

KNOWLEDGE AND PATTERN OF ANTIMICROBIAL PRESCRIPTIONS BY DENTAL PRACTITIONERS: A QUESTIONNAIRE BASED STUDY

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ABSTRACT

Aim: The Objective of this project was to evaluate Knowledge, pattern and rationality of antimicrobial prescription by general dental practitioners of Karad taluka of Satara district of Maharashtra.

Material and method: This study was an anonymous, questionnaire-based survey undertaken for private dental practitioners in both government & private setups, in Satara district of Maharashtra, to assess the prescribing patterns of various antimicrobial drugs.

A self-developed, pre-validated questionnaire consisting of questions related to most common diagnosis for which antimicrobials were prescribed, pattern of antimicrobial use for prophylaxis & treatment of acute/chronic conditions, patient compliance and adverse effects seen with antimicrobials use, was distributed. A briefing was given about the nature of the study, and the procedure of completing the questionnaire. After completion of the questionnaire, data was collected, reviewed, organized and expressed as counts/percentages and statically analyzed.

Results: In this study, Amoxicillin and Metronidazole were the common drugs used for the management of oral infections, but were prescribed without culture & sensitivity in most cases. 62% patients reported adverse drug reactions (ADRs), but only 6% dentists reported them to proper authorities.

Conclusion:

Dental practitioners have an appropriate knowledge of antibiotic prescription. However when compared against a strict standard of indications for antibiotic prescription, there is a tendency to over-prescribe. There is also lack of reporting of adverse drug reaction to concerned authority. Appropriate measures need to be taken to promote rational prescribing and ADR reporting.

Keywords: Antibiotic use, dental practitioner, prescription, prophylaxis.

No. of Table(Graphs): 5

No of References : 14

INTRODUCTION

Dentist prescribes medications for the management of a number of oral conditions, mainly orofacial infections. Prescription of antimicrobials by dental practitioners has become an important aspect of dental practice. For this reason, antimicrobials accounts for the vast majority of the medicines prescribed by dentists¹.

Inappropriate prescribing of antimicrobials may be associated with unfavorable side effects ranging from gastrointestinal disturbances to fatal anaphylactic shock and especially development of resistance². Monitoring of antibiotic usage and attempts to improve prescribing attitudes has become crucial³.

This study intends to evaluate current practice and trend of antimicrobial prescription by general dental practitioners. This will help to find inappropriate or excessive usage of these drugs and subsequently attempts can be made to educate practitioners on correct guidelines for antimicrobial prescriptions.

MATERIAL AND METHODS

This study was an anonymous, questionnaire based survey undertaken by dental practitioners in Karad Taluka of Satara district of Maharashtra, India to assess the prescribing pattern of various antimicrobials drugs. All the dental practitioners who were willing to participate in the study were enrolled. A self-developed, pre-validated questionnaire consisting of questions related to the most common diagnosis for which antimicrobials were prescribed, pattern of the antimicrobial use for prophylaxis and treatment of acute and chronic conditions, patient compliance and adverse effect seen with antimicrobial was used. Briefing was given about the nature of the study, and the procedure of completing the questionnaire. After completion of the

questionnaire data was collected, reviewed, organized and statistically analyzed and expressed as counts and percentages.

RESULTS

A total of 100 questionnaires were distributed to dental practitioners, out of which 61 were included in the study. The rest were excluded due to submission of incomplete data in the questionnaire. In this study 63% of dental practitioners were males and 37% were females. Maximum practitioners (46%) had a practice of less than 5 yrs.

The most common diagnosis for which the antibiotics were prescribed were tooth extraction (90%), followed by endodontic instrumentation beyond apex (60%) and subgingival scaling (57%) [Table 1]. Most common antibiotic prescribed by dentist to treat oral infection was amoxicillin (77%) [Table 2]. Majority of the practitioners prescribed antibiotics in management of dry socket (48%) [Table 3].

In our study amoxicillin in combination with metronidazole was most commonly used antimicrobials for dentoalveolar & fascial abscess [Table 4]. However only 30% of the cases were subjected for culture and sensitivity (CS) test and while 70% preferred empirical broad spectrum antibiotics without CS. 98% of the dental practitioners responded correctly for medical conditions for which antibiotic prophylaxis was necessary. Amoxicillin was antibiotic of choice for prophylaxis [Table 5].

Adverse drug reactions were reported by 62%, nausea and vomiting being most commonly reported. Only 6% dentists reported adverse drug reactions to proper authorities. Patient compliance was good with 74% completing the recommended course of antimicrobials.

