

Prevalence of odontogenic pain in a public dental urgency service in Southern Brazil

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ABSTRACT

Objective: To identify the main causes of odontogenic pain that lead to people search for care in the Urgency Service of the School of Dentistry of University, Passo Fundo/RS/Brazil (SPAOH), localized in the Hospital São Vicente de Paulo. **Methodology:** A cross-sectional and retrospective study, carried out between the period from November 1, 2016 to October 31, 2017, when data from dental care records were collected and tabulated. The data were analyzed looking for the prevalence of several causes of odontogenic pain, with pulp origin (reversible, irreversible pulpitis, necrosis); periapical (pericementitis, abscess); periodontal (periodontitis); and others, in addition to the conduct performed in attendance.

Results: A total of 1,275 dental records were analyzed, involving 868 patients, of which 68.1% reported the presence of pulp (62.3%), periapical (11.1%) and periodontal (12.2%) odontogenic pains. Analgesic or antibiotic therapies were the most common approaches, totaling 21.0% of cases, followed by endodontic accesses (18.7%) and extractions (17.9%). **Conclusion:** In the studied dental urgency service, cases of pulp pain prevail. The results obtained contribute to the development of strategies to control odontogenic pain, as well as to the improvement of clinical protocols.

Keywords: Antibiotic. Causalgia. Urgency. Dental pain. Pulp pain.

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Introduction

Human pain is difficult to measure because it is a personal and sensory experience modified by several factors. Clinical symptoms do not allow the evaluation of the extent of the pulp lesion and periapical lesions, nor is the association of such symptoms with microscopic characteristics possible.^{1,2} Among orofacial pains, dental pain has been reported as the most frequent, which can affect social interaction and daily activities, with a negative impact on quality of life.³ Different factors have been associated with the presence and perception of dental pain, such as: worse socioeconomic conditions, presence of dental caries, difficulties related to eating and sleep disorders, influence of knowledge and personal beliefs, cultural and social environment in which individuals are inserted.⁴

Pulpitis can be reversible or irreversible. A reversible pulpitis can be cured. A case of irreversible pulpitis, if left untreated, can result in necrotic pulp, which can cause unbearable pain, rarely reacting to pain killers. Pain worsens with chewing or hot drinks, with short-term relief from pain during rinsing with ice water and sensitivity to percussion. Caries or an extensive restoration near the pulp chamber may be present on the radiograph of a case of pulpitis.⁵ Pulp pain can be acute or chronic, is difficult to locate, responds to local stimuli, and can have the following characteristics: depressive, diffuse, throbbing or burning, and pain is usually improved with anesthetic block. An important characteristic of odontogenic pain is its variation with time, which is a condition that differentiates it from other manifestations that affect the tooth. The pains are modified by the resolution or progression of the process, that is, they present gradual improvement or progress to spontaneous pains, leading to the need for removal of the pulp organ and endodontic treatment. Often tooth extraction may be indicated, depending on the degree of impairment of the structures.⁶

Ninety percent of urgencies involving pain are of pulp or periapical origin. Acute apical abscess is a common urgency periapical diagnosis. When a patient has an acute apical abscess, regardless of the absence or severity of the edema (when present), immediate treatment is required. As part of the diagnosis, there should be a systemic assessment of the condition. Subjectively (patient's report), pain and malaise levels can also be recorded. Signs of systemic involvement

include elevated temperature, lymphadenopathy and malaise.⁷

Acute apical abscess is a common urgency diagnosis, and when this abscess is confined to bone tissue, immediate treatment is required. Acute periradicular abscesses should be handled by means of correct endodontic therapy and incision to drain or extract the tooth involved to remove the cause of the infection. Sometimes it is necessary to use antibiotic therapy, but antibiotics are often prescribed imprecisely in the treatment of these infections, with questions about their use in many situations.⁸ A lateral periodontal abscess can be a source of odontogenic pain and can be associated with clinical signs such as edema, erythema and gingival swelling. Periodontal diagnosis is easily established and treatment is aimed at relieving the etiology, mainly by removing the cause and draining the purulent collection, if it exists.⁹⁻¹¹

The objective of the present study was to identify the main causes of odontogenic pain that lead to the search for care in the Urgency Service of the School of Dentistry of UPF (SPAHO), localized in Hospital São Vicente de Paulo.

Materials and Methods

This is a cross-sectional and retrospective epidemiological study, carried out between November 1, 2016 and October 31, 2017. For this purpose, data from dental care records of the Urgency Service of the School of Dentistry of UPF (SPAHO), located in Hospital São Vicente de Paulo and linked to the Unified Health System (SUS), were collected and analyzed.

This research was approved by the Research Ethics Committee of the University of Passo Fundo (C.A.A.E. 70739517.0.0000.5342), as well as the consent of the Research and Graduate Committee of Hospital São Vicente de Paulo for access and use of data contained in medical records.

