

EVALUATION OF KNOWLEDGE- ATTITUDE- PRACTICE (KAP) OF INTERN DENTISTS IN EMERGENCY MANAGEMENT OF TRAUMATIC DENTAL INJURIES IN PERMANENT ANTERIOR TEETH (A CROSS-SECTIONAL STUDY)

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ABSTRACT

Background: This cross sectional study aimed to evaluate Egyptian intern dentist's knowledge, Attitude and Practice in emergency management of traumatic dental injuries in permanent anterior teeth.

Materials and Methods: A four-part questionnaire was distributed among 500 intern dentists. Part 1 consisted of 8 questions focusing on personal and professional information, part 2 consisted of 3 close-ended questions and the 4th question was a case which included 9 close-ended questions related to the case, Part 3 consisted of 9 close-ended questions to assess the attitude of intern dentists, and part 4 consisted of 4 close-ended questions related to assessment of practice of intern dentists regarding traumatic dental injuries in permanent anterior teeth in children .The data were analyzed using the t-test at P < 0.05 level of confidence.

Results: A total of 500 intern dentists participated in the survey, 235 (47%) were males and 265 (53%) were females. The overall mean age was 23.6 ± 1.3 years. The mean value of knowledge scores was 4.37 ± 1.45 . There was no statistically significant correlation between knowledge score of intern dentist and ability to provide proper action when needed.

Conclusion: The knowledge of intern dentists regarding the management of traumatic dental injuries in permanent anterior teeth was inadequate.

KEYWORDS: Traumatic dental injuries, Dental trauma, Dental emergency, permanent anterior teeth, young immature permanent teeth

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INTRODUCTION

Traumatic dental injuries (TDIs) in children and adolescents are a common problem. Patients suffering from TDIs are affected both physically and psychologically (*Çinar et al., 2013*). In permanent teeth, there are many variations in the types of injuries according to type and severity of the trauma. Trauma can affect both soft and hard tissues, it also affects the pulp, periodontal ligament, and gingiva and may lead to pathological root resorption or incomplete root formation (*Niviethitha et al., 2018*).

The dentist's knowledge regarding TDIs leading to avulsion is critical for the prognosis of traumatized teeth as it occurs when the dentists are least prepared. Thus, a prompt and standard management of TDIs can improve the case prognosis as well as reduce stress and anxiety in patients, their parents, and the dentist concerned (*Mustafa Ali et al., 2019*). Therefore, it is of prime importance for the general practitioners to have well-grounded knowledge about the various presentations of dental traumatic injuries, the clinical techniques to diagnose it and proper management of such conditions (*Nandakumar & Nasim, 2017*). The experience level of the dental interns was based on educational programs, previous knowledge, experience, and the months of internship period (*Limbu et al., 2014*).

This study assessed the level of knowledge gap regarding knowledge, attitude and practice of management of dental traumatic injuries in permanent teeth among intern dentists.

MATERIALS AND METHODS

Five hundred intern dentists were randomly selected from two universities, Faculty of Dentistry-Cairo University and Modern Science and Arts (MSA) University. The subjects were asked to fill out a self-administered questionnaire. The questionnaires were collected over an 8 month period starting from July 2018 till February 2019.

The data was collected by means of a structured questionnaire, which was modified from those used in previous studies by *Raouf et al., 2012* and *Cinar et al., 2013*. The questionnaire was formed of 4 parts. **Part 1** included 8 questions focusing on personal and professional information like age, gender, year and university of graduation, and their previous training experiences, background knowledge and if their education was enough to deal with traumatic dental injuries or not. **Part 2** consisted of 3 close-ended questions (multiple choice) and the 4th question was a case of avulsion which included 9 close-ended questions related emergency management of avulsion, time required to seek professional help and storage media. **Part 3** consisted of 9 close-ended questions to assess the attitude of intern dentists, and finally **Part 4** questions were related to assessment of practice of intern dentists regarding traumatic dental injuries in permanent anterior teeth in children.

The data was analyzed using statistical analysis software SPSS version 20. The Student's t-test and one-way ANOVA were used to compare the knowledge of intern dentists about different aspects of traumatic events. The difference between male and female intern dentists was assessed by student's t-test. P value <0.05 which was considered significant.

