



A study to assess the effect of computer assisted instruction on knowledge regarding management of myocardial infarction (MI) among staff nurses in ICCU of selected Govt. hospitals, West Bengal.

¹Mrs. Kakali Halder (Nandi), M. Sc. Nursing, Department of Medical Surgical Nursing, Kolkata Medical College Hospital, Kolkata, West Bengal.

Corresponding Author: Mrs. Kakali Halder (Nandi), M. Sc. Nursing, Department of Medical Surgical Nursing, Kolkata Medical College Hospital, Kolkata, West Bengal.

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Abstract

Background of the study: Almost every day, the media covers news of a celebrity who has suffered from or was treated for chest pain, heart attack or cardiac arrest. Even on television, it is very common scene somebody is seeking treatment for an episode of chest pain.

Objectives

1. To assess the knowledge level of nursing staff of control group regarding management of myocardial infarction.
2. To assess the knowledge level of nursing personnel of experimental group regarding management of myocardial infarction before and after administration of computer assisted instruction.
3. To find out the effectiveness of computer assisted instruction in terms of change in knowledge score of staff nurses.
4. To find out the association between the knowledge score of experimental group and selected variables.
5. To determine the acceptability of the computer assisted instruction on management of MI.

Materials and Methods: A quasi experimental design was adapted to conduct the study. 50 nursing staff (25 – control group & 25- experimental group) was selected by purposive sampling method. Data was collected by a structured questionnaire for demographic data,, structured knowledge questionnaire & structured opinionnaire & computer assisted instruction was administered to the experimental group.

Result: The study result shows that after using computer assisted instruction, the mean knowledge score of staff nurses of experimental group in increased from

Conclusion: Deficit of knowledge was found regarding MI management in all content areas in both control group and experimental group in the pre- test. There is no significant gain in knowledge scores of nursing staff between pre-test and post-test of control group .There is significant difference between mean pre-test and mean post test knowledge scores staff nurses after administering the computer assisted instruction.CAI of MI management is effective in enhancing the knowledge in experimental group .There is significant difference

between mean post test knowledge score of control group and experimental group of nursing staff.

There is high level of acceptance of the Computer assisted instruction by nursing personnel.

Thus the computer assisted instruction on management of MI is effective in increasing the knowledge of nursing personnel working in ICCU of selected Govt. hospital.

Keywords: Myocardial Infarction, computer assisted instruction, intensive coronary care unit.

Introduction

The heart requires balance between oxygen supply and demand in order to function properly. The integrity of the coronary artery is an important determinant of oxygen supply to the heart muscle. Any disorder that reduce the size of lumen of coronary arteries may cause a decrease in blood flow and oxygen delivery to the myocardium. An acute myocardial infarction is caused by necrosis of myocardial tissue due to blockage of a coronary artery by a thrombus. Myocardial infarction is considered part of a spectrum of acute coronary syndrome. This refers to a spectrum of acute myocardial ischemia that also includes unstable angina and non-ST segment elevation myocardial infarction. The new criteria for diagnosing myocardial infarction are detection of rise & or fall of cardiac biomarkers(preferably Troponin) with at least one value above the ninety nine percentile of the upper reference limit, together with evidence of myocardial ischemia with at least one of the following – symptoms of ischemia, electrocardiogram changes indicative of new ischemia(new ST-T changes or left bundle branch block, development of pathological Q wave changes in the ECG, imagine evidence of new loss of viable myocardium or new regional wall motion abnormality).

Material and Methods

Study design: The study used quasi experimental, pre-test –post test control group design.

Variables: Dependent variable- knowledge of the staff nurses regarding management of Myocardial infarction.

Independent variable: computer assisted instruction

Extraneous variables: age, professional qualification, work experience, in service education.

Setting of the study: the study was carried out in the Government Medical colleges.

Sample size: 50 {experimental group-25 , control group- 25}

Sampling Technique: Non probability purposive sampling.

Inclusion and exclusion criteria

The staff nurses are willing to participate. 2. Available during data collection 3. Have knowledge of operating computer.

Development of the tool : After an extensive review of literature and discussion with the expert the socio demographic profile was developed.

Prepared structured knowledge questionnaire

Validity : the validity of the tool ,was done by 9 experts, as per the suggestions given by the expert’s modification and changes made in the final tool.

Reliability: Reliability was computed by using split half technique for establishing the internal consistency. Statistical method of ‘Pearson product Moment’ was used to calculate ‘r’. The reliability coefficient was 0.76.

Ethical clearance: Ethical clearance was obtained from Ethics committee of the institutions.

Pilot study: Pilot study was conducted in 8 nursing staff working in ICCU in both experimental & control group in different hospital & after 7 days post test was conducted in both the places. On completion of pilot study it was found that it was feasible to undertake the main study.

Data Collection Procedure: Prior to data collection permission was obtained from institutional ethical

committee, Director of Medical education, Director of Health services(nursing),MSVP of the institution and head of the department of the cardiologist.

Consultation was done with the sister- in-charge of ICCU two experimental hospital and two control hospital staff nurses.

Self introduction was given to the subjects.

Explanation was given regarding purpose of the study.

Subjects were purposively assigned in experimental group and control group.

Consent was taken from staff nurses who were subjects in the study.

Pre test was taken one by one staff nurses, sitting in their room in the morning shift after 11 a.m.

Evening staff came 15-20 minutes before their duty and sit together and pre test was taken.

After completion of all staff nurses pre test, Computer assisted instruction on knowledge regarding MI (CD) was distributed to staff nurses in ICCU in experimental group.

