



Knowledge, Attitude and Practice Related to Management of Medical Emergencies in the Dental Office among Dental Practitioners in Chikkaballapur District, Karnataka

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ABSTRACT

Introduction: A medical emergency is a sudden and unexpected onset of illness or injury that is acute and poses an immediate risk to a patient's life. Such emergencies are likely to occur within the confines of the dental office. Dental practitioners should possess the knowledge to identify and manage a potentially life-threatening situation. Hence the present study was conducted to assess Knowledge, Attitude, and Practice related to the Management of Medical Emergencies in the Dental Office among Dental Practitioners in Chikkaballapur district, Karnataka.

Methods: A pretested questionnaire was created on Google forms and the link to the questionnaire was sent to the dental practitioners in the Chikkaballapur district. Reminders were sent to the subjects at regular intervals to fill the questionnaire and a total of 251 responded.

Results: Among the 251 participating dentists 55.8 % of respondents were trained in the BLS program and 46.2% were trained in the intravenous administration of drugs. 61% of the respondents were confident in handling a medical emergency in the dental office. 92.8% of the respondents felt that basic life support programs should be a part of continuing dental education.

Conclusion: The study showed that basic knowledge regarding the management of medical emergencies and dealing with the same was satisfactory among the study subjects. Also, there is a need to emphasize more training in medical emergencies through workshops and continuing dental education.

Keywords: Knowledge, Medical Emergencies, Dental Practitioners.

Introduction

A medical emergency is a sudden and unexpected illness or injury that is acute and poses an immediate risk to a patient's life.¹ Such emergencies are more likely to occur within the confines of the dental office due to the use of anesthetics, systemic complications, and anxiety of the patient.² Since such emergencies are life-threatening in many cases, the preparedness of the dentist is highly required.³

Prompt recognition and efficient management of an emergency by the dentist's results in a satisfactory outcome. Though rare, emergencies do occur in a dental clinic. The ultimate goal in the management of all emergencies is the preservation of life.⁴ Dentists should be familiar with emergency interventions including BLS and, if necessary, advanced methods such as administration of specific medications.⁵

Dentists can prevent medical emergencies up to almost 90% by taking history, careful examination, and sometimes altering the treatment methods.³ Despite efforts to minimize any untoward incident, emergency situations may arise on the dental chair. The more common medical emergencies encountered in the dental chair include syncope, angina pectoris, cardiac arrest, postural hypotension, swallowed foreign bodies, bronchospasm, anaphylaxis, hypoglycemia, and seizures.⁷ Every dental setup should be prepared to handle all expected medical emergencies effectively.⁶ The lack of training and inability to cope with medical emergencies can lead to tragic consequences and sometimes legal complications. Therefore, health professionals including dentists must be well prepared to manage medical emergencies.² As healthcare providers, they should be prepared to diagnose and effectively manage medical emergencies in dental offices. Dealing with such emergencies, treatment, and patient care depends highly on the dentist's knowledge and preparation.³

Previous studies have shown that the knowledge and skills of dentists from different countries with regard to cardiopulmonary resuscitation (CPR) and medical emergencies are inadequate, and dental graduates across the world may not be adequately prepared for the management of medical emergencies.⁵

Due to the dearth of Studies among dentists in Chikkaballapur district regarding dealing with medical emergencies, this cross-sectional survey was carried out to assess the knowledge, attitude, and practice of medical emergencies in dental practitioners in Chikkaballapur district, Karnataka.

Materials and methods: A questionnaire-based descriptive cross-sectional study was conducted among dental practitioners in Chikkaballapur district, Karnataka.

The list of dental practitioners in the Chikkaballapur district was obtained from various sources -- IDA, dental directory, etc. A pilot study was conducted among 10 participants to assess the feasibility and applicability of the questionnaire. The reliability statistics obtained for the questionnaire using Cronbach's alpha coefficient was 0.86 indicating good internal consistency.

Data collection: The questionnaire was created on Google forms and the link to the questionnaire was sent to the dental practitioners in the Chikkaballapur district.

The questionnaire was accompanied by an introductory letter stating the purpose of the study and assured confidentiality. The first part of the questionnaire included gender, age, qualification, and years of practice and the second part consisted of 21 closed-ended questions assessing the knowledge, attitude, and practice

related to the management of medical emergencies in dental emergencies in the dental office. A total of 410 subjects were reached out to, of which 251 responded.

