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THE EFFECTIVENESS OF CARDIAC REHABILITATION PROGRAMS IN IMPROVING QUALITY OF LIFE IN POST-MYOCARDIAL INFARCTION PATIENTS

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ABSTRACT

The purpose of this research is to investigate the impact that cardiac rehabilitation has on the enhancement of quality of life in individuals who have suffered an acute myocardial infarction. When it comes to the most common reasons for limitations in physical activity and activities of daily life, cardiac dysfunction is one of the most common causes. A quasi-experimental design study with a control group that was randomly assigned to take a pre-test and a post-test. A total of sixty patients were chosen and chosen at random to be allocated to either the control group (n=29) or the experimental group (n=31). Following the delivery of the intervention, baseline data were obtained three weeks after the patient had suffered an acute myocardial infarction. Additionally, a post-test was provided eight weeks after the patient had completed rehabilitation. Among the information that was gathered, there was a questionnaire for demographic data as well as a questionnaire for quality of life standards. In order to evaluate the data, SPSS 16.0 was utilized. Methods of descriptive and analytical statistics were utilized in this study. The findings indicate that there are meaningful distinctions between the average scores of the experimental group and those of the control group (P = 0.000 and P = 0.001, respectively). According to the findings, the average score acquired by both groups during the eighth week (Experimental: p=0/000 Mean=3.35 S.D=2.73 Control: P=0.001 Mean=2.27 S.D=2.20) was higher than the score obtained during the third week. It is essential for nurses to acquire knowledge regarding the many manifestations of coronary artery problems as well as the procedures that can be utilized to evaluate, prevent, and treat these disorders. Therefore, we are able to draw the conclusion that cardiac rehabilitation programs have to be all-encompassing and should incorporate both physiological and psychological tactics. These strategies are frequently practiced and are suggested in the majority of contemporary clinical practice guidelines. The findings of this study could be useful for clinical nurses in managing the requirements of patients who have suffered a myocardial infarction. With the help of rehabilitation facilities for cardiac rehabilitation, patients who have suffered a myocardial infarction are

given the opportunity to participate in these programs, which can help them improve their quality of life, boost their level of independence, and switch their lifestyle.

Keywords: *Cardiac rehabilitation, Myocardial infarction, Quality of life.*

INTRODUCTION

Infarction of the myocardium is a heart disease that poses a significant threat to one's life and is a serious public health concern all over the world. Among males in India, the prevalence rate of myocardial infarction is 65 per 1000 in urban areas, while it is 27 per 1000 in rural areas. With regard to females, the prevalence rate is 47 per 1000 in urban areas and 17 per 1000 in rural areas. People in India are diagnosed with heart disease five to ten years earlier than people in other nations. According to the World Health Organization (WHO), health is defined as a condition of total physical, mental, and social well-being, meaning that it is not simply the absence of sickness or infirmity. This definition applies to the rehabilitation of cardiac patients as a whole. In the context of cardiovascular health, cardiac rehabilitation (CR) refers to the process of improving and maintaining cardiovascular health through the implementation of tailored programs that aim to improve a person's physical, psychological, social, occupational, and emotional condition. Rehabilitation (CR) is intended to improve quality of life (QOL), correct risk factors, and provide aid with social and professional reintegration.

The maintenance of a healthy heart is an essential component of overall well-being. Oxygen is transported to the muscles that are actively working, toxic compounds are eliminated from the body, and blood that is rich in nutrients is transported throughout the body. It is possible for anyone of any age to be affected by heart disease and heart attacks; but, by adopting a healthy lifestyle, anyone can reduce their likelihood of experiencing either of these conditions. The myocardial infarction that has become a national epidemic in India is one of the most common medical disorders and the leading cause of death in the country. When it comes to assisting patients who are otherwise doing well with their coronary heart disease in their recovery, there are two additional alternatives available to them: cardiac rehabilitation and secondary prevention.

Cardiovascular disease and stroke are the major causes of death in the circulatory system, accounting for 32 percent of the deaths that occur across the world. Over the course of the past few decades, estimates of the prevalence of coronary heart disease in India's metropolitan areas have ranged from 1% to 13.2%, while in rural areas, the prevalence has been estimated to be between 1.6% and 7.4%. Myocardial infarction (MI), which is a prominent cause of death and disability in western cultures, has a disproportionately high impact on adults in both urban and rural areas of India with the same incidence. Most frequently, MI affects young people. Concerningly, although 14% of all estimated deaths from MI occur in high-income countries, the age range of 45–59 years old in India accounts for 14% of all MI deaths. Multiple studies that focused on these causes of death found that cardiovascular ailments are responsible for approximately forty percent of fatalities in metropolitan areas such as Chennai and thirty percent of deaths in rural areas such as Andhra Pradesh.

