Awareness of Basic Life Support & Advanced Life Support among Students in a Medical College in Kerala

Sunil R.[1], Praseetha V.K.[2]

[1, 2] Department of Anaesthesiology, Government Medical College, Thrissur, Kerala, India.

ABSTRACT

BACKGROUND

The knowledge and skills in Cardio-Pulmonary Resuscitation (CPR) is an essential part in the medical education. Resuscitation skills have undergone series of evolution into current protocol which involves Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS). We wanted to assess the awareness of Basic Life Support among medical students, nursing students and house surgeons in a Government Medical College in Kerala.

METHODS

A cross-sectional study was conducted by assessing responses to 24 selected basic questions regarding BLS and ACLS among the students. After excluding the incomplete response forms the data from 500 responders was analysed. Results were analysed using an answer key prepared with the use of the Advanced Cardiac Life Support manual of AHA (2015).

RESULTS

Out of 500 responders, 250 were medical students, 100 were nursing students and 150 were House Surgeons. No one among them had complete knowledge of BLS & ACLS. Awareness of BLS & ACLS among students of medical, and nursing colleges and doctors is poor. Regarding knowledge of BLS (9 questions) the analysis of results showed that mean percentage of correct responses were 75.67 % of house surgeons, 51.78 % of nursing students and 20.98 % of medical students.

CONCLUSIONS

Awareness of BLS among students of medical, and nursing colleges and house surgeons is inadequate. Proper training programs must be initiated to rectify this.

KEYWORDS

BLS & ACLS Awareness, Medical Students, CPR Questionnaire

Corresponding Author:
Dr. Praseetha V. K.,
Souparnika, Thuruth Road,
Padukkadu, Viyyur P.O.,
Thrissur - 680010,
Kerala, India.
E-mail: drprasee@gmail.com

BACKGROUND

The knowledge and skills in cardiopulmonary resuscitation is an essential part of the medical education. Resuscitation skills have undergone series of evolution into current protocol which involves Basic Life Support and Advanced Cardiac Life Support. BLS includes recognition of signs of sudden cardiac arrest (SCA), heart attack, stroke and foreign-body airway obstruction (FBAO); cardiopulmonary resuscitation and defibrillation with an automated external defibrillator (AED).[1] BLS includes prompt recognition of respiratory and cardiac arrest and support of ventilation as well as circulation.[2]

A combination of skills are used in BLS & ACLS. Correct knowledge and practice of CPR techniques ensures survival of patient. Good practice of CPR techniques is vital in the survival of patients till expert medical help is available. In many cases BLS alone may be sufficient for survival.[3] The doctors, nursing and paramedical staff are expected to know about it, as they are frequently facing life threatening situations. Assessment of their knowledge and skills are essential in formulating a good training program. The objective of this study is to give an insight into the effectiveness of current training and give suggestions to improve it.

METHODS

A cross-sectional study was undertaken after approval from Ethical committee and Institutional Research Committee. The aim of study is to assess awareness and knowledge about BLS & ACLS among medical students, nursing students and house surgeons. The study setting was Government Medical College, Thrissur, Kerala, India.

Inclusion Criteria was all students willing to participate in the study. Students not willing to participate in the study, were excluded. Sample size calculation: By considering the proportion of awareness level as 50 % and relative precision at 5 % level, minimum sample size required was found to be 400. After adding 10 % non-respondents, total sample size was estimated as 440, which was rounded off to 500. Willingness for participation was obtained. Socio-demographic details were recorded. Course details, year of study, exposure to CPR, any training undergone, details of anaesthesia posting etc. were recorded. Standardized questionnaire containing 24 questions on socio-demographic details- age, gender, course, year of study, academic performance, clinical training, special training on BLS / ACLS, anaesthesia posting, participation / witness in CPR. Questionnaire also tests knowledge on BLS & ACLS based on latest guidelines. The answers were recorded. The data was then analyzed.

RESULTS

Five hundred willing responders were included and none were excluded as the forms they had filled were complete. Out of 500 responders, 250 were medical students (MS), 150 were house surgeons (HS), 100 were nursing students (NS). All house surgeons (100 %) had undergone CPR training. This training was provided at beginning of their internship as a compulsory training by hospital. The 58 % of nursing students and 43.6 % of medical students had received BLS / ACLS training. Anaesthesia rotation was undergone by 63.33 % of house surgeons, none (0 %) of nursing students and 38.4 % of medical students.

