

KNOWLEDGE OF BASIC LIFE SUPPORT AMONG FINAL YEAR DENTAL STUDENTS OF BPKIHS

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ABSTRACT

Introduction

The chance of survival of a victim after cardiac arrest/foreign-body airway obstruction is doubled by early institution of Basic Life Support (BLS). Besides medical doctors, dental doctors might also encounter the patients in emergency situation requiring BLS, especially during peripheral district teaching hospital posting in internship.

Objectives

The objective of this study was to assess the level of knowledge about BLS among final year dental students of BPKIHS.

Methodology

In this cross-sectional study, structured questionnaires were distributed to BDS final year students (purposive sampling, sample size = 53). Each question responded correctly was awarded as point +1 and total points were calculated by adding all the correct answers. The collected data were entered in Microsoft excel 2010 and descriptive analysis was done by SPSS 16.

Result

Out of 53 questionnaires distributed, 49 were responded and returned (response rate= 92.45%). Twenty participants were male and twenty-nine were female. Four participants had taken BLS training in the past. Only twenty participants scored $\geq 50\%$ and none of the participant scored $\geq 75\%$. Only one question was responded correctly by 100% participants. Ten questions were responded correctly by $\geq 50\%$ participants. Although 65.3% participants were aware about high quality CPR, only 49% knew the exact location of chest compression. The chest compression to ventilation ratio for each of single rescuer and two rescuers was known by 20 participants (40.8%) and 28 participants (57.1%) respectively.

Conclusion

Knowledge of BLS is poor among BDS final year students.

KEYWORDS

Basic life support, Final year students, Knowledge



INTRODUCTION

Basic Life Support (BLS) includes identification of signs of sudden cardiac arrest, heart attack and stroke; early institution of cardiopulmonary resuscitation (CPR) and rapid defibrillation with an automated external defibrillator.¹ Cardiopulmonary resuscitation is a lifesaving process that improves the survival rates of the patients that suffer from cardiac arrest.² Similarly, the survival rate after cardiac arrest is further improved by early institution of good quality CPR and early defibrillation. The survival rate after cardiac arrest was found to be 67% if all the interventions were done immediately after collapse, but the chances of survival decline by 5.5% for every minute delay in CPR, defibrillation and definitive care.³ Immediate recognition and activation, early CPR, and rapid defibrillation (when appropriate) are the first three BLS links in the adult Chain of Survival but identification of cardiac arrest is not straight forward and any confusion from rescuer part can result in delay in institution of CPR and thus the precious time is lost that might decrease the chances of survival.⁴ All the health care professionals including doctors, nurses and paramedical persons should know how to perform BLS as they encounter such situation very often. The students of each and every health science college are the building block of future health care system of any country and hence their knowledge of BLS is crucial. Lack of structured training has been identified as the main reason of poor knowledge about BLS.⁵ Similarly, BDS (Bachelor of Dental Surgery) students of B. P. Koirala Institute of Health Science (BPKIHS) immediately after passing the final year exam are posted in various district/zonal hospital during their internship and they may encounter a situation where they have to perform this life saving procedures and they cannot escape just because they are dental doctors. It has been reported that there have been poor training and low level of confidence among undergraduate students even in France and UK.^{6,7} No such report has been found in dental undergraduate students in Nepal. The rationale of this study was to assess the level of knowledge about BLS among dental (BDS) final year students of BPKIHS to gather information for the effective organization of training of BLS before entering internship.

METHODOLOGY

It was a questionnaire based cross-sectional study conducted among the final year dental students of BPKIHS. All the students of BDS final year (2014 batch) giving consent to participate in the study were included. Ethical clearance was taken from the Institutional Review Committee (IRC) of BPKIHS. Procedures of the research were explained to the participants and informed written consent was taken from each participant. A list of BDS final year students was compiled from the attendance register of BPKIHS (purposive sampling, sample size = 53). Structured questionnaires were delivered to all on the list by hand on 20/03/2019, one

month before appearing the final exam assuming that the students had gained the optimum knowledge at that time. The questionnaires contained twenty six multiple choice questions and were designed to collect data about age, sex, BLS training in the past and knowledge about BLS. Most of the questionnaires were returned on the same day of distribution and for those who did not return, a reminder message was sent to each of them via mobile on the fifth day after distribution. The questionnaires were collected over a period of one week and the collected questionnaires were analyzed. Each question responded correctly was awarded as point +1 and total points were calculated by adding all the correct answers. The collected data were entered in Microsoft excel 2010 and descriptive analysis was done by SPSS 16. The scores were categorized as very poor (<30%), poor (30-45%), average (46-55%), good (56-65%), very good (66-75%) and excellent (>75%).⁸

