Knowledge, Attitude and Practice Regarding Basic Life Support in Postgraduate Medical Students in Atertiary Care Medical Institute of Western Maharashtra

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Abstract

Background: An adequate knowledge and practice of providing Basic Life Support (BLS) and a positive attitude towards initiating the procedure is very necessary among postgraduate medical students. The objective of this study was to assess the knowledge, attitude and practice regarding BLS among the medical postgraduate students in a tertiary care medical institute.

Methods: In the present cross-sectional study, 160 postgraduate students were assessed using a predefined questionnaire based on American Heart Association's BLS guidelines. Students who gave consent to participate were included and those who filled the questionnaire incomplete were excluded from the study. Data analysis was done by calculating the mean of the scores and converting that into percentages using Microsoft Excel. Odds ratio was calculated to compare the scores of clinical and non-clinical postgraduate students.

Conclusion: Participants trained recently had better scores than those trained many years ago. All participants showed positive attitude towards BLS. Clinical postgraduate students are 16.2 times more likely to have an average knowledge of BLS (OR: 16.2) and are 4.84 times better at practice of BLS (OR: 4.84) than non-clinical postgraduate students concluding that repeated training of all postgraduate medical students especially those working in non-clinical departments is very important.

Keywords: Basic life support, KAP, postgraduate.

Introduction

The knowledge of Basic Life Support is necessary to save the life of a patient. Every person in the medical field should know and must have an adequate practice of the method of providing basic life support to a patient. BLS (Basic Life Support) includes the medical procedures and skills that are used to save a patient from life-threatening emergencies until medical care is provided at the hospital. BLS is a part of emergency medical care.

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It includes recognizing the signs of sudden cardiac arrest, heart attack, stroke, obstruction of the airway due to a foreign body, as well as performing CPR (Cardiopulmonary resuscitation) and defibrillation with an AED (Automated External Defibrillator).[1] BLS (Basic Life Support) includes the procedures like CPR (Cardiopulmonary resuscitation), basic airway management, artificial ventilation and bleeding control.

Due to limited availability of CPR facilities, about 92% out-of-hospital cardiac arrest patients all over the world lose their lives. About 10% of total mortality in developing countries is due to out-of-hospital cardiac arrest (OHCA) and it is one of the leading causes of death and disability all over the world.[2]

If a doctor is not properly trained for BLS and is unable to cope with the emergencies, it can result in legal complications and serious consequences.[3] So it is necessary that all medical and paramedical staff should know about BLS as they face life threatening situations in their everyday life.[4]

According to the General Medical Council, preregistration house officers must get training in BLS before they start with their first posting and they should receive advanced life support training during the first year.[5]

The American Heart Association (AHA, 2004) has recommended that students and teachers should be given training regarding BLS.[6]

Undergraduate medical students in UK and Poland are also not trained properly for BLS.[7,8] Medical students in Europe can't perform BLS in a proper way and those in Switzerland do not have adequate knowledge of BLS.[9,10] In developing countries like India, BLS and resuscitation training is not routinely practiced. In India, most of the emergencies are handled by doctors working in casualties of government and private hospitals. [11] The awareness of BLS among Indian medical students, doctors and nurses is also very poor.[4]

Assessment of the knowledge, attitude and practice regarding BLS among the post graduate medical students of the institute in the study will help to take one step closer to introducing these skills into regular curriculum.

The objective of the present cross-sectional study was to assess the knowledge, attitude and practice regarding BLS (Basic Life Support) among the medical postgraduate students in a tertiary care medical institute.

Materials and Methods

The present cross-sectional study was carried out in a tertiary care medical institute, from 5/7/2022 to 5/9/2022. All the medical post graduate students studying in the tertiary care institute during the study period were included in the study. There were a total 170 postgraduate students, 87 in first academic year and 83 in third academic year studying in the institute during the study period. There was a delay in admissions due to the COVID 19 pandemic and so there were no postgraduate students in second academic year in the institute.After applying the following inclusion and exclusion criteria, 160 postgraduate students were selected.

