

Awareness of antibiotic prescription for endodontic therapies – comparative survey between interns, post graduates and general dental practitioners

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Abstract

Objectives: To evaluate the awareness of interns, post graduates and general dental practitioners on antibiotic prescribing for endodontic conditions.

Materials and Methods: A questionnaire was conducted among 20 General Dental Practitioners, 40 Postgraduate students and 60 Interns of Mamata Dental College, Khammam. Questionnaire consisted a total of 20 questions. It recorded general information such as dental school where they were graduated, number of patients seen each working day, number of endodontic emergency patients and awareness of available antibiotic prescribing guidelines for endodontic therapies.

Results: Amoxicillin was the most prescribed antibiotic for patients without allergic towards penicillin. The first choice for patients allergic towards penicillin was clindamycin. The combination of amoxicillin and clavulanic acid was considered to be the first antibiotic of choice for more serious acute apical abscess cases, including life threatening conditions. General dental practitioners were aware of the guidelines for prescribing antibiotics for endodontic conditions when compared to the post graduate students and interns.

Conclusion: The dental professionals should be aware of rationalization of antibiotic use and antibiotic prescription for endodontic infections, consequences of their overuse and antibiotic resistance.

Keywords: Questionnaire, Amoxicillin, Clindamycin, Clavulanic acid, Rationalization, Antibiotic resistance.

Introduction

In dentistry the main reason for the development of resistant bacterial species is the misuse of antibiotics, which leads to the current global antibiotic resistance crisis.¹ Antibiotics can be used for prophylaxis during invasive dental procedures in endodontics for patients with specific health conditions following a risk assessment.²

Antibiotics were used only. An adjunct to definitive non-surgical or surgical endodontic therapy.³ For patients who have systemic signs and symptoms associated with endodontic infections, antibiotic therapy should be reserved.⁴

The student group can provide evidence on what is learnt and assimilated during their education which will be applied in their professional life. General dental practitioners represent professionals who are subjected to various environmental factors, such as working time

pressure that has been described as one of the factors for inappropriate prescription of antibiotics.⁶

Therefore, this study is aimed to evaluate the views of interns, post graduates and general dental practitioners on antibiotic prescribing for endodontic conditions.

Material and Methods

The present study was conducted in Department of Conservative dentistry and Endodontics, Mamata dental college, Khammam.

1. A questionnaire was conducted among 20 General Dental Practitioners, 40 Postgraduate students and 60 Interns of Mamata Dental College, Khammam.
2. Questionnaire consisted a total of 20 questions (Fig. 1 and 2)

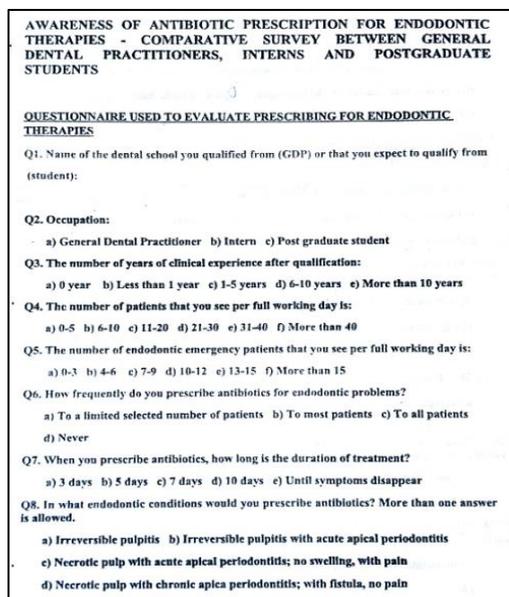


Fig. 1

It recorded general information such as dental school where they were graduated, number of patients seen each working day, number of endodontic emergency patients and awareness of available antibiotic prescribing guidelines for endodontic therapies.

Statistical analysis was done by using chi-square, kruskal-wallis test. Difference of $p \leq 0.05$ or more was considered significant, data obtained was expressed as Mean \pm SD.