DISCUSSION

Indications for the use of systemic antibiotics in dentistry are limited, since most dental and periodontal diseases are best managed by operative intervention and oral hygiene measures⁴. However, the literature provides evidence of inadequate prescribing practices by dentists, due to the number of the factors ranging from inadequate knowledge to social factors⁵. In our study antibiotics was prescribed by the respondents for most of the chronic and localized conditions of oral cavity including chronic localized gingivitis and pulpitis. There is no evidence to support the prescription of antibiotics for the treatment of pulpitis or the prevention of dry socket in non immunocompromised patients undergoing non-surgical dental extractions⁶. However only 7% of the respondents in our study did not use antibiotics in such conditions.

There is a need of some form of continuing professional development on the use of antibiotics in for the dental practitioners⁷. Presentations, particularly from drug sales representatives, may not be appropriate source of CDE since the priorities of the drug sales representatives are about sales volumes. The drug information they give may not be evidence-based, additionally they may recommend antibiotics of questionable efficacy.

Antibiotic Prescribing Guidelines for dentists usually recommend that in most of acute conditions first choice is amoxicillin or metronidazole with alternatives including macrolides like erythromycin & clarithromycin⁹⁻¹¹. Regarding cephalosporins, their widespread use is unnecessary & they have not been routinely recommended. Clindamycin should also not be used routinely, but only after culture & sensitivity. Amoxicillin in combination

with metronidazole was most commonly used antimicrobials by the respondents in our study. Most of the respondents gave a correct response on the knowledge about prophylactic antibiotic use and use in expectant and lactating mothers. Studies done in developing countries reported that abuse of prophylactic antibiotics was to prevent postoperative infection following surgical dental manipulations or to cover either a defect in aseptic clinical technique or improperly sterilized equipment; thus, a 'just in case' principle is practiced¹²⁻¹⁵. There was an over reliance on broad spectrum antibiotics for management of dental abscess by the dental practitioners participating in our study. Culture and sensitivity test was advised only by 30% of the respondents in our study. However there was an adequate knowledge on prophylactic use of antibiotic against sub-acute bacterial endocarditis (SBE). Adverse reaction reported by 62% of patients, only 6 % dentists reported adverse drug reactions to proper authorities.

CONCLUSION

Although the dental practitioners enrolled for this study had an appropriate knowledge of antibiotic prescription, when compared against a strict standard of indications for antibiotic prescription, there is a tendency to over-prescribe. There is a need of some form of continuing professional development on the use of antibiotics in for the dental practitioners. There is also lack of reporting of adverse drug reaction to concerned authority. Appropriate measures need to be taken to promote rational prescribing and ADR reporting.

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Table 1: Procedures for which antibiotics were usually prescribed

