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Basic Life Support Training among Interns and Post Graduate Entrants -Any Difference in Level of Education…….?

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Abstract
Background & Objectives: *As medical professionals, we are expected to recognize cardiac arrest and provide Basic life support anytime anywhere. The purpose of this study was to know if differences exist between clinical exposure and performance in the(Basic Life Support) BLS course training.*
Methods: *A prospective, observational BLS study was conducted in CMC Hospital, Ludhiana after obtaining Ethics approval from the CMC Ethics committee and the informed consent of the participating interns and post graduate entrants. The knowledge and skills were tested based on a validated questionnaire givenbefore and after the course.*
Result: *The skills and knowledge of the interns tested showed significant differences based on their pre-test and post –test scores .Even within each group, the post-test performances were significantly better compared to the pre-test scores. On issues of confidence in performing skills,scientific explanations and clarifications the post graduate group strongly agreed compared to the Interns group who plainly agreed and 2 interns even found the course disorganized.*
Conclusions: Basic Life Support course improves the knowledge and skills of our medical students whether interns or post graduates.
Keywords:*Interns, Post graduate, Basic life support, Skills, Knowledge, Cardiopulmonary resuscitation*

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I. Introduction

The incidence of cardiac arrests is alarming and may occur anytime anywhere. Cardiopulmonary resuscitation(CPR) is an AHA accredited training acquired after undergoing a BLS provider course and it can help save patients of sudden cardiac arrest if recognized early.CPR requires adequate knowledge and skills to provide efficient chest compression, ventilation and defibrillation.The lack of training and inability to cope with medical emergencies can lead to tragic consequences and probable legal hazards[1].CPR is a simple and effective procedure if the skill required is maintained by frequent training[2].In India, there is no strictness regarding the completion of BLS at the M.B.B.S level although Interns require ACLS(advanced cardiac life support) completion before internship finishes. Interns and post graduate students are directly handling several patients in the emergency department so it is wise that they are well-equipped with BLS training .In some hospitals it is mandatory to undergo BLS training but till the course is refreshed as per the changing AHA guidelines ,the efficiency in skills and knowledge can considerably come down[3, 4].Therefore,it is essential to timely train and assess BLS providers to maintain the efficiency in performing CPR.

II. Methods

II.1 Study settings

A prospective,observational study was carried out among 67 interns and 54 post graduates working in CMC hospital in the month of July,2017.Only students who had not undergone a BLS course in the past were included in the study.

2.2Data collection

Data collection was commenced after obtaining the Institutional Ethics Committee Review Board of CMC Hospital, Ludhiana.A questionnaire based on AHA(American Heart Association) guidelines for testing BLS was formulated .It comprised of 25 questions that the students had to answer before undertaking the course. Following the pre-test, the BLS course was provided by AHA certified BLS providers using mannequins. The students were provided BLS training after taking a validated pretest questionnaire. The same questionnaire was used to assess the improvement in BLS skills and knowledge after the completion of the course.

III. Statistical Analysis

In the descriptive analysis, continuous variables were expressed as Mean±S.D and categorical variables were expressed as count (percentage). For categorical variables chi-square test was used and Fisher's exact test was used when there was one or more of the cells with an expected frequency <5. The paired t-test was used to determine whether there was a statistically significant difference between scores of Interns and PG-Students in Pre-Test and Post-Test. The significance level was set at $p<0.05$. All statistical analysis was performed using SPSS, version 21.0. Armonk, NY: IBM corp.

IV. Results

Basic demography: The total number of participants were 121.Among the interns, 29 (24%) were males and 38 (31.4) were females. In the post graduate group, 21 (17.4) were males and 33 (31.4) were females. Out of 75 interns, only 67 (55.4%) participated in the BLS course. 54 (44.7%) post graduate entrants took part in the course. Total of 50(41.4%) participants were males and 71(58.7%) were females).The difference between the two genders was insignificant.

