Original article

Evaluation of knowledge of Pre-hospital care & Emergency Medical Services (EMS) among doctors, before & after training, in a tertiary care hospital

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Abstract

Introduction: Pre-hospital care & Emergency Medical Services (EMS) play an important role in pre-hospital management of medical emergencies. Often, victims reach the hospital very late, well past the golden hour. Emergency Medical Services are not as advanced in developing countries compared to developed countries. In this context, we introduced the EMS course for doctors; thrust being on training in pre-hospital management in all kind of emergencies to ensure victims get the optimum treatment in the golden hour & platinum minutes.

Methods: At the commencement of the course students were administered a pretest which included questions on various emergencies, trauma and Basic Life Support. After completion of the course, post test was administered. Results of pretest and post test evaluation were summarized with mean (SD) and parametric test (paired t-test) was used for testing significant increase in knowledge.

Results: There were 515 students in all who completed both the tests. 58.8% were females and 41.1% were males. Most of them were homeopathic and ayurvedic graduates. Mean Pretest score was 3.42; with (SD) 1.56 and Mean Post test Score was 8.02; with (SD) = 1.37. The difference in pre and post test scores which was more than 4 points which was highly significant (P < 0.001).

Conclusion: Knowledge of pre-hospital care improved appreciably with the EMS course.

Key words: Pre-Hospital Care; Emergency Medical Services, Training, Evaluation.

Introduction:

Training in Emergency Medical Services is reported to be poor in India.[1] There is a shortage of emergency medical professionals in India.[2] As such, a Master’s degree in Emergency Medicine is not offered in most of the medical colleges in India. Hence, most of the emergencies are handled by doctors working in casualties of various private and government hospitals.[3] An appropriate response in an emergency situation depends on good technical knowledge, which decides the patient’s outcome.[3,4] Therefore, teaching medical students and training doctors in emergency care is essential. Life-threatening emergencies can occur at anytime, at anywhere and in anyone.[5] Pre-hospital care & Emergency medical services play an important role in providing initial treatment to victims. Many times Trauma victims reach the
Hospital very late, well past the golden hour. If we could provide Pre – hospital Care to needy individual within First hour, 50% of lives could be saved. If we could transfer them to Tertiary care center another 30% lives would be saved. Thus by providing Pre – hospital care, major morbidity and mortality could be grossly reduced.

The health care system needs to reorganize in order to handle the rise in non-communicable illnesses and trauma. Current statistics indicate that in developing countries like India, cardiac diseases and stroke will be a major cause of death and disability in 2020[6]. Adding to the burden of cardiac diseases is a growing problem from road traffic accidents. Emergency medical services are developed to a large extent in developed countries but lag behind in developing countries.

In India there is gross discrepancy in number of doctors & its dependent population compared to western world. The discrepancy is even more in rural areas. General population would not get modern emergency medical treatment that easily. Individuals in the community at least the health care professionals should know how to perform BLS, Trauma support,& First Aid as they encounter such situation very often[7]. Many times doctors of other pathies like Ayurveda and homeopathy are treating most of the Prehospital emergencies. Therefore it is paramount important to impart knowledge about emergency treatment to those doctors who are first responders. Bearing this in mind, we commenced the Emergency Medical services course for doctors; to teach about BLS, First Aid, Trauma, & Pre-hospital treatment in all kind of emergencies. Our aim is to train maximum number of doctors, so that a large number of victims get the optimum treatment in the Golden hour & Platinum minutes before they reach tertiary care hospital. We Call it as “SAVING LIVES” Course.

**Materials and Methods:**

This is an observational type of study. Demographic data of the students was noted down and they were evaluated for knowledge of emergency medical care. Data was collected using a self-administered questionnaire. It was prepared in line with the literature and based on the American Heart Association’s (AHA) recommendations and International Liaison Committee on Resuscitation (ILCOR) guidelines[8,9]. The questionnaire was shown to 4 experts in the field and their opinion was taken in the final proforma. This was then administered to 10 students as pilot study. These were not included in the final study. Total 10 questions of multiple choice type were given. at the commencement of course. The questionnaire elicited basic knowledge on BLS, Trauma life support & First aid.

At the end of the course post test was administered. Results of a pretest and post test were compared by T test.

