A Study to Assess the Effectiveness of Acute Coronary Syndrome Algorithm on Nursing Management of Patient with Acute Coronary Syndrome among Staff Nurse of Selected Hospital Waghodia

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Abstract

Background: In the Asia for more than 4.2 billion populations is suffer with the ACS. Acute coronary syndrome (ACS) is now a major cause of death in the hospital the mortality is more than 5%.[1] So it is important to enhance the knowledge and practice regarding ACS algorithm among staff nurses.

Method: Qualitative research approach with pre- experimental one group pre-test and post-test design with non-probability convenience sampling was used to collect the 70 samples. A structured knowledge questionnaires and Practice checklist was prepared to assess the knowledge and practice of staff nurses.

Result: With regards to the pre-test assessment the score of 24(34%) subject was having moderate level of knowledge and 46(66%) subjects were having inadequate knowledge while in post-test 5(7%) of subject having moderate level of knowledge and 65(93%) subject having adequate level of knowledge The obtained pre-test mean score was 7.14 and post- test mean score was 15.24 the mean difference of the pre-test and post- test is 8.10 which shows the improvement in the level of knowledge among subjects, The pre-test SD was 1.35 and post- test SD 1.33 The obtained pair "t" test value 33.270, df=69 significant at 0.05 level. Whereas the pre-test score of practice shows 23(32.85%) subjects had inadequate practice and 47(67.14%) subjects had moderate practice, the post test data revels that 24(34.28%) subjects were had moderate practice and 46(65.71%) subjects had adequate practice towards ACS. The obtained pair "t" test value 27.790, df=69 shows significant at 0.05 level. It indicates that there was increased in the level of knowledge and improves practice towards acute coronary syndrome after providing nursing care algorithm. So that H_1 research hypothesis accepted. The pre-test practice score had not significant association all demographic variable so H_2 research hypothesis was rejected.

Conclusion: The findings of the study concluded that majority of subjects had inadequate level of knowledge and adequate practice. The nursing care ACS algorithm was effective among staff nurses in improving knowledge (t (69) = 33.270) and practice (t (69) = 27.790) significant at 0.05 level regarding acute coronary syndrome.

Keywords: *Acute coronary syndrome, impact, knowledge, nursing care algorithm.*

Introduction

The heart muscle, like every other organ or tissue in your body, needs oxygen-rich blood to survive. Blood is supplied to the heart by its own vascular system, called coronary circulation.[2] Acute coronary syndrome (ACS) is a syndrome due to decreased blood flow in the coronary arteries that's part of the heart muscleis unable to function properly ordies. The most common symptoms of acute coronary syndrome are chest pain, often radiating to the left shoulder or angle of the jaw, crushing, with nausea and sweating.[3] More than 4.2 billion inhabitants populate the Asia-Pacific region. Acute coronary syndrome (ACS) is now a

major cause of death and disability in this region with in-hospital mortality typically exceeding 5%.[1] ACLS provider will 12 lead ECG reading skill. for them this case summarized the identification and management of patient with STEMI.[4]

Acute coronary syndrome (ACS) refers to a spectrum of clinical presentations ranging from those for ST segment elevation myocardial infarction (STEMI) to presentations found in non–ST-segment elevation myocardial infarction (NSTEMI) or in unstable angina.[5] The patient usually has a number of tests in the emergency department, such as achest X-ray,blood tests (including myocardial markerssuch astroponin I or T,) Combination of troponin levels (less than 5 ng/l) with low TIMIscores can to predict those with low possibility of myocardial infarction and discharge them safely from the emergency department. [6]

