Annals Journal of Dental and Medical Assisting
2022, Volume 2, Page No: 39-43

Available online at: www.tsdp.net

TSDP
Turkish Specialized Dental Publication

Cross-Sectional Study

Medical Emergency Preparedness Among Dental Students: A Study from King Abdulaziz Universit

Fahed A. Aloufi[1], Md. Abu Taleb[1]*, Riyadh F. Halawani[1], Abdurazag Tammar[1], Shreef Mahmood[2], Khan Rubayet Rahaman[3]

[1]Department of Environmental Science, Faculty of Meteorology, Environment and Arid Land Agriculture, King Abdulaziz University, Jeddah 21589, Saudi Arabia.
[2]Department of Horticulture, Hajee Mohammad Danesh Science and Technology University, Dinajpur 5200, Bangladesh.
[3]Department of Geography and Environmental Studies, St. Mary's University, Halifax, NS B3H 3C3, Canada.

***E-mail** ✉ taleb@manarat.ac.bd

Received: 15 August 2022; **Revised:** 17 November 2022; **Accepted:** 20 November 2022

ABSTRACT

In the dental clinic, a medical emergency (ME) could occur at any time. While they are often not life-threatening, they can sometimes lead to severe complications. Basic life support (BLS) training and evaluating individuals' medical histories are essential for managing and preventing emergency medical conditions. Since dental graduates must be able to handle many of the emergencies that may occur in the dental clinic, the diagnosis and treatment of MEs is an important component of the undergraduate curriculum for dental students. All of the surveys provided were recovered, and almost all of the students (85.3%) took thorough medical histories for each new patient. This cross-sectional study used a self-administered questionnaire for undergraduate clinical dental students at King Abdulaziz University, Faculty of Dentistry, to collect data on dental students' knowledge, readiness, practice, and attitude toward ME. A large percentage of students (78.9%) were unsure about the management of ME in the dental clinic; it was formerly stated that there is a lack of guidance in the dental curriculum regarding MEs; this shortage of confidence among the investigated dental students could be due to the occurrences' rarity and the absence of practical ME training. The vast majority of students were not familiar with the dentistry school emergency number, but the majority (58.5%) knew the local ambulance number. Regular mock ME exercises, practical workshops, and simulation courses should be offered to improve control of an ME in the undergraduate curriculum.

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

How to Cite This Article: Aloufi FA, Taleb MA, Halawani RF, Tammar A, Mahmood S, Rahaman KR. Medical Emergency Preparedness Among Dental Students: A Study from King Abdulaziz Universit. Ann J Dent Med Assist. 2022;2:39-43.

Introduction

Medical emergencies during dental management might happen at any point throughout the operation, though they are rare. Around seventy percent of general dentists in the UK have dealt with at least one medical crisis [1-4]. Although they are typically not life-threatening, medical emergencies can be rather dangerous [5].

The dentist is in charge of handling any crises that arise at the dental office, regardless of whether they occur in the clinic or the waiting area. The avoidance and management of a medical emergency require taking a thorough medical history and receiving instruction about basic life support (BLS) and emergency medical management [6, 7].

An undergraduate dentistry student's training must include the diagnosis and treatment of medical

emergencies. A graduate of dentistry school must be capable of handling the many medical crises that could occur at the dental office. A recent study conducted in private dental offices and polyclinics in Jeddah revealed that dental offices are ill-prepared for medical emergencies, but there is currently little literature on the readiness of dental training institutions in Saudi Arabia [8].

Assessing undergraduate dental students' attitudes, knowledge, and readiness for medical emergencies at King Abdulaziz University's Faculty of Dentistry was the goal of the current study.

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 4th, 5th, and 6th-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 before 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 following topics were the focus of the survey:

- Dentistry students are aware of the local emergency response system (Saudi Red Crescent) and the emergency number of the dentistry school emergency response team.
- The student's readiness for a dental emergency: inquiries were made on the dental school's and BLS's medical emergency training programs.
- The student's performance was evaluated in terms of taking the medical history, who did it, how thorough it is, and how often it is updated.
- The students' attitudes regarding the value of taking ME refresher courses and the frequency of such courses were evaluated, along with their degree of comfort in handling medical emergencies, including taking BP, conducting BLS, and giving IM and IV injections.

Data and statistical analysis

IBM SPSS software version 22 was used to evaluate the data after it had been copied into a spreadsheet (SPSS, Inc. IBM, Chicago, IL, USA). Percentages of the total were used to express the responses.

Results and Discussion

Every questionnaire that was distributed was collected and examined. **Table 1** displays the research sample's demographics**.**

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

Of the students, the majority (221 students (74%)) said they were unaware of the dental school's emergency phone number, while 78 students (23.1%) gave the wrong number. At their dental college, only 6 students (2%) were aware of the proper emergency response number.

175 students (58.5%) of the respondents acknowledged the proper number for the city of Jeddah's local emergency response system (The Red Crescent), while 119 students (39.8%) did not, and 5 students (1.7%) gave the wrong number **(Figure 1)**.

