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RESEARCH ARTICLE

MANAGEMENT OF AVULSED PERMANENT TOOTH, KNOWLEDGE AND ATTITUDE OF PARENTS IN KASHMIR VALLEY

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ABSTRACT

Dental problems being the most common health problem that affects children. Most traumatic injuries to the teeth and their supporting structures constitute a true dental emergency and because teeth have the lowest potential of any tissue for returning to a normal healthy state following injury, most injuries require urgent evaluation and treatment. Due to lack of awareness and knowledge among parents/mothers most of children with dental trauma present late for treatment that result in unfavorable long-term prognosis.

Aim: The aim of the study was to assess the knowledge and attitude of parents regarding dental avulsion and its emergency management using a questionnaire.

Materials and Methods: The study included 500parents who accompaniedtheir children, aged between 5 years and 14 years, to the Dental Section Sub District Hospital Damhal,Kulgam, J&K. Chi-square test was done to evaluate the association between the results and the genders, educational level, and geographical status of the respondents. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) version 17.0

Results: This study showed 90% of parents knew that saving an avulsed permanent tooth is important but majority of parents thought ice water was the best media to transport avulsed teeth. The data showed that there was lack of knowledge regarding the preservation and management of avulsed tooth amongst parents.

Conclusion: This study showed lack of lack of awareness among the parents regarding the emergency management of dental trauma, This warrants the need of an effective communication between dental professionals and parents for better handling of dental traumas and thus preventing the physical, psychosocial, and economic consequences of trauma by appropriate assessment, education, and referral of children to the dentist.

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INTRODUCTION

One of the most important oral health problems in childhood has been dental trauma leading to severe pain and distress. Children being more prone to minor accidents during their routine activities like running, cycling etc. These activities can lead to complete avulsion of tooth (Murali *et al*., 2014). Thus, it is important to provide immediate first class emergency care to reduce the possible outcomes (Flores, 2001). As per epidemiological studies dental trauma is a significant problem faced by young people and the incidence of dental trauma in future is expected to be more than dental caries and periodontitis (Kruthika *et al*., 2014). Central incisors are most commonly avulsed teeth. Incomplete formation of the roots and the lack of resiliency of the periodontal ligament in children is the cause for the enigmatic mechanism of teeth avulsion in children (Nikam, 2016). Child's quality of life is greatly affected by traumatic injuries (Zuhal, 2005). Oral injuries are the fourth most common injuries among the 7-30 years age group as per the study done by Andreasen and Andreasen (Petersson, 1997). 16% of dental injuries lead to tooth loss (Walker, 2000). Due to lack of awareness and knowledge among parents most of the children with avulsed tooth present late for treatment resulting in an unfavorable long-term prognosis (Nikam, 2014).

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The prognosis of the avulsed tooth depends solely on the appropriate treatment that in turn relies on the knowledge of the parents regarding the management of the avulsed tooth (Oliveira, 2007). As there is no study available in the literature in the state of Jammu and Kashmir to assess the knowledge among parents towards the emergency management of dental trauma. This study was done to assess knowledge and attitude of parents towards the management of avulsed tooth.

MATERIALS AND METHODS

A questionnaire was designed and was distributed among the parents of older children aged between 5-14years. The participants were asked to complete a 14-stemmed questionnaire, which was a modified form of questionnaire used by Raphael and Gregory. The questionnaire was formulated in English, Kashmiri and Urdu. The data obtained from 500 questionnaires were tabulatedand statistical analysis was done using SPSS version. While *P* value ≤0.05 was considered to be significant, the chi-square test was applied to investigate the association between the results and the genders, educational level, and geographical status of the respondents.

RESULTS

In Toto 500 parents with their children in south Kashmir were taken into the study as to assess the knowledge and attitude of parents of older children regarding the management and treatment of avulsed tooth of their child. The number of females constituted to 52 % (260) being more than males that were 48% (240). About 60 % (300) patients were from urban area and 40% (300) were from rural area. Out of total number of patients 6 % (30) were illiterate, 94% were literate out of which 39% had received education up to elementary school, 35% up to higher secondary school and 20% above higher secondary school (Table 1).

