

Progressive Relaxation to Changes in Blood Pressure and Sleep Quality in Ladies of Hypertension Patients

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ABSTRACT

Keywords :

Progressive Muscle Relaxation

Blood Pressure

Sleep Quality

Background: Hypertension is one of the leading causes of premature death worldwide. In 2020 about 1.56 billion adults will live with hypertension. Hypertension kills nearly 8 billion people every year in the world and nearly 1.5 million people annually in the East-South Asia region. One of the factors that affect blood pressure indirectly is poor sleep quality. One of the ways to deal with high blood pressure is progressive relaxation. The purpose of this study was to determine the effect of progressive relaxation on changes in blood pressure and sleep quality in elderly people with hypertension.

Methods: This study is a literature review. The literature sources are Google Scholar, Research Gate, Pubmed. Literature is obtained using keywords and Boolean operators (AND, OR NOT or AND NOT) and in accordance with the inclusion criteria so that 9 articles were obtained. The strategy used is using PICOS.

Results: Progressive muscle relaxation has a significant effect on reducing blood pressure in the elderly with hypertension. The implementation of progressive muscle relaxation has an effect on improving the quality of sleep in the elderly.

Conclusion: Progressive muscle relaxation can affect changes in blood pressure and improve sleep quality in elderly people with hypertension. It is hoped that medical personnel will also use progressive muscle relaxation techniques in addition to taking drugs.

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I. INTRODUCTION

Hypertension is a condition in which a person's blood pressure is more than 140/90 mmHg the World Health Organization ⁽¹⁾. The prevalence of hypertension in developed countries is 35% and in developing countries is 40% of the adult population. Hypertension cases in 2016 in developing countries increased by 80% from 639 million cases in 2000, namely 1.15 billion cases. Nearly 1 billion people worldwide have high blood pressure. Hypertension is one of the leading causes of premature death worldwide. In 2020 about 1.56 billion adults will live with hypertension. Hypertension kills nearly 8 billion people every year in the world and nearly 1.5 million people every year in the East-South Asia region. Approximately one third of adults in East - South Asia suffer from hypertension ⁽²⁾.

The older a person is, the metabolic regulation of calcium (calcium) in the body will be disturbed, so that the calcium will flow with the blood. The large amount of calcium in the blood causes the blood to become denser and thicker, so that blood flow is not smooth and causes blood pressure to rise ⁽³⁾. This means that someone who is elderly has a high risk of developing high blood pressure.

The results of the Basic Health Research (Riskesdas) in 2018 showed the prevalence of hypertension in Indonesia among respondents aged 18 years and over was 34.1%. Compared with

the 2013 Riskesdas results, respondents aged 18 years and over were 25.8% or an increase of 8.3% over five years, this is a significant increase in prevalence. The results of several studies have found that adults who are aged 50 years and over have a risk of developing hypertension reaching 90%⁽³⁾.

Based on the results of measurements of population blood pressure ≥ 18 years according to gender, districts / cities of D.I. Yogyakarta Province in 2017 out of a total of 876,414 male and female respondents who were tested for blood pressure, it was found that 91,562 respondents had hypertension or 10.45%.

The Health Center Integrated Disease Survey (STP) report in DIY in 2016 shows that new cases of essential hypertension (29,105 cases) and diabetes mellitus (9,473 cases) are the second and fourth top 10 diseases in DIY. Then in 2017 for Hypertension there were 20,309 cases and Diabetes Mellitus there were 5,161 new cases, both of which were included in the top 10 diseases. (Provincial Health Profile in Yogyakarta, 2017).

The prevalence rate of hypertension in DIY according to Riskesdas 2018 is 33.8% or almost the same when compared to the national figure (34.1%). This prevalence places DIY in 10th place as a province with high cases of hypertension. Hypertension has always been included in the top 10 diseases as well as the top 10 causes of death in Yogyakarta during the last few years based on STP and SIRS. The 2016 STP Puskesmas report recorded 29,105 cases of hypertension while the STP outpatient hospital reports were 1,152 cases (essential hypertension). Meanwhile, based on STP Puskesmas in 2017, there were 20,309 cases of hypertension. For hospital outpatient STPs, 12,962 new cases were recorded. (Provincial Health Profile in Yogyakarta, 2017).

Hypertension can be caused by two factors, namely controllable and uncontrollable factors. Factors that can be controlled include: excessive salt consumption, lack of physical activity, stress, smoking, obesity, dyslipidemia and alcohol consumption⁽⁴⁾. Meanwhile, factors that cannot be controlled are family history / genetics, age and gender.