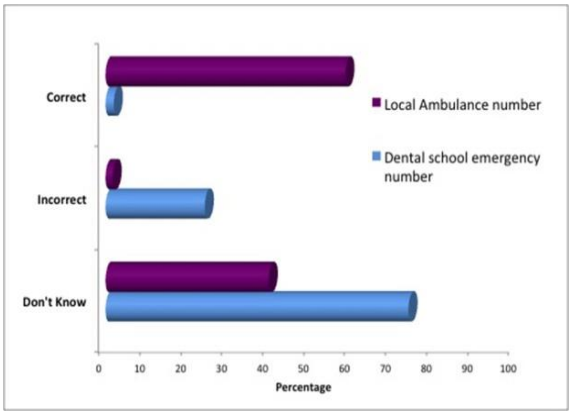

Figure 1. Students' awareness of the local ambulance (Red Crescent) and the dental school's emergency response system.

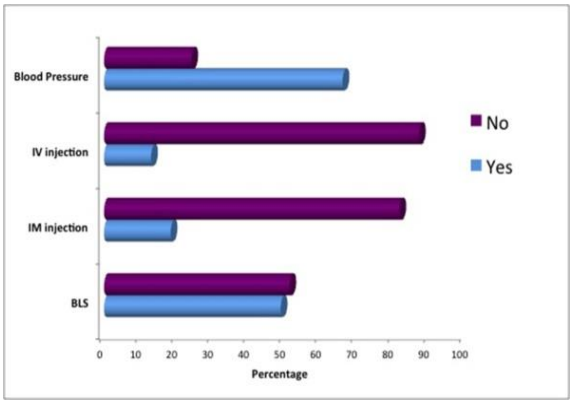

Figure 2. Responses from dental students regarding how comfortable they are using particular abilities needed in an emergency.

Practice: prevention of medical emergencies

Table 2 shows the dental students' responses to their medical histories. Amongst the respondents, the majority (255 students (85.3%)) of all newly admitted patients had their full medical histories taken during their clinical appointments.

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

Questions about the prevention of medical emergencies	Yes	No
Do you get each patient's complete medical history?	85.3 %	14.7 %
Do you have your medical history?	55.9 %	44.1 %
Do you update the patient's medical history regularly?	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 %	

Regarding how frequently the patient's medical history is updated, only half of the students (49.5%) do so every six months. Of the students, 41% update the patient's medical history annually, and 9.2% do so every five years. In response to a question concerning how often they attend medical emergency courses annually, 14.7% said they don't, while 25.8%, 58.5%, and 1% said they do so once, twice, and 3 epochs year, correspondingly.

Attitude

According to the study, the overwhelming majority of students (96.7%) agreed that taking medical emergency courses is important. Of those, 75.4% suggested taking a course annually, and 21.5% suggested taking one every five years.

When it came to handling a medical emergency in dentistry school, the majority of dental students (78.9%) lacked confidence. Their degree of comfort with the particular abilities needed in a medical emergency is summed up in **Figure 2**.

Owing specifically to the respondents' selection criteria for the individuals they were assigned, medical emergencies during undergraduate training are uncommon. However, emergencies might occur at any point throughout a dental surgery and offer difficulties for the attending professionals. Based on the 10-year survey, about 70.2% of general dentists in the UK have handled a medical emergency [1], and 5% of the 244 Ohio dentists polled had given cardiopulmonary resuscitation (CPR) to a patient [9].

We concur with Burdick *et al*. conclusion that patients have a right to anticipate that all of their doctors, including their dentist, are capable of handling life-threatening situations and possess a fundamental understanding of emergency medical treatment [10].

Although many studies have examined the incidence and frequency of medical emergencies in dental clinics, few studies have assessed students' knowledge of medical emergency procedures at their schools or their opinions and attitudes about the importance of understanding how to handle medical emergencies in the dental clinic [7, 11]. Previous studies have shown that medical crises are not sufficiently taught in dentistry programs [11, 12].

Over 50% of New Zealand's dentists expressed dissatisfaction with the medical emergency training they received as undergraduates, and research conducted in Japan also revealed that students were ill-prepared to handle medical emergencies in the dental clinic [13, 14].

Only a small percentage of students knew their college's medical emergency protocol, even though most were able to evaluate and document a thorough patient history. In line with previous statistics, just 21% of students, mostly senior-level students, reported feeling comfortable managing medical issues in the dental office. According to a poll, only 30% of general dentists in Britain felt sufficiently prepared to manage medical emergencies following graduation [6].

A large percentage (75.4%) of the students who participated in our study believed their skills could profit from a yearly refresher course in handling medical crises, and nearly 50% of them were confident in their basic life support abilities. About 50% of dentists are unable to do CPR correctly, according to many international studies [7, 15-17]. Since some reports suggest that the frequency of cardiac events in the dental clinic is higher than that of syncope, we

strongly advise a review of BLS and CPR techniques. This highlights the significance of emergency medical training for undergraduate students [18].

