PHYSICIANS' KNOWLEDGE AND EXPERIENCE REGARDING THE MANAGEMENT OF AVULSED TEETH IN UNITED ARAB EMIRATES

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Abstract

To assess, by means of self administrated structured questionnaire, the level of knowledge of physician with regards to the immediate emergency management of avulsed teeth.

Questionnaire was sent to physicians working in private practices in the Emirates of Sharjah, Ajman and Ras-Al Khaimah. A total of 125 physicians agreed to participate. The questionnaire surveyed physicians' background, knowledge and management of tooth avulsion, and also investigated physicians' satisfaction with their knowledge and willingness to receive further education on managing avulsed teeth.

More than one third of the respondents (31.2%) had 5-10 years of work experience. Around (68.0%) of the physicians prefer to refer avulsed tooth cases immediately to the dentist. None of them like to put the tooth back into the socket before referring to the dentist. When the participants were asked about the storage medium of the avulsed tooth, (42.4%) of the physician would advice to keep the tooth in normal saline, only ten respondents (8.0%) knew that milk was the correct medium of choice. Only twenty four participant (19.2%) received a professional advice on "what to do" in cases of the avulsion of permanent tooth. Meanwhile, (83.2%) of the respondents were unsatisfied with their knowledge regarding emergency management of dental trauma. The majority (96.8%) felt that it is important to have an educational program on the management of dental trauma. Interestingly, (97.6%) of the physicians welcomed the idea of attending an education program on the emergency care for dental trauma.

The findings revealed that very few physicians would provide appropriate emergency treatment for avulsed teeth. All medical staff personal need to receive simple instructions about the management of dental trauma.

Clinical article, (J Int Dent Med Res 2012; 5: (2), pp. 91-95)

Keywords: Avulsed teeth, management, physicians.

Received date: 15 April 2012 **Accept date:** 15 May 2012

Introduction

Dental trauma is a common event during childhood and adolescence[1-4]. Prompt and appropriate management is necessary to significantly improve prognosis for many dento-alveolar injuries, especially in a young patient. Avulsed teeth represent about 16% of dental injuries[5]. When a tooth is avulsed, extensive damage to the pulp and the periodontal tissues result in complications such as pulp necrosis, periapical inflammation and root resorption. Extra-alveolar dry time and the storage media used to transport the tooth are critical factors for successful and long-term outcomes[6-8]. Treatment is often complex, time-consuming, expensive and requires multidisciplinary approaches[9,10].

Maxillary central incisors are the teeth most commonly prone to avulsion[5,11,12].

Therefore, functional and aesthetic consequences associated with the loss of an anterior tooth should be considered. Losing an

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anterior tooth at early age may have severe psychological consequences. Immediate replantation of an avulsed tooth is needed to restore aesthetics and function for the patient. If the tooth is lost, there are long-term economic consequences as more extensive treatment modalities will be needed to restore such impairments. Many avulsed teeth are lost because of lack of knowledge about the proper first aid procedures that need to be provided. Consequently, dental health education in this field can be very effective in reducing the negative consequences of such injuries [13]. Parents and school teachers often have the first opportunity to attend to a child with a tooth avulsion injury, but the physicians are frequently the first to actually provide primary treatment. To ensure proper and appropriate treatment for children with dental trauma, it is essential that medical professionals have sufficient training in the basic principles of management of dental trauma.

Few studies in the literature assessed the knowledge of physicians regarding this situation[12,14]. In UAE, there have not been any studies to ascertain the knowledge of physicians in the management of tooth avulsion injuries. The objectives of this study were (i) to investigate the knowledge of physicians in the management of tooth avulsion and to (ii) evaluate physicians' satisfaction with their knowledge and willingness to receive further education on managing avulsed teeth in UAE.

Materials and methods

The present study is a cross-sectional observation study. The study group was a convenient sample of physicians working in private practices in the Emirates of Sharjah, Ajman and Ras-Al Khaimah. Informed written consent from all medical professionals was obtained prior to participation. The study was approved by the ethical committee in Ajman University of Science & Technology. The survey was voluntary and strict confidentiality was assured as no names or phone numbers were required.

