

Management of Dental Trauma of Last-Year Medical Students Attending Medical School in Tokat

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ABSTRACT

Aim: Since trauma often requires immediate intervention, the initial care of patients is typically provided by emergency room physicians. Emergency departments prioritize the treatment of conditions that threaten the patient's overall health, which can lead to overlooking the treatment of traumatic dental injuries. Early intervention in dental and surrounding tissue injuries is crucial for prognosis. Therefore, it is important to assess the knowledge and awareness of dental trauma among medical doctors, who are often the first responders in trauma cases. The aim of this study is to evaluate the knowledge and approaches of senior-year medical students regarding dental traumas in Tokat city, Türkiye.

Materials and Methods: For this cross-sectional study, a validated questionnaire consisting of 10 questions previously used in similar studies was used. Students completed the questionnaire online using the Google® Forms program. The data obtained in this study were analyzed using the SPSS v23 (Chicago, IL, USA) software package program. Frequency and percentage values were obtained.

Results: While 7.1% of the students stated that they would reimplant the avulsed tooth, 71.4% stated that they would refer the patient to the dentist. While 42.8% of the students preferred sterile saline solution for handling the avulsed tooth, 20.2% preferred wet gauze. While 85.7% of the students found the level of knowledge about oral and dental injuries insufficient, 71.4% stated that they would like to participate in an educational program on this subject.

Conclusions: It has been observed that senior medical school students have insufficient knowledge about intervening in injuries to teeth and surrounding tissues. Curriculum regulation and training programs are required to improve students' knowledge and awareness about injuries to teeth and surrounding tissues. Students should also be informed that they can access the free IADT ToothSOS Mobile App on the International Association for Dental Trauma (IADT) website (<http://www.iadt-dental-trauma.org>), which can guide them on emergency response to dental trauma when they encounter dental trauma.

Tokat İlindeki Tıp Fakültesine Devam Eden Son Sınıf Öğrencilerinin Dental Travmaya Yaklaşımları

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ÖZET

Amaç: Travmalar genellikle acil müdahale gerektiren durumlar olması nedeniyle hastalara ilk müdahale acil servislerde tıp doktorları tarafından yapılmaktadır. Acil servislerde öncelik, hastaların genel sağlığını tehdit eden durumların tedavisidir bu nedenle, travmatik dental yaralanmalarının tedavisi göz ardı edilebilmektedir. Diş ve çevre dokuların yaralanmalarında erken müdahale prognoz açısından çok önemlidir. Bu nedenle travma vakalarında genellikle ilk karşılaşılan tıp doktorlarının dental travmalar hakkında bilgi düzeylerinin ve farkındalıklarının değerlendirilmesi önemlidir. Bu çalışmanın amacı, Türkiye'de Tokat ilinde tıp fakültesine devam eden son sınıf öğrencilerinin dental travmalar ile ilgili bilgi düzeylerini ve yaklaşımlarını değerlendirmektir.

Gereç ve Yöntemler: Bu kesitsel çalışma için daha önce benzer konuda yapılmış çalışmalarda kullanılmış geçerliliği test edilmiş 10 sorudan oluşan anket kullanıldı. Öğrenciler anketi Google® Forms programını kullanarak çevrimiçi doldurdu. Bu çalışmada elde edilen verilerin analizi SPSS v23 (Chicago, IL, ABD) paket programı kullanılarak yapıldı. Frekans ve yüzde değerleri elde edildi.

Bulgular: Öğrencilerin 7,1'i avulse olmuş dişi reimplante edeceğini belirtirken, %71,4'ü hastayı diş hekimine yönlendireceğini belirtti. Öğrencilerin %42,8'i avulse olmuş dişin taşınması sırasında steril salin solüsyonunu tercih ederken, %20,2'lik bölümü ise ıslak gazlı bezi tercih etti. Öğrencilerin %85,7'si ağız-diş yaralanmaları hakkındaki bilgi düzeyini yeterli bulmazken, %71,4'ü bu konu hakkında eğitici programa katılmak istediğini belirtti.

