




Evaluation of Knowledge, Awareness, and Attitude Towards Management of Displaced Tooth from Socket (Avulsion) Amongst Nursing Fraternity in Mangaluru City: A Cross-Sectional Study

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Abstract

Introduction The aim of this study was to evaluate knowledge, awareness, and attitude in the management of displaced tooth from socket (avulsion) amongst nursing fraternity in Mangaluru City.

Materials and Methods A 20-item questionnaire regarding knowledge, awareness toward management of avulsed tooth was administered to 150 nursing interns.

Results Among 150 participants, 47% demonstrated awareness of the storage media for an avulsed tooth. About half of the respondents did not know regarding handling of avulsed tooth. The majority of participants responded positively about attending workshop on dental trauma management.

Conclusion Given the frequent encounter with emergencies, it is imperative for nurses to possess sufficient knowledge regarding management of traumatic dental injuries.

Keywords

- ▶ dental trauma
- ▶ avulsion
- ▶ nurses
- ▶ knowledge

Introduction

Traumatic dental injuries (TDIs) exhibit a worldwide prevalence ranging from 10 to 15%.¹ It may happen in isolation or may be seen in association with bodily injuries. Around 9 to 13% of children and adolescents in India experience some form of TDI in their permanent teeth.² TDIs not only include trauma to the teeth but also can involve laceration and injury to the lips. Management of injury to soft tissue and hard tissue should be addressed as a whole. However, 0.5 to 16% of dental trauma is associated with dental avulsion.² According to the guidelines established by the International Dental Traumatology Association of 2012, it is crucial to have a correct approach in cases of dental avulsion. The preferred approach for treating an avulsed permanent tooth

is by reimplanting the tooth back into its socket.^{3,4} The effectiveness of this reimplantation relies on variables like the duration of the tooth outside the socket, the type of storage medium used during transportation, and the viability of periodontal ligament cells before the reimplantation.⁵ A favorable prognosis of an avulsed permanent tooth is contingent on proper handling of the emergency situation.⁶ The initial hour constitutes a crucial time window at the accident site for the successful management of avulsed teeth.⁷ Hence, healthcare professionals must be knowledgeable about the necessary procedures in cases of dental avulsion.

Around the clock, emergency medical services encounter numerous patients with dental trauma, including cases like avulsion. The initial responder at the accident site may not

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necessarily be a dentist. Instead, nurses who deliver clinical services under physician's supervision may be the first to provide essential emergency treatment for such injuries. Hence, there is the need for the study.

Materials and Methods

This cross-sectional study was performed among 150 nursing interns studying at Nursing colleges of Mangaluru, Karnataka, India, for 1 month in an online platform. Sample size was determined based on previous studies.⁸ Before conducting this study, ethical approval was taken from the institutional ethical committee.

A validated close-ended questionnaire that contained 20 questions was used in the study. Validation was done by two experts on the subject. The questionnaire consisted of four different parts: Section 1—participant information sheet and consent form, Section 2—demographic data, Section 3—questions based on knowledge and awareness of dental trauma, Section 4—questions based on the attitude of nursing fraternity on dental trauma management.

Sample Size Determination

With the available minimum prevalence and considering a 0.1% significance level and 1% absolute marginal error, the sample size estimated was as follows:

The following formula was used to compute the sample size:

$$n = \frac{Z^2 \cdot p(1-p)}{d^2}$$

Z = 2.64, the standard normal error
p = 0.022, the anticipated proportion
d = 0.001, the margin of error

Total number of participants 150

Statistical Analysis

Basic descriptive and summary measures were used to estimate the study parameter.

Results

In this study, 150 participants completed the questionnaire. The study comprised of 11.74% male population and 88.26% female population; this could be linked to the interest of female population toward nursing. Only 20.8% had come across avulsed teeth in their practice.

When the question was asked about knowledge of various types of TDI, 68.5% participants gave a positive response. About 65.8% of the nursing fraternity knew what avulsion is and approximately 91% were aware of referring the patient to the dentist to seek treatment.

