RESEARCH

Evaluation of knowledge level and approaches in traumatic dental injuries among different medical occupational groups

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ABSTRACT

Evaluation of knowledge level and approaches in traumatic dental injuries among different medical occupational groups

Background: Proper diagnosis and first intervention in dental trauma is of importance in terms of prognosis. The level of knowledge of pediatricians, emergency medicine physicians and dentists constitutes the most important step in carrying out this intervention. The aim of this study was to determine the level of knowledge of pediatricians, pediatric residents, emergency medicine specialists and dentists on dental traumas.

Materials and Methods: A total of 103 people participated in this survey study conducted on pediatricians, emergency physicians and dentists serving in 10 different hospitals in İstanbul, and a survey including fifteen multiple-choice questions was prepared to determine the level of knowledge on the basic issues that are important for emergency intervention in trauma cases.

Results: Of the participants, 55 % stated that the first aid training they received included dental trauma intervention, and 89 % answered the question of "Have you have ever encountered any dental trauma?" as "Yes". Particularly in avulsion cases, the knowledge level of the participants was found to be low in terms of treatment procedures related to tooth replacement.

Conclusion: In this study, the knowledge of pediatricians, emergency physicians and dentists on dental trauma was evaluated, and according to the results of this survey, it was concluded that the issue of emergency interventions in dental traumas should be more emphasized in the training of these occupational groups.

KEYWORDS

Trauma, child, emergency treatment, dentistry

ÖZ

Travmatik diş yaralanmalarında bilgi düzeyi ve yaklaşımların farklı meslek gruplarına göre değerlendirilmesi

Amaç: Dental travmada teşhisin ve ilk müdahalenin uygun bir şekilde yapılması prognoz açısından önem taşımaktadır. Bu müdahalenin yapılmasında pediatristlerin, acil tıp doktorlarının ve diş hekimlerinin bilgi düzeyi en önemli basamağı oluşturmaktadır. Bu çalışmanın amacı pediatristler, pediatri uzmanlık öğrencileri, acil uzmanları ve diş hekimlerinin dental travmalar konusundaki bilgi düzeylerinin saptanmasıdır.

Gereç ve Yöntemler: İstanbul ili içinde bulunan 10 farklı hastanede görev yapmakta olan pediatristler, acil hekimleri ve diş hekimleri üzerinde yürütülen bu anket çalışmasına toplam 103 kişi katılmış, travma vakalarında acil müdahalede önem taşıyan temel konulardaki bilgi seviyesinin tespiti amacı ile çoktan seçmeli on beş soru içeren anket hazırlanmıştır.

Bulgular: Katılımcıların % 55'i aldıkları ilk yardım eğitiminin dental travma müdahalesi içerdiğini belirtmiş olup, daha önce dental travma ile karşılaştınız mı sorusuna % 89'u "Evet" cevabını vermiştir. Özellikle avülsiyon vakalarında dişin yerine yerleştirilmesi ile ilgili tedavi prosedürleri açısından katılımcıların bilgi düzeyi düşük bulunmuştur.

Sonuç: Bu çalışmada pediatristlerin, acil servis hekimlerinin ve diş hekimlerinin dental travma konusundaki bilgileri değerlendirilmiş olup, katılımcıların çoğunluğunu diş hekimlerinin oluşturduğu bu ankete göre dental travmalarda acil müdahaleler konusunda bu meslek gruplarında eğitimin yoğunlaştırılması gerektiği sonucuna varılmıştır.

ANAHTAR KELİMELER

Travma, çocuk, acil müdahale, diş hekimliği

Traumatic dental injuries may occur in any period of life. It is observed that these injuries occur more often especially in children and adolescents[1]. Falls are the most important causes of traumatic dental injuries in children, while in adults, cycling, traffic, violence and sports accidents[2]. In the study by Gassner et al investigating the etiological causes of dental injury, it was found that dental traumas are caused by activities of daily life with 38%, sports with 31%, violence with 12%, traffic accidents with 12 %, work accidents with 5% and other causes with 2%[3].

One of the most affected areas by trauma is the orofacial region. In the maxillofacial region, there may be severe life-threatening traumas involving plastic or neurosurgery, as well as dentoalveolar injuries requiring oral surgery and endodontic treatments. In the studies conducted, the incidence of dental trauma has been found to be between 11-60%[4-7].