Table 1. Demographic data

Variables	Frequency	Percentage (%)
Total	500	
MALE	240	48%
FEMALE	260	52%
EDUCATION LEVEL		
Illiterate	30	6%
Elementary school	195	39%
Higher sec school	175	35%
Above higher sec school	100	20%
Geographical distribution		
Rural	200	40%
Urban	300	60%

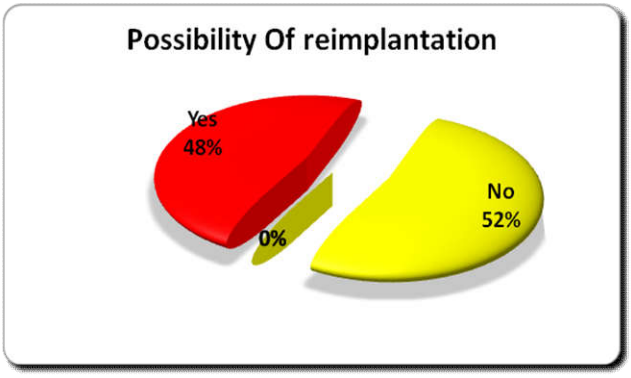

Figure 1. Possibility of reimplantation

Reimplantation knowledge

47.6% (238) of parents believed in reimplanting the avulsed tooth as part of the first-aid treatment (Figure1). 37% (189) parents believed in immediate reimplantation, 13.2% (66) parents believed in reimplantation as soon as bleeding stops, 17.8% (89) within 1 hour, 6% (30) within the same day, 7% (35) after few days and 20.8% (104) parents believed that reimplantation to be done later on dentist visit.(figure2). About 28 % (140) parents made an attempt of self reimplantation. (figure3). 60% (300) parents would consult dentist, 30 %(150) parents would consult local doctor and 10 % (50) would visit hospital (Figure 4)

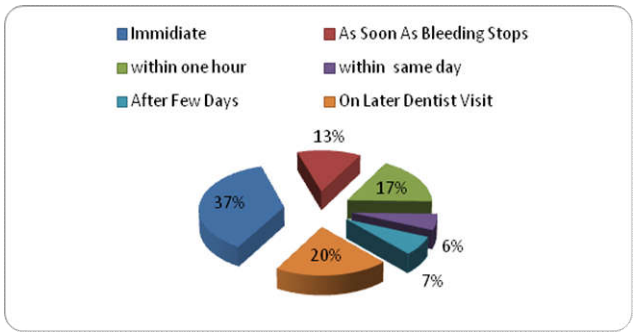

Figure 2. Timing for Reimplantion (%)

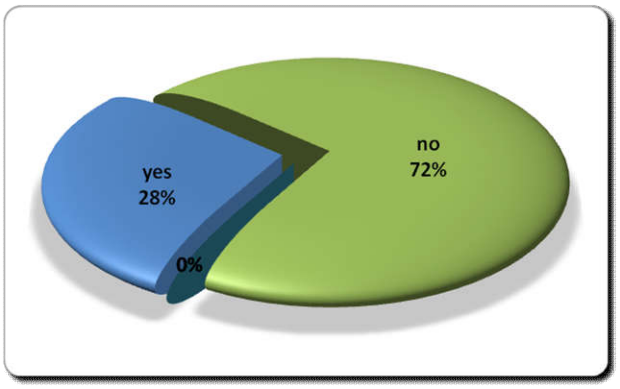

Figure 3. Attempt for self reimplantation (%)

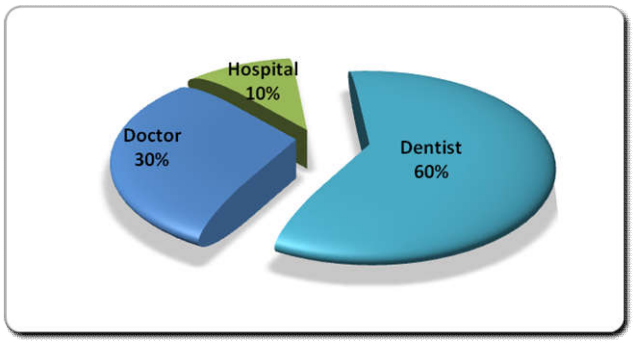

Figure 4. First place of Contact (%)

Cleaning media

42.6 %(213) parents choose water as cleaning medium, 43% (215) salt water, 10% (52) as milk and 4% (20) parents choose no cleaning medium. The data showed majority of the parents have selected the inappropriate medium for cleaning and transporting the avulsed tooth (Figure 5).

