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ORIGINAL RESEARCH

TO EVALUATE THE ANTIBIOTIC KNOWLEDGE, PRACTISE, AND ATTITUDES AMONG INDIAN DENTISTRY PRACTITIONERS

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ABSTRACT

Aim: To evaluate the antibiotic knowledge, practise, and attitudes among Indian dentistry practitioners.

Material and methods: Dental professionals were the subjects of a descriptive cross-sectional research. The dentists were included in the sample because it was convenient for them to do so. Google forms were used to distribute the surveys to the participants, while those who couldn't be reached online were given paper copies of the survey. All forms were included in the research exclusively from dental professionals in India who gave their informed permission. Participants were guaranteed complete anonymity and data confidentiality.

Results: A total of 100 dental practitioners participated in the research and completed the questionnaire, including 74 (74%) females and 26 (26%) men. Their average age was 27.58±3.69 years. More over half of the 52 participants (52%) said antibiotics helped them recover from colds and coughs. About 55 (55%) of participants believed that newer and more expensive antibiotics had no influence on effectiveness. Antibiotic resistance was known to around 91 percent of the population. Approximately 72 (72%) of participants disagreed that antibiotics were a safe treatment, while 75 (75%) disagreed that antibiotics were the first drug of choice in cough and sore throat. Antibiotic resistance was identified as an issue in India by the vast majority of participants (86%). Approximately 68 (68%) were opposed to maintaining antibiotic stockpiles at home. 55 (55%) of the 100 dentists polled prescribed antibiotics based on symptoms. Most dental practitioners administered antibiotics for intra and extraoral sinus drainage, severe facial edoema, dental trauma, pericoronitis, open extraction, and periapical abscess. Amoxicillin was the most popular medicine (69%) followed by

Amoxicillin-clavulanic acid (25%) Almost every dentist has likely replied favourably to the request for a medical history.

Conclusion: Although dentists in the current research were found to have understanding of antibiotic prescription, it was found that there is an undeniable gap in training and perspective of dentists with respect to antibiotic recommendations. Therefore, dentists will need to improve their use of antibiotics by updating their procedures over time.

Keywords: Antibiotic, Attitude, Dentists, Knowledge, Practice, Resistance

INTRODUCTION

Resistance to antibiotics is a growing threat that affects every region of the planet.[1] The indiscriminate use of antibiotics and the availability of these medications as OTC have contributed to their worrying prevalence in underdeveloped nations. [2,3] Since the mid-1990s, antibiotics used for dental procedures have been identified as a possible source of the worldwide rise in antibiotic resistance. [4] Antibiotics used in conjunction with local therapy are unquestionably the best option for dealing with oral infections. Nonetheless, it has the potential to cause adverse effects ranging from gastrointestinal problems to lethal anaphylactic shock and the formation of resistant germs, and its wrong administration would not give adequate benefit; however, it does result in better health. So, dentists are recommended to administer antibiotics cautiously, and established standards govern the preventive and therapeutic use of antibiotics in dentistry. A worldwide trend, however, is the rising and improper use of antibiotics by dental workers. [5] Several studies have shown that as much as half of all antibiotic usage is completely pointless. [6] There is a concerted effort by many groups to educate the public about antibiotics, their benefits and risks, and the fight against antibiotic resistance. In an effort to educate the public on the proper use of antibiotics, the World Health Organization (WHO) has periodically promoted campaigns with slogans such "antibiotics, handle with care" (2015) and "no action now, no cure tomorrow" (2011). Antibiotics are very important in dental care, both for preventative and curative measures. [7] Worldwide research have shown that antibiotics are not used wisely to treat a variety of dental diseases, which has resulted in a number of negative side effects, including the rise of antibiotic resistance. [8] Instilling a habit of reasonable uses of pharmaceuticals in general and antibiotics in particular among future medical and dental practitioners is crucial, as is raising understanding of the many facets of antibiotic usage, such as antimicrobial stewardship. [9,10] While several studies have measured medical students' KAP on antibiotic resistance and stewardship, very few have done so for dentistry students. [11,12]

MATERIAL AND METHODS

Dental professionals were the subjects of a descriptive cross-sectional research. The dentists were included in the sample because it was convenient for them to do so. Google forms were used to distribute the surveys to the participants, while those who couldn't be reached online were given paper copies of the survey. All forms were included in the research exclusively from dental professionals in India who gave their informed permission. Participants were guaranteed complete anonymity and data confidentiality.

