

The Status of Knowledge Related to The Emergency Management of Avulsed Tooth Amongst Medical Practitioners in Delhi and NCR Region: A Cross-Sectional Survey

K. Lahari¹ Shipra Jaidka² Rani Somani^{3*} Ashok Revelli⁴

¹PG Student, Department of Pediatric and Preventive Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, UP, India.

²Professor, Department of Pediatric and Preventive Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, UP, India.

³Professor and Head, Department of Pediatric and Preventive Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, UP, India.

⁴Senior Resident, Department of General Surgery, Hindu Rao Hospital, Malkaganj, Delhi, India.

ABSTRACT

Background: To assess knowledge, attitude and practice of Medical practitioners in Delhi and NCR region regarding emergency management of avulsed tooth.

Materials and Method: A cross-sectional survey was carried out amongst 800 Government and Private Medical Practitioners. A simple random sampling method was used for sample selection. Data was collected using self (interviewer) administered questionnaire to assess knowledge of Medical practitioners and how they manage tooth avulsion cases before referring to the dentist. The questionnaire was divided into various sections such as general information, storage medium, management and replantation of an avulsed tooth. Data obtained was tabulated into an excel sheet and statistically analyzed.

Results: A total of 800 Medical practitioners participated in the survey, and it was observed that 39.6% of Medical practitioners had appropriate knowledge regarding general information on tooth avulsion, whereas only 6.5% had knowledge related to the storage medium of an avulsed tooth, 1.8% had knowledge regarding management of tooth avulsion, and only 2% knew about replantation. When an intergroup comparison was made between various variables, it was found statistically significant.

Conclusion: Medical practitioners have basic knowledge of management of tooth avulsion but not the various aspects of treatment strategies.

Keywords: Tooth avulsion, Storage medium, Management, Medical practitioners, Cross-sectional survey.

INTRODUCTION

Traumatic dentoalveolar injuries are more frequent in children affecting teeth, their supporting structures, and adjacent soft tissues.^[1] Tooth avulsion is the complete removal of the tooth out of the socket and is considered a serious injury, which generates damage often irreversible with aesthetic and functional impairment, and may even lead to tooth loss, which directly affects the self-esteem and interpersonal relationship among people. The

prevalence is 0.5% to 16%, involving children between 7 and 15 years of age, in whom the incidence is higher in upper central incisors.^[2]

Maxillary central incisors are most commonly affected with avulsion, both in primary and permanent dentition due to their labial projection which makes them more susceptible to facial trauma. Moreover, these teeth have minimal

Received: Dec. 21, 2020; Accepted: Jan. 18, 2021

*Correspondence Dr. Rani Somani.

Department of Pediatric and Preventive Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, UP, India.

Email: somanirani@gmail.com

resistance to frontal impact among children aged 7–9 years because of low mineralization of the surrounding bone. These injuries are more common among boys when compared to girls as boys participate more in outdoor activities and sports. When a traumatic injury like avulsion occurs, many of the patients in developing countries visit medical doctors who were reported to have lesser knowledge about emergency management in traumatic dental cases though they might be dealing with more traumatic cases than dental practitioners.^[4]

To ensure proper and appropriate management of the avulsed tooth, it is essential that medical professionals should have adequate knowledge and sufficient training in the basic principles of the emergency management of traumatic injuries. Few surveys have been done testing their knowledge on emergency procedures in dental trauma.^[6] Owing to this paucity in literature, the present survey was designed to assess the knowledge and attitude of medical professionals in and around Delhi towards emergency management of an avulsed tooth.

The knowledge of emergency management of tooth avulsion among Delhi and NCR medical professionals has not been evaluated before, and no previous data are available regarding this issue.

MATERIALS AND METHOD

The current cross-sectional survey was carried out in the Department of Pediatric and Preventive Dentistry, Divya Jyoti College of Dental Sciences and Research, Modinagar, in association with Government and Private Medical Practitioners in Delhi and NCR region.

Prior to the commencement of the survey, consent was obtained from the institutional ethical committee (DJD/IEC/2018/A-20). A list of Government and Private Medical Practitioners were obtained from Delhi Medical Council which was about 63,800 in number. Out of which we selected the sample size of 800 (based on proportions of the population) which would represent the entire population of Medical Practitioners in Delhi and NCR region. So to give a chance to every doctor to be chosen in the sample, a simple random sampling method was accomplished by lottery method. The medical doctors who were voluntarily participated

and were present in respective clinics on the day of a survey conducted were included and who was not willing to participate and who were above the age of 60 and were not practising actively at present were excluded from the survey.