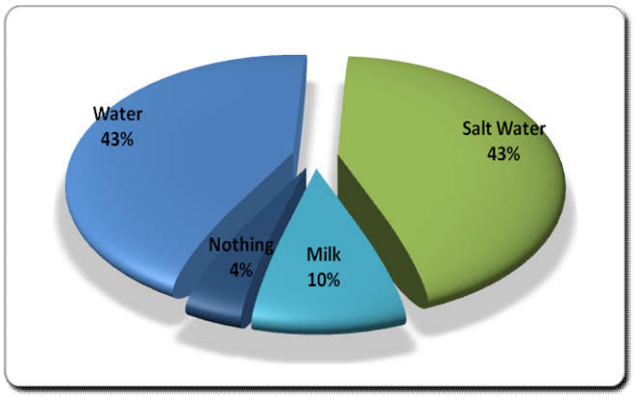

Figure 5. Cleaning medium (%)

Transport media

22.2% (111) respondents choose to wrap the tooth in a paper/handkerchief, 10 % (50) as disinfecting solution, 34% (170) as ice water, 2% (10) as child's mouth, 13.6% (68) as milk, 2% (10) as fruit juice and 16.2% (81) choose saline water as transporting medium (Figure6).

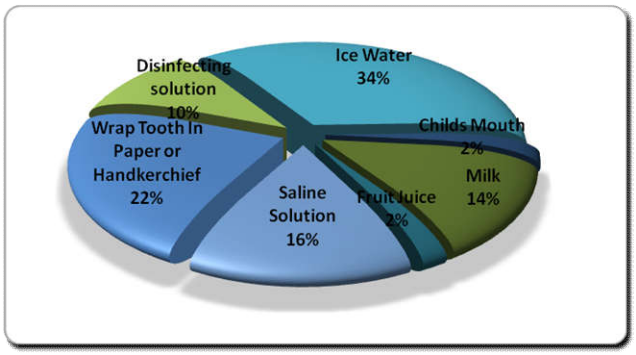

Figure 6. Transporting Medium (%)

Previous knowledge regarding the management of avulsed tooth and Source of information

About 20.2% (101) parents had previous knowledge about management of avulsed, The data revealed that 79.8 %(399) had not received advice regarding emergency management of avulsed permanent tooth before (Figure 7). As per data collected books39.8 % (199) and media 24.2% (121) were the main source of information (Figure 8).

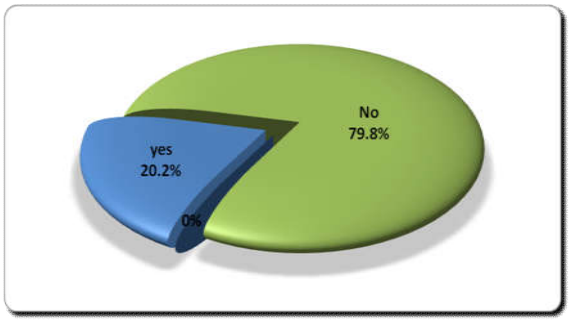

Figure 7. Previous Information (%)

Attitude of parents

As per our study data majority of parents (90%) agreed with the importance of saving an avulsed permanent tooth.88% parents showed interest in having more information about the emergency management of avulsed permanent tooth (Figure 9).

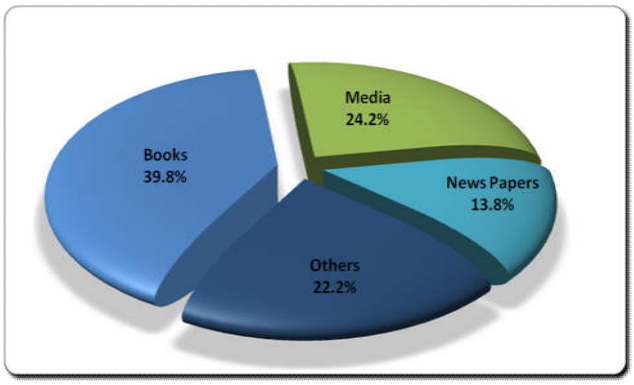

Figure 8. Sources of information (%)

