

Knowledge And Attitude Of Saudi Arabian School Teachers With Regards To Emergency Management Of Dental Trauma

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Abstract

Injury to both the primary and the permanent dentitions and their supporting structures is one of the most common dental problems seen in children. School is one of the locations with greatest prevalence of occurrence of traumatic dental injuries. School teachers play important role in prevention of dental trauma and improving its prognosis. The present study was undertaken to assess knowledge and attitudes regarding emergency management of dental trauma, first aid for avulsed tooth and influence of dental education among school teachers in Abha city. **METHODS:** The participants were 100 school teachers from Abha city and were interviewed using a questionnaire regarding management of dental trauma. The completed proformas was collected and the result was statistically analyzed to know the knowledge and attitudes regarding emergency management of dental trauma. **CONCLUSIONS:** Majority of school staff had little knowledge related to handling of traumatic dental injuries and emergency management of avulsed permanent teeth in school children. Majority of school teachers were eager to have knowledge regarding dental trauma through continues dental education programs and workshops. First aid training increases knowledge about dental trauma and should be included in the course curriculum of teachers training program.

KEYWORDS: Dental trauma, Tooth avulsion, Knowledge, Attitude.

Introduction

Injury to both the primary and the permanent dentitions and their supporting structures is one of the most common dental problems seen in children. Dental trauma may exceed dental caries and periodontal disease as the most significant threat to dental health among young people and will be accompanied by significant economic consequences (1).

Epidemiological data show that about 50% of children have their primary or permanent dentition affected by traumatic injuries throughout the school period (2). In primary dentition, studies have found prevalence estimates of 10–15% (3). Approximately 40% of children have their first contact with the dentist due to a traumatic injury (4).

A large number of studies reveal that dental trauma mainly affects the upper central incisors and can lead to a loss of function as well as a negative impact on quality of life, producing psychological and social discomfort, with lowered self-esteem, embarrassment upon smiling and difficulty in relating with others (5). Post-traumatic complications may occur, including crown discoloration, cervical root fracture, ankylosis, root resorption and tooth loss (6). Among the different types of dental trauma, avulsion results in the greatest functional and esthetic impairment due to its worse prognosis (7). The prognosis of an avulsed tooth depends upon prompt care, which is a determinant factor for the successful treatment of the traumatized tooth (8).

School is one of the locations with the greatest prevalence of the occurrence of dental trauma in adolescents (9). As traumatic injuries affecting permanent dentition often

occur at school or at its surroundings, teachers and other non-dental professionals play an important role in managing TDI and improving its prognosis (10). In order to contribute to establish effective strategies of education regarding TDI, the present study was undertaken to assess knowledge and attitudes regarding emergency management of dental trauma, first aid for avulsed tooth and influence of dental education among school teachers in Abha city.

MATERIALS AND METHODS

The present study is a cross sectional survey conducted among school teachers in Abha city, Aseer region, Saudi Arabia. Total of 100 school teachers from Abha city were interviewed by giving questionnaire proforma to know the knowledge and attitudes regarding emergency management of dental trauma and avulsed tooth in school children. Questionnaire included 10 questions pertaining to their attitudes, beliefs and experiences regarding Traumatic dental injuries in school children. The completed proformas was statistically analyzed

RESULTS

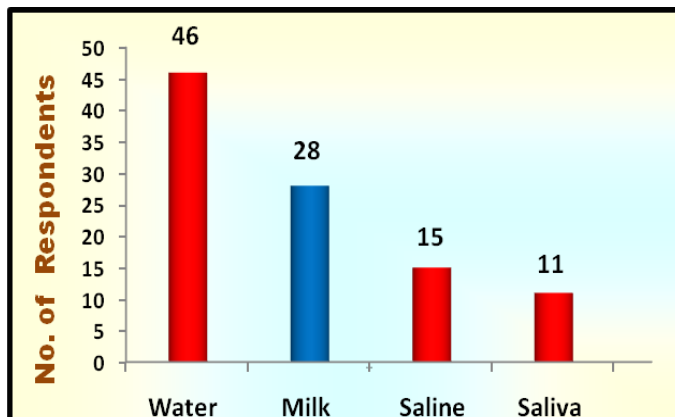
Questionnaires were collected from school teachers and

the data was analyzed using descriptive statistics. When the school teachers were questioned about previous experience about dealing with dental traumatic injuries, very few of 15% of school teachers said they had previous experience and 85% reported that they dint have any previous experience of dental traumatic injuries. Distribution of respondents about choice of different transportation media for an avulsed tooth to the dentist is shown in Graph 1.

