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A STUDY TO ASSESS THE EFFECTIVENESS OF EMERGENCY PREPAREDNESS PROTOCOL ON KNOWLEDGE AND SKILL REGARDING PRE HOSPITAL MANAGEMENT OF CARDIAC EMERGENCIES AMONG PATIENTS WITH CHRONIC ILLNESS AND THEIR CAREGIVERS AT SELECTED HOSPITALS, PANIPAT, HARYANA

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Abstract

To assess the effectiveness of Emergency Preparedness Protocol on knowledge and skill regarding pre hospital management of cardiac emergencies among patients with chronic illness and their caregivers. A quasi- experimental, non- equivalent control group pre-test, post-test research design was adopted to assess the effectiveness of Emergency Preparedness Protocol among 120 patients and their care givers (30 patients + 30 caregivers in each experimental and control group) conducted at Private Hospital setting, Panipat who satisfied the inclusion criteria were selected as samples based on Non probability convenient sampling technique. Education given on Emergency Preparedness Protocol using power point presentation includes information about cardiac emergencies, signs and symptoms, assessment techniques, emergency measures and use of cardiac emergency kit to handle cardiac emergencies at home for 20 -30 minutes, preparation of cardiac emergency kit for 5-10 minutes, demonstration and re demonstration on the steps of Blood pressure monitoring on the patient and Adult Basic Life Support techniques on a mannequin to a group of 5 to 10 caregivers for 10 minutes. The pre and post-test level of knowledge for patients and their caregivers and pre and post-test level of skill for caregivers were assessed using structured knowledge questionnaire and observational checklist. ***Results:*** *The findings of the study revealed that the calculated unpaired't' value for the post-test level of knowledge among experimental group patients was t=13.32 which showed a very high statistical significance at p<0.001 level. The calculated unpaired't' value for the experimental group caregivers was t=14.28 which showed a very high statistical significance at p<0.001 level. The calculated unpaired't' value for the post-test level of skill among experimental group caregivers was t=13.43, which showed a very high statistical significance at p<0.001 level. The results revealed that Emergency Preparedness Protocol was effective in improving knowledge and skill regarding pre hospital management of cardiac emergencies among patients and their caregivers.*

Keywords*: Cardiac emergencies, pre hospital managements, caregivers, CPR*

INTRODUCTION

Non-communicable diseases (NCDs) - or chronic diseases are long duration diseases and shows slow progression. The four main types of NCDs are Cardio Vascular Diseases (CVDs), cancer, chronic respiratory diseases such as Chronic Obstructive Pulmonary Disease (COPD), asthma and diabetes. NCDs are the world's leading cause of death, representing 63% of all annual deaths and kill more than 36 million people each year. NCDs also accounts for 80%

of all deaths occur in low- and middle-income countries. Ischaemic heart disease (IHD) and stroke are the world's biggest killer diseases, accounting for about 15.2 million deaths in 2016. These diseases have remained the leading causes of death globally over past 15 years. (Source: WHO fact sheet, 2018)

Cardiovascular emergencies are life-threatening emergency disorders where Patients may present with severe hypertension, chest pain, dysrhythmia, or cardiopulmonary arrest which must be recognized immediately and promptly treated without delay to minimize the mortality. Health data compiled from more than 190 countries showed that heart disease remains the No. 1 global cause of death with 17.3 million deaths each year.

Global burden of CVDs, 2016 estimated that by 2020, CVDs will be the largest cause of disability and death in India. The country already has more than 118 million people with hypertension, which is expected to increase to 213 million by 2025. CVDs have become the leading cause of mortality (1/4th cases of all mortality) in India. IHD and stroke are the predominant causes and are responsible for >80% of all CVD deaths. Centre for disease control and prevention, 2017 reported that heart disease is the leading cause of death for both men and women globally and in 2015, it accounted for more than half of the deaths in men. About 6, 30,000 Americans die from heart disease each year—that's 1 in every 4 deaths. More than 70% of Sudden Cardiac Arrest (SCA) occurs at home or at similar private settings like workplaces, during sports. About 95% of SCA victims die before reaching the hospital and medical care facility and out of which only 6% survive after cardiac arrest.

