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Awareness of management of dental trauma among medical professionals in Pondicherry, India

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Abstract – The aim of the study was to establish the level of knowledge on the management of dental trauma among physicians at Pondicherry, India. A questionnaire was designed and was given to physicians working in medical colleges or as residents in advanced training programs in medicine in Pondicherry, India. The questionnaire contained a clinical situation of tooth avulsion and various treatment options. Only 5.5% of the medical professionals knew about reimplantation and none knew that the patients' mouth was the best transport medium. 90% of them accepted that they had no knowledge on dental trauma management. As the physicians get an opportunity to attend a case of dental trauma in emergency or private practice, it is vital that they possess sufficient knowledge on primary management of tooth avulsion, before referring to dentists.

Injury to children may range from a simple enamel chip to an extensive maxillofacial trauma. Tooth avulsion is one common dental trauma encountered in preschool and school children (1). Studies from countries such as United States and Hong Kong have shown that the primary cause for traumatic tooth injuries among school children is from falls (2, 3). Survey studies among school teachers in Singapore, Brazil and Hong Kong revealed that they possessed very little technical knowledge on the first response management of tooth avulsion or other dental trauma (4–6).

Parents and school teachers often have the first opportunity to attend to a child with a tooth avulsion injury, but the emergency medical service doctors are frequently the first to actually provide primary treatment. To ensure proper and appropriate treatment for children with dental trauma, it is essential that emergency medical professionals have sufficient training in the basic principles of management of dental trauma. Our search of the literature revealed only one study from Israel that evaluated the knowledge of medical professionals in the management of tooth avulsion injuries (7).

Materials and methods

A 10-item questionnaire was designed to assess current knowledge and interest in learning to treat dental trauma (Table 1). Doctors were personally interviewed and were assured of confidentiality. The study group was convenience sample of physicians working in medical colleges or as residents in advanced training programmes in medicine in Pondicherry, India.

Results

Two hundred physicians who were approached readily agreed to participate and returned the completed filled questionnaires on the same day.

For question 1: while 24% (n = 48) of the participants had come across children with tooth avulsion, 76% (n = 152) had not experienced an avulsion injury.

For question 2: 58% (n = 116) of the participants preferred to wash the child's mouth with tap water and would advise to take the tooth in a wet cloth. 36.5% (n = 73) would refer the child to the dentist without bothering about the tooth. Only 5.5% (n = 11) would like to put back the tooth into the socket before referring to the dentist (Fig. 1).

For question 3: 52% (n = 104) of the participants would like to seek a dentist's opinion immediately. While 33.5% (n = 67) would not mind delay up to 30 min for seeking dental treatment, 14.5% would delay even few hours.

For question 4: if the avulsed tooth was covered with dirt, 57.5% (n = 115) of the participants would wash the tooth with sterile saline, 21% (n = 42) would not do anything, 16% (n = 32) would rinse with tap water and 5.5% (n = 11) would use hydrogen peroxide to clean the tooth (Fig. 2).

For question 5: if the crown of the tooth was fractured 56% (n = 112) of the participants would advise to take the broken tooth to the dentist, 33.5% (n = 67) would not be concerned about the fractured crown and 10.5% (n = 21) were not sure what to do with the fractured crown.

For question 6: 35.5% (n = 71) of the participants would advise to keep the tooth in normal saline, 22.5%

