Research Article

Impact of cardiopulmonary resuscitation training in 1st year of MBBS

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ABSTRACT

Background: The present medical education system fails to inculcate appropriate skills and competence to the students to serve the community. As the world is moving toward the system of "need-based education," the training of the undergraduates should be oriented toward acquiring practical skills to prepare them to confidently deal with emergency situations in future. **Objectives:** The objective of this study is to estimate the impact of cardiopulmonary resuscitation (CPR) training in the 1st year of MBBS. **Materials and Methods:** The study included 150 MBBS 1st year students. The students were given formal training of CPR which included the lecture followed by a hands-on training of CPR on mannequins. The pre- and post-training assessment of the students was done using questionnaire. Assessment of the skill was done by direct observation of the procedure on a mannequin by a checklist. **Results:** The average pre-training score was 6.39 ± 2.11 and post-training score was 16.56 ± 1.89. The post-training scores of the student were remarkably better than the pre-training score ($P < 0.001$). According to the results of the assessment of skill by direct observation, students scored better initially in the first part, i.e., knowledge section and the score in the second part, i.e., skill demonstration improved gradually with practice. **Conclusion:** Training the MBBS students about CPR in 1st year itself is very useful and productive. Training the future health care provider in younger age and preparing them for the emergencies will lead to major reform in the health education system.

KEY WORDS: CPR Training; 1st Year MBBS; Impact

INTRODUCTION

The current curriculum of MBBS 1st year lacks proper integration of knowledge which leads to fragmentation of knowledge and lack of relevance. The present medical education system also fails to inculcate appropriate skills and competence to the students to serve the community.[1] Medical Council of India has recognized this lacunae and suggested integrated teaching as well as early clinical exposure of MBBS 1st year students in the document vision 2015.[2] Medical education in India is at crossroads, and a change is desirable to achieve the goal of competency-based learning right from the beginning stage.[3] According to studies done by various authors, Indian medical undergraduates as well as practising doctors have inadequate knowledge and skills of cardiopulmonary resuscitation (CPR).[4,5] According to the American Heart Association, the training of CPR should be provided to every person of the society. It has been observed that the fresh graduates lack the proper knowledge, skill, and attitude toward CPR. Due to lack of clinical exposure from the beginning, the young graduates are not confident enough to deal with the emergencies in the future. The lack of training is the basic reason behind the incompetency. It is the responsibility of medical institutes to strengthen the undergraduate medical education to rectify the current deficiency of health care. The quality first aid is always playing the greatest role in the survival of the patient. High-quality CPR in a victim of cardiac arrest can improve the survival of the victim many fold times. As the world is moving toward the system of "need-based

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education," the training of the undergraduates should be oriented toward acquiring practical skills to prepare them to confidently deal with emergency situations in the future.[6] We conducted this study to estimate the impact of CPR training in the 1st year of MBBS.

MATERIALS AND METHODS

The study was conducted in the CPR laboratory of central research laboratory of our institute. The study was conducted in collaboration by the Departments of Anesthesia and Physiology. For the better understanding and generation of interest in the students, we organized the workshop after the relevant cardiorespiratory anatomy, and physiology was covered in the didactic lectures of basic sciences. The study included 150 MBBS 1st year students. The students were divided into small groups of 10-12 students each for hands-on training on mannequins. The students were given formal training of CPR which included the lecture followed by hands-on training of CPR on mannequins. The pre- and post-training assessment of the students was done using questionnaire. Assessment of the skill was done by direct observation of the procedure on a mannequin by checklist was divided into 2 parts; each part divided into 4 subparts. First part included the test of knowledge the subparts were: (1) Ensuring scene safety, (2) check for consciousness, (3) call for help, and (4) proper position of the victim. The second part included the skill demonstration: The subparts were (1) correct localization of the site of chest compression, (2) providing 30 chest compression of adequate depth, (3) opening of the airway, and (4) providing 2 effective breaths.

RESULT

There was a statistically significant improvement in the knowledge of the students based on the results of pre- and post-training questionnaire. The average pre-training score was 6.39 ± 2.11 and post-training score was 16.56 ± 1.89 (Table 1). According to the results of the assessment of skill by direct observation, students scored better initially in the first part, i.e., knowledge section and the score in the second part, i.e., skill demonstration improved gradually with practice (Table 2). The students were asked to repeat the procedures until the desired competency was achieved.

Table 1: Results of pre- and post-training questionnaire

Mean±SD		*P*	Significance
Pre-training score	Post-training score		
6.39±2.11	16.56±1.89	<0.001	Highly significant

SD: Standard deviation

DISCUSSION

The findings of our study show that there was a significant improvement in the performance of the students after the workshop. In pre-training questionnaire test, the average score was 6.39 ± 2.11, while in post-training questionnaire test, the average score was 16.56 ± 1.89. There was marked improvement in the knowledge after the training. The practical part of the CPR improved with practice. In the first attempt, 26.67% remembered to ensure scene safety, 41.33% checked consciousness, 35.33% called for help in proper manner, 24% ensured correct position of victim, 36% properly localized site for chest compression, 20% could provide adequate rate and depth of chest compression, 24.67% could open the airway in proper manner, and 36% could provide effective breath. In the second attempt, >75% of the students could perform all the steps properly in correct sequence, while rest of the student's performance improved with repeated practice. The students were given imaginary situations in a group of 2 or 3 and were asked to repeat the procedures by enacting the given scenario until the desired competency was achieved. At the end of the workshop, we could achieve near 100% competency among the students in terms of knowledge as well as skill demonstration.

Abbas et al., in their study, found that trained students performed better than non-trained students. This in turn confirms that proper training and repeated revisions are a must for retention for knowledge.[7] Skinner and Casey et al. also found in their study that the practising doctors lacked the skill for carrying out an effective CPR. They recommended that health-care professionals should compulsorily be provided standardized CPR training[8,9] Zamir et al., in their study, also found that there was lack of knowledge and skill regarding CPR among 1st year MBBS students which improved with

Table 2: Results of direct observation of practical skills

Steps		First attempt (%)	Second attempt (%)	At end of workshop (%)
1	Ensuring scene safety	26.67	78.67	100
2	Check for consciousness	41.33	84.00	100
3	Call for help	35.33	88.67	100
4	Proper position of the victim	24.00	77.33	98.00
5	Correct localization of site of chest compression	36.00	78.67	96.67
6	Providing 30 chest compression of adequate depth	20.0	69.33	90.66
7	Opening of airway	24.67	73.33	98.67
8	Providing 2 effective breaths	36.00	90.0	100

training.[10] The results of our study also showed that there was marked improvement in the knowledge of the students after the training. Hence, a standardized training and practice are a must to acquire and retain the skill.

The Medical Council of India had also recognized that hands-on training, interactive sessions, practical demonstration, and exposure to real-life situations in the hospital are more effective modes of learning for enhancement of skill rather than didactic lectures.[1] Acquisition of the skill among the students after the hands-on training on the mannequins supports the above belief of the Medical Council of India. The results of the study also support that such workshops are successful attempts toward competency and need-based learning. Furthermore, the training should be reinforced and refreshed regularly for the better retention of knowledge and skill. The study lacks the student's feedback regarding the quality of demonstration and hands-on training. In the future, while we conduct the workshop for the next batch, we would incorporate student's feedback system. At the same time, refresher course would be organized for the old trained batch as well.

CONCLUSION

We would say that the development of an effective health-care delivery system depends on the status of the health education and the quality of workforce it produces for the society. Training the future health-care providers in younger age and preparing them for the future emergencies will lead to major reform in the health education system.

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