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Research Article

Level of Knowledge and Awareness about ACLS and BLS among Dental Professionals

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Abstract

Introduction: Despite of advances in prevention incidences of medical emergencies is alarming, and occurs at anytime, anywhere, and to anyone. Even the dental office environment is not immune to such emergency. BLS and ACLS are the most important ways to prevent occurrence of death in an emergency. An accurate knowledge of BLS and ACLS is necessary. They are the key elements of the chain of survival and determining factors in cardiopulmonary resuscitation (CPR) success rate; ensure early discharge from hospital and survival of the patient

Aim: To assess and compare the awareness about ACLS and BLS among final year dental student, interns, Postgraduate students and staff members.

Subjects and Methods: It was a descriptive cross-sectional study, the study was conducted in CSMSS Dental College- Aurangabad, Government Dental College- Aurangabad, Hingoli Dental College- Hingoli. Total subjects 508, the study was carried out into 4 different groups: group 1- 128, group 2- 178, group 3- 93, and group 4-109. A self administered questionnaire with 15 questions with multiple options was prepared and given to the participants to fill out. The questionnaire had knowledge-based questions and view-based questions. One way ANOVA and Chi square test was used to compare knowledge between the groups. Statistical analysis was performed using SPSS v15.0.

Results: Interns comparatively performed well in responding to correct answers in knowledge-based score. UG students had least knowledge about the life support system.

Conclusion: Educational institutions should be involved in the training of students and professionals for life support systems and other emergencies that can occur in the dental office. It should be considered as part of dental curriculum. Hence, regular workshops are necessary for dental students to know the practical aspects of life support systems. The courses and workshops should be organized for medical and paramedical staff.

Keywords: *Cardiopulmonary Resuscitation (CPR); Basic Life Support (BLS)*

Introduction

Cardiac arrests and accidents are the most common emergencies with grave consequences but the high mortality associated with them can be easily prevented most of the times by some very simple maneuvers and skills. Cardiac or respiratory arrests are a very common emergency in not just the adult group but also in the neonatal period. These emergencies can be easily managed by knowledge and practice of resuscitation skills. Resuscitation "is the art of restoring life or consciousness of one apparently dead" [1]. Over time, resuscitation skills have evolved into a proper protocol, which involves cardiopulmonary resuscitation (CPR) commonly known as Basic Life Support (BLS). However, BLS involves techniques other than CPR as well but these two are used interchangeably.

BLS includes both prompt recognition and immediate support of ventilation and circulation in case of respiratory or cardiac arrest [2]. It has a combination of skills including mouth-to-mouth breathing to support ventilation and chest compression to normalize blood circulation to the brain and vital organs. Knowledge of BLS and practice of simple CPR techniques ensures the survival of the patient long enough till experienced medical help arrives and in most cases is itself sufficient for survival [3].

Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) are part of CPR [4,5]. Basic Life Support (BLS) includes recognition of signs of Sudden Cardiac Arrest (SCA), heart attack, Cardiovascular stroke, foreign body airway obstruction and Automated External Defibrillator (AED) [6]. It is important that people in the community knows BLS skill to save lives and improve the quality of community's health. This becomes more important for doctors and paramedical staff who are facing life threatening situations. The present study was aimed to assess and compare awareness of knowledge about BLS and ACLS in dental students and staff working in a hospital set up.

Subjects and Methods

This descriptive cross-sectional study was conducted in CSMSS Dental College, Aurangabad, Govt. Dental College, Aurangabad, and Hingoli Dental College, Hingoli from May 2016 to August 2016.

The study was approved from institute ethics committee and consent was received before initiation of the subjects' enrollment. Study population consisted of PG dental students, final year dental students, interns, and staff members. Subjects who were unable to provide consent were excluded from the study.

Methodology

A self-administered questionnaire with 15 questions and multiple options was prepared and given to the participants. The questionnaire had 2 sets of questions consisting of knowledge based questions (8 questions) to assess the levels of awareness, practical knowledge and attitude towards ACLS and BLS. It also covered the about the awareness about the skills and knowledge of CPR, the results were calculated based on the answers of these knowledge-based questions, and view-based questions (7 questions). Each correct answer was given two marks while wrong answer was given minus one mark.

Statistical analysis

Data were presented as frequency, percentage, mean, and standard deviation. One way ANOVA was used to compare response to every question between the groups. Chi-square test was used to compare categorical variables between the groups. $P < 0.05$ was considered significant. Statistical analysis was performed using SPSS v15.0.

