

Knowledge, Attitude and Practices in the Preparedness of Medical Emergencies among Dental Students in Patna, Bihar

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Abstract

Introduction: Medical emergencies are inevitable in clinical dental set-up. In the event of such a situation, the management of emergency in dental office is ultimately the responsibility of the dentist. The lack of training in the management of medical emergencies can lead to tragic outcomes and possible legal actions. For this reason, all health professionals including dentists must be trained to manage emergency situations.

Methods: A cross-sectional survey was done among 163 graduate and postgraduate students at Buddha institute of dental sciences and hospital Patna, Bihar. The participants filled self-administered questionnaire consisting of 23 close-ended questions. Descriptive analysis using Chi-square test was done to compare two

groups. P-value of <0.05 was considered as statistically significant.

Result: Postgraduates had a better knowledge of diagnosis of medical emergencies than interns ($P = 0.001$).

Discussion: This study shows that PGs are better trained and more confident about handling of medical emergencies as compared to interns, still both the groups lack adequate skill, training, and knowledge to handle medical emergencies efficiently. The results were similar with the study done by Shenoy et al.

Conclusion: Dental professionals should be confident and prepared to deal with medical emergencies arising during their practice. Reforms in dental curriculum and thorough training of dental students at an initial stage

will help to increase their confidence and competence to deal with medical emergencies.

Keywords: Medical emergencies, post-graduates, curriculum

Introduction

As we know that oral Health is an integral part of general health. It is vital to overall health and often associated with other systemic conditions.¹ Situations such as life-threatening emergencies may occur anytime, anywhere, and to anyone. Such situations are somehow more likely to occur within the premises of the dental office due to the increased level of stress which is commonly present.² A medical emergency can be described as an unwanted, unexpected reaction or complication which usually requires immediate attention or intervention. It can be challenging or distressing, especially to those medical personnel who are not proficient in the handling of medical emergencies.³ Medical emergencies are inevitable in clinical dental set-up.⁴ Some diseases and their treatments may increase the likelihood of a medical emergency during clinical treatment and hence the dental practitioner should be clinically competent to manage a variety of medical emergencies.

The administration of local anaesthetic agents and other drugs, materials used in dentistry, and the fear of operative and surgical treatments, as is routine in dentistry, have been found to evoke medically emergent situations, namely, syncope, hyperventilation, and cardiac arrest. Situations such as these have a higher likelihood to occur within the confines of a dental practice resulting from heightened levels of stress, common to most patients visiting a dental office.⁵

As the quality of healthcare improves and life expectancy increases, dentists and dental students are treating a growing number of elderly and medically

compromised patients. Many of these patients have pre-existing chronic illnesses that can predispose them to emergency situations during dental treatment. Most of the emergencies in dental setting involved suspected cardiovascular events, syncope, complications related to local anesthesia, and hypoglycemia.

In the event of such a situation, the management of emergency in dental office is ultimately the responsibility of the dentist. The lack of training in the management of medical emergencies can lead to tragic outcomes and possible legal actions. For this reason, all health professionals including dentists must be trained to manage emergency situations.⁶

Dentists can prevent medical emergencies up to almost 90% by taking history, careful examination, and sometimes altering the treatment methods. As health-care providers, they should be prepared to diagnose and effectively manage medical emergencies in dental offices. How to deal with such emergencies, the treatment and patient care depends highly on the dentists' knowledge and preparation.

The emergency kit in a dental office must include drugs (diazepam, diphenhydramine, oxygen, nitro-glycerine, etc.) and tools (suction, suction tips, tourniquet, surgical blades, angiocath, etc.). The above-mentioned drugs and equipment are necessary in controlling threatening emergencies and must be available in a dental office. Hence, it seems that training for medical emergencies needs to be emphasized. It is beneficial to evaluate the dentists' knowledge and performance in regard to dental emergencies in specific geographical regions so that it could be compensated for through academic teaching methods and holding workshops.⁷

Therefore, the current study was conducted to assess the Knowledge, Attitude and Practices in the preparedness of Medical Emergencies among Dental Students so that

in case of insufficiency, they would be provided with recommendations to raise their emergency management comprehension.

