

A study to know the retain ability of knowledge and effectiveness of reinforcement of BLS and ACLS training in health care professionals

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Abstract

Background: Cardiac arrest affects everyone, and a person with an out-of-hospital cardiac arrest is not always lucky enough to get cardiopulmonary resuscitation. It may be due to the common man's complete lack of competence in these situations. It is because of these observations of the authorities that many health organizations in the world came up with the idea of training even the common man with BLS. This study sincerely tries to find answers to this question.

Aims and Objectives: To determine retention of BLS and ACLS skills, it was taught after six months.

Materials and Methods: Study Settings: CS Hospital, Shimoga, Karnataka. Study design: Quasi Experimental Desig.

Results: In our study total of 30 health care professional were included in our study. There was statically significant difference found between Group A and Group B with respect to mean score difference. The group A which had reinforced training had better mean score difference.

Conclusion: Reinforcement makes a difference and this is quite evident with the difference in the OSCE scores scored. This study makes a point to the frequency of the training should increase

Keywords: Sustainability, knowledge, skills, reinforcement

Introduction

Cardiac arrest can affect anyone, and a person with an out-of-hospital cardiac arrest is not always lucky enough to receive cardiopulmonary resuscitation ^[1]. This may be due to the total lack of competence of the common man in these situations ^[2]. This is because, from these observations of the authorities, many health organizations in the world came up with the idea of training even the common man with BLS. It is therefore absolutely desirable that

young aspiring doctors become familiar with these skills at a very early age, preferably at the beginning of their careers, so that they develop the necessary psychomotor skills at a very young age.

Many factors have been known that have been described in many studies related to the learning process and the factors that influence it, for example: age of the student, student-teacher ratio, length of teaching, teaching style and methods used [3, 4]. Many studies have been carried out with aim to find a way to effectively teach this essential skill, but there is no gold standard. But one way that comes very close to reality is to use mannequins that basically give us feedback. These, along with specific simulated scenarios, can be very effective teaching aids.

And after learning, another thing to keep in mind is maintaining the ability of this essential life-saving skill. Many studies have shown that the ability to properly perform BLS And ACLS declines over time [5-9].

Healthcare professionals are expected to have current knowledge of BLS/ACLS guidelines to revive unresponsive and cardiac arrest patients. Unlike in Western countries, there are no strict licensing protocols in India and other developing countries that mandate physicians, nurses and paramedics to be trained in current BLS/ACLS guidelines.

Studies regarding BLS/ACLS among physicians and nurses who are in the forefront of medical care are lacking in India, particularly from Karnataka. Previous studies were mostly done among interns, homeopaths, medical, nursing and dental students, who are often not directly responsible for emergency patient care. Hence, we conducted this study on Health care Professionals. The objectives was to determine retention of BLS and ACLS skills. To see the effectiveness of reinforcement of training.

Materials and Methods

Study settings: CS Hospital, Shimoga, Karnataka.

Study design: Quasi Experimental Design.

A study was conducted among the Healthcare professionals those who are working in CS hospital and willing to participate. All The healthcare professionals in CS hospital, Shimoga, Karnataka underwent the BLS and ACLS course and immediately after the session a OSCE was conducted so that they will know the format of the examination and was versed with the system and method of examination and the marks of the OSCE score was noted in EXCEL format which served as pre-test. After six months another OSCE session was conducted and was compared with the initial scores. After six months all the health care professional involved earlier was divided into two groups using a lottery method. Group A was made to undergo the BLS and ACLS training once again. The idea is to reinforce the training method in this group. Group B was not made to undergo this training. After 3 months which means at 9th month another OSCE session was conducted for both group A and B.

Statistical analysis

Data was entered into Microsoft excel data sheet and was analysed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Continuous data was represented as mean and standard deviation. Independent t test was used as test of significance to identify the mean difference between two Groups. Paired t test was used as test of significance to identify the mean difference between initial score after training and score after 6months.

Graphical representation of data: MS Excel and MS word was used to obtain various types

of graphs. P value (Probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests.

Results

In our study total of 30 health care professional were included in our study.

Table 1: OSCE Scores immediately after the training of health care professionals

	N	Mean	Std. Deviation
OSCE	30	7.66	1.07

Mean OSCE score of the Study subjects immediately after the training was 7.66 ± 1.07 .

Table 2: OSCE scores after 6 months after the training of health care professionals

	N	Mean	Std. Deviation
OSCE	30	4.05	1.62

Mean OSCE score of the Study subjects immediately after 6month of training was 4.05 ± 1.62
P value <0.001 , there was statically significant difference found between OSCE score immediately after the training and 6month immediately after the training.