Results

A total of 508 subjects were enrolled into the study. The subjects were divided into four groups: Final year students (n = 128), interns (n = 178), PG students (n = 93), and staff members (n = 109) (Figure 1).

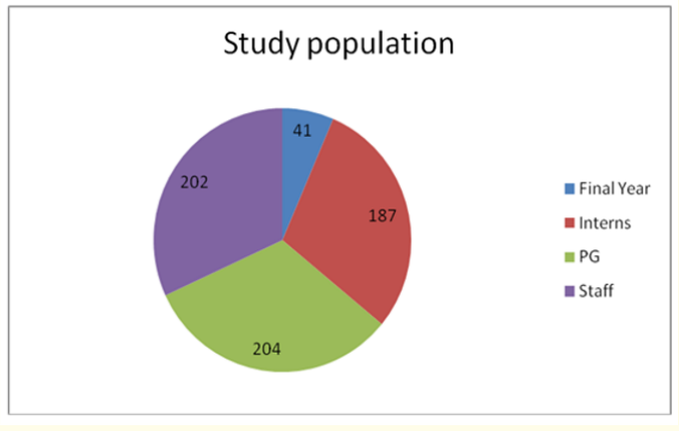

Figure 1

Knowledge-based awareness comparison

Out of 15 questions, 8 questions (Q1, 6, 7, 8, 9, 10, 11, and 13) were knowledge related. Table 1 shows 24% subjects for Q1, 50% for Q6, 36% for Q7, 37% for Q8, 43% for Q9, 53% for Q10, 50% for Q11, and 37% for Q13 given correct answer. We also observed that knowledge of intern students was significantly higher for all questions in comparison to the other groups of subjects ($P < 0.05$) (Table 1).

		Don't Know	Wrong	Right
Q1	Final Year Students	11.0%	11.2%	3.0%
	Interns	4.1%	18.9%	12.0%
	Post Graduate	2.2%	11.6%	4.5%
	Staff Member	1.2%	15.7%	4.5%
Q6	Final Year Students	11.8%	7.3%	6.1%
	Interns	4.3%	11.8%	18.9%
	Post Graduate	2.4%	3.3%	12.6%
	Staff Member	1.2%	8.1%	12.2%
Q7	Final Year Students	11.6%	6.9%	6.7%
	Interns	5.3%	16.9%	12.8%
	Post Graduate	2.2%	8.1%	8.1%
	Staff Member	1.2%	11.8%	8.5%
Q8	Final Year Students	11.0%	7.9%	6.3%
	Interns	5.9%	16.9%	12.2%
	Post Graduate	2.4%	6.3%	9.6%
	Staff Member	2.0%	11.0%	8.5%
Q9	Final Year Students	11.0%	6.5%	7.7%
	Interns	6.3%	13.2%	15.6%
	Post Graduate	2.4%	6.9%	9.1%
	Staff Member	1.2%	9.3%	11.0%
Q10	Final Year Students	8.9%	7.9%	8.5%
	Interns	4.9%	12.8%	17.3%
	Post Graduate	2.2%	3.7%	12.4%
	Staff Member	1.0%	5.9%	14.6%
Q11	Final Year Students	9.6%	6.3%	9.3%
	Interns	4.3%	14.0%	16.7%
	Post Graduate	2.2%	5.1%	11.0%
	Staff Member	1.4%	6.9%	13.2%
Q13	Final Year Students	10.0%	6.1%	9.1%
	Interns	6.3%	16.7%	12.0%
	Post Graduate	1.8%	8.7%	7.9%
	Staff Member	1.4%	12.2%	7.9%

Table 1: *Response to knowledge-based questions.*

We also compared the mean score of knowledge-based questions and compared between the groups. Table 2 describes the mean score of each question and significance between the groups. We observed that the mean knowledge score was significantly different between the groups ($P < 0.05$).

