ID Design Press, Skopje, Republic of Macedonia
Open Access Macedonian Journal of Medical Sciences. 2018 Feb 15; 6(2):402-405.
https://doi.org/10.3889/oamjms.2018.072
eISSN: 1857-9655
Dental Science

Knowledge and Preparedness of Dental Practitioners on Management of Medical Emergencies in Jazan Province

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Citation: Al-Iryani GM, Ali FM, Alnami NH, Almashhur SK, Adawi MA, Tairy AA. Knowledge and Preparedness of Dental Practitioners on Management of Medical Emergencies in Jazan Province. Open Access Maced J Med Sci. 2018 Feb 15; 6(2):402-405. https://doi.org/10.3889/oamjms.2018.072

Keywords: Knowledge; Preparedness; Dental Practitioners; Medical Emergencies; Jazan Province (KSA)

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Received: 22-Sep-2017; **Revised:** 07-Nov-2017; **Accepted:** 21-Nov-2017; **Online first:** 14-Feb-2018

Funding: This research did not receive any financial support

Competing Interests: The authors have declared that no competing interests exist

Abstract

Medical emergencies are one of the most stressful situations the staff in a dental practice might encounter. The duty of care toward the attending patients obligates suitable preparedness to provide the necessary care if such emergencies ensue. Unfortunately, we found that 22% of the investigated dental clinics had no emergency kit available. Only 38% of the interviewed dentists felt confident to perform CPR, and 18% had no confidence to manage any medical emergency. An MCQ test of 20 questions examining the dentists' knowledge in medical emergencies was distributed, and the level of knowledge was found to be suboptimal. The average score of the interviewed dentists was 10.87 out of 20. Experience and specialty training had a negligible effect on the level of knowledge.

Introduction

A medical emergency is a medical condition requiring immediate treatment [1]. These emergencies require management by personnel who should ideally be suitably qualified to do so. Dependent on the severity of the emergency and the quality of any treatment given, it may require the involvement of multiple levels of care, from a first aider to an emergency physician through to specialist surgeons. The dentist should be able to initiate the primary management to avoid morbidity and mortality, and this warrants the need for basic knowledge and material preparedness to identify, access, and manage emergency situations in one's practice. Successful patient management relies on understanding the pathophysiologic processes and how to correct them [1][2][3][4][5][6]. Every dentist has high chance to be involved in the diagnosis and treatment of medical emergencies during their clinical practice. These emergencies can be directly related to dental therapy, or they may occur by chance in the dental office environment [3][4][7][8][9]. Changing demographics in the population, leading to increased longevity have resulted in more people having medical conditions which predispose to a medical emergency or are taking medications which may influence their dental management [10]. There is a lack of comprehensive studies on the incidence of medical emergencies in dental practices in Saudi Arabia.

There was a study by Mostafa et al. published in 2015 and looked into medical emergencies in dental offices in the eastern province of Saudi Arabia [11]. Never the less it is well documented that the Saudi population is suffering from a high incidence of Diabetes and cardiovascular diseases [12][13] which again may predispose to medical emergencies during dental treatment. No studies have been conducted in Saudi Arabia to investigate preparedness and knowledge of dentists in the management of medical emergencies.

Methods

This was a cross-sectional study conducted in Jazan province; Saudi Arabia. A questionnaire was formulated to assess preparedness, self - perception and knowledge of medical emergencies (appendix 1). This questionnaire was tested for content validity by three lecturers in the College of Dentistry, Jazan University, and then for readability by a pilot sample of dental practitioners. The study was approved by the Internal research Board at the college of dentistry, Jazan University. A cover letter was added to present the investigators and explain the study's objectives and to encourage participation. At the same time, it ensured the anonymity of the participants and the confidentiality of their data. The participants were supervised to affirm they did not get any assistance.

The participants had first to state the time since they obtained their bachelor degree in dentistry (years of experience) and whether they were specialists or general practitioners.

To assess preparedness, the following questions were asked:

1) Do you take detailed medical history for all your patients?

2) Do you have training in basic life support?

3) Do you have an emergency kit in your clinic?

To assess self - perception, the following questions were asked:

1) Are you confident to perform CPR?

2) Do you think you have the knowledge and skills to manage medical emergencies in your clinic?

