

Traumatic Dental Injuries of Children in Aydın, Turkey: A Retrospective Study

Aydın'da Travmatik Dental Yaralanmalar Nedeniyle Başvuran Çocuk Hastaların Değerlendirilmesi: Retrospektif Bir Çalışma

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Abstract

Objective: The aim of this study was to evaluate the epidemiologic features of traumatic dental injuries in children who referred to Adnan Menderes University Faculty of Dentistry, Aydın, Turkey.

Materials and Methods: The study was based on the clinical data of patients with dental trauma between December 2014 and January 2016. A trauma form was created to record age and genders of the patients, the locations of traumatized teeth, and types of trauma. Differences among the age groups, genders, source of trauma and type of traumatic dental injuries were analyzed.

Results: A total of 124 patients exposed with trauma to 262 teeth (211 permanent teeth and 51 primary teeth). The highest prevalence of dental trauma was observed in the 10-year-old group (14.5%). The most common dental trauma was lateral luxation (29.4%) in primary dentition. In case of permanent dentition, the most frequent dental trauma was enamel-dentin fractures (40.5%).

Conclusion: This study shows that our epidemiological data about dental trauma is similar to that of other regions in Turkey. The public needs to be informed about traumatic dental injuries currently.

Öz

Amaç: Bu çalışmada, Adnan Menderes Üniversitesi Diş Hekimliği Fakültesi'ne dental travma ile başvuran çocuk hastaların epidemiyolojik açıdan değerlendirilmesi amaçlandı.

Gereç ve Yöntemler: Aralık 2014 ile Ocak 2016 zaman aralığında dental travma nedeniyle başvuran hastaların klinik kayıtları incelendi. Oluşturulan travma formuna hastaların yaş ve cinsiyetleri, travmadan etkilenen dişleri ve travmanın tipi kaydedildi. Yaş, cinsiyet, dental travma nedeni ve yaralanma tipleri arasındaki farklar değerlendirildi.

Bulgular: Toplamda 124 hasta, 262 diş (211 daimi diş ve 51 süt dişi) değerlendirildi. En yüksek dental travma prevalansı 10 yaş grubunda gözlemlendi (%14,5). Süt dentisinde gözlenen en yaygın travma tipinin lateral lüksasyon olduğu belirlendi (%29,4). Daimi dentisyonda ise en sık mine-dentin kırıklarının meydana geldiği tespit edildi (%40,5).

Sonuç: Bu çalışmadan elde edilen bulgular, Türkiye'nin farklı bölgelerinde dental travma epidemiyolojisini konu alan diğer çalışmalar ile benzerlik göstermektedir. Dental travmalar konusunda toplumun bilgilendirilme ihtiyacı halen bulunmaktadır.

Introduction

Traumatic dental injuries (TDI) are widespread dental public health problem among children and adolescents (1). Epidemiologic researches have indicated a high frequency of TDI in children and their efficacy on children's life quality has been reported (2-4).

The prevalence of TDI has been described to range from 6% to 58.6% (1). The great variation in declared prevalence between countries has been related to numerous factors such as type of the research, socioeconomic status, geographical and behavioral variations, age of study population, and dental trauma classification (1,5).

Although the increasing number of epidemiological studies on dental trauma in Turkey (6-16), there is limited information about prevalence of TDI and related risk factors in the west region of Turkey (17). Also, epidemiological data provides precious information to clinicians for preventive treatment plans. The aim of this study was to assess the distribution of TDI according to age and gender of patients, cause and type of trauma in Aydın, southwestern Aegean Region of Turkey.

Materials and Methods

This retrospective research was conducted after approval by the Research Ethics Committee of the Adnan Menderes University Faculty of Dentistry (approval protocol: 2017/01). It was administered by using the documentations of children, referred to Adnan Menderes University Faculty of Dentistry, Department of Pediatric Dentistry with a dental trauma during 13 months (December 2014 to January 2016). A total of 124 children's (aged 0-15 years) records were included in the study. Non-completed or incomplete trauma records were excluded.

