

To Assess Knowledge of Basic Life Support among Dental Graduates in Terms of Handling Medical Emergencies

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ABSTRACT

Aims and objective: Dentists being part of health care providers often encounter with medical emergencies in their dental office, some are trained to cope with, but a large number of dentists lack knowledge and proper training to handle such emergencies results in serious consequences and medicolegal actions. This study will reflect and encourage knowledge and confidence of dental graduates to deal with such situations.

Study design: It was a cross sectional study to assess knowledge and management skills of dental graduates, gained during their study in dental college.

Place and duration of study: Study comprised of three months' time (March 2022 to May 2022) in which data was collected from de'Montmorency college of dentistry and Fatima memorial dental college, Lahore.

Materials and methods: A self-designed questionnaire was distributed among 98 dental graduates in Lahore. Questionnaire comprised of eleven questions inquiring about medical emergency encountered in their dental clinic/hospital, Basic Life support(BLS), cardiopulmonary resuscitation(CPR), emergency drugs, and equipment and their proper administration and if they want to attend a BLS course in future. Analyzing of data done by statistical package for social sciences SPSS 20.0.

Conclusion: Majority of participants were short of confidence regarding executing the chain of BLS. Some participants were having not enough knowledge of location of chest compressions during CPR. Though a good fraction of participants were aware of emergency drugs and equipment but were not enough confident to use them. Majority were agreeing to attend a proper BLS course to strengthen their knowledge and skills to deal medical emergencies.

Keywords: Basic Life Support, Cardiopulmonary Resuscitation, Emergency Drugs, Dental Graduates

INTRODUCTION

A medical emergency can be described as acute health condition developed due dysfunction or malfunction of any body organ or system that can cause danger to patients life¹. Dentists being part of health care providers often encounter with medical emergencies in their dental clinic/hospital. Patients' phobia of local anesthesia plunger/needle, dental instruments and fear of surgical procedures often cause the arise of medical emergencies such as syncope, hyperventilation cardiac arrest, epileptic tremors, hypoglycemic shock and others depending on patients' systemic health². Most dentist are not very careful about taking medical history, rather three quarters of dentists are unable to identify patients stress level, thus failing in following anxiety reduction protocol³. Thus, it is of core importance to follow anxiety reduction protocol in dental office, which can be done by morning appoints with shorter durations^{4,5}. In addition dental surgery and invasive and extended procedures like surgical extractions, gingivectomy, peri-apical surgery and some times routine extraction can cause excessive bleeding and lead to an emergency situation. A study showed that average 20 deaths have been reported in dental clinics in a period of 10 years⁶.

Knowledge of BLS and ability to perform once medical emergency is encountered, is of extreme importance in life saving. Failing to do so will cause in catastrophic results and medicolegal cases^{7,8}. Studies have revealed that most of medical and dental graduates felt the need of BLS training, very few have attended any skill workshop and were confident enough to execute the knowledge of BLS.⁹⁻¹⁰

Therefore, dental students must have knowledge of basic life support maneuvers and skill to perform when needed. The

fundamental principles of basic life support and a consideration of the management of common emergency medical conditions must be included of the dental education and training. The rationale of this study is to assess the knowledge and confidence of dental graduates in performing basic life support chain.

MATERIALS AND METHODS

A cross sectional study was performed at two different dental colleges of Lahore; de'Montmorency college of dentistry and Fatima memorial dental college, Lahore. Study was performed during house job year in September to November 2022.

The study received the approval of ethical committee of de'Montmorency college of dentistry/Punjab Dental Hospital Lahore. After the approval, the principal and medical superintendent of college and hospital are informed about aim and purpose of the study which they appreciated. A self-designed questionnaire was distributed among the dental graduates doing their house job, which consisted of eleven questions. Questions were designed such and in order to assess properly the knowledge of basic life support in terms of handling medical emergencies in a dental clinic.

A total of 70 questionnaire were collected back after the completion by the participants. The inclusion criteria were graduates currently doing their house job and agreement to participate in the research. Questionnaires that were filled by dental students who were not graduated yet were excluded.

The data was entered into Statistical Package for Social Sciences (SPSS) version 20 (IBM Corp., Armonk, N.Y., USA). 0 and were utilized for data analysis. The data was analyzed for frequency distributions.

Table 1: Response rate of the participants on different parameters evaluated

Have you undergone any medical emergency and/or basic life support training?				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid	52	74.3	74.3	74.3
No Yes	18	25.7	25.7	25.7
Total	70	100.0	100.0	100.0
Any emergency conditions have you encountered in your dental clinic/hospital?				