The questionnaire was modified from questionnaires used in previous studies[12,14]. A 14-item questionnaire was divided into three parts. The first part, consisted of four questions on personal and professional data including gender, age, and years of experience in addition to previous experience with tooth avulsion. The second part of the questionnaire aimed at assessing the knowledge of physicians on the emergency management of avulsed teeth. The last part of the questionnaire aimed at assessing the level of physician's satisfaction on their knowledge on the management of avulsed teeth and their willingness to attend an educational program on "management of dental trauma".

All questions in the questionnaire were close-ended. To help the respondents make quick decision, they were given alternative choices, which resemble real situation with dental trauma. All returned questionnaires were coded and analyzed. Results were expressed as a number and percentage of respondents for each question and were analyzed using SPSS version 13.0 (Chicago, IL).

Results

One hundred and twenty five physicians who were approached readily agreed to participate and returned the completed questionnaires on the same day. The demographic characteristics of the respondents are presented in Table 1, which indicated that 73.6% of the respondents were males, and 32.0% were 35-44 years old. Thirty nine respondents (31.2%) had 5-10 years of work experience. With regards to their experience with tooth avulsion, Table 1 illustrate that more than one quarter of the respondents (28%) had seen at least one avulsed case throughout their professional career.

The responses to Part-II of the questionnaire were as follows (Table 2): Eighty five (68.0%) of the physicians prefer to refer avulsed tooth cases immediately to the dentist. None of them like to put the tooth back into the socket before referring to the dentist. When the participants were asked how urgently dental professional help was needed for an avulsion injury, sixty five (52.0%) responded correctly by seeking dental care immediately. While, twenty nine physician (23.2%) would not mind delay up to 30 minute for seeking dental treatment, 24.8% would delay even few hours. In response to the question of replanting avulsed permanent tooth that fall on the ground and was covered with dirt, fifty two participants (41.6%) would wash the tooth with sterile saline, 49 (39.2%) rinse the

tooth with tap water, 16.8% would scrap the tooth to remove the dirt. If the crown of the avulsed tooth was fractured 76 (60.8%) of the physicians would advice to take the broken tooth to the dentist. While, 13 (10.4%) of the participants were not sure about what should be done with the fractured crown.

Characteristic	*n*	(%)
Gender		
Male	92	73.6
Female	33	26.4
Age		
< 35	29	23.2
35-44	40	32.0
45-54	34	27.2
55-64	20	16.0
> 65	2	1.6
Experience		
< 5 years	11	8.8
5-10	39	31.2
11-15	27	21.6
16-20	17	13.6
> 20 years	31	24.8
Encountered avulsed cases		
Yes	35	28
No	90	62

Table 1. Responses to Part-I: personal and professional characteristics of respondents.

When the participants were asked about the storage medium of the avulsed tooth while taking the child to the dentist, fifty three (42.4%) of the physician would advice to keep the tooth in normal saline, twenty three (18.4%) would prefer a wet handkerchief, fourteen (11.2%) would prefer ice, only ten respondents (8.0%) knew that milk was the correct medium of choice. The majority of the participants 94(75.2%) think that avulsed primary tooth should not be replanted.

The responses to Part-III of the questionnaire were as follows (Table 3): Only twenty four participant (19.2%) received a professional advice on “what to do” in cases of the avulsion of permanent tooth. However, one hundred and one (80.8%) had not receive any advice. Meanwhile, one hundred and four (83.2%) of the respondents were unsatisfied with their knowledge regarding emergency management of dental trauma. The majority of the respondents (96.8%) felt that it is important to have an educational program on the management of dental trauma. Interestingly, 122 (97.6%) of the physicians welcomed the idea of attending an education program on the emergency care for dental trauma.

Questions	*n*	(%)
If you come across a child with avulsed tooth, what would you		
Refer the child immediately to the dentist.	85	68.0
Put the tooth back into the socket and rush to the dentist.	0	0
Wash the child's mouth with tap water and put the tooth in a wet	40	32.0
How urgent do you feel that a dentist's opinion is needed?		
Immediately	65	52.0
Within 30 minutes	29	23.2
Within few hours	31	24.8
Before next day	0	0
If a permanent tooth to be replanted has fallen on the ground and was covered with dirt, what would you recommend?		
Scrub the tooth to remove the dirt	21	16.8
Rinse with tap water	49	39.2
Wash with sterile saline	52	41.6
Would do nothing	3	2.4
What would you do if the 'knocked out' tooth was broken?		
Still put back the tooth into the socket	1	0.8
Take the broken tooth to the dentist	76	60.8
Would not be concerned about the broken piece	35	28.0
Do not know	13	10.4
How would you keep the tooth till you reach the dentist?		
Ice	14	11.2
Tap water	3	2.4
Wet handkerchief	23	18.4
Sterile saline	53	42.4
Cotton pad	6	4.8
Child's mouth	4	3.2
Any aseptic solution	9	7.2
Milk	10	8.0
Other	3	2.4
Do you think that a primary tooth that has been 'knocked out' should be replanted?		
Yes	31	24.8
No	94	75.2