About 56.5% of Out of Hospital Cardiac Arrest (OHCA) events are witnessed by bystanders out of which 92.5% occur at home. Only 1.3% of these arrests received CPR by bystanders. OHCA is a leading cause of global mortality which affects 356,000 patients in U.S each year. OHCA is also one of the leading causes of death in India. It is estimated that less than 10% of patients who survive during an OHCA event globally whereas in Indian data is however hard to find. The greatest impact on survival is of the time taken to initiate Cardio Pulmonary Resuscitation (CPR). The lack of knowledge of CPR and training among bystanders in the community, and absent/ delayed emergency response systems is the main reason why most OHCA Patients in India do not get appropriate and timely CPR. (Source: Dr.O.P. Choudhry, Medi Bulletin, April 2018)

Cardiovascular diseases (CVDs) are the leading cause of disability and premature deaths worldwide accounting for 15 million deaths in 2015. Cardiac emergencies often present in an emergency situation, which needs prompt recognition and actions to reduce the mortality and increase the chance of survival after an emergency event. OHCA is one of the most dreadful events leading to over 90% of mortality rate. "Time is gold" has always been the cornerstone of cardiovascular emergency management. Teaching people about the symptoms of impending cardiac arrest and the actions to be taken can save lives.

The World Journal of Emergency Medicine reported that only 1.3% of OHCA received CPR by the bystanders in India compared to western scenario, 18 – 55% of patients receive CPR from bystanders. This is crucial as lack of perfusion (circulation of Blood) leading to

irreversible cell death in brain leads to poor outcome. CPR along with the access to external defibrillators (devices to restore the normal rhythm of the heart) has the potential to improve outcomes in all patients of cardiac arrest outside the hospital. (Source: Medi Bulletin, 2018)
A handful of Indian researchers Chauhan S.,(2013) Gupta R., Mohan I., (2016) performed a systematic epidemiological review research on prevalence of CVDs in India revealed that CVDs are one of the most important causes of morbidity and mortality in the country & showed an increased prevalence of CVDs in India as compared to other developing countries with recent trends showing incidence in younger age group and also India has a larger population of vulnerable older adults that contribute to the CVD inflicted population. Sapna., Bhatia R, Sharma G, Gopi chandran L., (2016) conducted a comparative study in New Delhi showed that majority of the patients were not found to have adequate knowledge on risk factors, warning signs and need for immediate treatment and hence an intense need to educate the population at risk for stroke regarding risk factors and warning signs and immediate treatment.

The World Heart Federation says several countries in the world are training the common man about CPR to save sudden cardiac victims from dying, where as less than 1% of Indians would presently know how to carry out a CPR. (Source: Sinha K, Times of India, 2018) India as a developing country still shows inadequate focus on cardiac disease as one of the major national health problems. Knowledge and participation of the patients with chronic illness and their caregivers along with the health care professionals in the training services will minimize the mortality rate due to any type of cardiac emergencies and helps the caregivers to handle the emergent situation effectively without delay in time in managing cardiac emergencies.

The Indian studies were done in minimal number of samples which did not show effective generalization of the results among patients with chronic illness and their caregivers. Several literature and studies are focusing on in hospital cardiac emergencies.
There are very few studies on prevalence of out of hospital cardiac emergencies and pre hospital management of cardiac emergencies especially home management of cardiac emergencies and caregiver's role in pre hospital management of cardiac emergencies.

The investigator from her own professional experience in cardiology department had observed a high number of deaths of the patients with cardiac arrest and other cardiac emergencies before reaching the hospital. Hence, after an extensive review of literature and discussion with experts, the investigator felt that education and training of the patients with chronic illness and their caregivers will minimize the mortality rate due to any type of cardiac emergencies and helps the caregivers to handle the emergent situation effectively without delay in time. the These concepts awakened desire of the investigator to study the effectiveness of Emergency Preparedness Protocol on pre hospital management of cardiac emergencies among patients with chronic illness and their caregivers.

OBJECTIVES

1. To assess the effectiveness of Emergency Preparedness Protocol on knowledge and skill regarding pre hospital management of cardiac emergencies among patients with

chronic illness and their caregivers.

2. To assess and compare the pre and post-test level Knowledge and skill regarding pre hospital management of cardiac emergencies among caregivers of patients with chronic illness in the experimental group and control group.

