

Evaluation of Impact of Sensitization Workshop Regarding Medical, Ethical and Legal Aspects of Cardiopulmonary Resuscitation among Medical Students

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Abstract

Cardiac or respiratory arrests are very common emergencies in adult group as well as in the neonatal period. These emergencies can be easily managed by knowledge and practice of resuscitation skills. Emergency physician requires knowledge and skills for cardiopulmonary resuscitation (CPR), basic and advanced life support. Many studies showed that CPR skills of medical graduates and junior physicians are not up to mark due to lack of training. Although, many medical colleges has been already included this in their curriculum but adequate emphasis is still not given on its practical aspects. An interventional study was conducted among third year medical students of Rural Medical College to assess their knowledge about some medical, ethical and legal aspects prior to intervention. The impact of sensitization workshop was analysed by applying appropriate statistical methods). It observed that only 19.8% students were having correct knowledge about the compression ventilation ratio. There was significant improvement in knowledge regarding indications of CPR after the sensitization workshop. The percentage was increased up to 80.2% after the workshop. Students did not have adequate Knowledge regarding legal and ethical aspects of CPR and significant improvement was observed from 22% to 66%.

It could conclude that knowledge regarding medical, legal and ethical aspects of CPR was not adequate among third year medical students. However, evaluation of the impact of sensitization workshop on CPR showed significant improvement.

Keywords: Cardiopulmonary Resuscitation CPR; Medical students.

Introduction

Cardiac and respiratory arrests are most common emergencies with grave consequences. The high mortality associated with these can be easily prevented most of times by very simple manoeuvre and skills. Cardiac or respiratory arrests are the most common emergencies in adult group and the neonatal period. These emergencies can be

easily managed by knowledge and practice of resuscitation skills.

History indicates that resuscitation attempts were existed way back in time. Early records from Egyptian Mythology and Bible suggested that mouth-to-mouth and mouth-to-nose respiration were among earliest resuscitative efforts using artificial respiration [1,2]. Over time, resuscitation skills have evolved into a proper protocol, which involves cardiopulmonary resuscitation (CPR) commonly known as Basic Life Support (BLS).

Cardiopulmonary resuscitation (CPR) is an emergency medical procedure performed on a victim of cardiac or respiratory arrest and consists of chest compressions to maintain blood circulation along with artificial respiration. The purpose of CPR is to maintain blood circulation to the brain and heart which

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helps postponing tissue death and brain damage [3].

Emergency medicine is a recognized and well developed specialty in many developed countries like USA, Australia etc. However, this discipline is in the infancy stage in India. Very few hospitals have fully functional emergency medicine department.

Emergency Physician requires knowledge and skills of cardiopulmonary resuscitation, basic and advanced life support. There is an urgent need to develop a training program in emergency medicine for future faculty, residents and medical student's. The training should include cardiopulmonary resuscitation its indications, contraindications, basic and advanced life support [4].

Many studies show that CPR skills of medical graduates and junior physicians are up to mark due to lack of training [5]. Good training in cardiopulmonary resuscitation has long been a major focus for medical educationists. CPR training should be included in medical curriculum [6,7]. Many medical colleges included this topic in curriculum however adequate emphasis is not given.

The present study was conducted among third year medical students of Rural Medical College to assess their knowledge about some medical, ethical and legal aspects of CPR. After the assessment, workshop was arranged to provide basic information regarding CPR and its impact was evaluated.

Materials & Method

An interventional study was conducted among third year medical students of a rural medical college. The study was conducted from June 2010 to September 2010. Purposive sampling technique was used to select 100 medical students from third second M.B.B.S. These students had already completed one clinical posting of medicine, surgery including casualty posting and were supposed to be aware of the importance of CPR.

The knowledge, regarding medical ethical aspects of CPR, among study participants was assessed to help of predefined questionnaire. The questionnaire included both open ended and multiple choice questions related to medical ethical, and legal aspects of CPR. Multiple choice questions were designed as per the guidelines mentioned in literature [8,9].

After analysing the information, sensitization workshop was arranged for participants. The workshop included various lectures delivered by resource persons from anaesthesia and other concerned departments via different communication modes such as demonstrations on simulation models, video clips etc. The impact of the workshop was evaluated using a same preworkshop questionnaire. The data from pre and post workshop questionnaire was tabulated and compared. Statistical analysis was performed by applying appropriate statistical methods like percentages, proportions, and tests of significance like Chi square test and standard error of difference between two proportions (z test).

Observations

In the present study, prior and after the workshop, knowledge regarding the concept, indications, technique, ethical aspects etc. of Cardiopulmonary Resuscitation was assessed among hundred medical students. The results were compared to find the impact of the workshop. As recorded in Table 1, there was significant improvement in knowledge of Cardiopulmonary Resuscitation after sensitization workshop. Cardiopulmonary Resuscitation is likely to be effective if commenced within 4-6 minutes. As revealed in Table 2, only 45% students knew this fact prior to workshop. However, 85% students were given a correct answer after the workshop. Difference between prior and after workshop knowledge was significant after applying Z test ($Z=6.5$, $p < 0.05$). Only 19.8% students were having correct knowledge regarding compression-ventilation ratio. This percentage increased up to 80.2% after the workshop

Chest compression techniques and landmarks are different in infants, children and adults . Prior to the workshop only 29% and 32-38% students were having correct knowledge about landmark & technique, respectively. Significant improvement was observed after the workshop as seen in Table 2 and 3 and 66% and more than 70 % students gave correct answer, respectively. As shown in Table 4, knowledge regarding basic life support and an automated electric defibrillator was

significantly increased among the students after the workshop.