Although half of our students said they were confident in their BLS abilities, this does not necessarily indicate how proficient they are at using these abilities. According to Laurent *et al*. [19], just 9% of dentistry students could correctly execute cardiopulmonary resuscitation on a manikin, despite their confidence in managing a hypothetical cardiac crisis.

Conclusion

In conclusion, a lack of self-esteem is caused by deficiencies in the diagnosis and treatment of medical situations as well as inexperience with emergency supplies and medications. More instruction in medical emergencies is necessary for undergraduate dentistry students. This instruction should take the form of didactic lectures, simulation courses, practical emergencies, and recurring mock emergency drills.

Future study

Our next study intends to evaluate various teaching methods for undergraduate students' identification and handling of medical emergencies as well as the possible impact on their confidence and ability levels.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Atherton GJ, McCaul JA, Williams SA. Medical emergencies in general dental practice in Great Britain. Part 1: their prevalence over a 10-year period. Br Dent J. 1999;186(2):72-9.
2. Ashurko I, Esayan A, Magdalyanova M, Tarasenko S. Current concepts of surgical methods to increase mucosal thickness during dental implantation. J Adv Pharm Educ Res. 2021;11(3):37-41.
3. Mohammed MA. Comparative analysis of the efficacy of paracetamol and naproxen as a preemptive analgesia following surgical dental extraction. J Adv Pharm Educ Res. 2021;11(1):178-81.
4. Remizova AA, Dzgoeva MG, Tingaeva YI, Hubulov SA, Gutnov VM, Bitarov PA. Tissue dental status and features of periodontal microcirculation in patients with new COVID-19 coronavirus infection. Pharmacophore. 2021;12(2):6-13.
5. Haas DA. Management of medical emergencies in the dental office: conditions in each country, the extent of treatment by the dentist. Anesth Prog. 2006;53(1):20-4.
6. Atherton GJ, McCaul JA, Williams SA. Medical emergencies in general dental practice in Great Britain. Part 3: perceptions of training and competence of GDPs in their management. Br Dent J. 1999;186(5):234-7.
7. Girdler NM, Smith DG. Prevalence of emergency events in British dental practice and emergency management skills of British dentists. Resuscitation. 1999;41(2):159-67.
8. Al-Sebaei MO, Alkayyal MA, Alsulimani AH, Alsulaimani OS, Habib WT. The preparedness of private dental offices and polyclinics for medical emergencies. A survey in western Saudi Arabia. Saudi Med J. 2015;36(3):335-40.
9. Kandray DP, Pieren JA, Benner RW. Attitudes of Ohio dentists and dental hygienists on the use of automated external defibrillators. J Dent Educ. 2007;71(4):480-6.
10. Burdick WP, Jouriles NJ, D'Onofrio G, Kass LE, Mahoney JF, Restifo KM. Emergency medicine in undergraduate education. SAEM education committee, undergraduate subcommittee, society for academic emergency medicine. Acad Emerg Med. 1998;5(11):1105-10.
11. Müller MP, Hänsel M, Stehr SN, Weber S, Koch T. A state-wide survey of medical emergency management in dental practices: incidence of emergencies and training experience. Emerg Med J. 2008;25(5):296-300.
12. Sopka S, Biermann H, Druener S, Skorning M, Knops A, Fitzner C, et al. Practical skills training influences knowledge and attitude of dental students towards emergency medical care. Eur J Dent Educ. 2012;16(3):179-86.
13. Tanzawa T, Futaki K, Kurabayashi H, Goto K, Yoshihama Y, Hasegawa T, et al. Medical emergency education using a robot patient in a dental setting. Eur J Dent Educ. 2013;17(1):e114-9.
14. Broadbent JM, Thomson WM. The readiness of New Zealand general dental practitioners for medical emergencies. N Z Dent J. 2001;97(429):82-6.
15. Chapman PJ. A questionnaire survey of dentists regarding knowledge and perceived competence in

resuscitation and occurrence of resuscitation emergencies. Aust Dent J. 1995;40(2):98-103.
16. Chapman PJ. Medical emergencies in dental practice and choice of emergency drugs and equipment: a survey of Australian dentists. Aust Dent J. 1997;42(2):103-8.
17. Carvalho RM, Costa LR, Marcelo VC. Brazilian dental students' perceptions about medical emergencies: a qualitative exploratory study. J Dent Educ. 2008;72(11):1343-9.
18. Anders PL, Comeau RL, Hatton M, Neiders ME. The nature and frequency of medical emergencies among patients in a dental school setting. J Dent Educ. 2010;74(4):392-6.
19. Laurent F, Augustin P, Nabet C, Ackers S, Zamaroczy D, Maman L. Managing a cardiac arrest: evaluation of final-year predoctoral dental students. J Dent Educ. 2009;73(2):211-7.