Only 22.6% of house surgeons, 12% of nursing students and 5.2% of medical students actually witnessed CPR. Actual participation in CPR was house surgeons (6 %), nursing students (8 %) and medical students 0.8 %. All 500 participants responded that CPR training is essential during the course.

Regarding knowledge of BLS (9 questions) the analysis of results showed that mean percentage of correct responses were 75.67 % of house surgeons, 51.78 % of NS and 20.98 % of MS. The highest score percentage among HS was 80 % and lowest 73.3 %. The highest value in NS group is 62 %, lowest 43 %. The highest and lowest values in MS group were 42 % and 15.2 % respectively.

The data analysis regarding ACLS showed mean percentage of correct responses were 65.12 % of HS, 37.3 % of NS and 11.88 % of MS. The percentages for correct responses varied from 82.3 % to 45.3 % in HS group. In NS group it was 54 % to 14 %. The medical group showed range from 17.2 % to 2.4 %.
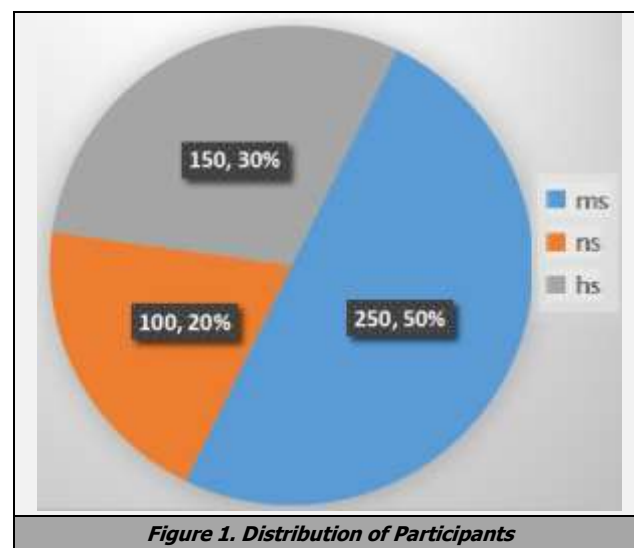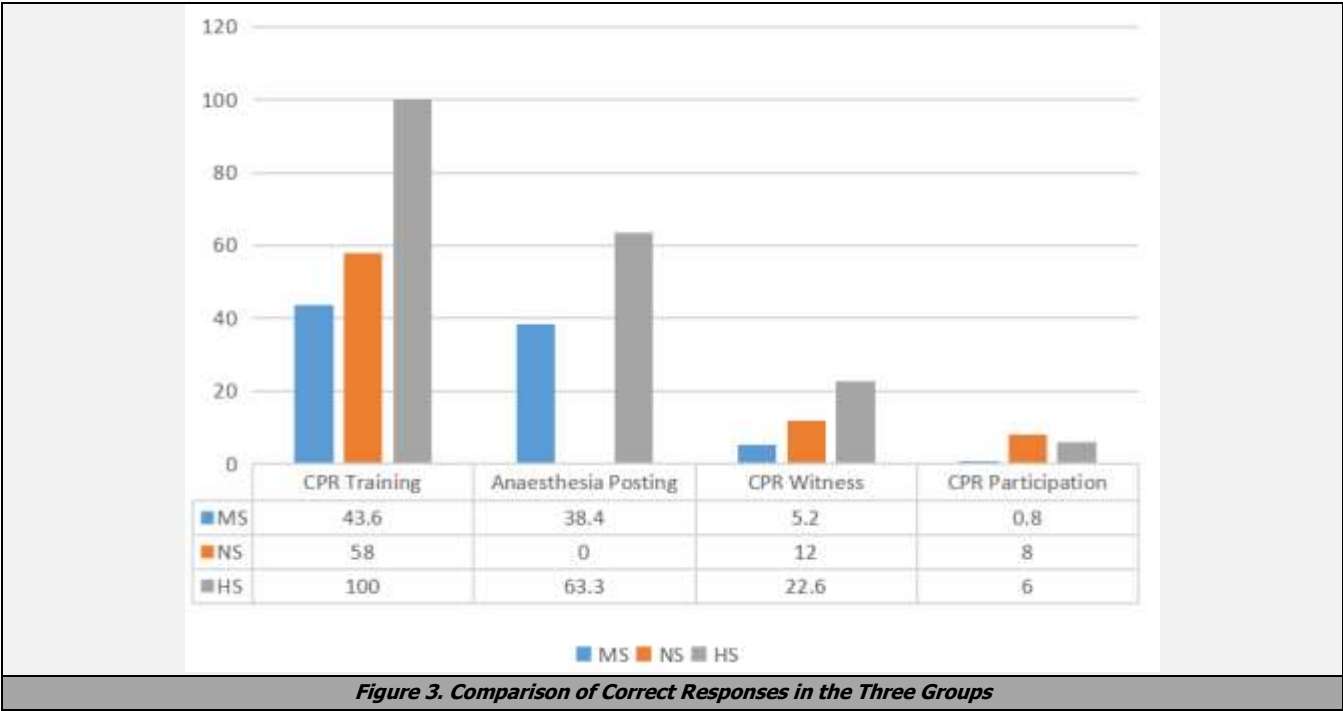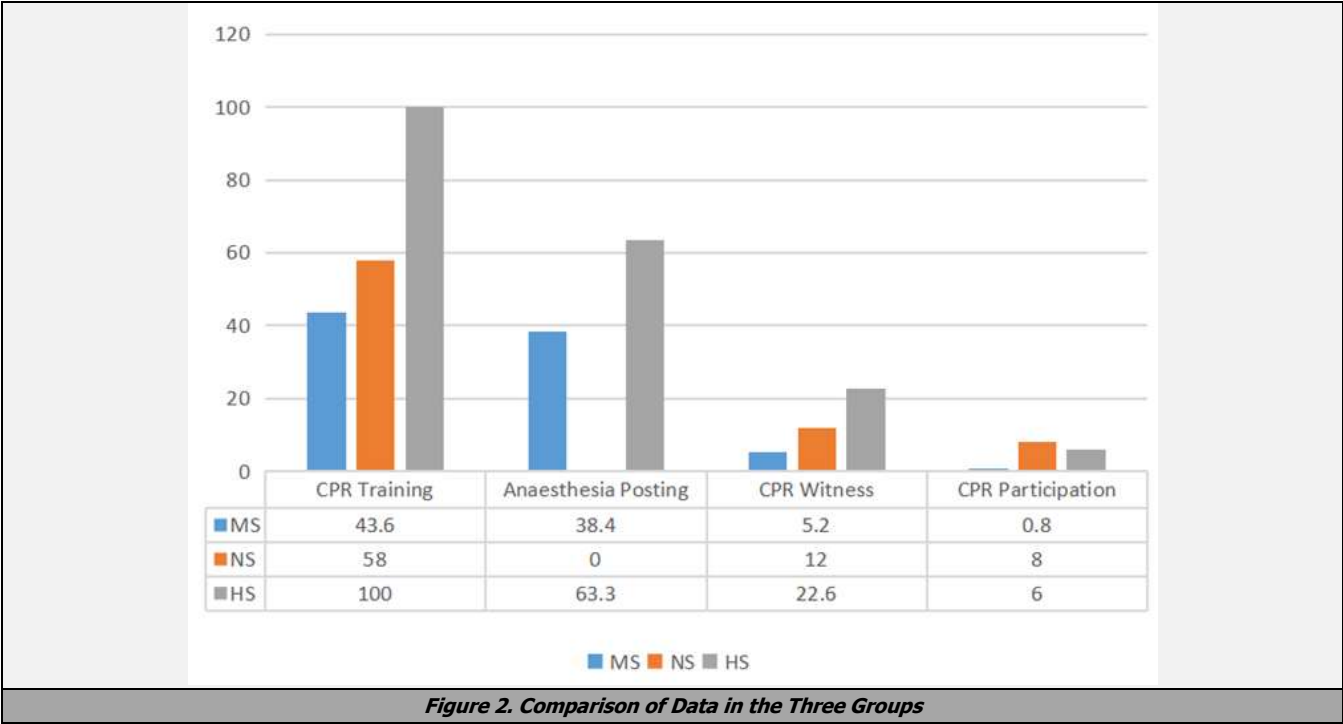

Figure 1. Distribution of Participants

Figure 2. Comparison of Data in the Three Groups

Figure 3. Comparison of Correct Responses in the Three Groups

DISCUSSION

The study results showed that house surgeons, medical and nursing students in the study group were severely lacking in the awareness of BLS & ACLS. Awareness of BLS was poor in all the groups. The performance of medical students is very poor (mean - 20.98 %) compared to nursing students (mean 51.78 %). A similar study by Chandrasekharan et al shows that 83 % of the medical students, 65 % of the medical interns, 89 % of the dental students, 93 % of the dental interns, 99 % of the homeopathy interns, 98.4 % of the nursing students, 69 % of pre- and para-clinical doctors,