Materials and methods

A descriptive Cross- Sectional study was conducted over a period of 2 months, i.e., from October 2021 - November 2021 among dental students who were studying in Buddha Institute of Dental Sciences and Hospital, Patna, Bihar. The proposed study was reviewed by the Ethical Committee of the institution (BIDSH) and clearance was obtained. A total of 163 dental students were included in the study. A simple random sampling method was used to obtain the study sample. Informed consent was obtained from each participating students prior to the study. The data were collected using a close-ended questionnaire consisting of 28 questions. All the participants were briefed about the survey and questions properly and given proper time to read and fill the questionnaire. All the questionnaires were collected after filling from the respective departments. The data were entered properly in Microsoft excel for further analysis.

Statistical analysis

Data were collected and statistically analyzed by using Statistical Package for the Social Sciences (SPSS) software (IBM, Corp 2013; version 22.0; Armonk, NY). Calculations were done using descriptive analysis. Number and percentages were used to compute results on categorical measurements. Comparisons between two groups was done using chi-square test. P- value of < 0.05 was considered as statistically significant.

Results

The present study was conducted to assess the knowledge, attitude and practice in the preparedness of medical emergencies among dental students. The results

are presented here under the heading of various parameters considered for this study.

In the present study, mean age of the study subjects was 26.92 ± 2.85 years among which the mean age of male and female study participants was 26.89 ± 3.49 years and 26.95 ± 2.09 years respectively. (Table 1)

Among all the study subjects 163 (100%) majority of the study subjects 84(100%) were females followed by 79(100%) were males in which majority of the study subjects 85(52.1%) were interns followed by 78(47.9%) were post-graduates. (Graph 1)

Graph 2 illustrates the knowledge of dental students about medical emergencies according to educational qualification, where majority of participants 84.7% interns & 97.4% PGs knew how to diagnose medical emergency. A higher percentage of PGs 94.9% knew about emergency drugs and materials which precipitate allergic reaction, as compared to interns 85.9% and PGs 71.85% were also more aware of the stress reduction protocol than interns 48.2%. While majority of PGs 66.7% have encountered medical emergency with respect to interns 31.8% in clinics. Most participants were willing to undergo proper training to handle medical emergencies. Majority of the participants have inadequate training to handle medical emergencies and the major cause for this inadequacy was lack of time. Yet, majority of study population has received theoretical training for handling medical emergencies but only around one-fourth of study population has practical training for handling medical emergency.

Table 2 demonstrates the attitude of dental students towards handling of medical emergencies according to educational qualification. Most of the participants strongly agreed that all dental professionals should be well versed with knowledge of handling medical emergencies. All the PGs i.e. 100% and 92.9% interns

agreed that thorough medical history is important before any dental procedure. Recording of vitals before any dental procedure has been strongly agreed upon by approximately 97.4% of PGs and 89.4% of interns. About 98.8% interns and 97.4% PGs agreed that all emergency equipment and drugs must be installed in each and every clinical set-up. 90.6% interns and 98.7% PGs strongly agreed that stress reduction protocol must be followed for patients with relevant medical history. Around 97.4% PGs and 95.3% of interns were in favour of addition of a separate ALS and BLS programme to the present dental curriculum.

Table 3 shows the practice about few basic procedures that aid in handling medical emergencies among the participants. Around 55.3% interns knew how to perform BLS, as compared to PGs 73.1%. Most of the PGs 76.9% knew to perform CPR than interns 51.8%. This difference between two groups is statistically significant. Among interns, 51.8% knew how to give artificial respiration, 60.0% knew to administer intramuscular, 34.1% intravenous and 55.3% subcutaneous injections. Among PGs, 76.9% knew how to give artificial respiration, 91.0% knew administration of intramuscular injection, 84.6% knew intravenous and 85.9% knew subcutaneous injection administration. 42.4% interns and 61.5% PGs knew how to perform Heimlich manoeuvre. A higher percentage (92.3%) of PGs knew how to check carotid pulse as compared to the interns (89.4%).