The dental records of all patients treated at the SPAHO were accessed and the information was tabulated on a Microsoft Excel 2016™ spreadsheet, configured to record data related to the prevalence of various causes of odontogenic pain, with pulp (reversible pulpitis, pulpitis irreversible or necrosis), periapical (pericementitis, abscess) or periodontal origin (periodontitis, periodontal abscess). "Other causes of care" were also identified, which concern patients treated at

the SPAO for reasons of urgency other than odontogenic pain (provisional cementation of prostheses, for example). Data related to the actions taken in the face of pain cases were also collected and, associated with these, demographic data of the patients involved, such as age, sex and profession, were also collected. The data obtained were analyzed using descriptive frequency statistics.

Results

A total of 1,275 dental records were analyzed between November 1, 2016 and October 31, 2017, at SPAOH. The data expressed in Table 1 show the profile of patients seen at the service, as well as the presence of pain as a cause for seeking care.

Table 2 shows the main diagnoses related to the

presence of pain in 868 patients seen in the period of one year.

Tables 3 and 4 show the clinical procedures adopted to resolve cases of pain of odontogenic origin.

Regarding other causes that led to the search for urgent care (Table 2), the main diagnoses were abnormal tongue brake, pericoronitis, poor prosthesis adaptation, the need for temporary prosthesis cementation and suture removal. With these diagnoses, we have some conducts that did not fit the main groups formed by us, present in Table 3 for data collection, and thus were classified as "Others" in order to record. In the present study, the collection of socioeconomic data was not possible due to the lack of information in the medical records regarding the patients' occupation and educational level.

Table 1. Summary table of results.

Survey of the records of the SPAOH/UPF 2016/2017			
Sex	Frequency (N)	Percentage (%)	
Female	674	52.9	
Male	601	47.1	
Total	1,275	100.0	
Age (years)	Frequency (N)	Percentage (%)	Average (\pm S.D.)
0 to 3	114	8.9	33.83 (\pm 20,84)
4 to 15	154	12.1	
16 to 30	311	24.4	
31 to 50	397	31.1	Median (Max. - Min.)
51 to 70	252	19.8	33 (98y - 2m)
71 to 100	47	3.7	
Total	1,275	100.0	
Presence of Pain	Frequency (N)	Percentage (%)	
Yes	868	68.1	
No	397	31.1	
No registry	10	0.8	
Total	1,275	100.0	

SOURCE: Research data

Table 2. Diagnosis of pain origin.

Description of diagnoses		
Present Pain	Frequency (N)	Percentage (%)
Pulp Origin	(541)	(62.3)
Reversible	153	17.6
Irreversible	214	24.7
Necrosis	174	20.0
Periapical Origin	(96)	(11.1)
Pericementitis	19	2.2
Abscesses	77	8.9
Periodontal Origin	106	12.2
Others	125	14.4
Total	868	100.0
Absent Pain	Frequency (N)	Percentage (%)
Pulpar Origin		
Reversible	5	1.3
Irreversible	2	0.5
Necrosis	78	19.6
Periapical Origin		
Pericementitis	0	0
Abscesses	2	0.5
Periodontal Origin	9	2.3
Others	301	75.8
Total	397	100.0
No record of pain	Frequency (N)	Percentage (%)
Periapical Origin		
Pericementitis	1	10.0
Abscesses	1	10.0
Others	8	80.0
Total	10	100.0

SOURCE: Research data

Table 3. Conducts adopted in clinical care.

Conduct	Conducts in front of the Diagnosis					
	Present Pain		Absent pain		No Registry	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Exodontia	155	17.9	54	13.6	0	0
Access	162	18.7	4	1.0	0	0
Endodontic dressing	124	14.3	11	2.8	0	0
Antibiotic/analgesics	182	21.0	4	1.0	0	0
Occlusal adjustment	17	2.0	1	0.3	1	10.0
Frenectomy	1	0.1	107	27.0	0	0
Abscess drainage	13	1.5	1	0.3	1	10.0
Dental consultation	162	18.7	129	32.5	1	10.0
Others	52	6.0	86	21.7	7	70.0
Total	868	100.0	397	100.0	10	100.0

SOURCE: Research data

Table 4. Management in case of pulp and periapical pain.

Management in case of pulp pain		
Management	Frequency (N)	Percentage (%)
Reversible Pulp Pain	153	100
Exodontia	1	0.7
Endodontic dressing	123	80.4
Antibiotic/analgesics	3	2.0
Dental consultation	26	17.0
Irreversible Pulp Pain	214	100
Exodontia	40	18.7
Access	109	50.9
Endodontic dressing	1	0.5
Antibiotic/analgesics	38	17.8
Dental consultation	25	11.7
Others	1	0.5
Management in case of abscesses		
Managements	Frequency (N)	Percentage (%)
Exodontia	2	2.5
Access	10	12.5
Antibiotic/analgesics	48	60.0
Drainage	14	17.5
Dental consultation	6	7.5
Total of Abscesses	80	100.0

SOURCE: Research data

Discussion

In a higher education institution in Dentistry, the presence of a dental urgency service can be a great opportunity to acquire knowledge and train clinical practice. However, to achieve this goal, the search for information about the characteristics of the service is important for planning therapeutic and preventive strategies, as well as for understanding the results of treatments instituted in the urgency of odontogenic pain. According to Estrela et al.¹ (2011), clinical experience is not enough to establish therapeutic guidelines, especially in the case of odontogenic urgencies. Thus, identifying the main causes of pain that lead individuals to seek care at the Urgency Department of the School of Dentistry is of paramount importance.

