



RESEARCH ARTICLE

ANTIBIOTICS AREN'T WE OVER PRESCRIBING? A CROSS SECTIONAL STUDY

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ABSTRACT

**Introduction:** - It has been reported that the over-prescription of antibiotics in children is leading to increased fatal diarrheal cases and a drastic change in the sensitiveness of gut flora. The American Academy of Pediatric Dentistry (AAPD) has published guidelines for antibiotic use, recognizing the increasing prevalence of antibiotic resistant microorganisms. **Objective:** The objective of this survey is to compare the antibiotic prescription pattern and the awareness of antibiotic resistance among Bachelor of Dental Surgery (BDS) practitioners and Pediatric Dentists. **Materials and methods:** 100 BDS practitioners and 100 Pediatric Dentists were included in the study and a questionnaire were given to each practitioner which is comprised of information regarding antibiotic prescription for most common oral conditions, their dosage, etc. **Results:** The majority of the practitioners prescribed antibiotics for managing oral diseases. On comparing the prescription patterns between the BDS practitioners and Pediatric Dentists, it has been found that an over prescription in the BDS group for many conditions, which was statistically significant. Amoxicillin was the most commonly prescribed drug in both the groups. In the presence of an anaerobic infection, the most preferred drug was a combination of metronidazole. With regard to the duration of antibiotic prescription, 74% BDS practitioners prescribed antibiotics for 3-day course and 36% Pediatric Dentists has given it for 5 day or 1 week course which was statistically significant. The awareness regarding antibiotic prophylaxis and antibiotic resistance was found to be adequate in the pediatric practitioner groups. However, there was a general lack of awareness with regard to the guidelines for antibiotic prescribing in BDS practitioner groups. **Conclusion:** Practitioners should prescribe antibiotics in accordance with the guidelines to curb antibiotic resistance, for an emerging health problem.

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INTRODUCTION

In recognition of the growing problem of antibiotic resistance, professional organizations of health care practitioners have developed guidelines regarding the appropriate use of antibiotics. It has been reported that the over-prescription of antibiotics in children is leading to increased fatal diarrheal cases and a drastic change in the sensitiveness of gut flora.

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The American Academy of Pediatric Dentistry (AAPD) has published guidelines for antibiotic use, recognizing the increasing prevalence of antibiotic resistant microorganisms. Pediatric patients require special dosing that is adjusted for their body weight. Numbers of formulas have been used throughout the years to determine the best dose for pediatric patients but the most commonly used method is stated as mg/kg of body weight. Antibiotic prescribing may be associated with unfavorable side effects, which range from gastrointestinal disturbances to much adverse effect. The increasing resistance problems of recent years are probably

related to overuse or misuse of broad-spectrum agents (Jaunay, 2000). This growing problem has contributed significantly to the morbidity and mortality due to infectious diseases, with rising death rates for communicable diseases (Cope *et al.*, 2014; Jain, 2013).

**MATERIALS AND METHODS**

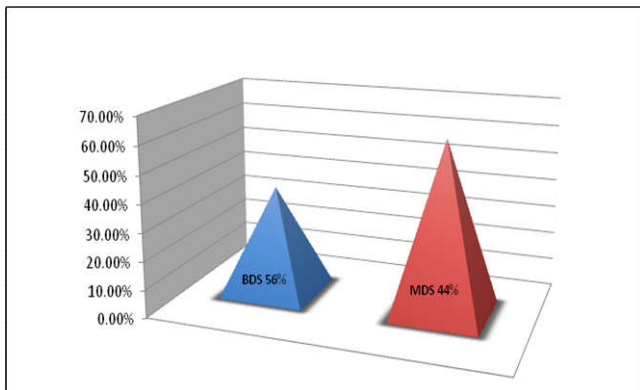
In the present study a validated, self-designed questionnaire was prepared to collect demographic data and information for prescription pattern of antibiotics among dentists. The questionnaire contained both open-ended and close-ended questions. A hundred BDS practitioners and 100 Pediatric Dentists were included in the survey. The questionnaire consist of information such as Demographic details, qualification and work experience, number of pediatric patients treated, most common antibiotic prescribed, duration and dosage, clinical conditions for which antibiotics were prescribed, awareness about antibiotic prophylaxis, and awareness about antibiotic resistance. The data obtained were compiled, tabulated, and subjected to statistical analysis. For the comparison of prescription pattern between BDS and Master of Dental Surgery (MDS) practitioners, the chi-square test were used.

**RESULTS**

The responses given by the participants regarding antibiotic prescriptions between BDS practitioners and pediatric dentists, it was found that there was no significant difference between in the prescription of antibiotics among both BDS practitioners and pediatric dentists (MDS) for most of the oral conditions.

**Type of Practitioners**

A total of 100 participates (56%) BDS and (44%) MDS practitioners were included in the study (Graph 1).



