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Attitude of Pilsen primary school teachers in dental traumas

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Abstract – Dental injuries are rather common during sport activities and at schools where children spend most of their time every day. The purpose of this study was to evaluate the knowledge of primary school teachers in Pilsen, Czech Republic, of how to provide first aid in cases of one of the most serious dental injuries, the tooth avulsion. To this end, a questionnaire which contained nine questions about avulsion of permanent teeth was prepared. The questionnaires were distributed in nine primary schools in Pilsen where almost 300 teachers are employed. Seventy-four percent of the teachers replied. Sixty-eight percent had never received any information about providing first aid in cases of dental injuries and 81% would place the avulsed tooth in a dry handkerchief until the transfer of the patient to dentist. Prevention of tooth injuries is very important, as they may result even in tooth loss. This demands an effort to properly inform and educate sport trainers and primary school teachers about providing first aid in dental trauma situations; this effort should be intensive and continuous.

Tooth injuries are the most common results of traumas in the orofacial region of children and they occur mostly in mixed dentitions, and in permanent teeth with uncompleted development of their root (1, 2). According to the literature (2, 3), 34.9% of boys and 23% of girls might be assumed to have sustained damage to their teeth by the age of 14 years. Generally, children suffer accidents most frequently between 8 and 11 years of age. These accidents often result in dental injuries which can be either injuries of hard tissues of teeth (such as clinical crown or root fractures), or injuries of periodontal tissues (lateral luxation, intrusive luxation, avulsion, etc.), or injuries of soft tissues (e.g. gingival laceration) and bone (fractures of alveolar bone), or finally a combination of the above injuries. Among the most serious types of dental injuries is the avulsion which very often leads to the loss of the affected tooth (1, 2, 4–6).

Such accidents often occur during typical childhood activities, such as running, skateboarding or cycling. In our own previous studies as well as in other studies found in the literature (5, 7–10), it has been shown that the most common causes of dental injuries in children are sport activities, especially contact sports, and the most common places that the accidents occur are sport fields and primary schools.

Materials and methods

A simple questionnaire was prepared which contained nine questions about avulsion (Table 1). For each question, there were two to seven possible responses, from which the teachers could choose one or more. The questionnaires were distributed in nine randomly chosen primary schools, in Pilsen, Czech Republic, to 300 teachers who were asked to complete and return them within one week. A short letter on the reverse side of the questionnaires contained instructions and provided our contact information, in case respondents had any questions.

Subsequently, we prepared posters which were distributed in most of the primary schools in the Czech Republic; the posters contained information about how teachers should react and behave in cases of permanent tooth avulsion.

Results

Seventy-four percent of teachers filled out the questionnaire. Concerning the first question, 69% of respondents who replied had never received any information about providing first aid in cases of dental injuries. Thirty-four percent had not heard the term 'avulsion' of tooth, 20% had experience with dental avulsion in the school and some of them more than once.

The most common cause of dental avulsion, according to respondents, was some kind of sport activity, such as running, football or hockey (63% of the cases). The second most common cause was an impact to the oral cavity with an object (18%), and the third injuries during playing or walking (9%) (Fig. 1).

Question 7 concerned mostly the teachers who had not been present in cases of dental avulsion. Eighty-three percent of respondents answered that they would immediately arrange for the transfer of the child to the dentist and inform the parents.

Finally, 81% of respondents would keep the avulsed tooth or teeth in a dry handkerchief or in any available clean, dry medium, until the child was transferred to the dental office. Two percent would choose to put the tooth

Table 1. Questions and answers

Question no.	Questions and responses of teachers	No. of answers	%
1	Have you ever received any information about providing first aid in cases of dental injuries?	220	
	Yes	68	30.9
	No	152	69.1
2	If yes, mention the source of information	64	
	First aid courses	19	29.7
	Education in pedagogic faculty	21	32.8
	Dentist	17	26.6
	Other sources	22	34.4
3	Have you ever heard the term 'avulsion of tooth'?	220	
	Yes	146	66.4
	No	74	33.6
4	Have you ever met with avulsion in your school?	219	
	Yes	44	20.1
	No	175	79.9
5	Describe the situation that resulted in avulsion	56	
	During sport activities (running, football, etc.)	35	62.5
	Falls during walking or playing	5	8.9
	As a result of an impact of an object in the oral area	10	17.9
	Due to a conflict between students	4	7.1
	Other	2	3.6
6	What was your immediate reaction after the incident?	58	
	I immediately informed the child's family	25	43.1
	I arranged at once for the transfer of the child to the dentist	27	46.6
	I left the child at school as it was not a serious injury	0	0
	I arranged at once for the transfer of the child to his/her home	6	10.3
7	If you have never experienced such a situation, what would you do in a case of an injury which would result in avulsion of the tooth?	217	
	I would inform the family and immediately arrange for the transfer of the child to a dentist	179	82.5
	I would inform the family and immediately arrange for the transfer of the child to his/her home	19	8.7
	If the only injury was avulsion of a tooth and no other more serious trauma would be present, I would leave the child at school	0	0
	I would inform the director and let him/her decide about any possible steps which should be taken or not	3	1.4
	I would contact by phone a dentist, inform him/her about the incident and listen to his/her advice	16	7.4
8	What would you do with the avulsed tooth, if it would be found?	233	
	I would throw it out as it would be dirty and infected	5	2.1
	I would rub it, so that to clean the dirt out of it	4	1.7
	I would wash it with tap water	15	6.4
	I would place it in a clean handkerchief or gauze	188	80.7
	I would place it in milk	10	4.3
	I would place it in physiologic solution	5	2.1
	I would place it in disinfectant solution	6	2.6
9	If you could find the tooth, how would you hold it?	217	
	By the clinical crown	202	93.1
	By the root	4	1.8
	Anyway – it does not make any difference	11	5.1

in saline solution and 4% would place the tooth into milk (Fig. 2).

