



ASSESSMENT OF LEVEL OF KNOWLEDGE OF BASIC LIFE SUPPORT AMONG UNDERGRADUATE STUDENTS IN A MEDICAL COLLEGE OF BIHAR

Anesthesiology

Sharma S	Assistant Professor, Department of Anaesthesia, Mata Gujri Memorial Medical College, Kishanganj, Bihar.
Raman R*	Associate Professor, Department of Surgery, Nalanda Medical College Hospital, Patna, Bihar. *Corresponding Author
Singh M	Professor, Department of Obstetrics & Gynaecology, Nalanda Medical College Hospital, Patna, Bihar.
Singh T	Assistant Professor, Department of Community medicine, Mata Gujri Memorial Medical College, Kishanganj, Bihar.

ABSTRACT

BACKGROUND: Life-threatening emergencies come unannounced. Awareness of basic life support (BLS) is paramount to ensure the provision of essential life-saving medical care in any emergency situation. Structured training & retraining is required for efficient execution of BLS which is lacking in the current medical curriculum.

OBJECTIVE: The present study was undertaken to assess the knowledge of BLS resuscitation algorithm among undergraduate students of a Medical College of Bihar.

METHODS: A cross-sectional study was conducted among 312 undergraduate students from April 2018 to June 2018. A structured questionnaire which collected information regarding the sociodemographic factors, knowledge regarding the BLS resuscitation algorithm, attitude towards BLS was distributed to study participants. Statistical analysis was performed using SPSS version 17. The results were expressed as percentages. Chi-square test was employed to study the association between demographic characteristics and knowledge.

RESULTS: The mean overall knowledge score was very low (43.6 ± 14.2) and 42.6% of the participants had poor knowledge scores.

CONCLUSION: there is a need to include BLS training in medical curriculum for training undergraduate students.

KEYWORDS

BLS, CPR, anaesthesia, medical students

INTRODUCTION

Accidents and cardiac arrests account for the majority of emergencies as they often come with life-threatening consequences. Knowledge of Basic Life Support (BLS) along with immediate action and proper skills is very important to handle such grave emergencies.

BLS is an initial medical procedure given patients in severe life-threatening emergencies to keep them alive until the arrival of certified medical professionals.¹ Administering BLS early enough increases a victim's chances of surviving a cardiac arrest.² Cardiopulmonary resuscitation (CPR) also has a related purpose, to restore partial flow of oxygen to the brain and heart. While CPR alone cannot restart the heart, it delays the death of tissues, thereby extending the window of opportunity for the victim until proper medical help arrives.³

BLS is the medical procedures and skills which are used to save the victim from the life-threatening emergencies until the medical care is provided at the hospital. BLS procedures include cardiopulmonary resuscitation (CPR), bleeding control, artificial ventilation, and basic airway management.^{4,5} It is important for all medical and paramedical staffs to know about BLS as they encounter life-threatening emergencies in their routine life.⁶

The BLS is a core skill in which all health care professionals should be proficient. It is logical to provide BLS training during undergraduate years ensuring basic competence in all graduating health care students. The literature is limited in regard to the BLS knowledge among medical students of Bihar. With this background, the present study was undertaken to assess level of knowledge of basic life support among undergraduate students in a medical college of Bihar

METHODS

A cross-sectional study was carried out among undergraduate students of a medical college of Bihar between April and June 2018. The questionnaire was distributed to 367 students, out of which 312 completed questionnaires were involved in the study.

The students were interviewed using a self-administered structured and pre-tested questionnaire consisting of three parts. First part included sociodemographic details, second part contained 21 questions assessing BLS knowledge and skills, and the third part had 6 questions to assess attitude towards BLS. The final questionnaire was

pilot-tested on 10 nursing students which resulted in an overall Cronbach's alpha value of 0.78. No changes were made to the questionnaire as a result of the pilot study. Subsequently, the questionnaire was distributed to all undergraduate students by two investigators during class at the end of scheduled lectures. The importance of the study for improving BLS education at medical college was explained verbally during distribution of the questionnaire.

Responses to knowledge questions were analysed according to an answer key developed from the original questionnaires; subsequently, the percentage of accurate responses for each multiple-choice question was calculated.^{6,7} Correct answers were given a score of one, and incorrect ones, zero.

The data were analysed using SPSS version 17.0. Chicago: SPSS Inc. Categorical variables were reported as numbers and percentages while continuous variables were expressed as means and standard deviations. Associations were calculated using Fisher's exact or Chi-square tests, as appropriate. A p value of ≤ 0.05 was considered statistically significant.

Ethical approval for this study was obtained from the Institutional Ethics Committee before data collection. All of the participants gave informed verbal consent and were assured that completion of the questionnaire was voluntary and anonymous.

RESULTS

A total of 312 students returned completed questionnaires (response rate: 85.01%). The mean age was 20.1 ± 2.1 years. The distribution of the participants according to socio-demographic details is shown in Table 1.

The knowledge of the students regarding the BLS resuscitation algorithm was assessed by twenty-one questions. The knowledge of a participant was computed as the percentage of correct answers out of all 21 knowledge questions such that higher score indicated a better knowledge regarding BLS. Accordingly, knowledge levels were classified as good (75-100%), fair (50-74%), poor (<50%).

