Knowledge that general practitioners of dentistry have about treating tooth avulsion in João Pessoa/PB, Brazil.

Conhecimento do cirurgião-dentista acerca do tratamento da avulsão dentária na cidade de João Pessoa/PB, Brasil.

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INTRODUCTION

Dental traumatism has increased in recent years and it is related to an increase in sport activities and inadequate rescue protocol of accident victims1. Dental avulsion is the complete displacement of the tooth out of the alveolar socket, which can cause periodontal and pulp damage, such as pulp necrosis, periapical inflammation and root resorption2.

Replantation is the insertion of the tooth into the bony socket in its previous anatomical position. This conservative conduct preserves dental function and aesthetics and also postpones the urgency for prosthetic treatment. Also, it minimizes the psychological impact of dental loss in the patient and family1. However, the success of replantation depends on some factors, such as the extra-alveolar period and the storage media for the avulsed tooth, in order to maintain cell vitality.

Additional treatments can be necessary, such as splinting and endodontic treatment3,4.

The purpose of this study was to investigate general dental practitioner (GDP) knowledge of dental avulsion management in João Pessoa, Brazil.

MATERIAL AND METHODS

Seventy GDP who work in public health service in the city of João Pessoa, Brazil were interviewed using a questionnaire about their first-aid knowledge in dental traumatology with a particular focus on the following categories: general knowledge about tooth avulsion, replantation of primary and permanent teeth, how to clean an avulsed tooth before replantation, extra-oral time and storage media for an avulsed tooth. Descriptive statistics were used to describe and analyze the data.

RESULTS

- Storage media for an avulsed tooth (saliva – 44%), type of splinting (semi-rigid – 38%), time of splinting (30 days – 40%) and replantation for avulsed primary teeth (64%).

CONCLUSION

Strategies must be developed to enhance the level of knowledge general dental practitioners have so proper dental first-aid procedures can be achieved and treatment success rates of tooth avulsion can be increased.

Keywords:
Tooth avulsion; Tooth replantation; Tooth injuries.

ABSTRACT

Objective: The purpose of this study was to evaluate dentists’ knowledge about how to treat traumatic avulsion of teeth. Materials and methods: Seventy general dental practitioners who work in the public health service in João Pessoa, Brazil were interviewed using a questionnaire about their first-aid knowledge in dental traumatology with a particular focus on the following categories: general knowledge about tooth avulsion, replantation of primary and permanent teeth, how to clean an avulsed tooth before replantation, extra-oral time and storage media for an avulsed tooth. Descriptive statistics were used to describe and analyze the data.

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extra-oral time and storage media for an avulsed tooth. The questionnaire used in this study (Table 1) was a modified version of the questionnaire elaborated by Westphalen et al. The answers were registered at the moment of the interview. Descriptive statistics were used to describe and analyze the data. The study was approved by the Ethical Committee of Federal University of Paraíba, Brazil (Protocol 796/2006).

### RESULTS

A total of 70 dentists answered the questionnaire. All respondents work in public health service in João Pessoa, Brazil. Twelve percent of the respondents were male and 84% female. The most frequent age groups were 46-60 years-old (54%). The results are summarized in Table 1.

#### Table 1: Questionnaire distributed to GDP and distribution percentage of responses.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age: 46-60 years old (54%)</th>
<th>Gender: Men (12%) Women (84%) Not mentioned (4%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Graduation in Dentistry: Less than 5 years ago (10%)</td>
<td>Age: More than 5 years ago (90%)</td>
<td>Gender: Men (12%) Women (84%) Not mentioned (4%)</td>
</tr>
<tr>
<td>2. Postgraduate courses: 1 (42%)</td>
<td>2 (20%)</td>
<td>3 or more (14%) None (10%) Not mentioned (8%)</td>
</tr>
<tr>
<td>3. Which is the best type of splint for the avulsed tooth?</td>
<td>Yes (82%)</td>
<td>No (18%)</td>
</tr>
<tr>
<td>4. Have you already had patients who suffered dental trauma?</td>
<td>Yes (48%)</td>
<td>No (54%)</td>
</tr>
<tr>
<td>5. Which is the best procedure in the case of permanent teeth avulsion?</td>
<td>Replantation (96%) Implant (2%)</td>
<td></td>
</tr>
<tr>
<td>6. If you chose “replantation” (question 2), which would be the most important factor to consider for replantation?</td>
<td>Extra-alveolar period (86%) Root formation stage (8%) Survival of the periodontal ligaments (6%)</td>
<td></td>
</tr>
<tr>
<td>7. Which is the most appropriate storage media for an avulsed tooth?</td>
<td>Milk (14%) Saline solution (40%) Saliva (44%) Not mentioned (2%)</td>
<td></td>
</tr>
<tr>
<td>8. Which is the ideal extra-alveolar period?</td>
<td>Less than 30 min (78%) 4 hours (16%) Don’t exist (4%) Not mentioned (2%)</td>
<td></td>
</tr>
<tr>
<td>9. What should be done before tooth replantation?</td>
<td>Cleaning and removal of periodontal ligaments (12%) Washing with saline solution (82%) Replantation without any procedure (4%) Washing with tap water (10%) Others (12%)</td>
<td></td>
</tr>
<tr>
<td>10. Endodontic treatment is necessary:</td>
<td>Before tooth replantation (2%) Immediately after replantation (4%) Depends on the extra-alveolar period and root formation stage (50%) Few days after the trauma (20%) Is not necessary (9%)</td>
<td></td>
</tr>
<tr>
<td>11. Which is the appropriate type of splinting?</td>
<td>Stainless wire (32%) Semi-rigid with nylon wire n70 (38%) Splint is not necessary (28%) Association of rigid and non-rigid splinting (2%)</td>
<td></td>
</tr>
<tr>
<td>12. How much time is recommended for splinting after dental avulsion?</td>
<td>24 hours (4%) 15 days (34%) 30 days (48%) 60 days (20%) Not mentioned (2%)</td>
<td></td>
</tr>
<tr>
<td>13. Which should be the systemic medication? Anti-inflammatory (40%) Anti-inflammatory, antibiotics and tetanus coverage (40%) Tetanus coverage (4%) Analgesics (6%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Replantation of avulsed primary teeth is:</td>
<td>Indicated (64%) Not indicated (34%) Not mentioned (2%)</td>
<td></td>
</tr>
<tr>
<td>15. Long-term clinical and radiographic observation after tooth replantation is:</td>
<td>Necessary (100%) Not necessary (0%)</td>
<td></td>
</tr>
</tbody>
</table>