To assess the knowledge we decided to avoid using "yes or no" style of questions due to the high probability of false positive replies. We prepared 20 multiple choice questions and focused them equally (five questions each) on the following four categories:

1) Identifying patient at risk of developing medical emergencies

2) Diagnosing medical emergencies

3) Pathophysiology of medical emergencies

4) Treatment and management of medical emergencies

The answers of the MCQs were graded by giving one mark for each correct answer, and no marks were given to wrong answers. The data from all parts of the questionnaire was then entered into excel office, and SPSS program was also used for the statistical analysis.

Results

One hundred dental practitioners participated and answered the questionnaire. Forty-five percent of the participants had less than five years of experience while 26% had from 5 to 10 years and 29% had more than 15 years. Specialists were 17% of participants while general practitioners were 83%.

For the assessment of preparedness 96% of participants claimed they always take a detailed medical history of all their patients. Ninety-five percent have had training in BLS, and 78% have an emergency kit in their clinics (Table 1).

Table 1: Assessment of preparedness

Question	YES	NO
Do you take detailed medical history for all your patients	96%	4%
Do you have training in basic life support	95%	5%
Do you have an Emergency Kit in your clinic	78%	22%

For the assessment of the practitioner's perception on their ability to manage medical emergencies, only 38% thought they are confident to perform CPR, and 82% believed they could manage medical emergencies (Table 2).

Table 2: Assessment of the practitioner's perception

Question	YES	NO
Are you confident to perform CPR	38%	62%
Do you think you have the knowledge and skills to manage medical emergencies in your clinic	82%	18%

In the assessment of knowledge, the average of scores was 10.87 out of 20. The highest score achieved was 16, and the lowest was 2. Twenty-seven of the participants scored less than 10, while only 3 scored 15 or more.

The distribution of scores was as in the following graph:

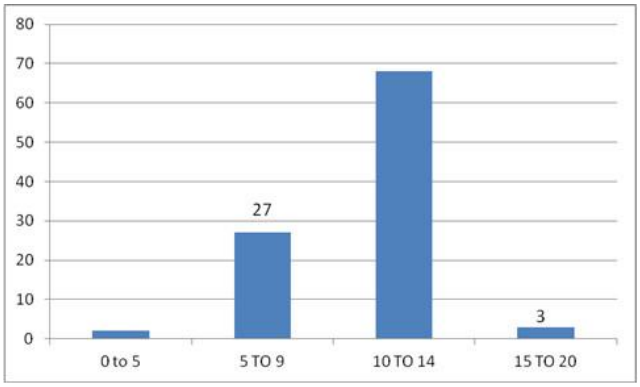

Figure 1: Distribution of scores

The mean scores (out of 5) in different categories of knowledge on medical emergencies were as the following chart:

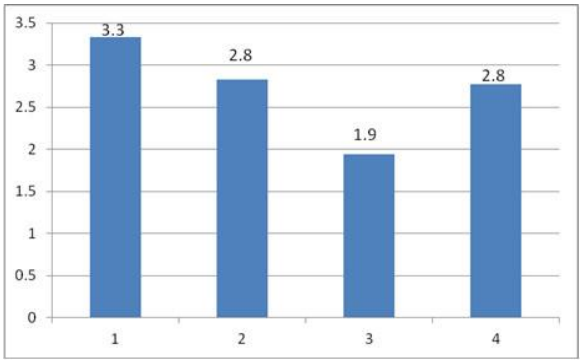

Figure 2: 1) Identifying patient at risk of developing medical emergencies; 2) Diagnosing medical emergencies; 3) Pathophysiology of medical emergencies; 4) Treatment and management of medical emergencies

Differences in scores among different groups were as follows:

Table 3: Knowledge between specialists and non - specialists

Knowledge category	Qualification	No	Mean	SD	the
Identifying patient at risk	Specialist	17	3.35	1.169	0.568
	Non specialist	83	3.33	1.250	
Diagnosing medical emergencies	Specialist	17	2.82	1.131	0.716
	Non specialist	83	2.83	1.080	
Pathophysiology of medical emergencies	Specialist	17	2.00	1.000	0.432
	Non specialist	83	1.93	1.022	
Treatment and management of medical emergencies	Specialist	17	3.06	0.966	0.036
	Non specialist	83	2.71	0.944	
TOTAL	Specialist	17	11.24	2.840	0.605
	Non specialist	83	10.80	2.560	

There were no significant differences in knowledge between specialists and non - specialists except in knowledge on treatment and management of medical emergencies were specialist's showed better knowledge (Table 3).

