

ORIGINAL STUDY

EMERGENCY ROOM DENTAL TRAUMA

Dan-Cristian Ionel¹, Rodica Luca¹, Costinela Georgescu²

¹UMF „Carol Davila”, Bucharest, Romania

²Faculty of Medicine and Pharmacy, “Dunărea de Jos” University of Galati, Romania

dd.dani@yahoo.com

ABSTRACT

The survey follows up dentoalveolar trauma occurred in Galați region, Romania, over a 3 year period (2008-2011). The aim of this research was to evaluate the characteristics of young people trauma (1-25 years), as compared to general population tendencies. A retrospective epidemiologic study was conducted from the registry books of patients registered at the UPU-SMURD, Dental Service's emergency room at „Sf. Apostol Andrei” hospital, Galați. During this time period 17 717 patients were recorded and 326 cases (male/female ratio= 238/ 88) of dental trauma among them. The under 25 aged group suffered 38,95% of total dentoalveolar injuries with a number of 127 cases (male/ female ratio= 97/ 30). The etiology was mainly of agressive nature (fight) : 207 cases overall and 83 cases at the younger group. The city/ country side group ratio was 229/97 and 94/ 33 for the younger group (1-25 years). Indexed dental injuries were : dental luxations- 328 cases and 123 cases (1-25 years), followed by dental fractures : 292 cases and 123 cases (1-25 years). Crown fractures were more frequent: 237 cases and 116 cases (1-25 years). In 58 cases overall and 21 cases (1-25 years) other non-dentoalveolar injuries were recorded. From the present data, between the 2 population groups there were no significant statistical differences (prevalence, predilect injuries type, etiology, population patterns, time of occurrence).

KEYWORDS: dental trauma, emergency room, epidemiology.

1. Introduction

Dental traumatology is to be found among the research priorities in oral healthcare, as Dr. Poul Erik Petersen (Responsible Officer for Oral Health, WHO, Geneva) mentioned, and with special consideration to emerging countries [1]. WHO predictions, backed up by several authors, reveal the fact that childhood accidents, willingly or unwillingly, are becoming an evident problem of health systems all around the world [2-4]. Some of the possible causes could be

„improvement” of toys aramamentarium and innovative ways to play according to technological progresses. [2-7] Also we cannot neglect the improvement of living conditions for a more larger part of the worlds population each day [5] . Children have easier acces to such toys and „ways” to play, whom unfortunately are not as sure as they are innovative.

Trauma (of whatever type may be) is associated with emergency services [8]. In this type of practice, victims of different accidents should receive proper treatment. The following study upon

this principle had been conducted at UPU-SMURD, Dental Service's emergency room at „Sf. Apostol Andrei” hospital, Galati. According to National Institute for Statistics data in Galati county live 608 904 people (male/ female ratio: 299 803/ 309 101). In city regions live around 343 729 people (male/ female ratio: 165 727/ 178 002) and at the country side around 265 175 people (male/ female ratio: 134.076/ 131.099). Galati city is home for 298 000 people (male/ female ratio: 157.046/ 140.954).

2. Material and Methods

At UPU-SMURD, Dental Service's emergency room from „Sf. Apostol Andrei” hospital from Galati, over a period of 3 years (2008-2011), dentoalveolar injuries were evaluated. The elected research method was the retrospective study of the registry books. A particular research form for this type of pathology was used. Following data sets were present: name, age, gender, patient adress (city or country side), trauma's time of the day. For the characteristics and nature of dentoalveolar trauma (clinical type, associated lesions, treatment or recommendations). And as pathological diagnosis the following were recorded: hard dental tissue lesions (dental fracture (crown/ crown and root/ root fracture, fissure) and periodontal tissue lesions (subluxation, lateral luxation with I-II or II-III mobility degree, intrusion, extrusion, avulsion). The aggression etiology was mentioned at the different clinical cases. The survey evaluated general population dentoalveolar trauma tendencies compared to the characteristics encountered at young people's trauma (1-25 years). 25 year old age limit is frequently associated to young people. [9,10]

The gathered data were analyzed statistically in SPSS 17.0 for Windows (SPSS Inc., Chicago, Illinois, USA). Level of significance was set at $p < 0.05$. Graphics were realized using MS Excel and

SPSS 17.0.