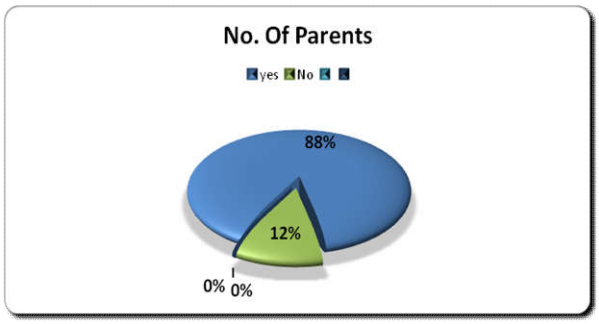

Figure 9. Interest (%)

Previous experience of dental Avulsion

80 parents (16%) parents reported with previous experience of dental trauma to their child, about 62.5% (50) parents had previous experience of dental avulsion while as 37.5% (30)had no previous experience. (Figure 10) Among the parents who had previous experience of dental avulsion in their child only 16% (80) parents took tooth along with them to dentist (Figure 11).

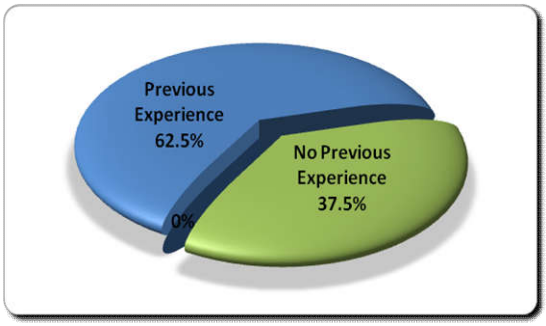

Figure 10. Previous experience of dental Avulsion (%)

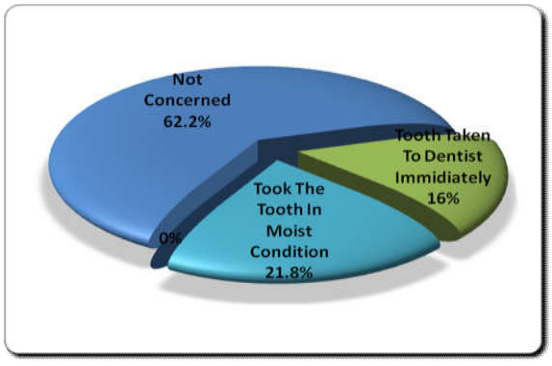

Figure 11. Previous experience with management of avulsed tooth (%)

Gender, educational level, and residential locality

The level of knowledge with regards to urgency of reimplantation was observed to be associated with gender of the parents. Females showed higher knowledge level as compared to male. The knowledge toward fi rst-aid management of avulsed tooth was not dependent on the educational qualification of the parent except for the source of information. No significant association was noticed between the level of previous experience and all three variables of the interviewed parents.

DISCUSSION

Dental avulsion involves the complete displacement of tooth out of sock*et al*ong with severed periodontal ligament with or without fracture of the alveolar bone (Loo, 2014). Dental trauma remains one of the most important oral health problems in childhood causing pain and distress. Children usually encounter many minor accidents during their day to day activities like cycling, skating, running, etc. All these activities result in complete avulsion of teeth (Nikam, 2014). According to Lee and Divaris study (Lee, 2009) the mixture of experience of pain, emotional distress, shock, and physical impairment during dental trauma leads to significant dental anxiety in the future. Immediate reimplantation of the avulsed tooth, followed by endodontic treatment is considered as the best treatment modalities as it does not prevent the negative psychological effecton the child but italso prevents the heavy economical burden on the parents which is caused by other complex treatment modalities (Shashikiran *et al*., 2006; Al-Jame *et al*., 2007). The prognosis of a reimplanted tooth is directly correlated to the amount of viable periodontal membrane (Hammer, 1995). Minimal extraalveolar dry time, adequate storage, and transport medium, along with minimal damage to the root surface and periodontal ligaments are considered by majority authors as the triad of factors which contributes to a desirable prognosis (Santos *et al*., 2009). Teeth that were reimplanted within 30 min showed a success rate of 90% as per the study done by Andreasen and Hjorting (Andreasen *et al*., 1996) while 5% success rate for the teeth reimplanted after 2 hour (Andreasen, 1996). Another study by Andersson and Bodin showed he prognosis of reimplanted tooth is largely determined in the first 15 min after avulsion (Andersson *et al*., 1990). This shows that immediate reimplantation is the absolute requirement for the success of reimplantaion. Dental injuries being common in childhood demands that parents should have adequate knowledge of emergency management of avulsed permanent tooth so that appropriate and quick treatment will be given to child. When questioned about the possibility of reimplanting an avulsed tooth, the respondents were split into two almost equal moieties.

