Original Article

KNOWLEDGE AND ATTITUDE OF DENTAL STUDENTS TOWARDS MEDICAL EMERGENCIES AT KING ABDULAZIZ UNIVERSITY, JEDDAH, SAUDI ARABIA

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ABSTRACT

A medical emergency (ME) in the dental clinic may occur at any time. Although they are usually not life-threatening, they may occasionally lead to serious complications. Assessing patients' medical history and receiving training in basic life support (BLS) are essential for the prevention and management of emergent medical situations. The diagnosis and management of MEs is an essential part of dental students' undergraduate curriculum, as dental graduates should be competent in managing different emergencies that may arise in the dental clinic. This is a cross-sectional study, employing a self-administered questionnaire for undergraduate clinical dental students at King Abdulaziz University, Faculty of Dentistry. The questionnaire sought information on the knowledge, preparedness, practice, and attitude of dental students toward ME. All of the distributed questionnaires were retrieved. The majority of the students (85.3%) took detailed medical histories for every new patient. Most of the students (58.5 %) knew the local ambulance number; however, the vast majority did not know the dental school emergency number. The majority of the students (78.9%) did not feel confident managing a ME in the dental clinic. Lack of training in MEs in the dental curricula has previously been reported. There was a concerning lack of confidence among the surveyed dental students. This may be a result of the rarity of the episodes and a lack of hands-on ME training. Management of a ME in the undergraduate curriculum must be reinforced by providing simulation courses, hands-on workshops, and periodic mock ME drills.

Key words: Medical emergencies (ME), Dental clinic, Dental students, Basic life support (BLS), Resuscitation, Undergraduate dental course.

Introduction

Although infrequent, medical emergencies during dental treatment may occur at any stage of the dental procedure. In the United Kingdom, approximately 70 % of general dental practitioners have managed at least one medical emergency [1-4]. Medical emergencies are usually not life-threatening but can be serious [5].

The dentist is responsible for managing any emergencies that take place in the dental clinic, whether in the waiting area or the clinic. Taking a detailed medical history and training in the management of medical emergencies and basic life support (BLS) are prerequisites for the prevention and management of a medical emergency [6, 7].

The diagnosis and management of medical emergencies are essential components of undergraduate dental students' training. A dental school graduate should be competent in managing different medical emergencies that may arise in the dental clinic. There is no current literature on the preparedness of dental teaching institutions in Saudi Arabia; however, a recent study in private dental offices and polyclinics in Jeddah showed that dental offices are not well-prepared for medical emergencies [8].

The aim of the present study was to assess the knowledge, preparedness, and attitudes regarding medical emergencies of undergraduate dental students at King Abdulaziz University, Faculty of Dentistry.

Materials and Methods

This is a cross-sectional study including a self-administered 15-item pretested questionnaire that was developed and distributed among undergraduate dental students in their fourth to sixth years at King Abdulaziz University- Faculty of Dentistry (KAUFD). A total of 299 dental students participated in the study. All fourth, fifth, and sixth-year students were BLS certified as a requirement of the clinical affairs department at the school. The current study is on the questionnaire that was distributed and collected between June 2014 and September 2014 prior to establishing a new protocol for managing medical emergencies at the dental college. The students participated voluntarily and were assured of their confidentiality. The study was conducted in full accordance with the World Medical Association Declaration of Helsinki.

Questionnaire
The survey sought information on the following:

- Dental students have knowledge of the emergency number of the dental school emergency response team and local emergency response system (Saudi Red Crescent).
- The preparedness of the students for a dental emergency: questions were asked about the training courses on medical emergencies at the dental school and BLS.
- The student's practice was assessed with regards to taking the medical history, who took the medical history, how detailed the medical history is, and how frequently the medical history is updated.
- The student's attitudes were assessed towards the importance of attending ME refresher courses and how frequently they should attend courses, as well as the student's comfort level in managing medical emergencies; administering BLS, intramuscular injections, and intravenous injections, and taking blood pressure.

Data and statistical analysis
The data were entered into a spreadsheet and analyzed using IBM SPSS software, version 22 (SPSS, Inc. IBM, Chicago, IL, USA). The responses were expressed as percentages from the total.

Results and Discussion

All of the distributed questionnaires were retrieved and analyzed. The demographics of the study sample are presented in **Table 1.**

Table 1. Demographics of the study sample.

Year	Male	Female	Total
4th year	51 (38.9)	68 (40.5)	119 (39.8)
5th year	23 (17.6)	48 (28.6)	71 (23.7)
6th year	57 (43.5)	52 (31.0)	109 (36.5)
TOTAL			299

Knowledge
The majority (seventy-four percent (n=221)) of the students responded that they do not know the dental school's emergency contact number, while 23.1% (n=78) responded with an incorrect number. Only 2% (n=6) knew the correct emergency response number at the dental school.

Regarding the local emergency response system in the city of Jeddah (The Red Crescent), 58.5 % (n= 175) knew the correct number, whereas 39.8 % (n=119) did not know the number, and 1.7 % (n=5) responded with an incorrect number **(Figure 1)**.

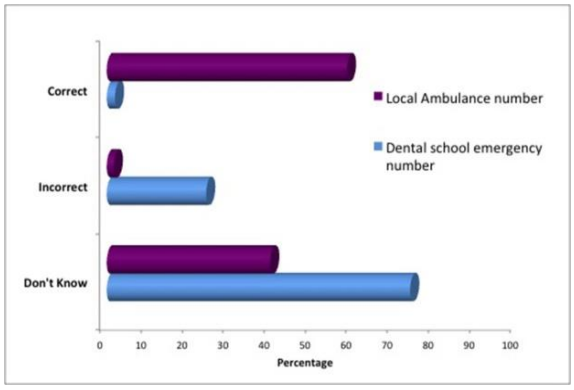

Figure 1. Knowledge of students in the emergency response system at the dental school and local ambulance (Red Crescent).