Sonuç: Tıp fakültesine devam eden son sınıf öğrencilerinin diş ve çevre dokulardaki yaralanmalara müdahale konusundaki bilgilerinin yetersiz olduğu gözlenmiştir. Öğrencilerin diş ve çevre dokulardaki yaralanmalar ile ilgili bilgi ve farkındalıklarını geliştirmeye yönelik müfredat düzenlemesi ve eğitim programları gereklidir. Ayrıca öğrencilere, dental travmayla karşılaştıklarında dental travmaya acil müdahale konusunda kendilerini yönlendirebilecek ücretsiz IADT ToothSOS Mobil Uygulamasına Uluslararası Dental Travma Birliği (IADT) web sitesinden (<http://www.iadt-dental-trauma.org>) ulaşabilecekleri hakkında bilgi verilmelidir.

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INTRODUCTION

Traumatic dental injuries are among the most common injuries among children.¹ The most important issue in the healing period of all dental injuries is to determine the appropriate treatment option as soon as possible. When treatment is delayed, success and tooth vitality are negatively affected.^{2,3}

The International Association of Dental Traumatology (IADT) publishes the Guide for the Evaluation and Management of Traumatic Dental Injuries to provide an approach for the immediate and emergency care of traumatic dental injuries. IADT published its first treatment guidelines in 2001; It was also updated in 2007. Another update was published in the journal Dental Traumatology in 2012. The latest revised 2020 version of the Guide for the Evaluation and Management of Traumatic Dental Injuries has been published. This update of the Treatment Guidelines includes systematic reviews and articles covering the years 1996-2019 in EMBASE, MEDLINE, PUBMED, Scopus and Cochrane Databases, and a comprehensive evaluation of studies published in the Dental Traumatology journal between 2000-2019. This new revision represents the best current evidence based on available literature and expert opinion.⁴

Since traumas are conditions that require urgent intervention and often occur outside of working hours and on holidays, patients are primarily admitted to the emergency departments of hospitals, and medical physicians are the first to greet patients here before dentists.^{5,6} The priority in emergency departments is the treatment of conditions that threaten the general health of patients. For this reason, intervention in dental traumas usually remains in the background and the treatment of teeth and surrounding tissues may be ignored. However, early intervention in dental injuries is of great importance in terms of prognosis.⁷

For this reason, it is of great importance to evaluate the level of knowledge and approaches of medical doctors, who are usually

the first applicants in trauma cases.⁸ The aim of the present study is to determine the approaches of senior-year students at the faculty of medicine of Tokat Gaziosmanpaşa University, located in Tokat, towards dental and surrounding tissue injuries.

MATERIAL AND METHODS

Study Design and Ethical Approval

The present survey study was approved by Tokat Gaziosmanpaşa University Clinical Research Local Ethics Committee (Date: February 2, 2023; protocol no: 83116987-116; registration number:23-KAEK-034).

The questionnaire form for this cross-sectional study was created using validated questions that had been used in previous similar studies.⁸⁻¹² While creating the questionnaire form, the basic issues that are important in emergency intervention in trauma cases were determined and a questionnaire containing demographic information and ten multiple-choice questions was prepared to determine the level of knowledge on these issues. The questionnaire consists of 3 sections. In the 1st section, demographic information of the students (gender of the students), in the 2nd section, the students' level of knowledge about dental trauma (6 questions), in the 3rd section, the questions were organized under the titles of students' thoughts about dental trauma, and their own level of knowledge about dental trauma (4 questions).

The senior-year students continuing their education at Tokat Gaziosmanpaşa University Faculty of Medicine in the academic education and training period of 2022-2023 who agreed to participate in the survey study were included in the study. The internet link of the prepared questionnaire was sent to the students via SMS or social media (WhatsApp©) by the Faculty of Medicine administration. Students who agreed to participate in the study completed the questionnaire online using the Google® Forms program. No name or other personal information was recorded to ensure privacy and confidentiality.

