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Research Article

Knowledge and Attitude of Parents towards Avulsed Permanent Tooth of their Children and its Emergency Management at RAK College of Dental Sciences Clinic

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Abstract

Background: Traumatic injuries to dentoalveolar tissues are considered the most serious oral health problem amongst children and adolescents Epidemiological studies revealed that children from 8 to 12 years often suffer a dental injury. It may vary from minor tooth fracture to extensive dentoalveolar damage that involves the supporting structures and avulsion. Avulsion is defined as total dislodgment of the tooth from its socket. It represents about 16% of all traumatic dentoalveolar injuries (TDI). Central incisor is the most affected tooth due to their labial projection which make them more susceptible to facial trauma.

Aim: Our aim was to assess the level of parental knowledge and their attitude towards dental avulsion and its emergency management, to increase the background of dental trauma education and emergency management of dental trauma among parents by Educational programs.

Materials and Methods: A cross-sectional questionnaire based study was conducted in Pediatric dentistry clinic, RAK college of dental sciences, Ras Al Khaima, UAE between _____ and _____. All the parents attending pediatric dentistry with their children aged between 6 to 12 years old are invited to participate in the study.

Results: Of 125 parents participated in the study, 32% of the parents showed good knowledge towards dental trauma in children. Parents who had knowledge of dental trauma were 32% of total respondents, and 38% parents didn't have knowledge. This was evidenced in replanting the avulsed primary teeth, brushing and using antiseptics to clean the roots, holding the root instead of the crown, dry storage of the avulsed permanent teeth, and neglect over time from most of the parents.

Conclusion: Among parents in RAK College of Dental Sciences clinic, it was found that they have low level of knowledge regarding procedures to follow in an emergency related to tooth avulsion and replantation.

Keywords: Dental Trauma; Avulsion; Parents; Knowledge; Management

Introduction

Among several kinds of Traumatic Dental Injuries (TDI), special attention should be paid to avulsion injuries, because the chances for preservation of the tooth are highly dependent on proper action taken at the site of accident. Studies have shown that teeth that are protected in a physiologically ideal media can be replanted within 15 minutes to one hour after the accident with good prognosis. The success of delayed replantation depends on the vitality of the cells remaining on the root surface. In normal conditions, a tooth is connected to the socket by means of the periodontal ligament. When a tooth is knocked out, that ligament stretches and splits in half. Maintaining the vitality of the cells that remain attached to the root surface is the key to success following replantation. If immediate replantation is not possible, to prevent dehydration, the tooth should be stored in a transport medium that is a physiological solution which closely replicates the oral environment, especially its pH and osmolality. The most suitable media, like the Hank's Balanced Salt Solution (HBSS), are not readily available to the general public, therefore milk, coconut milk, soya milk, normal saline and even patient's saliva may be used as a short-time storage medium needed to transport the avulsed tooth to a dentist. There are also general rules that have to be followed in case of dental avulsion to prevent crushing of periodontal ligament cells: (i) the tooth should be held by the crown to avoid the damage of periodontal ligament on the root surface, (ii) a dirty tooth should be gently rinsed with water or saline, disinfectants and scrubbing of the root are inadvisable, (iii) the child should be referred to a dentist as soon as possible [5,6].

Dental traumatic injuries frequently occur in society [7], and some may occur at home. Therefore, the ultimate prognosis of an avulsed tooth occurring in a child may depend on the parents' emergency knowledge of this procedure [8]. Most studies on the management of avulsed permanent teeth indicate that the level of knowledge is low in several countries [9,10]. A recent study showed low level of knowledge of the studied children, so parents are considered as an important group since many dental injuries may occur when the child is in a home environment [11].

Materials and Methods

A survey with modified questionnaire used by Raphael and Gregory's [9] will be utilized in this Cross sectional study. The questionnaire has already been validated and is comprised of 17 closed-ended questions related to the avulsion of permanent teeth and it's of two sections. In the first section, the demographic data will be collected, while the second section encompasses assessment of the parents knowledge and attitude regarding emergency care of dental trauma and the data are statistically analyzed using the Chi-Square test. The questionnaire will be provided in both languages; English and Arabic.