		N	Mean	Standard Deviation	P Value
Q1	Final Year Students	128	.68	.675	< 0.00001
	Interns	178	1.22	.642	
	Post Graduate	93	1.13	.594	
	Staff Member	109	1.16	.494	
Q6	Final Year Students	128	.77	.815	< 0.00001
	Interns	178	1.42	.702	
	Post Graduate	93	1.56	.714	
	Staff Member	109	1.51	.603	
Q7	Final Year Students	128	.80	.833	< 0.00001
	Interns	178	1.21	.688	
	Post Graduate	93	1.32	.678	
	Staff Member	109	1.34	.581	
Q8	Final Year Students	128	.81	.811	< 0.00001
	Interns	178	1.18	.698	
	Post Graduate	93	1.40	.709	
	Staff Member	109	1.30	.631	
Q9	Final Year Students	128	.87	.855	< 0.00001
	Interns	178	1.26	.746	
	Post Graduate	93	1.37	.704	
	Staff Member	109	1.46	.601	
Q10	Final Year Students	128	.98	.832	< 0.00001
	Interns	178	1.35	.716	
	Post Graduate	93	1.56	.699	
	Staff Member	109	1.63	.572	
Q11	Final Year Students	128	.98	.869	< 0.00001
	Interns	178	1.35	.692	
	Post Graduate	93	1.48	.701	
	Staff Member	109	1.55	.616	
Q13	Final Year Students	128	.96	.873	< 0.00001
	Interns	178	1.16	.706	
	Post Graduate	93	1.33	.648	
	Staff Member	109	1.30	.585	

Table 2: *Comparison of knowledge score.*

Discussion

Health professionals must have sound knowledge and skills regarding life support system. This study revealed that the interns have comparatively higher knowledge, final year students have low percentage of knowledge about ACLS and BLS. However, every group of subjects need to update themselves in their knowledge about ACLS and BLS. Overall, the knowledge about the life support system was scarce. The results of the present study were consistent with those of the study conducted by Roshana., *et al*. [7], Sudeep., *et al.* also demonstrated inadequate knowledge about CPR in healthcare professionals, which was due to lack of training [8].

Akritia., *et al*. [10] reported the inadequacy of knowledge about BLS and advanced cardiac life support in undergraduate medical students [9], but we found the average knowledge about BLS in dental interns and postgraduate students in the present study. Sharma.,

et al. also found that medical and dental interns who had completed their internship had poor knowledge about BLS [10]. In the present study, however, dental interns had comparatively higher knowledge about BLS. A study on dentists demonstrated that the preparation of dentists for the management of medical emergencies was not satisfactory [11].

Emergencies do occur in the dental office. Minimal knowledge about these incidents leads to feelings of insecurity, dissatisfaction or limited appreciation of responsibility of dentists. The inability to perform proper BLS in the dental office will be the ultimate consequence [11].

Sudeep., *et al.* demonstrated the improvement of knowledge and skills of CPR after a BLS training. But the training of resuscitation skills is difficult because of busy schedules and lack of teachers and resources in India [8].

Because the updating of the guidelines every 5 years, repetitive training is needed to ensure the changes. The Medical Council of India has already incorporated emergency medicine as a separate specialty. The awareness and basics of ACLS of the medical and paramedical team and BLS as the first aid will be the prime responsibility of this new emergency specialty [9].

A survey conducted in a hospital setup of Nepal revealed that the medical and paramedical professionals were lacking adequate knowledge of CPR/BLS. Only 9 of a total of 121 participants correctly answered more than 11 questions out of 15 [7]. A survey done by Al Mesned., *et al*. at Qassim university revealed that health care students and healthcare providers had poor knowledge of BLS, which needs to be improved [12]. Another recent study conducted by Alotaibi., *et al.* concluded that dental students and staff had inadequate knowledge regarding basic life support. However, they had positive attitudes towards acquiring it [13]. Saquib., *et al.* have recently observed that among 865 health interns, overall awareness score was average, whereas the knowledge score was below average. Further, the participants showed a positive attitude toward BLS training [14]. They suggested that an optimistic decision should be considered on the inclusion of Basic Life Support procedures in the university curriculum.

In our study, the knowledge about BLS among dental interns and postgraduate students was average and most of the students had a positive attitude towards BLS. This suggests the necessity of BLS programmes in our society.

Dental students must be familiar with the treatment protocol if a cardiac emergency occurs in the dental office. An AED in a dental office or a dental educational setting may be regarded as the standard of care to handle cardiac medical emergencies.

Conclusion

This survey was conducted to evaluate the awareness and level of knowledge among the dental professionals and students. By evaluating and comparing the percentage of right and wrong answers according to knowledge based question for each group the level of awareness about BLS, ACLS and CPR was assessed. According to the results it was seen that the final year students have low percentage of knowledge about ACLS and BLS. The other groups of interns, PG students and staff members need some updating in their knowledge about ACLS and BLS.

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