Results: Among the 251 participating dentists, 42.6% (107) were males and 57.4% (144) were female. In the study population, being 61% (153) were BDS graduates and 39% (98) were MDS graduates practicing in the study area. Most of the dentists 78.5% (197) had an experience of 1-5 years, 16.7% (42) had an experience of 6–10 years, 2.8% (7) had 11-15 years experience and 2% (5) had an experience of 15 years and above in practicing dentistry. **[Table - 1]**

Characteristics		Frequency	Percentage
Gender	Male	107	42.6%
	Female	144	57.4%
Qualification	BDS	153	61%
	MDS	98	39%
Years of practice	1 – 5 years	197	78.5%
	6 – 10 years	42	16.7%
	11 – 15 years	7	2.8%
	15 years and above	5	2%

Table 1: Distribution of study respondents based on gender, qualification, years of practice

The knowledge section of the questionnaire comprised 10 questions. 55.8% of Respondents were trained in the BLS program. 40.2% were aware of the correct guidelines in performing BLS. 32.3% identified that safe injection practices are not a part of universal precaution guidelines. 63.7% identified the Heimlich maneuver as the primary recommended method for relief of foreign-body airway obstruction. 66.9% identified correct compressions to breathe ratio in CPR.

46.2% were trained in the intravenous administration of drugs. 69.3% of the respondents were aware that pregnant patients in the 2nd trimester should be kept in the left lateral position if they go into syncope during extraction. 67.7% of respondents were aware that Dental extraction should be postponed until at least 6 months in a patient who has had a myocardial infarction. 48.2% of respondents were aware of post convulsion depression after LA toxicity. 66.9% of the respondents were aware of using bronchodilators in asthmatic patients as a precaution. **[Table-2]**

Questions	Options	Responses	
Are you trained in basic life support (BLS) program?	Yes	140	55.8%
	No	111	44.2%
According to latest American Heart Association (AHA) guidelines which is the correct steps in performing BLS?	Airway – breathing – chest compressions.	135	53.8%
	Breathing – chest compressions – airway.	15	6%

	Chest compressions – airway – breathing.	101	40.2%
Which of the following is not a part of universal precaution guidelines?	Safe injection practices	81	32.3%
	Personal protection aids	51	20.3%
	Proper waste disposal	98	39%
	Sterile instruments & devices	21	8.4%
Primary recommended method for relief of foreign body air way obstruction?	Finger sweep	56	22.3%
	Chest thrust	35	13.9%
	Heimlich maneuver	160	63.7%
What is the compressions to breath ratio in CPR?	2:30	50	19.9%
	30:2	168	66.9%
	15:2	33	13.1%
Have you been trained in intravenous administration of drugs?	Yes	116	46.2%
	No	135	53.8%
A pregnant patient in 2nd trimester goes into syncope during extraction. She should be kept in	Trendelenburg position	28	11.2%
	Right lateral position	49	19.5%
	Left lateral position	174	69.3%
Dental extraction on a patient who has had a myocardial infraction two months prior are best	Performed using epinephrine free LA	38	15.1%
	Performed using LA with epinephrine	43	17.1%
	Postponed until at least 6 months post incident	170	67.7%
In a systemic LA toxicity there is	Post-depression convulsion	45	17.9%
	Post convulsion depression	121	48.2%
	Convulsion	85	33.9%
If the patient is asthmatic what precautions are taken?	Use of NSAID's before the procedure	23	9.2%
	Use of steroids before the procedure	60	23.9%
	Bronchodilators	168	66.9%

Table 2: Response of study subjects to knowledge related questions

The attitude section of the questionnaire comprised 5 questions. 61% of the respondents were confident about handling a medical emergency. 53.4% were confident in using the emergency medical kit. 40.2% were confident in performing intravenous administration of drugs and 53.8% were confident in performing CPR.



92.8% of the respondents felt basic life support training program should be a part of continuing dental education. [Table -3]

Questions	Options	Response	
Are you confident about handling a medical emergency in the dental office?	Yes	153	61%
	No	98	39%
Are you confident about using the emergency medical kit in case of an emergency?	Yes	134	53.4%
	No	117	46.6%
Are you confident in performing intravenous administration of drugs?	Yes	101	40.2%
	No	150	59.8%
Are you confident in performing CPR?	Yes	135	53.8%
	No	116	46.2%
Do you feel that basic life support program should be a part of continuing dental education?	Yes	233	92.8%
	No	18	7.2%

Table 3: Response of study subjects to attitude related questions

The practice section of the questionnaire comprised 6 questions. 84.1% of respondents had a patient registration process that includes patient history & informed consent and 91.2% enquired about medical history including medication and drug allergy for all patients. 70.5% of the respondents advised for evaluation of routine blood checkups evaluation before performing any dental procedures. 67.3% of the respondents follow universal precaution guidelines. 43% of the respondents encountered a medical emergency situation in the dental office and 73.7% had an emergency medical kit in the dental office. [Table-4]