A total of 125 questionnaires will be distributed to the parents having children from 6-16 years old with different education level who meet the selection criteria and sign the consent form during their presence in the pediatric dental clinic session in RAK Collage of Dental Sciences (RAKCODS).

Inclusion criteria

- Parents > 20 years of age attending with their children aged (6 - 16 years old)
- Able to communicate in Arabic or English language
- Agree to participate and sign the survey consent form.

Exclusion criteria

- Parents having children less than 6 years old or above 16 years' old
- Parents having no children
- Parents who are unable to communicate in Arabic or English languages.

In order to assess their knowledge of appropriate emergency management of avulsed permanent teeth, the respondents will be asked to tick the most appropriate answer associated with the questions from a list.

Consent form was given to the selected parents and once they accept to participate and sign the form, questionnaires in their preferred language will be given to them to answer. Data collected from the questionnaires and the participants had to complete questionnaire while they were present in the clinic.

And statistical analysis performed using SPSS version 25. Descriptive data analysis was performed. The comparison was made between the age, gender, parental knowledge and their attitude and all values were charted on excel sheet then subjected to statistical analysis using SPSS to calculate the percentages.

Results

Out of 125 parents, only 70 parents (56%) were assessed for their knowledge about dental trauma, according to the questionnaire (Appendix 1).

Baseline Characteristics	No. of Participants	Participants (%)
Sex		
Men	31	44.25
Female	39	55.75
Age		
Less than 25 years	8	11.43
Between 25 and 35	37	52.86
More than 35 years	25	35.72

Table 1: Characteristics of the study participants (N = 125).

Knowledge statement	Answer yes	No
With Knowledge	32 (45.7)	00 (0.0%)
Without Knowledge	0 (0.00%)	38 (54.3)

Table 2: Parents knowledge to dental trauma study questionnaire (N = 70).

As we divided parents according to previous information about dental trauma 32 have knowledge and 38 do not have any previous knowledge, with total of 70 parents.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Yes	23	71.9	23	60.5
No	9	28.1	15	39.5
Total	32	100	38	100

Table 3: The age of all participants was mostly between (25 and 35). The least age range was less than 25 years.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Yes	26	81.2	28	73.7
No	6	18.8	10	26.3
Total	32	100	38	100

Table 4: The female participants were higher than the male participants in both groups.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Broken Tooth	14	43.8	15	39.5
Knocked out Tooth	9	28.1	9	23.7
I don't know	9	28.1	14	36.8
Total	32	100	38	100

Table 5: Participant Parents who have job are higher than parents who don't whether with or without knowledge.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Dentist	19	59.4	0	0
Physician	1	3.1	0	0
Media	6	18.8	0	0
Friends	6	18.8	0	0
Total	32	100	0	0

Table 6: (81%) have previous experience of dental trauma to their child. 73% of parents without knowledge experienced Dental trauma.

Discussion

The present study was designed for parents who have children between 6 - 12 years old in Pediatric dentistry clinic, RAK College of Dental Science. 100 questionnaires were distributed on parents, 32% of them have knowledge about dental trauma in general, while 38% don't have knowledge, 30% of them were excluded from the study because they are not going to search for the avulsed tooth and will throw it away if they would find it.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Very Important	29	90.6	32	84.2
Important	3	9.4	6	15.8
Not Important	0	0	0	0
Total	32	100	38	100

Table 7: 28% of parents with knowledge have experienced tooth avulsion to their children. 43% broken tooth trauma and 28% don't know what is the type of it. 39% of parents without knowledge experienced broken tooth. 28% experienced tooth avulsion and 36% do not know the type of it.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Yes	15	46.9	21	55.3
No	17	53.1	17	44.7
Total	32	100	38	100

Table 8: Dentists was the highest source of information about dental trauma for 59.4% of parents with knowledge, Media and friends was 18.8% and physician 3.1%. Parents without knowledge skipped the question because they do not have any source of information

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Try to search and find the tooth	32	45.7	38	54.3
Not to search	0	0	0	0
Total	32	45.7	38	54.3