Objectives

1. To study to assess the effectiveness of the Rehabilitation program post MI for three weeks in experimental group

2. To study to assess the effectiveness of the Rehabilitation program in 8 weeks in an experimental group

Methods

In order to evaluate the efficacy of the intervention with a cardiac rehabilitation program in patients who were hospitalized with acute myocardial infarction, we carried out a study with a quasi-experimental design that included a control group that was randomly assigned to receive a questionnaire before and after the intervention.

Three weeks after a myocardial infarction, sixty patients, consisting of thirty-six males and twenty-four females, were recruited and randomly assigned to one of two groups: the control group (n=29) or the CRP group (n=31). Exercise capacity and health-related quality of life were evaluated both before the intervention (Time 1) and after it had been implemented for a period of eight weeks (Time 2). A pre-test was given to both groups three weeks after the acute myocardial infarction, and a post-test was given to both groups eight weeks following the completion of rehabilitation. The information that was gathered was gathered through the use of a questionnaire for demographic data as well as a questionnaire for quality of life standards (the Nottingham Health Profile questionnaire).

Inclusion criteria: A first diagnosis of acute myocardial infarction; a lack of a history of coronary artery bypass graft (CABG) or coronary artery disease (CHD); and a lack of a history of coronary artery disease (CHD) Over the age of 35 years old The left ventricle ejection fraction (LVEF) must be greater than 35 percent, and there should be no contraindications for movement or weight bearing. The patients were required to provide the researcher their written agreement after being briefed on the study and given the opportunity to voice their opinions. Right after the initial evaluation, the individuals who were assigned to the control group were given the current therapy, which consisted of going to see a cardiologist and following the directions that were given by the cardiologist. Additionally, they were instructed to participate in a home-based exercise program.

The Nottingham Health Profile (NHP) was administered to both the experimental group and the control group at three weeks after the end of the cardiac rehabilitation program and eight weeks after the acute myocardial infarction.

To begin, the coordinator of the CRP conducted a session of individual education for each participant. The discussion covered the methods that may be utilized to adjust the risk factors for coronary arteries, the experiences that are associated with acute myocardial infarction, and the challenges that must be conquered within the first three weeks after discharge. Throughout the course of the eight weeks, a nutritionist led a session that focused on dietary education and the ways in which one might alter their eating patterns. This was done on a one-on-one basis with the experimental group before they began the exercise routine that was part of the cardiac rehabilitation program. Twenty-four sessions of physical activity were included in the cardiac rehabilitation program, in addition to consultations on nutrition and psychology. Each physical activity session lasted between 45 and 60 minutes and consisted of a warm-up phase lasting between 5 and 10 minutes, an aerobic exercise period lasting between 30 and 40 minutes, and a cool-down phase lasting between 5 and 10 minutes. During this time, the participants were watched and instructed by an exercise physiologist and a CRP nurse.

A total of three repetitions of each exercise training session were performed each week. Before beginning the cardiac rehabilitation program, an electrocardiogram (ECG), an echocardiogram, and blood tests were performed. After the cardiac rehabilitation program, testing was completed.

The Nottingham Health Profile (NHP) is comprised of six different components, which are as follows: energy (three questions), pain (eight questions), emotional reaction (nine questions), sleep (five questions), social isolation (five questions), and physical activities (eight questions). It is a total of 38 questions that are included in the questionnaire. Both the NHP and the demographic questionnaires were filled out by the patients through verbal questioning and the documentation of their responses. The NHP has a dependability of 0.92 when tested again after a two-week period. There has been a range of internal consistency (alpha) for this scale, which has been between 0.88 and 0.95 for the overall NHP score and between 0.75 and 0.95 for each of the six subscales. A native English speaker has reviewed and given their stamp of approval to each and every translation. In order to do the analysis of the data, the statistical software spss Version 16.0 was utilized. For the purpose of analyzing demographic data and outcome variables, descriptive statistics were utilized. For the purpose of analyzing the differences in continuous data between the mean scores of the intervention group and the control group, both dependent and independent t-tests were utilized. The repeated measures analysis of variance (ANOVA) was utilized in order to evaluate the differences between the groups in terms of the changes in the dependent variable. P = 0.05 was chosen as the level of significance for this study.

