

RESEARCH ARTICLE

Awareness among Indian Dental Graduate Students on Medical Emergency Drugs used in Dental Office: A Pilot Study

¹Basavakumar Majage, ²Sindhu S Kumararama, ³Sunil K Mishra, ⁴Ramesh Chowdhary

ABSTRACT

Background: Effective management of an emergency situation in the dental office is ultimately the dentist's responsibility. Lack of good training and the inability to cope with these medical emergencies can lead to tragic consequences and sometimes legal action.

Aims: Dental students have little understanding about medical emergencies, and there is very little in-depth data about the importance they place on this important area, i.e., fundamental to their professional training. A survey of 50 students from a dental college was carried out to evaluate the amount of awareness about the emergency drugs of the dental office.

Materials and methods: The survey was conducted for the students of S Nijalingappa Dental College and Hospital, Gulbarga, India, who were undergoing 1-year mandatory internship. The number of students involved in this pilot survey was 50. A questionnaire was designed to obtain relevant information on the list of emergency drugs a dentist is supposed to know. The responses to the questionnaire so obtained were analyzed.

Results: The results showed that undergraduate dental students perceive a need for more intensive education in medical emergency drugs as more than 70% of students were not aware of most of the emergency drugs of choice required in situations like hypotension, anaphylactic shock, allergic reaction, etc.

Conclusion: The knowledge for the management of medical emergencies was found to be inadequate among the undergraduate students.

Keywords: Awareness, Dental office, Dental students, Medical emergency drugs.

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INTRODUCTION

Effective management of an emergency situation in the dental office is ultimately the dentist's responsibility.¹ Lack of good training and inability to cope with these medical emergencies can lead to tragic consequences and sometimes legal action.² Hence, it becomes essential to all the health professionals including dentists to be well prepared to attend to these medical emergencies.³⁻⁵ The frequency of these medical emergencies appears to be increasing because dental practices are seeing an increasing number of elderly and medically compromised patients and are performing more sedation procedures.¹ Dental students have little understanding about medical emergencies, and there is very little in-depth data about the significance they place on this important area, i.e., fundamental to their professional training. For this reason, all health professionals including dentists must be well prepared to attend to medical emergencies.³⁻⁵

Hence, a survey among the students of a dental college was planned to evaluate their awareness about the emergency drugs required for dental office.

MATERIALS AND METHODS

A questionnaire was designed to obtain relevant information on the list of emergency drugs dentists are supposed to know and of the situation they may encounter in their dental clinic with their patients (Table 1). The survey was conducted for the students of S Nijalingappa Dental College and Hospital, Gulbarga, India, who had completed their undergraduate course of dentistry according to the norms of the Dental Council of India and were undergoing 1-year mandatory internship. Questions were concerned with the drugs used in medical emergencies like angina pectoris, grand mal seizures, severe asthma, insulin shock, stroke, adverse drug reactions, and resuscitation events. Specific questions were directed to these aspects. The emergency conditions involved were selected on the search made on the PubMed library on

¹Associate Professor, ²Postgraduate Student, ³Reader
⁴Professor and Head

¹Department of Prosthodontics, S Nijalingappa Institute of Dental Sciences and Research, Gulbarga, Karnataka, India

^{2,4}Department of Prosthodontics, RajaRajeswari Dental College and Hospital, Bengaluru, Karnataka, India

³Department of Prosthodontics, People's Dental Academy Bhopal, Madhya Pradesh, India

Corresponding Author: Ramesh Chowdhary, Professor and Head, Department of Prosthodontics, RajaRajeswari Dental College and Hospital, Bengaluru, Karnataka, India, Phone: +919845206898, e-mail: dramc@yahoo.com