In pediatric dental traumas, the first intervention is performed by parents at home and by teachers at school depending on the severity of injury and place of occurrence. In general, the patient is then referred

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to the emergency departments of hospitals depending on the severity of injury, if necessary[8]. Here, the level of knowledge of families, teachers and the skill of the intervening physician to diagnose and treat the teeth and gums are of great importance, especially in terms of prognosis.

MATERIALS AND METHODS

This research is a descriptive survey study conducted on pediatricians, emergency physicians and dentists serving in 9 different state hospitals in Istanbul and in the Faculty of Medicine and Dentistry of Bezmialem Vakıf University. Ethics committee approval (54022451) for the study was obtained on 15.01.2018 from the Bezmiâlem Foundation University Rectorate Clinical Research Ethics Committee, all procedures performed in this study involving human participants were in accordance with the 1964 Helsinki declaration and its later amendments.

A total of 103 people participated in the survey. Of these, 36 were dentists, 28 were emergency department physicians, 16 were pediatricians and 23 were pediatric residents.

The necessary permissions were obtained from the Governorship of İstanbul, Provincial Directorate of Health. Informed consent forms were face to face prepared with physicians and dentists. While creating the survey, the key issues that matter to emergency intervention in trauma cases were determined and a survey including multiple-choice fourteen questions was prepared to determine the level of knowledge on these issues. In the survey, the name of the participant was not specified, only the profession, gender and years of professional experience, level of knowledge and approaches to trauma were determined.

Behavior of quantitative variables was determined using centralization and variance measures: Mean ± SD. Pearson Chi-square Test and Fisher Exact Test were used to determine the differences between the ratios or relationships between categorical variables. Statistical significance was determined as $p = 0.05$ for all cases. Statistical analyzes were provided by IBM SPSS (Statistical Package for Social Sciences for Windows, Version 21.0, Armonk, NY, IBM Corp.).

RESULTS

Our study enrolled a total of 103 people, of whom 36 were dentists, 28 were emergency department physicians, 16 were pediatricians and 23 were pediatric residents (Figure 1). Of the participants, 64 were female and 39 were male. According to years of professional experience, 46 had 0-5 years, 20 had 5-10 years, 26 had 10-20 years and 11 had 20-30 years of professional experience (Figure 2).

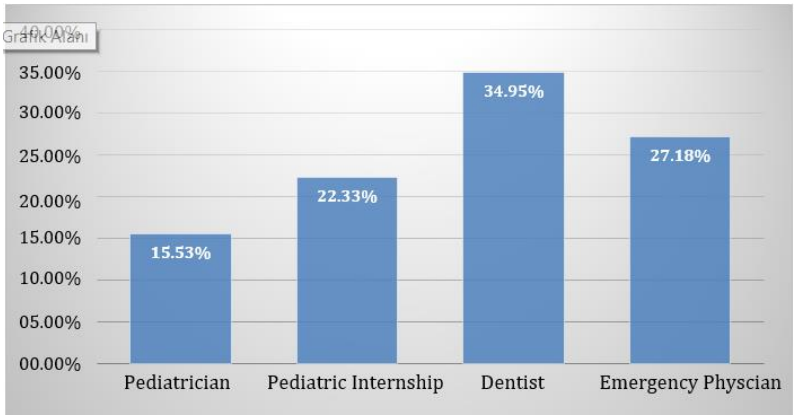

Figure 1.

Percentages of Professions of Those Participated in the Knowledge Survey on Traumatic Dental Injuries

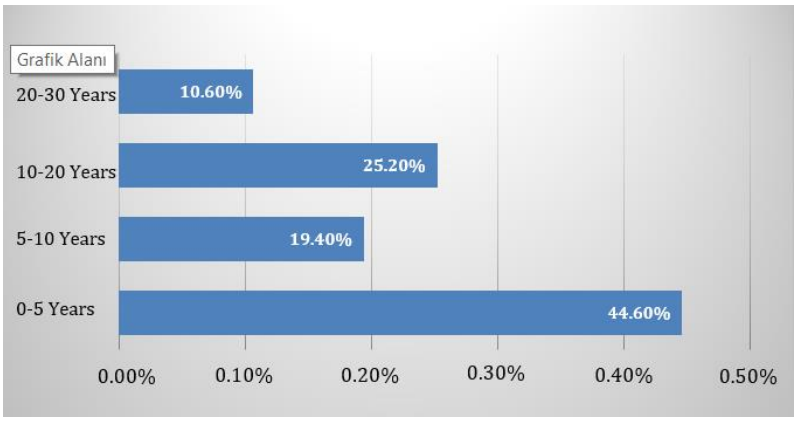

Figure 2.

