



TRENDS OF PRESCRIBING ANTIBIOTICS IN VARIOUS DENTAL DISEASES AT DIFFERENT PRIVATE CLINICAL SETUPS OF SIALKOT, PAKISTAN.

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Article received on:

27/11/2018

Accepted for publication:

02/02/2019

Received after proof reading:

30/09/2019

ABSTRACT... Objectives: Antibiotics widely used now a day in dental practice for treatment of acute odontogenic, non-odontogenic infections and as a prophylactic purpose for focal infections in patients at possibility for infective endocarditis development as well as prevention of surgical infection of wound and controlling of orofacial infections. Studies of prescribing trends provide information about the quality & pattern of use causes of drug use, and their outcomes. The main objective of this study was to assist trends and the rational utilization of antibiotics in dental practice. **Study Design:** Descriptive study. **Settings:** The current study was conducted among the different private dental clinical settings of Sialkot. **Period:** Eight months study (Jan-Aug 2018). **Material and Methods:** Sample size was 700 prescriptions which were gathered during. A purposive sampling was used for collection of prescription. A proforma was used for recording all required demographic & prescribing data was designed to collect all information associated to antibiotic prescribing trend. The data was collected, compiled, & analysed on MS Excel and descriptive statistics was used for analysing the result of the study. **Results:** A total of 700 prescriptions were collected from various Dental clinics. Among the study, 58.7% patients were male and 41.3 % females and more frequent age group was 51-68 (37%). Mostly patients have previous medication history (38.8%) and most common diagnosis was periodontal abscess (16.6%) observed during our study followed by pulpitis (15.9%). The trend observed was that majority 35.3% would prescribe antibiotics for patients who presented with elevated body temperature. Commonly 5 drugs per prescription prescribed (26.7%) least numbers of drugs prescribed per prescription is 2(5.9%). Total 3445 drugs were prescribed in 700 prescriptions. Analgesics are frequently prescribed drug category (22.3%) followed by antibiotics (21.8%) Amoxicillin and clavulanic acid was mostly used (31.9%) in these dental centres. **Conclusion:** This study show that most prevalent dental disease for which doctors prescribed antibacterial was periapical or periodontal abscess and Amoxicillin and clavulanic acid used as a 1st choice for oral infections.

Key words: Orofacial Infections, Prophylactic, Odontogenic Infections.

Article Citation: Javed D, Zafar S, Ahmad S, Anwar K, Arain MI, Shahnaz S. Prescription trend of antibiotics among various dental diseases at different private clinical setups of Sialkot, Pakistan. Professional Med J 2019; 26(10):1618-1624. DOI: 10.29309/TPMJ/2019.26.10.1625

INTRODUCTION

The discovery and use of antibiotics has ward off many losses of lives, upgrade health care practice, and gave new directions to public health for various disease control.¹

In dentistry, reasons for use of antibiotics are limited in dental practice but it should be used medical history or presence of comorbidities such as urinary tract infections, liver disease and presence of oral & severity maxillofacial infection. The common cause of dental pain is

infection induced inflammation. Dental infections are controlled by removal of the foci of infection. This is possible by removal of scaling, infected pulp & drainage of the pus. It is supported, when proper anti inflammatory agents are used to relief the infection.² Subsequently, dental & periodontal diseases are coped by simple mediation & oral hygiene procedures.³

Antibiotics widely used in treatment of acute odontogenic & non-odontogenic infections. These are also used as a prophylactic purpose

for focal infections in patients at possibility for infective endocarditis development as well as for local infections & prevention of surgical infection of wounds.^{4,5} Antibiotics minimize the treat of bacterial infections to adjacent tissues but serious complications and development of antibacterial resistance implicate attention and exact indications for prescribing antibiotics.⁶

So, we can say that antibiotic usage in dentistry practice is an integral part and besides that increase of bacterial resistance, the trend of misuse and overuse of antimicrobial are reflected to increase difficulty in the public health care system.⁷ However, the previous studies show that irrational antibiotics practices by dental doctors due to many number of reasons going from lack of awareness to social factors.⁸⁻⁹ The rational prescribing practice is vital in dental practice, so a monitoring system and different studies related to prescribing trends are important.¹⁰⁻¹¹ Therefore, this study was conducted to determined rational prescribing trends of antibiotics, as well-defined by the World Health Organization (WHO).¹² This study, enable us to investigate the use of antibiotic in different dental problems which provide over view for evaluate the antibiotic utilization in prescriptions and extent the possessions of restrictive methods on the level of antibiotic practice.¹³⁻¹⁶ Hence, such studies play a fundamental role in health care system.