When the questions were asked about replantation, approximately 72% participants were aware that the teeth could be replanted back and 66% knew that the primary tooth cannot be replanted and 56% gave a positive response regarding replantation of permanent teeth

Answers to the questions regarding the handling of the avulsed teeth were answered 48.6% as to be held by root, 22.7% by the crown, and 28.7% were not sure. Forty-seven percent participants thought that saline was the best storage media and 12.7% thought milk was the best media. When the choice was given about various storage media, only 21% were aware that saline, saliva, and milk can be used as storage media.

When the question regarding the timing of avulsion management was asked, 50% knew that it needed to be reported immediately to the dentist. When the question was asked about the handling of the tooth if it was fallen, only 20% were confident about putting it back in the socket. Forty-eight percent participants would place it in the storage media and 28.7% would discard it.

More than half of the participants were aware of the usage of mouthguards by athletes.

On being asked about their interest in attending a TDI management workshop, 69% gave a positive response.

Discussion

In this study, a total of 150 subjects completed the survey. The participants were nursing interns posted in various departments on a rotational basis.

TDIs know no boundaries and their management should be integral to the fundamental knowledge of every dental nurse. A nurse should possess a comprehensive understanding of one of the true dental emergencies, the avulsion of permanent teeth. Timely and appropriate emergency management can enhance the prognosis of an injured tooth, and fostering awareness among the general population will enhance outcomes for individuals' unfortunate enough to experience a TDI.

In this study, we have covered the basic knowledge of the nurses about the first aid measures undertaken during tooth avulsion. The crucial aspects such as the critical period of the tooth outside the socket, considerations regarding reimplanting the primary tooth, procedures for handling an avulsed tooth, the primary point of contact for assistance, and awareness regarding the use of mouthguards for injury prevention were assessed. The need for a workshop regarding dental trauma awareness management was also collected.

Our participants for the study were nurses as they encounter traumatic injury in the emergency department and hence their knowledge on this aspect would be important for prognosis following the injury.

In the questionnaire, more than half of the nursing participants knew about various TDIs and what an avulsion was. This is contrasting to the article by Hugar et al,⁸ where only half of the participants knew what avulsion was. Furthermore, most participants felt that optimal management of dental trauma should ideally be performed by a dentist.

Regarding the important question like handling of the tooth, it was surprising to note that only 20% of the participants knew that the tooth should be held by the crown. This

may be due to the assumption that the part of the teeth that is visible only is the vital part of the teeth.

Regarding storage media, saline was considered the best among other storage media. This may be due to the frequent usage of saline in the hospitals. A study conducted by Baginska and Wilczynska-Borawska in 2012⁹ found that 50% of nurses in Poland were knowledgeable about appropriate storage media.

In regard to the question about the exposure to avulsion, only 20% had come across such cases that explain the lack of reporting of such injuries/low incidence of avulsion which is highly unlikely.

When the question was asked about the handling of tooth if it was fallen, only 20% participants were confident about putting it back in the socket. This indicates the need for a training program for nurses regarding dental trauma management.

More than half of the participants were aware of the usage of mouthguards by athletes.

However, two-thirds of the participants were interested in undergoing a training workshop regarding dental trauma management.

The limitation of this study is that this was limited to one city in Karnataka.

Providing dental first aid is a straightforward and cost-effective measure that can significantly enhance dental outcomes. Given their role in as initial responders in dental emergencies, nurses should be aware of their responsibilities, especially in cases of avulsion. Medical fraternities are more concerned about bleeding and neurological involvement than merely tooth loss as it is considered irreversible damage.

To minimize complications, regarding dental trauma, following steps should be taken:

- The international association of Dental Traumatology (IADT) guidelines on the management of dental trauma should be made as flowcharts or posters and put up in all emergency departments.
- A survey should be conducted across the entire state for comprehensive perspectives on the implementation of awareness programs.
- There is a necessity to include emergency management of dental injuries in their curriculum.

Conclusion

As nurses frequently face emergencies, it is crucial for them to possess adequate knowledge about TDIs and their management. In this study, despite nursing students exhibiting a positive attitude toward dental trauma management, a deficiency of knowledge regarding the storage media and handling of avulsed tooth could result in avoidable untoward outcome. This emphasizes the importance of incorporating appropriate awareness and training about these aspects into nursing programs.

Conflict of Interest

None declared.

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