One of the factors that affect blood pressure indirectly is poor sleep quality⁽⁵⁾. Poor sleep quality is a collection of conditions characterized by disturbances in the amount, quality, or time of sleep in an individual⁽⁶⁾. Sleep quality according to the American Psychiatric Association (2000) in Ike (2016), is defined as an event that involves 2 aspects, namely quantitative sleep or the amount of sleep experienced and sleep qualitative including the feelings felt when after waking up. If not handled properly, poor sleep quality can worsen medical and psychiatric disorders such as hypertension, coronary artery disease or brain, obesity, and depression⁽⁷⁾. Poor sleep quality is a risk factor for physical and psychological problems. Physical problems that can be caused include increased blood glucose levels and a risk factor for cardiovascular disorders such as increased blood pressure in children, adolescents and adults⁽⁹⁾.

According to Nasihah⁽⁹⁾, there are two types of hypertension treatment, namely pharmacological and non-pharmacological treatments. Pharmacological treatment is carried out using anti-hypertensive drugs. Antihypertensive drugs include diuretics, beta-blockers, ACE inhibitors, angiotensin II receptor blockers (ARBs), calcium channel blockers (CCBs), alpha-blockers, clonidine, and vasodilators⁽¹⁰⁾. Non-pharmacological treatments that can be done include losing weight, exercising, reducing salt intake, not smoking, and avoiding stress⁽¹¹⁾. In addition, simple breathing exercises and muscle relaxation techniques can be performed that produce therapeutic benefits such as a calm heart rate, lowering blood pressure and lowering stress hormone levels⁽¹²⁾.

One of the efforts to treat hypertension sufferers that can be done is by means of complementary therapy. One form of complementary therapy that uses relaxation techniques is progressive muscle relaxation therapy. Progressive muscle relaxation therapy is a therapy that focuses on a muscle activity to reduce tension in the muscles by performing relaxation techniques to relax (Purwanto, 2013). According to Maryam⁽¹³⁾, progressive muscle relaxation therapy is one of the cheapest methods of relaxation therapy, is easy to do, has no side effects, can make the mind feel calm and the body relaxes. Fitrianti and Putri⁽¹⁴⁾ state that creating a relaxed state such as exercising progressive muscle relaxation techniques is one of the non-pharmacological ways of managing hypertension. This is because progressive muscle relaxation is a technique to reduce muscle tension with a simple and systematic process so that the muscles relax and reduce anxiety or stress so that it will lower blood pressure in people with hypertension.

II. METHODS

This research is a literature review, which is a summary of several research studies that are determined according to a particular theme. The literature was searched in June-July 2020. The data used in this study were secondary data obtained not from direct research, but from previous research results. The secondary data source used was journal articles that had a good reputation with themes that were in line with the objectives of this study. The literature search in this literature review uses three databases, namely Google Scholar, Research Gate, Pubmed.

Article searches use keywords and Boolean operators AND, OR NOT or AND NOT) which are used to expand the search so that it can make it easier to determine which articles to use. Keywords in the literature review adjusted to the Medical Subject Heading (MeSH) consisted of:

Tabel 1 Key Words Literature Riview

Progressive Relaxation	Blood pressure	Sleep quality	Hypertension
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The strategies used in searching for articles using PICOS include:

1. Population / problem, population or problem to be analyzed in accordance with a predetermined theme
2. Intervention, a management behavior of individual or community cases and the presentation of management in accordance with a predetermined theme
3. Comparation, management or other interventions that are used as a comparison
4. Outcome, the results obtained from previous studies that are in accordance with a predetermined theme
5. Study design, the research design used by the journal to be reviewed

Based on the search results of journals or articles through publications on Google Scholar, Research Gate, Pubmed using keywords that match a predetermined research theme, researchers found 19,900 journals. From these results, we then checked for duplication and found 9,210 similar journals, then the same journal was issued, leaving 10,690 journals remaining. Furthermore, researchers conducted a selection of journals published above in 2015 and obtained 8,251 journals in Indonesian and English. Then the researchers screened the titles, obtained 910 journals, screening for abstracts obtained 400 journals and full text journals as many as 40 journals. Furthermore, the researcher made an assessment based on the eligibility of the inclusion and exclusion criteria, so that 9 articles were obtained that match the theme in this study.

III. RESULT AND DISCUSSION

The Effect of Progressive Relaxation on Changes in Blood Pressure in the Elderly with Hypertension

An elderly person will experience a physiological decline in the cardiovascular system and also face many stressful situations in daily life that cause stress responses. Relaxation and mind manipulation techniques can reduce the physiological and emotional components of stress. The goals of relaxation are to provide comfort, improve physical dysfunction, change physiological responses and reduce the fear associated with the disease. Based on the results of research by Fitrianti and Miko⁽¹⁴⁾, it shows that progressive muscle relaxation has a significant effect on reducing blood pressure in elderly people with hypertension. Progressive muscle relaxation is one of the techniques used to reduce muscle tension through a simple and systematic way of tensing a group of muscles to then relax them again so that the muscles relax and anxiety / stress decreases so that blood pressure in hypertensive sufferers will also decrease

The results of this study are in accordance with the research of Ulya and Noor⁽¹⁵⁾ which showed that the average blood pressure in the experimental group after being given progressive muscle relaxation therapy showed a decrease, while in the control group blood pressure increased. In the experimental group also found a significant difference between blood pressure before and after giving progressive muscle relaxation. Meanwhile, the control group showed no significant difference in blood pressure between before and after.

