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Knowledge of general practitioners dentists about the emergency management of dental avulsion in Curitiba, Brazil

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Abstract – The prognosis of traumatized teeth in general and of avulsed teeth in particular depends on prompt and appropriate treatment. Management of traumatic injuries may be a challenge to the non-specialized dentist, as they may occur when dentists are least prepared for it. The objective of this research was to investigate the knowledge of general practitioner dentists about the emergency management of dental avulsion in Curitiba, PR, Brazil. A group of 250 professionals were interviewed. The questions were related to knowledge of how to treat traumatic avulsion of teeth. The results suggest that the level of knowledge on the management of dental avulsion of the general practitioners dentists in Curitiba is adequate.

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Dental trauma is a common dental problem and a significant threat to dental health among children and adolescents. Avulsion (exarticulation) is a complete displacement of a tooth from its alveolus and represents a complex and dramatic injury that may affect multiple tissues (1, 2). The damage of the attachment apparatus is an unavoidable consequence of avulsion. Maintaining the periodontal ligament that is attached to the avulsed tooth vital is critical for the success of the treatment (3).

It is well established that the prognosis of traumatized teeth in general and of avulsed teeth in particular depends on prompt and appropriate treatment. The initial treatment at the site of the accident often relies on the children's parents and their schoolteachers prior to the initial professional contact. This initial treatment may vary from doing nothing to immediately replanting the teeth, but there is no consensus regarding the urgency in seeking professional assistance following an avulsion injury (4, 5).

Lay people are not in agreement regarding the first place to be contacted in the event of avulsion injury. The majority suggest that a nearby dentist would be contacted and the minority feel that the patient would go to a general hospital directly (4). Professional assistance may be generally obtained from general practitioner dentists, oral and maxillofacial surgeons, pediatric dentists, physicians (general practitioners or pediatric physicians) and general hospitals. Management of traumatic injuries, mainly avulsion, may be a challenge to the non-specialized dentist, as it occurs sporadically and when professionals are least prepared for them.

The purpose of this study was to investigate the knowledge of general practitioner dentists about the emergency management of dental avulsion in the city of Curitiba, PR, Brazil.

Material and methods

The target population was general practitioner dentists in private practices in the city of Curitiba, Brazil. The dentists were randomly selected from a list of 4480 registered professionals in the Regional Council of Dentistry of the State of Parana.

Table 1. Emergency management of tooth avulsion

Queries	Answers	*n*
Q1: Option for replantation	100%	250
Any extra-alveolar time	67%	153
Q2: Factors that may influence outcome of replantation	80% considered all three factors: extra-alveolar period, storage medium, injury to the periodontal ligaments;	194
	20% considered only one factor	56
Q3: Best storage medium	Saliva (46%)	114
	Physiologic saline solution (18%)	46
	Milk (18%)	45
	Hank's balanced salt solution (18%)	45
Q4: Ideal extra-alveolar period	Less than 30 min (86%)	214
	Miscellaneous (14%)	36
Q5: Tooth management before replantation	Wash with any kind of solution (45%)	112
	Wash with tap water (40%)	100
	Other washing procedures (8%)	21
	Replant without any procedure (7%)	17
Q6: Type of splinting	Semi-rigid with nylon wire (73%)	183
	Stainless wire (10%)	25
	Composite restorative materials (10%)	25
	No splint (7%)	17
Q7: Splinting time	15 days (36%)	90
	30 days (38%)	96
	60 days (24%)	59
	24 hours (2%)	5
Q8: Endodontic treatment	Depends on extra-alveolar period and root formation stage (77%)	193
	Pulpectomy and root canal filling after 15 days (16%)	40
	Immediate pulpectomy and $Ca(OH)_2$ therapy (7%)	17
Q9: Systemic medication	Prescribe antibiotics, anti-inflammatory drugs and tetanus prevention (89%)	222
	Miscellaneous (11%)	28

Professionals registered as specialists in Oral and Maxillofacial Surgery or Endodontics were excluded. A total of 300 professionals were sent a postal questionnaire. A pre-paid return envelope was included with each questionnaire and all responses kept anonymous. A reminder was sent to each dentist 1 month after the initial letter.

An open questionnaire, divided in two parts, was used. The first part consisted of questions on professional data, including training background. The second part consisted of nine questions related to knowledge of how to treat traumatic avulsion of teeth. The correct responses were determined by a combination of experts' knowledge and evidence in the accepted literature. The returned questionnaires were coded and analyzed. Results were expressed as a percentage of respondents for each question.

Results

A total of 250 questionnaires were returned. All respondents were general practitioners. One of the questions in the first part was how the respondents were trained in or informed about management of dental trauma. One hundred and fifty respondents (60%) did continual education courses on their own initiative after graduation in Dentistry; 64 (26%) were self-educated by reading books and scientific articles on dental trauma emergency care; and 36 (14%) have had only information during their education at Dental School. The results are summarized in Table 1.

Discussion

The present study finds that the majority of professionals have had continuing education courses in dental traumatology because Curitiba is considered a university city, with four schools of Dentistry, besides several opportunities for short duration courses provided by professional associations and universities. Also, the expressive number of respondents (64, 25%) that reported to be self-educated in this particular field of traumatology is a significant result and may be suggestive of the good quality of their graduation courses.

A high number of respondents (67%) were in favor of replantation after any extra-alveolar time: even if the replanted tooth would last in place for a limited period of time. They felt it would maintain space and can be esthetically useful. Most of the respondents who chose saliva as the storage medium justified their option based on the immediate availability of the saliva, but they were aware of its

limitations as a storage medium. If they could choose a better storage medium, they would use Hanks' balanced salt solution, an option that is well based in the literature (6–8).

The majority chose the correct extra-alveolar period as critical and this reveals adequate knowledge and attitude of the respondents regarding the most essential factor to be considered in avulsion treatment (9, 10). The significant number of dentists chose to wash the teeth with tap water before replanting *as an office or hospital procedure*. We feel that these respondents may have been confused with procedures at the site of the accident, where tap water is an acceptable option (2).

The overall knowledge of the respondents about the type of splinting is adequate and correct. The small number that would not use any kind of splint failed to explain their decision. Only one respondent justified the decision of *not splinting* in cases of satisfactory tooth stability after replantation, but did not mention what type of immobilization he would use if necessary.

The decisions of the majority of the respondents were generally correct regarding the splinting period. Authors tend to recommend a shorter period of immobilization (9). Otherwise, a 30 day splinting period has been successfully used in cases of replantation, even in cases of unconventional immobilization (11).

The decision regarding endodontic treatment are coincident with recently published guidelines (12, 13), which suggest an acute approach (endodontic treatment within a few hours) if the tooth is not replanted at the time of injury; otherwise, subacute (within the first 24 h) and delayed (after the first 24 h). In this study, a large number of respondents justified antibiotics and tetanus prevention in any situation because of legal considerations; others would prescribe antibiotics only in cases of 'gross contamination'. Based on the findings of this study, it is possible to suggest that the level of knowledge of the general practitioners dentists of the city of Curitiba is adequate.

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