It was planned to deliver the questionnaire form prepared for the study to 125 students in their final year of study at Tokat Gaziosmanpaşa University Faculty of Medicine, which would constitute the study population.

Statistical Analysis

The data obtained in this study were analyzed using the SPSS v23 (Chicago, IL, USA) software package program. Frequency and percentage values were obtained.

RESULTS

Demographic Data

A total of 84 students participated in our study. Among the students participating in the study, the number of female students was 51 (60,7%) and the number of male students was 33 (39,2%).

Data Related To Students' Level Of Knowledge About Dental Trauma

In response to the question, "What do you do when you encounter a child who has a fractured tooth or teeth as a result of an accident and whose general health is not under threat?", 65,4% of the students answered, "I tell the family that the child should definitely go to the dentist for his/her teeth", while 34,5% of the students answered, "I immediately refer the child to the dentist". (Table 1)

In response to the question, "What would you do if you encountered a child with an accidentally avulsed permanent tooth whose general health was not threatened?" 71,4% of the students answered, "I immediately refer the child to the dentist", while 7,1% of the students answered, "I place the tooth in the socket (where it came out) and send it to the dentist immediately". (Table 1)

To the question, "What is the urgency (in terms of duration) of consulting a dentist after oral-dental trauma?" 40,4% of the students answered "Within a few hours", 34,5% answered "Within 1 day" and 20,2% answered "Immediately". (Table 1)

To the question, "What do you do if a tooth is avulsed due to trauma and falls to the ground and becomes contaminated?" 64,2% of the students answered, "I wash the tooth with the sterile saline solution", 23,8% said, "I do nothing" and 8,3% said, "I wash the tooth under tap water". (Table 1)

To the question, "What do you do if an avulsed tooth is fractured due to trauma?", 77,3% of the students answered, "I refer to the dentist with the fractured tooth", 14,2% said, "I have no knowledge on this subject" and 4,7% said, "I still place the broken tooth in its socket". (Table 1)

To the question, "How should a traumatized avulsed tooth be stored until it reaches the dentist?" 42,8% of the students answered, "In sterile saline solution"; 20,2% answered, "In a wet gauze"; 14,2% answered, "In any aseptic solution". (Table 1)

Data Related to The Students' Thoughts About Dental Trauma and Their Own Level of Knowledge About Dental Trauma

To the question, "Do you have information about what to do when a permanent tooth is avulsed as a result of an accident?" 95,2% of the students answered "No", while 4,7% answered "Yes". (Table 2)

To the question, "Do you think it is important to participate in an educational program about oral and dental injuries?" 77,3% of the students answered "Yes", 15,4% answered "No idea" and 7,1% answered "No". (Table 2)

To the question, "Do you think your level of knowledge about oral and dental injuries is sufficient?" 85,7% of the students answered "No"; 10,7% answered "No idea"; 3,5% answered "Yes". (Table 2)

To the question, "Would you like to participate in an educational program about what to do in oral and dental injuries?" 71,4% of the students answered "Yes"; 15,4% answered "No idea"; 13,09% answered "No". (Table 2)