Inclusion criteria: All the medical post graduate students studying in the institute who gave consent to participate in the study.

Exclusion criteria: Incompletely filled forms.

A predefined questionnaire consisting of 30 questions based on American Heart Association's BLS guidelines[12]was used in the study. There were 13 questions in the Knowledge section and 10 questions in the Practice section and these were structured as multiple-choice questions while the pattern of the 7 questions in the Attitude section was yes/no/not sure. The questionnaire was given to the participants and collected back on the spot after the responses were filled in by the participants.

Before conducting the study, ethical approval was obtained from the Institutional Ethics Committee.

The nature and purpose of the study was explained to the participants and verbal consent was obtained before they were handed the questionnaire. The participants were informed that their names won't be revealed.

Data entry and analysis was done in Microsoft Excel.

One mark was given for each correct response in the Knowledge and Practice section. The total marks obtained were converted into percentage. A score of less than 30% was considered as very poor, 30% to 45% as poor, 46% to 55% as average, 56% to 65% as good, 66% to 75% as very good. 76% and above as excellent.[13]Assessment of the questions in the Attitude section was done by calculating the number of responses received to each question.[13]

Comparison between clinical and non-clinical postgraduate students was done taking into consideration the number of students who obtained scores above 46% (average level score) and those who obtained scores below 46% both in the Knowledge as well as Practice sections and odds ratio was calculated.

Results

Table 1: Distribution of the study participants in various departments on the basis of training received or not received.

Department	Trained (Number and percent)	Untrained (Number and percent)
Pharmacology	1 (0.62%)	1 (0.62%)
Microbiology	2 (1.25%)	3 (1.87%)
Pathology	8 (5%)	1 (0.62%)
Community Medicine	7 (4.37%)	1 (0.62%)
ENT	4 (2.5%)	0
Ophthalmology	7 (4.37%)	1 (0.62%)
FMT	2 (1.25%)	0
General Medicine	12 (7.5%)	0
General Surgery	23 (14.37%)	0
Paediatrics	17 (10.62%)	0
OBGY	20 (12.5%)	3 (1.87%)
Anaesthesia	14 (8.75%)	5 (3.12%)
Psychiatry	3 (1.87%)	1 (0.62%)
Orthopaedics	6 (3.75%)	0
Emergency Medicine	4 (2.5%)	0
Radiology	9 (5.62%)	1 (0.62%)
Dermatology	4 (2.5%)	0
Total	143 (89.37%)	17 (10.62%)

Table 1 shows the number of trained and untrained participants in the various departments of the institute.

The overall score of all the study participants in the Knowledge section was 8.19 ± 2.48 (out of 13). It comes out to be 63%. In the Practice section, the overall score was 5.84 ± 1.68 (out of 10). This comes out to be 58.4%. So, the overall scores both in the Knowledge as well as Practice sections were good.

Table 2: Scores obtained by the untrained and trained study participants in the Knowledge and Practice sections.

Section	Trained	Untrained
Knowledge score out of 13 (Mean SD) and percent	8.5 (65.4%)	5.7 (43.8%)
Practice score out of 10 (Mean	6 (60%)	4.5 (45%)

Table 2 shows that the scores of the trained participants both in the Knowledge and Practice sections were higher than that of untrained study participants.

Table 3: Distribution of scores obtained in the Knowledge and Practice sections by the participants in various departments.

