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**ANALYSIS OF CARDIAC REHABILITATION (WALKING FOR 6 MINUTE)
FITNESS LEVEL OF PATIENTS POST PTCA
IN HUSADA UTAMA HOSPITAL SURABAYA
(ANOVA REPEATED MEASURE)**

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Abstract

Cardiac is a vital organ in the human body. Cardiac problems will arise if there is obstruction or abnormalities in the coronary arteries. Before the total blockage of the blood vessels, the heart surgery patients for stenting via heart catheterization is usually called PTCA (percutaneous Transluminal Coronary Angioplasty). Patients who had heart surgery performed PTCA required to undergo a cardiac rehabilitation program to improve fitness. On average, patients post PTCA the first time following the cardiac rehabilitation fitness level is less, especially in the elderly. It is a matter of fitness in patients post PTCA. Cardiac rehabilitation is an effort to help people with heart disease to restore physical health status, increase fitness, improve medical conditions, psychological, social, emotional, and sexuality to its optimal state. This study design is a pre-experiment. The data used are primary data taken from the patient's cardiac rehabilitation Main Husada Hospital Surabaya. In this study using Repeated Measure Annova analysis with SPSS 16 software. The results showed that the value of $p = 0.000$ ($\alpha = 0.05$), which means there is influence between cardiac rehabilitation (road 6 minutes) to increase the fitness of patients post PTCA in Top Husada Hospital Surabaya. The results of this study are expected to be input for hospitals and patients ddalam improve health promotion in order to improve the fitness of patients post PTCA.

Keywords: Cardiac Rehabilitation, patients post PTCA, Improved fitness

Background

The heart is a vital organ in the human body. Heart problems will arise if there is obstruction or abnormalities in the coronary arteries. For example, if there is total blockage that occurs in the coronary arteries, will result in a heart attack that may be followed by sudden death or heart failure. Therefore, before the total blockage of the blood vessels, the heart surgery patients for stenting via heart catheterization is usually called PTCA (percutaneous Transluminal Coronary

Angioplasty). PTCA is useful to dilate the blood vessels narrow so that the blood vessels in the heart can be widened and it can function properly. After the operation of cardiac catheterization, the patient will follow a cardiac rehabilitation (Perk, Joep, 2012).

Cardiac rehabilitation is an effort to help people with heart disease to restore physical health status, increase fitness, improve medical conditions, psychological, social, emotional, and sexuality to its optimal state. The

rehabilitation program is done through activities that are comprehensive, including education and counseling, controlling risk factors, and physical education programs. (Rokhaeni, et al, 2011). Today has been known concept of cardiac rehabilitation are integrated by a team of cardiac rehabilitation, involving various disciplines, namely medicine cardiac specialist, nutrition, physiotherapy, medical rehabilitation and psychology.

According to data recorded in the Health Department of Surabaya in 2013 there were 3,480 cases of coronary heart disease, and in 2012 as many as 3,636 cases of heart. While the data recorded on the Main Husada Hospital Surabaya in 2013, as many as 2,699 people a heart patient. Whereas in 2014 patients with coronary heart disease as many as 3,025 people. With the increasing incidence of heart disease, the increasingly high number of heart operations performed. For example, heart patients will do PTCA increasing every year. Therefore, patients who had heart surgery performed PTCA required to undergo a cardiac rehabilitation program to improve fitness. On average, patients post PTCA the first time following the cardiac rehabilitation fitness level is less, especially in the elderly. It is a matter of fitness in patients post PTCA.

Based on the description of the background above the important role of nurses in nursing care for patients post PTCA, to improve fitness, patients are encouraged to attend cardiac rehabilitation exercise. For cardiac rehabilitation is a program of exercise training in cardiac patients that are useful to restore the quality of life and improve physical fitness as well as physical, especially in the

elderly. Therefore, the influence of the 6 minutes in a cardiac rehabilitation in elderly patients with post PTCA fitness level.