Post test was taken after 7 days of pre test, from control group.

Post test was taken after 7 days of CD distribution from experimental group.

Statistical Method

Descriptive statistics: Frequency and percentage distribution were used to describe the socio demographic variables of staff nurses. Mean, median, standard deviation, mean difference were used to describe the knowledge levels of both experimental group and control group and their pre test and post test knowledge.

Inferential statistics

Unpaired & paired't' test were used to compare the knowledge level of pre & post test knowledge of both control & experimental group.

Results: The collected data was analyzed according to the objective of the study, the findings are present below.

Frequency and percentage distribution of socio demographic data of staff nurses working in ICCU.

It was observed that 44% of staff nurses belong the age group of 22-32 years in Experimental group where as 52% staff nurses belong the age group of 33-42 years in control group.

36% staff nurses working experience both control & Experimental group have 1-5 years of clinical experience.

52% staff nurses were having 1-5 years of ICCU experience in both control & experimental group.

In experimental group only 20% staff nurses & control group 8% staff nurses were having in-service education.

Finding related to knowledge score staff nurses of control group.

Frequency polygon showing comparison between pre test & post test knowledge score of control group.

It was observed that maximum no of staff nurses pre test knowledge score in class interval of 14-16 & 16-18 and post test knowledge score lies between 16-18 & 18-20.

The mean & median of pre test (17.8) and post test (18.28 and 18) lies closely to each other in both the test.

It seem apparently that there is no significant gain in knowledge score of staff nurses between pre test & post test knowledge of control group.

Mean, mean difference, median, standard deviation & t value of pre test knowledge score of control group & experimental group of staff nurses on management of MI.

It was observed that mean pre test knowledge score of control group is 17.8 which is higher than pre test knowledge score 17.1 of experimental group. Mean difference of 0.7 which is not statistically significant as t value of 1.20 which is lower than table value 2.02 at df

(45) at 0.05 level of significance. This indicated that there is no significant difference of pre test knowledge score between control group & experimental group.

Mean, mean difference, median, standard deviation and t value of pre test and post test knowledge score of control group.

It is observed that mean post test knowledge score 18.28 of the staff nurse is higher than the mean pre test knowledge score 17.8 with mean difference of 0.48 which is statistically not significant as evident from t value of 0.63 which is less than table value for df at 0.05 level of significance.

Frequency polygon showing comparison between pre test & post test knowledge score of experimental group.

It is observed that pre test knowledge score within class interval of 15-18 and in post test knowledge score between 21-24, 24-27. Median of pre test lies left to the post test knowledge score.

Mean, mean difference median, standard deviation and t value of pre test and post test knowledge score of experimental group.

It is observed that mean post test knowledge score 23.12 which is higher than the mean pre test knowledge score 17.1 after introduction of computer assisted instruction with a mean difference of 6.02 which is statistically significant as evident from t value of 25.08 which is higher than the table value 2.06 for df(24) at 0.05 level of significance. It can be interpreted that there is significant gain in knowledge score between pre test and post test of staff nurses of experimental group after introduction of program on management of MI.

Mean, mean difference, SD and t value of post test knowledge score of experimental group & control group of staff nurses.

The mean post test knowledge score of experimental group (23.12) of the staff nurses is higher than the mean post test knowledge scores (18.28) of control group of staff nurses with a mean difference of 3.44 which is statistically significant as evident from 't' value of 3.99 which is higher than table value (2.02) for df (45) at 0.05 level of significance. So CAI is effective to increase knowledge of staff nurses of experimental group.

Frequency and percentage distribution of acceptability of Computer Assisted instruction.

69.3% agree and 30.7% were partially agreed about the computer assisted instruction.

Discussion

To collect the data was analyzed according to the objectives of the study. The findings are presented below.

Objective: To develop and validate a computer assisted instruction on knowledge regarding management of Myocardial infarction.

Computer assisted instruction was and structured questionnaire along with criteria check list were given to 9 expert from the field of cardiac medicine, cardiac surgery, cardio thoracic & vascular nursing.

Content validity & reliability was done. Reliability coefficient was 0.76.

Objective: To assess the pre test and post test knowledge staff nurse of control group regarding management of myocardial infarction.

Study findings shows that there is no significant gain in knowledge score of staff nurse between pre test and post test knowledge score. Unpaired t test was done (25) 't' value of 1.20 which is lower than the table value (2.02).

Objective: To assess the knowledge level of staff nurses of experimental group regarding management of myocardial infarction pre & post administration of computer assisted instruction.

Study finding shows that significant gain in knowledge score between pre test & post test among experimental group. Paired 't' test was done. Paired t test was done ,t value of 25.08 which is higher than table value 2.06 for df(24) at 0.05 level of significance.

Objective: To find the effectiveness of computer assisted instructions.

Study findings shows that there is significant difference between knowledge score of experimental group and control group after administration of computer assisted instruction. Unpaired t test was done & t value of 3.99 which is higher than table value 2.02 for df(45)at 0.05 level of significance.

Objective: To find the association between knowledge score & selected variables.

Chi square value shows only association of knowledge score with age. It is proved that knowledge level will increase with the increment of age.

Objective: To determine the acceptance of computer assisted instruction on management of myocardial infarction.

Study finding shows that 69.3% nursing personnel are agreed that computer assisted instruction on management of myocardial infarction was helpful.

Conclusion: computer assisted instruction is the method to gain knowledge through step by step and it helps to learn any type of topic which can be applicable to learn not only knowledge but also skill based program me.

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