OPERATIONAL DEFINITIONS

1. **Effectiveness**
   It refers to the outcome of Emergency Preparedness Protocol, assessed in terms of change in level of knowledge and skill regarding pre hospital management of cardiac emergencies like chest pain, sudden cardiac arrest, hypotension and hypertension which was evaluated by using a structured knowledge questionnaire and observational checklist respectively, within the study period.
2. **Emergency Preparedness Protocol**
   It refers to a set of interventions, developed by the investigator aimed at managing the cardiac emergencies at home which includes,
3. **Lecture cum Discussion** using power point presentation on Emergency Preparedness Protocol like general information about cardiac emergencies, signs and symptoms, assessment findings, emergency measures to manage cardiac emergencies at home for 20 to 30 minutes for a group of 5 to 10 patients with chronic illness and their caregivers.
4. **Preparation of cardiac emergency kit** with the items of patient's medical information, general items, own medications list and medications, Emergency Preparedness Protocol to a group of 5 to 10 patients with chronic illness and their caregivers for 5-10mins.
5. **Demonstration and re demonstration** of the steps of Blood pressure monitoring on the patients and Adult BLS techniques on a mannequin for a group of 5 to 10 care givers of patients with chronic illness for 10mins. The total duration of the intervention was about 30 – 45minutes.
6. **Information booklet** regarding Emergency Preparedness Protocol information was given for reinforcement.
7. **Knowledge**
   It refers to the level of understanding about Emergency Preparedness Protocol regarding pre hospital management of cardiac emergencies such as chest pain, sudden cardiac arrest, hypotension and hypertension among patients with chronic illness and their caregivers which was evaluated by using a structured questionnaire devised by the investigator. The evaluation was done by the investigator after a period of 7days.
8. **Skill**
   It refers to the capability of caregivers of patients with chronic illness to demonstrate the Blood pressure monitoring steps on the patients and Adult Basic Life Support (BLS) techniques on a mannequin which was evaluated by using observational checklist devised by the investigator. The evaluation was done by the investigator after a period of 7days.
9. **Pre hospital management of cardiac emergencies**
   It refers to the initial management given to a person with any cardiac emergency at home prior to transferring the patient to the hospital for further management.

10. **Patients with chronic illness**
    It refers to an individual who was medically diagnosed with chronic illness such as diabetes mellitus, hypertension and chronic kidney disease for a period of more than 6 months.
11. **Caregivers**
    It refers to the persons who are taking care of the patients with chronic illness at home.
12. **Null Hypotheses**
    NH1: There is no significant effect of Emergency Preparedness Protocol on knowledge regarding pre hospital management of cardiac emergencies among patients with chronic illness and their caregivers in the experimental and control group at $p < 0.05$ level.
    NH2: There is no significant effect of Emergency Preparedness Protocol on skill regarding pre hospital management of cardiac emergencies among caregivers of patients with chronic illness in the experimental and control group at $p < 0.05$ level.

METHODOLGY

A quasi experimental non- equivalent control group pre-test and post-test research design was adopted to assess the effectiveness of Emergency Preparedness Protocol on knowledge and skill regarding pre hospital management of cardiac emergencies among patients with chronic illness and their caregivers. The independent variable of this study was Emergency Preparedness Protocol and dependent variables were level of knowledge and skill. The study was conducted in Private Hospital settings, Panipat. The study population was patients with chronic illness and their caregivers at selected settings. Totally 120 samples (30 patients + 30 caregivers in each experimental and control group) were selected based on inclusion criteria by using Non – probability convenient sampling technique.

After obtaining formal permission and informed written consent, the investigator obtained demographic details from the experimental group samples through the structured demographic profile. Then assessed the pre-test level of knowledge regarding pre hospital management of cardiac emergencies using structured knowledge questionnaire for the patients with chronic illness and their caregivers and the skill on Blood pressure monitoring steps and Adult BLS techniques for the caregivers of patients with chronic illness by using observational checklist. On the same day, the intervention was given for the experimental group about 30 - 45 minutes in which 20 minutes for lecture cum discussion using power point education on general information, signs and symptoms, assessment findings, emergency measures for cardiac emergencies and 10 minutes for preparation of cardiac emergency kit and 10mins for demonstration and re demonstration of Blood pressure monitoring steps on the patients and Adult BLS techniques on a mannequin. On the 7th day after pre-test, the investigator conducted the post-test using the same tool.

The same procedure for data collection was followed for the control group and the normal hospital routine was carried out for the patients with chronic illness and their caregivers. On the 7th day, the investigator administered the Emergency Preparedness Protocol regarding pre hospital management of cardiac emergencies on the completion of post-test. As

reinforcement, an information booklet regarding Emergency Preparedness Protocol was issued for both the experimental and control group.

RESULTS

The findings of the study revealed that, in the experimental group, for the patients with chronic illness the post-test knowledge mean score was 19.57with S.D of 2.60 and in the control group the post-test knowledge mean score was 11.17 with S.D of 2.26 and the calculated unpaired 't' value was 13.32 at p<0.001 level which showed a very high statistical significant improvement in the level of knowledge regarding pre hospital management of cardiac emergencies between the experimental and control group.

Also in the caregivers of patients with chronic illness post-test knowledge mean score was 20.09 with S.D of 1.56 and in the control group the post-test knowledge mean score was 12.06 with S.D of 2.66 and the calculated unpaired 't' value was 14.28 at p<0.001 level which showed a very high statistical significant improvement in the level of knowledge regarding pre hospital management of cardiac emergencies between the experimental and control group. In the experimental group, the caregivers of patients with chronic illness post-test skill mean score was 14.00 with S.D of 1.96 and in the control group the post-test skill mean score was 6.10 with S.D of 2.55 and the calculated unpaired 't' value was 13.43 at p<0.001 level which showed a very high statistical significant improvement in the level of skill regarding pre hospital management of cardiac emergencies among caregivers of patients with chronic illness in the experimental group caregivers than the control group.

