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Physician and emergency medical technicians' knowledge and experience regarding dental trauma

Lin S, Levin L, Emodi O, Fuss Z, Peled M. Physician and emergency medical technicians' knowledge and experience regarding dental trauma. © Blackwell Munksgaard, 2006.

Abstract – The purpose of the present study was to evaluate the knowledge of physicians and emergency medical technicians (EMT) regarding primary treatment for dental trauma and to assess the experience they have in treating dental injuries. The study population consisted of 70 military physicians and EMT during their military service. A questionnaire was distributed relating to demographic data, such as age, gender, position, and type of military service, as well as the following issues: past experience in treating or witnessing dental trauma, former education regarding diagnosis and treatment of dental trauma, assessment of knowledge regarding dental trauma, etc. Of all participants, only 4 (5.9%), all physicians, received education regarding dental trauma. Nevertheless, 42 (61.8%) reported they witnessed such an injury during their military service. Dental injuries were first seen by the EMT in 41.2% of the cases, by the physician in 25%, and by a dentist in only 7.3%. Overall, 58 (85.3%) of the physicians and EMT stated that it was important to educate the primary health care providers regarding diagnosis and treatment of dental trauma. Special emphasis should be given to providing primary caregivers with the relevant education to improve their knowledge and ability of dealing with diagnosis and treatment of dental trauma.

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Dental trauma is a common event during childhood and adolescence (1–4). Prompt and appropriate management is necessary to significantly improve prognosis for many dento-alveolar injuries, especially in a young patient. Treatment of a traumatized tooth requires fastidious diagnosis and coordination between all treating dental professionals from the moment of injury. Unfortunately, much of this trauma remains untreated, mistreated, or overtreated, leading to more complicated treatment in the future (5–7).

Active participation in physical activities, such as sports, military training, etc. often increases the risk of traumatic injury to dental and oral tissues (8–12). These traumatic injuries, beyond their direct effect on the afflicted patient, have additional consequences, including forced interruption of activity, sometimes of an entire team. Treatment of these injuries and the short- or long-term disturbance of activity of the patient may also cause considerable financial burden. As well, traumatic dental injuries could have a detrimental psychological effect on the injured person and their colleagues (12).

Primary care providers [e.g. family physicians, pediatricians, nurses, physician assistants, and emergency medical technicians (EMT)] could play a pivotal role in the provision of primary care following dental trauma, especially for population

groups with limited access to dental care. Given the current problems with access to dental care among low-income patients, we contend there is a need to involve non-dental primary health care professionals in providing primary diagnosis and treatment for dental trauma.

The purpose of the present study was to evaluate the knowledge of physicians and EMTs regarding primary treatment for dental trauma and to assess the experience they have in treating dental injuries.

Materials and methods

The study population consisted of 70 military physicians and EMTs during their military service. Active service of at least 1 year prior to the study in the medical corps was required. The group consisted of a random population who arrived at the School of Military Medicine for Continuing Education. There was no common background regarding place of birth, education, and place of military service. The survey was based on a questionnaire provided by the authors. To ensure anonymity, names of the participants were not recorded on the questionnaire.

The survey addressed demographic data, such as age, gender, position, and type of military service, as well as the following issues: past experience in treating or witnessing dental trauma, former education regarding diagnosis and treatment of dental trauma, assessment of knowledge regarding dental trauma, etc.

The study was voluntary and The Ethics Committee of The Medical Corps, Israeli Defense Forces approved the study. All but two participants answered the questionnaire (97.1% response rate). Data were collected and analyzed by SPSS 10.0 (SPSS Inc., Chicago, IL, USA).

Results

Of the 70 participants, 68 (97.1%) answered the questionnaire; 61 (89.7%) males and 7 (10.3%) females, 24 (35.3%) physicians and 44 (64.7%) EMTs. Most participants served in field units (67.6%).

Table 1. Reports on witnessing dental trauma during military service

	Physicians (%)	EMTs (%)	Total
Once	7 (29.2%)	6 (13.6%)	13 (19.1%)
Few times	8 (33.3%)	13 (29.5%)	21 (30.9%)
Many times	4 (16.7%)	4 (9.1%)	8 (11.8%)
No	5 (20.8%)	21 (47.7%)	26 (38.2%)
Total	24	44	68 (100%)

Only 4 (5.9%), all physicians stated they received education regarding dental trauma. Nevertheless, 42 (61.8%) reported they witnessed such an injury during their military service (Table 1). According to the reports, 41.2% of the dental injuries were first seen by the EMT, 25% by the physician, and only 7.3% by a dentist.

