A STUDY TO ASSESS THE LEVEL OF KNOWLEDGE ABOUT CARDIO VERSION AND DEFIBRILLATOR AMONG B.SC (N) FINAL YEAR STUDENTS

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Abstract

Introduction: A defibrillator is a device that delivers an electric shock to the heart muscle through the chest wall in order to restore a normal heart rate. Cardio version is a medical procedure by which an abnormally fast heart rate or cardiac arrhythmia is converted to a normal rhythm, using drugs or synchronized electricity.The aim of the study to evaluate the knowledge of student nurses regarding cardio version and defibrillation through a self instructional module that helps to improve their knowledge. **Materials and Methods:** A one group pre-test, post-test, pre experimental research design was conducted in seleted Nursing College.A group of 30 students was selected using a convenient sampling technique. Applying a self-structured questionnaire, information was gathered from the research population. The gathered information was coded and examined. **Results:** In the targeted group maximum 24(80%) were in the age group of 21-22. In pre test, 28(93.33%) had moderately adequate knowledge with mean score of knowledge was 14.63 with standard deviation 2.31. In post test, 28(90%) had adequate knowledge about cardio version and defibrillator among B.Sc(N) final year students and post test mean score was 26.0 with standard deviation 2.65. The mean knowledge improvement score was 11.36. The calculated paired 't' test value of t = 22.554 was found to be statistically highly significant at p<0.001 level. This clearly infers that the self instructional module administered to B.Sc.(N) Final Year Students was found to be effective which improved their level of knowledge about cardio version and defibrillator in the post test. Conclusion: The study concluded that, the analysis revealed that majority 27(90%) had adequate knowledge and only 3(10%) had moderately adequate knowledge on cardioversion and defibrillator.

Keywords: cardio version, defibrillator, nursing.

INTRODUCTION

God given one miracle organ that is heart. The heart, muscular pump of the circulatory system, is powered by an electrical impulse that signals the heart's four chambers to contract, each at the proper time. The heart works in an endless contract- relax / contract – relax cycle. An average heart beats 1,00,000 times a day, pumping some 2000 gallons of blood through its chambers and then back to the heart. Over a 70-year life span, that adds up to more than 2.5 billion heartbeats. However, even the importance of heart is countless. A healthy heart can be result of few factors, which includes good genes, good physical activities, right meal and food choices etc. while nothing can be done with one genes, they are god gifted and beyond the control human being. But, about others they can be easily controlled by normal life style and healthy food practices. According to the world health organization, estimates about 60% of the total worlds cardiac patient will be Indians, American are also leading in the list issued by them.

A defibrillator is a device that delivers an electric shock to the heart muscle through the chest wall in order to restore a normal heart rate. There are different types of defibrillators are in use, those are manual external defibrillator monitor. Automated external defibrillator are the simple-to-use units are based on computer technology which is designed to analyze the heart rhythm itself, and then advise the user whether a shock is required and implantable cardioverter-defibrillator also known as automatic internal cardiac defibrillation. These devices are implants, similar to pacemakers. They constantly monitor the patient's heart rhythm, and automatically administer shocks for various life threatening arrhythmias, according to the device's programming.

Cardio version is a medical procedure by which an abnormally fast heart rate or cardiac arrhythmia is converted to a normal rhythm, using drugs or synchronized electricity. To perform synchronized electrical cardio version two electrode pads are used (or, alternatively, the traditional hand-held "paddles"), each comprising a metallic plate which is faced with a saline based conductive gel. The pads are placed on the chest of the patient, or one is placed on the chest and one on the back. These are connected by cables to a machine which has the combined functions of an ECG display screen and the electrical function of a defibrillator. A synchronizing function (either manually operated or automatic) allows the cardioversion to deliver a reversion shock by the way of the pads, of a selected amount of electric current over a predefined number of milliseconds at the optimal moment in the cardiac cycle which corresponds to the R wave of the QRS complex on the ECG. Timing the shock to the R wave prevents the delivery of the shock during the vulnerable period (or relative refractory period) of the cardiac cycle, which could induce ventricular fibrillation. If the patient is conscious, various drugs are often used to help sedate the patient and make the procedure more tolerable. However, if the patient is hemodynamic ally unstable or unconscious, the shock is given immediately upon confirmation of the arrhythmia. When synchronized electrical cardio version is performed as an elective procedure, the shocks can be performed in conjunction with drug therapy until sinus rhythm is attained. After the procedure, the patient is monitored to ensure stability of the sinus rhythm.