Research methods

The research design was pre-experimental design with pre and post measurements on a sample of post PTCA patients who followed the path 6 minutes. Which in this study are the independent variables (path 6 minutes in a cardiac rehabilitation) and the dependent variable (fitness level) that will be analyzed there any influence between the two variables. This research was conducted in November 2015. The location of this research is done is the first space Cardiac Rehabilitation Hospital Husada Utama Surabaya. The population in this study were all patients post cardiac rehabilitation PTCA participating 35 people. Because patients post PTCA each year about 420 people, and each month an average of 35 patients post PTCA. Dijasikan in this study 35 patients post PTCA. The sample in this study, a number of 32 samples. Sampling in this study are nonprobability sampling using purposive sampling. Analysis of the data used in this study is Annova repeted measure. While each patient the distance can be measured in seven times the 6-minute workout.

Result

General data research results is a picture of the characteristics of respondents that include gender, age, education, occupation, income and marital status.

3

1. Characteristics of respondents by sex

Table 1 Characteristics of respondents by sex post PTCA in elderly patients in cardiac rehabilitation

Gender	Frequency (f)	Percentage (%)
Man	22	68.8
female	10	31.3
Total	32	100

Table 1 obtained sex of the patients post PTCA male - male as many as 22 people (68.8), women 10 (31.3%).

3

2. Characteristics of respondents by age.

Table 2 Characteristics of respondents by age post PTCA in elderly patients in cardiac rehabilitation

Age (Years)	Frequency (f)	Percentage (%)
60 Years - 65 Years	20	62.5
66 Years - 70 Years	10	31.3
71 Years - 75 Years	2	6.3
Total	32	100

Table 2 obtained post PTCA patients age 60 Years - 65 Years as many as 20 people (62.5%), the age of patients post PTCA 66 Years - 70 Years as many as 10 people (31.3%), and the age of patients post PTCA 71 Years - 75 year by 2 people (6.3%).

3. Characteristics of respondents by education

Table 3 Characteristics of respondents by education post PTCA in elderly patients in cardiac rehabilitation

Last education	Frequency (f)	Percentage (%)
SMP	0	0
SMU / SMK	10	31.3
College	22	68.8
Total	32	100

Table 3 obtained educating patients post PTCA in elderly of a college education as many as 22 people (68.8%), SMU / SMK as many as 10 people (31.3%), and there are no post PTCA patients with secondary school education.

4. Characteristics of respondents by job

Table 4 Characteristics of respondents by job post PTC elderly patients in cardiac rehabilitation

Work	Frequency (f)	Percentage (%)
Retired Public Servant	15	46.9
Private employees	10	31.3
Traders / Self Employed	5	15.6
Housewife	2	6.3
Does not work	0	0
Total	32	100

Table 4 obtained the patient's occupation of post PTCA in elderly retired civil servants from as many as 15 people (46.9%), job post PTCA patients were private employees as many as 10 people (31.3%), post-PTCA patients who work as a trader / entrepreneur 5 people (15.6%),

and patients post PTCA is a housewife by 2 people (6.3%), and nothing worked.

5. Characteristics of respondents by income

Table. 5 Characteristics of respondents by income post PTCA in elderly patients in cardiac rehabilitation

Income	Frequency (f)	Percentage (%)
<Rp.2.000.000		
Rp.2.000.000-	0	0
Rp.3.500.000	2	6.3
>Rp.3.500.000-	5	15.6
Rp.4.500.000	10	31.3
>Rp.4.500.000-	15	46.9
Rp.5.000.000		
>Rp.5.000.000		
Total	32	100

Table 5 shows that of the total sample of 32 respondents, there were 15 respondents (46.9%) earnings of > Rp. 5.000.000, -, 10 respondents (31.3%) earnings of > Rp. 4.500.000, - - Rp. 5.000.000, - 5 respondents (15.6%) had an income of > Rp. 3,500,000, - - Rp. 4.500.000, -, 2 respondents (6.3%) had revenue of Rp. 2.000.000, - - Rp. 3.500.000, - and no respondents whose income <Rp.2.000.000,-

6. Characteristics of respondents by marital status

Table. 6 Characteristics of respondents by marital status post PTCA in elderly patients in cardiac rehabilitation

Marital status	Frequency (f)	Percentage (%)
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Married		
not Married	28	87.5
Married (Husband 0	0	0
Died)	2	6.3
Married (Wife 2	2	6.3
Died)		
Total	32	100

Table 6 obtained marital status post PTCA patients who marry as many as 28 people (87.5%), marital status post PTCA patients who are not married there, marital status post PTCA patients were married (husband died) for 2 people (6.3%), and marital status post PTCA patients were married (wife died) for 2 persons (6.3%).

