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Knowledge of Academics of Odontology on Antibiotic Prescription in Endodontic Treatments

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Abstract

Introduction: The use of antibiotics in endodontics has been increasingly restricted and there is concern about the use of these drugs. Objective: to evaluate the knowledge of Dentistry students at the João Pessoa University Center - UNIPÊ, of the sixth and tenth periods, on the prescription of antibiotics in endodontic treatment.

Material and Method: The sample corresponded to 105 participants. The study presented a descriptive and exploratory approach, using a questionnaire. Data were tabulated on a Microsoft Excel platform and analyzed using descriptive statistics (absolute and percentage frequency values).

Results: The students reported that they sporadically have doubts when prescribing systemic antibiotics. Most graduating students were unable to identify which type of prescription should be used to prescribe and the validity of the prescription from the date of issue. The drug of first choice, indicated as an adjunct to endodontic treatment, was correctly described. The participants of both classes were not sure about the cases that deserve the antimicrobial prescription and which patients are at risk in which antibiotic prophylaxis is recommended.

Conclusion: Most of the evaluated academics presented reasonable knowledge, evidencing the continuous need to update students regarding the stipulated protocols.

Keywords: *Antibiotic; Prescription; Dentistry; Endodontics.*

Abbreviations: UNIPÊ: University Center of João Pessoa

Introduction

Endodontic therapy aims at the total elimination or significant reduction of pathogenic microorganisms from the root canals, through chemical-mechanical preparation. Bacteria and their by-products are considered the main etiological agents of pulp and periapical pathologies, and cause the persistence of the infection, due to the failure of endodontic treatment and/or coronary microleakage, which allows the microbial recontamination of the root canals [5].

Endodontic infections are polymicrobial, and predominated by strict gram-negative anaerobes, some are almost asymptomatic and others are associated with serious infections. The use of antibiotics as an adjunct to the treatment of these infections is an important alternative when clinically indicated. However, the vast majority of infections of endodontic origin are treated without the need for the use of antibiotics, as they cannot reach and eliminate microorganisms present in the root canal system, due to the absence of blood circulation in necrotic pulps [1-6].

The choice of antibiotic to be prescribed, when necessary, should be based on laboratory data, patient health, age, history of allergy, absorption, ability to distribute the drug. However, due to the delay of days to obtain the results of microbiological exams and susceptibility tests and in view of the need to prescribe an antibiotic immediately, the choice must also be based on the professional's updated knowledge about endodontic microbiology [10].

Given the above, the optimization of knowledge about the use of antimicrobials in the academic community is of paramount importance to provide information that rationalizes their use, helping future dentists to analyze and know the real needs and correct forms of prescription. Thus, this study aims to evaluate the knowledge of Dentistry students at the João Pessoa University Center (UNIPÊ), from the sixth and tenth periods, on the prescription of antibiotics in endodontic treatment, and compare the results according to the periods evaluated.

Materials and Methods or Experimental Procedures

This is a descriptive exploratory quantitative research, carried out at Clínica Escola de Odontologia, with students from the sixth and tenth periods of UNIPÊ, in the period of August 2017. The requirements proposed by the National Health Council/Ministry of Health were met, through of Resolution No. 466/2012 [3]. The sample consisted of 151 students, of both genders, over 18 years old. After the sample calculation, from the universe of 151 students, with a 95% confidence level and 5% error, the final sample was 105 participating students.

As a criterion for including the sample in the research, information was analyzed, such as: being enrolled in the 6th or 10th periods of the undergraduate course in Dentistry at UNIPÊ, having been approved in the disciplines of Endodontics I, Endodontics II, Biochemistry, Pharmacology and Therapeutics, being greater than 18 years old and agree to participate in the research by signing the Informed Consent Form - IC. Academics were excluded from this research if they: felt constrained in filling out the research instrument and who filled out the questionnaire in an unreadable manner. Academics had the right to abandon research at any time without prejudice to it.

As a data collection instrument for this research, a structured questionnaire with 9 objective questions was used. The information obtained from the questionnaires was digitized in a spreadsheet formed in the EXCEL® 2013 program (Microsoft® Office® 2013), and analyzed through a descriptive statistical analysis and a percentage statistical treatment, using absolute and relative data.

Results and Discussion

The sample corresponded to 105 participants, out of a total of 151 academics, with 43 participants from the 6th period and 62 from the 10th period, who are duly enrolled in the Dentistry course at Centro Universitário de João Pessoa - UNIPÊ and obeying the inclusion criteria required by the search.