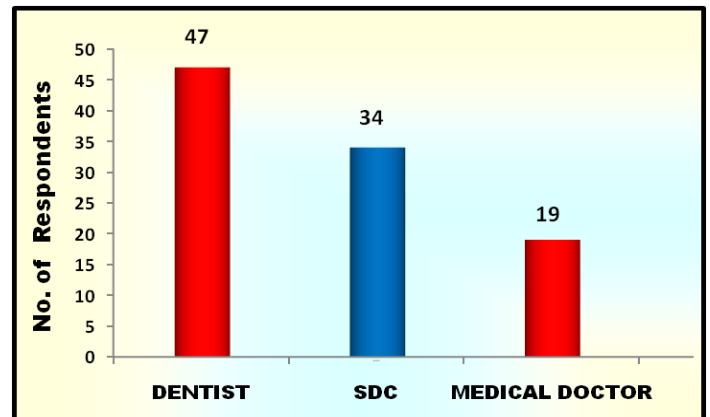
When asked about if they had any education program regarding management of Traumatic Dental Injury during their teacher's training program, out of 100 subjects only 10% said they had received training program rest 90% reported that they dint received any education during their teachers training program.

When the respondents were asked about knowledge about managing tooth avulsion, only 28 % said that they had knowledge about management of tooth avulsion and rest 72% said NO.

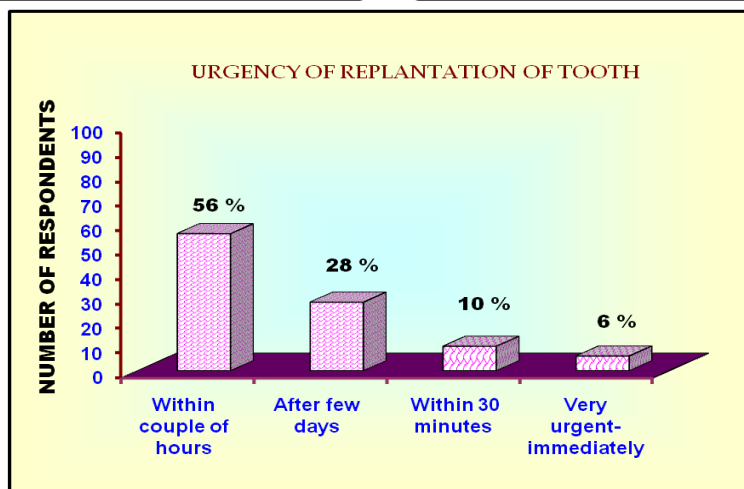
Only 31% had come across avulsion injury among their spouse, children or student. Response of school teachers regarding first place of contact when tooth is avulsed after accident is shown in Graph 2.



GRAPH 1: Distribution of respondents about choice of different transportation media for an avulsed tooth



GRAPH 2: Response of school teachers regarding first place of contact



GRAPH 3: Urgency of replantation of an avulsed tooth after accident

Majority (80%) of respondents answered that they need more educational activities or training to know more about prevention and management of dental and facial injuries and (20%) answered as they don't need any educational activities or training. 44% of respondents are able to replant the tooth back in to the socket and 56% were not confident in doing replantation procedure rather they would send the child to nearby dentist or hospital. Urgency of replantation of an avulsed tooth after accident is shown in Graph 3.

DISCUSSION

Our new survey instrument was developed to assess knowledge regarding the proper management of TDIs among teachers. The main result of the present study was the identification of factors related to the teachers' education and experiences that may contribute to the development of strategies to improve their knowledge and behavior regarding dental trauma, reducing the sequelae caused by these injuries that affect students while they are at school.

Only 15% of teachers had previous experience about dealing with DTI and only 28% had said that they had knowledge about management of tooth avulsion. It is an unexpected finding that the majority of school teachers (90%) had not received formal teaching training and only 10% teachers had received knowledge about traumatic dental injury during their training. In a similar study in England (11), only 67% of the teachers had been specifically trained in teaching and 91% had been trained in first aid but in our study the percentage of teachers trained in first aid is very low (10%).

When enquired about any information received on tooth avulsion or any informative material available at school on managing TDI. 72% of teachers disappointingly said that they had not received any advice regarding emergency management of avulsed tooth and only 30% of teachers said they have information material in the school on managing TDI. 44% were felt comfortable in replanting the avulsed tooth back in to the socket, but this figure was much higher when compared to that obtained in Hong Kong, where it is 17.5% (18). These findings emphasize that additional TDI education would be exceedingly beneficial for school staff. Compared with five other studies: 75% (13), 50% (14), in our study 56 % of teachers reported that they would 'not replant' an avulsed tooth due to lack of knowledge, but it is also reported that teachers may be worried about how to stop the bleeding and may fear the legal consequences of incorrect management (15). Naturally, they choose to send the child immediately to professional care.

In our study, 28% of teachers choose milk as best (1st ranked) storage media, majority of them 46% choose that they would carry in water as storage media. Storage in tap water should be the last resort because of its hypotonicity, which would lead to necrosis of periodontal membrane cells (16), while storing in saliva

at the buccal vestibule may lead to infection of the periodontal membrane and the risk of swallowing in young children (17). In our research, only 11% of the participants recognized that an avulsed tooth should be intraorally transported, while in the study of Lim et al., 13.2% of the participants answered that the best transport medium for an avulsed tooth is saliva (18). In Singapore (19), for instance, only 15% knew the ideal storage media and in China (12) only 9% choose milk as the best media for avulsion transport. If immediate replantation is not possible, avulsed teeth should be stored in a physiologic storage medium. Saliva should only be indicated when neither milk nor saline solution are available. Andreasen & Andreasen (20) clarified that when saliva is used as a storage medium, the extraalveolar period must be limited to a maximum of 2 h due to the slightly hypotonic nature of the medium and the fact that bacteria present in saliva may also have a harmful effect on later healing. Water is the least desirable storage medium because the hypotonic environment causes rapid cell lysis and increased inflammation on replantation (21).

