



Prevalence of Traumatic Dental Injuries to Permanent Anterior Teeth among 8-12 Years Old School Children

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Abstract

The aim of the study is to identify the prevalence of traumatic dental injuries to permanent anterior teeth among 8-12 years old school children. The objective of the study is to identify the prevalence of traumatic dental injuries to permanent anterior teeth among 8-12 years old school children through clinical examination. Traumatic dental injuries often occur in accidents or sports related injuries. They are most common during childhood. Chipped teeth are the most common traumatic dental injuries where dislodged or knocked out teeth are less frequent but more severe injuries. Treatment generally depends on type, location and severity of injury. Children of age 8-12 years were examined and if there are any traumatic dental injuries they are recorded and finally statistics is done to assess the prevalence rate. Since very less attention has been paid to traumatic dental injuries, assessing their prevalence rate have become essential.

Article Info

Accepted: 25 January 2017

Available Online: 20 February 2017

Keywords

Anterior teeth, malocclusion, over jet, prevalence, trauma.

Introduction

Traumatic dental injury (TDI) is a serious problem affecting young children and by time, its incidence will exceed that of dental caries. Dental trauma affects the different layers of the tooth structure depending on the force of trauma, and it might be followed by pulpal hyperemia, congestion and alteration in the blood flow of the pulp which is sufficient to initiate irreversible degenerative changes that may lead to pulpal necrosis. In addition, the apical vessels may be damaged enough to interfere with reparative process. On the other hand, traumatic dental injuries may be serious enough to cause maxillary and mandibular fractures (Amandeep). They occur commonly and affect approximately 20-30% of the

permanent dentition worldwide that often lead to functional, aesthetic and psychological disturbances as well as significant child, parents, and dentists concerns (Bourguignon *et al.*, 2009).

Traumatic dental injuries can be highly challenging to be treated, because clinicians often rely on dentists to treat them. However, many clinicians work in a community-based environment where there is no dentist on call for emergencies. Treatment of traumatic dental injuries depends on many factors such as type of tooth involved (primary or permanent), nature of the injury, length of time from injury to treatment, how the tooth was cared for after the injury and some patient's factors such as age and medical fitness of the patient. The aim of the study is

to identify the prevalence of traumatic dental injuries to permanent anterior teeth among 8-12 years old school children.

Materials and Methods

This study was conducted among 100 children aged between 8-12 years, Scheduling of survey was done by sending a prior letter of notification regarding the date and time of examination of school children. Necessary

permission was obtained. Selection was done by simple random sampling. Ellis classification was used for recording injuries.

Data was obtained concerning the prevalence of dental traumatic injuries, age, gender, type of fractured teeth, occlusal relationship, terminal plane relationship and angles molar relationship (Tables 1–5).

Table.1 Number of children involved in this study

NO.OF.CHILDREN	100
8 years	19 children
9 years	21 children
10 years	24 children
11 years	23 children
12 years	13 children

Table.2 Gender

MALES	46 children
FEMALES	54 children

Table.3 Molar relation

CLASS 1	84 children
CLASS 2	15 children
CLASS 3	1 child

Table.4 Percentage of students with history of trauma

HISTORY OF TRAUMA	MALES	FEMALES
YES	2	2
NO	44	52

Table.5 Data concerning the prevalence of dental traumatic injuries

AGE	GENDER	MOLAR RELATION	OVERJET	TOOTH FRACTURE	TYPE OF FRACTURE
9 years	Female	Class 1	1 mm	11	Class 1
10 years	Female	Class 1	1.5 mm	11	Class 1
11 years	Male	Class 1	1.5 mm	21	Class 1
12 years	Male	Class 1	1 mm	22	Class 1