In this research, dental professionals in India were surveyed using a self-administered questionnaire to assess their level of familiarity with, and comfort with, the appropriate use of antibiotics in patient treatment.

The questionnaire was adapted from 15–20 years of research in the subject, and then refined in collaboration with specialists in the field. Twenty non-Indian dental surgeons served as a pilot group for the questionnaire.

Modifications were made to the questionnaire based on the results of the pretesting phase, and the final version was employed in the research. The self-reported survey consisted of 15 questions spread over 5 sections. Part one included participants' demographic information. The second section tested participants' antibiotic knowledge with four questions, their attitudes with six, and their routine care with five.

The Statistical Package for the Social Sciences (SPSS) version 22.0 was used for data collection, compilation, and analysis. Descriptive statistics were used to study the data.

RESULTS

A total of 100 dental practitioners participated in the research and completed the questionnaire, including 74 (74%) females and 26 (26%) men. Their average age was 27.58±3.69 years (Table 1). More over half of the 52 participants (52%) said antibiotics helped them recover from colds and coughs. About 55 (55%) of participants believed that newer and more expensive antibiotics had no influence on effectiveness. Antibiotic resistance was known to around 91 percent of the population (Table 2). Approximately 72 (72%) of participants disagreed that antibiotics were a safe treatment, while 75 (75%) disagreed that antibiotics were the first drug of choice in cough and sore throat. Antibiotic resistance was identified as an issue in India by the vast majority of participants (86%). Approximately 68 (68%) were opposed to maintaining antibiotic stockpiles at home (Table 3). As demonstrated in Table 4, 55 (55%) of the 100 dentists polled prescribed antibiotics based on symptoms. Most dental practitioners administered antibiotics for intra and extraoral sinus drainage, severe facial edoema, dental trauma, pericoronitis, open extraction, and periapical abscess. Amoxicillin was the most popular medicine (69%) followed by Amoxicillin-clavulanic acid (25%) Almost every dentist has likely replied favourably to the request for a medical history. Approximately 47 (47%) of individuals demonstrated good understanding of antibiotic prescription. While 15 (15%) had a favourable attitude about prescription antibiotics, approximately 85(85%) had a good prescribing behaviour.

Table 1: Gender distribution

Sex	Number	%
Male	26	26
Female	74	74
Age (Mean)	27.58 ±3.69 years	

Table 2: Knowledge of antibiotics among the dental practitioners

Parameter			Number	%
1	The use of antibiotics on cold and cough	Speed up the recovery	52	52
		Prolongs the recovery	1	1
		Has no effect	46	46
		Don't know	1	1
2	If the antibiotics are newer and the price is higher	Efficacy is better	23	23
		Efficacy is worse	1	1
		Does not affect efficacy	55	55
		Don't know	21	21
3	Antibiotic resistance	Infection is not under control even after taking high doses of antibiotics	8	8
		Resistance acquired by microorganism to antibiotics	91	91
		Do not know	1	1
4	Con- sequences of antibiotic resistance	May need more expensive medicine	27	27
		May be sick for longer	56	56
		May have to visit doctor more	13	13
		Don't know	4	4

Table 3: Attitude of dental practitioners towards antibiotics

	Parameter	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Antibiotics are safe drugs, hence they can be commonly used medication	23	49	11	15	2
2	Skipping one or two doses does not contribute to the development of antibiotic resistance	22	45	19	12	2
3	Adverse effects of antibiotics are reduced by using more than one antibiotics at a time	12	44	19	19	6
4	When you have a cough and sore throat, antibiotics are the first drug of choice for early treatment and to prevent emergence of resistant strains	24	51	8	17	0
5	Antibiotic resistance is a problem in India	1	4	9	57	29
6	It is good to keep antibiotic stocks at home	21	47	16	16	0

