

ELDERLY EXERCISE'S IMPACT ON CHOLESTEROL AND BLOOD PRESSURE

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Abstract

An elderly person is someone who with experiences the aging process, which is characterized by a decline in organ function. Physical activity such as exercising regularly for the elderly will improve physical fitness, heart function and lower blood pressure. The objectives of this research was to compare cholesterol levels and blood pressure in the elderly before and after doing exercise at the Tresna Werda Social Institution, Kota Bengkulu. This research was conducted with a descriptive method. The research subjects were 31 elderly who were taken using the total sampling method. Data showed 31 elderly had abnormal cholesterol levels and 17 had abnormal blood pressure. After routinely doing elderly exercise every Friday, data were obtained 24 elderly (77.4%) had normal cholesterol levels and 21 (67.8%) had normal blood pressure. There is a decrease in cholesterol and blood pressure levels in the elderly after doing regular elderly exercise. It is recommended that regular gymnastics activities for the elderly should be held by the orphanage's caretaker.

Key Words: Elderly, exercising, cholesterol, hypertension, blood pressure

INTRODUCTION

Population aging or an increasing proportion of the elderly population (over 60 years) occurs worldwide. According to the Indonesian National Statistics Agency, in 2018 the population based on the age of 65-69 was 6.365,900 people, with 3,141,500 men while the elderly were women totaling 3,224,400 inhabitants. Elderly is someone who experiences the aging process with increasing age of the individual which is marked by a decrease in the function of the elderly's organs, changes will occur, especially in physiological changes because with increasing age, the function of body organs will decrease either due to natural factors or due to disease. Diseases in the elderly include heart disease, high blood pressure, hypercholesterolemia (Priadi et al, 2016).

The number of sufferers due to hypercholesterolemia is high in developed and developing countries. Hypercholesterolemia in the blood increases in line with the aging process. Increased cholesterol levels can lead to buildup of blood vessel walls and cause high blood pressure in the elderly (Sapulete, 2016). High blood pressure in the elderly can interfere with the

cardiovascular system, especially hypertension. Hypertension is the third leading cause of death after stroke and tuberculosis, reaching 6.7% of the population of deaths at all ages in Indonesia. Physiological changes in the elderly occur due to risk factors affect the biological factors.

Physical activity and an unhealthy lifestyle. Physical activity such as exercise for the elderly in the elderly that is carried out regularly will improve physical fitness, so that exercise can indirectly improve heart function and reduce blood pressure and reduce the risk of fat accumulation on the walls of blood vessels so that it will maintain its elasticity (Jatiningsih, 2016). Exercise that is very appropriate for the elderly who suffer from hypercholesterolemia is gymnastics. Gymnastics is a safe sport for the elderly. Gymnastics also has regular movements and is adapted to the abilities of the elderly. Elderly exercise is carried out for a minimum of 30 minutes and 3 times a week regularly and measurably (Admin, 2012). Exercise or physical exercise in people with hypertension can lose weight, improve cardiovascular and respiratory function, reduce low-density lipoprotein (LDL < 200 mg/dl) and increase high-density lipoprotein (HDL > 40 mg/dl) thereby preventing coronary heart disease. If this physical exercise is done correctly and regularly.

All types of sports and light activities are very useful for inhibiting degenerative processes such as elderly exercise which is a light exercise that is easy to do and not burdensome for the elderly. This sports activity will help the elderly body to stay fit and fresh, because this exercise is able to train bones to stay strong, encourage the heart to work optimally and help eliminate free radicals that roam in the body (Widianti, 2010). Several studies on the relationship between exercise with cholesterol and blood pressure, such as research conducted by Maryati (2017) high cholesterol in the blood is associated with high blood pressure Constriction and stiffening of the walls of blood vessels due to the accumulation of cholesterol in blood vessels can cause blood pressure to increase.

METHOD

Design and Research Subjects

This research was conducted using a descriptive method, conducted in November 2019-April 2020 at the Panti Sosial Tresna Werda, Kota Bengkulu. The research subjects were 31 elderly who were taken using the total sampling technic.