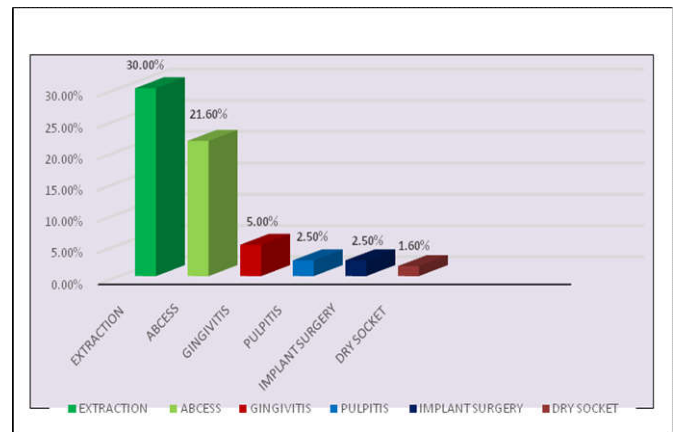
Graph 1. Type of Practitioners

**Conditions of antibiotic use**

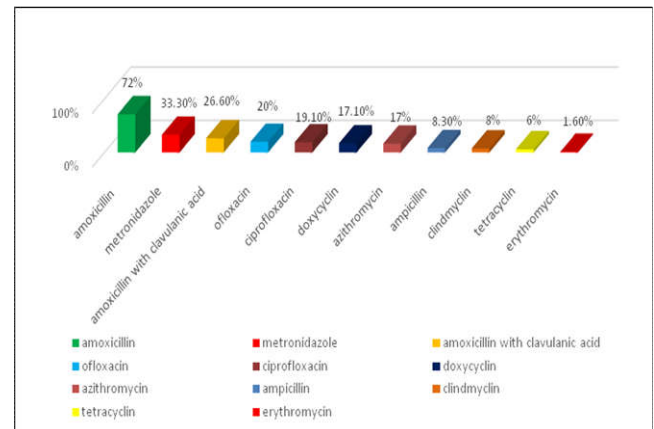
The most common dental indication of antibiotics among dentists was post dental extraction attributing to 30.8%, followed by dental abscess which was 21.6% ,gingivitis 5%, pulpitis 2.5%, implant surgery 2.5% ,dry socket 1.6%.In general, 60% of them prescribed antibiotics after every minor surgical procedure etc this was shown in graph 2.

**Type of antibiotic prescribed**

The commonly prescribed antibiotics were amoxicillin 71.7%, metronidazole 33.3% ,amoxicillin with clavulanic acid 26.6%, ofloxacin with ornidazole 20% , ciprofloxacin 19.1% ofloxacin



Graph 2. Conditions for Antibiotic Use



Graph 3. Type of Antibiotic Prescribed

18.3%, doxycycline 17.5%, azithromycin 16.6%, cefixime 15%, ampicillin 8.3%. Few participants also mentioned ciprofloxacin 3.3%, clindamycin 7.5%, tetracycline 6.6% and erythromycin 1.6%A which was shown in graph 3.

**Duration of antibiotic course**

In this present study total 70% MDS practitioners 39% of BDS practitioners prescribe antibiotics for three days whereas 26% of BDS practitioners and 60% of MDS practitioners prescribed antibiotics for 5 days.

**DISCUSSION**

This study also outlined the knowledge of antibiotic use among dentists from all the departments in the dental fraternity. In short, an assessment on the knowledge, practice, and attitude of dentists on antibiotic use was analyzed. A considerable percentage of dental pain originates from acute and chronic infections of pulpal origin, which necessitates operative intervention rather than antibiotics. Non indicated clinical cases for antibiotic use include acute periapical infection, dry socket, and pulpitis (Pestotnik *et al.*, 1996; Karibasappa, 2013). Chronic inflammatory periodontal conditions are also not indicated for antibiotics; systemic antimicrobials should only be used in acute periodontal conditions where drainage or debridement is impossible, where there is local spread of the infection, or where systemic upset has occurred (Longman *et al.*, 2000). In our study, 56% BDS practitioners and 44% pediatric dentists prescribed antibiotics for pediatric periodontal conditions, which was not routinely required, showing a statistical significant difference.

Dentists prescribe antibiotics mainly for the following reasons: As adjunctive therapy in oro - facial infections; as a preventive measure to prevent local infection after dental procedures; to prevent the systemic spread of oral micro-organisms (Salako *et al.*, 2004). Additional considerations that shall define the antibiotic use in an individual patient are the severity of the infection, status of the immune system, and presence of systemic symptoms like fever (Addy, 2003). In the present study, amoxicillin was the most commonly prescribed antibiotic followed by metronidazole and combination of amoxicillin and clavulanic acid. This explains that the majority of dentist used particular antibiotics to treat specific infections (Demirbas, 2006; Al-Haroni, 2006).

## Conclusion

We found poor KAP regarding antimicrobial use in dentistry thereby conferring increasing potential for the development of serious antimicrobial resistance. Findings suggest that antibiotics were prescribed indiscriminately, inappropriately, and In conclusion, the prescribing practices of dentists can be improved by increasing awareness of the recommended guidelines among dental practitioners. Furthermore, the importance of initiating awareness programs among the general public should not be overlooked. Also, emphasis should be laid on forming Indian guidelines for the prescription of antibiotics.

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