Table 9: 90.6% of parents with knowledge chose very important. 9.4% chose important only. 84.2% chose Very important. 15.8% chose important.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Replace it to the socket	3	9.4	2	5.3
Throw it away	0	0	0	0
Go to the dentist immediately	29	90.6	36	94.7
Total	32	100	38	100

Table 10: Parents with knowledge agreeing more in 55.3% on wearing mouth protector. 46.9% would recommend their children to wear mouth protector.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Replace it to the socket	3	9.4	2	5.3
Throw it away	0	0	0	0
Go to the dentist immediately	29	90.6	36	94.7
Total	32	100	38	100

Table 11: All participants are willing to search and find the tooth whether they are with or without knowledge.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Clean the tooth then save it	23	71.9	27	71.1
Save the tooth only	8	25	9	23.7
Replace the tooth in its place	1	3.1	2	5.3
Total	32	100	38	100

Table 12: In both groups they chose to go to the dentist immediately, while 9.4% of patients with knowledge and 5.3% of parents without knowledge will replace it in the socket.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Tooth Brush	7	21.9	25	65.8
Tap Water	19	59.4	7	18.4
Alcohol	6	18.8	6	15.8
Total	32	100	38	100

Table 13: Most of parents with knowledge agreed on cleaning the tooth then saving it with percentage of 71.9%, 25% will save it only 3.1% only would replace the tooth in its place. 71.1% Parents without knowledge will clean the tooth then save. 23.7% would save the tooth only and 5.3% replace it in the socket.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Immediately	22	68.8	18	47.4
Within an hour	7	21.9	4	10.5
At any time	3	9.4	16	42.1
Total	32	100	38	100

Table 14: 21.9% of patients with knowledge would clean the tooth with tooth brush, 59.4% will use tap water, 18.8% will use alcohol. On the other hand, 65.8% of patients without knowledge would clean the tooth with brush, 18.4% with tap water and 15.8% will use alcohol.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Crown	18	56.2	11	28.9
Root	14	43.8	8	21.1
Not important	0	0	19	50
Total	32	100	38	100

Table 15: 68.8% of parents will reimplant it immediately. 21.9% will reimplant the avulsed tooth into socket within an hour. Only 3% at any time. 47.4% of the second group will reimplant it immediately. 10.9% will reimplant the avulsed tooth into socket within an hour.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Very likely	22	68.8	23	60.5
Likely	9	28.1	11	28.9
Unlikely	1	3.1	4	10.5
Total	32	100	38	100

Table 16: 56.2% of patients with knowledge would handle the tooth from the crown which is the largest 43.8% chose the root. Half of parents without knowledge don't have any knowledge from where to handle the tooth. 28% will hold it from crown.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Tissue Paper	14	43.8	22	57.9
Tap Water	9	28.1	5	13.2
Patient mouth/salive	4	12.5	1	2.6
Hank's balanced salt solution	3	9.4	3	7.9
Milk	0	0	0	0
Don't know	2	6.2	7	18.4
Total	32	100	38	100

Table 17: Parents with knowledge 43.8% of them will transport the tooth using tissue paper, 28% will use water, 12.5% will transport it by patient mouth or saliva, 9.4% only chose the most correct answer which is HBSS, NO One chose milk, and 6.2% they don't know. While parents without knowledge 57.9% of them will transport the tooth using tissue paper, 13.2% will use water, 2.6% will transport it by patient mouth or saliva and 7.9% only chose the most correct answer which is HBSS.

Options	With Knowledge		Without Knowledge	
	No. of Response	Response (%)	No. of Response	Response (%)
Very satisfied	3	9.4	5	13.2
Satisfied	21	65.6	18	47.4
Dissatisfied	8	25	14	36.8
Very dissatisfied	0	0	1	2.6
Total	32	100	38	100

Table 18: Parents with knowledge 9.4% were very satisfied, 65.6% satisfied and 25% dissatisfied. Although the other group had no knowledge, almost half of them were satisfied with their knowledge 47.4% and 9.4% very satisfied.

