ORIGINAL RESEARCH PAPER

Nursing

KEY WORDS: Therapeutic hypothermia, cardiac –arrest, staff nurses,knowleddge.

EFFECTIVENESS OF EDUCATIONAL PROGRAMME ON KNOWLEDGE REGARDING EFFECT OF THERAPEUTIC HYPOTHERMIA IN POST CARDIAC-ARREST PATIENTS AMONG STAFF NURSES WORKING IN CRITICAL CARE AREAS

Mrs. Lintamol Thomas

Lecturer Koshys college of Nursing 31/1,Hennur Bagalur Road,Kannur Bangalore-562149

ABSTRACT

INTRODUCTION: To improve the survival after a cardiac-arrest the key is the quality of emergency care in the hospitals. Early CPR, early fibrillation, early transfer to specialist care of offering the best post-resuscitation care can bring out a best outcome in a witnessed cardiac-arrest.

Improving the outcome of patients who survive cardiac-arrest requires stopping the ischemic process as quickly as possible and preventing damage from reperfusion.Therapeutic hypothermia decreases the metabolic rate by 6% to 7% for every decrease of 1°C in temperature.

METHOD: The research design selected for this study was pre-experimental one group pre and post-test research design. Non probability Purposive sampling techniques was adopted to select 60 samples for the study. In the present study structured knowledge questionnaire was used to assess the knowledge of staff nurses on effect of therapeutic hypothermia in post cardiac arrest patients.

RESULTS: Study revealed that ,there was a significant difference between the post test knowledge score of staff nurses on effect of therapeutic hypothermia in post cardiac arrest patients. Since the calculated t value (t=30.706) was significantly higher than table value(t=2.661) at 0.05 level of significance.

CONCLUSION: The findings of the study showed that educational programme was effective in increasing knowledge of staff nurses regarding effect of therapeutic hypothermia in post cardiac arrest patients.

INTRODUCTION

Therapeutic hypothermia, it is a major revolution in resuscitation science. As it is known, involves reducing body temperature between 32 °C - 34 °C using special appliances. It reduces the rate of cell damaging in organs deprived of oxygen and improve the neurological outcome after cardiac-arrest.

As new evidences suggest that brain cells do not die immediately after clinical death, it is also suggesting that, consciousness-what make us who we are - is not annihilated. Cooling changes the game, it means the brain can potentially recover after a much longer period. More than 2/3rd of initially resuscitated patients die before hospital discharge. The major cause of hospital mortality are post resuscitation brain and myocardial dysfunction. Therapeutic hypothermia can reduce the severity of post-resuscitation brain injury and improve survival in patients who remain comatose after resuscitation from cardiac-arrest.

Indians are three times more prone to cardiac-arrest than Americas owing primarily to poor life style, eating habits and genetic reasons. While an average Americans suffer from cardiac-arrest in their 50's, Indians get it in their 40's . Many of the patients who survive after a cardiac-arrest have marked neurological deficit that affect the quality of life. Thus, preservation of neurological brain function is an important goal in the resuscitation of the patient .

The main reason for use of therapeutic hypothermia is to protect the brain against irreversible hypoxic damage and to achieve better neurological outcome in post cardiac arrest patients. Despite the reported benefit of therapeutic hypothermia its practice in the critical world remains limited especially in developing countries; unlike the developed world where it is an established intervention following cardio-pulmonary resuscitation. Asian countries including Middle East and India has widely started to adopt this procedure.

In olden days, the use of therapeutic hypothermia has been limited because of some controversies and lack of clear guidelines. The ease of its administration and positive clinical outcome should encourage everyone to avail this modality by incorporating it in their institutional guidelines so that it may initiated in a timely manner. Therapeutic hypothermia should be considered and initiated in every successful CPR to avoid neurological deficits, irrespective of type of arrest. Implementing therapeutic hypothermia in post cardiac-arrest patients requires planning and specific education preparation in order for nurses to perform the procedure and anticipate the potential complications that might occur during nursing care, because ICU nurses are the team members who provide round-the clock care for the patients who receive therapeutic hypothermia.

