

## Research Article

### Are dental surgeons prepared for medical emergencies

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#### Abstract

Medical emergencies in a dental clinic can be alarming to any clinician but these situations become relatively less alarming with adequate precautions and necessary training. Serious medical emergencies in dental practice are not common but a dentist must be equipped to handle such events.

The aim of this study was to assess the preparedness of dental graduates in handling medical emergencies, their skills, competency and knowledge of appropriate use of emergency drugs and equipment in a dental setting.

**Keywords:** Dental surgeons; medical emergencies

### 1. Introduction

Medical emergencies in a dental clinic can be alarming to any clinician but these situations become relatively less alarming with adequate precautions and necessary training. Serious medical emergencies in dental practice are not common but a dentist must be equipped to handle such events. A detailed case history can give us a clue towards potential medical emergencies that could arise. An effective management of an emergency situation in the dental office is ultimately the dentist's responsibility. Although a number of studies have been carried out to ascertain the need to store emergency drugs and equipment's in dental offices<sup>1, 2</sup> very few studies are found in literature which assess the level of knowledge and competency of young dental graduates in managing medical emergencies<sup>3</sup>.

### 2. Methodology

A cross sectional questionnaire approach was used to assess the dental graduates' knowledge, experience and perceptions of medical emergency in the dental office of a dental school and hospital in Mangalore, India. Following the approval from the Institution Review Board and consent from the participants, pretested 17 item questionnaire was given to a hundred graduates. The data from the completed questionnaire was subjected to descriptive analysis using SPSS version 18.0

### 3. Results

Amongst the hundred- young graduates (YG), 31.7% were males and 68.3% were female. The mean age was 20.92±2.22 years. Regarding medical emergencies (ME), the YG' knowledge was not very good. A majority (86.6%) had a poor preparedness about Mes. Only 14.1% of YG said they were prepared. Males had significantly higher preparedness for

management of medical emergencies than females ( $p=0.010$ ). The best knowledge was about handling syncope, diabetic emergencies and asthma and the worst knowledge was about cardiac arrest and convulsions. 37.5% mentioned that they had the experience of performing Cardio Pulmonary resuscitation at least once during the previous twelve months. 68.8% people knew the exact method to assess breathing. 90.6% dental graduates knew how to check the carotid pulse of a patient, 62.50% interns knew to perform artificial respiration on a patient and 89.10% were aware of the precautions to be taken while treating a pregnant lady.

**Table 1 Frequencies (%) of dentists' self-perceived competence to undertake specific practical emergency skills**

Skill	Yes	No
Perform cardiopulmonary resuscitation	37.5%	62.5%
Artificial respiration	62.5%	37.5%
Give an intramuscular injection	43.8%	56.2%
Give a subcutaneous injection	49.4%	50.6%
Give an intravenous injection	-	100%
Check the carotid pulse	90.6%	9.4%
Perform Heimlich maneuver	63.9%	36.1%

Our study found that 50.70 percent of the responding dentists had undergone training in CPR. Among those the majority (70 percent) had done so only once. When asked about their inability to manage medical emergency, they attributed it to lack of time and unawareness about where to go for training. The most common justifications the respondents in our study gave for their lack of knowledge and skills with regards to medical emergencies were the lack of training and continual update. It was also encouraging to note that 95.3% of the young graduates were willing to undergo training.

**Table 2: Dental graduates self-perceived information about undergoing training for easier management for medical emergencies**

Question	Yes	No
Have you attended workshop on handling medical emergencies	54.70%	45.3%
Your inability to handle medical emergency is attributed to		
Lack of time	82.8%	17.2%
Not interested	31.3%	68.7%
Don't know where to go	20.3%	79.7%
Don't feel the necessary for a dentist	0%	100%
Are you willing to undergo any training	95.3%	4.7%

**Table 3 Dental graduates self-perceived information about competency in the areas of drugs**

Question	Yes	No
Do you have the knowledge about emergency drugs and their routes of administration	39.1%	68.2%
Are you aware of the common drugs used in dentistry that can precipitate an allergic reaction	67.2%	32.8%

#### 4. Discussion

Medical emergencies can and do occur in the dental office. Data obtained from dentists in independent surveys by Fast *et al*<sup>4</sup> and Malamed<sup>5</sup> report that the dental office environment is not immune to the occurrence of potentially life-threatening situations. In a 10-year period, more than 30,000 emergencies were reported by the more than 4,000 dentists

surveyed. The nature of the emergencies varied significantly, from syncope to cardiac arrest and anaphylaxis. It is believed that the overwhelming majority of emergencies encountered were precipitated by the increased stress that is so often present in the patient in the dental environment. Increased stress can result from fear and anxiety or inadequate pain control.