Therefore the current study was conducted to determine the Prescription trend of Antibiotics among various dental diseases and main objective is to analyse prescribing habits and identify to ultimate misuses of antibiotics in different dental practices.

METHODOLOGY

A descriptive study was carried out in five different dental clinical settings of Sialkot, Punjab, Pakistan. A total of 700 prescriptions were randomly collected from study site during eight month (Jan-Aug 2018). Purposive sampling was used for collection of prescriptions. A proforma was used for recording all required demographic & prescribing data and to collect information associated to the antibiotic prescribing trend for

different oral pathologies and infections. All the patients with dental diseases who used antibiotics were included. The data was collected, compiled, & analysed on MS Excel and descriptive statistics was used for analysing the result of the study.

RESULTS

Total 700 prescriptions were gathered during this study, in which male 58.7% were males and female were 41.3%. (Table-I)

The majority of patients (37%) were belonging to 50-60 age groups as shown in Table-II.

The majority of patients (37%) were belonging to 50-60 age groups as shown in Table-II.

Further the study of prescriptions were analysed regarding the details of antibiotics prescription for medically compromised patients during scaling and tooth removal treatment. 311 patients out of 700 were afflicted with medical comorbidities, Hypertension (21%) was the most prevalent comorbidity accounting of all dental patients as shown in Table-IV.

Table-V. shows the disease patterns in patients. Mostly periodontal abscess (16.6%) was observed followed by pulpitis (15.9%). Least number of subjects i.e. 23 (3.3 %), would have dry socket.

The trend observed was that majority 35.3% would prescribe antibiotics for patients who presented with elevated body temperature as shown in Table-IV.

Table-VII show that most frequently 5 drugs per prescription prescribed (26.7%) least numbers of drugs prescribed per prescription is 2(5.9%).

Table-VIII shows that analgesics (22.3%) was mostly prescribed drug to the relieve the pain followed by antibiotics (21.8%).

Table-IX shows Antibiotics prescribing trends in patients, mostly Amoxicillin and clavulanic acid was used (32.9%) during our study, followed by Chlorhexidine 31.8%.

Gender	No. of Patients	Percentage
Male	411	58.7%
Female	289	41.3%
Total	700	100%

Table-I. Gender wise distribution

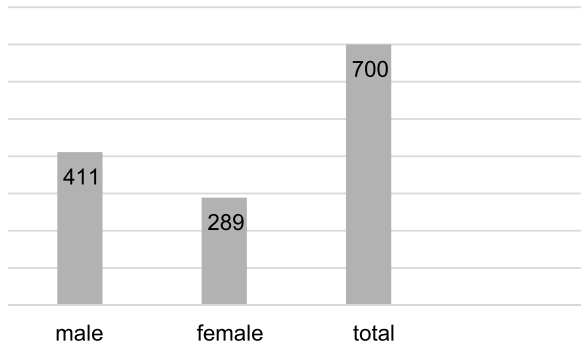


Figure-1. Gender wise distribution

Age Groups	No. of Patients	Percentage
Less than 10 years	107	15.3%
11-20	41	5.9%
21-30	40	5.7%
31-40	63	9%
41-50	103	14.7%
51-60	259	37%
>61	87	12.4%
Total	700	100%

Table-II. Age wise distribution

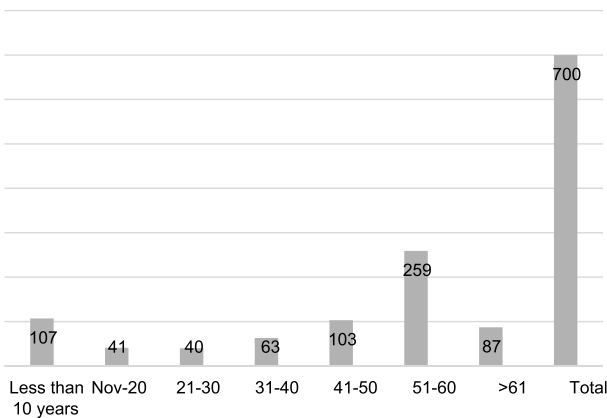


Figure-2. Age wise distribution

Medical History	No. of Patients	Percentage
Yes	272	38.9%
No	157	22.4%
Not mentioned	271	38.7%
Total	700	100%