The American heart association estimated that the likelihood of surviving sudden cardiac arrest due to ventricular fibrillation was only 2-5% if defibrillation was provided more than 12 min after collapse. On the contrary, Burdick and Cone (2004) demonstrated positive outcomes to support early defibrillation. Of 330 patients experiencing an out-of-hospital cardiac arrest, 200 patients received defibrillation from the emergency personnel in Minnesota. With the early administration of defibrillation and cardio version, there was a high rate of survival to hospital discharge and patients had long-term survival with a near normal quality of life. Similarly, another study found that patients with out-of-hospital cardiac arrests due to ventricular fibrillation had higher survival rate after receiving rapid defibrillation, with 40% of patients discharged from the hospital and the overall long-term survival of these patients was favorable Graham-Garcia, & Andrews, Evidence indicated that early defibrillation was the critical factor to influencing the survival of persons suffering from sudden cardiac arrests. This emphasizes the need for student nurses and staff nurses to extend their role to actively participate in emergency resuscitation care. Now a day's defibrillation and cardio version is very much used in clinical setting as a nurse. We need current knowledge in cardio version and defibrillation in working period also.

The aim of the study to evaluate the knowledge of student nurses regarding cardio version and defibrillation through a self instructional module that helps to improve their knowledge. Theoretically based education program me should help to improve their practice on cardio version and defibrillation. So that they can serve better, hence further complications of cardiac arrest and death of the patients can be prevented.

MATERIALS AND METHODS

RESEARCH DESIGN AND POPULATION

A one group pre-test, post-test, pre experimental research design was completed in selected nursing colleges. The sample size of the present study comprised of 30 students of final year nursing students. Convenient sampling technique method was adopted to select the samples for the present study based on sampling criteria.

$$n = Z2Xp(1-q)/E2/1+Z2Xp(1-q)/E2/N$$

Where, n is the sample size, Z is the significant level of the normally distributed at the appropriate confidence level, Z=1.96 for a 95% confidence interval, Z^2 is 3.84, p is the sample proportion (0.6), E is the margin of error (0.05), and N is the population size (800). The estimated sample size was n = 253.

QUESTIONNAIRE DEVELOPMENT AND DATA COLLECTION

A self-structured English questionnaire was developed. The content of the questionnaire was verified by expert assessment team. The study questionnaire was created with two parts (socio-demographic and knowledge of cardioversion and defibrillation) as a tool for gathering data. Participants age, religion, family history of cardiac disease, previous exposure, socio-economic status were collected in Section A for the sociodemographic characteristics analysis. Section B used to gather information regarding assess the knowledge about cardioversion and defibrillation among B.Sc (nursing) final year students. The self-structured questionnaire method was used for data collection. The data was collected over a one-month in the nursing colleges. The goals

of the research was explained and obtained the informed written consent before gathering the primary information. Prior permission will be obtained from the concerned authorities. The purpose of the study will be explained to the participants. A pre-test will be conducted by using structured open ended questionnaire to assess the existing knowledge regarding cardio version and defibrillation among students then self-instructional modulewill be administered, after 30 minutes posttest will be conducted with the same questionnaires.

STATISTICAL ANALYSIS

Statistical analysis was carried out with SPSS V26. The gathered information was summarized and incorporated into a Microsoft Excel spreadsheet. The data collected from the sample will be summarized and organized with the help of descriptive statistics like mean, frequency and percentage distribution and standard deviation. Significance of difference between pre-test and posttest knowledge scores of students will be done by using paired 't' test. Association between the student's knowledge regarding cardio version anddefibrillation and selected socio demographic variables will be found using chi-square test.

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