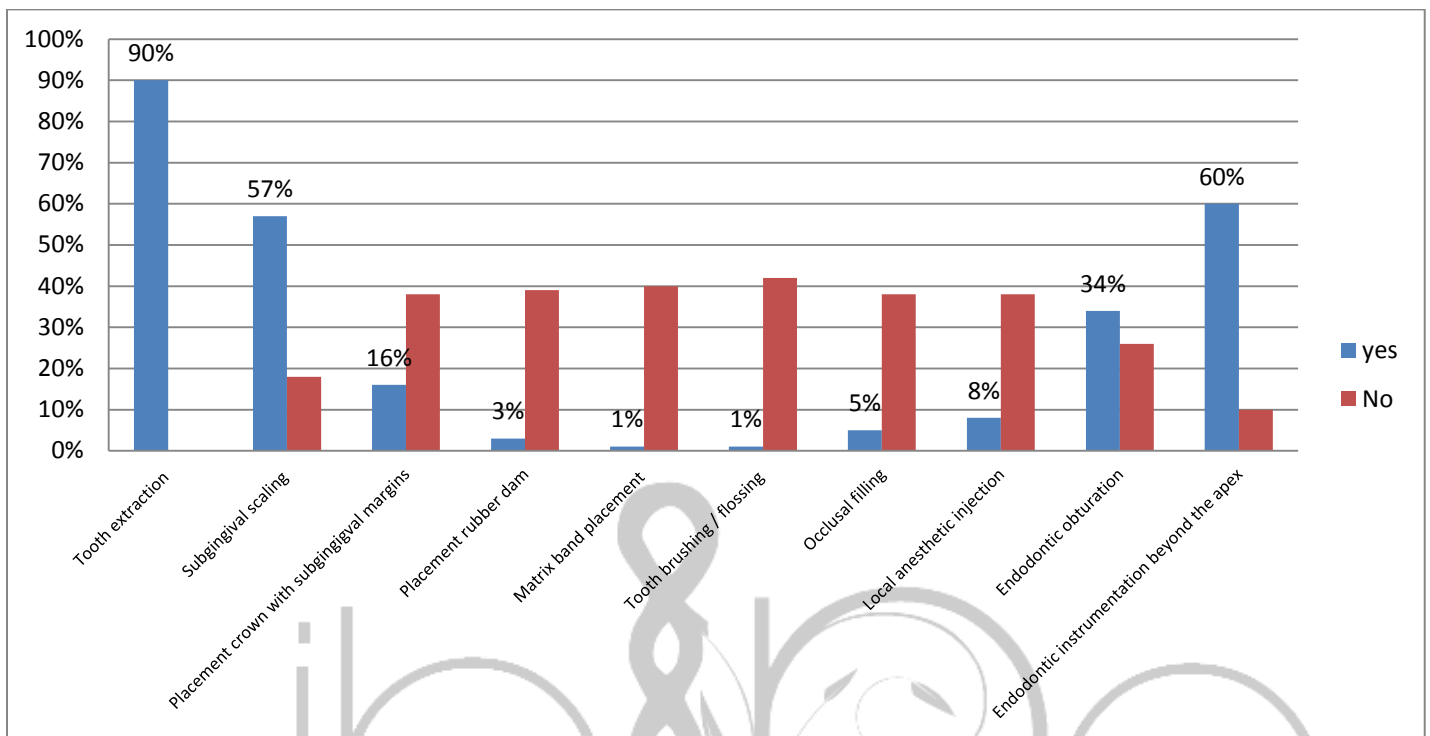


Table 2: Antibiotic used in acute oral infections.