Statement of the problem

"A study to assess the effectiveness of educational program on knowledge regarding the effect of Therapeutic Hypothermia in post cardiac-arrest patients among staff nurses working in Critical Care Areas, Specialist Hospital , Bangalore".

OBJECTIVES OF THE STUDY

1. Assess the existing level of knowledge of staff nurses on effect of therapeutic hypothermia in post cardiac-arrest patients .
2. Evaluate the effectiveness of educational programme on effect of therapeutic hypothermia in post cardiac-arrest patients .
3. Find out the association between the pre-test knowledge scores of staff nurses and the selected socio-demographic variables.

HYPOTHESIS:

The hypothesis will be tested at 0.05 level of significance.

H1: There will be a significant difference between pre-test and post-tests knowledge score on the effect of therapeutic hypothermia in post cardiac-arrest patients among staff nurses.

H2: There will be a significant association between the knowledge scores with selected socio-demographic variables.

MATERIALS AND METHODS.

The conceptual framework for the study is developed from Ludwid Von Bretanlaffy's general system theory. The research design was pre-experimental one group pre and post-test research design to evaluate the effectiveness of planned teaching programme on effect of therapeutic hypothermia in post cardiac arrest patients. The present study was conducted

in Intensive Care Units of Specialist Hospital, Bangalore. Purposive sampling techniques was selected to adopt the samples for this study and 60 samples were selected. Data collection was done using structured knowledge questionnaire, which consisted of 2 sections. These include;

- **Section 1:** Questions on demographic variables of the participants such as Age, Gender, professional qualification, Years of experience, additional professional qualification, previous exposure, and source of information.
- **Section 2:** Self structured knowledge questionnaire. It consisted of 30 multiple choice questions regarding effect of therapeutic hypothermia in post cardiac-arrest patients with four options. It was categorized under General information about cardiac-arrest ,effects of therapeutic hypothermia , implementation of therapeutic hypothermia and Contraindication and adverse effects of therapeutic hypothermia .

In order to obtain content validity, the prepared instrument along with problem statement, operational definitions and blue print were submitted to 7 experts from the field of medical surgical nursing, two Intensivist ,a expert from bio-statistics department .The reliability of the tool was established by using test –retest (Karl Pearson's correlation co-efficient).Prior permission was obtained from Institutional Ethical Committee of Specialist Hospital. Formal permission was obtained from the authorities. Written consent was obtained from the subjects in the study. Data was collected from the staff nurses using a self -structured knowledge questionnaire having 30 items including socio demographic variables. After the pre-test planned teaching programme was conducted to the staff nurses for one hour. The post-test was conducted after 7 days to assess the difference in the knowledge. Data was analyzed using descriptive and inferential statistics.

RESULTS:

Description of participant's characteristics

Majority of the staff nurses were in the age group 20-25 years and 66.6% of them were females. Among the 60 staff nurses 41% had diploma in nursing. Most of the staff nurses had (66%) 1-5 years of experience in the critical care unit. In the total population, 10 staff nurses had information regarding effect of therapeutic hypothermia in post cardiac-arrest patients.

Findings of Distribution of knowledge scores:

Table 1

n=60

SI.No	Knowledge Levels	Range of Score	Respondents	
			Frequency(f)	Percentage (%)
1	Adequate	>50%	10	16.67%
2	Inadequate	<50%	50	83.33%
Total			60	100.00

Findings of Paired t test comparison of pre-test and post-test mean knowledge scores.

Table 2

n=60

SI. No.	Assessment	Max Score	Mean	SD	Mean %	Paired T Value
1	Pre-Test	60	12.95	2.004	21.58	30.706
2	Post-Test	60	22.2	2.081	37	
3	Enhancement	-	9.25	0.077	15.42	

*p≤0.05

The data presented revealed that calculated value is higher than the the table value that is 30.706.Thus the educational programme on effect of therapeutic hypothermia on post cardiac arrest patients was effective.

