

# Evaluation of Preparedness for Medical Emergencies in Dental Practice among Undergraduate and Postgraduate Students.

Insha Showkat<sup>1</sup>, Sarish Mahajan<sup>1</sup>, Seema Chaudhary<sup>1</sup>, Ashish Sinha<sup>1</sup>

<sup>1</sup>Department of Pedodontics and Preventive Dentistry, Kothiwal Dental College And Research Centre.

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## ABSTRACT

**Background:** A medical emergency among dental patients can be encountered anytime. It is the responsibility of a dentist to handle the emergency in order to effectively manage it. The assessment of preparedness of medical emergencies would help to bring about required changes in the curriculum in dental institutions. Aim: The aim of this study was to evaluate and compare the knowledge of common medical emergencies among undergraduate and postgraduate students. **Methods:** A questionnaire based study with a sample size of 200 was conducted among 100 postgraduate and 100 undergraduate students at Kothiwal Dental College and Research Centre to evaluate their knowledge regarding medical emergencies. The questionnaire consisted of thirteen questions. Chi-square test was applied for comparing various parameters between dental postgraduates and undergraduates regarding preparedness for medical emergencies. A P-value of less than 0.05 was considered statistically significant. **Results:** The results of this study showed that filling health history proforma, recording vital signs, attending workshops on emergency management, performing Basic Life Support, and administering an intramuscular and intravenous injection has statistically significant results among postgraduate and undergraduate students. **Conclusion:** The results of this study reflect an alarming situation of the capability of dental students to deal with medical emergencies at dental offices.

**Keywords:** Dental Practice, Medical Emergencies..

## INTRODUCTION

An emergency is a medical condition that demands immediate attention and successful management. Every dentist can expect to be involved in the diagnosis and treatment of medical emergencies during the course of clinical practice. These emergencies may be related directly to dental therapy, or they may occur by chance in the dental office environment.<sup>[1]</sup> During dental procedures, various risk factors, such as emotional stress, general health condition, medical therapy and drug interactions, may result in medical emergencies in all age groups.<sup>[2]</sup>

It is therefore important that oral health care providers be prepared to manage a variety of medical emergencies. While serious or major medical emergencies rarely occur in dental practices, being prepared to satisfactorily manage a medical emergency is critical, as it may, in fact, be life-saving.<sup>[3]</sup>

Lack of training and inability to manage the medical emergencies can lead to serious consequences and legal actions. Therefore, dental students must have appropriate knowledge of potential interactions with medical conditions and the ability to diagnose medical problems.<sup>[4]</sup>

The aim of this study is to assess the knowledge of and preparedness to manage common medical emergencies among undergraduate and postgraduate students both for comparative purposes and as an aid to refining the dental school's standardized case scenarios.

## MATERIALS AND METHODS

This descriptive cross sectional study was conducted amongst undergraduate students (Final year) and postgraduate students of all departments in Kothiwal Dental College and Research Centre to determine their knowledge and ability in the management of medical emergencies and assess the availability of emergency drugs and equipments in their workplace. Ethical clearance was obtained from the institution ethical committee before the commencement of the study. Informed consent was taken from all the study participants. 100 undergraduate and 100 postgraduate students were

### Name & Address of Corresponding Author

Dr. Insha Showkat,  
Department Of Pedodontics and Preventive Dentistry,  
Kothiwal Dental College and  
Research Centre.

selected and included in the study. The participants were given a questionnaire consisting of 13 objective questions requiring a simple yes or no reply. Reliability of the questionnaire was determined by using Cronbach's alpha coefficient test, which gave a value of 0.72.

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Data were summarized as frequencies and percentages. Chi-square test was applied for comparing various parameters between dental postgraduates and undergraduates regarding preparedness for medical emergencies. A P-value of less than 0.05 was considered statistically significant.

### RESULTS

200 questionnaires were distributed among students were and the response rate was 100%.

For the assessment of preparedness, 86% of postgraduate students and 84% of undergraduate students claimed that they enquired about medical

history. Among these participants, less than half of the students that is 44% postgraduate students obtained health history proforma whereas slightly more than half of undergraduate students that is 66% obtained health history proforma. Only 46% postgraduate students in comparison to 88% undergraduate students obtained vital signs. Very few students that is 38% postgraduate students and 16% undergraduate students had attended any workshop on emergency training and programs. 54% of postgraduate students and 46% of undergraduate students were confident enough to diagnose a medical emergency.

For the assessment of the practitioner's perception on their ability to manage medical emergencies 44% of postgraduate students believed that they were prepared enough to handle emergency conditions at workplace and comparatively 36% of undergraduate students believed the same. 30% of postgraduate students and 28% of undergraduate students felt confident enough to perform Cardio Pulmonary Resuscitation.