Table 1. Questionnaire

1. Have you come across an accident where a tooth was 'knocked out' (avulsed)?
   ☐ Yes ☐ No
2. If you come across a child with an avulsed tooth, what would you do?
   ☐ Refer the child immediately to the dentist
   ☐ Put back the teeth back into the socket and rush to the dentist.
   ☐ Wash the child's mouth with tap water and take the tooth in a wet cloth.
3. How urgent do you feel that a dentist's opinion is needed?
   ☐ Immediate
   ☐ Within 30 min
   ☐ Within few hours
   ☐ Before next day
   ☐ Others
4. What would you do if the 'knocked out' tooth was covered with dirt?
   ☐ Scrub the tooth to remove the dirt
   ☐ Rinse with tap water
   ☐ Wash with sterile saline
   ☐ Wash with hydrogen peroxide
   ☐ Would do nothing
5. What would you do if the 'knocked out' tooth was broken?
   ☐ Still put back the tooth into the socket
   ☐ Take the broken tooth to the dentist
   ☐ Would not be concerned about the broken piece.
   ☐ Do not know
   ☐ Other, please state.....
6. How would you keep the tooth till you reach the dentist?
   ☐ Ice
   ☐ Tap water
   ☐ Wet handkerchief
   ☐ Sterile saline
   ☐ Cotton pad
   ☐ Child's mouth
   ☐ Any aseptic solution
   ☐ Milk
   ☐ Others, please state.....
7. Have you received advice on what to do when a permanent tooth was knocked out in an accident?
   ☐ Yes ☐ No
8. Do you think it is important to have an educational program in 'management of dental trauma'?
   ☐ Yes ☐ No ☐ Do not know
9. Are you satisfied with your knowledge on 'the management of dental trauma'?
   ☐ Yes ☐ No ☐ Do not know
10. Would you like to attend an educational program on 'management of dental trauma'?
    ☐ Yes ☐ No ☐ Do not know

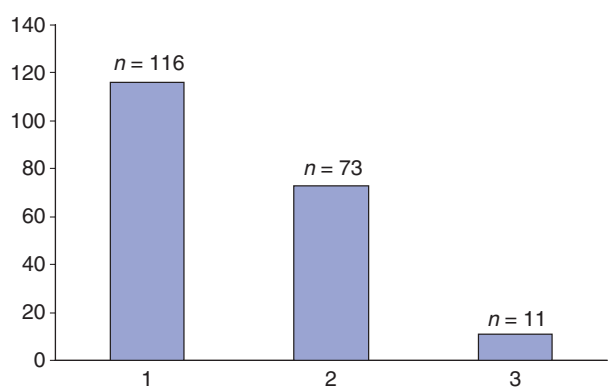

Fig. 1. Distribution of answers to question number 2.

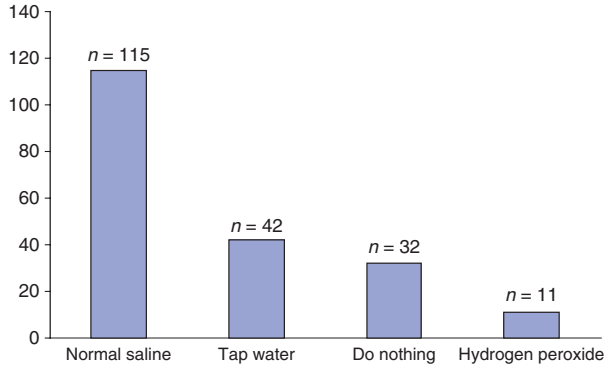

Fig. 2. Distribution of answers to question number 5.

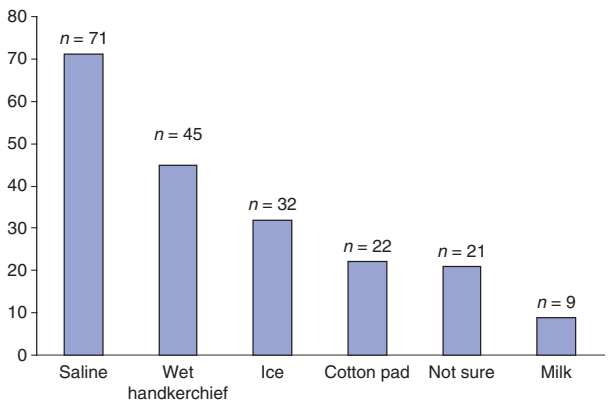

Fig. 3. Distribution of answers to question number 6.

(n = 43) would prefer a wet hand kerchief, 16% (n = 32) would prefer ice, 11% (n = 22) would prefer cotton pad, 10.5% (n = 21) were not sure what to do and 4.5% (n = 9) would use milk. None of them would advise to carry the tooth in the child's mouth (Fig. 3).

For question 7: only 9.5% (n = 19) of the participants received a professional advice earlier on the protocol about management of avulsed tooth, while 90.5% (n = 181) had not received any advice.

For question 8: all the participants felt that it is important to have an educational programme on the management of dental trauma.