Years of Professional Experience of Those Participated in the Knowledge Survey on Traumatic Dental Injuries

55.3% of all participants reported that first aid training included intervention in dental traumas (Question 1). When we compared the physician's answers to the question, we found that there was a statistically significant relationship. It was observed that the dentists gave no response to the other groups at a high rate (Table 1).

When we compare physician answers to the question "Have you ever seen a tooth injury?" (Question 2), 87.3 % answered yes and 12.6 % answered no, it was observed that pediatric specialists gave a high rate of no response to the other groups (Table 1).

Table 1.

Percentage of respondents about the answers to Question 1 and Question 2

Physician		Emergency Service Physician	Dentist	Pediatrician	Pediatric Residents	p*
Question 1	Yes	10 (36.0%)	36 (100.0%)	6 (38.0%)	5 (22.0%)	<0.001*
	No	18 (64.0%)	0 (0.0%)	10 (62.0%)	18 (78.0%)	
Question 2	Yes	28 (100.0%)	35 (97.0%)	13 (81.0%)	15 (65.0%)	<0.001**
	No	0 (0.0%)	1 (3.0%)	3 (19.0%)	8 (35.0%)	

p Pearson Chi-Squared Test, p** Fisher Exact Test*

Table 2.

Percentage of respondents about the answers to Question 6 and Question 7

Physician		Emergency Service Physician	Dentist	Pediatrician	Pediatric Residents	p*
Question 6	Yes	23 (82.0%)	34 (94.0%)	11 (69.0%)	10 (43.0%)	<0.001**
	No	5 (18.0%)	2 (6.0%)	5 (31.0%)	13 (57.0%)	
Question 7	Yes	22 (79.0%)	32 (89.0%)	13 (81.0%)	9 (39.0%)	<0.001**
	No	6 (21.0%)	4 (11.0%)	3 (19.0%)	14 (61.0%)	

p Pearson Chi-Squared Test, p** Fisher Exact Test*

Table 3.

Percentage of recommended replantation times for permanent tooth avulsion

Physician		Emergency Service Physician	Dentist	Pediatrician	Pediatric Resident	p*
Question 8	Within 1-2 days	3 (11.0%)	0 (0.0%)	4 (25.0%)	8 (35.0%)	0.003**
	Immediately	15 (54.0%)	30 (83.0%)	8 (50.0%)	7 (30.0%)	
	Two hours	4 (14.0%)	2 (6.0%)	0 (0.0%)	3 (13.0%)	
	Half an hour	6 (21.0%)	4 (11.0%)	4 (25.0%)	5 (22.0%)	

p Pearson Chi-Squared Test, p** Fisher Exact Test*

76.6% of respondents reported that they could distinguish between primary and permanent teeth. When we compared the physician's answers to the question, we could not find a statistically significant relationship. In spite of this, we observed that the dentists gave a high rate of yes, while the pediatric specialists gave a high rate of no. Among 23.3% of responders were recommended immediate replantation for avulsed primary teeth. When we compared the answers of the physician for the question "It is necessary to find the broken tooth piece in the case of a broken permanent tooth?" we found a statistically significant relationship. It was observed that the dentists answered yes to the other groups at a higher rate and the pediatric specialists gave no to the higher rates (Table 2).

During the break, an 11-year-old student fell to the ground while running and her/his upper anterior teeth were broken. She had swelling and bleeding on her/his lip. Apart from this, there is no injury or loss of consciousness. When asked "What do you think: are the teeth primary or permanent teeth?" 88.3 % answered primary teeth, 11.6 % answered permanent teeth.

When asked “Would you consider replanting a permanent tooth in its place when it completely comes out?”, 73.7 % said yes, 26.2 % said no (Table 2). When we compared the physician's answers to the question, we could not find a statistically significant relationship. In spite of this, we observed that the dentists gave a high rate of yes, while the pediatric specialists gave a high rate of no. When we compared the answers for the question, "How long should it be replanted?" (Question 8), we found that there was a statistically significant relationship. It was observed that the dentists responded immediately to the other groups and the pediatric specialists responded to the response within 1-2 days (Table 3).

When asked, “If you have decided to replant a tooth, but if the tooth had fallen on the ground and was contaminated, what would you do?” we found that there is a statistically significant relationship when we compare physician answers. It was observed that the emergency service physicians responded to the other groups by washing them with soap or detergent at a high rate compared to the other groups, while the dentists replied that they cleaned the dirt with a toothbrush at a lower rate compared to the other groups.