3. Results and discussions

After the evaluation of the registry books a group of 17 717 patients were accounted for in the 3 years elected time period. The dentoalveolar trauma group numbered 326 patients (1,84 % of all patients, 0,05 % of total county population and 0,12% of city's population). Sex distribution was: 238 male patients (73%) and 88 female patients (27%), and for the younger group (1-25 years): 127 patients (0,71% from the total number of patients, and 38,95% of total number of trauma patients) of whom 97 were male patients (76,4%) and 30 were females (23,6%).

The service's anual adressability was the following: 06-12 /2008 = 1834 patients, 01-12/ 2009= 5821 patients, 01-12/2010 = 6902 patients, 01- 06 2011 = 3160 patients.

Compared to the entire group of patients (Male and Female), there was no statistical significance between dentoalveolar trauma in male and female patients ($p > 0,05$).

The gender distribution obtained statistical significance between males and females ($p < 0.05$) in both groups of patients. (figure 1).

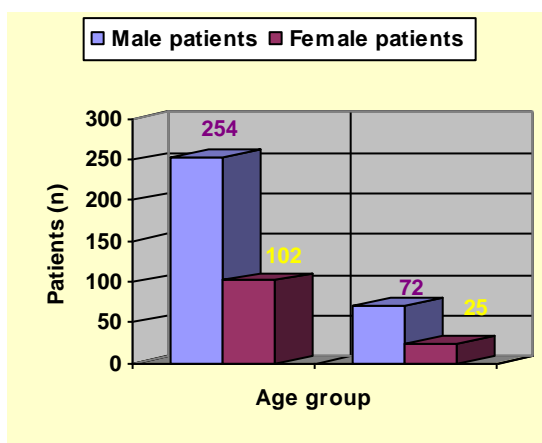


Figure 1. Age/ gender dentoalveolar trauma distribution

Residence

City/ country side ratio was: 229/97 patients (60.25/ 29.75%), and at younger age group (<25): 94/ 33 patients (74.22/ 25.78 %).

Time of day

The number of patients with dental trauma, for the different time intervals are found in Figure 2. The obtained P was lower than 0.05, so there was a statistically significant difference in both groups of patients, in between the different time intervals.

Etiology

Dentoalvolar injuries were produced either by aggression (fight) or by other trauma with the following ratio: 207/ 119 (63.5 / 36.5%), and at the under 25 age group: aggression/ trauma = 83/ 44 (65.36 / 34.64%).

Diagnoses

Data analysis revealed a total of 677 affected dentoalveolar units (DAU), respectively: 2.08 DAU/ patient diagnosed with dentoalveolar trauma

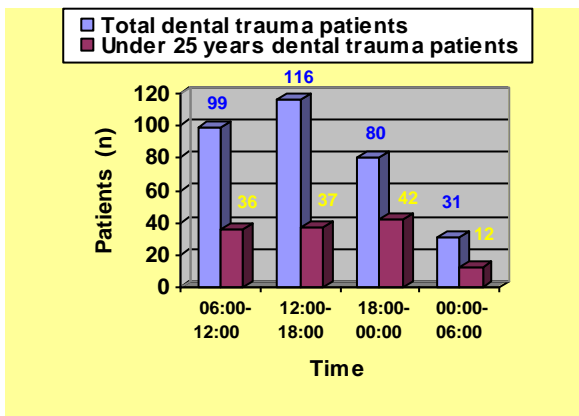


Figure 2. Time of day

(0.03 DAU/ patient presented at the dental service), and at the under 25 agegroup, total affected dentoalveolar units (DAU) equaled 271, respectively: 2.13 DAU/ patient diagnosed with dentoalveolar trauma (0.015 DAU/ patient presented at the dental service).

Distribution of various diagnoses is shown in Table I and Figures 3 and 4.