RESULTS

500 questionnaires were completed and returned by 265 females and 235 males with mean age of the intern dentist 23.6 ± 1.3 years old (22-27 age range). 258 (52%) intern dentists who had graduated from Cairo University, and 242 (48%) intern dentists who had graduated from MSA University, Most of the interns graduated in 2018 (79.9%), while few of them graduated in 2017 (19.6%), and only five interns graduated in 2016 (1%). Participants' knowledge about the clinical management of traumatic dental injuries and the mean knowledge

score (Part II) are summarized in **Table 1, Figures (1 & 2)**. Regarding Attitude and practice of participants (Part III & IV), 490 (98%) intern dentists agreed that time consciousness for management of dental trauma could play vital role in improving the prognosis, 403 (82%) intern dentists claimed they hadn't attempted to manage an emergency case of traumatic dental injuries before.

The total mean knowledge score was 4.37 ± 1.45 . There was a high statistically significant correlation

between knowledge score and University of graduation ($P=0.055$). There was no statistically significant correlation between knowledge score and previous training of interns as dental assistants in clinics ($P=0.847$). The relationship between ability to provide proper action when needed and knowledge score was insignificant ($P=0.788$). The need for future education regarding dental trauma had insignificant effect on the knowledge score as well ($P=0.979$).

TABLE (1) The part in the questionnaire focusing on the knowledge of intern dentists on traumatic dental injuries and frequency (%) of the answers

Questions	Answers	Frequency (%)
If an immature permanent maxillary tooth has been intruded, the tooth should be?	Left for spontaneous re-eruption	303 (61%)
	Repositioned orthodontically	122 (25%)
	Repositioned surgically	36 (7%)
	Extracted immediately	16 (3%)
	Don't know	22 (4%)
If you decide to replant the tooth back in its socket in case of avulsed tooth, but it has fallen onto the ground and was covered with dirt, what would you do?	Scrub the tooth gently with a tooth brush	57 (11%)
	Rinse the tooth under tap water	333 (67%)
	Put the tooth straight back into the socket without doing anything	13 (3%)
	Others (antiseptic/ alcohol)	68 (14%)
	Don't know	27 (5%)
Knowledge score	1	1 (0.2%)
	12	5 (1%)

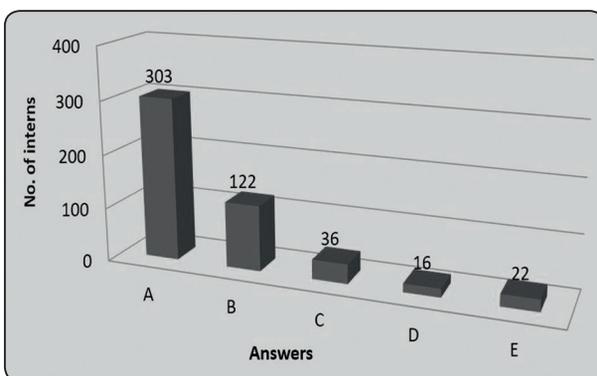


Fig. (1) Column chart regarding treatment of choice for anterior maxillary permanent tooth intrusion in the study sample

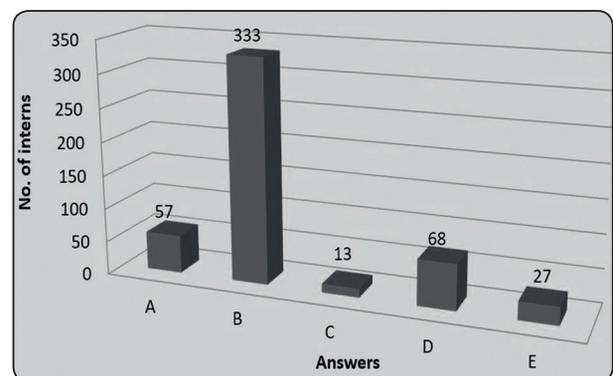


Fig. (2) Column chart regarding the immediate action taken if the tooth intended for re-implantation fell in dirt in the case

DISCUSSION

The results in the present study showed that (64%) intern dentists had previous training as dental assistants in clinics, (47%) intern dentists thought they had enough knowledge in dental emergency management, *S Limbu et al., 2014, Al-Shamiri et al., 2015, and Hartmann et al., 2019* studies showed higher percentage (95%, 65%, and 61% respectively). This difference in findings may be due to the fact that most of the dental interns had attended an educational program regarding traumatic injuries. Also (95%) intern dentists thought they needed future education regarding dental emergency management, while (67%) intern dentists thought they were able to provide proper action when needed.

According to the results in this study (24%) intern dentists agreed that pulpotomy is the treatment of choice for a large pulp exposure of an immature permanent tooth after more than 24 hours of trauma. This result showed that the knowledge of intern dentists was inadequate when compared to the results in the study by *Akhlaghi et al., 2014* where the results of that study suggested that dentists' knowledge was acceptable regarding the treatment of this emergency. This is due to the lack of exposure to TDIs clinical cases and lack of guidance and practice.