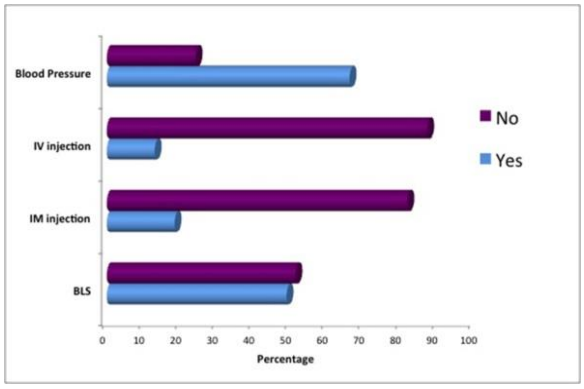

Figure 2. Dental students' responses to their comfort level in performing specific skills required during an emergency.

Practice: prevention of medical emergencies
Regarding the medical history, the majority of the students (n=255; 85.3%) took a detailed medical history for each new patient during their clinical session. **Table 2** presents the response of the dental students with regard to their medical histories.

Table 2. Dental students' experience in taking patients' medical histories.

Questions about the prevention of medical emergencies	Yes	No
Do you obtain a detailed medical history for every patient?	85.3 %	14.7 %
Do you obtain the medical history yourself?	55.9 %	44.1 %
Do you periodically update the patient's medical history?	72.9 %	27.1 %
If yes, how frequently do you update the patient's medical history?		
Every 6 months	49.5 %	
Once a year	41.3 %	
Every 5 years	9.2 %	

With respect to the frequency of updating the medical history, only half of the students (49.5%) update the patient's medical history every 6 months. Forty-one percent and 9.2% of the students update the patient's medical history every year and every 5 years, respectively. When asked about the frequency of attending medical emergency courses in a year, 14.7% responded they do not attend, whereas 25.8 %, 58.5 %, and 1 % responded that they attend once a year, two times per year, and three times per year, respectively.

Attitude

The vast majority of the surveyed students (96.7%) were in agreement on the importance of attending courses on medical emergencies of which 75.4% recommended taking a course every year, while 21.5% recommended taking a course every 5 years.

The majority of dental students (78.9%) did not feel confident managing a medical emergency in the dental school. **Figure 2** summarizes their comfort level with the specific skills that are required during a medical emergency.

Medical emergencies during undergraduate training are not common; this is due, in part, to the selection criteria of the patients who are allocated to the students. However, emergencies can arise suddenly at any stage of a dental procedure and represent a challenge to the attending clinicians. Approximately, 70.2 % of general dental practitioners in the United Kingdom have managed a medical emergency according to a 10-year survey [1], and 5 % of 244 Ohio dentists that were surveyed had performed cardiopulmonary resuscitation (CPR) on a patient [9].

We agree with the assessment of Burdick *et al*. that patients have the right to expect that every physician, including their dentist, can manage life-threatening situations and has a basic knowledge of emergency medical care [10].

While many reports studied the prevalence of medical emergencies in dental clinics and the frequency of each type [7, 11], few studies have assessed students' knowledge of medical emergency protocols at their institutions or their perceptions and overall attitudes on the importance of knowing how to handle medical emergencies in the dental clinic. A lack of training on medical emergencies in dental curricula has been reported in previous studies [11, 12].

A study in Japan also found that students were not well prepared to manage medical emergencies in the dental clinic [13], and more than half of New Zealand's dentists were dissatisfied with the training they had received for medical emergencies as undergraduate students [14].

While the majority of students were able to assess and record a detailed patient history, only a few students were familiar with their college's medical emergency protocol. Only 21% reported having confidence in managing medical emergencies in the dental office (mostly senior-level students); this low confidence level coincides with other reports. A survey of Britain general dental practitioners showed that only 30% considered themselves well-prepared to manage medical emergencies at graduation [6].

Nearly 50% of the students surveyed in our study felt confident in their basic life support skills, and the majority (75.4%) felt that they would benefit from an annual refresher course on managing medical emergencies. Several international studies [7, 15, 16] have found that approximately 50% of dentists are not able to perform CPR properly [17]. This puts greater emphasis on the importance of emergency medical training for undergraduate students; therefore, we highly recommend a review of BLS and CPR techniques, especially because some reports indicate that there is a greater incidence of cardiac events compared to syncope in the dental clinic [18].

While 50% of our students reported having confidence in their BLS skills, this is not reflective of their level of competence in performing these skills. Laurent *et al*. reported that while dental students were confident in the management of a theoretical cardiac event, only 9% of the students were able to perform CPR correctly on a manikin [19].

Conclusion

In conclusion, weakness in the diagnosis and management of medical emergencies and the lack of experience in using emergency equipment and drugs lead to a lack of confidence. Undergraduate dental students require more training on medical emergencies in the form of didactic lectures, simulation courses, hands-on emergency scenarios, and periodic mock emergency drills.

Future study

Our future study aims to assess different teaching techniques for the diagnosis and management of medical emergencies for undergraduate students and the potential effect on students' levels of confidence and skills.

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Ethics statement: None

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