A self (interviewer) administered 34 items close-ended questionnaire was designed in the English language, and validation was done by SPSS(20.0). The questionnaire consists of 34 close-ended questions which were so framed that the knowledge and attitude of Medical Professionals could be assessed regarding the emergency management of avulsed tooth related to its meaning, immediate management, critical extra-alveolar time, optimal storage methods and media, proper cleaning technique of a grossly contaminated avulsed tooth before replantation and its proper handling.

The informed and written consent was obtained from the doctors who were willing to participate voluntarily in the survey. To avoid bias, only one investigator participated in the data collection. The questionnaires were distributed to participants during clinical hours when they were not attending patients.

The doctors who were willing to participate voluntarily were asked to tick the most appropriate answer from the given list of answers. The filled questionnaires were collected after 24 hours. At the time of collection of filled questionnaires, the appropriate responses were discussed, and doctors were made aware of the importance of tooth avulsion, its consequences, how it affects the quality of life of children. The means to manage tooth avulsion was also discussed.

The collected data were tabulated into an excel sheet, evaluated and finally subjected to statistical analysis.

RESULTS

The questionnaire comprised of various sections such as general information, storage medium, management and replantation of an avulsed tooth.

The mean percentage of correct answers in each group were analyzed in equal distribution ranges (0–30% as poor knowledge, 31–60% as appropriate knowledge, 61–100% as good knowledge).

In the correct response range of 61-100%(good knowledge), only 39.6% had good general knowledge regarding tooth avulsion, whereas only 6.5% had good knowledge related to the storage

medium of the avulsed tooth, only 1.8% had good knowledge regarding management of tooth avulsion, and only 2% knew about replantation. [Table 1 and Fig. 1].

Table 1: Percentage-wise distribution of correct responses.

Correct answers (%)	Total number of questions in each variable							
	General information (.)n=13		Storage medium (.)n=6		Management (.)n=8		Replantation (.)n=7	
	N*= 800	%	N*= 800	%	N*= 800	%	N*= 800	%
0-30% (Poor knowledge)	76	9.5	475	59.37	359	44.87	181	63
31 -60% (Appropriate knowledge)	407	50.87	273	34.12	426	53.25	596	35
61-100% (Good knowledge)	317	39.62	52	6.50	15	1.87	23	2

*N=number of respondents. (.)n=number of questions in various variables.

In the correct response range of 0-30%(poor knowledge), Only 9.5% had little general knowledge regarding tooth avulsion, whereas 59.4% had poor knowledge related to the storage medium of the avulsed tooth, 63% had poor knowledge about replantation, and 44.9% had minimal knowledge regarding management of tooth avulsion.

The intergroup comparison was done using the chi-square test and was found that knowledge regarding various aspects of tooth avulsion, when compared with each other, was statistically significant (p=0.001) (Table 2).

Table 2: Intergroup comparison of various variables.

Variables	Statistics	General information	Storage	Management	Replantation
General information	chi square	-	767.65	456.96	380.47
	p value	-	<0.001	<0.001	<0.001
Storage	chi square	767.65	-	650.71	491.09
	p value	<0.001	-	<0.001	<0.001
Management	chi square	456.96	650.71	-	799.3
	p value	<0.001	<0.001	-	<0.001
Replantation	chi square	380.47	491.09	799.3	-
	p value	<0.001	<0.001	<0.001	-

p-value < 0.05 was considered statistically significant. p-value >0.05 was considered statistically Non significant.

Graphical representation of the percentage-wise distribution of correct responses of various variables was depicted (graph1).