Findings of Association between socio –demographic characteristics with pre-test knowledge on effect of therapeutic hypothermia in post cardiac arrest patients.

Table 3

n=60

Demographic Variables	Category	Sample	Responders knowledge				Chi Square	DF Value
			Adequate		Inadequate			
			F	%	F	%		
Age	20-25	25	3	12	22	88	2.043	3 NS
	26-30	21	5	23.8	16	76.2		
	31-35	10	2	20	8	80		
	>35	4	0	0	4	100		
Gender	Male	20	6	30	14	70	2.7	1 NS
	Female	40	4	10	36	90		
Professional Qualification	GNM	25	2	8	23	92	4.392	3 NS
	B.Sc.	20	3	15	17	85		
	PC BSN(N)	15	5	33.3	10	66.7		
	M.Sc. (N) & above	0	0	0	0	0		
Total Years of Experience in Critical Care Unit	<1 Year	8	1	12.5	7	87.5	6.9	3 NS
	1-5 Years	40	4	10	36	90		
	6-10 Years	10	4	40	6	60		
	>10 Years	2	1	50	1	50		
Addition Professional Qualification Attained if any,	FCCS	0	0	0	0	0	23.28	3*
	BLS/ACLS	40	6	15	34	85		
	Diploma in critical care nursing	4	4	100	0	0		
	Nil	16	0	0	16	100		
Previous Knowledge	(A) Yes						11.76	3*
	In-service	10	2	20	8	80		
	Mass Media	8	2	25	6	75		
	Self Interest	2	2	100	0	0		

	Clinical Experience	40	4	10	36	90		
	others	0	0	0	0	0		
	(B) No	0	0	0	0	0		

The data presented in table 3 represents statistically significant association found between pre-test knowledge score with additional professional qualification and previous source of information between selected socio demographic variables at 0.05 level of significance. Hence the research hypothesis H_2 was accepted.

DISCUSSION

- The overall post test knowledge scores of the subjects was greater than the overall pre test knowledge scores of samples on effect of therapeutic hypothermia in post cardiac arrest patients.
- Educational programme on effect of therapeutic hypothermia in post cardiac arrest patients has shown significant gain in the knowledge score which clearly indicated that the designed educational programme was effective.
- There was a significant association found between pre-test knowledge scores of samples with selected socio demographic variables such as additional professional qualification and previous source of information . This study suggests that there are some awareness regarding effects of therapeutic hypothermia in post cardiac-arrest patients among staff nurses. This is because they have an exposure to similar situations. Still a fair percentage of them (83.33) had inadequate knowledge and these findings stressed the need to improve the knowledge of staff nurses through education and the planned teaching can be used as an effective method to improve their knowledge.

IMPLICATIONS:

The findings of the study had the following implications on,

Implications on nursing education:

Nursing education helps the students to acquire adequate knowledge, skills and attitude to full fill their duties and responsibilities in the nursing field. The students from schools and colleges of nursing should be encouraged to attend specialized courses and seminars on effect of therapeutic hypothermia in post cardiac-arrest patients.

Implications on nursing practice:

Continuing education programme by nursing personnel on effect of therapeutic hypothermia in post cardiac-arrest patients can be made available in the hospital area. Finding of the study can be used to prepare standardized protocol on effect of therapeutic hypothermia in post cardiac-arrest patients to improve the cognitive, affective and psycho-motor domains of staff nurses in order to reflect in the comprehensive nursing care.

Implications on nursing administration

Staff development programme in any organization is the prime responsibility of the nurse administrator. The availability of such staff development program in nursing profession is inadequate at the present. Development of various nursing specialties together with advancement of technology demands nurses to deliver quality care.

CONCLUSION

Based on the findings of the study educational programme on effect of therapeutic hypothermia in post cardiac arrest patients was effective in enhancing samples knowledge.

