

PROGRESSIVE MUSCLE RELAXATION IN THE EFFORT TO CONTROL BLOOD PRESSURE IN HYPERTENSIVE PATIENTS

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ABSTRACT

Hypertension is one of the leading causes of early mortality in the world, the third after stroke and tuberculosis. It therefore needs to be controlled through modifications in lifestyle and behavior changes, among others to undertake progressive muscle exercises that can lower high blood pressure. This study aims to determine the effect of progressive muscle relaxation on blood pressure in patients with progressive muscle. Pre-experimental research designs with one group pretest-posttest, intervention in the form of progressive muscle relaxation exercises every day within two weeks with the duration of 10 minutes for each workout. Blood pressure was measured before the intervention performed, then the patients did the exercises individually and afterwards they took the posttest. Independent variable is progressive muscle relaxation and the dependent variable is blood pressure. Samples, consisted of 30 people who were hypertensive patients at Basuki Rahmat public health center were selected through purposive sampling. Data analysis was performed using univariate and bivariate using test. *Wilcoxon* results showed that there are differences in the blood pressure of hypertensive patients before and after a given progressive muscle relaxation with $p=0.000$. This means that there is the effect of progressive muscle relaxation to lower the blood pressure of hypertensive patients. Health providers can include the progressive muscular exercises program into the program of center of pre- and postnatal health care and information for women and children under five to help lower blood pressure in hypertensive patients.

Keywords: Progressive Muscle Relaxation, Hypertension

INTRODUCTION

Hypertension is the world's third largest cause of early death after stroke and tuberculosis. Based on data from Global Status Report on Noncommunicable Diseases 2010, 40% of developing economies have hypertensive patients, while the developed countries are only 35%. African region holds the top position with 46% of hypertensive patients and Southeast Asia region 36% of adults suffer from hypertension (Kompas, 2013). Results issued by Health Research (2013) mentioned that the prevalence of

hypertension in Indonesia based on measurements at age ≥ 18 years was 25.8%. According to data from Bengkulu City Health Department, hypertension cases in the city of Bengkulu in 2013 were 9210 cases, 2014 patients with hypertension were 7206 cases, and in 2015 it increased to 5257 cases, with the highest ranking was Basuki Rahmat public health center.

Social losses due to hypertension among others have caused panic, disability, and death in the family, while the indirect impact including loss of

working hours and cost of treatment (Kemenkes RI, 2013). Therefore, it is necessary to control blood pressure in hypertensive patients with progressive muscle relaxation. Progressive muscle relaxation affecting arterial blood vessels pressure through the work of sympathetic and parasympathetic nervous system, which consequently has an impact on blood pressure reduction (Herath and Azizah, 2016). Progressive muscle relaxation is non-pharmacological, natural and do not cause harmful effects and can be done by the client individually (Triyanto, 2014), but this therapy has not been used regularly by people with hypertension because most patients prefer using pharmacological therapy, which has faster reaction on lowering the blood pressure. This study aims to determine the effect of progressive muscle relaxation on lowering blood pressure in hypertensive patients at Basuki Rahmat public health center of Bengkulu in 2017.

METHODS

Pre-experimental research designs with one group for pretest-posttest, intervention made in the form of progressive muscle relaxation exercise, every day within two weeks with the duration of 10 minutes for each workout. Before and after the intervention, the

patients were undergone blood pressure measurement. Samples were patients diagnosed with hypertension at Basuki Rahmat public health center, where 30 people were selected using purposive sampling, with the criteria 34-59 years old, to have systolic blood pressure ≥ 140 mmHg and diastolic blood pressure ≥ 90 mmHg. Exclusion criteria were hypertensive patients with complications. Independent variable is progressive muscle relaxation and the dependent variable is blood pressure. Blood pressure was measured using digital sphygmomanometer brand Omron IA1 type. Data were analyzed through computerized Wilcoxon Signed Ranks Test to see the impact of progressive muscle relaxation on blood pressure in hypertensive patients.