Table 4: Practice of dental practitioners towards the use of antibiotics

Parameter		Number	Percentage
How do you prescribe antibiotics? (based on)	On Symptoms	55	55
	On guidelines	44	44
	On cost of drug	1	1
What is the most common antibiotic prescribed by you?	Penicillin	1	1
	Amoxicillin	69	69
	Ampicillin	2	2
	Cephalexin	2	2
	Amoxicillin- clavulinic acid	25	25
Do you take medical history of the patient before prescribing antibiotics?			
	Yes	100	100
	no	0	0
Do you discuss the main side effects of antibiotic with your patients?			
	Yes	90	90
	No	10	10
Do you feel pressure from patients to prescribe antibiotics	Always	3	3
	Often	26	26
	Sometimes	61	61
	Never	10	10

DISCUSSION

In order to do their jobs effectively, doctors and dentists must have extensive knowledge about medications, including their side effects, dosages, interactions, and cost. Antibiotic resistance and other major effects are a result of the widespread, medically inappropriate, ineffective, and economically wasteful use of the medications. Additionally, this research found that the vast majority of practising dentists in India were aware of antibiotic resistance and its repercussions. A global epidemic of antibiotic resistance has emerged in recent years.[13] In this survey, 91 out of 100 participants (or 91%) were already aware of this. Consistent with the research of Gowri et al.[14] and Konde et al.[15] Fifty-five percent of doctors in this research used symptoms to justify the use of antibiotics, even though the patients could have been managed successfully by following the recommendations. Similar results were found by Hammad et al., who found that the vast majority of dentists surveyed did not use

antibiotic prophylaxis as recommended.[16] One possible explanation is that dentists are just too busy to keep up with the latest changes in prescription habits. Antibiotics and analgesics are often used in dental treatment for the control of infection and relief of pain, respectively. However, in dentistry, disorders requiring antibiotic treatment are mostly limited to oral infections characterised by fever, lymphadenopathy, and trismus.[17,18]

Antibiotics are indicated for acute periodontal disorders when drainage or debridement is not feasible, however they are not essential for acute periapical infection, dry socket, pulpitis, or chronic inflammatory periodontal illnesses.[20] But we found that many dentists routinely prescribe antibiotics for tooth infections, dry sockets, and pulpitis. Although dry socket is not an infection and antibiotics are not necessary in most instances, they are nonetheless commonly prescribed. In our research, we found that 41% of people who have dry socket usually recommend antibiotics, which is similar to the results of a previous study.[21] Unless there is a local spread of infection or when drainage or debridement is not possible, antibiotics are not advised in periodontal diseases.[22-25] Tooth extraction is a frequent dental surgery that offers little benefit from the use of antibiotics.[26] In England and Scotland, dentists often don't give patients antibiotics before an extraction unless absolutely essential. [27]

These results are consistent with those found in a survey by Jayadev et al., which found that amoxicillin (69%) and amoxicillin-clavulanic acid (25%), respectively, were the most often administered antibiotics.[28] However, a research performed in the United States found lower findings (3.1% of individuals administered Augmentin), while another study conducted in Belgium found higher results (22.1%). [25]

In India, it is popular for patients to treat themselves with medicine instead of seeing a doctor, and many do not finish the prescribed pharmaceutical term. They put the prescription away when they believe the symptoms have disappeared. Furthermore, there is a dearth of research detailing the increase of antibiotic-resistant microorganisms in livestock and seafood. [29]

This research, however, is not without flaws. The first major restriction is the limited size of the sample. Because of the study's exclusive emphasis on Indian dentists, its findings cannot be extrapolated to the whole Indian dental community. Finally, there is information bias in surveys that rely on questionnaires.

CONCLUSION

Although dentists in the current research were found to have understanding of antibiotic prescription, it was found that there is an undeniable gap in training and perspective of dentists with respect to antibiotic recommendations. Therefore, dentists will need to improve their use of antibiotics by updating their procedures over time.

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