Table 2. Results of Part-II.

	n	(%)
Received advice on managing avulsed teeth		
Yes	24	19.2
No	101	80.8
Satisfaction with knowledge		
yes	21	16.8
no	104	83.2
Need for further education		
yes	121	96.8
no	4	3.2
Willingness to receive further education		
yes	122	97.6
no	3	2.4

Table 3. Responses to Part-III; physician's satisfaction with their knowledge, attitude and willingness to receive further education on managing avulsed teeth.

Discussion

This study provided baseline information about the existing level of knowledge of dental avulsion among physicians working in UAE. The result of this survey reflected the fact that the majority of the physician had received no advice or had low awareness about the emergency management of avulsed teeth. Primary care providers such as family physicians, could play a pivotal role in the provision of primary care following dental trauma, especially for population groups with limited access to dental care. This survey included physicians from a selective private practices in the Emirates of Sharjah, Ajman and Ras-Al Khaimah.. The percentage of males 92 (73.6%) was much higher than their female counterparts. Most of the physicians 114 (91.2%) have more than 5 years' working experience. More than one quarter of respondents 28% had previous experience of tooth avulsion cases. This was comparable to other medical professionals groups reported in India[15].

A majority of the participants felt that dental trauma should ideally be managed by a dentist. Surprisingly, none of the surveyed physician preferred to put the tooth back in its socket, although, one of the main requisites of dental avulsion treatment is the tooth re-implantation as soon as possible, keeping periodontal cells viable for healing and a possible pulp revascularization[16].

Unfortunately only half of the physicians (52.0%) recognized the urgency of seeking immediate dental professional assistance for avulsive injuries. A delay in providing emergency dental treatment may jeopardize the prognosis of an avulsed tooth. An attempt should thus be made to immediately replant the avulsed tooth. Ideally, re-plantation should be carried out within half an hour[17]. If the tooth is kept in a suitable medium, the extra-oral time may be extended to up to 6-hours[16].

Knowledge of correct measures regarding storage media was found to vary considerably.
For transport for an avulsed tooth, dry storage of the tooth will cause irreversible injury to the periodontal membrane, resulting in loss of the replanted tooth over time. However, storing the tooth in water is not recommended in that the osmolality is too low[18,19]. Only 10 respondents (8.0%) picked milk as the best storage medium of choice. Milk has a favorable osmolality and composition for the viability of periodontal ligament cells and has therefore been recommended for temporary storage of avulsed teeth before replantation[18,19]. Despite years of research showing that cell membranes will be destroyed if stored in normal saline, an alarming number of physicians (42.4%) thought that a tooth could be stored in such a medium. There seems to be an urgent need to educate the physicians and correct these misconceptions.

A rather disturbing finding in our survey was the fact that only 19.2% of the physicians had received advice on managing avulsed teeth, the rest never had any. In Kuwait, 16.7% physicians had received information about tooth avulsion [14]. Holan and shmueli found that 55% of the physicians in their study had never received any information related to dental trauma[12]. The highlight of our study is that the majority of the respondents were not satisfied with their level of knowledge; and they believe that they need further education. McCann *et al.* found that physicians and medical undergraduates in the United Kingdom were inadequately educated about dental trauma cases[20] thus the existing health education system in UAE should provide more courses on dental trauma management for physicians.

The majority (97.6%) of the participants were keen to learn more about treating tooth avulsion. This reflects the fact that the physicians had not got an opportunity to attend a dental health programme.

Conclusions

In the light of such results an important implication from this study would include the need for an educational campaign to broaden the knowledge of the physicians about the emergency management of avulsed teeth. This can be done, for instant by incorporating a dental trauma management lecture into the compulsory continuing educational program offered for the physician working in UAE. In addition, leaflets, posters about basic first aid treatment can be provided to professional care providers.