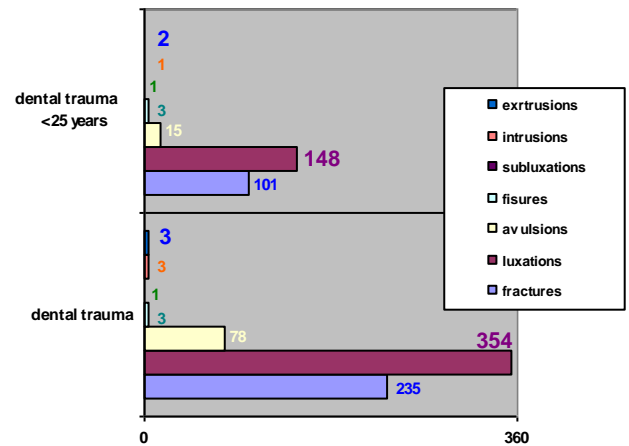


Figure 3. Other dental trauma diagnoses

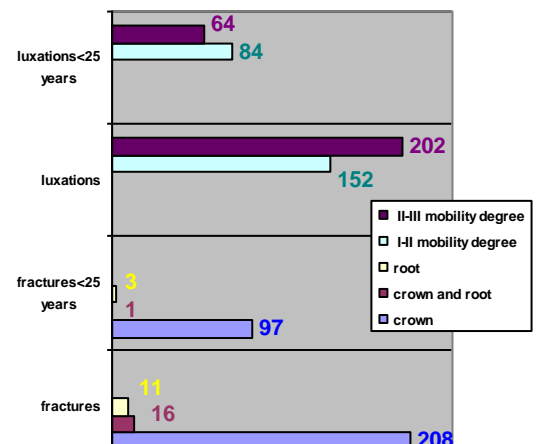


Figure 4. Frequent dental trauma diagnoses

Between the dental fractures and dental luxations (the most frequent lesions) there was a significant statistical difference.(p<0.05)

Male patients were more likely to suffer dentoalveolar trauma-73% for the entire group, and 76% for the age group below 25 years (ratio Male/ Female: 4/1). This percentage is in accordance (less increased compared to other studies) [11] with other data in the literature [8,12-16], for both young people (less than 25 years) as well as the entire group of patients. There were mentioned some contrary data

with the risk of higher dentoalveolar trauma to female groups [17] .

Table I. Diagnoses distribution

	Whole group(n)	Whole group (%)	<25 years group(%)	<25 years group (n)
Fractures	235	34,71	37,26	101
Luxations	354	52,28	54,62	148
Fisures	3	0,44	1,1	3
Avulsions	78	11,52	5,53	15
Subluxations	1	0,14	0,39	1
Intrusions	3	0,44	0,37	1
Extrusions	3	0,44	0,74	2
Total	677	100	100	271

Table II. Frequent dental trauma injuries

Diagnosis Group	Luxations (n)	Fractures (n)	Avulsions (n)
Whole group	354	235	78
Youth (1-25 ani)	148	101	15

Predominance of male patients may be correlated with the predominance of aggression (~ 70%) (male behavior pattern inclined to violence) and their involvement in sports or other activities that pose a potential risk of dentoalveolar trauma [6] .

Distribution of the affected teeth by dentoalveolar trauma over a 24 hours period was different at the general trend compared to the young group trend. Young population (1-25 years) peaked in between the hours 6:00 p.m. and 0:00, while the entire group peak was reached between the hours 12:00 and 6:00 p.m. For young people a similar distribution was recorded previously [18].

Aggression was documented as the main etiology of affected teeth by dentoalveolar trauma. The proportion of this etiology ($\approx 2:1$ in both groups) cannot be found in other studies [19-22].

Number of dentoalveolar units affected per patient was 2.08 for the whole group and 2.13 in younger patients group, slightly higher values were previously obtained (between 1 and 2) [2,11].

Most significant diagnoses (Table II) were partial luxation and tooth fractures (especially crown fractures for both groups). Distribution of dental fractures in both groups evaluated and inter-group fall into the pattern of previously recorded results [6,

11,16,23,24]. The dental luxation distribution between the 2 groups reveals a mirror image of the clinical forms (the young group: luxation with mobility degree I-II \approx 57%, and the whole group: luxation with mobility degree II-III \approx 57%). The frequency of the different diagnoses (Table I) differ from the results of other studies [25, 26].

4. Conclusions

The obtained data revealed the predominance of men dentoalveolar injuries with roughly equal proportions of patients for the entire group and those aged under 25 years. This distribution is correlated with the predominance of aggression as the primary etiology for the occurrence of dentoalveolar trauma.

Young people frequently suffered dental trauma from 18:00 to 00:00 hours, and the whole population group, between 12:00 - 18:00 hours.

Most common diagnosis were dental fractures (predominantly crown fractures) and tooth luxation, with similar values (Table I) for both age groups.

It is necessary to implement a health program in order to improve working conditions and proper equipment acquisition for the evaluated dental service, thus creating the premises to intervene and treat these type of injuries at the most appropriate time.

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