Predictors	**Interns n(%)**	**PG-Students n(%)**	**p-value**
Gender			
Male	29 (24.0)	21 (17.4)	0.626
Female	38 (31.4)	33 (27.3)	

We assessed the interns and the post graduate entrants on their knowledge and skills in a pre-test questionnaire and compared the scores after undergoing the BLS course as a post-test questionnaire. In the interns group, the pretest score was 12.33±2.710. and the post-test score was 18.34± 2.081.The difference was significant ($p<0.001$).Similarly, the post-test scores were 20.04±2.154 compared to pre-test scores of 12.65±2.60 among the post graduate entrants. The difference was statistically significant ($p<0.001$).Interestingly, when we compared the post-test scores of interns with post graduate entrants we found them highly significant. ($p<0.005$) The pre-test scores were insignificant though.

	Pre-Test	**Post-Test**		
	Mean±S.D	**Mean±S.D**	**Mean Difference**	**p-value**
Interns	12.33±2.710	18.34±2.081	6.612	<0.001
PG-Students	12.65±2.600	20.04±2.154	7.389	<0.001

At the end of the course, we took a feedback from the students on how they felt about the course. Majority, in both groups found the basics easy to understand, got adequate hands-on experience, and gathered knowledge on BLS during the course training. On being asked how confident they were after the course, the post graduate entrants **strongly agreed** compared to the interns who simply **agreed** ($p<0.001$) and the difference was significant. Regarding how organized the course was ,two interns felt it was disorganized compared to none among the postgraduate entrants.($p<0.001$)On subjects of scientific explanations and clarifications ,significant number of interns simply **agreed** compared to none among the post graduates ($p<0.001$) Majority of the post graduate entrants **strongly agreed** on aspects of scientific explanations, clarifications and course complexity .

Confidence			
Agree	40 (33.1)	2 (1.7)	**<0.001**
Strongly Agree	27 (22.3)	52 (43.0)	
Enthusiasm			
Disagree	2 (1.7)	0 (0)	**<0.001**
Agree	20 (16.5)	1 (0.8)	
Strongly Agree	45 (37.2)	53 (43.8)	
Organized			
Disagree	2 (1.7)	0 (0)	**<0.001**
Agree	24 (19.8)	1 (0.8)	
Strongly Agree	41 (33.9)	53 (43.8)	
Complexity			
Disagree	3 (2.5)	0 (0)	**<0.001**
Agree	20 (16.5)	0 (0)	
Strongly Agree	44 (36.4)	54 (44.6)	
Scientific			

Agree	20 (16.5)	0 (0)	**<0.001**
Strongly Agree	47 (38.8)	54 (44.6)	

Discussion:It is essential for all medical professionals to be knowledgeable and competent in managing cardiac arrests[5].Delay in resuscitation decreases the chances of survival by 7-10% for every additional minute[6]. Basic Life Support is the very foundation of saving lives in out of hospital cardiac arrests[7]. A similar study was carried out in 506 undergraduate students of different medical and nursing fields in an Ethiopian hospital. The average knowledge score of interns was found to be the lowest among all the groups. This could be because of minimal exposure to actual resuscitation cases; simulation based training and certification[8.]Among the different specialties, anaesthesia students had highest knowledge due to their frequent involvement in critical care management.Simulation based training as done in our study definitely improves the ability to overcome medical emergencies as was seen in another study conducted in Frankfurt medical center among 44 students [9] .As there are no strict protocols in India to know BLS among health professionals, there is a lack of both knowledge and skills among them.Another study tested the knowledge regarding BLS andACLS among health professionals in Kerala and found the scores to be poor due to lack of emphasis to undergo the BLS course and once completed timely renewal of the certificate[10.]In a 2013 study very similar to ours, simulation based BLS course was conducted for fourth year medical students. After the course, they had to train ten non-medical students. The peer training was found to be extremely effective compared to the traditional approach[11]. This method was a step ahead of ours in two ways-imparting BLS to non-medical students and using the peer approach.We can use similar approach and teach non-medical students also in the future.

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