The Table 2 shows the knowledge of undergraduate students regarding

the various aspects of BLS resuscitation algorithm. Out of the 21 questions which measured the knowledge on BLS algorithm no participant answered all the questions correctly and no single question yielded 100 % correct response from all the participants.

42.6% of students had poor knowledge, 54.5% had fair knowledge and only 2.9% had good knowledge. The mean knowledge score for the entire cohort was low (43.6±14.2). Third year and final year undergraduate students had slightly better knowledge as compared to first and second year students. But the difference in the knowledge score between the various batches was not found to be statistically significant. (Table 3)

DISCUSSION

The present study revealed that the mean knowledge score for the entire cohort was 43.6±14.2 and only 2.9% students had good knowledge regarding BLS.

A study conducted by Vasudevan B et al reported good knowledge in only 3.7% of medical students.⁸ While Chandrasekaran S et al reported 83% of medical students scored less than 50% of marks on assessment of knowledge regarding BLS.⁹

Study conducted by Sharma R et al reported that Resuscitation experience and training in BLS resulted in better knowledge score and thus boosted the confidence of study subjects.¹⁰

In our study knowledge of undergraduate students regarding the various aspects of BLS resuscitation algorithm was measured with the help of 21 questions on BLS algorithm. No participant answered all the questions correctly and no single question yielded 100 % correct response from all the participants. In our study the difference in the knowledge score between the various batches was not found to be statistically significant. This highlights the fact that BLS training is not being imparted to undergraduate students in any year of medical curriculum.

In a study conducted by Vasudevan B et al majority of the study participants reported that the major reason for the lack of knowledge among study participants is the lack of proper training in the curriculum and 97.5% of the study participants suggested that BLS should be included in the curriculum.⁸ Medical council of India is also recommending that Basic Life Support should be included in the undergraduate curriculum along with the foundation course itself.¹¹

These findings indicate the need for a structured programme for BLS and periodic re-training in BLS

Table 1 Sociodemographic Details

Variable	Frequency (n=312)	Percentage (%)
Age		
≤ 18 years	74	23.7
19-20 years	105	33.7
>20 years	133	42.6
Gender		
Male	186	59.6
Female	126	40.4
Year of study		
1st	62	19.9
2nd	83	26.6
3rd	92	29.5
4th	75	24.0

Table 2: Knowledge of BLS among undergraduate students

S. No.	Response	Correct Response	
		Frequency (n=312)	Percentage (%)
1	Expansion of the abbreviation BLS is Basic Life support	219	70.2%
2	Expansion of the abbreviation CPR is Cardio Pulmonary Resuscitation	279	89.4%
3	BLS can be performed in and out of a hospital setting	265	84.9%
4	Sequence of procedures for doing BLS is CAB	38	12.2%

5	Start compressions within 10 seconds of recognition of cardiac arrest	49	15.7%
6	Rate of chest compression in an adult is 100-120/minute	96	30.8%
7	Depth of chest compression in an adult is minimum 5cm (2 inches)	83	26.6%
8	Depth of Chest compression in an infant during BLS is 4cm	61	19.5%
9	Site of chest compression in an adult is mid chest	158	50.6%
10	Ratio of chest compression and breathing during BLS is 30:2	59	18.9%
11	The method of airway opening when only one rescuer is present is head tilt- Chin lift method	66	21.1%
12	Site of chest compression in a child is the centre of chest just below the nipple line	142	45.5%
13	Artery to be palpated for pulse check in an adult during BLS is Carotid artery	242	77.6%
14	Artery to be palpated for pulse check in a child during BLS is Brachial artery	74	23.7%
15	Preferred method of rescue breathing in an infant is Mouth –to-mouth & nose	45	14.4%
16	No. of rescue breathing to be given for an adult/minute is 10-12	58	18.6%
17	Do you stop compressions for ventilations? Yes	143	45.8%
18	When you find someone unresponsive in the middle of the road and you are alone, the first response is to look for safety	111	35.6%
19	The immediate action to be taken when an unresponsive patient is not responding to the initial attempt to awake him is to activate the emergency response	154	49.4%
20	The action to be taken when you find someone suffering from choking is to give abdominal thrust	183	58.6%
21	Expansion of AED is Automated External Defibrillator	107	34.3%

Table 3: Distribution of Knowledge regarding BLS

Undergraduate Students	Mean Score SD	Knowledge Level			P Value*
		Poor (<50%)	Fair (50-74%)	Good (75-100%)	
1 st Year	43.7±14.7	26 (41.9%)	35 (56.5%)	01 (1.6%)	0.134
2 nd Year	42.8±13.8	40 (48.2%)	42 (50.6%)	01 (1.2%)	
3 rd Year	44.1±14.5	38 (41.3%)	50 (54.3%)	04 (4.4%)	
4 th Year	43.3±13.6	29 (38.7%)	43 (57.3%)	03 (4.0%)	
Total (n=312)	43.6±14.2	133 (42.6%)	170 (54.5%)	09 (2.9%)	

*P value based on Fisher's exact test. P value <0.05= statistically significant

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