Table 1: Distribution of study subjects according to their age

Gender	N (%)	Mean	SD
Male	79(48.5%)	26.89	3.49
Female	84(51.5%)	26.95	2.09
Total	163(100%)	26.92	2.85

Graph 1: Distribution of study subjects according to their gender and educational qualification



Graph 2: Shows the knowledge of dental students about medical emergencies according to educational qualification

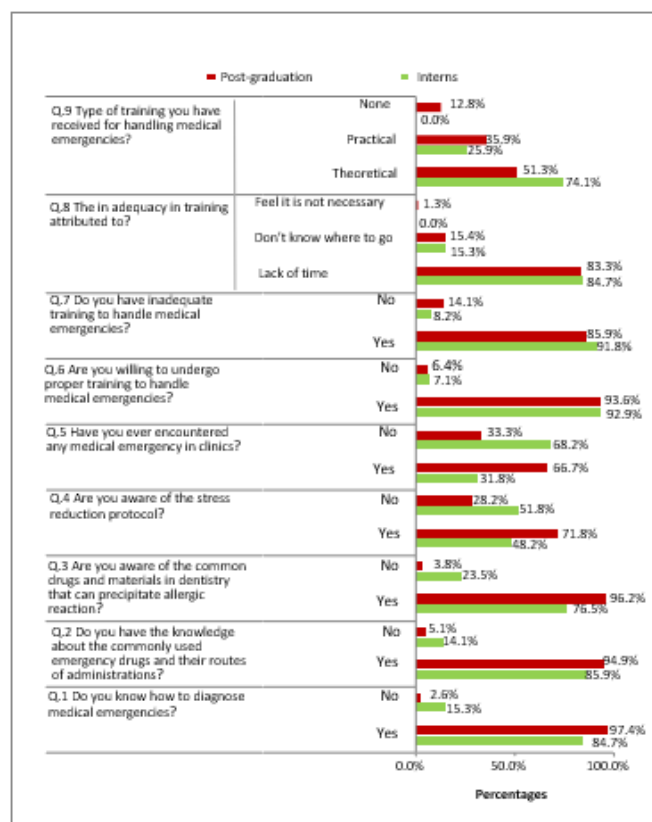


Table 2: Shows the attitude of dental students towards handling of medical emergencies according to educational qualification

Questions	Options	Educational qualifications		χ^2 value	P value
		Interns [N=85]	Post- graduation [N=78]		
		N (%)	N (%)		
Q10. Dentists should be well versed with the knowledge of handling medical emergencies?	Yes	85 (100.0%)	78 (100.0%)	--	--
	No	0 (0.0%)	0 (0.0%)		
Q11. Thorough medical history is important before any dental procedure?	Yes	79 (92.9%)	78 (100.0%)	5.716	0.017 S
	No	6 (7.1%)	0 (0.0%)		
Q12. Vitals must be recorded during history taking?	Yes	76 (89.4%)	76 (97.4%)	4.162	0.041 S
	No	9 (10.6%)	2 (2.6%)		
Q13. All emergency equipment and drugs must be installed in each and every clinical set-up?	Yes	84 (98.8%)	76 (97.4%)	0.434	0.510 NS
	No	1 (1.2%)	2 (2.6%)		
Q14. Stress reduction protocol must be followed for patients with relevant medical history?	Yes	77 (90.6%)	77 (98.7%)	5.153	0.023 S
	No	8 (9.4%)	1 (1.3%)		
Q15. A separate BLS (basic life support) & ALS (ambulance life support) program must be there for dental students?	Yes	81 (95.3%)	76 (97.4%)	0.526	0.468 NS
	No	4 (4.7%)	2 (2.6%)		

Table 3: Shows the practice of dental students about few basic procedures that aid in handling medical emergencies according to educational qualification

Questions	Options	Educational qualifications		χ^2 value	P value
		Interns [N=85]	Post-graduation [N=78]		
		N (%)	N (%)		
Q16. To perform basic life support	Yes	47 (55.3%)	57 (73.1%)	0.570	0.018 S
	No	38 (44.7%)	21 (26.9%)		