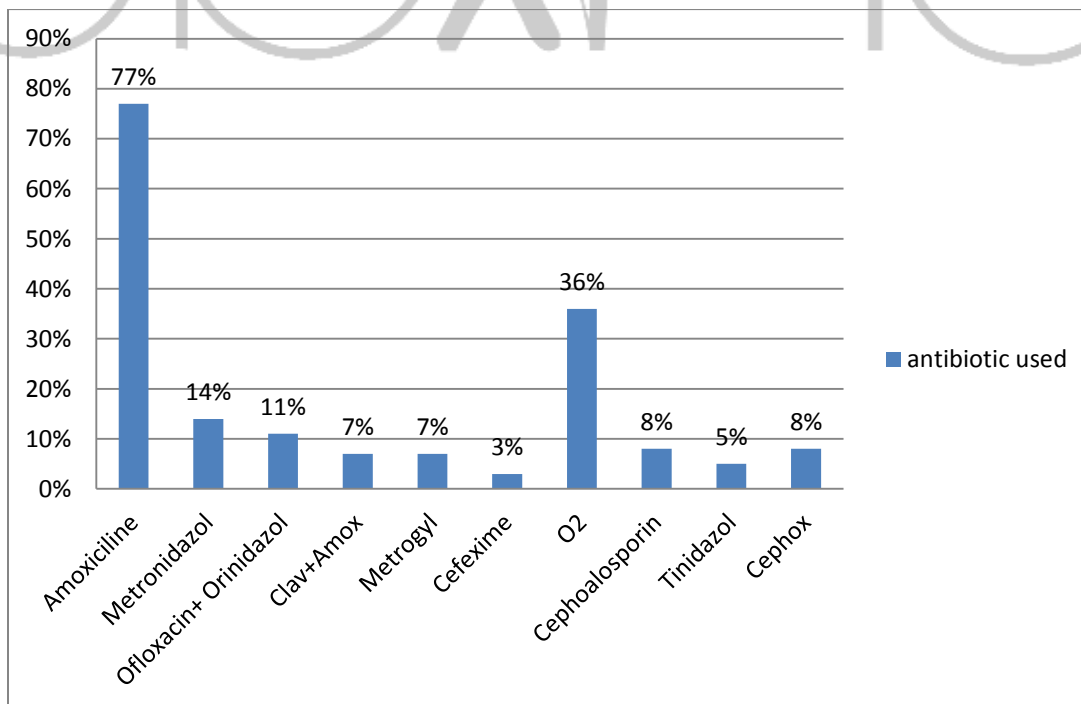


Table 3: Frequency of prescription of antibiotic for Dry socket

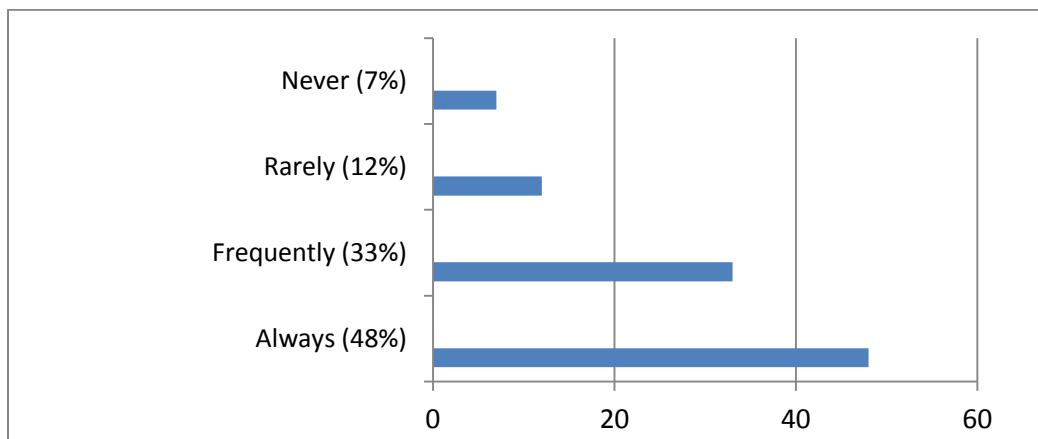


Table 4: Most common antimicrobials used for dentoalveolar & fascial abscess

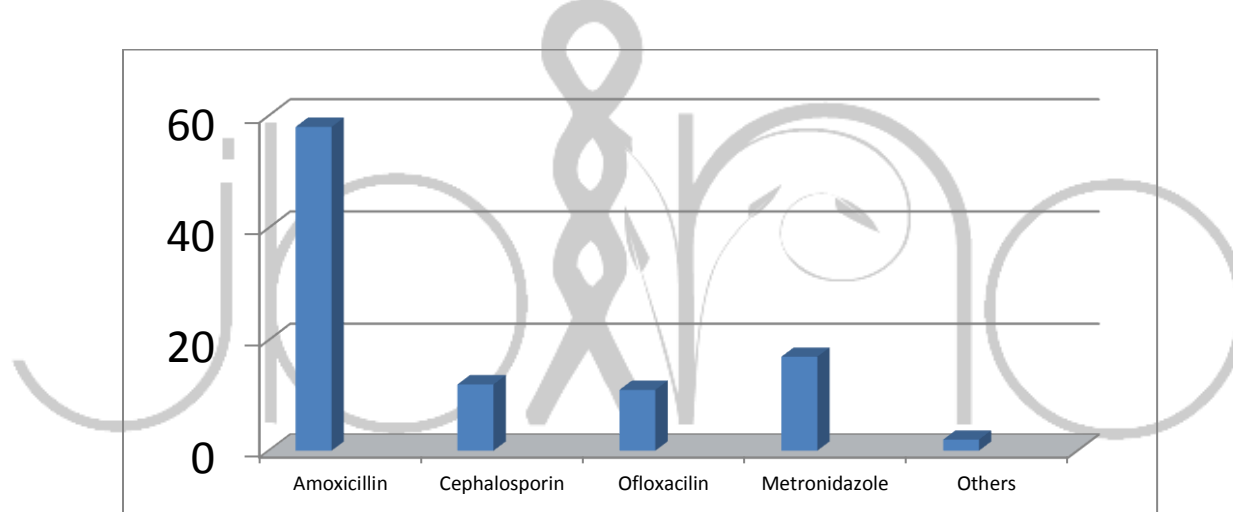
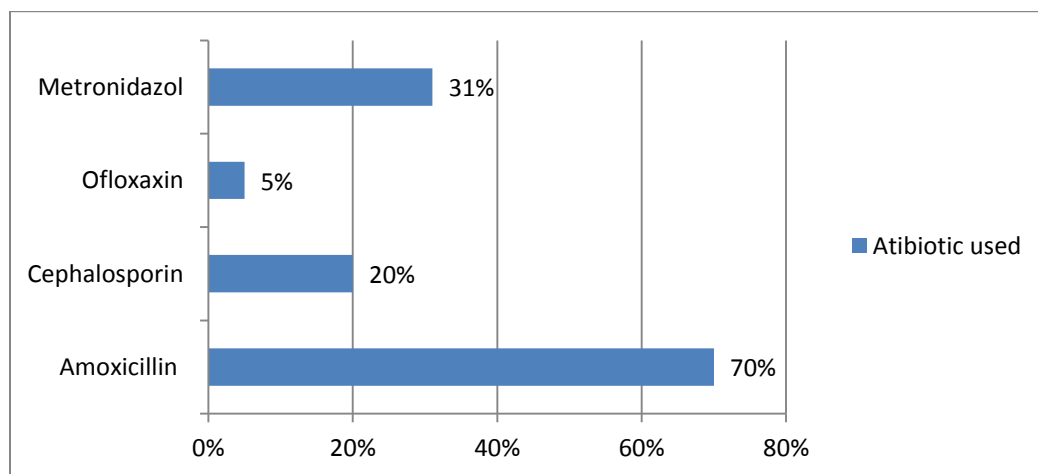


Table 5: Antibiotics used in prophylaxis of dental conditions



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