

Knowledge, Attitude and Practice of current Cardiopulmonary Resuscitation guidelines – a survey among nurses

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I. Introduction

Creating awareness and educating nursing staff is very essential to prevent delay in starting resuscitation owing to the fact that nursing staff frequently become first responders in hospital cardiac arrests³. Successful resuscitation is a reflection of their skill and knowledge of recent ACLS guidelines. We assume that resuscitation skills are imbibed in due course of medical and nursing career without any formal training. The Medical Council of India recommends that undergraduate students should have adequate knowledge and skills to manage common acute emergencies². However the knowledge and practical skills in this area is questionable due to the lack of objective assessment tools.

II. Subjects And Methods:

Since anaesthesiologist are most familiar with cardiopulmonary resuscitation [CPR] our department we decided to train the nursing staff within our hospital according to the recent guidelines of BLS and ACLS. The training was given in two sessions, a lecture on BLS and ACLS as first part of the training and hands on training with mannequin, airway equipments, drugs, rhythm identification and defibrillator as second part. Retraining was given after one year. The participants who came for the lecture session were given a questionnaire with 26 questions before and after the class. They had to answer and handover the questionnaire to the investigator. The filled in answer sheets were collected and analysed for the level of awareness regarding basic and advanced cardiac life supports and efficiency of the training sessions. The questions included demographic data, attitude towards life supports, detecting cardiac arrests, CPR techniques, defibrillation details and drugs. They answered the same questionnaire before the retraining session. Thus we collected three sets of the same questionnaire at different points of time from 117 nursing staff who could attend both the training sessions .

III. Analysis.

The data was entered in MS Excel and the results analysed. Nurses were grouped based on their qualification [BSc. Nursing, General Nursing] and years of experience [less than 5 years, 5-10 years, more than 10 years]. The mean score in the three groups were compared with paired t' test for statistical significance. ANOVA test was applied to know the difference between groups based on years of experience regarding baseline knowledge, gain score in knowledge after training and level of decline in knowledge after one year.

IV. Results:

The pretest set of data gave results on baseline level of knowledge .Neither the years of work experience nor the qualification correlated with updated baseline resuscitation knowledge. The gain score in knowledge after training as well as the decline in knowledge after one year was also similar among these groups. The results are shown in tabular form. There was statistically significant difference in the level of knowledge after training [mean score in pretest 7.4+2.7 vs mean score of 13.6+2.8 post test]. The mean score level comparison of immediate post training [13.6+2.8] and after one year of training [12+2.7] was also significant.

V. Discussion:

The American Heart Association first introduced the ACLS guidelines in 1966 and has been updating it every five years since then with necessary changes based on evidences¹. Certified training courses are conducted regularly with a good number of doctors and nursing staff attending these courses. There are many similar surveys done before but we believe the first of its kind being conducted in a cancer institute. Our study revealed that only 6.8% of our nursing staff had attended any kind of BLS/ACLS training before. This disparity points to

the fact that most of those who attend the certification courses are going abroad since ACLS certification is compulsory in most western countries. But 97.4% had a positive attitude for ACLS training. 59.8% in our study were aware of the correct site of chest compression. Lowest scores were recorded for correct compression ventilation ratio [14%], rate of chest compression [37%] and rate of compression with an advanced airway [31%]. Rajaram R et al in their survey on physician knowledge and attitude towards ACLS in adults similarly identified limitation of resources, nonavailability of resuscitative equipments and inadequate knowledge and skills as predictors of poor outcome after in-hospital cardiac arrests⁴. Steven R. Lowenstein et al observed in their study that although well trained in biomedical science many physicians and medical students were unskilled in Cardiopulmonary Resuscitation⁷. BLS education emphasizes on high quality CPR and training is necessary in maintaining these skills. A research study in 2005 observed that nurses should be trained with mannequin feedback mechanism or under expert guidance to ensure that chest compressions and ventilations are adequate³. Quality of CPR procedure has been shown to affect post cardiac arrest survival rates^{5,8,9}. Simulation, automated feedback, training refreshers and debriefing can improve the quality of resuscitation performance¹⁰. Future work needs to demonstrate that improved resuscitation performance correlates with decreased mortality. Regarding defibrillation energy levels with a biphasic defibrillator 36.8% of the staff nurses responded correctly in the pretest level which improved to 87.2% in the immediate post training and 73.5% after one year of training. Since nurses are the first responders in hospital cardiac arrests familiarization with use of defibrillator is essential to improve the hospital chain of survival⁴. Surprisingly in our study it was found that 62.5% voted for intracardiac adrenaline which is removed from the arrest algorithm more than a decade ago. This could be due to the fact that 42.7% of our staff nurses were working here for more than 10 years with poor exposure to active resuscitation scenarios. Cardiac arrests occurring in general wards or emergency department had worst outcomes according to a Korean study⁶. Extensive education of nursing staff on BLS and ACLS including staff in these wards was thought to prevent this. Dane et al in their study found that nurses who were ACLS trained were more able to recognize cardiac arrests and responded early¹⁵. Goldstein D H, et al. in their survey of resuscitation training in Canadian undergraduate medical programs observed that after BLS training, skills declined more than knowledge in 6 months, but remained higher than the precourse levels¹¹. Regular updation is recommended by Simon Cooper et al also¹⁶. Training intervals for AHA basic and advanced life support programs are time-specific; with a maximum 2-year interval recommended⁵. It is important that resuscitation skills are refreshed regularly. Recent developments in technology enable recording of cardiopulmonary resuscitation quality, and have shown quality of professional cardiopulmonary resuscitation far from guidelines' levels for factors such as chest compression depth and rate, ventilation rate, and pauses in chest compressions¹². To limit skill deterioration between classes; however, refresher training intervals should not exceed 7 months according to another study¹⁴. Apart from the questionnaire it has been observed that the level of confidence of nursing staff to take a proactive role in resuscitation has increased over the last 20 months since this training was initiated. They no longer feel inadequate or inhibited to initiate BLS. The sense of fulfillment experienced among the nursing staff after successful resuscitation is remarkable and encouraging.

VI. Conclusion.

Nursing staff with valid certification in ACLS are less in India. Awareness of the site of chest compression and rate of compression were inadequate. Our experience shows that it is feasible to successfully impart scientific training in BLS/ACLS by committed staff of Department of Anesthesiology in any medical facility. More frequent staff retraining is imperative especially if the acquired resuscitation skills are not utilized in routine work. Yes, we Anaesthesiologists can make a difference!

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