Table 1: Students' level of knowledge about dental trauma

	n	(%)
1. "What do you do when you encounter a child who has a fractured tooth or teeth as a result of an accident and whose general health is not under threat?",		
I immediately refer the child to the dentist.	29	34.5
I tell the family that the child should definitely go to the dentist for his/her teeth	55	65.4
I don't feel the need to do anything about teeth.	0	0
2. What would you do if you encountered a child with an accidentally avulsed permanent tooth whose general health was not threatened?		
I immediately refer the child to the dentist.	60	71.4
I place the tooth in the socket (where it comes out) and send it to the dentist immediately.	6	7.1
I rinse the child's mouth with tap water and wrap the tooth in a damp cloth.	18	21.4
3. What is the urgency (in terms of duration) of consulting a dentist after dental trauma?		
Immediately	17	20.2
Within 30 minutes	4	4.7
Within a few hours	34	40.4
Within one day	29	34.5
4. What do you do if the tooth is avulsed due to trauma and falls to the ground and becomes contaminated?		
I clean the tooth by scrubbing it with a brush.	0	0
I wash the tooth under tap water.	7	8.3
I wash the tooth with a sterile saline solution.	54	64.2
I wash the tooth with hydrogen peroxide.	3	3.5
5. What do you do if an avulsed tooth is fractured due to trauma?		
I still put the fractured tooth in its socket (in place).	4	4.7
I refer to the dentist with the fractured tooth.	65	77.3
I do not deal with the fractured piece	3	3.5
I have no knowledge on this subject	12	14.2
Other (specify).....	0	0
6. How should a traumatized avulsed tooth be stored until it reaches the dentist?		
On ice	2	2.3
In a container with tap water	0	0
In a wet gauze	17	20.2
In sterile saline solution	36	42.8
In cotton	5	5.9
In the child's mouth	0	0
In any aseptic solution	12	14.2
In milk	6	7.1
Other (specify) Don't know	6	7.1

Table 2: Students' thoughts about dental trauma and their own level of knowledge about dental trauma

	n	(%)
7. Do you have information about what to do when a permanent tooth is avulsed as a result of an accident?"		
Yes	4	4.7
No	80	95.2
8. Do you think it is important to participate in an educational program about oral and dental injuries?		
Yes	65	77.3
No	6	7.1
9. Do you think your level of knowledge about oral and dental injuries is sufficient?		
Yes	3	3.5
No	72	85.7
Do not know	9	10.7
10. Would you like to participate in an educational program about what to do in oral and dental injuries?"		
Yes	60	71.4
No	11	13.09
Do not know	13	15.4

DISCUSSION

Appropriate and immediate intervention for post-traumatic injuries is critical to increase the chances of a favorable treatment outcome.⁷ For this reason, physicians should be aware of the importance of emergency treatment and have accurate and up-to-date information about traumatic dental injuries. Mouradian et al.¹³ stated that it is unethical for medical practitioners to ignore traumatic dental injuries and not provide appropriate guidance. In Türkiye, there are very few medical faculties that provide oral dental health courses to medical students. Among the faculties that provide oral health education, the number of course hours devoted to oral and dental health is quite limited because the educational curriculum is quite full. During this time, mostly general oral dental health education is given and very little emergency dentistry is mentioned.^{14,15} There are few studies evaluating the level of knowledge of medical students about dental trauma.^{8,9,16-18} This study provided basic information about the current level of knowledge of senior-year medical students about dental avulsion.

Permanent anterior teeth are essential in young patients not only for aesthetics but also for phonetic, masticatory, and psychological health.⁷ According to the guidelines of the International Association of Dental Traumatology, immediate replantation is the best and most appropriate treatment for permanent teeth that have been avulsed due to trauma.¹⁹ In the present study, only 7,1% of the participants stated that they would place the avulsed tooth in its socket and send it to the dentist immediately. In the study conducted by Eden et al.⁸ on senior-year medical faculty students in Izmir, this percentage was 45,4%, while in the study conducted by Bozathlıoğlu et al.⁹ in Istanbul, it was 23,9%. In this case, it can be concluded that the knowledge level of the students about replantation of avulsed teeth is insufficient.

If replantation of the avulsed tooth is not possible, an important step is to use the right transport medium to increase the extra-oral time to 1 hour. Transport mediums are used to maintain the viability of periodontal connective cells, increase their vitality, and prevent future damage, such as ankylosis and resorption, which can lead to tooth loss. This can be achieved by storing the tooth in a suitable medium such as milk, saliva, or saline.^{7,20,21} In the present study, 42,8% of the students stated that the tooth avulsed as a result of trauma should be carried in a sterile saline solution until reaching the dentist. Similar to our study, this percentage was 43,4% in the study by Eden et al.⁸ In the study conducted by Subhashraj et al.²² in India, 35% of young physicians stated that the avulsed tooth should be carried in saline. It can be concluded that students' knowledge about the storage conditions of avulsed teeth is inadequate.

