



Assessment of knowledge and management of dentofacial traumatic injuries among Zanjan medical interns students (2021-2022)

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ABSTRACT

Background and Aims: Maxillofacial traumas are common injuries caused by accidents and occurrences such as falls or injuries. In this study, we examined the knowledge and practice of medical interns in this field, due to the fact that after the accident general physicians and medical interns are the first line of treatment.

Materials and Methods: A two-part questionnaire was prepared including knowledge and practice that presents different scenarios of trauma emergencies. Questionnaires were distributed among medical interns. A total of 152 questionnaires were received and the data was analysed, statistically.

Results: The results obtained from this study showed that the level of dependent parameters, i.e. knowledge and practice of participants did not have a significant relationship with independent variables, i.e. age, gender and the duration of internship expressed as months past. On the other hand, it was found that there is a low level of knowledge and poor practice (mean score of 22.2 and 55.5, respectively) among medical interns.

Conclusion: A focused training program is highly recommended and workshop sessions should be held to elevate the level of awareness and practice regarding dental trauma among medical interns.

Keywords: Awareness; Practice; Trauma; Tooth; Mouth.

Introduction

Orofacial traumas include a wide range of clinical manifestations of dental trauma, pain, bleeding, postoperative complications, and infection [1]. Orofacial traumas are also the most serious problems, especially among children and teenagers, because this problem causes serious consequences associated with aesthetics and physiology of patients and even economic problems [2,3]. Traumatic dental injuries (TDI) are the most com-

mon injuries with the prevalence, varying between 3.9 and 58.6%, worldwide. There are two main types of TDI; soft and hard tissue injuries; that include teeth, alveolar and surrounding facial bones [4]. In another type of TDI soft tissues are affected including lips, facial skin, cheek mucosa, periodontium, both soft and hard palate tissues and tongue [5,6]. Traumatic dental injuries can have many serious consequences for the injured person, family and

community [7,8]. Toothache not only reduces a person's quality of life in terms of physical disability, but also causes emotional distress, psychosocial problems, and economic and functional problems in a variety of life activities [9]. Tooth trauma injuries occur in pre-school children, school children, and adolescents majorly, which constitutes only five percent of the total injuries that people seek treatment for [4,10,11]. A study, conducted for over 12 years, reported that 25% of all school children had dental injuries and 33% of adults had permanent tooth injuries, with most TDIs occurring before the age of 19 [5]. Children are more prone to TDI due to physical and behavioural factors [11,12]. Notably, approximately one in three children is in TDI danger and to be exact, prevalence of TDI in children under 6 years of age varies between 11 and 30% [13,14].

The core problem is that TDI usually occurs suddenly, rapidly, and unexpectedly [4], making many patients with no dental insurance and vulnerable populations, to go to a hospital Emergency Centre (EC) [15,16][17,18]. Due to providing 24-hour services, Emergency Centres are the first line of exposure to orofacial traumas [12]. The concept of triage, a term used in military medicine, refers to the provision of rapid, efficient, and high-quality care delivered by the EC [1]. 0.3-4 percent of patients with orofacial problems refer to EC [17,19]. Balfour et al reported that about one-third of admissions of EC were due to trauma injuries, which accounted for 12% of admissions in the United States and approximately 8% in the United Kingdom [20]. TDIs are not treated properly often by a physician or sometimes even by a dentist, which can lead to costly treatment or complicated dental procedures in the future [19,21]. Therefore, to improve TDI prognosis, its treatment not only requires immediate diagnosis, but also must be properly managed by primary care providers (PCP) [22,23]. There is a considerable amount of literature on difficulty in diagnosing TDI, properly by physicians [18]. EC consists of Primary care Providers (including family physicians, paediatric specialists, nurses, dentist's assistances, residents and emergency physicians) who have a key role in delivering proper care after TDI, especially to populations with limited access to dental care [24].

Materials and Methods

The aim of this cross-sectional descriptive study was to determine the level of knowledge of Zanjan medical interns about orofacial traumas. Before collecting data the validity and reliability of the questionnaire were

determined and confirmed using the content validity index and reliability under supervision of esteemed professor of the Department of Surgery, Zanjan Dental School, Dr. Masoumeh Amani. It was decided that the best procedure to achieve aforementioned goal is to be peer-reviewed by 15 experts to assess content and research's objective relativity. After collecting and evaluating the opinions, the validity and reliability coefficient of the whole questionnaire were obtained. The questionnaire consisted of three parts, the first part consisted of demographic questions and the number of months spent in internship and participating in orofacial workshops. The second part included awareness questions and the third part was about practice. Sample size was selected based on the census method, which included interns who were studying in 1400 and 1401 (161 interns).

Interns were divided into 4 groups based on time spent in internship; the first, second, third and the fourth 6 months. Knowledge and practice answers were scored based on 4 classified levels; very low (0% to 25%), low (25% to 50%), high (50% to 75%) and very high (75% to 100%). Mean, standard deviation, standard deviation, frequency, frequency percentage and graphs were used to analyse data. To evaluate the normality of the data, Shapiro-wilk's test was used and due to the lack of normality, non-parametric methods were used further. To compare the mean score of the studied parameters with the mean score of the questionnaire, one-sample t-test/non-parametric equivalent was used and to compare knowledge and practice between sexual groups and training history and internship duration, mean comparison tests were performed. The above analyses were performed in SPSS software at 95% confidence level.