Specific data to be displayed in tabular form the effect of 6 minutes in a cardiac rehabilitation on the level of fitness of patients post PTCA in Cardiac Rehabilitation Hospital Room Husada Utama Surabaya measured with each arrival of patients who run rehabilitation program.

7. Effect of Road 6 Minutes On The Level Fitness Post PTCA In Elderly Patients in Cardiac Rehabilitation hospital room Husada Utama Surabaya.

Table 7 Effect of Road 6 Minutes On The Level Fitness Post PTCA In Elderly Patients in Cardiac Rehabilitation hospital room Husada Utama Surabaya.

Measure: MEASURE_1

Within Effect	Subjects Approx. Chi-Square	df	Sig
TIME	47.305	2	0.000

Based on Table 7 explains that there is the influence of the 6 minutes in a cardiac rehabilitation to fitness level post PTCA in elderly patients with repeted measure

ANOVA test results that showed $p = 0.0000$ ($p < 0.05$).

Discussion

1. Respondents before the 6-minute program in cardiac rehabilitation

At first the elderly patients after PTCA surgery less fitness level before the 6-minute training in cardiac rehabilitation, so you will need to follow the program the way 6 minutes in a cardiac rehabilitation to improve his fitness. In accordance with the theory described cooper (2009) that for heart patients need special training to restore their quality of life as they are, therefore, specific exercises that are safe and healthy elderly patients for heart patients who have surgery is to follow the program the way 6 minutes into cardiac rehabilitation.

1 6-minute walking exercise in cardiac rehabilitation can improve fitness and restore quality of life of such patients before surgery and is much better than before. Besides the advantage following the path 6 minutes in a cardiac rehabilitation patients to consult with a nutritionist, medical rehab doctors and psychologists. Therefore, in addition to 6-minute walking exercise in cardiac rehabilitation, patients will be monitored nutritional status, the movement of walking and breathing exercises by doctors of medical rehabilitation and psychological status after surgery will be seen and assessed by a psychologist. Body and soul so that her back healthy and much better than before.

From the results of the study patients before the 6-minute training in cardiac rehabilitation have less fitness level. Some of the factors affecting the level of fitness among which age, knowledge, and lack of exercise. On average, patients whose fitness level is less influenced by the elderly because of age and decreased function of the body. Then the lack of knowledge about the factors healing process and good nutrition after surgery. On average patients after cardiac surgery are still confused not understand the sport better and safer for heart health. Therefore, patients after cardiac surgery that will follow the program the way 6 minutes in a cardiac rehabilitation fitness level is always less.

The majority of post PTCA in elderly patients before the 6-minute training in cardiac rehabilitation there are many complex issues. In addition to decreased function of the body due to age, post PTCA in elderly patients is very rare for the sport at home after heart surgery. Therefore, elderly patients usually need special supervision and special observations and special training is good and safe for patients post PTCA in elderly by following a 6-minute walking exercise in cardiac rehabilitation at the hospital main husada Surabaya. According Butland, stating that the road test for 6 minutes has the best mileage value and correlated with optimal functional ability in elderly patients. Measuring respiratory gas exchange during maximal exercise test is the preferred method for assessing the functional capacity. This measurement is required to adjust the intensity of the exercise and assess the effects of exercise during a cardiac rehabilitation program, especially in the elderly safe.