In all examinations, the children had been examined clinically by the same pediatric dentist who had been trained and calibrated for dental injuries. Historical evidence of dental trauma was collected using a standardized dental trauma form. The type of TDI had been classified in accordance with the classification system described by Andreasen et al. (18). And throughout clinical examination, the type of TDI had been recorded on the dental trauma form. Intraoral (periapical/occlusal) and panoramic radiographs had been used to support the diagnosis. Differences among the age groups, genders, source of trauma

and type of TDI were analyzed. Data analysis included descriptive statistics. The frequency distributions and means were calculated. All data management was conducted by Microsoft Excel program (version 2016, Microsoft Corporation, Seattle, WA, USA).

Results

During the 13 months period, 124 patients presented with trauma to 262 teeth (211 permanent teeth and 51 primary teeth). The distribution of children's age is shown in Figure 1. The average of age was 9.6 ± 3.5 years old. Of the 124 children, 63 were girls (50.8%) and 61 were boys (49.2%). The highest prevalence of dental trauma was recorded in the 10-year-old group (14.5%) (Figure 1).

The number and percentages of affected permanent teeth are given in Table 1. It was seen that the maxillary right central incisor (36.5%) was the most frequently affected permanent tooth by trauma. It was followed by the maxillary left central incisor (32.7%). Table 2 summarizes the distribution of TDI for affected primary teeth. The most affected primary tooth was maxillary left and right central incisors, 29.4% and 25.5% respectively. It was observed that the maxillary dental arch was mostly affected by TDI in both primary (94.1%) and permanent dentition (86%).

It was seen that the falls (69.4%) were the most frequent cause of injury, collisions were the second most cause of TDI (24.2%). The distribution of dental trauma etiology is shown in Figure 2.

The distribution by the type of TDI is given in Table 3. The most common TDI was lateral luxation (29.4%) in primary dentition. Also, enamel-dentin fractures (40.5%) were the most frequent TDI in permanent

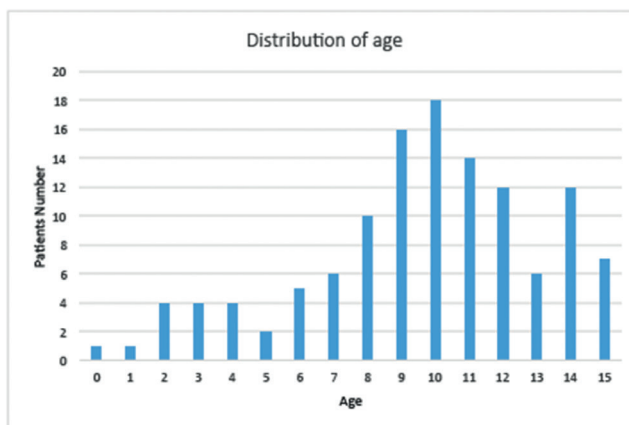


Figure 1. The distribution of patients by age

dentition. From the 124 patients, 28 were experienced with a soft tissue injury (22.5%).

Discussion

In the present study, the main purpose was to assess the type, frequency and etiology of TDI among children and adolescents in Aydın, Turkey. Since the most frequently used study method is the classification

of Andreasen et al. (18), which is also adopted by the World Health Organization, we referred to it for our study.

Table 1. The distribution of traumatic dental injuries according to the affected permanent tooth

	Maxillary tooth (n)	Percentage	Mandibular tooth (n)	Percentage
Right				
Central	77	36.5	9	4.2
Lateral	19	9	3	1.4
Canine	1	0.5	2	0.9
1 st premolar	1	0.5	1	0.5
2 nd premolar	1	0.5	1	0.5
1 st molar	1	0.5	1	0.5
Left				
Central	69	32.7	9	4.2
Lateral	7	3.3	3	1.4
Canine	-	0	2	0.9
1 st premolar	-	0	1	0.5
2 nd premolar	-	0	1	0.5
1 st molar	1	0.5	1	0.5
Total	177	84	34	16

Table 2. The distribution of traumatic dental injuries by affected primary teeth

Affected primary tooth	Maxillary tooth (n)	Percentages	Mandibular tooth (n)	Percentages
Right				
Central	13	25.5	1	2
Lateral	9	17.6	-	-
Canine	1	2	-	-
Left				
Central	15	29.4	2	3.9
Lateral	7	13.7	-	-
Canine	3	5.9	-	-
Total	48	94.1	3	5.9