For questions 9 and 10: Only 4.5% (n = 9) of the participants were satisfied with their present knowledge on the management of dental trauma, while 95.5% (n = 181) were not satisfied. However, all the participants were enthusiastic in attending an educational programme on the management of dental trauma, if given an opportunity.

Discussion

Dental trauma can present as an isolated injury or as multiple extended injuries. In either case, they are frequently first attended by medical professionals in the Emergency Services Department. Although about 25% of the participants in this study had encountered a similar situation of tooth avulsion in their practice, they had never sought advice for appropriate management of the tooth avulsion. Despite their previous personal experience with

dental trauma, they were not moved to seek additional knowledge in dental trauma management.

A majority of the participants felt that dental trauma should ideally be managed by a dentist. They also appreciate the timely urgency of the treatment. Merely assuring the child's parents is insufficient for an ideal outcome. Regarding the important question of reimplantation, it is surprising that only 5.5% of the participants would have tried to put the tooth back in its socket. In a study by Holan and Shmueli at Israel, it was found that 4% of the physicians thought that an avulsed permanent incisor should be replanted in any event, while 50% of them would not replant an avulsed tooth under any circumstances (7). This reflects the vital point in the study regarding the technical knowledge of the management of tooth avulsion.

Only 56% believed that the dentist can do something with a broken tooth. With the advances in restorative dentistry and bonding techniques, re-attachment of the fractured crown portion should always be considered today (8).

Much of the confusion about the ideal transport media centres around lack of understanding as to the purpose. The significance of the media is to preserve the vitality of the periodontal ligament. For another important question determining the prognosis and revitalization of the avulsed tooth, 35% of the participants considered sterile saline as the best medium for storage and transportation, although it is seldom available at the place of accident. Although patient's mouth (saliva) may function well as a storage medium (9), none of the participants was aware of that. Less than 5% knew that milk is a good medium of transport.

A majority of the participants were more concerned about the child's bleeding from the alveolus than for the avulsed tooth. This could be a result of the basic life support programme provided to them during their undergraduate medical programme, where they were taught to secure the airway, breathing and circulation.

Holan and Shmueli found that 55% of the physicians in their study had never received any information relating to dental trauma (7). The highlight of our study is that almost all the participants accepted that their knowledge on the management of dental trauma is definitely inadequate. All the participants were willing to attend an educational programme on dental trauma. This reflects the fact that the physicians had not got an opportunity to attend a dental health programme.

In cases with multi-injury trauma, the reimplantation of an avulsed tooth may require a low priority. But in case of an isolated dental trauma, a simple procedure of reimplantation could make a huge difference not only in the prognosis of the tooth, but also influence the facial growth, function, aesthetics and psychological impact on the patient (3).

McCann et al. found that physicians and medical undergraduates in the United Kingdom were inadequately educated about oral lesions, indicating serious deficiencies in diagnostic awareness (10). The existing health education system should provide more courses on dental and dentofacial trauma management for physicians and medical residents. Although the dentist will provide a definitive treatment to follow, it becomes the duty of the medical professionals to have a basic knowledge of the primary management of tooth avulsion.

The International Association of Dental Trauma (IADT) has recently developed a revised consensus on the trauma management of primary and permanent dentitions, separately (11). This is available in the IADT webpage (http://www.iadt-dental-trauma.org) and in a series of publications in the journal of *Dental Traumatology*. Just like the flow charts for the management of myocardial infarction, poisoning, animal bites etc. these guidelines should also be made as flow charts or posters and put up in all emergency departments. This would be very informative for the physicians and medical trainees in the emergency department to provide appropriate primary care to the child with dental trauma.

Medical undergraduates should be engaged in interdisciplinary seminars, case discussions and clinical postings in dental or oral and maxillofacial departments. Physicians tend to look at the tooth avulsion more like a general trauma where they focus on the wound, bleeding and bony injury. The Heimlich's manoeuvre may save a life, but the simple reimplantation of an avulsed permanent tooth may result in retention of that tooth for a significant number of years and stimulate the alveolar bone to develop to full growth potential during the critical years of growth. Furthermore, the economic value of retaining the tooth vs a prosthetic replacement can prove to be considerable over the child's lifetime.

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