	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid	40	57.1	57.1	57.1
No Yes	30	42.9	42.9	100.0
Total	70	100.0	100.0	
What does BLS stands for?				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid False/left blank Correct ans	4	5.7	5.7	5.7
Total	66	94.3	94.3	100.0
70		100.0	100.0	
During C.P.R, what is the rate of chest compression every minute?				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid False ans Correct ans	52	74.3	74.3	74.3
Total	18	25.7	25.7	100.0
70		100.0	100.0	
C.P.R should be given when you suspect?				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid False ans Correct ans	46	65.7	65.7	65.7
Total	24	34.3	34.3	100.0
70		100.0	100.0	
Where do you place your hands while doing chest compressions on a Patient?				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid False ans Correct ans	47	67.1	67.1	67.1
Total	23	32.9	32.9	100.0
70		100.0	100.0	
If A =Airway, B =Breathing, C =Circulation, D =Definitive Care, P =Position, what should be the order of your approach to handle an emergency situation?				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid False ans Correct ans	39	55.7	55.7	55.7
Total	31	44.3	44.3	100.0
70		100.0	100.0	
Name any three emergency drugs to be present in emergency tray of dental clinic.				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid left Blank single drug Two drugs all three drugs	14	20.0 31.4 30.0	20.0 31.4 30.0	20.0 51.4
Total	22	18.6	18.6	81.4
	21	100.0	100.0	100.0
	13			
	70			
Name any three equipment to be present in emergency tray of dental clinic/hospital.				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid left Blank single equipment Two equipment all three equipment	13	18.6 28.6 31.4	18.6 28.6 31.4	18.6 47.1
Total	20	21.4	21.4	78.6
	22	100.0	100.0	100.0
	15			
	70			
Are you confident to administer above mention drug and use above mentioned emergency equipment?				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid	47	67.1	67.1	67.1
No Yes	23	32.9	32.9	100.0
Total	70	100.0	100.0	
Would you like to undergo any medical emergency course?				
	Frequency(n)	Percent	Valid Percent	Cumulative Percent
Valid	11	15.7	15.7	15.7
No Yes	59	84.3	84.3	100.0
Total	70	100.0	100.0	

RESULTS

Out of 98 questionnaires distributed among dental graduates doing their house job. A total of 70 questionnaires were collected back, the response rate was 71.4%. Out of total 11 questions nine were multiple choice and two were open-ended questions. The open-ended questions were not compulsory so questionnaires in which these questions were not answered were also included.

52% of the participants didn't undergo any basic life support training program 18% of the participants attended BLS training program. Out of total 70 participants 40n (57.1%) encountered medical emergencies during their internship in the dental clinic/hospital while 30n (42.9%) participants did not encountered any medical emergency in their house job.

Regarding the knowledge of basic life support out of total 70 participants 4(5.7%) were unable to describe the full form of BLS, while 66 participants successfully denoted full form of BLS. 25.7% of the participants knew the correct rate of CPR, while 74.3% were unable to mark the correct rate of CPR per minute. regarding indication of CPR 65.7% couldn't Answer the correct option while 34.3% successfully marked the correct indication of CPR. 67.1% of

the persons knew the exact placement of hands during CPR on the patient's chest. Different orders were created as options of basic life support algorithm, 55.7% correctly marked the right order, 44.3% failed to point out the correct order of BLS.

Two questions were created for three emergency drugs and 3 emergency equipment. Out of total 70 participants 14n (20%) left blank drugs name and 13n (18.6%) left blank the equipment names. 22n (31.4%) wrote only one drug name, 21n (30.0%) wrote two drugs name and 13n (18.6%) wrote all the three drugs' names. 20n (28.6%) wrote only one equipment name, 22n (31.4%) wrote two equipment names and 15n (21.4%) wrote all the three equipment names. Out of these answered names 67.4% were not confident enough of their use and 32.6% claimed to have enough knowledge and skill to use these drugs and equipment. Lastly 84.3% of the total participants wanted to go for BLS training program but 15.7% of the participants didn't opt for any BLS training program.

DISCUSSION

Life-threatening medical emergencies in dental offices occur very few but operating dentist should not only have knowledge but also

the necessary skills to execute the chain of BLS. Many factors are cause of happening of these emergencies. These include a) the increase in age, b) Use of drug combinations, c) increase in number of dental procedures at the same time d) the increased quantities of drugs used in dentistry⁹.

The aim of this study was to assess the house officer's knowledge and skills regarding BLS in terms of Handling medical emergencies, as very few studies have been done in Lahore regarding BLS in Dental Graduates/Interns. Dental Graduates through their academic syllabus, clinical training and skill workshops, should be familiar with the prevention, diagnosis, and management of common medical emergencies. They should be able to provide training to their staff as well, so that each person knows what to do and can act swiftly.

Studies have been done at international level regarding occurrence of medical emergencies, a study done in Australia denotes 1 in 7 dentists encountered medical emergencies and had to perform BLS¹⁰. A study in United Kingdom was done which resulted that every dentist faced 1.9 (almost 2 cases) of syncope in his practice⁶. A study in New Zealand consisted of 166 questionnaires stated that almost 65% of the participants had encountered medical emergencies during their practice in last 10 years¹¹. Akritia et al¹² reported in his study that BLS and advanced cardiac life support in undergrad medical students is not optimal. In our study it is revealed that knowledge about BLS in dental interns/house officers is lacking a very few have knowledge about BLS but lack practical skills (Table 1). Another study reported that medical and dental interns who had completed their internship had poor knowledge about BLS¹³. In our study, it is further confirmed that majority of dental interns have below par knowledge of BLS.

Medial history of the patients is very important to avoid any mishap during dental procedures¹⁴. The tend towards obtaining medical history is growing among dentist and study showed (85.9%) of the dentists note down medical history of their patients as per protocol¹⁵ and modify the treatment as needed¹⁶.

Dental students must have not only knowledge but also necessary skills to cope with a cardiac emergency/medical emergency if occurs in the dental hospital/clinic. It is need of the hour that Dental colleges should be include BLS syllabus and training of students and professionals for CPR and advance life support. Dental interns/professionals on their own capacity should strive for attending courses teaching BLS and advance life support maneuvers.

CONCLUSION

This study emphasizes the dental community to include BLS in their learning curve. Results of this study showed that majority of dental interns from three reputed dental colleges of Lahore are lagging regarding knowledge of BLS. Thus, it is necessary to at least include a BLS workshop with hands on and refresher at two years interval in order to improve the quality of dental education.

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