In the current study, the study population consisted of 125 physicians, this was a convenient sample of physicians, a fact that could limit the possibility of generalization to other population group, therefore further research

using a larger cohort is warranted. However, despite the limitations of the present study, these data emphasize a need for further dental health education and training for physicians in UAE.

Acknowledgements

The author would like to thank all the physicians for their kind cooperation and participation, and also wish to thank Miss Maram Mhanna for her contribution in data collection.

Declaration of Interest

The authors report no conflict of interest and the article is not funded or supported by any research grant.

References

1. Nik-Hussein NN. Traumatic injuries to anterior teeth among schoolchildren in Malaysia. Dent Traumatol 2001; 17:149-52.
2. Altay N, Gungor HC. A retrospective study of dento-alveolar injuries of children in Ankara, Turkey. Dent Traumatol 2001; 17:201-4.
3. Rocha MJ, Cardoso M. Traumatized permanent teeth in Brazilian children assisted at the Federal University of Santa Catarina, Brazil. Dent Traumatol 2001; 17:245-9.
4. Andreasen JO, Andreasen FM. Essentials of traumatic injuries to the teeth, 2nd edn. Copenhagen, Denmark: Munksgaard, 2000: pp. 7-9.
5. Andreasen JO, Andreasen FM. Textbook and color atlas of traumatic injuries to the teeth, 3rd edn. Copenhagen: Munkssaard; 1994.
6. Trope M, Chivian N, Sigurdsson A, Vann WF Jr. Traumatic injuries. In: Cohen S, Burns RC, editors. Pathways of the pulp, 8th edn. St Louis: CV Mosby; 2002. pp. 603-49.
7. Andreasen JO. Periodontal healing after replantation of traumatically avulsed human teeth: assessment by mobility testing and radiography. Acta Odontol Scand 1975; 335:325-35.
8. Andreasen JO, Kristerson L. The effect of limited drying or removal of the periodontal ligament: periodontal healing after replantation of mature permanent incisors in monkeys. Acta Odontol Scand 1981; 39:1-13.
9. Malmgren B, Malmgren O. Rate of infraposition of implanted ankylosed incisors related to age and growth in children and adolescents. Dent Traumatol 2002; 18:28-36.
10. Glendor U. On dental trauma in children and adolescents. Incidence, risk, treatment, time and costs. Swed Dent J 2000; 140(Suppl):1-52.
11. Galdas AF Jr, Burgos ME. A retrospective study of traumatic dental injuries in a Brazilian dental trauma clinic. Dent Traumatol 2001; 17:250-3.
12. Holan G, Shmueli Y. Knowledge of physicians in hospital emergency rooms in Israel on their role in cases of avulsion of permanent incisors. Inter J Paediatric Dent 2003; 13: 13-9.
13. Booth JM. "It's a knock-out"-an avulsed tooth campaign. J Endod 1980; 6:1-7.
14. Abu-Dawoud M, Al-Enezi B, Andersson L. Knowledge of emergency management of avulsed teeth among young physicians and dentist. Dent Traumatol 2007; 23:348-355.
15. Subhashraj K. Awareness of management of dental trauma among medical professionals in Pondicherry, India. Dent Traumatol 2009; 25:92-94.
16. Blomlof L, Lindskog S, Andersson L, Hedstrom K, Hammarstrom L. Storage of experimentally avulsed teeth in milk prior to replantation. J Dent Res 1983; 62:912-6.
17. Andreasen JO, Hjorting-Hansen E. Replantation of teeth I. Radiographic and clinical study of 110 human teeth replanted after accidental loss. Acta Odontol Scand 1996; 24:263-86.
18. Blomlof L. Milk and saliva as possible storage media for traumatically exarticulated teeth prior to replantation. Swed Dent J 1981; 8(Suppl):1-26.
19. Sigalal E, Regan JD, Kramer PR, Witherspoon DE, Operman LA. Survival of human periodontal ligament cells in media proposal for transport of avulsed teeth. Dent Tramatol 2004; 20:21-8.
20. McCann PJ, Sweeney MP, Gibson J, Bagg J. Training in oral disease, diagnosis and treatment for medical students and doctors in the United Kingdom. Br J Oral Maxillofac Surg 2005; 43(1):61-64.