After six months all the health care professional involved earlier in our study was divided into two groups using a lottery method. Group A was made to undergo the BLS and ACLS training once again. The idea is to reinforce the training method in this group. Group B was not made to undergo this training again. After 3 months of 2nd training which means at 9month of initial training another OSCE session was conducted for both group A and B.

Overall Mean OSCE score of the Study subjects 6month after the training was 4.05 ± 1.62 .

Mean OSCE score at 9th month among Group A which had underwent the BLS and ACLS training once again was 8.65 and Among Group B it was 3.85.

Table 3: Comparison Mean OSCE score after 3 months after 2nd training between the two groups

Group	Mean	Std. Deviation	P Value
Group A	8.65	1.67	<0.001
Group B	3.85	0.91	

There was statically significant difference found between Group A and Group B with respect to mean OSCE score. The group A which had reinforced training had better mean score difference.

Table 4: Comparison Mean difference in OSCE score after 3months after 2nd training between the two groups

Group	Mean score difference	Std. Deviation	P Value
Group A	4.36	1.67	<0.001
Group B	0.78	0.11	

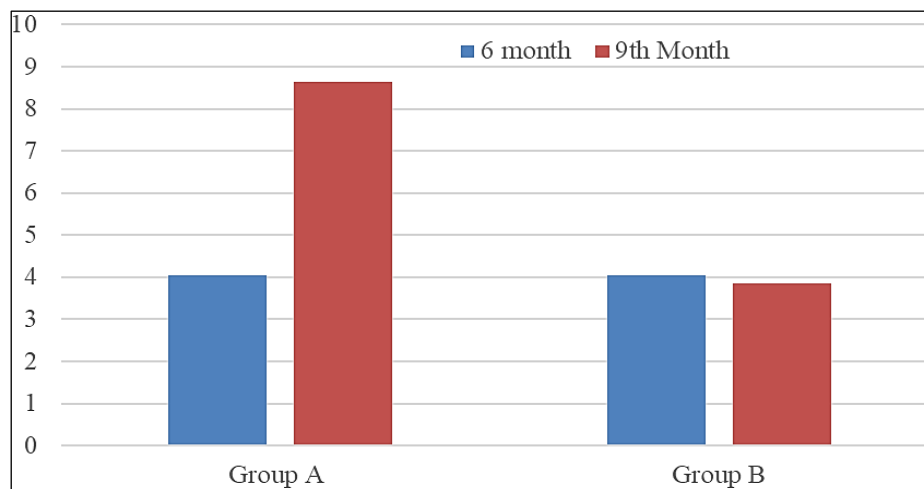


Fig 1: Graph showing Comparison of mean OSCE score at various time line between the two groups

Discussion

In our study, we noted a loss of knowledge and skills in terms of OSCE scores that were checked 6 months after the initial training. A study by Freund *et al.* ^[10] demonstrated that medical students who previously attended clinics had very low knowledge as well as skill sets to perform basic life support. They did a study that clearly showed the lack of knowledge when it comes to scores. Another study by Businger *et al.* ^[11] observed in their study that the general public has a very poor understanding of BLS. Our situation would be the same, if not worse. Understanding this basic knowledge is also very important for the general public. We cannot expect trained doctors to be everywhere. Many other studies conducted around the world also showed the same condition, if not the worst. Not only the general public, but even trained medical students were unable to perform BLS effectively ^[12]. The scores reflected the ability of the students. The immediate score was quite up to par. This test was conducted immediately after the BLS and ACLS training, but the scores dropped drastically after six months, reflecting the fact that the skill level had declined. In fact, it should be an eye opener. Other studies have been done and we completely agree with the study done by Partiprajak *et al.* ^[13]. In their study they observed a decline in the ability to perform effective BLS after only three months. So repetition or reinforcement of knowledge may be the answer to this. In another study by Pande *et al.* ^[14], it was conclusively shown that knowledge declines over time. The technique of training may not need to be changed; instead, regular reinforcement after initial training could be through simple testing rather than full retraining. Mpotos *et al.* ^[15] recently emphasized the efficacy of repetitive formative self-testing in improving the retention of CPR skills. Further repetition of these essential skills may also be encouraged through “learning by teaching”. Breckwoldt *et al.* ^[16] demonstrated that medical students who taught BLS skills to schoolchildren had better practical skills compared to students who only underwent conventional training.

Conclusion

Reinforcement makes a difference and this is quite evident with the difference in the OSCE scores scored. This study makes a point to the frequency of the training should increase.

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Declarations

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