Table 1: Questionnaire asked in survey related to emergency drugs

Sl. no.	Questions asked in survey
1	Drug of choice in patients with asthma or breathlessness
2	Drug of choice in patients with angina pectoris
3	Drug of choice in opioid overdose
4	Drug of choice in patients with allergic reactions
5	Drug of choice in acute myocardial infarction
6	Drug of choice for management of hypotension
7	Drug of choice in management of epileptic seizures
8	Choice of supplement for patients with hypoglycemia
9	Need for oxygen delivery system in dental office

the clinical medical emergency complications and after discussion with senior faculty members of various dental institutions across the country. The number of students involved in this pilot survey was 50, who were randomly selected from a group of 66 students in total. The survey was completely kept confidential, and the entire group of students involved in the survey was informed about the survey individually so that an opportunity was not given for them to discuss the questions among themselves and share the answers. Ethical approval was obtained from the ethical committee of S Nijalingappa Dental College and Hospital, Gulbarga, at the beginning of the study.

Inclusion Criteria

The participants included in the survey were interns at S Nijalingappa Dental College and Hospital, Gulbarga. Only the subjects willing to participate were included in the study.

Exclusion Criteria

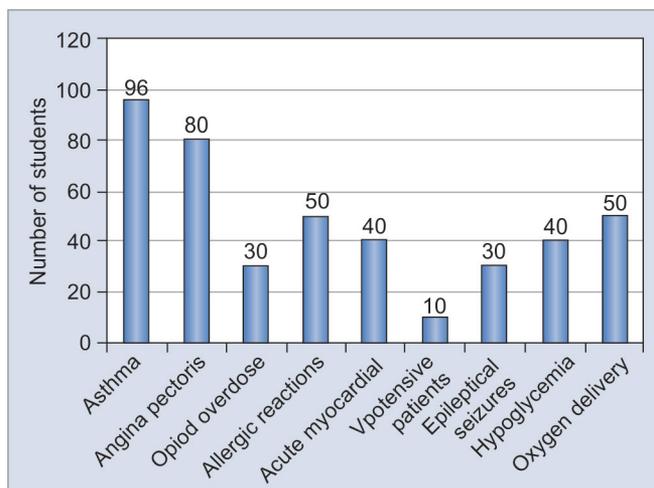
Students other than interns were excluded from the study. The subjects who had not given their consent were excluded from the study.

Data Analysis

Statistical analysis was done using counts and percentages. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) Statistical Software (IBM SPSS Statistics Version 20).

RESULTS

All the students answered all the nine questions in the questionnaire. A total of 96% students knew the drug of choice for handling chronic asthma patients, with 80% answering nitroglycerine as the drug of choice in angina pectoris condition. The drug of choice in allergic reaction was known only to 50% of the students, which was a matter of concern, with only 10% of them knowing the



Graph 1: Awareness of the students about the drug of choice about the emergency drugs

appropriate drug in hypotension patients. Forty percent of students answered correctly that Aspirin is the drug of choice in myocardial infarction patients and 30% of them knew the drug for management of epileptic seizures. Knowledge about the usage and its importance oxygen delivery system was known only to 50% of the students (Graph 1).

DISCUSSION

Every dentist should have the basic knowledge to recognize, access, and manage a potentially life-threatening situation until the patient can be transported to a medical facility. Successful patient management relies on understanding the pathophysiologic processes and how to deal with them. Dealing with medical emergencies is not as difficult as most dentists perceive. Prevention of a medical emergency begins as soon as the patient enters your office and fills out the medical questionnaire. An accurate medical history is extremely important for the dentist to identify any predisposing factors that could give rise to an unforeseen event.