**Table 1: Comparison based on preparedness for medical emergencies between dental postgraduates and undergraduates**

Question	Postgraduate		Undergraduate		P-value
	No.	%age	No.	%age	
Do you enquire about medical history including medication and allergy?	86	86%	84	84%	0.692
Do you obtain filled health history proforma of the above from the patient?	44	44%	66	66%	0.002*
Do you obtain the vital signs of patient before commencing any treatment?	46	46%	88	88%	<0.001*
Have you attended any workshop on emergency training or management programs?	38	38%	16	16%	0.001*
Do you know how to diagnose a medical emergency or urgency?	54	54%	46	46%	0.258
Do you think you can handle any emergency condition at your workplace?	44	44%	36	36%	0.248
Is there availability of emergency kits at your workplace?	62	62%	70	70%	0.232
Are you confident to perform Cardio Pulmonary Resuscitation?	30	30%	28	28%	0.755
Do you know how to perform BLS (Basic Life Support) and first aid?	64	64%	40	40%	0.001*
Can you give an intramuscular injection?	78	78%	48	48%	<0.001*
Can you give an intravenous injection?	58	58%	32	32%	<0.001*
Would you like to improve your knowledge and handling of medical emergencies?	98	98%	96	96%	0.407

\*Statistically Significant Difference (P-value<0.05); P-value by Chi-square test

64% of postgraduates and 40% of undergraduate students felt efficient in performing basic life support.

78% of postgraduate students and 48% of undergraduate students felt capable of giving intramuscular injection. 58% of postgraduate students and 32% of undergraduate students felt skilled enough to infuse intravenous injection. 62% of postgraduates and 70% of undergraduates confirmed the availability of emergency drugs in their workplace.

Most of the students that include 98% among postgraduate students and 96% of undergraduate students were interested in improving knowledge about handling medical emergencies.

#### Statistical Methods

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc.,

Chicago, Illinois, USA). Data were summarized as frequencies and percentages. Chi-square test was applied for comparing various parameters between dental postgraduates and undergraduates regarding preparedness for medical emergencies. A P-value of less than 0.05 was considered statistically significant.

### DISCUSSION

An emergency may be defined as a situation occurring mostly due to disease, anxiety or complications during treatment, all of which may put the patient's life at risk.<sup>[5]</sup> In the present study, the objective was to find if dentists enquire about the key start points such as medical history and drug allergy history and record the vital signs of the patients, which provides a clue for the chance of occurrence of medical emergency at the dental office. More than 80% of students in both the

groups agreed that they take medical history which is contrary to the study done by Verma et al.<sup>[6]</sup>

Less than half of postgraduate students reported that they routinely fill up health history proforma and obtain vital signs as compared to undergraduate students with a significant difference. These findings were similar to a study conducted by Kumarswami et al.<sup>[7]</sup>

These vital signs play a crucial role as they provide indications, such as increased temperature may be due to infection within the body, increased pulse and respiration could be due to anxiety and should be monitored side by side while the thermometer is in the patient's mouth and mean while noticing the blood pressure, pulse, respiration, blood glucose, which only uses little additional chair time. Taking medical history cannot be omitted and failing to obtain it is considered negligence if any complication did arise.<sup>[8]</sup>

Few postgraduate and undergraduate students reported that they had attended any workshop on emergency training or management programs, thus leading to incapability in diagnosing and handling medical emergencies. Similar results were reported in a study done by Franco Arsati to assess the Brazilian dentists' attitudes about medical emergencies during dental treatment.<sup>[9]</sup> In our study few students were confident to perform CPR. These results are consistent with the findings done by Manjunath et al in which only 28.8% private dental practitioners were specialized in performing CPR.<sup>[10]</sup>

Less than half of undergraduate students and slightly more than half of postgraduate students felt confident to perform BLS. These finding were similar to the study done by sudeep et al. which evaluated the awareness of basic life support among students and faculty and concluded that there a need to improve their knowledge.<sup>[11]</sup> More number of postgraduate students felt capable to give an intramuscular and intravenous injection as compared to undergraduate students with a statistical difference. Better performance by postgraduate students can be attributed to more years of experience and increase in knowledge.

In the present study, a dearth of medical emergency kits was found. Similar results were reported in a study done by Gupta et al in which low availability of medical emergency drugs and equipment was found.<sup>[12]</sup> Medical emergency kit and drugs should be available to manage medical emergency.

Our study results emphasize the point that there exists a need for mandatory training of medical emergencies in dental course. There is a huge lacunae existing in the preparedness and ability of students to manage medical emergencies. 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.

## CONCLUSION

The results of our study show an alarming situation about the preparedness of dentists for medical emergencies. Attending Continuing dental education programs and hands on course are very essential to update and improve knowledge.

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