In our study only a quarter of the parents showed tendency in reimplanting the avulsed tooth into the socket by them. Similar findings has been seen in study done by Abeer and Abdellatif on Knowledge of emergency management of avulsed teeth among a sample of Egyptian parents (Abeer *et al*., 2001). Another study done by Santos and Habecost on Parent and caretaker knowledge about avulsion of permanent teeth (Santos *et al*., 2009), similar results as our was seen in a study done by Ozer and Yilmaz on parental knowledge and attitudes regarding the emergency treatment of avulsed permanent teeth (Ozer *et al*., 2012) However a study done by Raphael and Gregory on parental awareness of the emergency management of avulsed teeth in children showed that about two-third of respondents were willing for attempting self-reimplantation. Lack of knowledge, fear to hurt the child, and the perceived association between bleeding and death seems to have desisted parents from reimplanting the avulsed tooth (Abeer *et al*., 2011; Santos *et al*., 2009; Raphael, 1990). In present study, only a scanty (10%) of respondents has stated that they would clean a soiled avulsed tooth using milk. A totalof 42.6 % of the respondents have opted salt water, which is followed closely by plain water (43%). Several studies (Al-Jame, 2007; Sae-Lim *et al*., 1999; Mackie *et al*., 1993) have demonstrated a generally poor knowledge about transport mediaof choices. In our study also parents showed poor knowledge about transport media around 34% parents used ice water. People should be educated that water should never be used as storage medium due to its hypotonicity. It causes rapid lysis of the periodontal ligament cells jeopardizes the outcome ofreimplantation (Gopikrishna *et al*., 2008; Trope, 2002). In our study, the transporting medium used were disinfecting solution, ice water, child's mouth, milk, fruit juice, and saline solution. Though Hank's Balanced Salt Solution (HBSS, Save-A-Tooth®) has been proven to be the most effective storage media (Barrett, 1997) ever since being introduced by Krasner and Person in year 1992,it was not being mentioned in the questionnaire. This is because the use of HBSS as storage medium in India is not practical due to the cost involved and unavailability of the medium. An ideal storage medium should fit the following criteria. Ability to preserve or replenish cell viability, adherence and clonogenic capacity and accessibility at the site of accident. Both milk and tender coconut water fulfi ls both criteria. Thomas *et al* have shown that tender coconut water is as effective as HBSS (Barrett, 1997). In our study only quarter of participants had previous information about management of avulsed tooth. This finding did not have any correlation with the educational background of the participants.

Similarto our study Shashikiran *et al.* (2006) have reported that significant number of the parents (67.2% urban,95.1% rural) have not received any advice regarding first-aid management of the same. This clearlyindicates the lack of programs which create public awareness concerning emergency management ofavulsed tooth. Nearly half of the participants doubted on the possibility of reimplanting an avulsed tooth, good amount of parents agreed with the necessity to save an avulsed permanent tooth. This revealed that the participating parents demonstrated a positive attitude toward the saving an avulsed tooth despite having poor knowledge about is preservation. The level of knowledge with regards to urgency of reimplantation was observed to be associated with gender of the parents. Females showed higher knowledge level as compared to male. The knowledge toward fi rst-aid management of avulsed tooth was not dependent on the educational qualification of the parent except for the source of information. No significant association was noticed between the level of previous experience and all three variables of the interviewed parents. Among 80 parents (16%) parents reported with previous experience of dental trauma to their child, about 62.5% (50) parents had previous experience of dental avulsion while as 37.5% (30) had no previous experience. Among the parents who had previous experience of dental avulsion in their child only 16% (80) parents took tooth along with them to dentist. Parentsshould be made understand that it is important to retrieve the avulsed tooth not only for reimplantingthe tooth but also to be certained of the tooth notbeing swallowed or aspirated by the child during theaccident (Thomas *et al*., 2008).

Only 16% parents have brought their childto a dentist immediately. This finding has reflectedthat most of the parents were not aware of the "timefactor" being the most crucial factor in determining asuccessful prognosis. Intervention program should be developed targeting parents, so that unnecessary loss of permanenttooth due to avulsion injury can be avoided and the tooth be retained in function for life. It is concluded that awareness about the measures to be taken in the event of dentalavulsion was inadequate regardless of educational backgroundand geographical locality. However parents showed positive response towards receivingmore advice on emergency management.

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