The correlation of post-test knowledge score was 8.83 with S.D was 2.88 and the skill mean score was 8.53 with the S.D of 2.45. The calculated Karl Pearson correlation coefficient 'r' value 0.46 which was highly statistical significance at p<0.01 indicates moderate positive correlation, whereas in control group the calculated 'r' value was 0.14which had no statistical significance, signifying that an improvement in knowledge had a positive influence on increasing the skill among caregivers of patients with chronic illness in the experimental group than control group.

DISCUSSION

After an extensive review of literature, discussion with experts and with the investigator's professional experience, the tool was developed to assess the knowledge on Emergency Preparedness Protocol regarding pre hospital management of cardiac emergencies among patients with chronic illness and their caregivers by using structured knowledge questionnaire and skill for the caregivers of patients with chronic illness by observational checklist. The investigator considered and followed the ethical principles before preceding the research study. The investigator obtained written consent from the head of the institution and participants and also maintained confidentiality throughout the study. Data was analyzed by using descriptive and inferential statistics.

The study results revealed that Emergency Preparedness Protocol education had an impact on improving the level of knowledge of the patients with chronic illness and their caregivers and improving the level of skill on caregivers shows the effectiveness of the intervention

tool among patients with chronic illness and their care givers which in turn may improve the level of confidence in providing pre hospital management of cardiac emergencies which helps to save the lives from dangerous complications. Both groups were homogenous in the pre-test but after administration of Emergency Preparedness Protocol, the experimental group showed very highly significant improvement in the overall level of knowledge regarding pre hospital management of cardiac emergencies among patients with chronic illness and their caregivers.

CONCLUSION

"**Be a life saver in preserving the golden hour of cardiac emergency**"

Cardiac emergencies are life threatening disorders that must be recognized immediately and the Smart and Wise use of Emergency Preparedness Protocol helps in saving the precious life of the patients with chronic illness by addressing the cardiac emergencies promptly will aid in improving their quality of life.

The present study assessed the effectiveness of Emergency Preparedness Protocol on knowledge and skill regarding pre hospital management of cardiac emergencies among patients with chronic illness and their caregivers. The investigator concluded that the lecture cum discussion using power point, preparation of cardiac emergency kit, demonstration and re demonstration of Blood pressure monitoring steps on the patients
and Adult BLS techniques on a mannequin by the caregivers of patients with chronic illness on Emergency Preparedness Protocol is the effective method to improve the
knowledge and skill regarding pre hospital management of cardiac emergencies.

IMPLICATIONS

- Pre hospital management of cardiac emergencies should be incorporated in nursing education curriculum and evidence based guidelines should be integrated to save the lives as well as render effective and quality health care to patients.
- Clinical nurses should take the responsibility to plan the teaching programme and mass health education and skill training programme on Adult BLS techniques for the public especially focusing on pre hospital management of cardiac emergencies.
- The findings of the study will help the professional nurses, patients with chronic illness and their care givers to gain knowledge on Emergency Preparedness Protocol on pre hospital management of cardiac emergencies will help to save the lives of the patients.
- Nursing research motivates the investigators to conduct further study on different aspects from this topic.
- The nurse administrator along with the governing bodies and other health care agencies can formulate a mass awareness teaching program and health policy to focus on identifying the risk factors, assessment techniques, and basic life supports training.
- Emergency Preparedness Protocol regarding pre hospital management of cardiac emergencies is an effective and efficient means of managing cardiac emergencies which occurs at home helps to reduce further morbidity and mortality.

DELIMITATIONS

1. The study was delimited to a period of four weeks.

2. The study was delimited to patients with chronic illness like diabetes mellitus, hypertension, chronic kidney disease and their caregivers.

RECOMMENDATIONS

1. Recommending Emergency Preparedness Protocol regarding pre hospital management of cardiac emergencies to be incorporated in discharge planning for the patients with chronic illness.
2. Emergency Preparedness Protocol can be implemented into nursing practice in various clinical settings.
3. Emergency Preparedness Protocol can be devised as poster or issued as pamphlet to patients attending NCD clinic / chronic OPD who are at risk of cardiac emergencies in clinical settings.
4. Emergency Preparedness Protocol can be included in mass health education programmes in community settings.
5. A similar study can be conducted in large samples for better generalization.
6. A similar study can be conducted in various settings like industries, communities, schools, colleges.
7. Researcher recommending the implementation of Emergency Preparedness Protocol into nursing practice.

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