Results

Amoxicillin was the most prescribed antibiotic for patients without allergic towards penicillin among all the groups (Table 5 and Fig. 7). The first choice for patients allergic towards penicillin was clindamycin among all the groups (Table 1 and Fig. 3). The general

Table 1

	Clindamycin	Tetracycline	Azithromycin	Others
General dental practitioners	14		4	2
Post graduate students	26		12	2
Interns	24	7	15	14

Fig. 3

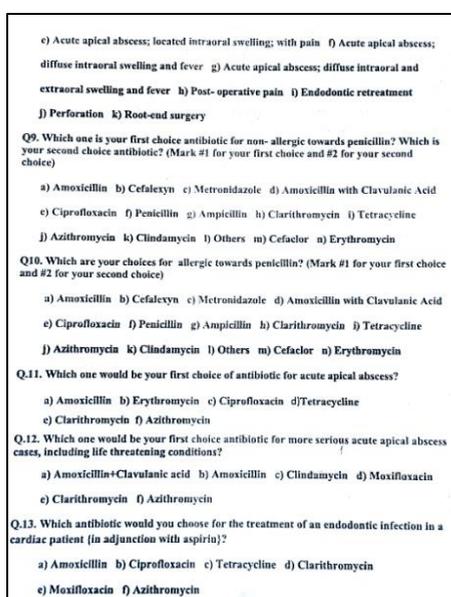
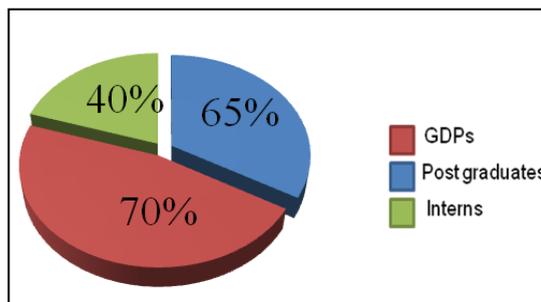


Fig. 2

dental practitioners and post graduate students were more aware of the prescription of antibiotics for endodontic infections and prescribed antibiotics to limited number of patients when compared to other groups (Table 4 and Fig. 6). The combination of amoxicillin and clavulanic acid was considered to be the first antibiotic of choice for more acute apical abscess cases, including life threatening conditions prescribed by all the three groups (Table 2 and Fig. 3). General dental practitioners were more aware of the guidelines for prescribing antibiotics for endodontic conditions when compared to the post graduate students and interns (Table 3 and Fig. 5).

Table 2

	Amoxicillin with clavulanic acid	Amoxicillin	Clindamycin	Others
General dental practitioners	20			
Post graduate students	32			8
Interns	36	6	4	14

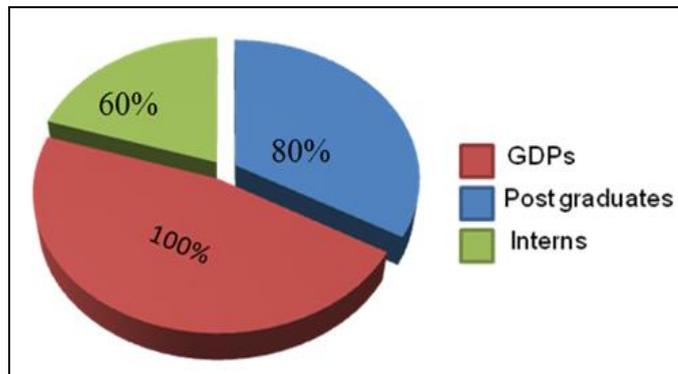


Fig. 4

Table 3

	Yes	No
General dental practitioners	18	2
Post graduate students	24	16
Interns	24	36

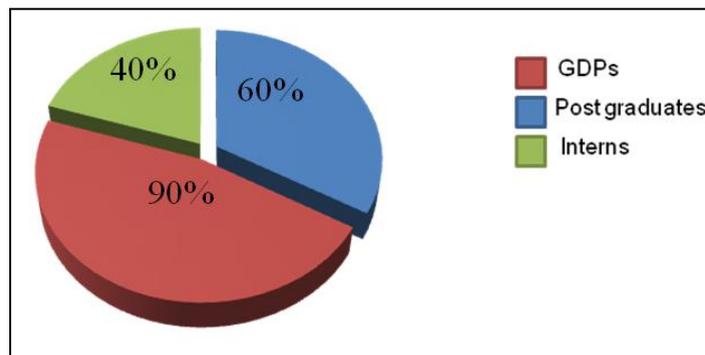


Fig. 5

Table 4

	Limited no of patients	To most patients	To all patients	Never
General dental practitioners	16	4		
Post graduate students	26	8	4	2
Interns	22	32	4	2