As regards to this study (77%) intern dentists agreed that the time required to seek professional help of an avulsed permanent tooth was within the first 30 minutes, this result was similar to findings in other studies *Cohenca et al., 2006* and *Zhao & Gong, 2010* where immediate replantation was chosen by the majority of dental practitioners due to the knowledge gained from undergraduate programs and the information available on the internet as well as the high awareness level. Also (53%) intern dentists agreed that the 8 year old boy with avulsed upper front permanent tooth should be

admitted to a dental hospital after first contact, and this agreed with the Guidelines for the management of traumatic dental injuries of permanent teeth by *Andersson et al., 2018*.

The knowledge regarding cleaning the avulsed permanent tooth, (67%) intern dentists chose to rinse the tooth gently under running tap water without scrubbing and putting it back into socket. This result agreed with a study by *Limbu et al., 2014*, but better than study by *Fujita et al., 2014* in which (55.4%) students answered correctly. Difference in the results may be related to the prior knowledge of the interns about management of avulsed teeth, and attendance of educational programs regarding traumatic dental injuries to teeth. While the general knowledge of intern dentists regarding storage medium of the avulsed permanent tooth was perfect where 96% of them chose milk or saliva as storage media. Which suggests that the intern dentists had adequate knowledge regarding the appropriate storage media. That study had better results than a previous study by *Alaslami et al., 2018* where (60%) of the general dentist participants preferred milk or saliva as storage media, indicating that they knew milk and saliva were the most practical transport mediums for the storage of avulsed teeth because PH and osmolality of them were similar to those of extracellular fluid. The high awareness level of storage media was attributed to the knowledge gained from the undergraduate curriculum.

Majority of the intern dentists (98%) agreed that time is important for the prognosis of the traumatized tooth, and regarding the management of TDI's (93%) intern dentists believed that they required special education and training. Moreover (96%) intern dentists agreed that management of dental trauma must become one of the educational priorities for intern dentists and must be included as part of their teaching curriculum to improve their knowledge, (95%) intern dentists were interested in

attending an educational program on dental trauma management.

Regarding the assessment of practice concerning TDI's, (82%) intern dentists reported that they hadn't previously attempted to manage emergency cases of TDIs. This result came in agreement with a previous study by *Akhlaghi et al., 2014* where the majority of participants declared that they rarely encountered traumatic events in their daily practice, which was consistent with the results of other studies *Garcia et al., 2000 & Krastl et al., 2009* indicating that TDIs occurred infrequently and at occasions when practitioners were not prepared for their appropriate management. The most common cases the intern dentists attempted to manage were luxation cases (36%). (59%) intern dentists wrote that they would attempt to replant an avulsed tooth. This result came in agreement with a study by *Fujita et al., 2014* who showed that (60.3%) dental students would attempt to replant an avulsed tooth. However, the results contradicted the results of *Melo & Couto, 2016* who reported that (81.31%) of graduated dental students never treated an avulsed case.

In case of replantation of an avulsed tooth, (65%) intern dentists stated they would prescribe antibiotics, this result was in contrast to results of a previous study by *Cinar et al., 2013*, where nearly all dentists (94.8%) prescribed antibiotics in cases of avulsion injuries. Regarding the type of splint preferred, (52%) intern dentists stated they would use stainless-steel wire in splinting of avulsed teeth, that result agreed with a previous study by *Limbu et al., 2014* where (46%) intern dentists correctly answered that a flexible splint should be used after replantation of an avulsed permanent tooth to allow physiologic movement of the tooth during healing.

In the present study there was a high statistically significant correlation between knowledge score and University of graduation ($P \leq 0.000$). Regarding the previous training, there is no statistically

significant correlation between knowledge score of intern dentists with and without previous training as dental assistants in clinic ($P > 0.05$). The relationship between the ability to provide proper action when needed and knowledge score was insignificant ($P > 0.05$). These findings are in agreement with previous study done by *Emhemmed, 2017*. The need for future education regarding dental trauma had a statistically significant effect on the knowledge score ($P \leq 0.05$). These findings came in agreement with a previous study done by *Akhlagi et al., 2014*.

CONCLUSION

The present study showed adequate level of knowledge and practice of intern dentists in managing emergency cases of TDIs. The study also showed inadequate level of knowledge regarding appropriate treatment of intruded permanent tooth and prescription of antibiotic therapy as well as Practice regarding attempts to manage emergency cases of TDIs and prescription of antibiotics in case of replanting an avulsed tooth. High positive attitude of intern dentists towards early intervention in management of traumatic dental injuries was recorded.

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