Answers to questions regarding treatment of tooth avulsion and trauma by physicians and EMTs are shown in Table 2.

Overall, 58 (85.3%) of the physicians and EMTs stated that it was important to educate primary health care professionals regarding diagnosis and treatment of dental trauma.

Discussion

Unfortunately, dental injuries are not uncommon (4, 5, 12). In an epidemiologic study of accidental dentofacial injuries to US Army personnel, conducted to determine the frequency and distribution patterns of accidental dentofacial injuries to soldiers, it was found that the overall rate was 37.7 cases/10 000/year (13). Fistfights (nearly 30%), sports (over 20%), and vehicles (about 15%) were the specific causes of these injuries. It is noteworthy that these specific causes are not limited to military services, and could be predictable for the overall population.

Table 2. Answers to questions regarding treatment of tooth avulsion and trauma by physicians and EMTs

Question	Answer	Physicians (%)	EMTs (%)	Total
What is the best medium for holding an avulsed tooth?	Milk	4 (16.7%)	7 (15.9%)	11 (16.2%)
	Tap water	0	4 (9.1%)	4 (5.9%)
	Saline	10 (41.7%)	17 (38.6%)	27 (39.7%)
	Saliva	6 (25.0%)	3 (6.8%)	9 (13.2%)
	Dry	0	3 (6.8%)	3 (4.4%)
	Do not know	4 (16.7%)	10 (22.7%)	14 (20.6%)
What will you do in case of an avulsed tooth?	Return the tooth to the mouth	10 (41.7%)	3 (6.8%)	13 (19.1%)
	Refer the patient with the tooth to the dentist	8 (33.3%)	27 (61.4%)	35 (51.5%)
	Throw the tooth	0	2 (8.3%)	2 (2.9%)
	Do not know	5 (20.8%)	12 (27.3%)	17 (25.0%)
What will you do in case of tooth movement due to trauma accompanied by bleeding from the gums?	Wash the mouth with water	6 (25.0%)	15 (34.1%)	21 (30.9%)
	Refer to the dentist	9 (37.5%)	14 (31.8)	23 (33.8%)
	Stop the bleeding	7 (29.2%)	3 (6.8%)	10 (14.7%)
	Do not know	2 (8.3%)	12 (27.3%)	14 (20.6%)

The results of a recent study indicate that a significant percentage of candidates for orthodontic treatment, and especially those with increased overjet and inadequate lip coverage, suffer trauma to their permanent incisors before the onset of orthodontic treatment (14).

In another study aimed at revealing the etiological factors related to dental injuries in Norwegians aged 7–18 years, 4% of all injuries were classified as severe, in which only one-third were assumed to be preventable (15). It was concluded that because of the complexity of these factors, it is neither easy to prevent dental injuries nor to make guidelines on prevention. These findings emphasize the importance of education of primary caregivers on the diagnosis and treatment of dental trauma.

The present findings indicate poor knowledge regarding diagnosis and treatment of dental trauma among physicians and EMTs, together with a high rate experience or witnessing such events. Special emphasis should be given to providing primary care givers with education during pre and postgraduate programs. This will improve their knowledge and ability of handling dental trauma.

Only four physicians (out of 24) and no EMT reported receiving education with regards to dental trauma, which shows that this topic is neglected in the education of primary care givers. Moreover, over one-quarter of the participants did not know the correct answers to the questions regarding treatment of tooth avulsion and trauma. The fact that most dental injuries was first seen by the EMT or the physician compared to only 7.3% by a dentist, underlines the educational importance. This is supported by the physicians and EMTs, who stated that it were important to educate the primary health care providers regarding diagnosis and treatment of dental trauma.

The study population consisted of 70 physicians and EMTs, mostly males, due to the convenience sampling of the military staff. Since the population was predominantly male, no attempt was made to address the difference in the experience of dental trauma diagnosis and treatment, or level of information and awareness regarding dental trauma based on gender. Thus, the study relates to the total population of military physicians and EMTs.

The rather small cohort in this study resulted in a small sub-sample of the group studied. Therefore, further research using a larger cohort is warranted. This was also a convenient sample of physicians and EMTs, who randomly arrived at a continuing education program, a fact that could limit the possibility of generalization to other population groups. However, despite the limitations of the present study, these data emphasize a need for further dental health education and training for physicians and EMTs.

Conclusions

Dental injuries are common. Primary care providers (e.g. family physicians, pediatricians, nurses, physician assistants, and EMTs) could play a crucial role in the provision of primary care following dental trauma. Special emphasis should be given to provide primary care givers with the relevant education to improve their knowledge and ability of dealing with the diagnosis and treatment of dental trauma.

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