### DISCUSSION

The study supports that treatment of tooth injuries is a common event in the dental practice. The vast majority of participants (82%) assisted patients with traumatic dental injuries. Tooth replantation has a low success rate (0.5% to 16%) and our study showed that most of the GDP had limited knowledge regarding some points in the protocol for avulsed tooth replantation: storage media, splinting techniques, time splint for the avulsed tooth and replantation of the avulsed primary tooth. The extra-alveolar period is the most essential factor to be considered in avulsion treatment. In this study, 86% of the GDP affirmed that the extra-alveolar period was the most important factor when immediate replantation was not possible and saliva was the most appropriate storage media for avulsed teeth (44%), when a specialized medium was not readily available. Some studies have showed that milk, blood, Hank’s Balanced Salt Solution (HBSS), Gatorade and culture medium are other alternatives for storage media. Saliva is a lightly hypotonic medium that can allow bacterial penetration into the dental fissures caused by traumatism. Bacterial contamination can cause pulp inflammation and establish root resorption. HBSS is not available in Brazilian schools, so milk is a suitable storage medium for an avulsed tooth. Only about 14% of GDP opted for milk, which may be a better strategy for transporting the tooth due to composition and osmolality, when immediate replantation is not an option. Mori et al. when assessing the conduct of teachers at Brazilian schools, found that milk would be the most recommended medium (84.61%) for storing the avulsed tooth when immediate replantation was not possible.

Patients who present immunological, congenital cardiac and mental disorders, as well as non controlled diabetes and...
lack of alveolar integrity should not get dental replantation. Also, avulsed primary teeth should not be replanted because of damage in the permanent successor. In our study, 64% of GDP recommended replantation of the avulsed primary tooth. Cohenca et al. reported that in their study 85.3% of participants did not recommend such a procedure. International Association of Dental Traumatology (IADT) guidelines do not recommend replanting avulsed primary teeth. Around 30% of the permanent successors presented some kind of injury after replantation of the avulsed primary tooth, such as discoloration, enamel hypoplasia, dilacerations and interruption of dental maturation.

There were an estimated 5.9 million episodes of orofacial trauma care in the U.S. private practice sector in 1991. More than 4 million (68%) were seen by general dental practitioners. Traebert et al. found a great number of patients who have already had traumatic dental injuries in Brazil and in our study, 82% of the GDP have already conducted treatment in patients who suffered traumatic dental injuries, where approximately half of the cases (46%) were related to dental avulsion. These results show that dental trauma has been increasing considerably in the recent years, facing it as a health public problem.

Studies were published in an attempt to assess knowledge of dentists and non-dentists regarding diagnosis and therapy of traumatic dental injuries. Walker and Brenchley and Cohenca et al. showed that patients and their families lack knowledge about avulsed tooth. Hu et al. showed that dentists selected from different parts of São Paulo, Brazil, have poor knowledge about dental avulsion and strategies must be developed in order to change this situation. The use of educational campaigns has effective results in improving dentist and non-dentist knowledge regarding diagnosis and therapy of traumatic dental injuries. Informative campaigns about tooth avulsion are valid method alternatives, increasing success rates of tooth avulsion treatment and consequently promoting oral health.

CONCLUSION

The results of our study show that GDP who work in public services in João Pessoa, Brazil have limited knowledge about tooth avulsion management. Educational campaigns based on Guidelines from the International Association of Dental Traumatism and, Brazilian Association of Dental Traumatism must be developed to improve GDP knowledge levels regarding diagnosis and therapy for tooth avulsion injuries so proper dental first-aid procedures can be appropriate.

REFERENCES