**Questionnaire:**

--------------------------------------------------------------------------------------------------

1. CPR ratio for adult victim is-
   
   A) 15:2
   
   B) 30:2
   
   C) 15:1
   
   D) 30:1

   O
   
   O
   
   O
   
   O
--------------------------------------------------------------------------------------------------
2. If somebody is collapsed & becomes unconscious in front of you, what will you do first
   A) Take ECG                                                 O
   B) Obtain IV access                                       O
   C) Maintain ABC & Start CPR                              O
   D) Give Tab. sorbitrate sublingually                      O

3. In case of near drowning, where patient is unconscious & extricated out of water, your most appropriate action will be-
   A) Give abdominal thrust & remove water from gut          O
   B) Give 5 back blows                                      O
   C) Maintain ABC give early rescue breaths & start CPR     O
   D) Give left lateral position                             O

4. Which is the basic airway adjunct you will use in unconscious victim
   A) Oropharyngeal airway                                   O
   B) Nasopharyngeal airway                                 O
   C) Endotracheal tube                                      O
   D) Tracheostomy tube                                     O

5. When you are giving bag mask ventilation to the patient, you will give----- breaths per minute
   A) 8-10                                                   O
   B) 10-12                                                  O
   C) 14-15                                                  O
   D) 15-20                                                  O

6. If patient is suffering from cervical spine injury & is unconscious you will maintain his airway by-
   A) Head tilt-chin lift                                   O
   B) Jaw thrust                                            O
   C) Recovery Position                                    O
   D) Cricoid Pressure                                      O

7. Glasgow coma score of dead man is
   A) 0                                                     O
   B) 1                                                     O
   C) 2                                                     O
   D) 3                                                     O

8. Most appropriate First aid for poisonous snake bite is:
   A) Take multiple cuts at bite site                       O
   B) Application of Tourniquet                            O
   C) Application of splintage & crepe bandage             O
   D) Suction of poisonous blood from site                  O
09. A 40 yr old man suddenly get chocked, become unconscious, which is the next most appropriate action
   A) Give back blows
   B) Give abdominal thurst
   C) Immediately give water to drink
   D) Start CPR

10. Flail chest means---
   A) Fracture of 1 rib
   B) Fracture of 2 consecutive rib
   C) Fracture of 1 rib of both side
   D) Fracture of 2 consecutive ribs at two different site

Observation and results:
Table No 1: Sex distribution

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Number of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>303</td>
<td>58.83</td>
</tr>
<tr>
<td>Males</td>
<td>212</td>
<td>41.16</td>
</tr>
<tr>
<td>Total</td>
<td>515</td>
<td>99.99</td>
</tr>
</tbody>
</table>

Table no 1 shows that there are 58.8 % females & 41.1 % Males.

Table No 2: Results of pretest and post test

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean score</th>
<th>Standard Deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>3.42</td>
<td>1.56</td>
</tr>
<tr>
<td>Post test</td>
<td>8.02</td>
<td>1.37</td>
</tr>
</tbody>
</table>

Table no 2 Shows Mean Pretest & Post test scores
Pretest score: Mean = 3.42; Standard Deviation (SD) = 1.56
Post test Score: Mean = 8.02; Standard Deviation (SD) = 1.37
Discussion:
There more number of females than males. There was an overall difference of more than 4 points (8.02 - 3.42) in pre and post test scores which was highly significant (P < 0.001). The study results showed that doctors in the study group were severely lacking in the awareness of BLS, First aid, trauma life support. Pre and post test total scores were compared using paired t test. P value was < 0.001 which was highly significant.

The pretest showed a gross lack of knowledge about the subject among the students. The overall performance however showed a definite improvement in the post test. This highlights the success of the course. This study emphasized the cognitive approach to the general perception and skills of pre hospital emergency medical services.

Shrestha Roshana et al [10] found the average health personnel in their hospital lacked adequate knowledge in CPR/BLS and training and experience can enhance knowledge of CPR of these personnel. It is the same observation in our study.

Akritia et al[11] reported the inadequacy of knowledge about BLS and advanced cardiac life support in undergraduate medical students. The Medical Council of India has already incorporated emergency medicine as a separate speciality. The awareness and basics of ACLS of the medical and paramedical team and BLS as the first aid will be the prime responsibility of this new emergency specialty.[12,11] It was also emphasized by Shanta Chandrasekaran et al [13] that there is need to conduct BLS programmes with the intention of creating numerous basic life support responders. It is also equally important that teachers, school children, public and all lay persons from the community be taught the facts of basic life support and first aid[13].

Conclusion:
We conclude that by training in EMS & prehospital care, knowledge can improve significantly and all doctors should be trained in Prehospital care & EMS. This will help victims and patients get appropriate treatment in Golden hour and platinum minutes.

References:


