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RESEARCH ARTICLE

AWARENESS OF BASIC LIFE SUPPORT (BLS) AMONG DOCTORS, NURSES, INTERNS AND MEDICAL STUDENTS IN A MEDICAL COLLEGE

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ABSTRACT

Objectives: Basic life support (BLS) is a life saving procedure and adequate knowledge and skills related to BLS are essential for all health professionals. This study was undertaken to evaluate the awareness and knowledge of Basic Life Support (BLS) among doctors, nurses, interns and medical students in a medical college.

Methods: A cross sectional study was conducted by using responses to a questionnaire regarding BLS by 131 responders. Out of all the responders, 59 were nurses, 41 were doctors, 13 were interns and 18 were medical students. The results were analyzed with SPSS version 20.

Results: The data was collected from 131 responders. The score ranged from 2 to 10 with mean score of 6.4±1.7. Most of the responders knew what BLS stands for. The knowledge regarding the sequential steps in BLS was poor among them. Only 60.3 % of them knew the correct rate of chest compression during adult CPR and only 58 % responders correctly answered the chest compression depth in adult CPR. The knowledge regarding compression-ventilation ratio was satisfactory. But only 55 % of responders knew the full form of AED and 61.8 % knew what EMS stands for. Among all, 65 respondrs (49.6 %) scored 60% or less. The steps of CPR and the components of high quality CPR were the areas in which their knowledge was poor. These are the areas which are the most important for effective BLS.

Conclusion: Knowledge of BLS among doctors, nurses, interns and medical students in this medical college is not satisfactory and needs to be improved. Awareness level on the most important aspects of BLS is not satisfactory indicating the importance of professional training at all levels in the medical college. Most of the responders did not have any training or courses regarding BLS. We suggest that inclusion of a BLS course and frequent workshops would increase awareness and application of this valuable life-saving skill.

INTRODUCTION

Cardiac arrest is a very important and acute emergency situation in which if an early and effective Basic Life Support (BLS) is instituted, it will substantially improve the rate of the survival of the victims (Sharma and Attar, 2012). The BLS includes recognition of cardiac arrest, heart attack, stroke and foreign-body airway obstruction; cardiopulmonary resuscitation (CPR); and defibrillation with an automated external defibrillator (AED) (Chaudhary *et al.*, 2011). Every person in the community should know about BLS to save lives and improve the quality of community health. At least the doctors, nurses and other health professionals are expected to know about it, as they are frequently facing life threatening emergency situations and the knowledge of BLS will be certainly useful which can save many lives if timely implemented (Chandrasekaran *et al.*, 2010). CPR was invented in 1960 which is a simple and effective procedure that allows most of the victims to sustain life in the early critical minutes after cardiorespiratory arrest (Aroor *et al.*, 2014). Proper practice of the skills of BLS enables a person to resuscitate a victim effectively. In Nepal, very little data are present which address the awareness of the medical personnel including students, doctors, and nurses regarding this highly effective and easy manoeuvre. The purpose of this study was to investigate the awareness and knowledge of BLS among nurses, doctors, interns and medical students in an established

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medical college in Nepal. This will help in discovering any need for improvement in the competence of BLS providers which will certainly be a helpful step in saving many lives ultimately.

MATERIALS AND METHODS

A cross sectional study was conducted by assessing the responses to 10 selected basic questions regarding BLS among doctors, nurses, interns and medical students of an established medical college in Nepal. A questionnaire with 10 questions regarding the awareness and skills involved in BLS was used to assess the levels of awareness to BLS and its practical knowledge. The aspects on which they were interrogated were about the abbreviation of BLS, AED and EMS (Emergency Medical Services), sequential steps in BLS, components of high quality CPR. After obtaining the informed consent from each participant, each one was asked to fill up the provided questionnaire in front of the investigator to avoid any malpractice while answering the questionnaire. The answers were based on 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. The data from 131 responders were subjected to statistical analysis. The statistical analysis was performed with the Statistical Package for the Social Sciences (SPSS) version 20. The questionnaire used for the study was as follows.

Qualification: Nurse/ Intern/ Doctor/ Medical Student

Previous training on CPR: Yes/ No

1. What does 'BLS' stand for?

a. Best life support
b. Basic life support
c. Basic lung support
d. Basic life services

2. When someone is found unresponsive in the middle of the road, what will be your first step? (Note: You are alone there)

a. Open airway
b. Begin chest compression
c. Look for safety
d. Give two rescue breaths

3. If the victim is not responding even after shaking and shouting, what will you do next?

a. Begin CPR
b. Keep in recovery position
c. Activate EMS
d. Observe

4. Chest compression rate in adults during CPR is

a. 90 to 100/min
b. 100 to 120/min
c. 120 to 130/min
d. 70 to 80/min

5. Chest compression depth in adults during CPR is

a. 1.4 to 2 inches
b. 2 to 2.4 inches
c. 2.5 to 3 inches
d. 4 to 5 inches

6. Compression-ventilation ratio in adult during CPR is

a. 15:2
b. 5:1
c. 30:2
d. Depends on number of rescuers

7. What is the full form of 'AED'?

a. Automated external defibrillator
b. Advanced electrical defibrillator
c. Automated electrical defibrillator
d. Advanced external defibrillator

8. What does 'EMS' stand for?

a. Emergency management services
b. External medical support
c. Emergency medical services
d. Effective medical services

9. If possible opioid overdose, which drug is administered? (If available)

a. Flumazenil
b. Atropine
c. Pralidoxime
d. Naloxone

10. Who should be trained in BLS?

a. Medical professionals
b. Paramedical professionals
c. General public
d. All of the above

Table 1. Correct answers

1. b	2. c	3. c	4. b	5. b
6. c	7. a	8. c	9. d	10. d

RESULTS

The data was collected from 131 responders. Out of all the responders, 59 were nurses, 41 were doctors, 13 were interns and 18 were medical students.

Table 2. Qualification

S.No.	Qualification	Number	Percentage
1	Doctor	41	31.3
2	Nurse	59	45.0
3	Intern	13	9.9
4	Medical student	18	13.7

The score ranged from 2 to 10 with mean score of 6.4±1.7. Only 2 out of 131 responders scored 10 out of 10. One was nurse and one was doctor among those two responders. 11 responders scored 9 out of 10. Among them, one was medical student, four were nurses and six of them were doctors. 24 responders scored 80% where 12 were doctors, 9 were nurses, 2 were interns and 1 was a medical student. 29 responders scored 70 % where 13 were nurses, 7 were doctors, 7 were medical students and 2 of them were interns.

Table 3. Number of correct responses to questions

S.No.	Question	Number of correct response	Percentage of correct response
1	What does 'BLS' stand for	119	90.8
2	When someone is found unresponsive in the middle of the road, what will be your first step	73	55.7
3	If the victim is not responding even after shaking and shouting, what will you do next	43	32.8
4	Chest compression rate in adults during CPR	79	60.3
5	Chest compression depth in adults during CPR	76	58.0
6	Compression-ventilation ratio in adult during CPR	100	76.3
7	What is the full form of 'AED'	72	55.0
8	What does 'EMS' stand for	81	61.8
9	If possible opioid overdose, which drug is administered	92	70.2
10	Who should be trained in BLS	109	83.2

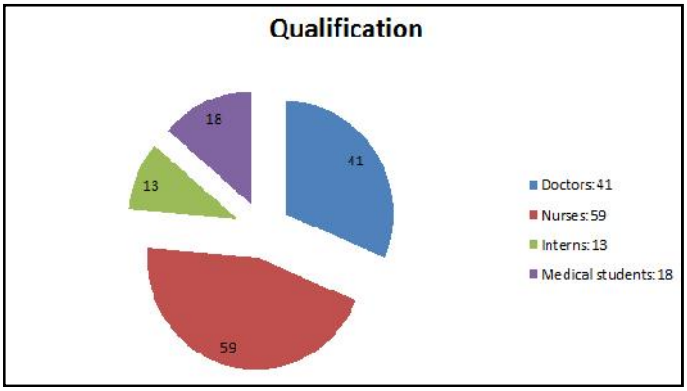

Figure 1. Qualification

Remaining 65 responders (49.6 %) scored 60% or less. The correct responses for each individual questions are as follows. Most of the responders knew what BLS stands for. The knowledge regarding the sequential steps in BLS was poor among them. Only 60.3 % of them knew the correct rate of chest compression during adult CPR and only 58 % of total responders correctly answered the chest compression depth in adult CPR. The knowledge regarding compression-ventilation ratio was satisfactory. But only 55 % of the responders knew the full form of AED and 61.8 % knew what EMS stands for. The steps of CPR and the components of high quality CPR were the areas in which their knowledge was poor. These are the areas which are the most important for effective BLS to achieve the best outcomes.

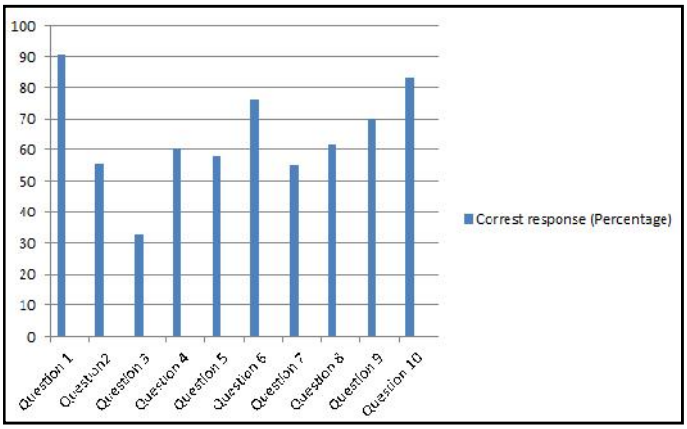

Figure 2. Correct responses to questions

Out of 131 participants, only 6 had received some form of training or courses regarding Basic Life Support (BLS) or CPR.

Figure 3. Previous training on BLS

Table 4. Previous training on BLS

Training on BLS	Number of responders	Percentage of responders
Yes	6	4.6
No	125	95.4
Total	131	100.0

DISCUSSION

Early and effective CPR can greatly increase the victim's chances of survival from sudden cardiac arrest. It has been found that CPR plus early shock delivery with a defibrillator within 3 to 5 minutes of cardiac arrest can provide survival rates as high as 49 to 75% (Avabratha *et al.*, 2012). There are various studies done regarding the awareness of BLS among health care providers in different parts of the world. There is lack of such studies in our region. So this study was conducted to evaluate the awareness and knowledge of health professionals in our medical college. The score of the responders in this study ranged from 2 to 10 with mean score of 6.4±1.7 out of 10 questions provided to them. Among all of them, 65 responders (49.6 %) have scored 60% or less in the study. This study is an unique study which has analyzed the knowledge and awareness towards BLS among doctors, nurses, interns and medical students. The study results showed that the responders were lacking in the awareness of BLS. Awareness and knowledge regarding the sequential steps of BLS was poor in all of them. These are the areas which are the most important for effective BLS to achieve the best outcomes. Similar study was conducted by Chandregowda *et al.*, 2016 and they concluded in 2016 that there was poor knowledge about BLS among the final year medical students and interns. The knowledge and practice was variable between students and interns in their study. They suggested that more

practical based teaching should be employed in MBBS curriculum. And periodical reinforcement and refresher courses should be part of the curriculum. Another study done by Almesned *et al.* concluded in 2014 that knowledge of BLS among medicine, pharmacy, dentistry, and allied health science students and health providers at Qassim University was poor and needed to be improved. They suggested that inclusion of a BLS course in the undergraduate curriculum with regular reassessment would increase awareness and application of this valuable life saving skill. Similarly, Akshatha Rao *et al.* in 2014 have concluded in their study that awareness level on BLS was below average among students in a tertiary care hospital in South India indicating the importance of professional training at all levels. Yet another study conducted by Shreedhara *et al.* in 2012 concluded that interns have islands of scattered knowledge about resuscitation, which is not adequate.

They recommended that introduction of structured resuscitation program in the undergraduate curriculum is needed and effort should be made to determine an appropriate and efficient course design. Another study done by Shrestha Roshana *et al.* in 2012 concluded that the average health personnel in their hospital lacked adequate knowledge in CPR/BLS. Training and experience could enhance knowledge of CPR of these personnel. Thus standard of CPR/BLS training and assessment were recommended at their hospital. Shanta Chandrasekaran *et al.* 2010 reported in their study that awareness of basic life support among medical, dental, nursing student and doctors was poor. They found that only 2 out of 1054 had secured 80-90% marks in their study. Similarly Asad abbas *et al.* 2011 showed in their study that knowledge of trained student was better than untrained student. Many studies have shown that busy schedules of residency and lack of resources may act as barriers for learning and training of resuscitation skills. [6] Doctors still are expected to learn resuscitation skills in all the clinical settings. In many studies, many junior doctors are found to be not competent enough in carrying out effective cardiopulmonary resuscitation. The limitation of our study was that the practical skills of basic life support could not be assessed. It is important that all lay persons in the community be taught the skills of basic life support. There is need to conduct BLS programmes in all sectors of our society, with the intention of producing numerous basic life support responders. At least, it is recommended that the course should be included in the programmes of the medical college and regular refreshing courses are also necessary with hands on experience.

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