In the present study, legal and ethical aspects of CPR were also tested. The opinion about the need of consent prior to CPR was asked. Surprisingly, 36 % students were told wrong opinion and consent should take. However, after workshop, percentage of students about the wrong opinion was declined significantly to 8% (Table 5).

Table 1: Knowledge regarding indications of CPR (n=100)

Knowledge	Pre workshop	Post workshop
Adequate	83	93
Inadequate	17	07
Total	100	100

$\chi^2 = 4.7$ d.f. = 1 $p < 0.01$ Highly significant

Table 2: Knowledge regarding chest compression landmark

Knowledge	Pre workshop	Post workshop
Correct	29	66
Wrong	71	34
Total	100	100

Z= 5.65 $p < 0.05$ significant

Table 3: Knowledge regarding chest compression technique

Response	Pre intervention	Post intervention	
A) In Infants			
Correct	36%	72%	$\chi^2 = 26.09$ $P < 0.01$ Significant
Incorrect	64%	28%	
B) In children			
Correct	32%	70%	$\chi^2 = 28.9$ $p < 0.01$ Significant
Incorrect	68%	30%	
C) In Adults			
Correct	38%	76%	$\chi^2 = 29.46$ $p < 0.01$ Significant
Incorrect	62%	24 %	

Table 4: Knowledge regarding basic life supports & AED

Response	Pre intervention	Post intervention	
1) About basic life support			
Correct	22%	68 %	Z= 7.38 $p < 0.05$ Significant
Incorrect	78%	32 %	
Total	100	100	
2) About AED			
Correct	74%	91%	Z=3.25 $p < 0.05$ Significant
Incorrect	26%	09%	
Total	100%	100%	

Table 5: Knowledge regarding Ethical and legal aspects of CPR

A) Regarding consent

Response	Pre intervention	Post intervention
Correct	64	92
Wrong	36	8

Z= 5.08 p< 0.05 Significant

B) Regarding Medical negligence

Response	Pre intervention	Post intervention
Yes	22	68
No	78	32

Z = 7.38 p< 0.05 Significant

Discussion

Various studies have reported that CPR training should be included in the medical curriculum. However, many medical colleges were not implemented this. To assess some medial and ethical aspects of CPR, an interventional study was conducted among 100 medical students.

Before commencing CPR, adequate knowledge regarding indications was necessary. In the present study, 83% students were known about CPR. It was noted number significantly increase to 91% after the workshop (p <0.01) (Table 1). Similar results were noted in Hassan & Zeba (2009) study. Significant numbers of students were aware of general idea of BLS/CPR which was assessed by correct responses. A large number of students were known about the abbreviation, purpose and importance of a manoeuvre [10]. They aware of the well known fact that cardiopulmonary resuscitation is likely to be effective if it commenced within 4-6 minutes after blood flow stops. Afterwards permanent brain cell damage could occur [11]. In this study, only 45% students knew this prior to workshop. It was increased up to 85% after the workshop. Significant improvement was observed in knowledge about chest compression technique and landmarks after the workshop (Table 2 and 3). As it is known that delay in initiation of basic

CPR & defibrillation after cardiac arrests are main reasons to reduce the chances of survival. Appropriate use of an automated electric defibrillator could improve chances of survival [12]. In the present study, significant improvement was noted in knowledge regarding basic life support and automated electric defibrillator (AED) after the workshop (Table 4). Izazdehfer and Sadaghat (2008) also mentioned that only 20 % interns had adequate knowledge about BLS while after post test it was increased to 53% [13]. Marcus et al (2009) shown that only 37% respondents had adequate knowledge about AED.

The issue of resuscitation raises fundamental ethical questions about autonomy (patient's wishes and choices), beneficence (appropriate decision making), nonmaleficence (harm avoidance) and justice (allocation of limited resources). Similarly, medico legal aspects of the CPR deal with issues such as competency of an individual in decision-making, standard processes of decision-making and dilemmas in instituting or withholding CPR [15]. The legal and ethical obligations are major factors for a medical practitioner to attend the emergency. Every doctor had a professional obligation to extend his services for protecting life [16]. Section 92 of IPC could offer legal immunity for a registered medical practitioner to proceed with appropriate treatment even without consent [17]. In this study, when the role of consent and medical negligence related to CPR was asked. Only 64% and 22 % students were answered correctly. However, after workshop significant improvement was observed.

Conclusions

From the study, it could conclude that knowledge regarding medical, legal and ethical aspects of CPR was not adequate among third year medical students prior to workshop. But sensitization workshop on CPR was showing significant improvement.

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