Departments	Knowledge	Practice
Pharmacology	6 1.4 (46.15%)	4.5 0.7 (45%)
Microbiology	5.6 0.9 (43.07%)	4 0 (40%)
Pathology	5.88 1.45 (45.23%)	5.22 1.85 (52.2%)
Community Medicine	6.12 2.4 (47.07%)	4.75 1.38 (47.5%)
FMT	5 1.4 (38.46%)	6 1.4 (60%)
ENT	7 0.8 (53.84%)	6.25 0.5 (62.5%)
Ophthalmology	6.5 1.7 (50%)	5.5 1.5 (55%)
General Medicine	9.33 1.37 (71.76%)	7.66 1.7 (76.6%)
General Surgery	7.86 1.45 (60.46%)	5.73 1.13 (57.3%)
Pediatrics	11.9 0.82 (91.53%)	6.05 1.47 (60.5%)
OBGY	9.82 2.14 (75.53%)	6.17 2.1 (61.7%)
Orthopedics	8.83 1.16 (67.92%)	6.16 1.16 (61.6%)
Psychiatry	6.75 0.5 (51.92%)	4.75 1.5 (47.5%)
Dermatology	8 1.41 (61.53%)	6.25 1.25 (62.5%)
Radiology	7.3 1.76 (56.15%)	5.8 1.47 (58%)
Anesthesia	6.84 2.3 (52.61%)	5.2 1.5 (52%)
Emergency Medicine	10.5 1 (80.77%)	8.25 0.5 (82.5%)
Total	8.19 2.48 (63%)	5.84 1.68 (58.4%)

Table 3 shows that the score in the Knowledge section was highest in the department of Paediatrics (91.53%) followed by Emergency Medicine, OBGY and General Medicine. The score in the Practice section was highest in the department of Emergency Medicine (82.5%) followed by General Medicine (76.6%).

Table 4: Distribution of scores obtained in the Knowledge and Practice sections on the basis of time since last training (n=110).

Time since last training	2 years	3 years	4 years	>4 years
Knowledge score out of 13 (Mean SD) and percent	9.6 3.36 (73.84%)	8.48 2.21 (65.23%)	8.85 (68.07%)	9 2.23 (69.23%)
Practice score out of 10 (Mean	6.4 1.67 (64%)	5.98 (59.8%)	1.58 (62.5%)	5.42 1.9 (54.2%)

Table 4 shows that participants who had received training 2 years ago, their scores in the Knowledge as well as Practice section were more than those who had received training more than 4 years ago.

Out of the 160 study participants, 17 had not received any training. Out of the remaining 143 participants, 141 had received BLS training during MBBS and 2 had received training in a workshop.

Out of the 143 participants who had received BLS training, 33 participants did not remember the date of their training. So, in table 4 assessment of 110 individuals who remembered the date of their last BLS training was done.

Table 5: The number and percentage of responses by study participants to questions in the Attitude section.

Answers	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Yes	160 (100%)	–	71 (44.37%)	22 (13.75%)	23 (14.37%)	151 (94.37%)	156 (97.5%)
No	–	–	89 (55.62%)	134 (83.75%)	132 (82.5%)	7 (4.37%)	2 (1.25%)
Not sure	–	–	–	–	–	–	–
Very much important	–	159 (99.37%)	–	–	–	–	–
Important	–	1 (0.62%)	–	–	–	–	–
Hesitant	–	–	–	4 (2.5%)	5 (3.12%)	–	–

Table 5 shows that all 160 (100%) participants said that BLS training is necessary. 71 (44.37%)said that they had voluntarily performed BLS while 89 (55.62%) had not. 151 (94.37%) participants said that they would like to undergo BLS training in a workshop.

Table 6: Scores obtained in the Knowledge and Practice section by the participants in their respective academic years.

Academic year	Knowledge score out of 13 (Mean SD) and percent	Practice score out of 10 (Mean
1st year	7.73 2.57 (59.46%)	5.64 1.72 (56.4%)
3rd year	8.64 2.32 (66.46%)	6.03 1.63 (60.3%)

There were 79 first year PG students and 81 third year PG students in the study. Table 6 shows that the scores in the Knowledge and Practice section obtained by the 1st year PG students were lower compared to those obtained by the 3rd year PG students.

Comparison of the Knowledge and Practice scores between clinical and non-clinical postgraduate students was done keeping in mind the average score (46%) obtained. The total number of clinical PG students was 134 and that of non-clinical PG students was 26.