The analysis of the results of the present study showed that among individuals who seek SPAOH, female patients predominate (52.9% of cases). This result was also observed by Nusstein and Beck¹² (2003), who reported a prevalence of 53.2% of female patients in a dental urgency service. These authors also justified that there are differences in the experiences of pain between women and men, and that they are conditioned by psychological variables and by different strategies for coping with pain, which leads women to seek more professional assistance for the resolution of pain.

With regard to the diagnosis of odontogenic pain, among the 868 cases of pain reports, the present study found a prevalence of 62.3% of pain cases with pulp origin, confirming the findings of Blankson¹³ (2019), according to 52% of patients seek emergency dental treatment with symptoms of pulp or periapical disease. Irreversible pulpitis, which is characterized by the presence of spontaneous, dramatic pain and influenced by temperature changes, especially by cold,¹⁴ was reported as the most frequent cause of pain, with 24.7% of patients seen at SPAOH.

This index is corroborated by studies by Santos,¹⁵ Tiradentes¹⁶ (16.3% and 17.8% respectively), and differs from the findings by Kaptan¹⁷ and Schnabl,¹⁸ who found 65.3% and 90.5% of the prevalence of irreversible pulpitis. It is also worth highlighting the effectiveness of the results found in the present study, regarding the clinical conduct performed in cases of irreversible pulpitis, where in 50.9% of a total of 214 cases, the presence of pain was resolved through the

coronary access of the involved tooth.

Among the causes of periapical origin, in this study the cases diagnosed as periapical abscess stand out, with 8.9% (80 cases, with or without the presence of pain). Abscesses, regardless of the absence or severity of the edema, need immediate treatment,^{19,20} as they can compromise the periodontal and pulp prognosis of the affected tooth and the transit of bacteria within the abscess can spread and cause infections in other parts of the body.²¹ Our results are reinforced by those of Odai,¹⁹ who obtained a percentage of 11.9% of cases of abscesses and Tiradentes,¹⁶ with 5%, revealing the importance of correctly carrying out the treatment of this dental problem in urgency services.

In Dentistry, in the face of an emergency case, the main objective of clinical care is pain relief, however the identification of its origin may be unknown, as justified by Estrela¹ and Merril,⁴ who claim that it is not always possible to identify the point odontogenic infections. This justifies the fact that, of the 868 cases in which pain was reported, in 21% of them, antibiotics and/or analgesics were prescribed as a measure for pain control. In situations of periapical abscess, this procedure was performed in 60% of cases. It is important to note that the prescription of antibiotics is not an alternative to dental intervention, but rather a complement to it,⁸ and that the present study did not identify whether patients in which the chosen approach was the use of pain relief medications later returned to care for performing endodontic access or extraction. However, everything starts with the choice of the appropriate conduct, aiming at the dilution of pain, and in this context the results of the present study are similar to those indicated by Kaptan,¹⁷ according to which the prescription rate for analgesics and antibiotics was 21.7% in cases of untreated acute apical periodontitis and 41% in cases of acute apical abscess.

When referring to procedures performed in places of dental urgency care related to the Unified Health System (SUS), we can relate the amount of care provided to patients with low income, impaired oral hygiene and the impossibility of investing in the preservation of the present dental structures, with the option for more radical treatments such as tooth extraction.²² In addition, orofacial pain is considered one of the major causes of urgency for hospital care.²¹⁻²⁶ Thus, there is a need for re-education of individuals to attend pe-

riodic consultations with the dentist, in order to avoid future dental problems.²⁷⁻³⁰ In the results of the present study, although the service is linked to SUS, it was observed that the option for extraction was present in only 17.9% of the pain cases present at the time of the consultation (155 patients) and, in 13.6% of cases with absent pain (54 patients). Thus, it is believed that, even in places where the main focus of clinical care is the elimination of pain, with professional guidance and with the possibility of adequate referral to complement treatments, it is possible to transform this idea

and contribute to the improvement of oral conditions of patients who seek public health services.

Conclusion

It was concluded that the index of patients who had pain in the urgency department during the period analyzed was significant. In addition, it can be inferred that cases of pulp pain prevail and that the results obtained contribute to the development of odontogenic pain control strategies, as well as to the improvement of clinical protocols adopted in the school in question.

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