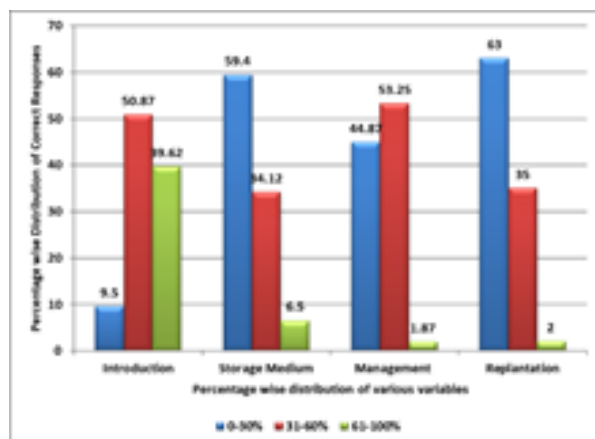
DISCUSSION

The teaching of dental trauma management seems to be lacking although early management of dental trauma, especially tooth avulsion is critical for a good prognosis. If tooth avulsion was handled and treated quickly and in an efficient way, then it may

have an excellent prognosis regarding function and esthetics and will decrease the physiological effect caused to the child.

The emergency medical service doctors are frequently the first to provide the primary treatment. It is essential that emergency medical professionals are adequately trained in the basic principles of dental trauma management to ensure

appropriate treatment of dental traumatized children.^[7]



Graph 1: Graphical representation of the percentage-wise distribution of correct responses of various variables

In the current survey, Medical practitioners were chosen because most of the parents of children experiencing accidental dental trauma would prefer to consult medical doctors for its management.^[6] It may be due to lack of awareness and unavailability of a dentist near the trauma site.^[8] A similar questionnaire-based survey was conducted by Mustafa M et al. (2017)^[9] among General Dental Practitioners about Management of Tooth Avulsion,

A 34-item self-administered primarily close-ended questionnaire was prepared to explore general awareness regarding various aspects of tooth avulsion. The close-ended questionnaire was given to ease the process of filling the questionnaire, and the data was tabulated in the excel sheet and finally analyzed statistically. Chanchala HP(2016)^[10] had also conducted a cross-sectional survey on Pediatrician's perspectives on dental trauma management using only 13 items of the close-ended questionnaire.

The result was evaluated statistically using the chi-square test. From the result, it can be concluded that about 40% of medical doctors had good knowledge, and about 10% had poor knowledge regarding general features of avulsed tooth. This might be attributed to the fact that medical doctors were trained specifically about traumatic injuries to major systems of the body and broadly about traumatic injuries to minor systems like oral cavity and teeth in medical schools. This was in

accordance with the similar study conducted by Venkataramana M (2015)^[11] and reported that 64% of respondents were aware of the meaning of avulsed tooth.

Only 7% had good knowledge, and 59% of the respondents had poor knowledge about storage medium of an avulsed tooth. This might be because good knowledge about the storage medium can be speciality specific. Sood I (2017)^[12] had also conducted a comparable survey and reported that 51% of the medical doctors had good knowledge on a storage medium for an avulsed tooth.

About 2% had good knowledge, and 45% of respondents had poor knowledge regarding emergency management of avulsed tooth. Medical professionals deal routinely with traumatized cases(13%), so they had good basic knowledge regarding the management of avulsed tooth and usually did the emergency management of avulsed tooth before referring to the dentist. Dang P (2019)^[13] had also conducted an analogous survey and reported that only 30% had appropriate knowledge regarding basic and first aid management of avulsed tooth.

Only 3% had good knowledge, whereas 23% had poor knowledge of replantation. This might be due to the fact that most of the medical doctors knew only the basic first aid management of avulsed tooth and had little knowledge about specific management. Subhashraj k (2009)^[5] had conducted a similar survey and reported that only 5.5% of the Medical Professionals had good knowledge about replantation.

The current survey highlighted the status of knowledge and practice related to the emergency management of avulsed tooth amongst medical practitioners.

Limitations of the survey

The large sample size is required for more concrete conclusions, and it should be monitored by further epidemiological surveys in the future.

CONCLUSION

Within the limitations of this cross-sectional survey, it was concluded that most of the medical doctors had only basic knowledge regarding emergency

management of avulsed tooth, but not the specific treatment modalities. So, there is a need to increase the knowledge levels for more appropriate treatment protocols before referring to the dentist.

Regarding their unsatisfactory knowledge about dental trauma and enthusiasm for education, dental trauma management training should be organized with the guidance of dental faculties. Continuing education, postgraduate programs, interdisciplinary seminars, case discussions, clinical posters, and flow charts with clinical guidelines for Traumatic dental injury management in emergency rooms should be provided to emergency physicians to help improve their level of knowledge on the emergency management of dentoalveolar tooth injuries.