Table-III. Pervious medical history of patients

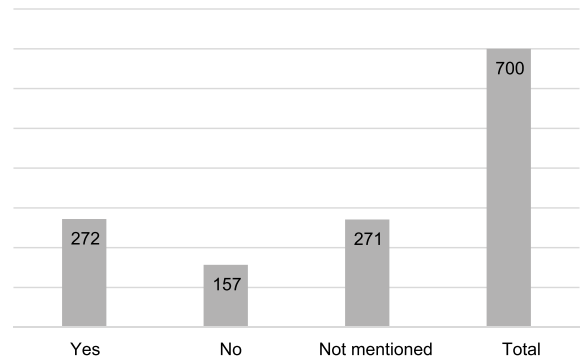


Figure-3. Medical history of patients

Diseases	No of Patients (n=700)	Percentage
Hypertension	147	21%
Diabetes mellitus	81	11.6%
Cardiovascular diseases	42	6%
Liver disease	29	4.1%
Urinary tract infection	12	1.7%

Table-IV. Frequency of co morbidities

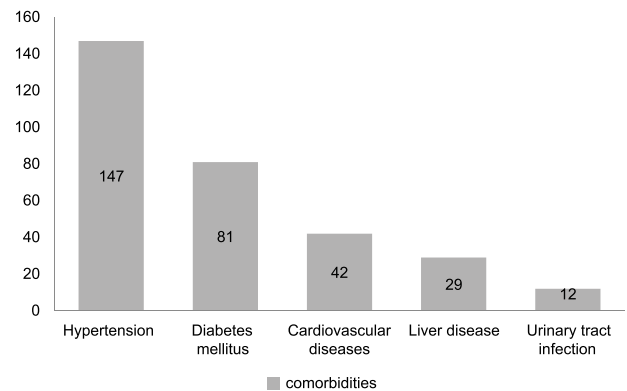


Figure-4. Diagnosis for Which antibiotic were described

Clinical Diagnosis	No. of Patients	Percentage
Acute periapical infection	98	14%
Pulpitis	111	15.9%
Chronic periodontitis	103	14.7%
Periapical or periodontal abscess	116	16.6%
Acute inflammation	92	13.1%
Dry socket	23	3.3%
Implant placement	45	6.4%
Inflammation of the sublingual gland	49	7%
Fracture of teeth	63	9%
Total	700	100%

Table-V. Diagnoses for which antibiotics were prescribed

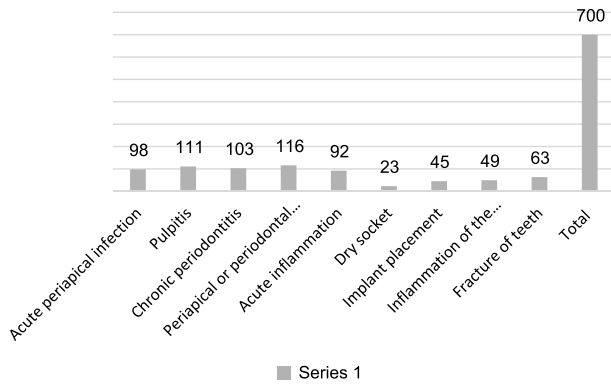


Figure-5. Diagnoses for which antibiotics were prescribed

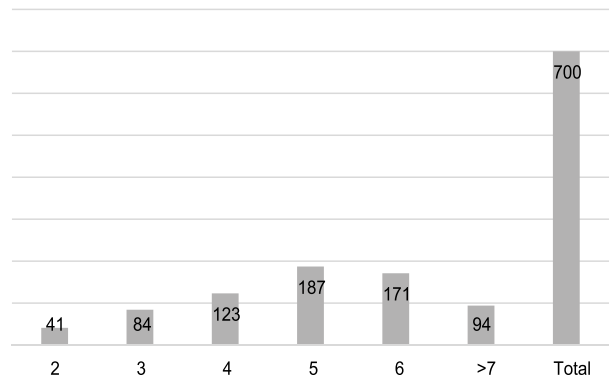


Figure-7. Number of drugs per prescription

Clinical Symptoms	No. of Patients	Percentage
Elevated temperature and systemic spread	247	35.3%
Localized fluctuant swelling	160	22.8%
Gross/diffuse swelling	118	16.9%
Restricted mouth opening	90	12.9%
Difficulty in swallowing	85	12.1%
Total	700	100%