Departments	Knowledge score		Odds ratio
	46% and above	46% and below	
Clinical	125	9	16.20
Non-clinical	12	14	

So, in the Knowledge section, odds ratio of 16.20 showed that clinical postgraduate students are 16.2 times more likely to have at least an average knowledge of BLS than non-clinical postgraduate students.

Departments	Practice score		Odds ratio
	46% and above	46% and below	
Clinical	108	26	4.84
Non-clinical	12	14	

In the Practice section, odds ratio of 4.84 meant that clinical PG students are 4.84 times better at practice of BLS than non-clinical PG students.

Discussion

BLS (Basic Life Support)can save the life of a patient from life-threatening emergencies until medical care is provided at the hospital. Every post

graduate student studying in clinical as well as non-clinical department should have an adequate knowledge and practice of the method of providing BLS.

The awareness of BLS among Indian medical students and doctors is very poor and so this study was conducted in postgraduate medical students in a tertiary care medical institute to assess their knowledge, attitude and practice regarding BLS.

In this study, the scores of the non-clinical post graduate students were low compared to the clinical post graduate students who are in continuous practice of providing BLS. The sample size in this study was 160 as compared to the studies done by various authors: Sudeep et al. 250, Chandrasekaran et al. 1054, Kumar et al. 190, Srinivas et al. 500, Narayan et al.202, Roshana et al. 121, Sharma and Attar 162. [3,4,11,14,15,16,17]

Attitude of a study participant is very important especially in starting the BLS procedure.In the present study, all 160 (100%) paricipants said that BLS training is necessary while 151 (94.37%) participants said that they would like to undergo BLS training in a workshop.In the present study, the study participants had a positive attitude towards BLS, similar to the findings obtained in studies done by Kumar et al., Narayan et al. and Roshana et al.[11,15,16]

The study conducted by Roshana et al.[16] showed that the knowledge of BLS in medical, dental and paramedical staffs was not adequate but they had a positive attitude towards it.

The findings from a study showed that the acquisition of knowledge is highest immediately after the training of the individual and it reduces with time.[18] In the present study, participants who had received BLS training 2 years ago, their score in the Knowledge section was 73.84% and in the Practice section it was 64% while those who had received BLS training more than 4 years ago, their score in the Knowledge section was 69.23% and in the Practice section it was 54.2%.

About 15% to 20% of all deaths all over the world are due to sudden cardiac death (SCD),[19,20] and in this out of hospital SCDs are the cause of more than 49.1% of all deaths.[21] Around 250,000 to 300,000 patients all over the world experience an OHCA (Out of hospital cardiac arrest) every year.[22] The patients of OHCA who receive BLS have a better chance of survival than those who do not.

Providing BLS in the first few moments after a cardiac arrest determines patient outcome. Early chest compression and defibrillation are the only two interventions that have been proven to be effective. [23]

In the present study, the scores in the Knowledge as well as the Practice sections were higher in case of the study participants who had received BLS training 2 years ago compared to those who had received BLS training more than 4 years ago. In previous studies, it has been found that there was an improvement in an individual's knowledge and skills of BLS after retraining of that individual. [24,25]

In the present study, the score in the Knowledge section was highest in the department of Paediatrics (91.53%) followed by Emergency Medicine, OBGY and General Medicine. The score in the Practice section was highest in the department of Emergency Medicine (82.5%) followed by General Medicine (76.6%).

Conclusion

The scores of trained study participants were good while that of untrained participants were poor. So BLS training of all medical students must be made compulsory. Participants who had received BLS training recently had better scores than those who had received training many years ago. So repeated training of the individuals is necessary. Clinical post graduate students due to their continuous practice of providing BLS to patients have better knowledge and practice of BLS than the non-clinical postgraduate students and so training of non-clinical postgraduate students is equally important.

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Conflict of Interest: Nil.

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