RESULTS

Out of fifty three questionnaires distributed, forty nine were returned to the investigator and thus the response rate from the participants was 92.45%. Out of 49 participants, only 4 (8.2%) participants had taken BLS training in the past (Figure 1). The correct response to each question is shown in Table 1. Only one question (full form of BLS) was responded correctly by 100% participants while only three participants (6.1%) knew the full form of AED. Ten questions were responded correctly by 50% or more participants and three questions were responded correctly by less than 10% participant. Only thirty percent (30.6 %) of the participant knew that EMS should be activated immediately after confirmation of unresponsiveness and only six percent were aware that CPR is not aimed to restart the heart. Although

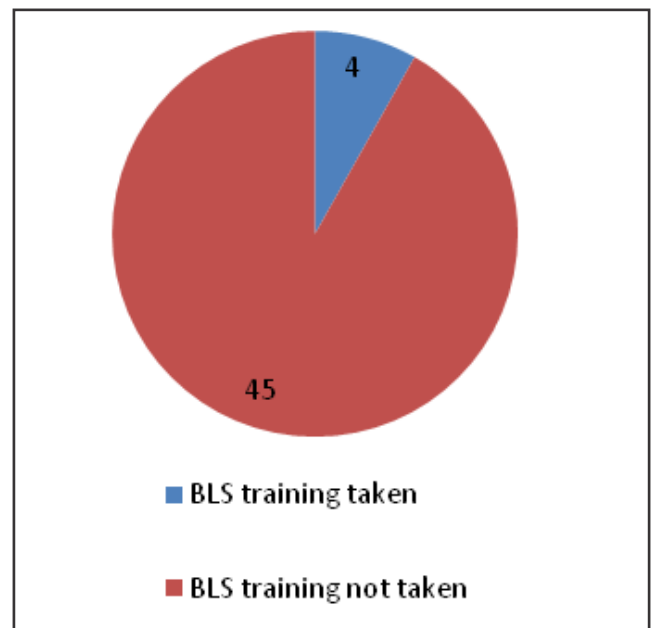


Figure 1: Distribution of the participants based on BLS training in past

Table 1: Distribution of correct response to each question

Q. N.	Questions	Correct Response
1	What is the full form of "BLS"?	48(98%)
2	What do you understand by CPR?	49(100%)
3	CAB in CPR stands for?	46(93.9%)
4	When you find someone unresponsive in the middle of the road, what will be your first response? (Note: You are alone there)	31(63.3%)
5	If you confirm somebody is not responding to you even after shaking and shouting at him, what will be your immediate action?	15(30.6%)
6	CPR aims to restart the heart (Yes or No)	6(12.2%)
7	The critical characteristics of high -quality CPR include which of the following?	32(65.3%)
8	What is the location for chest compression?	24(49%)
9	What is the location for chest compression in infants?	29(59.2%)
10	If you do not want to give mouth -to-mouth CPR, the following can be done EXCEPT	14(28.6%)
11	How do you give rescue breathing in infants?	5(10.2%)
12	What is the rate of compressions per minute as specified in the 2017 American Heart Association guidelines?	22(44.9%)
13	The correct depth of compression for an adult patient is	29(59.2%)
14	Depth of compression in Children during CPR	24(49%)
15	Depth of compression in neonates during CPR	19(38.8%)
16	How long should a pulse check last?	24(49%)
17	Where should you check for a pulse in an adult?	20(40.8%)
18	Infants responsiveness is checked by	37(75.5%)
19	An infant's pulse should be checked by which artery?	2(4.1%)
20	In adults, the chest compression and ventilation ratio for single rescuer CPR is	20(40.8%)
21	In children the chest compression and ventilation ratio for 2 rescuer CPR is	28(57.1%)
22	What does abbreviation AED stands for?	3(6.1%)
23	The proper steps for operating an AED are:	9(18.4%)
24	You are witnessing an adult unresponsive victim who has been submerged in fresh water and just removed from it. He has spontaneous breathing, but he is unresponsive. What is the first step? (need of recovery position)	4(8.2%)
25	You are witnessing an infant who suddenly started choking while he was playing with the toy, you have confirmed that he is unable to cry (or) cough, what will be your first response?	29(59.2%)
26	If you and your friend are having food in a canteen and suddenly your friend starts expressing symptoms of choking, what will be your first response? (first response of choking in adult)	11(22.4%)