After STEMI has been identified, the most appropriate strategy for reperfusion should be determined quickly. Reperfusion therapy should be administered to eligible patients with STEMI and symptom onset within the previous 12 hours summarizes the elements involved in developing a treatment strategy for patients with STEMI.[7] If the ECG does not show typical changes, the term "Non-ST segment elevation ACS" is applied. The patient may still have suffered a "non-ST elevation MI" (NSTEMI). The accepted management of unstable angina and acute coronary syndrome is therefore empirical treatment with aspirin, a second platelet inhibitor such asclopidogrel, prasugrelorticagrelor, andheparin (usually alow-molecular weight heparin), with intravenousnitro-glycerineandopioids if the pain persists. The heparin-like drug known asfondaparinuxappears to be better thanenoxaparin.[8]

Need for the Study: This is supported by a study conducted in USA about the treatment guidelines for the nurse practitioners on non ST segment elevation acute coronary syndrome. The purpose of the study was to increase the awareness among nurse practitioners. Findings showed that familiarity with the patient as well as current management recommendations can improve clinical outcomes for patients with unstable angina and non ST elevation myocardial infarction.[9]

This ACLS Algorithm is the steps for proper management of patients experiencing Acute Coronary Syndromes (ACS). ACS represents a spectrum of clinical symptoms compatible with acute myocardial ischemia and includes unstable angina, non-ST segment myocardial infraction (NSTEMI), and ST-segment elevation myocardial infraction (STEMI). The ACS algorithm should be followed when patient is showing signs of infraction or ischemia. There are a number of classic symptoms that suggest ACS, including Chest pain or pressure, Shortness of breath, Nausea Diaphoresis, Weakness, Palpitation, Neck or jaw pain,Pain radiating to the shoulders or down the arms, Unexplained fatigue, The primary goals of ACS treatment are: Early recognition of ACS and STEMI Triage for early reperfusion therapy Treatment to relieve ischemia control of major adverse cardiac outcomes (MACE) Treatment of acute, life threatening complications, such as VF/pulseless VT, symptomatic bradycardias, and unstable tachycardia.[10]

Material Methodology

Research design: Pre experimental one group pre-test post-test research design

Setting: Dhiraj Hospital, Piparia, Waghodiya Vadodara.

Sample size: Comprise of 70 staff nurses belongs to Dhiraj Hospital

Inclusion criteria:

- Staff nurses working in Dhiraj hospital.

- Staff nurses with G.N.M., B.Sc. or PB B.Sc. qualification.

- Staff nurses who are present at the time of study.

Exclusion criteria for sampling:

- A.N.M, & M.Sc. Nursing staff are excluded.

Tool for data collection

This consist of three parts:

Section 1: Demographic variables such as gender, age, education qualification and Professional experience.

Section 2: Self-designed questionnaire will be used to assess the knowledge regarding ACS Algorithm:

Scoring interpretation:

Inadequate: 0-7

adequate: 8 –14

Excellent: 15–20

Section 3: Practice check list will be used.

Inadequate: 0-4,

Adequate : 5- 7

Excellent : 8–10

Reliability: The reliability of tool established by using split half method Spearman Brown Prophecy formula (r = 0.75) reliability test.

Data Collection Procedure: The formal permission was obtained for the approval of the study from Dhiraj Hospital, Piparia, Waghodia, Vadodara. The data collection done within a given period of 2 weeks. The investigator selected the subject and established the rapport by explaining purpose of the study, the co-operation required and the anonymity assured before obtaining verbal consent. Initially the demographic tool, self -structured questionnaire and checklist administered to the sample to know existing level of knowledge regarding ACS algorithm, then the Algorithm was given to the samples of the study. After 7 days post -test was administered to assess the effectiveness of the ACS algorithm among staff nurses.

Statistical Design: Data were verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 20.0) was used. Descriptive statistics were applied (e.g., mean, standard deviation, frequency and percentages). Test of significance (chi square and paired t test) was applied to test the study hypothesis.

Findings: Section A: Description of sample according to their demographic variable: 84% of staff nurses were in the age group of 21-25 years,14%were in the group of 25-30 year and 2% were in the group of 30-35 years.