Q17. To perform (CPR) cardiopulmonary resuscitation	Yes	44 (51.8%)	60 (76.9%)	11.148	0.001 S
	No	41 (48.2%)	18 (23.1%)		
Q18. To Give artificial respiration	Yes	44 (51.8%)	60 (76.9%)	11.148	0.001 S
	No	41 (48.2%)	18 (23.1%)		
Q19. To Give an intramuscular injection	Yes	51 (60.0%)	71 (91.0%)	20.797	0.000 S
	No	34 (40.0%)	7 (9.0%)		
Q20. To Give an intravenous injection	Yes	29 (34.1%)	66 (84.6%)	42.659	0.000 S
	No	56 (65.9%)	12 (15.4%)		
Q21. To Give a subcutaneous injection	Yes	47 (55.3%)	67 (85.9%)	18.119	0.000 S
	No	38 (44.7%)	11 (14.1%)		
Q22. To Perform Heimlich maneuver	Yes	36 (42.4%)	48 (61.5%)	5.994	0.014 S
	No	49 (57.6%)	30 (38.5%)		
Q23. To Check the carotid pulse	Yes	76 (89.4%)	72 (92.3%)	0.408	0.523 NS
	No	9 (10.6%)	6 (7.7%)		

Discussion

Dentist are bestowed with the reverence of doctors and thus are often looked upon by people as a life saver in any emergency condition.⁸ In the present study, comparatively female subjects (51.5%) were more than the male subjects (48.5%). The reason behind this could be an emerging trend in medical schools where females continue to increase in proportion in annual enrolment. This finding is in accordance with the study conducted by Fasoyiro et al in which female subjects were 59.6% and male subjects were 40.4%.³In the present study, comparatively intern subjects (52.1%) were more than the post-graduate subjects (47.9%). The reason behind this could be that the seats for undergraduate is more than the post-graduate in medical school. This finding is in accordance with the study conducted by Nishtha et al in which intern subjects were 91% and post-graduate subjects were 88.4%.⁴

In the present study, regarding knowledge and practice about medical emergencies according to educational

qualification wise shows that post-graduate subjects had more knowledge and better practice than intern subjects. The possible collective reason behind this could be that the post-graduates are more academically expertise, better skills and have more exposure with medical emergencies in their practice. This finding is in accordance with the studies conducted by Sharma et al.⁶ In the present study, regarding attitude towards handling medical emergencies according to educational qualification wise there was no major significance difference observed in the attitude score of interns and post-graduate subjects. The possible reason behind this could be that medical emergencies can be encountered in dental practice by any practitioner whether they are interns or post-graduates. Therefore, all dental professional should be well versed with knowledge of handling medical emergencies. This finding is in line with the study conducted by Gupta et al.⁹

Recommendations

- Dental institutions should improve teaching levels to create awareness among students regarding medical emergencies.
- All the dental students should attend at least few training programs on BLS, ALS and managing medical emergencies.
- Emergency drug kits with required emergency drugs should be available at each dental office.
- All the dental graduates should improve their knowledge regarding managing emergency cases at dental offices before establishing dental offices.
- In the dental practice setting, SBAR (Situation, Background, Assessment, Recommendation) communication tool can help in a medical emergency to ensure effective communication when calling 999 for an ambulance.
- Oxygen is often administered in a medical emergency. Dental students need to be familiar with and follow the manufacturer's instructions to operate their emergency oxygen cylinder, particularly relating to opening the integral valve.
- The current COVID-19 outbreak has emphasised the need for adequate infection control measures, the principles of which still of course apply in a medical emergency setting. Example- PPE Kit
- All dental staffs should be trained and should receive regular updates on the management of medical emergencies; they should also possess up-to-date evidence of capability.

Conclusion

The best way to handle an emergency is to be prepared in advance. Dental students, being members of the healthcare profession, should be prepared to deal with medical emergencies, which may arise at their workplace. They should be confident and prepared to

deal with medical emergencies arising during their practice. However, the data from the present study and other recent studies showed lack of competence and confidence among them to deal with medical emergencies. This is pointing towards an alarming situation that should be dealt by dental councils around the globe. Reforms in the dental curriculum and thorough training of dental students at an initial stage will help to increase their confidence and competence to deal with medical emergencies. Thus, reducing threat and increasing the survival rate of patients, as well.

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