Table 4: Time since graduation (years of experience)

Knowledge category	Years since graduation	No	Mean	SD	the
Identifying patient at risk	Less than 5	45	3.71	1.325	0.018
	5 to 10	26	3.00	0.894	
	More than 10	29	3.03	1.210	
Diagnosing medical emergencies	Less than 5	45	3.04	1.107	0.178
	5 to 10	26	2.58	1.238	
	More than 10	29	2.72	0.841	
Pathophysiology of medical emergencies	Less than 5	45	1.89	1.112	0.894
	5 to 10	26	1.96	1.076	
	More than 10	29	2.00	0.802	
Treatment of medical emergencies	Less than 5	45	2.84	0.903	0.710
	5 to 10	26	2.77	0.951	
	More than 10	29	2.66	1.045	
Total	Less than 5	45	11.49	1.127	0.450
	5 to 10	26	10.31	1.039	
	More than 10	29	10.41	0.974	

Time since graduation (years of experience) had no significant effect on the knowledge except in knowledge on identifying a patient at risk, were dentists who had less than five years of experience scored better than those with a longer period of experience (Table 4).

Discussion

Having a detailed medical history is an important step to prepare the dentist for a possible occurrence of a medical emergency and even gives a better chance to prevent it. Ninety-six of the interviewed dentists claim they do take detailed medical history while only 4% do not. Taking medical history cannot be omitted and failing to obtain it is considered negligence if any complication did arise.

Most of our sample reported having training in BLS (95%) which was higher than other studies [14][15][16]. This is mainly because getting a practising license in Saudi Arabia requires attending and passing a course on BLS. Nevertheless, it was surprising to find that only 38% were confident to perform CPR. This was slightly lower than some other studies which found that dentists confident to perform CPR was 57% [14] and 46% [15]. The low rate of confidence despite the high number of those who have had training might be either due to the poor quality of training or the lack of frequent practice and refreshing courses.

In Saudi Arabia, it is mandatory by law to have a medical emergency kit in all dental offices. Only 78% claimed they have a kit which is similar to the percentage in a study in New Zealand where 80% of the dentists had a kit in their clinics [15]. It is worth mentioning that the surveyors did not see or check the emergency kits which make us suspect the situation is even worse than what was revealed through the questionnaire.

Eighty-two percent of our sampled dentists think they are capable of managing medical emergencies in their clinics. This was a very high level of perceived confidence when compared to other studies which showed less confidence among dentists [15][16]. We believe this high confidence contradicts with the low confidence in performing CPR and also with the low scores in the knowledge part of the questionnaire.

The knowledge scores of the dentists involved in this study in the assessment of knowledge were below average. There were 20 questions, and the overall average of scores was 10.87. Twenty-nine percent of the dentists scored less than 10, and no one managed to answer all questions correctly. The lowest scores were in the section on understanding the pathophysiology of medical emergencies. The average score was 1.94 out of the five. Successful patient management relies on understanding the underlying pathophysiologic processes and how to correct them [1].

The overall results of this study are in agreement and support other studies which indicated substandard readiness and low confidence among dentists in the management of medical emergencies [2][5][8][10][13][14][15][16][17][18][19][20][21].

Been a specialist or a general practitioner did not significantly affect the level of knowledge of medical emergencies. It was surprising to find that time since graduation also had no significant impact

on knowledge since it was expected that fresh graduates might have better knowledge on the topic.

In conclusion, the duty of care indicates the responsibility of the dentist to attend to and provide the initial management of any possible medical emergency in the premises of his practice within the acceptable standards. In Jazan Province it was clear through self-assessment, by measuring self - perception, and assessment by investigators that there is a defect in the preparedness and ability of dentists to manage medical emergencies.

The regulations must be observed and imposed to insure the material preparedness of dental offices to manage medical emergencies. More emphasis on the topic of medical emergencies should be made in the curriculum during the training. Continuous education and regular courses should be mandatory for all dentists.

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