Table-VI. Distribution of antibiotics prescribing for various clinical symptoms

Name of Category	No of Drug	Percentage
Antibiotics	751	21.8%
Analgesics	767	22.3%
Anesthetics	572	16.6%
Antifungals	431	12.5%
Antiseptics	663	19.2%
Miscellaneous Drugs	261	7.6%
Total	3445	100%

Table-VIII. Prescribing frequency of different drug categories

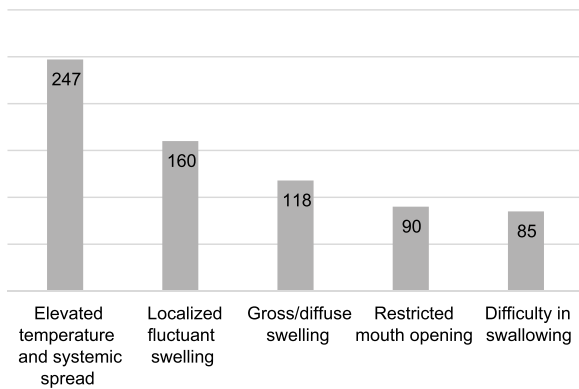


Figure-6. Distribution of antibiotics prescribing for various clinical symptoms

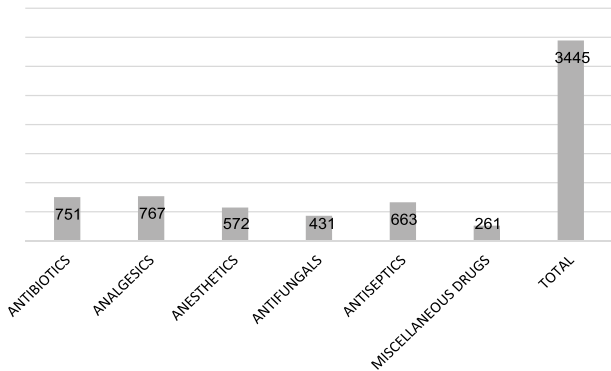


Figure-8. Prescribing frequency of different drug categories

No. of Drugs	No. of Prescriptions	Percentage
2	41	5.9%
3	84	12%
4	123	17.6%
5	187	26.7%
6	171	24.4%
>7	94	13.4%
Total	700	100%

Table-VII. Number of drugs prescribed in per prescription

Drugs Name	No. of Drugs	Percentage
Amoxicillin and clavulanic acid	247	32.9%
Chlorhexidine	239	31.8%
Ciprofloxacin	121	16.1%
Azithromycin	63	8.4%
Amoxicillin	21	2.8%
Cefuroxime	60	8%
Total	751	100%

Table-IX. Frequently prescribed antibiotics:

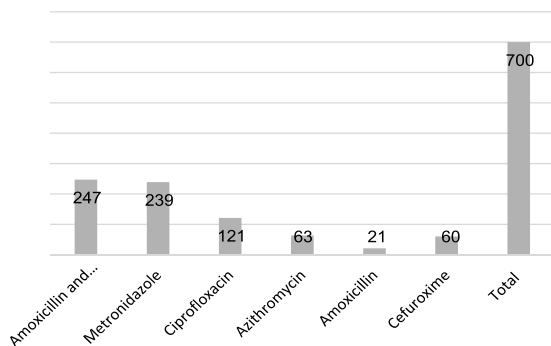


Figure-9. Prescribing trends of antibiotics

Dosage Forms	No. of Patients (700)	Percentage
Tables	687	98.3%
Ointments	552	78.9%
Injections	339	48.2%
Capsules	109	15.6%

Table-X. Frequency of dosage forms

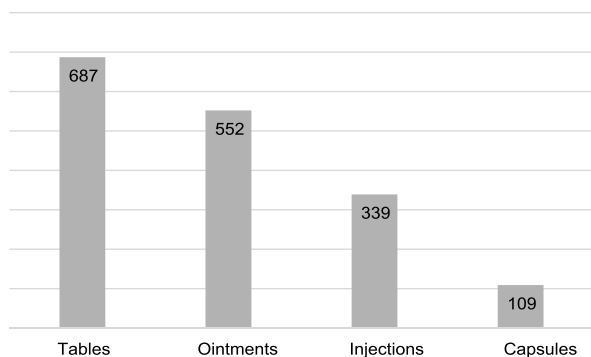


Figure-10. Frequency of different dosage forms

DISCUSSION

This study evaluated the trends of antibiotic prescribing among dentists practice in various private dental clinical setups of Sialkot, Pakistan. Studies of prescribing trends provide information about the quality, pattern and causes of drug use and their outcomes. The main purpose is to assist the utilization trends of antibiotics in dental practice in Sialkot because Antibiotics play central role of being additions in the controlling of bacteraemia and orofacial infections.