In the study conducted by Abu-Dawoud et al.²³ in Kuwait, the majority of young physicians (83.3%) stated that they did not receive any information about what to do in case of avulsed teeth. In the present study, 95,2% of the students stated that they had no information about what to do with an avulsed tooth as a result of an accident, and 85,7% stated that their level of knowledge about oral dental injuries was insufficient. In addition, 77,3% of the students stated that they thought it was important to participate in an educational program about oral and dental injuries, and 71,4% stated that they would like to participate in an educational program about what to do with oral and dental injuries. This means that students are aware of their low level of knowledge about dental trauma and are willing to receive education about dental trauma. This is one of the findings that should be taken into consideration.

In this study, it was concluded that the knowledge of medical faculty students about dental trauma was inadequate. There are studies in the literature^{8,9} with similar results to our study. In the study conducted by Duruk et al.¹⁷

the knowledge levels of preclinical dentistry students, clinical dentistry students, medical students, and medical students who were given 1 hour of training on dental trauma about emergency management of avulsed teeth were investigated. In this study, it was concluded that medical and preclinical dentistry students lacked knowledge about emergency management of avulsed teeth, while clinical dentistry and trained medical students were very knowledgeable. This result shows the importance of education. It would be appropriate to provide more comprehensive oral and dental health information in the medical school curriculum.⁹

The International Association for Dental Trauma website (<http://www.iadt-dental-trauma.org>) has the revised 2020 version of the Guidelines for the Assessment and Management of Traumatic Dental Injuries, the free IADT ToothSOS Mobile App on emergency response to dental trauma, and flowcharts and posters on dental trauma. Posting these flowcharts or posters on dental trauma in all emergency departments and informing emergency physicians and medical trainees about the Guidelines for the Assessment and Management of Traumatic Dental Injuries and the IADT ToothSOS Mobile App would be very informative for emergency physicians and medical trainees to provide appropriate primary care for the child with dental trauma.

The aim of this study was not only to evaluate the level of education of students about dental traumas and their approach to dental traumas, but also to raise awareness of dental traumas in students and to inform students about emergency response to traumatic dental injuries. For this reason, after the completion of the questionnaire, informative documents about emergency responses to traumatic dental injuries were sent to the students.

The present study has some limitations. First, the generalizability of the study was limited by the use of data obtained from only one medical school in one university. Secondly, this study was conducted on a small number of

students. More comprehensive multicenter studies with more participants should explore ways to explore opportunities to improve dental trauma education and awareness of dental trauma among medical students. Despite these limitations, the results of the present study provide valuable information about medical students' level of knowledge about dental trauma.

CONCLUSION

In conclusion, the findings of the present study suggest that the knowledge of the final year medical faculty students about dental trauma is insufficient, therefore, it is thought that it would be appropriate to include more comprehensive oral and dental health information in the medical faculty education curriculum. In this training, interdisciplinary seminars, case presentations, and practical courses on dental trauma would be appropriate. In addition, sufficient training time should be allocated for trauma to teeth and surrounding tissues in the resident training programs of emergency medicine specialty institutions, and the quality of patient care of these patients should be improved. Students should also be informed that they can access the free IADT ToothSOS Mobile App on the International Association for Dental Trauma website (<http://www.iadt-dental-trauma.org>), which can guide them on emergency response to dental trauma when they encounter dental trauma.

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Ethical Approval

Since sources obtained from humans or animals were not used in this study, ethics committee approval was not obtained.

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Conflict of Interest

The authors declare that they have no competing interests.

Author Contributions

Design: AC, MFC Data collection and processing: AC, Analysis and interpretation: AC, MFC Literature review: AC, MFC Writing: AC.

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