Stress is associated with an increased occurrence of emergency situations was also reported by Matsuura<sup>6</sup>, who reported that 77.8 percent of life-threatening systemic complications in the dental office developed either during local anesthetic administration or during dental treatment.

The above data dictates the need for the dental surgeon to be trained to promptly recognize and efficiently manage emergency situations. Our study showed poor knowledge about MEs among the dental graduates. They had the best knowledge was about handling syncope, diabetic emergencies and asthma and the knowledge about cardiac arrest was very minimal. Birang *et al*<sup>7</sup>. in their study showed that the knowledge score of Esfahan dentists was 5.42/10. Gupta *et al*<sup>8</sup>. stated that the knowledge of dental surgeons from Udupi and Mangalore, Karnataka was from moderate to poor. Regina M. *et al*, in their study<sup>9</sup> stated that dental students have little understanding about medical emergencies. The knowledge of Mashhad dentists was also poor as stated in their study conducted in the province of Iran<sup>10</sup>. These results indicate a need for a revision in the curriculum of dental graduate studies. The dental graduates in our study showed a good level of confidence in checking carotid pulse, performing Heimlich maneuver, cardiopulmonary resuscitation and artificial respiration. We believe that though the knowledge level is adequate what the graduate lack is in the skills. In the present study, a large number of graduates stated that they did not know how to react in those situations even though they received training in the management of medical emergencies at some time in their curriculum.

From the responses regarding the number of hours of medical emergencies training earmarked in the undergraduate curriculum, it is evident that there is a definite need to increase the number of hours spent on emergency management. Only 54.7% of respondents had undergone training in medical emergency and basic life support (BLS) training.

Providing basic life support (BLS) is dental surgeon s most important contribution until definitive treatment for a medical emergency can be given. The purpose of BLS is to prevent inadequate circulation or respiration through prompt recognition of the problem and intervention to support a victim's circulation and respiration through CPR<sup>11</sup>. However, a number of studies have found that about half the dentists from all over the world are notable to perform CPR properly<sup>12-14</sup>. The result may be due to the lack of definitive guidelines from the regulatory bodies about the training with medical emergencies in the dental curriculum. In the dental curriculum, management of medical emergencies in dental practice comes under the syllabi of general medicine and Oral surgery<sup>15</sup>. The exact duration and the methodology has not been specified, which needs to be updated to enable students to develop a confident approach towards handling medical emergencies.

The dental graduates expressed the need for further medical emergencies training and were prepared to be lifelong learners about the topic at hand, and expressed their willingness to attend Continuing Professional Development programs by which they can update their knowledge about ME. Our result was in accordance with other studies done in the same field<sup>16-21</sup>.

The confidence in the use of drugs and equipment mentioned were at a very lower level than the knowledge for all the drugs and equipment mentioned. This suggests that although training is received in the theoretical aspect of emergencies, participants are not particularly confident to treat emergencies and may require further practical training.

The results of this study confirm that undergraduate dental students perceive a need for more intensive education in medical emergencies and they strongly desire to obtain this knowledge. Effective management of an emergency situation in the dental office is ultimately the dentist's responsibility. The lack of training and inability to cope with medical emergencies can lead to tragic consequences and sometimes legal action.

## 5. Conclusion

Dental surgeons being members of the health care profession should be prepared to deal medical emergencies which may arise during their work. However our results indicate a worrisome picture of the level of competence which the dental graduates have in dealing with emergencies. Both quality and extent of medical emergencies training which dental students receive should be assessed and improved, to ensure the safety and well being of the patients at all times.

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