Several studies have shown significant that the 6-minute test (6 MWT) is a submaximal exercise test that resembles everyday activities and was well tolerated with heart failure. Beside that running capacity is an important factor in assessing the quality of life for heart patients. 6 minute road test provides an objective indication of functional capacity and exercise tolerance because of the distance ambulation is shown in conjunction with a maximum of symptoms that arise due to limited oxygen consumption. And a road test 6 minutes also show the results of clinical improvement in heart patients who had heart surgery PTCA and following cardiac rehabilitation program on a regular basis and measured in accordance doses of exercise done, this test is a test for the easy way to do, better tolerated and more describe activities of daily life.

2. Respondents after 6 minutes following the road program in cardiac rehabilitation

After following the program 6 minutes more than 50% of respondents increased their fitness and health is better than before the operation. If respondents were active in participating in a cardiac rehabilitation program is the level of fitness is getting better fast.

Program road 6 minutes in a cardiac rehabilitation exercise is the safest sport and good for the elderly who have heart surgery such as post PTCA. According to Cooper (2009), with the 6-minute exercise, the body will make a smooth blood circulation and body become fitter. Healthy lifestyle after surgery post PTCA is necessary to prevent re-blockage of the blood vessels in the heart.

Physically and mentally healthy life reduces the risk of heart disease returned.

Sports in cardiac rehabilitation in the elderly consists of several steps that must be done. Stages include heating, exercises, drills road 6 minutes, and cooling. Heating should be performed within 5-10 minutes so that the heart rate increases gradually. Examples of roads in place, the road slowly, stretching, performed for 5 minutes later heart gymnastics performed for 10 minutes and continued to practice the 6-minute recorded by means of telemetry for 6 minutes and then rest and cooling. If the stage is already done, the next step in order to evaluate the 6-minute walking exercise is further increased in accordance with the training program as a benchmark early next exercise. It is to note the evaluation is a fitness component that shows signs of increase or decrease in fitness. But after the respondents follow the 6-minute exercise program increased their fitness levels.

Several studies have shown significant that the 6-minute test (6 MWT) is a submaximal exercise test that resembles everyday activities and was well tolerated with heart failure. Beside that running capacity is an important factor in assessing the quality of life for heart patients. 6 minute road test provides an objective indication of functional capacity and exercise tolerance because of the distance ambulation is shown in conjunction with a maximum of symptoms that arise due to limited oxygen consumption. And a road test 6 minutes also show the results of clinical improvement in heart patients who had heart surgery and after participating in a

cardiac rehabilitation program on a regular basis and measured in accordance doses of exercise done, this test is a test for the easy way to do, better tolerated and more describe the activity everyday life.

After post PTCA in elderly patients following the path 6 minutes of exercise in cardiac rehabilitation, the state organs including metabolism in the body to function optimally, if at any time required. For example, when the body needs to move quickly to in anticipation of a situation, or perhaps the body needs to move along taxes your muscles and joints more severe, the heart has to pump faster, lung maksimal have to sift through more air to produce oxygen more, then a fit body will be able to perform these tasks well and still have the energy reserves to enjoy time spare and still no power savings for unexpected needs.

Therefore the post PTCA in elderly patients are required to undergo training road 6 minutes in a cardiac rehabilitation to improve his fitness and can restore their quality of life is much better than before. Because according to research I studied post PTCA in elderly patients who after following 6-minute walking exercise increases fitness level and in much better shape than before the illness.

3. Effect of Road 6 Minutes On The Level In Cardiac Rehabilitation Centre PTCA in Patients Post Cardiac Rehab Lounge Top Husada Hospital Surabaya

Effect of Road 6 Minutes In Cardiac Rehabilitation On The Level Fitness Patients Post PTCA in the cardiac rehabilitation hospital Husada Utama Surabaya can be analyzed using the