Questions	Options	Response	
Do you have a patient registration process that includes patient history & informed consent for all the patients?	Yes	211	84.1%
	No	40	15.9%
Prior to performing dental procedures, do you enquire about medical history including medication and drug allergy for all patients?	Yes	229	91.2%
	No	16	6.4%
	Sometimes	6	2.4%
For a medically compromised patients (B.P, Diabetes) do you refer the patient for the evaluation before starting any dental procedures	Yes	177	70.5%
	No	60	23.9%
	Sometimes	14	5.6%
Do you follow universal precaution	Yes	169	67.3%

guidelines?	No	77	30.7%
	Sometimes	5	2%
Have you encountered any medical emergency situation in the dental clinic in the past?	Yes	108	43%
	No	143	57%
Do you have an emergency medical kit in office?	Yes	185	73.7%
	No	66	26.3%

Table 4: Response of study subjects to practice related questions

Discussion: Being prepared for an emergency and believing that an emergency is a real possibility in a dental clinic is of paramount importance. Preparation for emergencies among dental practitioners includes in-depth knowledge of signs, symptoms, and management of emergencies, and also involves maintaining emergency equipment, emergency drug, and backup medical assistance. Dental professionals should have sound knowledge and skills regarding medical emergencies.

The present study throws light on the knowledge, attitude, and practice among dental practitioners towards medical emergencies in Chikkaballapur district, Karnataka. A total of 251 subjects participated in the study, among them 57% were females and 43% were males. 61% of the participants were BDS graduates and 39% were MDS graduates.

The majority of the subjects (78.5%) had less than 5 year's experience in dental practice. This is similar to a study conducted by Stafuzza et al (2014)¹⁰ where 75% of the subjects had to experience below 5 years.

All attempts must be made to prevent medical emergency and this process begins as soon as the patient enters the dental office and is asked about the medical history. According to the present study, the majority (84%) of the respondents had a patient registration process that included a recording of patient history and obtaining informed consent for all patients. 91% of the respondents in the present study enquire routinely about medical history including medication and drug allergy. However, 70% of the respondents in the present study referred medically compromised patients for routine blood tests before the start of any dental procedures.

67% of the respondents in the present study reported that they followed universal precaution guidelines but only 32.3% of the respondents were aware of the correct universal precaution guidelines.

In a study conducted by Elanchezhian et al (2013)⁸ 34% said they had encountered at least one medical emergency in their practice. Whereas, in the present study, 57% of respondents reported that they have encountered a medical emergency situation in the dental clinic in the past.

74% of respondents in the present study reported that they have an emergency medical kit in their dental clinic, but only 53.4% of them were confident about using the emergency kit in case of an emergency.

61% of the respondents in the present study were confident about handling a medical emergency in the dental office which was higher than that of a study conducted by Mwita et al (2015)¹ in which 56 % rated themselves confident in managing medical emergencies.

In the present study, 46.2% of the respondents reported that they were trained in the intravenous administration of drugs. 40.2% of the study participants reported being confident about performing intravenous administration of drugs. Whereas in a study conducted by Azad A et al (2018)³ 59% of the dentists had confidence in injecting an intravascular drug in the office which was marginally higher than the present study.

In the present study, 55.8% of the respondents reported that they were trained in basic life support (BLS) programs. This is in accordance with a study conducted by Elanchezhian et al (2018)⁸ where 56% said they were trained in BLS. Whereas, in a study conducted by Mwita et al (2015)¹ only 15.2% received emergency management & BLS training which was much lower compared to the present study.

The present study had certain limitations. Being a cross-sectional study the responses were Participants' self-report and could be biased. Self-reporting can introduce social desirability bias as the participants presume about their knowledge which they may not possess in reality.

Conclusion: Basic knowledge regarding the diagnosis of medical emergencies and dealing with the same was satisfactory among the study subjects. They also exhibited higher confidence in handling medical emergencies and displayed a positive attitude to incorporating BLS as a part of the training program. Emergencies cannot be totally prevented but can be handled appropriately with thorough knowledge of the signs, symptoms, and accurate management of the emergencies. In spite of changes in dental curriculums throughout the years, shortcomings remain in training dentists to manage medical emergencies in a dental office. Emphasis should be placed on the need for more medical emergency training offered as workshops & hands-on training, to increase the knowledge and confidence of dentists in the management of medical emergencies. All respondents perceived the need for further intense training.

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