Results

The results of evaluating orofacial trauma knowledge and practice of medical interns who were studying at Zanjan University of Medical Sciences in 1400 and 1401 were as follows:

In the present study, 161 people of medical interns were evaluated in terms of knowledge and practice. Considering absent participants at the time of questionnaire distribution or inaccurate completion of the questionnaire, 9 were excluded from the study and 152 interns remained in the study. None of the 152 interns participated in any orofacial trauma workshops. According to Table 1. Regarding the correlation coefficient, it can be noted that, no significant relationship

was established between the level of knowledge and practice with age, gender and internship duration. The value of correlation coefficient between knowledge and practice scores, was 0.277 (p=0.01).

The average knowledge and practice score was 22.22 (mid-quarter range: 44.4, 11.1) and 55.5 (mid-quarter range: 66.66, 44.44), respectively. The majority of participants had very low knowledge levels of orofacial traumas and almost none of them had desirable awareness. However, most of the practical questions' answers were in the second and third quarters. There was no significant difference between male and female interns regarding the studied parameter, i.e. knowledge and

practice. (Figure 1. and Figure 2.). Only 44% of interns knew the correct number of permanent and deciduous teeth, which is one of the primary dental information. This number was about 30% in terms of recognizing maxillofacial trauma injuries and only 8% in terms of trauma management. This was also evident for all types of fractures. About 40% of the interns answered questions correctly regarding the method of diagnosis and diagnostic devices. In the case of intrusion traumatic displacement, the lack of recognition was about 80%. Four out of ten practical questions were related to the extracted teeth and the average score of these 4 questions was 50.95.

Table 1. Correlation coefficient between age and level of knowledge and practice of medical interns.

| Age | Gender | Month | Management | Kowknowledge | | |
|-------|--------|-------|------------|--------------|---------------------|--------------|
| -.041 | .001 | .077 | .277** | 1 | Pearson Correlation | |
| .619 | .990 | .353 | .001 | | Sig. (2-tailed) | Kowknowledge |
| 147 | 147 | 147 | 144 | 147 | N | |
| .019 | -.070 | .050 | 1 | .277** | Pearson Correlation | |
| .816 | .397 | .545 | | .001 | Sig. (2-tailed) | Management |
| 149 | 149 | 149 | 149 | 144 | N | |
| .064 | .068 | 1 | .050 | .077 | Pearson Correlation | |
| .431 | .404 | | .545 | .353 | Sig. (2-tailed) | Month |
| 152 | 152 | 152 | 149 | 147 | N | |
| .059 | 1 | .068 | -.070 | -.001 | Pearson Correlation | |
| .471 | | .404 | .397 | .990 | Sig. (2-tailed) | Gender |
| 152 | 152 | 152 | 149 | 147 | N | |
| 1 | .059 | .064 | .019 | -.041 | Pearson Correlation | |
| | .471 | .431 | .816 | .619 | Sig. (2-tailed) | Age |
| 152 | 152 | 152 | 149 | 147 | N | |

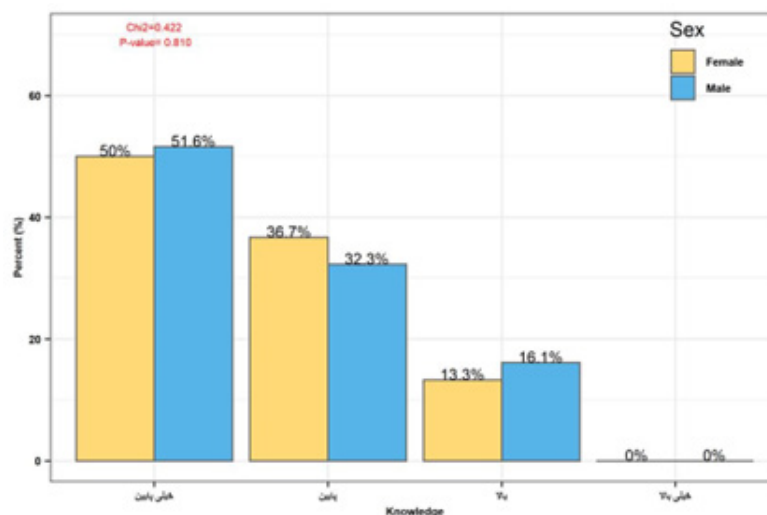


Figure 1. Comparison of participants' knowledge based on gender.