Variables

1 Age: Age is a critical demographic variable that influences the physiological response to myocardial infarction and recovery processes. It affects patients' overall health, comorbidities, and their ability to engage in rehabilitation activities. Different age groups may have varying levels of functional capacity and psychological resilience.

2. Severity of Myocardial Infarction: This clinical variable refers to the extent of heart damage incurred during the myocardial infarction, often assessed through diagnostic tools such as echocardiograms or cardiac biomarkers. Severity can impact the prognosis and recovery trajectory, influencing the effectiveness of rehabilitation programs and patients' ability to participate in physical activity.

3. Type of Cardiac Rehabilitation Program: This variable encompasses the specific format and components of the rehabilitation program, including whether it is exercise-based, educational, or focused on lifestyle modification. Different types of programs may offer varying levels of support, intensity, and intervention strategies, which can significantly influence patients' recovery and quality of life.

4. Depression and Anxiety Levels: This psychosocial variable reflects the mental health status of post-MI patients. Elevated levels of depression and anxiety can hinder recovery, reduce motivation to participate in rehabilitation, and negatively impact overall quality of life. Assessing these levels can help identify patients who may require additional psychological support during their rehabilitation.

5. Health-Related Quality of Life (HRQoL): HRQoL is a comprehensive measure that assesses the impact of health status on an individual's overall well-being and daily functioning. It encompasses various domains, including physical, mental, and social health. Improvements in HRQoL are often a primary goal of cardiac

rehabilitation programs, as they indicate enhanced overall life satisfaction and health outcomes for post-MI patients.

Ethical considerations

This research was conducted in accordance with the principles outlined in the Helsinki Declaration throughout its entirety, and it was approved by the ethics committees of both the hospital and the university.

Results

Between the group that participated in the cardiac rehabilitation program and the group that served as the control, the mean values for age, gender, marital status, employment status, and education were nearly comparable. Between the two groups, there was not a significant difference in the clinical parameters, which included coronary risk factors, left ventricular ejection fraction (LVEF), the location of the myocardial infarction (MI), and treatment modalities (percutaneous coronary intervention and drugs).

There is a significant difference (P-value = 0.000) between the mean scores when using the t-test for equality of means. This is indicated by the fact that there is a difference between the scores of NHP and its six aspects (energy level, pain, emotional reaction, sleep, social isolation, and physical ability) in both groups. As a result, we are able to draw the conclusion that the cardiac rehabilitation program is more effective in the experimental group in comparison to the control group with a degree of certainty of 95% (95% credibility interval).

For the control group, the NHP scores obtained after three weeks and after eight weeks indicate that there is a substantial difference between the two time periods. There is a significant relationship between the variables of energy, pain, social isolation, and total quality of life score, with p-values of 0.031, 0.003, 0.005, and 0.000 correspondingly. In light of this, there is a statistically significant difference between the quality of life of patients in the control group after three weeks and after eight weeks (p = 0.000).

There is a statistically significant difference between the NHP scores of the experimental group at three weeks and eight weeks, as indicated by the p-value of 0.05. It is often true that the average scores of the eighth week are higher than those of the third week, particularly in the group that participated in the experiment.

If we compare the health of the patients in both groups at three and eight weeks, we find that there is a statistically significant difference (p-value = 0.05).

The findings for the entire population indicate that the average quality of life for males was higher than that of females, although this difference was not statistically significant. In addition, there is a statistically significant differential (p-value = 0.005) between the life quality of patients with diabetes who have suffered a myocardial infarction and patients who do not have diabetes. When comparing the life quality of patients who have suffered a myocardial infarction and have elevated LDL levels to those who have low LDL levels, there is a significant difference (p-value = 0.05). After eight weeks, the left ventricle ejection fraction of

patients is significantly higher than that of patients who were just three weeks old, and this difference is statistically significant (p-value = 0.05).