Wilcoxon test with respondents 32 people found the influence of the 6 minutes in a cardiac rehabilitation to fitness levels and the probability value (r) 0,000 ($r < 0.05$), which means that there is the Effect of Road 6 Minutes in cardiac rehabilitation patient on the Level Fitness Post PTCA in cardiac rehabilitation hospital room Husada Utama Surabaya, cardiac rehabilitation is a program that is expected to restore the health of patients optimal and promoting lifestyle changes in patients with CHD (Deaner, 2011). Rehabilitation in patients with PTCA is a series of business in helping to cure the patient in order to return quickly to the normal life or approaching the condition before the illness (Rokhaeni, et al, 2011). The goal of cardiac rehabilitation is to reduce stress, improve quality of life, reduced mortality and morbidity, reducing the risk of re-infarction by modifying risk factors, and reduce the need for invasive procedures (Deaner, 2009). According Rokhaeni, et al (2011) on CHD cardiac rehabilitation to restore the physical, mental, social as well as improve the fitness of the patient as optimal as possible so that it can carry out activities such as before the illness. Currently cardiac rehabilitation not only contains the concept for recovering patients but it also included secondary prevention efforts, so that rehabilitation is able to suppress the rate of morbidity and mortality. Cardiac rehabilitation program is a series of crucial conducted in patients with various forms of heart disorders such as heart attack / myocardial infarction, coronary bypass surgery, chronic heart disease, post-coronary angioplasty, peripheral artery disease, congestive heart failure. The program is a multifactorial activities include physical exercise, education and counseling on a variety of

efforts, including interventions that are integrated and comprehensive activity.

At the 6-minute exercise in ¹ cardiac rehabilitation has been shown to be effective in the elderly to improve their fitness by following a 6-minute walking exercise at the main hospital husada Surabaya. 6-minute walking exercise conducted in the elderly is very safe and well to assess the level of fitness. That starts with a warm-up exercise by physiotherapists and trained the movement of walking correctly in order to post PTCA in elderly patients understand how walking is good and right that are not easily tired, so the achievement of good results and maximum in 6-minute walk. After a 6-minute walk post PTCA in elderly patients trained for cooling so that the relaxation process of breathing and movement for flexing.

From the results of the evaluation and research in cardiac rehabilitation hospital room husada shows that the main road 6 minutes of exercise a beneficial effect in doing breathing and movement, especially in walking. For example, more confident in walking that previously were walking slowly and still anxious to perform daily activities due to lack of knowledge about the process of healing illness and lack of exercise. It shows the influence of the 6 minutes in a cardiac rehabilitation to fitness level in elderly patients post PTCA.

From the above it can be concluded that there is significant influence influence the way 6 minutes in a cardiac rehabilitation to fitness level post PTCA in elderly patients in cardiac rehabilitation

hospital room main husada Surabaya. So it is advisable for patients post PTCA to improve his fitness and back in a healthy condition than before the illness.

Conclusion

Based on the meeting results of research and test results on the discussions held, it can be concluded as follows:

1. Respondents before following the path 6 minutes in a cardiac rehabilitation with respondents 32 people found fitness level less.
2. after following the path 6 minutes in a cardiac rehabilitation with respondents 32 people obtained their fitness level increases.
3. There is the influence of the 6 minutes in a cardiac rehabilitation to fitness level in elderly patients post PTCA in the room is cardiac rehabilitation Husada Utama Hospital Surabaya

Suggestion

Based on the research findings, some suggestions submitted to the related parties are as follows:

1. For the patients.

After heart surgery, the patient should immediately follow the cardiac rehabilitation program to learn a good sport and a safe for your heart after cardiac surgery. Because cardiac rehabilitation can improve fitness and restore the quality of life of patients with better than before the illness.

2. for the Family

The family has a very important role in supporting and assisting their

families who suffer a heart in order to run a program provided by a team of good health.

3. For instance (Hospital)

Nursing care to patients post PTCA given by nurses cardiac rehabilitation focusing on preventive measures and rehabilitation, especially for sports safe in patients post PTCA to be implemented properly, and to a cardiac rehabilitation program that is already in the hospital should be activated and developed so services in accordance with the vision and mission of the hospital can be applied.

4. For further research

Future studies are expected to conduct research on "The Effect of Cardiac Rehabilitation Patient Anxiety Levels Against Post CABG".

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