59.4% of information about dental trauma was derived from dental advice. Fewer parents 3.2% received information from physicians, 18.8% got the information from media, 18.8% from their friends. This means that it is important to mount posters, leaflets and media campaigns to educate people in the recommended first aid measures for managing avulsed permanent teeth. In a similar study done by Shashikiran ND., et al. 2006 it was reported that most of the parents have not received any previous information about emergency management of avulsed permanent teeth.

Regarding handling the avulsed permanent teeth, 56.2% of parents with knowledge preferred to hold the crown of the tooth. However, 43.8% of them chose to hold it from the root.

For parents with no knowledge, 50% of the total survey stated that it does not matter where to hold it from, this percentage shows that most of parents lack knowledge of how to handle the tooth as it may damage the periodontal ligaments.

The percentage of those who preferred to clean the tooth with tap water is 59.4% which is the right answer, On the other hand The information of parents without knowledge was poor, as 65.8% of them will clean the avulsed tooth with a tooth brush, only 18.4% with tap water and 15.8% with alcohol. Abdellatif AM and Hegazy SA, and Al-Jame Q., *et al*. 2011 in their study also reported lack of knowledge regarding cleansing medium.

Almost half of the parents who is with and without knowledge opined that they will use paper tissue as a storing media while transporting the tooth to the dentist. This concept of 'dry storage' among parents indicates that there is lack of knowledge in both groups on how avulsed teeth should be handled after traumatic injuries.

Conclusion

Among parents in RAKCODS clinic, it was found that they have low level of knowledge regarding procedures to follow in an emergency related to tooth avulsion and replantation.

Knowledge of emergency treatment of avulsed teeth should be increased by providing educational and preventive programs by organizing educational programs at public places, school, and sports clubs with audiovisual aids and posters will help in giving better education to parents, especially mothers. The pediatricians and gynecologists can also help in creating awareness. Limitations of the study were the sample size. More studies should be conducted in diverse population with large sample size.

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Appendix 1

RAK college of dental sciences

Questionnaire

Personal data

- Age: □ Less than 25 years □ Between 25 and 35 years □ More than 35years
- Gender: □ Male □ Female
- Level of education: □ High school □ Bachelor □ Masters □ PhD □ Others

1. Are you a working parent?
   - Yes
   - No
2. Has any of your children had dental trauma?
   - Yes
   - No
3. If yes, what type of dental trauma was it?
   - Broken tooth
   - Knocked out tooth
   - I don't know
4. Have you had first aid training?
   - Yes
   - No
5. Do you have any previous information about dental traumatic injuries?
   - Yes
   - No
6. If you have such information, what is the source of that information?
   - Dentist
   - Physician
   - Media
   - Friends
   - Previous accident
7. Do you think that permanent teeth are important?

- Very important
- Important
- Less important
- Not important at all as fixed appliances are available

8. Do you recommend your child/children to wear mouth protector while playing sports?

- Yes
- No

9. What would you do if the tooth was completely knocked out of the socket?

- Try to search and find the tooth
- Not to search for it

10. If you would find the tooth, what will you do?

- Replace it to the socket
- Throw it away
- Go to the dentist immediately

If you would search for the tooth, please complete the following questions:

11. If you found the tooth covered with dirt, what would you do?

- Clean the tooth then save it
- Save the tooth only
- Replace the tooth in its place (socket)

12. If you would clean the tooth, you will use:

- Tooth brush
- Tap water
- Alcohol

13. If you decide to return it in its place (the socket), you will do that:

- Immediately
- Within an hour
- At any time

14. You will handle (hold) the avulsed tooth from:

- Crown
- Root
- Either

15. If you will transport the avulsed tooth to the dentist; you will use:

- Paper tissue
- Tap water
- Milk
- Patient mouth/Saliva
- Hank's balanced salt solution
- Don't know

16. Are you satisfied with your knowledge on the management of dental trauma?

- Very satisfied
- Satisfied
- Dissatisfied
- Very dissatisfied

17. How likely are you to have an educational program in management of dental trauma later?

- Very likely
- Likely
- Unlikely
- Unlikely at all

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