Table 1 shows the absolute and percentage distributions according to the profile of the students evaluated. Most were female (79.03%) and the prevalent age group was between 21 and 30 years, 85.48% of the total sample, with a minimum age of 18 years and a maximum of 36 years.

GENRE	6th PERIOD		10th PERIOD		Valor-p*
	N (43)	%	N (62)	%	0,000
FEMININE	33	76,74%	49	79,03%	
MALE	10	23,26%	13	20,97%	
TOTAL	43	100%	62	100%	
AGE	6th PERIOD		10th PERIOD		
	N (43)	%	N (62)	%	
18-20	9	20,93%	1	1,61%	
21-30	26	60,47%	53	85,48%	
31-40	8	18,60%	8	12,90%	
TOTAL	43	100%	62	100%	

Table 1: *Absolute and percentage distribution of dental students at UNIPE in the 6th and 10th periods, according to gender and age group. João Pessoa / PB, 2017.*

The second question was whether students know how to identify the type of prescription to prescribe antibiotics, and how many routes are needed for this. Among the alternatives: A) Common prescription (only 1 copy), B) Common prescription (2 copies), C).

Only special control prescription (2 copies), D). Only special control prescription (1 copy) + Type B recipe notification (blue color), and letter E) Type B recipe notification (blue color).

The data found in table 2 demonstrate the lack of updating of the second group of participants (10th period), as well as the explicit lack of knowledge of the rules for prescribing antibiotics; in contrast, most students in the 6th period correctly identified the form of prescription of these drugs, which may be associated with the proximity of that period to the subject of Therapeutics, which is taught in the 4th period.

The preparation of a prescription for antimicrobial drugs is clarified by RDC No. 20 of May 5, 2011, launched that same year to revoke all other previous resolutions on the subject. This guides the mandatory data that must be included in the prescription, this being in a simple prescription, with retention of the 2nd copy by the pharmacy and the 1st returned to the patient [3].

	6th PERIOD		10th PERIOD		Valor-p*
	N (43)	%	N (62)	%	0,000
A	0	0%	1	1,61%	
B	33	76,74%*	23	37,10%*	
C	8	18,60%	36	58,06%	
D	2	4,65%	1	1,61%	
E	0	0%	1	1,61%	
TOTAL	43	100%	62	100%	

**Rigth alternative*

Table 2: *Absolute and percentage distribution of dental students from UNIPÊ in the 6th and 10th periods, according to the type of prescription and number of copies that they deem necessary for the prescription of antibiotics. João Pessoa / PB, 2017.*

In Table 3, the item referred to the validity of the prescription for antibiotics, which the students considered correct, throughout the Brazilian national territory. Among the options were: A) 03 days; B) 05 days; C) 10 days; D) 15 days and E) 30 days.

Analyzing the data obtained, for the students of the 6th period, the majority 67.44% (29) marked the appropriate option that claimed to be 10 days from the date of issue. For students who are about to graduate, there was greater disagreement between them, when 46.77% (n = 29) marked the option of 30 days of validity for the prescription with antibiotic prescription, while only 38.71% (n = 24) marked the appropriate option for 10 days of validity.

	6th PERIOD		10th PERIOD		Valor-p*
	N (43)	%	N (62)	%	0,000
A	0	0%	1	1,61%	
B	1	2,33%	0	0%	
C	29	67,44%*	24	38,71%*	
D	1	2,33%	8	12,90%	
E	12	27,91%	29	46,77%	
TOTAL	43	100%	62	100%	

**Rigth alternative*

Table 3: *Absolute and percentage distribution of dental students from UNIPÊ in the 6th and 10th periods, according to the validity of the prescription form for antibiotics in the national territory. João Pessoa/PB, 2017.*

Martins et al. [8], carried out a study related to errors or omissions made by prescribers, whether students or professionals. 228 antibacterial drug prescriptions were evaluated in Imperatriz - MA, where 100% of prescriptions contained the prescriber's identification, however, of these, only 87.7% had the date of prescriptions, thus making it impossible to account for the validity of these prescriptions and dispense the medicine.

In the next question, shown in the table below, asked the interval between doses that these students used to prescribe the antibiotic of first choice (Amoxicillin 500 mg) in the treatment of endodontic disorders. The alternatives were: A) Every 4 hours, B) Every 6 hours, C) Every 8 hours, D) Every 12 hours, and E) Only once a day.

There was agreement between the majority of both classes, when the percentage of students in the 6th and 10th periods, who chose the option of prescribing amoxicillin "every 8 hours," corresponded to more than half, although few students still chose to choice of twice a day. This can be explained by the confusion that still exists regarding the doses prescribed for different antimicrobials in conjunction with the doses established for the other groups of drugs.