When we compare physician answers to the question, "Which is the ideal environment to keep the teeth that have come out of its place? ", we found that there is a statistically significant relationship. It was observed that the emergency service physicians gave a higher rate of "Ice" response compared to the other groups, while the dentists gave a higher rate of response to the "Hanks balance solution" compared to the other groups (Table 4). When we compared the answers of the physician for the question "Would you ask whether the child exposed to trauma had been vaccinated for tetanus?", we found that there was a statistically significant relationship. It was observed that the emergency service physicians answered yes at a higher rate compared to the other groups, and that the dentists gave no answer at a higher rate compared to the other groups.

Table 4.

Percentage of recommended transport medias of avulse teeth

Physician		Emergency Service Physician	Dentist	Pediatrician	Pediatric Resident	p*
Question 10	Alcohol	0 (0.0%)	0 (0.0%)	1 (6.0%)	3 (13.0%)	<0.001**
	Ice	6 (21.0%)	0 (0.0%)	2 (12.0%)	3 (13.0%)	
	Saliva	3 (11.0%)	2 (6.0%)	3 (19.0%)	5 (22.0%)	
	Hanks balance solution	1 (4.0%)	30 (83.0%)	1 (6.0%)	1 (4.0%)	
	Wrapping paper or napkin	2 (7.0%)	0 (0.0%)	1 (6.0%)	3 (13.0%)	
	Tap water	1 (4.0%)	0 (0.0%)	1 (6.0%)	3 (13.0%)	
	In saline	14 (50.0%)	1 (3.0%)	7 (44.0%)	5 (22.0%)	
	Milk	1 (4.0%)	3 (8.0%)	0 (0.0%)	0 (0.0%)	

p Pearson Chi-Squared Test, p** Fisher Exact Test*

DISCUSSION

It is stated that the number of trauma cases are quite high across every age group in admissions to emergency departments. According to the statistical data, traumas in the head and neck region account for 2 % of the overall traumas.[9,10]

The studies demonstrate that the rate of tooth avulsion in dental traumas is 0.5-16 %.[11,12] It is known that there is a direct correlation between the time to replant an avulsed tooth in the socket and the success rate of reimplantation of the tooth. The first and emergency intervention after dental traumas is of great importance in terms of how the treatment will progress and the prognosis of the tooth. If the tooth cannot be immediately replanted in the alveolar socket, the environment by which it is transported to the dentist affects the prognosis of the treatment.[12,13] In our study, the rate of those who said immediately for the time to replant a tooth in its socket was 58.2 %. In the literature, the most ideal solution for the avulsed tooth to be transported to the dentist has been reported as HBSS. When the most ideal environment was asked to the participants in this study, HBSS was determined as 32% and saline was determined as 26.2%.

In the survey study by Subhashraj[14] conducted on doctors of medicine, of the participants, 58 % stated that they would refer the patient to a dentist, while 36 % stated that they would replant the tooth in the socket, when the question of "what would you do if a permanent tooth comes out?" was asked. In our study, the rate of referral to a dentist was 23.3%. In our study when we compare physician answers to the question "A 9-year-old student fell down the stairs. One of his/her upper anterior teeth has completely avulsed. There is a bleeding from the pulp. Apart from this, there is no injury or loss of consciousness. What should be done in such a situation?", we found that there is a statistically significant relationship. Dentists compared to other groups should try to find a high rate of teeth, at the same time compared to other groups at a lower rate by pressing on the wound with a clean gauze bleeding was given to the response was observed.

In the study by Ocek et al[15] conducted on third grade medical students, the rate of those who answered the question about the treatment of the tooth completely come out of its socket as they would replant the tooth in its socket was 27.8%, while the rate has been reported to be 99.2% after the training. In our study, the overall rate of those who said that they would replant the tooth in its place was determined as 73.7%.

The World Medical Association states that the goal of medical education is to raise "competent and skilled" physicians in the knowledge, skill, values and behavioral patterns that allow to provide high-quality preventive and therapeutic services to the patient and the community. It is stated that accordingly, medical school graduates should have the knowledge of knowing their roles and performing appropriate interventions to protect the community, families and individuals from diseases, accidents and injuries, and to protect

working hours of dental clinics, emergency departments are important areas where the patients with dental and gingival problems are treated and provided with care. Therefore, it is necessary to provide the emergency department environment, diagnostic and treatment tools required for a good service, and to improve the training on dental intervention and care provided to emergency physicians.

