response	Category	Prevalence (%)	P
Knowledge on prophylactic use of antibiotics	Correct	Dentist	69.2	0.001
		PHDO	31.3	
		Public	33.3	0.005
		Private	57.1	
Patients' influence on antibiotic prescription	Strong to very strong	Male	27.6	0.001
		Female	66.7	
		Dentists	31.3	0.001
		PHDO	72.2	
Indications for culture and sensitivity	Correct	Public	44.4	0.02
		Private	69.2	
Use of systemic antibiotics in dry socket	Yes	≤2 years of last antibiotic course	66.0	0.01
		>2 years of last antibiotic course	50.0	
Antibiotic use in endodontic therapy	Always and frequently	≤5 years of graduation	49.0	0.001
		>5 years of graduation	33.3	

DISCUSSION:

This study showed that two thirds of the respondents (61%) have sub-optimal knowledge when evaluated through written simulated case scenarios, in contrast to studies done on general dental practitioners in Australia and Fiji that showed an average to moderate level of correct knowledge among dentists regarding antibiotic use⁷. The reason for the sub-optimal knowledge in this study might be their lack of knowledge, treatment according to the patients' expectations, social background of the patients, workload or lack of practical knowledge and interpersonal skills on the part of these dentists⁸. These findings indicate the need to improve health education among dentists as a matter of priority. The same is emphasized in a study done on general dentists in England. Similar results were also shown in the study done on South Australian dentists⁹. Results from a survey done in Turkey also support the need for regular courses regarding implementation of antibiotic usage in dental practice. In Pakistan, there are no legal requirements to undertake any continuing professional development courses; therefore, these dentists may be following outdated guidelines¹⁰. A Belgian study on dentists showed that continuing education programs were less satisfying for the participants. Therefore, selection of the most effective intervention should be condition and situation specific¹¹. This study shows that the dentists practicing only in the public or private sector hospitals are less likely to have optimal knowledge as compared to those practicing in multiple settings, probably because of the formal and informal education from colleagues and peers. In addition,

these dentists treat more patients, while dentists practicing only in the clinic pay more attention to their patients' expectations by giving them more time, thus seeing fewer patients¹². Another study in Pakistan showed that health care providers working under conditions of material hardships, and social and professional isolation may contribute to the sub-optimal knowledge, and it is inevitable that such circumstances contribute to deterioration in the quality of prescriptions among such practitioners¹³. The same study showed overprescribing patterns in the private sector where individual motivation and incentives predominate over the knowledge and skills of providers¹⁴. The majority of chronic and acute dental infections can be successfully treated by eliminating the source of infection i.e. drainage of abscess or tooth extraction, pulp extirpation, without the need for antibiotics. However, in some situations, drainage or removal of the cause may not be feasible immediately¹⁵. In such situations, and especially when there is evidence of systemic involvement, antibiotic use can be instituted to prevent or limit local and distant spread of infection.¹⁸ However, this study showed that most of the participants prescribe antibiotics 4 – 5 times / week, the prescriptions are based upon the patient's symptoms, and most dentists who responded suggested the use of antibiotics in the event of abscess. This is similar to other studies. The general tendency of respondents to overprescribe antimicrobials may be a consequence of lack of antiseptic techniques, thus, a "just in case" principle is practiced. This is not recommended at all since it contributes towards antimicrobial resistance. Therefore, educating clinicians, the public and peers

in the medical field is necessary to prevent continued misuse of antibiotics¹⁶.

CONCLUSION:

It is concluded that antibiotic prescription habits of dentists vary in different cities of Pakistan. There is a trend to overprescribe in many cases. There is a need to develop guidelines and start continuing development programs in dentistry to improve knowledge amongst dentists, and to prevent antibiotic resistance.

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