Highest 60 percentage of female staff nurses and 40 percentage of male staff nurses.

Maximum Staff nurses 65.71%belong from B.Sc. nursing,(28.57%) staff nurses belong from G.N.M. and (5.71%) belong from PB. BSc. nurses.

Majority were having (85.71%) in the range of 0-2-year professional experience, (10%) in the range of 2-4-year professional experience, (1.42%) in the range of 4-6-year professional experience and (2.85%) in the range of >6-year professional experience.

Section B: Analysis of pre-test and post test score of knowledge and practice Regarding ACS Algorithm.

Table 1: Distribution of pretest and posttest knowledge score according to the percentage n =70

Sr. No.	Knowledge level	Percentage	Pre-test	Post–test
1	Inadequate	< 35%	65.71%	00%
2	Adequate	35-70%	34.28%	7.14%
3	Excellent	>70%	00%	92.85
Total			100%	100%

Table 2: Distribution of pre-test and post -test practice score of staff nurses regarding practice checklist n=70

Sr. No.	Practice level	Percentage	Pre -test	Post –test
1	Inadequate	< 40	67.14%	00%
2	Adequate	40-70%	32.85%	34.28%
3	Excellent	>70%	00%	65.71%
Total			**100%**	**100%**

Section C: Effectiveness of Standard operating procedure:

Table 3: Comparison of pre-test and post-test knowledge score of staff nurses n=70

Variable	Pre test	Mean	Mean Difference	Std. Deviation	t- Value
Knowledge regarding ACS algorithm	Pre-test	7.142857	8.100003	1.354389	33.270
	Post-Test	15.24286		1.333446	

* Significant at 0.05 level, *t (0.05, 89df)

Table 4: Comparison of pre-test and post-test practice score of staff nurses

Variable		Mean	Mean Difference	Std. Deviation	t- Value
Practice regarding ACS algorithm	Pre-test	4.0286	3.638	.83356	27.790
	Post-Test	7.6666		.81446	

* Significant at 0.05 level *t (0.05, 89df)

Section D: Association between pre-test knowledge and practice score with socio demographic variables:

Association between pre-test knowledge score and socio-demographic variables: These data reveals that association between knowledge of staff nurses and demographic variable. There is no any significant demographic variable. So Hence, research hypothesis H_2 was not accepted.

Association between pre-test score of practice and socio- demographic variables: This data reveals the association between practice of ACS Algorithm and demographic variable. Significant demographic variable is age of staff nurses, with χ^2 value 2.93a (2df=2.91). for this variable hypothesis is accepted. The non-significant demographic variableis gender, education qualification and qualification experience. So, for this variable the research hypothesis H_2 rejected. Hence, research hypothesis H_2 is rejected.

Discussion

The aim of the study was conducted to evaluate the effectiveness of ACS algorithm on knowledge and practice regarding acute coronary syndrome among staff nurses. It was found staff nurses had inadequate knowledge and practice regarding acute coronary syndrome and ACS algorithm is effective to improve the knowledge and bring a good practice towards acute coronary syndrome.

The same study was conducted at Iran in 2016 on effectiveness of scenario–based education the performance of staff nurses in critical care unit for patients with acute coronary syndrome. The semi-empirical method was used. The researcher concluded that scenario based learning can have significant influence and enhancing knowledge and performance of nurses about their treatment with patient suffering from acute coronary syndrome.[11]

Conclusion

The analysis reveals that the total mean of post-test knowledge and practice score was observed to be significantly higher than the total mean of pretest knowledge and practice score after providing ACS algorithm to the staff nurses regarding acute coronary syndrome. Hence, it is concluded that the ACS algorithm was effective to increase the knowledge regarding the ideal care of ACS patient among staff nurses. Education regarding acute coronary syndrome should be given to all staff nurses to improve their knowledge and practice of procedure which may aid in reducing rate of death patient with acute coronary syndrome.

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