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Original Article

Self-medication in Children and Young Patients at University Dental Service

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Abstract

Objective: To analyze the pattern of self-medication in cases of dental infection for children and pre-teens at University Dental Service. **Material and Methods:** It was performed a structured survey interview with the parents/caregivers of the patients. The survey consisted in seventeen questions about tooth infection episodes experienced by the children during their lives, and which medication was used, as well as information about demographic characteristics of the patient and parents/caregivers. Statistical analysis was performed with the Software SPSS *for Windows*, version 15.0. Descriptive analysis was performed (mean and standard deviation [SD] or median and percentis). The association between the self-medication and the variables (child age, mother age, mother educational level) was measured by chi-squared test. **Results:** One hundred and fifty questionnaires were analyzed. In episodes of dental infection, the most common medicaments were amoxicillin (34.8%) and acetaminophen (32.6%). The practice of self-medication was observed in 21.7% of cases. There was no association between the self-medication and the variables as child age, mother age and mother educational level ($P > .05$; chi-squared test). **Conclusion:** Children treated at University Dental Service were exposed to frequent previous use of medicines without prescription, and the data revealed a non-rational use of medications.

Keywords: Child; Pediatric Dentistry; Self-Medication.

Introduction

Medicines, from manufacture to consumption, have been subject of concern. From a global point of view, the irrational use of medicines, their poor quality and the difficulty of access are major public health problems. It is estimated that more than 75% of the antimicrobial prescriptions are made inappropriately, and only about 50% of the patients take their medicines properly [1,2].

One of the main factors contributing to this spread of irrational use of medicines is the consumption of non-prescription medication. Self-medication is used to treat signs and symptoms self-diagnosed [3]. There are several sources for self-medication: sharing of prescription with members of the family or social circle, reusing leftovers, use of previous prescriptions etc. Furthermore, the large product offering, the attraction provided by fads, intense marketing of pharmaceutical industry and even cultural aspects also contribute for this situation [4,5].

Self-medication in children has been discussed, but there is still a lack of studies about this subject, especially in dentistry field. This practice is commonly used in order to relieve fever or pain [6,7], symptoms often associated with dental infection. In this clinical condition, it is necessary to be very careful in choosing the right treatment, especially regarding to the use of antimicrobial therapy. The widespread use of this kind of medication, often unnecessary and imprecise, favors the development of resistance both for the microflora of the patient as well as for microorganisms presents in the general population. Furthermore, the misuse of these medicines also brings individual consequences, such as therapeutic inefficacy and adverse effects [4].

Thus, due to this lack of studies regarding to the rational use of medicines in Dentistry, especially in children, the aim of this prospective cross-sectional study was to analyze the pattern of self-medication in cases of dental infection for children and pre-teens at an University Dental Service.

Material and Methods

This research follows the rules established by the Resolution no. 466 from National Council of Health and it was approved by the Ethics Committee in Research (CAAE:12442913.9.0000.5347) from the Federal University of Rio Grande do Sul (Porto Alegre, RS, Brazil). It was performed a prospective cross-sectional study which sample was obtained by convenience. The caregivers of patients in dental treatment at Pediatric Dentistry Clinic of Federal University of Rio Grande do Sul (UFRGS) were invited to participate. Those who agreed signed an informed consent form, according Brazilian legislation, and were included in the study.

It was performed a structured survey interview with the parents/caregivers. The questionnaire consisted in seventeen questions specially designed for this study. It contained questions about tooth infection episodes experienced by the children during their lives, and which medication was used, as well as information about demographic characteristics of the patient and responsible person.

Database was constructed using Epi Data version 3.1. Statistical analysis was performed with the Software SPSS for Windows, version 15.0. Descriptive analysis was performed and data were

expressed as mean and standard deviation (SD) or median and percentis 25 and 75. The association between the self-medication and the variables (child age, mother age, mother educational level) was measured by chi-squared test.

Results

From the 151 parents/caregivers invited, 150 agreed to answer the survey. Therefore, sample comprised 150 children, being 50% of male gender. The mean (\pm SD) age of the patients was 7.7 (\pm 2.83) years-old, ranging from 1 to 16 years-old.

Regarding to the person who answered the survey, 70% was the mother's patient, whose age varied from 21 to 77 years-old (mean \pm SD: 40.1 \pm 12.2). It was observed that 33.3% have completed high school, 22% have completed elementary school, while 23.3% have incomplete elementary education level. Table 1 presents the characteristics of the sample.

Table 1. Demographic characteristics of the sample.

Variables	n (%)
Child's gender	
Male	75 (50%)
Female	75 (50%)
Child's age (years) Mean (SD)	7,7 (2,83)
Caregiver	
Mother	105 (70%)
Father	17 (11%)
Grandfather / Grandmother	23 (15%)
Uncle / Aunt	3 (2%)
Stepfather / Stepmother	1 (1%)
Other person	1 (1%)
Caregiver's gender	
Male	21 (14%)
Female	129 (86%)
Caregiver's age - Mean (SD)	40,1 (12,2)
Caregiver's level of education	
Illiterate	1 (1%)
Incomplete elementary education	35 (23%)
Complete elementary education	33 (22%)
Incomplete high school	17 (11%)
Complete high school	50 (33%)
University graduates (incomplete)	11 (7%)
University graduates (complete)	4 (3%)

When asked about dental infection episodes, the caregivers reported that 28.7% (n=43) of children have already had this clinical condition at least once. In this group 58.1% were boys and the mean age was 7.44 \pm 2.7%, ranging from 3.5 to 16 years old. For the majority of them (58.1%; n=25), the more recent episode occurred in the period between one month and one year before the interview, and for 11.7% (n=5), the dental infection occurred in the same month of the interview.