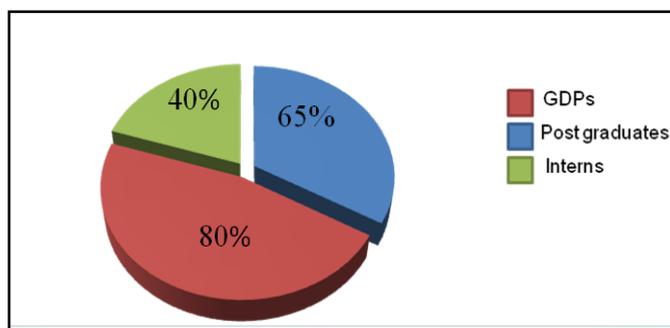


Fig. 6

Table 5

	Amoxicillin	Azithromycin	Amoxicillin with clavulanic acid	Others
General dental practitioners	18		2	
Post graduate students	30		5	5
Interns	36	4	12	8

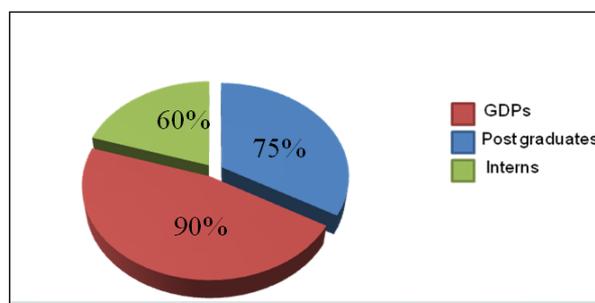


Fig. 7

Discussion

The present study was based on a questionnaire answered by 20 general dental practitioners, 40 post graduate students and 60 interns from Mamata Dental College, Khammam evaluated the prescription of antibiotics for endodontic therapies. The general information such as dental school where they were graduated number of patients seen each working day number of endodontic emergency patients and awareness of available antibiotic prescribing guidelines for endodontic therapies have been recorded.

In endodontic, antibiotics should be used only as an adjunct to definitive nonsurgical or surgical endodontic therapy.³ Inappropriate prescription and excessive use of antibiotics are major contributing factors in the emergence of antibiotic resistance.⁵⁻¹⁰ The ideal duration of antibiotic treatment should be the shortest capable of preventing both clinical and microbiological relapse. Prescription of antibiotics should be made initially for a 2-3 or 5-day period because most acute infections resolve within 3-7 days.¹¹

In irreversible pulpitis with acute apical periodontitis, antibiotics are not indicated as the pulp remains. There is no infection or signs and symptoms of systemic involvement.¹² In the present study, amoxicillin was the most prescribed antibiotic for patients without allergic towards penicillin.^{13,14} The first choice for patients allergic towards penicillin was clindamycin. Erythromycin, a macrolide, could be considered an option for patient's allergic to penicillin as it has similar activity spectrum to penicillin. Amoxicillin and clavulanic acid combination is prescribed as amoxicillin is susceptible to degradation by b-lactamase producing bacteria for life threatening conditions.^{15,16}

In the present study a small percentage of post graduate students and interns stated that they would never prescribe antibiotics and this could be a misinterpretation of the questions or a lack of knowledge because they are not licensed to prescribe antibiotics at this stage of their training. The optimal dosage of antibiotics should be prescribed enough with minimal adverse effects on the physiology of the host and microbial ecology with efficient elimination

of pathogens. The results of this study revealed that more than a third of post graduate students and a large proportion of interns were not aware of the various guidelines.

Conclusion

The dental professionals should be aware of rationalization of antibiotic use and antibiotic prescription for endodontic infections, consequences of their overuse and antibiotic resistance.

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