Teachers could choose one or more answers for each question. The results are presented in Table 1.

Discussion

In cases of avulsion of permanent teeth, immediate replantation of the avulsed tooth into the alveolar socket in the place that the accident happened, or the speedy transfer of the child and the avulsed tooth (which should be stored in proper medium) to a dentist, are the determining factors for future prognosis of the affected tooth (4, 11–13). According to our experience (7), an immediate replantation of the avulsed tooth is extremely rare, and this is the reason that we did not include this option among the answers in our questionnaire. In similar studies in other countries (6), at least 75% of the people who were asked did not even think that such a choice was possible.

The results of this study confirm the data in the literature (6, 14). More specifically it was confirmed that most primary school teachers would put the avulsed tooth in a dry handkerchief until transfer to a dentist, as most teachers would do in similar studies. Thirty-three percent of teachers had never heard the medical term 'avulsion' before we gave them the questionnaires. It was obvious that teachers of primary schools are not adequately informed on how to provide first aid in cases of dental avulsion and apparently other dental injuries,

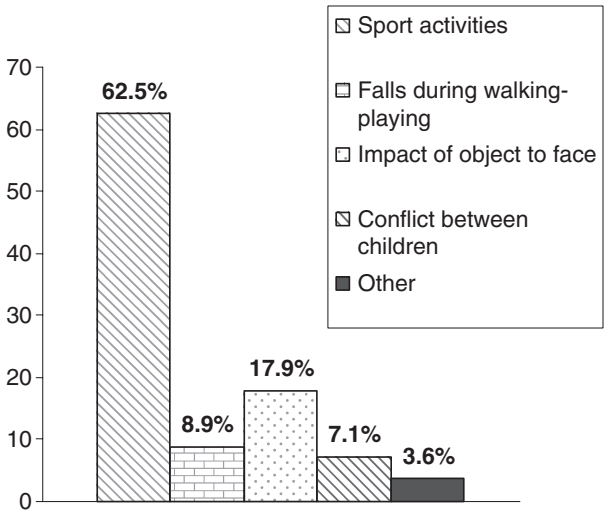

Fig. 1. Causes of dental avulsion incidents at schools.

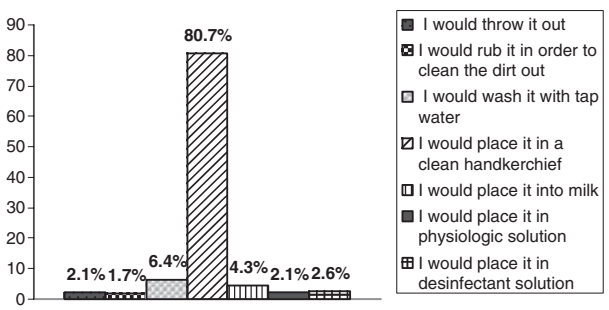

Fig. 2. What teachers would do with the avulsed tooth.

a conclusion which was common in most similar studies conducted in other countries (14–16).

It is clear that if teachers of primary schools are properly educated and if they receive adequate information from dental practitioners about correct management of dental injuries, they will try not only to create a safer environment in their schools, but also to be alert, providing appropriate and immediate first aid in dental trauma situations. Although ideally the avulsed tooth is replanted immediately at the place of the injury, we know that if replantation is realized within 20 min from the time of injury and if the avulsed tooth is not kept in dry environment (but instead in saline solution or in milk) until it is replanted, then prognosis of the tooth is relatively good (17, 18). Furthermore, such confrontation significantly decreases the risk of future complications, such as necrosis of pulp, obliteration of root canal, infection-related root resorption, replacement root resorption, or even premature loss of the affected tooth with consequent inclination of the neighbouring teeth.

Therefore, a persistent effort of dental practitioners to communicate with teachers and sport trainers is crucial (19).

Prevention of tooth injuries should be our first priority. The teachers should know that these injuries may lead to unpleasant situations, even to loss of the affected tooth, a situation which might cause social, behavioural, aesthetic, articulatory and phonation problems (20). If teachers are aware of these possible consequences, they will be more likely to maintain a safer environment, to be more vigilant during schooltime physical activities and to prevent dangerous games between children. In addition, they will more likely insist on the use of mouth-guards during any sport activity. The use of mouth-guards can decrease the frequency of dental injuries impressively and is very effective for all kind of sports, especially contact sports such as football, hockey and basketball (21, 22). Custom-made mouth-guards prepared and designed by dentists and dental technicians are recommended, as they have good retention and interfere minimally with speech and breathing.

Conclusion

In the Czech Republic, primary school teachers have inadequate knowledge about dental injuries and their consequences. This fact demands better communication among dental practitioners, primary school teachers and sport trainers. Appropriate behaviour of all professionals who are in daily contact with children may help to prevent dental traumas. It is in dental practitioners' hands to persuade elementary school teachers and other professionals to try to minimize the incidences of tooth injuries which may lead to irreversible damage, such as the loss of a permanent tooth. For that to happen, all professionals in contact with children need to improve their knowledge in this area, in order to be more effective when they face dental traumas.

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