Original Research Article

ANTIBIOTIC AND NON-NARCOTIC ANALGESIC PRESCRIPTION PATTERN FOR PULPAL AND PERIAPICAL PATHOLOGIES: A WEB-BASED SURVEY AMONG DENTISTS

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Abstract

Background: The aim of the study was to evaluate Kerala dentists' knowledge and prescribing patterns about antibiotics and non-narcotic analgesics for pulpal and periapical diseases. **Materials and Methods:** In Kerala, India, a cross-sectional survey was carried out between June and November of 2022. The purpose of this cross-sectional survey was to assess the patterns and knowledge of non-narcotic analgesic and antibiotic prescribing practices for pulpal and periapical diseases. It documented the type of antibiotics and non-narcotic analgesics prescribed, along with some demographic data and questions on clinical and non-clinical aspects. Software from SPSS was used to compute and analyse the data. The use of descriptive statistics was used. **Results:** Majority of the respondents prescribed medication for swelling (44.5%), with evidence of systemic involvement and with elevated body temperatures, while most would prescribe medication for non-clinical factors such as Delay/ unable to complete treatment and Patient expectation of getting antibiotic. The most common condition found to require antibiotic therapy was necrotic pulp with acute apical periodontitis, accompanied with oedema and moderate to severe preoperative symptoms. **Conclusion:** The study results indicate that there is a lack of homogeneity among dental practitioners on antibiotics prescription.

INTRODUCTION

The term "drugs that selectively relieve pain by acting in the peripheral pain mechanism or in the central nervous system (CNS) without significantly altering consciousness" refers to analgesics.[1] When it comes to the first management of pain with an inflammatory component, such as pain from musculoskeletal damage, NSAIDs are especially helpful. Using analgesics for a longer period of time can lead to the development of gastritis and peptic ulcers.[2]

Root canal infections are mostly caused by certain facultative and anaerobic bacteria.[3] Despite the fact that more than 500 different species of bacteria are frequently found in oral infections, the most of them are not considered important pathogens.[4] Because of their capacity to create biofilms, endodontic bacteria have the potential to cause high drug tolerance and apical periodontitis.[5] The mainstay of care for intracanal infections is the extraction of the infection through root canal cleaning, root canal shape, appropriate irrigation, and interappointment calcium hydroxide dressing.[6] Patients with systemic infection symptoms, such as fever, lymphadenopathy, and malaise, are the only ones who can get systemic antibiotics in endodontics.[7]

This study was carried out to identify the knowledge and pattern antibiotic and non-narcotic analgesic prescription of general dental practitioners for patients reporting to their dental clinics for their root canal treatments.

MATERIALS AND METHODS

A web-based survey was conducted among practicing dental professionals in Kerala. The sample

661

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size was calculated by the formula 4pq/d2. The prevalence was taken as 44% from the study conducted by Jayadev et al,[1] The allowable error of the study was set as 5%. Q value was calculated as 56%. Hence by applying the above formula, sample size was calculated as 394, which was rounded off as 400. The study was approved by the Institutional Ethics Committee of Government Dental College, Kozhikode (IEC no: 249/2022/DCC dated 4/05/2022.). All the dentists who are practicing in Kerala, who have registered in Kerala Dental Council, who were willing to fill the questionnaire were included in the study. Incomplete questionnaires were excluded. A modified Google Form Questionnaire was validated among 10 Dentists who have clinical experience of more than 10 years in Kerala. A pilot study was conducted by distributing the questionnaire to 10 subjects to assess the clarity and comprehensibility of the same. The questionnaire was designed with the information we need to report in mind. It included questions that allowed us to determine the general dentists'

knowledge and prescription pattern regarding antibiotics and non-opioid painkillers for patients who were coming to their offices for root canal therapy. Finally formed questionnaire was sent to about 400 dentists practicing in Kerala, through WhatsApp Messenger App (WhatsApp, Inc, Menlo Park, Calif).

RESULTS

Data obtained was analysed using SPSS (version 25.0, SPSS, IBM Corporation, USA) software. Descriptive statistics was performed. Among the dentists who have responded, majority of them were full time private practitioners (251,63.2%). 163 (41.1%) were having experience in the range of 0-5 years and 27 (6.8%) of them had experience more than 15 years. 151(38.0%) of dentists see only less than 5 patients for endodontic treatment per week, while 44 (11.1%) practitioners see more than 15 patients per week for endodontic treatment.