Moreover, the most common conduct adopted by the parents every time that this clinic condition occurred was the dental appointment ($n = 25$; 58.1%), followed by self-medication ($n=9$; 20.9%). In 11.6% ($n = 5$) of the cases, the children were initially medicated by their parents and later taken to the dentist/physician. When the caregivers were asked about the conduct adopted in the last time that children had dental infection, the results were similar (data not shown). Grouping the children that used self-medication, regardless of being assisted by a health professional, the frequency of self-medication increased to 32,5% ($n=14$). There was no association between the self-medication and the variables as child age, mother age and mother educational level ($P>.05$; chi-squared test).

In these presence of infection episode, 83.7% ($n=36$) of the caregivers reported that they already offered some medicine to their children. Among them, 72.2% ($n=26$) have used only one medication, and 27.8% ($n =10$) have used two medications. Forty-six different medications were used to treat dental infection in these 36 children. Amoxicillin was the drug most frequently used ($n=16$; 34.8%), followed by acetaminophen ($n=15$; 32.6%). Table 2 lists the medicines offered to the children during tooth infection episodes. It was observed that 44.7% ($n=21$) used, at least, one antibiotic. Only in one case, this antibiotic was used as self-medication.

Table 2. Drugs administered to the children in cases of dental infection, according to the report of their caregivers.

Drugs	Frequency	%
Acetaminophen	15	32.6
Antimicrobial agent (not specified)	4	8.7
Not remembered the name of the drug	4	8.7
Ibuprofen	3	6.5
Anti-inflammatory agent (not specified)	2	4.3
Azithromycin	1	2.2
Dipyron	1	2.2
Total	46	100

The practice of self-medication was observed in 21.7% ($n =10$) of cases, while 58.7% ($n=27$) of the medicines were prescribed by dentists, and 19.6% ($n=9$) by physicians. In most cases, self-medication was based in the previous dental or medical prescriptions ($n=4$; 40%) or in the previous administration to treat other similar episodes ($n=2$; 20%), as showed in Table 3.

Table 3. Source of information that guided the choice of the medication administered in cases of dental infection, according to the report of their caregivers.

Source of information that guided the medicine use	Frequency	%
Previous medical/dental indication	4	40
Used in other episodes	2	20
Indication of other people	1	10
Popular culture	1	10
Other source of information	1	10
Not reported	1	10
Total	10	100

Concerning to the source of medication, 45.7% (n=21) was obtained from pharmacies, 39.1% (n=18) in public healthcare centers and 8.7% (n=4) was acquired through the leftover medicines. Other origins were reported by 6.5% (n = 3) of respondents, as for example, hospitals.

Discussion

In the present study, it was observed that children attending at University Dental Service were exposed to frequent use of medicines to treat dental infection, and some of these were used without prescription.

In most cases (70%), the mother was the person accompanying the children. This fact is consistent with the findings which observed that women are more concerned with health aspects of the family and that mothers, rather than the fathers, are more likely to follow their children in medical and dental appointments [8].

Regarding to the level of education, about 57% of the caregivers had not completed high school. Data complies with the profile of patients who typically seek care attention at Universities Dental Services, since these are people less favored socioeconomically and these centers provide assistance for a very low charge. This reinforces the responsibility of health professionals, transmitting knowledge more easily and affordably.

Dental infection was experienced at least once in 28.7% (n = 43) of patients. Of these, 83.7% (n = 36) received some type of medication, which was antimicrobial agent in 45.7% (n = 21) of the cases. In 54.3% of the remaining cases, analgesics and anti-inflammatories were used, which are symptomatic medicines in the treatment of dental infection.

The literature suggests that dental infection, although a clinical condition that can bring some risks to the patient, not always require antimicrobial treatment. If the patient does not show signs of systemic or local important involvement and if it is not immunocompromised, the removal of the cause (endodontic treatment or dental extraction) is the definitive treatment [9,10]. The use of analgesics is appropriate to relieve pain, but the use of anti-inflammatory medicines is not justified. The inflammatory response is due to tissue invasion by microorganisms, and when the infection condition is specifically treated, the inflammatory manifestations reduced indirectly. Therefore, the treatment should focus the cause of the infection rather than its consequences. Thus, in this study, the high frequency of use of antimicrobial and anti-inflammatory agents should be viewed with concern.

The medications most used in the treatment of dental infections were amoxicillin (34.8%) and acetaminophen (32.6%). The high frequency of use of amoxicillin was expected, due to its efficacy, low toxicity, lower cost, and more tolerable side effects. Penicillins are considered drugs of first choice in this type of situation [9-11]. The use of acetaminophen may be explained by its efficacy in the treatment of pain and fever, symptoms often associated with infection. However, its use should be viewed with caution, as in an attempt to reduce fever and pain of children, the caregiver may delay seeking professional attention and, consequently, worsening the clinical condition.

Concerning to the prescriptions, it was observed that the most of medications used to treat dental infection was prescribed by a healthcare professional – 78.3%. Self-medication was observed in 21.7% of cases. This value is very significant since, in several cases, the treatment of infection demands the use of prescription medicines such as antimicrobials. The considerable used of self-medication observed in this study, is probably being influenced by the high frequency use of acetaminophen, which does not require prescription.

The "recall bias" is one of the limitations of this study. In order to answer to the survey, the caregivers had to rely on their memory, and as some questions refers to the whole life of the children, the answer was very susceptible to the forgetfulness. Other limitation is the fact that some questions were open, bringing some difficulty in the categorization of the answers.

Conclusion

It was observed that children treated at a university dental service were exposed to frequent previous use of medicines to treat infection, and many of these drugs were used without prescription. The data point to a non-rational use of medications, which is worrying.

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