Progressive muscle relaxation therapy can lower blood pressure. Progressive muscle relaxation is done by focusing the mind on muscle activity during extension or relaxation in order to relax the feeling. This feeling of relaxation will affect the workings of the sympathetic nerves and sympathetic nerves. The sympathetic nerves have a duty to reduce all bodily functions whose function is increased due to the sympathetic nervous system. This condition will cause the activity of the body's systems to also begin to decline, heart rate, respiratory rate and blood pressure will also decrease due to a relaxed feeling.

Provision of correct progressive muscle relaxation therapy will affect changes in blood pressure in the elderly with hypertension. What is meant here is correct in carrying out the movements, the correct sequence of movements, the right position, and a quiet and closed place, so that the elderly really feel relaxed⁽¹⁴⁾. The implementation of progressive muscle relaxation is carried out 2 times a day with a time of between 25-30 minutes and if it is done regularly, blood pressure will stagnate decreases⁽¹⁵⁾.

Effect of Progressive Relation on Sleep Quality in Elderly Patients with Hypertension

Sleep that has quality is a deep sleep condition, is not easy to wake up, experiences dreams and when you wake up the body feels refreshed and free from tension. There are many ways to get good quality sleep. One of them is through progressive muscle relaxation therapy. Based on the research results of Sulidah⁽¹⁶⁾, it is shown that the implementation of progressive muscle relaxation has an effect on improving the quality of sleep in the elderly. This is indicated by the number of respondents who experience good sleep quality has increased, while the number of respondents with poor sleep quality has a tendency to decline. Thus progressive muscle relaxation exercises are quite effective in shortening sleep latency, longer sleep duration, increased sleep efficiency, reduced sleep disturbances and reduced activity during the day so that the satisfied response to sleep quality is increased. Progressive muscle relaxation can also reduce the causes of sleep disturbances, thereby improving sleep quality. In addition, progressive muscle relaxation techniques can also control the activity of the autonomic nervous system and activation of the suprasciatic nucleus, making it easier to initiate and maintain deep sleep.

The results of this study are also in accordance with the research of Sunaringtyas, Dina and Lendra⁽¹⁷⁾ which shows that there is an effect of the implementation of progressive muscle relaxation on the sleep quality of elderly hypertensive patients. The relaxation response is caused by stimulated activity of the parasympathetic autonomic nervous system nuclei rafe so that it encourages changes that can monitor the activity of the autonomic nervous system such as reduced oxygen function, breathing frequency, pulse, muscle tension, blood pressure and alpha waves in the brain making it easier to sleep.

Kasron and Susilawati's research⁽⁵⁾ also shows that before the Progressive Muscle Relaxation (PMR) treatment 43.8% of respondents had poor sleep quality and 56.3% of respondents had very poor sleep quality. After PMR treatment, 18.8% of respondents had a rather good sleep quality and 81.3% had poor sleep quality. Statistically, this study shows that there are differences in sleep quality before and after PMR administration in hypertensive patients

Stanley and Beare in Syahrir and Rusna⁽¹⁸⁾ state that progressive relaxation is an exercise that uses instructions to relax muscle groups systemically, starting with facial muscles and ending with leg muscles, so that a relaxed state can encourage a person to be more comfortable sleeping

Progressive muscle relaxation can affect sleep because when doing progressive muscle relaxation it will cause a relaxation response that stimulates all functions where it works against the sympathetic nervous system, so that a relaxed and calm state is achieved. Feeling relaxed will produce Corticotropin Releasing Factor thereby increasing the production of several hormones, such as Enkefalin and Serotonin. The relaxation response will occur due to the activity of the parasympathetic autonomic nervous system nuclei rafe. This will encourage changes that can control the activity of the autonomic nervous system in the form of reduced oxygen function, breathing frequency, pulse, muscle tension, blood pressure and alpha waves in the brain so that it is easy to sleep⁽⁵⁾.

Syahrir and Rusna⁽¹⁸⁾ in their research stated that progressive relaxation is an instructional exercise consisting of learning to relax muscle groups systemically, starting with facial muscles and ending with leg muscles, so that a person will be comfortable sleeping and avoid insomnia. With progressive muscle relaxation exercises, the body will release a number of neurotransmitters that have a sedative function such as β -endorphins, encephalins and serotonin which reduce muscle tension and create a sense of calm and comfort so that people will find it easy to sleep.

IV. CONCLUSION

It is recommended that the elderly carry out progressive muscle relaxation regularly, so that blood pressure does not improve and the quality of sleep becomes better.

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