Instruments and Data Analysis Techniques

Blood samples were examined at the Tresna Werda Social Institution, Bengkulu City. Furthermore, the data obtained were analyzed and tabulated through the frequency distribution.

RESULTS

Univariate analysis was used to see the frequency distribution of cholesterol levels and blood pressure in the elderly after doing gymnastics at the Tresna Werda Social Institution, Bengkulu City. Based on the characteristics of the elderly respondents who are diligent in exercising (4 x in 1 month), the elderly who have normal BMI levels (18.5-22.9 kg /m²), total 31 people. The results of the acquisition are presented in Table 1 below.

Table 1. Description of Cholesterol Levels in the Elderly after Doing Exercise

Levels Cholesterol	Frequency (person)	Percent (%)	Description		TOTAL (person)
			Number of Elderly taking Simvastatin (person)	Number of Elderly who did not take Simvastatin (person)	
< 200 mg/dL	24	77,4	24	0	24
>200 mg/dL	7	22,6	7	0	7
Amount	31	100	31	0	31

Data Table 1 shows normal cholesterol levels as many as 24 people 77.4% elderly have cholesterol levels <200 mg/dL and 7 people (22.6%) have cholesterol levels >200 mg/dl. In addition, as many as 31 respondents were still taking simvastatin regularly.

Table 2. Description of Blood Pressure in the Elderly after Doing Exercise

Blood Pressure	Frequency (person)	Percent (%)	Description		TOTAL (person)
			Number of Elderly taking Amplodipin (person)	Number of who do not take Amplodipine (person)	
< 140/90 mmHg	21	67,8	2	19	21
> 140/90 mmHg	10	32,2	10	0	10
Amount	31	100	12	19	31

Table 2 shows that as many as 21 people (67.8%) elderly have blood pressure <140/90 mmHg and still taking Amplodipine as many as 2 people and as many as 10 people (32.2%) elderly have blood pressure > 140/90 mmHg and still taking Amplodipine as many as 10 people.

DISCUSSION

The results showed that 31 people had abnormal cholesterol levels and blood pressure in the elderly at the Tresna Werda Panti Sosial, Bengkulu City, while the blood pressure of 17 elderly people had abnormal blood pressure. This proves that there is a decrease in cholesterol and blood pressure levels after the elderly do regular exercise every Friday. The results obtained after doing elderly exercise regularly were 24 people (77.4%) had normal cholesterol levels, while the results of blood pressure showed that 21 people (67.8%) had normal blood pressure. In the research of Martiningsih & Hastuti (2016) it was proven that cholesterol levels decreased. This may be because fat is an important source of energy for muscle contraction during exercise. Muscle contraction occurs because of the energy produced by beta-oxidation of free fatty acids derived from lipolysis of adipose fat tissue. Factors that influence the results of this study is the intensity factor in exercising.

Physical sports activities such as gymnastics that are done at least one to three times a week can improve body fitness. Similar to the research conducted by Rini et al, (2015) low-intensity exercise was not able to provide changes to the fat profile. If the exercise is done at a low intensity, the energy expenditure is not optimal. This certainly will not affect changes in the level of fat profile in a person's body. In this study there are obstacles such as intensity in exercising, this may be influenced by a person's physiological system. In addition, this study also has other limitations, namely the length of the study which only lasted one week. These results are in line with research conducted by Kusumasari (2015) which showed a significant relationship between physical activity and total cholesterol levels, namely $p = 0.001$ (<0.05). This is also in accordance with Maryati's theory, 2017 where lifestyle affects cholesterol levels and one of them is regular physical activity that lowers LDL, plasma, but increases HDL.

The effect of reducing cholesterol levels and blood pressure in addition to taking drugs regularly is also influenced by physical activities such as exercise. Gymnastics is the first step to change a healthy lifestyle that makes cholesterol levels and blood pressure decrease if done regularly and with maximum intensity.

CONCLUSIONS AND SUGGESTIONS

Based on the results of research and discussion, it is concluded that there is a decrease in cholesterol levels and blood pressure in the elderly after doing elderly exercise regularly. Furthermore, it is recommended to the caretaker of the orphanage to regularly hold gymnastics activities for the elderly.

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