sixty-five percent (65.3%) of the participants were aware about high quality CPR, only 49% knew about the exact location of chest compression. The chest compression to ventilation ratio for single rescuer was known by 20 participants (40.8%) and that for two rescuers was known by 28 participants (57.1%). Similarly, the correct depth of chest compression in each of adults, children and infants was known by 29(59.2%), 24(49%) and 19(38.8%) participants respectively. Although 37 participants (75.5%) knew how to check infant responsiveness, only two participants (4.1%) knew the site of pulse check and only 5 (10.2%) participants knew how to give rescue breathing in infant. Out of 49 participants, only twenty participants had scored 50% or more and none had scored 75% or above. Similarly, two participants had scored even less than 20%. The percentage range scored by the previous BLS training participants was 38.5 to 46.1. While categorizing the score, 4 participants had very poor score, 18 had poor and average scores each. Five participants had good score and four had very good scores; however, none of the participants had excellent score (Table 2).

Table 2: Number of participants as per score categories

Score category	No. of participants
Very poor (<30%)	4
Poor (>30-45%)	18
Average (>45-55%)	18
Good (>55-65%)	5
Very good (>65-75%)	4
Excellent (>75%)	0

DISCUSSION

The aim of Basic life support training is to immediately identify the victims of cardiac arrest and foreign body airway obstruction and manage with cardiopulmonary resuscitation and defibrillation as early support of ventilation and circulation restores the blood and oxygen supply to vital organs and prevent from being damaged permanently.⁹ The theoretical knowledge and practical skills of BLS are the main determinant for the successful execution of CPR in emergency situation.⁸ The procedures of BLS are simple but systematic and it should be known to every layman. Developed countries have already recommended BLS training even for high school students nearly a decade ago.¹⁰ However; it has not been made easily available even for the medical and paramedical persons in Nepal till date. Many medical/dental and paramedical students might not learn even the basic knowledge of this essential and life-saving procedures in class with hands-on practice during their undergraduate study period and they remain incompetent to perform CPR even after graduation. The situation is same in dental students of BPKIHS but they are expected to perform CPR from the very first day of their internship as they are posted in peripheral district teaching hospital. Similarly, low confidence among medical students in performing CPR has also been reported from Europe.¹¹ The present study also revealed that the participants have inadequate knowledge on BLS. None of the participants has scored even 70% and only one question (full form of BLS) was responded correctly by all participants. Only twenty participants scored 50% or more. Ten questions were responded correctly by 50% or more participants. Although there is a study in which participants who have received training in class have fairly higher score of knowledge regarding BLS as compared to non-trained, all four participants in the present study who had taken BLS training in the past had scored less than 50%.⁸ As per a study conducted by Cooper S et al, those attending immediate life support had a significantly higher knowledge score in beginning of the course as compared to the group attending BLS course that indicates that the preparatory course manual had been beneficial. Knowledge did not decline as much as the skill did after six month of training; however, it remained higher than pre-course level.¹² Further, before conducting a BLS training, the level of self-confidence among the students regarding management of cardiac arrest need to be assessed as the self-perception of qualification in BLS is found to be poor.¹¹ Thus, It is essential to standardize training in BLS to make it more retentive and mandatory component



of all medical, dental, nursing and other paramedical students.¹³ This study also has limitations as it is based on a questionnaire which serves as an indicator of purely theoretical knowledge as the theoretical knowledge does not necessarily indicate that the participants can perform well in during CPR in real world. Although a theoretical test cannot replace a practical test for the assessment of an individual, it is a viable alternative as a tool to estimate and compare the efficacy of psychomotor skills, especially in group training programs.¹⁴

CONCLUSION

Knowledge of BLS is poor among the BDS final year students. Even the knowledge of participants who had taken BLS training in the past ranged from poor to average.

RECOMMENDATION

Multi Centre study should be conducted to assess the knowledge of BLS among the BDS final year students of Nepal.

LIMITATION OF THE STUDY

Being a single Centre study findings of this study cannot be generalized to all the BDS final year students.

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CONFLICT OF INTEREST

All the authors have no conflict of interest to declare

FINANCIAL DISCLOSURE

None

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