Fig.1 Prevalence of traumatic dental injuries among genders in this study

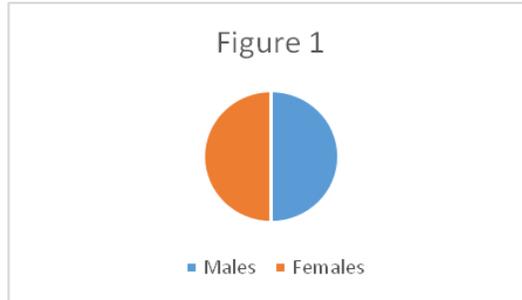


Fig.2 Molar relation among children in this study



Fig.3 Commonly affected teeth in traumatic injuries in this study

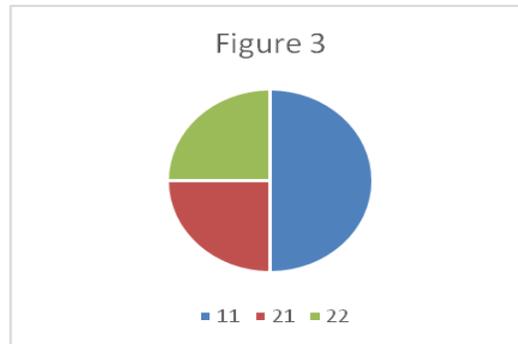
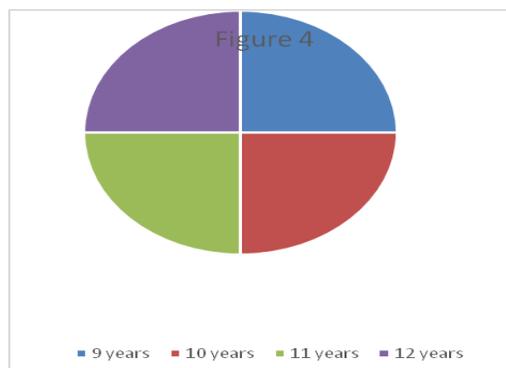


Fig.4 Prevalence of dental traumatic injuries among different age groups in this study



Results and Discussion

The total number of the examined students in this sample was 100.46 boys and 54 girls. The study showed that boys and girls had equal percentage of trauma 50% and 50% respectively.

The most common type of tooth injury in both genders was studied. Tooth fracture where tooth fracture was found to be higher.

The current study is a school-based study, to determine the prevalence and common types of traumatic dental injury in the anterior teeth, for a sample of school children in Chennai, the prevalence of dental trauma was reported as same (50%) among genders.

This study was conducted among children between age groups 8 years-12 years where all age groups are equally affected with traumatic dental injury (figure 4). This finding is in agreement with those described in the majority of epidemiological studies, which report a peak age for traumatic dental injury between nine and 12 years (O'Mullane, 1972; Jamani *et al.*, 1991).

In most of the previous studies, males had higher prevalence of traumatic dental injuries than females (Baghdady *et al.*, 1981). In contrast, the present result showed that both genders had similar incidence of traumatic dental injuries (figure 1). On the other hand, there was no significant difference of traumatic dental injuries between boys and girls in the study carried out in Damascus, Syria (Marcenes *et al.*, 1999). This may be due to the small size of the study sample and difference in the age group.

In this study Maxillary anterior teeth are most commonly affected, two children had fracture in 11 and only child had fracture in 21 and 22 (figure 3). 11 is more commonly affected when compared 21 and 22, which is similar to that of several studies.

In the current study, the most common type of tooth injury was found to be tooth fracture. The same result was obtained by Zerman N and Cavarelli G among the population of Italy. Also, a study carried out among 12 years old school children of South India found out that the most common type of tooth injury was uncomplicated crown fracture (Zerman, 1993). Same results were obtained in previous studies and surveys. (Altay *et al.*, 2001; Traebert *et al.*, 2006; Lin *et al.*, 2008) However, luxation and complicated crown fracture was

reported to be the most common cause of traumatic dental injuries in a study carried out in Saudi Arabia.

This variation in the prevalence of traumatic dental injuries can be partially attributed to the difference in the study age group, the size of study sample and populations. As well as the methods for appraise the tooth fracture.

Cases with class 1 molar relation without any malocclusion exhibited lot of traumatic injuries in this study (figure 2) where some other studies proves that children who sustained accidental damage to their maxillary incisors had increased overjet and incompetent lips at rest which is present usually in the case of class 1 division 2 and class 2 division 1.

In this study all the children have overjet less than 5 mm (<5mm). Some studies show that subjects with increased overjet have high prevalence of dental injuries due to reduced incisor protection through lip incompetence. Therefore, the treatment of increased overjet is a necessary preventive measure for avoiding traumatic dental injuries.

Conclusion

Traumatic dental injuries seem to be serious dental public problems among school children. Accordingly, there is a great need to carry out more comprehensive studies for a larger sample size in different areas and among different age groups in order to acquire a more comprehensive representation of the dental trauma and associated risks factors and to raise the dental awareness among the students and parents.

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How to cite this article:

Muthu Laakshmi Ganesh and Mahesh. 2017. Prevalence of Traumatic Dental Injuries to Permanent Anterior Teeth among 8-12 Years Old School Children. *Int.J.Curr.Res.Aca.Rev.* 5 (2), 29-33.

doi: <http://dx.doi.org/10.20546/ijcrar.2017.502.004>