	6th PERIOD		10th PERIOD		Valor-p*
	N (43)	%	N (62)	%	0,000
A	0	0%	0	0%	
B	5	11,63%	3	4,84%	
C	27	62,79%*	49	79,03%*	
D	11	25,58%	8	12,90%	
E	0	0%	2	3,23%	
TOTAL	43	100%	62	100%	

**Rigth alternative*

Table 4: *Absolute and percentage distribution of dental students from UNIPÊ in the 6th and 10th periods, according to the correct interval between doses of the antibiotic of choice for healthy adults. João Pessoa / PB, 2017.*

It can be observed in line with the research by Lucchette et al. [7], when he observed that dentists from public schools in a city in São Paulo, when asked about the most prescribed antibiotic, dosage and interval between doses, 97.3% of a total of 74, mentioned amoxicillin, via oral, in the dosage of 500mg. The values fluctuated regarding the interval between doses, since 87.8% would prescribe every 8 hours, 2.7% every 12 hours and 9.5% every 6 hours.

It was also asked in which cases of patients at risk is recommended to perform antibiotic prophylaxis in endodontic treatment. Among the options were: A) Prevention of infective endocarditis in susceptible patients; B) Pregnant women; C) compensated diabetics; D) decompensated diabetics; E) Hypertensive; F) Immunodepressed; G) Patients with orthopedic prostheses; H) Patients receiving chemotherapy (leukocytes <2,500); I) Bone marrow transplants (leukocytes <2,500); J) Patients with pacemakers (table 8).

Both periods had their highest percentage of votes when claiming to prescribe prophylactic antibiotic therapy to prevent infective endocarditis in susceptible patients.

Trento et al. [11], in his research involving 80 students and 50 professional dental surgeons in the city of Aracajú-SE, found that when asked about and the situation in which antibiotic prophylaxis would be indicated, 87.5% of academics and 86% of professionals agreed with the option of patients at risk for bacterial endocarditis. However, these participants also voted in situations of "any invasive procedure" (6.3% and 18%), hypertensive (6.3% and 2%) and in endodontics (8.8% and 6%), thus showing the lack of the search for information and study since graduation, continuing this situation, when then professionals.

	6th PERIOD		10th PERIOD		Valor-p*
	N (43)	%	N (62)	%	0,000
A	40	34,48%*	57	26,89%*	
B	1	0,86%	0	0%	
C	1	0,83%	3	1,42%	
D	16	13,79%*	23	10,85%*	
E	0	0%	4	1,89%	
F	14	12,07%*	34	16,04%*	
G	7	6,03%*	20	9,43%*	
H	10	8,62%*	15	7,08%*	
I	10	8,62%*	19	8,96%*	
J	17	14,66%	37	17,45%	
TOTAL	116**	100%	212**	100%	

**Rigth alternative*

*** The question accepted more than one alternative as being correct.*

Table 5: *Absolute and percentage distribution of dental students from UNIPÊ in the 6th and 10th periods, according to the cases of patients who need antibiotic prophylaxis in endodontic treatment. João Pessoa / PB, 2017.*

The other option explored is related to decompensated diabetic patients and immunodepressed patients who include transplant patients and who are receiving chemotherapy, both with leukopenia (<2,500), which deserve attention regarding the need for prophylaxis [7].

In view of what was explored in this research, it shows the reasonable knowledge of the students in relation to the cases that require the prescription of antibiotics, revealing a problem in their academic formation, and evidencing the continuous need for updating students regarding the stipulated protocols and the current literature in the school, in order to reduce insecurity and the consequences resulting from the incorrect use of antibiotics.

Conclusion

According to the results obtained in this work, it can be concluded that most students reported that they sporadically have doubts when prescribing systemic antibiotics in endodontic treatment. Most graduating students were unable to identify which type of prescription should be used to prescribe antibiotics and the validity of the prescription from the date of issue, differentiating from the results obtained by the 6th period students.

Most students, as well as the correct interval between doses and penicillin substitutes in case of hypersensitivity to this group of drugs correctly described the first choice drug, indicated as an adjunct to endodontic treatment. The participants of both classes were not sure about the cases that deserve antimicrobial prescription in endodontic treatment.

There was no statistically significant difference, in most of the variables addressed, for the distribution of the responses of the evaluated students, from the different periods of the course, although the sixth period had the highest number of correct answers when compared to the tenth.

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