RESULTS

Table 1. Respondents' Characteristics

Characteristics	Frequency	Presentation (%)
Age		
Adults end	8	26.7
Adults end of	17	56.7
Elderly initial	5	16.6
Education		
Basic	8	26.7
Secondary	16	53.3
PT	6	20.0

Table 2 . Effect of Progressive Muscle Relaxation on Systolic Blood Pressure Intervention Before And After

variable	N	Mean	Median-SD	Min-max	Mean difference	P value	95% CI for the Mean
Systolic: Pre	30	141.33	3.4514	140-150	9.33	0:00	140.04 to 142.62
	Post	132.00	3.05	130-140			132.00
Diastolic : Pre	30	91.33	90,00	90-100	9.33		90,04-92
	Post	82.00	80,00	80-90			80.48 to 83.52

Table 2 shows average systolic blood pressure before being given a progressive muscle relaxation is 141.33, while average systolic blood pressure of the patient after being given progressive muscle relaxation is 132.00 with a mean difference is 9.33. Average diastolic blood pressure before being given the treatment is 91.33 and after the intervention it decreases to 82.00 with a mean difference is 9.33. The results of statistical tests show that there are differences in the blood pressure in hypertensive patients before and after being given progressive muscle relaxation with $p = 0.00$. This means that there is the effect of progressive muscle relaxation to a decrease in blood pressure of hypertensive patients.

DISCUSSION

The results of this study showed an average reduction in systolic blood pressure before and after progressive muscle relaxation was 9.33 and diastolic before and after progressive muscle relaxation therapy was 9.33. Statistical analysis showed the value of $p = 0.000 < \alpha 0.05$, meaning that there is a difference in blood pressure before and after muscle relaxation progress so that it can be concluded there is progressive muscle relaxation effect on blood pressure in patients with hypertension. Progressive muscle exercise can lower systolic blood pressure with a value of $p = 0.008$ (Herath and Azizah, 2016). This intervention is effective in lowering diastolic blood pressure and systolic in the normal range, but more effect on systolic blood pressure than diastolic (Aalami, et al. 2016). A decrease in blood pressure due to progressive muscle relaxation to help reduce the stress levels so that the muscles of the body become relaxed, in order to

reduce anxiety, stress levels, and sleeping difficulty (Ramdhani& Sons, 2009).

Progressive muscle relaxation is used to reduce peripheral resistance and increase the elasticity of blood vessels. The muscles and blood circulation will be more perfect in taking and circulate oxygen and progressive muscle relaxation can be the vasodilator effect to widen the blood vessels and lower blood pressure directly. This exercise can help lower blood pressure, insomnia, against anxiety, and stress (Smelzer& Bare, 2010). Muscle relaxation causes the heart's pumping activity decreases, arteries are widened, and considerable amount of fluid is produced out of the circulation. (Price & Wilson, 2005).

According to Bluerufi (2009) method of relaxation training, in the human nervous system there are the central and the autonomic nervous system. The function of the central nervous system is to control the desired movement, for example, the movement of the hands, feet, neck and fingers. Meanwhile, the function of the autonomic nervous system is to control the function of automatic movement, digestion and cardiovascular functions. The autonomic nervous system consists of two subsystems that work differently, namely sympathetic and parasympathetic nerves. Blood pressure is influenced by psychological conditions, cause muscle relaxation strain so that it help lower cortisol levels of epinephrine and norepinephrine that causes a decrease in blood pressure and pulse (Dusek and Benson, 2009). Changes due to relaxation techniques is to lower blood pressure and heart rate, reduce heart arrhythmia, the need for oxygen and oxygen consumption, reduces muscle tension, lower metabolic

rate, increase the alpha waves of the brain that occur when the client is aware, no focus and relax, improve fitness, increase concentration and improve the ability to cope with the stressor (Perry & Potter (2005).

CONCLUSIONS AND RECOMMENDATIONS

There is the effect of progressive muscle relaxation to a decrease in blood pressure in hypertensive patients. Progressive muscle relaxation is a low cost non-pharmacological therapy, can be done routinely, regular and individually in order to lower blood pressure in hypertensive patients. The healthcare providers therefore need to include the progressive muscle relaxation in the program of center of pre- and postnatal health care and information for women and children under five.

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