ACKNOWLEDGEMENT

A deep sense of gratitude I owe to **Prof.Savitha ,Principal**,PCN,my guide **Prof .Manju Jose**(Medical –surgical Nursing) and **Dr.Ravish Besmaiah ,Intensivist** ,Specialist Hospital for their unreserved support, unceasing motivation ,constant care and encouragement to undertake and complete the work successfully. My sincere thanks to **Mrs.Sereena Shaji** ,Principal Koshys college of Nursing for her support ,encouragement ,guidance. A special note of thanks all the participants who cooperated in this study for its fruit full completion.

REFERENCES

1. Teri M. Kozik. Induced Hypothermia for Patients with Cardiac-arrest, Role of a Clinical Nurse Specialist, Critical care nurse, 2007 Oct; 27(6) : (38-40).
2. Reasons for India's Growing Cardiovascular Disease Epidemic Pinpointed In Largest-Ever Risk Factor Study, world heart federation, 2012 Apr 20. [Available from URL: http://www.world-heart-federation.org/press/releases/detail/article/reasons-for-indias-growing-cardiovascular-disease-epidemic-pinpointed-in-largest-ever-risk-factor]
3. Indians Three Times More Prone to Cardiac-arrest Than Americans: Study, NDTV, 2015 Dec 29, para4-5. [Available from URL: http://food.ndtv.com/health/indians-three-times-more-prone-to-cardiac-arrest-than-americans-1260083]
4. Giulia Rhoades, Fabrice Muamba and the Lazarus Effect, The telegraph. 2013 Mar 10.[Available from URL: http://www.telegraph.co.uk/news/ health/9920875/Fabrice-Muamba-and-the-Lazarus-Effect.html 82]
5. Karanjia N, Geocadin RG, Post-cardiac-arrest syndrome: update on brain injury management and prognostication. Curr Treat Options Neurol, 2011 Apr;13(2):191-203.
6. Sudden Cardiac-arrest claiming about 4,280 lives from every 1 lakh of population annually, Business Standard, 2009 July 20. [Available from URL: http://www.business-standard.com/article/press-releases/sudden-cardiac-arrest-claiming-about-4-280-lives-from-every-1-lakh-of-population-annually-109072000082_1.html]
7. Gautam Rawal et al. Therapeutic Hypothermia after Prolonged Cardiac-arrest. Journal of clinical and diagnostics research. 2015 Sep. 9(9): (101-103).
8. BENSON DW, WILLIAMS GR Jr, SPENCER FC, YATES AJ. The use of hypothermia after cardiac-arrest. Anesth Analg. 1959 Nov-Dec;38:423-8. [Available URL: http://www.ncbi.nlm.nih.gov/pubmed/13798997]
9. Stephen A. Bernard. Treatment of Comatose Survivors of Out-of-Hospital Cardiac-arrest with Induced Hypothermia. N Engl J Med; 2002 Feb 21, 346:557-563.
10. Michael Holzer. mild therapeutic hypothermia to improve the neurologic outcome after cardiac-arrest.N Engl J Med, 2002 Feb 21, 346:549-556
11. Piyush Narayan Mallick, Surjya Prasad Upadhyay, Raj Kumar A Singh, and Shiv Kumar Singh.Cases of asystolic cardiac-arrests managed with therapeutic hypothermia. Indian J Crit Care Med. 2013 Mar-Apr; 17(2): 113–115.
12. Mathiesen C, McPherson D, Ordway C, Smith M.Caring for Patients Treated With Therapeutic Hypothermia. Crit Care Nurse. 2015 Oct;35(5):1-12.
13. Dorairaj Prabhakaran, Panniyammakal Jeemon, Ambuj Roy. Cardiovascular Diseases in India Current Epidemiology and Future Directions,Circulation. 2016;133:1605-1620.
14. Srivatsa UN et al. Sudden cardiac death in South India: Incidence, risk factors and pathology.Indian Pacing Electrophysiol J. 2016 Jul - Aug[cited 2016 oct 4] 16(4):121-125. [Available from :https://www.ncbi.nlm.nih.gov/ pubmed/27924759 84]