Emergencies do occur in dental offices: A survey of 4,000 dentists conducted by Fast and others⁶ revealed an incidence of 7.5 emergencies per dentist over a 10-year period. Fast’s survey found that 28% of emergencies occurred during root canal therapy and 37% during extraction procedures.⁷ These statistics suggest that fear, anxiety, pain, or discomfort may predispose some patients to an emergency situation. If the dentist is able to alleviate the patient’s concerns and use adequate pain-control techniques, then a major step has been taken in preventing an emergency. Preparation for emergencies includes: Training all members of the office staff in recognizing and managing life-threatening situations; developing a team approach with individual



Table 2: Essential emergency drugs asked in the questionnaire

Sl. no.	Drugs	Indication	Initial adult dose/mode of administration
1	Oxygen	Almost any medical emergency	100% inhalation
2	Epinephrine	Anaphylaxis	0.1 mg iv; or 0.3–0.5 mg im
		Asthma unresponsive to salbutamol	0.1 mg iv, or 0.3–0.5 mg im
		Cardiac arrest	1 mg iv
3	Nitroglycerin	Pain of angina	0.3–0.4 mg sublingual
4	Antihistamine (diphenhydramine or chlorpheniramine)	Allergic reactions	25–40 mg iv or im
			10–20 mg iv or im
5	Albuterol/salbutamol	Asthmatic bronchospasm	2 sprays/inhalation
6	Aspirin	Myocardial infarction	160–325 mg orally

iv: Intravenous; im: Intramuscular

Table 3: Additional emergency drugs

Sl. no.	Drug	Indication	Initial adult dose
1	Glucagon	Hypoglycemia in unconscious patient	1 mg im
2	Atropine	Clinically significant bradycardia	0.5 mg iv or im
3	Ephedrine	Clinically significant hypotension	5 mg iv or 10–25 mg im
4	Hydrocortisone	Adrenal insufficiency	100 mg iv or im
		Recurrent anaphylaxis	100 mg iv or im
5	Morphine or nitrous oxide	Angina-like pain unresponsive to nitroglycerin	Titrate 2 mg iv, 5 mg im, 35%, inhalation
6	Naloxone	Reversal of opioid overdose	0.1 mg iv
7	Lorazepam or midazolam	Status epilepticus	4 mg im or iv

The final composition of the supplementary emergency drugs will depend on the individual dentist's needs and the nature of the practice. The drugs listed above should be considered. Dental offices that provide conscious sedation, deep sedation, and/or general anesthesia require additional drugs

responsibilities; conducting simulated emergency events; availability of emergency drugs in the dental office; and, most importantly, the knowledge of those drugs with the mode of administration. The drugs that should be promptly available to the dentist can be divided into 2 categories.⁸ The 1st category represents those that may be considered essential (Table 2).⁸ The 2nd category contains drugs that are also very helpful and should be considered as part of the emergency kit (Table 3).⁸ The precise composition of the drug kit can vary as the presence of the drugs in this latter group may depend on the nature of the dental practice.

This survey evaluated the knowledge of emergency drugs among dental students, and the results clearly show that nearly two-thirds of the responding students did not know most of the drug of choice to handle in an emergency situation like hypotension, epileptic seizures, and anaphylactic shock. Foods rarely trigger asthma by themselves. Less than 5% of people are affected by food. Food can trigger asthma either as an intolerance reaction or as part of a food allergy. Some of the foods that may cause an allergic reaction include: Peanuts, eggs, shellfish, tree nuts, wheat sesame.⁶ The results of this study confirm that undergraduate dental students perceive a need for more intensive education

in medical emergencies. All in all, dental students were sensitive about their superficial knowledge of medical emergencies in the dental office, and they expect this topic to be an integral part of their education. Institutions offering undergraduate health courses should find the educational formats needed to build the confidence necessary for dental students and professionals to be active in stressful situations that threaten a patient's life.

CONCLUSION

Knowledge about the management of medical emergencies was found to be inadequate among the undergraduate students. The results of the study emphasize the need for improvement of the training of dentists in the management of medical emergencies at the undergraduate, postgraduate, and continuing education levels as well as the need for organization of the dental workplace to handle such emergencies. The Dental Council of India and the health universities need to develop strategies to teach professionals and students appropriate behavior and attitudes when facing life-threatening emergencies.

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