According to Trope (22), the appropriate biological media for storage of an avulsed tooth until replantation keep the vitality of periodontal ligament cells, reduce the inflammatory response, and prevent sequelae as ankylosis and root resorption. One of the most important factors is the time elapsed between the avulsion and replantation; the replantation should be performed as soon as possible in order to increase the likelihood of success. A shorter extraalveolar time reduces the areas of root resorption following replantation, thereby favoring a better prognosis. Immediate replantation is the best measure in a case of avulsion of a permanent tooth. However, if this is not possible at the moment of occurrence of the dental trauma, the maximum possible time a tooth (in dry storage) can remain outside the alveolus is 120 min, for a better prognosis (23). Most of the teachers were not aware of the desirability of replanting avulsed teeth 'immediately' or 'within an half an hour'. Only 6 % and 10 % of teachers said that tooth should be replanted immediately and within 30 minutes of avulsion respectively and 28% told that after few days of avulsion they will be able to contact dentist or doctors. This may be explained by the lack of capability reported by the majority of participants, a lack of information regarding the procedure and the delegation of responsibility to a surgeon dentist, who is seen by other professionals as the most skilled in the practice of replantation. A similar result is described by Chan et al (12), who found that just 5.4% of the physical education teachers surveyed reported being capable of performing an immediate replantation. But in a study done by Raphael and Gregory (24) and Hamilton FA, Hill FJ, & Mackie IC (25) shows that 92% and 38.6% respondents indicated it was 'very urgent' to seek professional assistance if a permanent tooth has been avulsed. However, the survey showed their knowledge of the subsequent emergency procedures was very limited. In New Zealand study (14)

lay people suggested for 'two hours' (6%) and 'one day' (3%) extra oral period. The single most important factor to ensure a favorable outcome is the 'Speed' with which the tooth is replanted. Every effort should be made to replant the tooth within the first 15-20 min (26). Andreasen & Hjorting found that 90% of human teeth replanted within 30 min did not develop root resorption and the prognosis remained good (27). Replantation of the tooth while still at the accident site is the treatment of choice, but it may be a difficult process for the accident victim or the person in charge, justifying the answer of the majority of participants, who indicated that the patient should seek immediate attendance by a dentist. The presence of soft tissue lacerations and bleeding which mask the dental injury, as well as fear or ignorance of appropriate first emergency care by laypersons at the accident site such as parents, teachers, school friends, school nurses, and secretaries. Studies performed by Blakytyn et al., indicated that the majority of teachers surveyed would not replant a permanent avulsed tooth, because: (i) lacked sufficient expertise and (ii) would inflict pain to the child (13). Addo et al., highlighted to be frightened of hurting the child and the possible legal implications of replanting the tooth incorrectly (28).

Question about the first place of contact revealed that most teachers would consult dentist (47%) as first place of contact. 19% and 34% would seek help from nearby medical doctor or school dental clinic respectively. Bhat and Li, reported that avulsions were found to be the most common type of dental injuries recorded for children less than 15 years of age seeking treatment in hospital emergency rooms (29).

Over 80% of our participants expressed an interest in receiving more information on TDI management; this overwhelming interest among participants has also been shown in other studies (19). The evidence that first aid training increased knowledge about dental trauma was previously found in a study with teachers from Jordan, and it suggests that this strategy possibly makes teachers capable of providing emergency care in case of dental trauma (15). It is possible that by offering such kind of training during the teachers' continuing education, mainly by means of workshops, as it was suggested by the managers, there will be an improvement of the approach of dental trauma and other related outcomes.

To date, the majority of research published in regard to emergency management of avulsed permanent teeth by non-dental professionals has indicated insufficient knowledge among these professionals. The general conclusion of many international studies dealing with this topic is that school staff have little knowledge related to handling of TDI (30, 31). However, a growing focus worldwide on TDI first aid has emerged, and in some institutions there is now an educational program. According to a Jordanian study, dental emergency training has also been included as part of teachers' school health education program (15). According to Ranalli, physical activities like competitive sports will run

the risk of suffering some type of injury, including dental and facial traumas. Fortunately, the majority of these traumas can be prevented with the use of appropriate protective equipment (32).

Schools are a social environment appropriate for the development of activities that promote oral health. Such activities should include students, school assistants and even members of the community. If it establishes deeper relationships with the students' parents and develops health projects together with the community and the local health agencies, school becomes a supportive environment for health (33). Collaborative actions between dental and physical education professionals are needed in order to develop continued education programs. The development of public awareness about dental trauma depends on a clear, objective and motivating message in order to make lay people not only aware of their role in saving teeth in case of accidents but also to make them feel responsible for their own health (34).

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