Discussion

Heart disease, often known as cardiovascular disease (CVD), is one of the most prevalent and dangerous diseases that affect people in today's society. According to the findings of ongoing investigations, the prevalence of cardiovascular diseases is increasing in nations located in the Eastern Mediterranean and Middle Eastern regions, which is leading to an increase in the rates of disability. In the United States, cardiovascular diseases are the leading cause of death with the highest prevalence. In our research, we found that sixty percent of the samples were male, whereas forty percent were female. There is a one-fourth difference in the likelihood of a myocardial infarction occurring in women who are at the age of fertility when compared to men who are the same age. There is a possibility that the estrogen hormone is responsible for this. After the age of menopause, this significant difference begins to decrease, and by the time a person reaches the age of fifty, the risk of having a myocardial infarction is equal for both sexes. According to the findings of a study carried out by Fagring and colleagues, there is no difference between the sexes in terms of the severity of chest pain. According to women, the pain they were experiencing was scorching and crushing, but this anomaly may be explained by the age range. Based on the findings of the study, the bulk of the samples were comprised of individuals aged between 45 and 75 years. The rate of occurrence begins to rise after the age of 30, and it reaches its second peak between the ages of 45 and 75 and continues to rise after that. The likelihood of developing atherosclerosis rises with increasing age. The majority of cases of the condition are observed in individuals who are above the age of forty. Forty-five percent of the patients are older than age 65.

One-third of the deaths that are attributed to cardiovascular diseases are experienced by individuals who are younger than 65 years old. A total of 31.7% of the samples were found to be smokers, according to the findings. According to Stillwell (2006), the three most prevalent risk factors for myocardial infarction are smoking, high blood pressure, and high cholesterol levels on the blood. People who smoke have a twofold increased risk of having a myocardial infarction. There is a tenfold increase in the likelihood of a sudden cardiac death occurring in smokers compared to those who do not smoke. Hypertension was present in 46.7% of the samples, whereas the remaining samples had normal blood pressures. Women over the age of 45 who have blood pressure that is higher than 160/95 and males over the age of 45 who have blood pressure that is higher than 140/90 have a possibility of death that is fifty percent more than that of persons who have normal blood pressure. People who have hypertension have a risk of myocardial infarction that is five times higher than the average person. The risk of experiencing a cardiac arrest increases in proportion to the level of blood pressure reached.

There is a statistically significant difference between the two groups, as indicated by the difference in the life quality score (NHP) between them (pvalue = 0.05). There is a statistically significant difference between the interventional group and the control group in terms of the impact of the cardiac rehabilitation program. In their study, Dehdari and colleagues came to the conclusion that the quality of life, as measured by the NHP questionnaire, exhibited a substantial correlation in the interventional group over the course of three time periods when compared to the control group. This correlation was found to be related to energy levels, sleep, and social isolation.

The ratings on quality of life and its six dimensions for both groups during the two time periods reveal that there is a considerable difference between the two averages. This is the consensus among the researchers. Therefore, we are able to deduce with a level of certainty of 95% that there is a significant difference between the six dimensions aspects of the two members of the group after three and eight weeks have passed. According to the findings of prior research, there is a distinction that may be considered statistically significant between the psychological/mental and health/motor scores of the CRP group and those of the control group. According to these findings, the cardiac rehabilitation program has the potential to bring about significant improvements in both the quality of life and the physical ability of the participants.

During the two time periods for the interventional group, the quality of life scores and its six dimensions indicated a significant difference between the results of the third week and those of the eighth week.

Research conducted in the past has demonstrated that cardiac rehabilitation has the potential to improve HRQOL. In general, the average that was determined from the eighth week is higher than the average that was derived from the third week, particularly for the interventional group, as indicated by the findings. After conducting a self-management training program for patients with chronic illness for a period of one year, they arrived at the conclusion that there were no significant effects on PCS or MCS scores at any of the follow-up points. In spite of this, a number of researchers have discovered that there has been a substantial improvement in quality of life in earlier studies. As a result, we are able to draw the conclusion that there is a discernible shift in the quality of life of patients belonging to both groups. According to the findings of a study that was carried out by Bakhshandeh and Parhizghar, breathing exercises have an impact on the quality of life of asthma patients. It is therefore absolutely necessary to incorporate activities of this nature into their training program.

It is common for patients who have cardiovascular disease to be required to modify many behaviors; hence, it is a beneficial method to determine which of the client's habits is the most crucial for them to change.

CONCLUSION

The findings of the study showed that the majority of people were tremendously concerned about their families and the current economic crisis. The vast majority of them were really concerned about their eating habits and lack of sleep. The intervention provided by cardiac nursing was found to have a significant impact on the change of lifestyle, as well as on the reduction of stress levels and the improvement of sleep quality. The diagnosis, treatment, and management of acute myocardial infarction are extremely important for patients today. The nurses who are directly caring for patients are able to identify problems at an earlier stage, and they are able to provide patients with the appropriate counseling and advice that will improve their quality of life throughout the post-myocardial infarction period.

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