Table 1: Participant Demographics

Q.1	When is the best time to administer medication, based on general considerations and clinical symptoms?	N	%
	High temperature	59	14.7
	Indications of a systemic spread	66	16.5
	Swelling	178	44.5
	Pain	38	9.5
	Avoidance of problems following surgery	27	6.7
	Periapical pathology seen on the radiograph	18	4.5
	Diagnosis not certain	14	3.5
Q2	What non-clinical criteria lead you to recommend antibiotics?		
	Delay/ unable to complete treatment	228	57
	Pressure of time and workload	55	13.7
	Patient expectation of antibiotic	117	29.2
Q3	For which endodontic condition(s) do you recommend antibiotics?		
	Unchangeable Pulpitis, mild to severe symptoms prior to surgery	18	4.5
	Unchangeable Pulpitis with moderate to severe preoperative symptoms and acute apical periodontitis	66	16.5
	Necrotic pulp with minimal or nonexistent preoperative symptoms, no edoema, and persistent apical periodontitis	30	7.5
	Necrotic pulp with moderate to severe preoperative symptoms, acute apical periodontitis, and no edoema	15	3.7
	Necrotic pulp with absence or minimal preoperative symptoms, persistent apical periodontitis, and sinus tract presence	83	20.7
	Necrotic pulp with moderate to severe preoperative symptoms, acute apical periodontitis, and edoema	188	47
Q4	Which kind of antibiotic is most frequently prescribed and doesn't cause any medical allergies?		
	Amoxicillin (500milligrams)	160	40
	Amoxicillin + Metronidazole (400 milligrams)	78	19.5
	Ofloxacillin (200milligrams) + ornidazole (500milligrams)	35	8.7
	Amoxicillin + clavulanic acid (625milligrams)	101	25.2
	Amoxicillin + Cloxacillin (500milligrams)	26	6.5
Q5	Which class of antibiotic is most frequently provided when a patient has a penicillin allergy?		
	Cephalexin (500milligrams)	28	7
	Ciprofloxacin (500milligrams)	192	48
	Ofloxacillin (200milligrams) + ornidazole (500milligrams)	17	4.2
	Erythromycin (500milligrams)	140	35
	Doxycycline (100milligrams)	9	2.2
	Azithromycin	14	3.5
Q6	For what duration do you recommend antibiotics?		
	Less than 3 days	7	1.7
	3 days	105	26.2
	5days	279	69.70%
	7 days	9	2.20%
Q7	Do you advise taking an antibiotic after receiving root canal therapy?		
	Yes	141	35.20%
	No	259	64.70%

Q8	Which NON-NARCOTIC analgesic is most frequently prescribed?		
	Ibuprofen	56	14
	Acetaminophen	19	4.7
	Ibuprofen + Acetaminophen	72	18
	Keterolac	11	2.7
	Diclofenac	191	47.7
	Piroxicam	22	5.5
	Aceclofenac +Paracetamol	15	3.7
	Mefenamic acid+Paracetamol	8	2
	Paracetamol to start with, Aceclofenac only if paracetamol does not seem to help.	6	1.5
Q9	What factors affect the selection of analgesics that are prescribed?		
	Pain level	138	34.5
	Patient's Health Status	91	22.7
	Patient age	60	15
	Treatment had to be postponed	36	9
	Diagnosis uncertainty	28	7
	Request from patient	19	4.7
	patients with poor health	16	4
	Drug allergy	12	3
Q10	What medication do you advise taking following root canal therapy?		
	Not taking any medication	133	33.2
	400 milligrams Ibuprofen	43	10.7
	600 milligrams Ibuprofen	33	8.2
	Keterolac	78	19.5
	Antibiotic + analgesic	113	28.2
Q11	How can you stay up to date on the latest preventive measures?		
	University courses for training	68	17
	professional or scientific societies	119	29.7
	Pharmaceutical companies	40	10
	Internet	173	43.2
	Questionnaire for the web- based survey and the responses received for each question (Table 1)		

DISCUSSION

The average length of antibiotic therapy was found to be 7.0 +/- 1.0 days in research by Segura et al,[6] to assess the pattern of antibiotic prescription in the management of endodontic infections among Spanish oral surgeons. A. Mainjot and WD' Hoore8 et al. did a study in Belgium which revealed that the most generally prescribed antibiotics were wide spectrum antibiotics, with amoxycillin, amoxycillin-clavulanic acid, and clindamycin accounting for 82% of all prescriptions. In cases where there was no fever (92.2%) and no local therapy (54.2%), antibiotics were frequently administered. Adriane Kamulegaya9 conducted a cross-sectional survey among oral health care practitioners in Uganda, and found that the most often utilised antibiotic combination was amoxicillin plus metronidazole, followed by co-trimoxazole plus metronidazole. A study by Kia et al,[10] in Iran found that 2.64±0.85 was the average number of medications prescribed. The most often given medications were antibiotics and non-steroidal anti-inflammatory medicines (NSAIDS).

Azodo CC et al. did a study on the prescribing pattern of analgesics among Nigerian healthcare providers.[11] It was discovered that paracetamol (39.1%) is the most often recommended analgesic. The degree of discomfort, the patient's health, the procedure, the patient's age, the delay in treatment, the patient's financial situation, the diagnosis's degree of uncertainty, and the patient's request all had an impact on the pattern, which was influenced in descending order.

A Barasch et al.'s study from the United States tested the theory that African Americans don't get as many antibiotics as their white counterparts.[12] It was discovered that individuals over 45, those whose insurance covered prescription drugs, and those with a history of pain were more likely to obtain narcotic analgesics in multivariate regression models. More drugs were prescribed by students than by locals. There were no racial disparities in the analgesic prescription rates. It is discovered that dentists frequently prescribe too many antibiotics, which is an indication of their insufficient prescription practices.[13]

CONCLUSION

To guarantee the best standard of patient care, all professionals should familiarise themselves with the most recent recommendations on antibiotic use.

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663

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