Table 3. The distribution of type of traumatic dental injuries

	Primary	Percentages	Permanent	Percentages
Concussion	8	15.7	18	8.5
Subluxation	12	23.5	35	16.5
Extrusion	1	2	3	1.4
Lateral luxation	15	29.4	12	5.7
Intrusion	4	7.8	2	1
Avulsion	1	2	9	4.2
Enamel fracture	-	-	31	14.6
Enamel-dentin fracture	2	3.9	86	40.5
Enamel-dentin-pulp fracture	4	7.8	10	4.7
Crown-root fracture, without pulpal involvement	-	-	-	-
Crown-root fracture, with pulpal involvement	-	-	1	0.5
Root fracture	3	5.9	1	0.5
Alveolar fracture	1	2	3	1.4
Mandibular fracture	-	-	1	0.5
Total	51	100	212	100

Distribution of type of accidents (%)

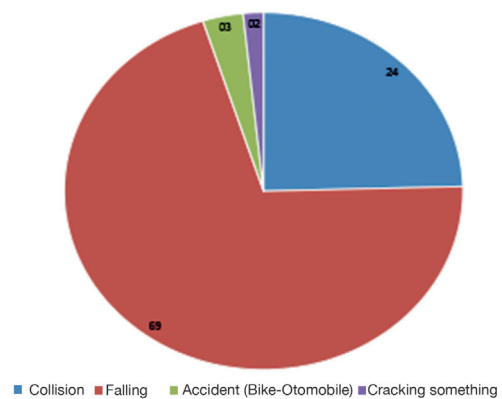


Figure 2. The distribution of type of accidents

Several of the studies reported that boys faced with trauma more common than girls (8,13-16,19). It has been thought that boys had a more tendency towards contact sports and violent behaviors (13,14,20). In disagreement with other studies, we did not obtain remarkable differences between boys and girls (11,21,22). The reason of this situation may be explained by girls showing an increased participation in sports which decreases the gender disparities (20,23).

In the present study, for both primary and permanent dentitions, most affected teeth by dental trauma were in the maxillary dental arch. In agreement with many investigations, it was found that the most common injured teeth were maxillary central incisors (1,8,11-16,20,24). This might be associated with the position of these teeth, which exposes them to direct traumatic force.

Similar to the findings of previous reports (14,25,26), most affected age group was 10-year-old. However, some studies (27,28) reported that the peak age of occurrence of dental trauma was 2-3 years old. In terms of etiology, falls were the most common cause of TDI. It was in line with several other reports (1,6,8,14).

According to our findings, the percentages of dental trauma in the permanent dentition was found to be remarkable greater than that in the primary dentition. The possible cause of this might be related to playing independently in both playground or school throughout this period (10).

In the present investigation, it was found that the lateral luxation injuries were the most common type of TDI in the primary dentition, and enamel-dentin fractures were the most frequent type of TDI in the permanent dentition. Due to the supporting tissues are more elastic in primary dentition, so periodontal injuries might be more familiar in this ages (9). As observed in many previous reports, both enamel and enamel-dentin fractures are more common than types of TDI in permanent dentition (13,16).

In this study, cases of TDI including soft tissue injuries had lower percentages (22.5%) when compared with previous studies (29,30). The reason of this might arise from that acute trauma cases tend to be referred to medical emergency departments instead of dental clinics after the trauma. Hence, when they referred to our clinic, the soft tissues might be healed (31).

Conclusion

Epidemiologic findings obtained in this study are in agreement with many studies dealing with dental trauma and might profit to clarify the complicity of dental trauma epidemiology and might eventually decrease the increasing incidence of TDI. Our work also displays that the public should be more educated on TDI.

Ethics

Ethics Committee Approval: This retrospective research was conducted after approval by the Research Ethics Committee of the Adnan Menderes University Faculty of Dentistry, (approval protocol: 2017/01).

Informed Consent: It was not taken.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: I.S., Design: I.S., B.M.A, Data Collection or Processing: B.M.A., G.D., K.G.U.G., S.K., Analysis or Interpretation: B.M.A., I.S., Literature Search: B.M.A., Writing: B.M.A., I.S., K.G.U.G.

Conflict of Interest: No conflict of interest was declared by the authors.

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