Emergency departments are an important area of admission not only for trauma cases but also for patients with other dental and gingival problems. Therefore, the diagnosis and simple treatment of a tooth requiring emergency treatment should be able to be carried out in emergency departments[18].

In our study, the participation rate was low due to the intensity of physicians during the working hours, and it was not possible to statistically evaluate the knowledge levels of physicians and dentists on dental trauma.

CONCLUSION

In this study, the general oral and dental health knowledge of pediatricians, pediatric residents, emergency physicians and dentists were not evaluated, their knowledge on dental trauma were evaluated.

It was found that the most common intraoral trauma was crown fractures, followed by avulsion traumas. Of the participants, 79% reported that they could not differentiate between primary and permanent teeth. Of the physicians, 80% reported that tooth should be replanted in the case of avulsed primary teeth while 76 % indicated that it is correct to replant the tooth in the case of permanent teeth.

REFERENCES

1. Kargül B, Çağlar E. Tanboğa I. Dental trauma Turkish children. İstanbul Dental Traumatology 2003; 19: 72-5.
2. Gassner R, Va`zquez Garcia J, Leja W, Stainer M. Traumatic dental injuries and Alpine skiing. Endod Dent Traumatol 2000; 16: 122–7.
3. Gassner R, Tuli T, Hachl O, Rudisch A, Ulmer H. Cranio-maxillofacial trauma: a 10 year review of 9543 cases with 21067. İnjuries Journal of Cranio-Maxillofacial Surgery 2003; 31: 51–61.
4. Çalışkan MK, Türkün M. Clinical investigation of traumatic injuries of permanent incisors in Izmir, Türkiye. Dental Traumotology 1995;11: 210-5.
5. Caldas Jr AF, Burgos MEA. A retrospective study of traumatic dental injuries in a Brazilian dental trauma clinic. Dental Traumatology 2001; 17: 250–3.
6. Ferrari CH, Medeiros JMF. Dental trauma and level of information: mouthguard use in different contact sports. Dental Traumatol 2002; 18: 144–7.
7. Altay N, Güngör HC. A retrospective study of dentoalveolar injuries of children in Ankara, Turkey. Dent Traumatol 2001;17: 201–4.
8. Avşar A. Yedi-ondört yaş grubu çocuklarda görülen travmatik yaraların incelenmesi. C.Ü. Diş Hekimliği Dergisi 2002; 5: 117-20.
9. Söğüt Ö, Al B. Kafa travmalı hastalarda hastane öncesi yaklaşım ve acil serviste yönetim. Genel Tıp Dergisi 2009; 19: 362-9.
10. Akoğlu H, Denizbaşı A, Ünlüer E, Güneysel Ö, Onur Ö. Marmara Üniversitesi Hastanesi acil servisine başvuran travma hastalarının demografik özellikleri. Marmara Medical Journal 2005; 18; 113-22.
11. Abu-Dawoud M, Al-Enezi B, Andersson L. Knowledge of emergency management of avulsed teeth among young physicians and dentists. Dental Traumatology 2007; 23: 348–55.
12. Qazi SR, Nasir KS. First-aid knowledge about tooth avulsion among dentists, doctors and lay people. Dental Traumatology 2009; 25: 295–9.
13. Aksoy B, Turgut MD, Altay N. Avülsiyon Yaralanmaları. Hacettepe Diş Hekimliği Fakültesi Dergisi 2009; 33: 69-77.
14. Subhashraj K. Awareness of management of dental trauma among medical professionals in Pondicherry, India. Dental Traumatology 2009; 25: 92–4.
15. Öcek ZA, Ertuğrul E, Eden E. Ege Üniversitesi Tıp Fakültesi 3. sınıf öğrencilerine verilen ağız diş sağlığı eğitiminin değerlendirilmesi. Tıp Eğitimi Dünyası 2008; Mayıs: 13-20.
16. Saçaklıoğlu F. Dünyada Tıp Eğitimi, Toplum ve Hekim 1997; 12: 35-9.
17. 47.Özvarış ŞB. Topluma Dayalı Tıp Eğitimi. Toplum Hekimliği Bülteni 2007; 26: 1-6.
18. Söyüncü S, Oktay C, Ertan C, Eken C, Janitzky A. Acil servise diş ve diş eti rahatsızlığı nedeniyle başvuran hastaların değerlendirilmesi. Türkiye Acil Tıp Dergisi 2005; 5: 65-8.

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