59 % of the practicing doctors, 83 % of the dentists and 83 % of the homeopathy doctors had scored less than 50 % of the marks.[4]

Though, different measures of BLS / ACLS guidelines were used in similar studies, the mean score of respondents in the our study were higher than 41.6 % in a previous South-Indian study by Aroor et al[5] and higher compared to 36.05 % in a study of Indian dentists by Baduni et al.[6]

Our study had better scores compared to a study on knowledge of BLS / ACLS than a South-Indian study by (15.18 %) Chandrasekharan et al[4] study among medical students and interns in New Delhi, Sinha et al.[7] The BLS

assessment shows that HS have a higher score (mean percentage 75.67 %). This can be explained by the compulsory training programme at beginning of clinical rotation. A two-thirds improvement (68.4 %) of knowledge and skill of CPR following BLS training as reported by Chaudhari et al.[8] which is consistent with our study.

The ACLS awareness & skill is poor even in house surgeon's group (mean - 65.1 %). The other groups also show very poor knowledge. Detailed analysis show that house surgeons' group is lacking in specific areas of ACLS like defibrillator / AED use (57.95 %). They have also scored lowest in solving clinical situations in cardiac arrest (mean - 48.5 %) Comparing medical and nursing student's awareness of BLS & ACLS was found to be significantly low in the medical group. This was due to training given to nursing students in form of CNE and hands-on workshops every year by their institution. Medical students (43.6 %) were trained in CPR compared to 58 % of nursing students. The witness or participation in actual CPR among 3 groups is also very low. This being lowest in medical students (0.8 %). Participation in CPR was higher in nursing group than house surgeons. This is due to the more number of ICU postings in that group. It is a documented study that the skills of CPR are difficult to teach and once learnt difficult to retain.[9,10]

CONCLUSIONS

Awareness of BLS among students of medical, and nursing colleges and house surgeons is inadequate. Proper training programs must be initiated to rectify this. The curriculum has to be revised to give compulsory training in BLS and ACLS to medical and nursing students.

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Annexures

Questionnaire

Name: Age: Sex:
Course of Study: Semester/Year:

1. Have you undergone any training in ACLS, BLS?

Y	N

2. Have you completed your Anaesthesiology clinical rotation?

Y	N

3. Have you witnessed CPR?

Y	N

4. Did you ever take part in CPR?

Y	N

5. Do you think CPR training should be made essential in your course?

Y	N

6. What is BLS?

Y	N

7. What is the sequence of BLS?

ABC	BCA	CAB

8. Which pulse is checked in adults for BLS?

Radial	Carotid	Femoral

9. Which is site of hand placement for chest compressions?

Left chest	Centre chest	Lower chest

10. Rate of chest compressions?

90-100 / mt	100-120 / mt	120-150 / mt

11. Ratio of chest compression to breaths in each CPR cycle?

15:2	10:2	30:2

12. Chest compressions should not be interrupted for more than _____ seconds.

5	10	15

13. What is the depth of chest compression in adult?

5-6 cm	8-10 cm	15 cm

14. What are manoeuvres to open airway in unconscious patient?

Head tilt	Jaw thrust	Neck flexion

15. Which is the drug of choice for cardiac arrest?

Atropine	Adrenaline	Calcium

16. Which is the ideal route of adrenaline administration in ACLS?

Intravenous	Intra osseous	Intracardiac

17. What is the recommended dose of adrenaline in adults?

1mg/3mt	0.5mg/5mt	0.25mg/10mt

18. Which are shockable cardiac rhythms in ACLS protocol?

VT	VF	Asystole	PEA

19. Which are non-shockable rhythms in ACLS protocol?

VT	VF	Asystole	PEA

20. What does AED stand for?

Automated External Defibrillator	Aystole External Defibrillator	Airway Emergency Drug

21. What is recommended energy in biphasic defibrillator?

100-200 J	300-360 J	200-300 J

22. Which drug is not used to revive cardiac arrest in ACLS?

ADRENALINE	ATROPINE	CALCIUM

23. What to do -if patient is not breathing but has palpable pulse?

A) Chest compression, B) Rescue breathing

24. If patient is unresponsive with good breathing and palpable pulse

Next step is _____.