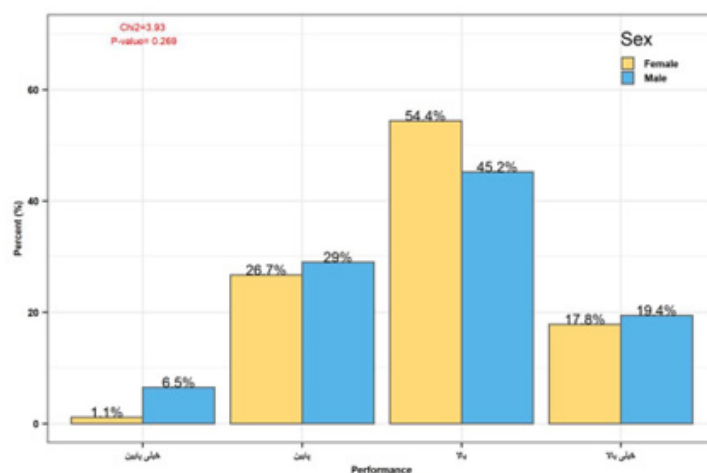


Figure 2. Comparison of participants' practice based on gender.

Discussion

Proper management of TDIs is one of the most important orofacial emergencies that can significantly reduce the stress and anxiety of physicians and patients [25]. It is important to note that accurate and immediate post-traumatic management protocols in the emergency department improve short-term and long-term prognosis of damaged teeth [26]. Due to the fact that Zanjan is one of the main centers for admission of traumatic patients from the city and its suburbs, main hospitals of this city, namely Ayatollah Mousavi and Hazrat Valiasr centers are in the first line of interference. Therefore the medical interns of these educational-medical centers, encounter oromaxillary trauma cases frequently. They are with patients with maxillofacial trauma. Therefore, the aim of this study was to evaluate the knowledge and practice of medical interns in the field of maxillofacial trauma in terms of diagnosis and treatment.

There was no correlation between the number of months spent in internship and the average knowledge of trauma management. This is mainly due to the lack of training programs on the proper management of orofacial trauma during internship. However, according to the surveys, none of the 152 participants had participated in these courses previously. There was also no statistically significant correlation between different gender or age groups and knowledge level. This could be due to the fact that the participants were active in a therapeutic and educational environment regardless of gender. Lack of significance of the studied parameters with the age of the participants is also attributed to the lack of training courses, similar to the internship duration. Comparison of the results of the present study with previous studies showed consistency and contra-

dictions. For example, in a study conducted by Akhlaqi et al. In Tehran, it was found that higher dental practice due to frequency if practice and the presence of participants in training courses have a statistically significant effect on participants' knowledge because it increases the awareness of medical interns in case exposure to dental traumas [27]. However, data from another study conducted by Eliassy et al. In the UAE showed that pediatric dentistry is an influential factor in the knowledge of emergency management of dental emergencies [28]. This confirms previous findings in the study conducted by Kostopoulou and Duggal et al. in the United Kingdom [29]. Conversely, Hamilton et al. found an inverse relationship between knowledge level and physician age. In contradiction with earlier findings, we believed that age of the physician and the knowledge correlate inversely [30].

Examining the answers to the questionnaire questions, it can be found that only 44% of those surveyed knew about the correct number of permanent and deciduous teeth, which is one of the basic dental information. Of the 82 subjects who completed the questionnaire, 30% and 8% answered correctly in terms of diagnosing maxillofacial trauma injuries and management, respectively. This was also true in case of all types of fractures. When participants were asked about the method of diagnosis and diagnostic devices, about 40% of the interns answered correctly. To sum up our results states a need for education and knowledge about intrusion displacement injuries (about 80% of cases unrecognized). In response to practical questions, those surveyed indicated that interns did not perform well initially, and in practice section no consistency was observed. As proposed by numerous previous studies, the evidence we found points to insufficient knowledge and practice of dental trauma among

physicians, dentists, and medical interns to manage dental injury [31-33]. Also, a study conducted by A. Coşkun et al. In 2021 showed that there is a lack of information about dental trauma for emergency medical physicians and nurses [35]. In addition, another study by S. Wolfer et al., Conducted in Germany in 2021, reported that knowledge and skills in managing dental trauma were lacking among German emergency physicians, and that targeted training courses were needed to ensure early treatment and Adequate TDI is essential to reduce the resulting medical and social costs [36]. In another study conducted in 2021 by Osman Atas et al., The level of knowledge and attitudes of pediatricians about traumatic dental injuries in 141 A pediatrician and pediatrician assistant working in public universities or hospitals were examined and it was concluded that the knowledge of pediatricians about dental trauma was insufficient [37].

Four out of 10 practical questions were related to avulsed teeth. This type of trauma is one of the most common TDIs [34], which accounts for about 16% of all TDIs [22]. In a study conducted by Ulusoy et al. In Turkey, a questionnaire was distributed among 69 physicians in order to assess the knowledge and practice of physicians in case of ovalgenic dental trauma. The results showed that 78.3% of the participants needed more training in this field [32]. This lends support to the findings of our study, great care must to be taken to educate more than 50% of interns in oromaxillary emergency knowledge and management.

Conclusion

We have obtained comprehensive results demonstrating that medical interns had a low level of knowledge in various cases about TDI management. Taken together these findings highlight benefits and importance of a focused training program to increase awareness and thus improve the practice of emergency interns to provide health care services to patients.

Conflict of Interest

There is no conflict of interest to declare.

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