A total of 700 prescriptions were collected from various Dental clinics. Among the study, 58.7%

patients were male and 41.3 % females which show dental problem more common in males. The age group (50-60 years) of dental patients who were mostly (37%) afflicted with dental problems.

Overall antibacterial prescription for endodontic conditions was high during this study. Amoxicillin and clavulanic acid remained the 1st choice for treatment. The combination of Amoxicillin and Clavulanic acid or amoxicillin alone use for same indications because this combination is effective against Klebsiella bacteria and anaerobes. Amoxicillin have a wide range with low occurrence of resistance and profile of tolerance & dosage, as similar to Pavan kumar et al study described that a combine treatment of Amoxicillin is most frequently (30%) prescribed drug due to its wide spectrum of act on of Amoxicillin with least side effects.^{15,17-20}

311 patients out of 700 were afflicted with medical comorbidities, Hypertension (21%) was the most prevalent comorbidity accounting of all dental patients followed by diabetes mellitus (11.6) and cardiovascular diseases (6%). Many previous research studies like Smeets et al.,²¹ and Jankittivong et al., (33.7%)²² showed that most common medically compromised conditions were cardiovascular diseases in dental patients.

The most prevalent dental disease for which doctors prescribed antibacterial was periapical or periodontal abscess (16.6%), which is similar to the results obtained by Palmer et al study also show that periodontal abscess is more common dental disease in which antibiotis were prescribed.²³ The reasons for prescribing antibiotics was Prophylaxis, bacterial endocarditis, and dental implant. The next common finding for which antibiotics were prescribed were pulpitis (15.9%), Chronic periodontitis in 103 patients (14.7%), Acute periapical infection (14%), which is different to the results obtained by Tong et al²⁴ and Steed et al²⁵, these were not indications for antibacterial prescribing. It has been generally accepted that pulpitis treatment with antibiotic is inappropriate²⁶ because pulpitis is an inflammatory process & only the local therapy can relieve pain and

infection. An elevated temperature was observed in (35.3%) patients. Short duration of analgesics are used for Dental management of pain. 2nd most common prescribed drug category is antibiotics Analgesics are the most prescribing drug category (32.9%) because it is used for toothache or pain following dental therapy as well as fever which increase the body temperature. The next common prescribed drug category was antibiotics(31.8%) Out of the endodontic conditions necessitating antibiotic therapy mostly of the study patients prescribed by antibiotics for Periapical or periodontal abscess swelling present moderate pre- operative symptoms a parallel outcomes were got by Pavan kumar et al. (92.1%), Yingling et al, Rodriguez et al (87-92%).

Oral medications more frequently prescribed in these dental centres. Also polypharmacy is more common in the dental practice due to comorbid illnesses & may be possible changes in normal physiology. However, Dentists must be cautious in prescribing of antibiotics for liver disease patients as shown in results because most of the medicines metabolize in this organ, so prescribing antibiotics for these patients should be carefully. Making awareness among dentists and patients is of utmost prominence and educational interventions to encourage the appropriate use of antibiotics in dentistry can be prepared at the local and national level.

CONCLUSION

This study shows that most prevalent dental disease for which doctors prescribed antibacterial was periapical or periodontal abscess and Amoxicillin and clavulanic acid used as a 1st choice for oral infections. However, some of the probable descriptions can be inadequate understanding of pathological developments in the periapical area & absence of knowledge about common signs for the current use of medicines. Antibiotics are a valuable drug for the management of bacterial or orofacial infections but increase in microbial resistance is a serious global problem, and overuse of antibiotics in dental care system can intensify it.






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2	Sana Zafar	Data collection.	
3	Shakeel Ahmad	Descriptive analysis.	
4	Khurram Anwar	Data collection.	
5	Mudassar Iqbal Arain	Proof reading.	
6	Saira Shahnaz	Proof reading.	