Recommendations

The implications of this survey are directed towards educating medical doctors, especially Pediatricians, Surgeons and Emergency departments etc. who are attending the trauma cases. However, most of the medical doctors had basic knowledge regarding emergency management of avulsed tooth, but not the specific management such as storage of avulsed tooth, replantation etc.

Clinical significance

Prognosis of traumatized teeth depends largely on both timely and appropriate emergency management. Most of the cases remain untreated due to lack of appropriate knowledge among medical practitioners towards the management of tooth avulsion. Thus, there is a need to increase the knowledge for more appropriate treatment protocols before referring to the dentist.

Therefore, there is a need to conduct oral health programmes, educational campaigns, continuing dental education (CDE) programmes, continuing medical education programmes (CME), camps and also to integrate the guidelines and current updates in medical schools and postgraduate curricula for better management of avulsed tooth in dentally traumatized children.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

REFERENCES

1. Santos ME, Habecost AP, Gomes FV, Weber JB, De Oliveira MG. Parent and caretaker knowledge about avulsion of permanent teeth. *Dental Traumatology*. 2009 Apr;25(2):203-8.
2. Francisco SS, de Jesus Soares A, Murrer RD. Evaluation of elementary education teachers' knowledge on avulsion and tooth replantation. *RSBO Revista Sul-Brasileira de Odontologia*. 2015;12(1):32-40.
3. Francisco SS, de Jesus Soares A, Murrer RD. Evaluation of elementary education teachers' knowledge on avulsion and tooth replantation. *RSBO Revista Sul-Brasileira de Odontologia*. 2015;12(1):32-40.
4. Bahammam LA. Knowledge and attitude of emergency physician about the emergency management of tooth avulsion. *BMC oral health*. 2018 Dec;18(1):57.
5. Holan G, Shmueli Y. Knowledge of physicians in hospital emergency rooms in Israel on their role in cases of avulsion of permanent incisors. *International Journal of Paediatric Dentistry*. 2003 Jan;13(1):13-9.
6. Subhashraj K. Awareness of management of dental trauma among medical professionals in Pondicherry, India. *Dental Traumatology*. 2009 Feb;25(1):92-4.
7. Kumar S, Sajjanar AB, Athulkar M, Sajjanar J, Shewale A, Wasnik M, Dhongde P, Moon A. The Status of Knowledge Related to the Emergency Management of Avulsed Tooth amongst the Medical Practitioners of Nagpur, Central India. *Journal of Clinical and Diagnostic Research: JCDR*. 2017 May;11(5):ZC21.
8. Aren A, Erdem AP, Aren G, Şahin ZD, Tolgay CG, Çayırıcı M, Sepet E, Güloğlu R, Yanar H, Sarıbeyoğlu K. Importance of knowledge of the management of traumatic dental injuries in emergency departments. *Ulus Travma Acil Cerrahi Derg*. 2018 Mar 1;24(2):136-44.
9. Nagrik AP, Bhagat BA, Yemle SB, Maidapwad S. Awareness of specialties of dentistry among medical trainees and teaching faculty of medical

- college in the central West India. Journal of International Society of Preventive & Community Dentistry. 2019 May;9(3):269.
10. Mustafa M. Awareness about Management of Tooth Avulsion among General Dental Practitioners: A Questionnaire Based Study. Journal of Orthodontics. 2017;3(1):2.
 11. Chanchala HP, Shanbhog R, Ravi MD, Raju V. Pediatrician's perspectives on dental trauma management: A cross-sectional survey. Journal of Indian Association of Public Health Dentistry. 2016 Oct 1;14(4):419.
 12. Venkataramana M, Pratap KV, Padma TM, Kalyan VS, Bhargava AS, Varma LS. Knowledge and attitude of medical professionals towards emergency management of avulsed tooth in a teaching medical hospital, Khammam Town, South India. Journal of Indian Association of Public Health Dentistry. 2015 Apr 1;13(2):183.
 13. Sood I, Gupta K, Sharma AK, Gaur A, Pathania V, Thakur VB. Assessment of knowledge and awareness among medical doctors toward emergency management of dental trauma in State of Himachal Pradesh: A survey. Indian Journal of Dental Sciences. 2017 Sep 1;9(5):1.
 14. Dang P, Datana S, Agarwal SS, Bhandari SK. Knowledge about Emergency Management of Avulsed Tooth Amongst Medical Students: a Questionnaire Based Study. International Journal of Dental Research and Reviews, 2019, 2:16.