
The Application of Progressive Muscle Relaxation Therapy on Chronic Pain in the Elderly with Hypertension: A Case Study

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Abstract

Hypertension is a major health problem that is common in the elderly. The changes in the cardiovascular system due to increasing age are the cause of hypertension in the elderly which may cause many complications if not controlled properly. There are many kinds of treatment for hypertension; one of them is progressive muscle relaxation therapy. The purpose of this study was to treat chronic pain in elderly people with hypertension by applying progressive muscle relaxation therapy. This study used a descriptive method with a case study design of nursing care including assessment, diagnosis, intervention, implementation and evaluation. The respondent was an elderly with chronic hypertension pain and sleep pattern disturbance. The research showed that progressive muscle relaxation therapy has proven effective in reducing chronic hypertension pain in hypertensive client. Based on nursing actions carried out for 3 days, the application of progressive muscle relaxation therapy can be used as an adjunct to overcome chronic pain which is useful for reducing blood pressure in elderly people with hypertension. Meanwhile, sleep support by listening to music can be used as an intervention to elderly in order to divert pain and anxiety to feel comfort and relax.

Keywords: Hypertension, Elderly, Chronic Pain, Progressive Muscle Relaxation Therapy

INTRODUCTION

Elderly is a time when an individual has reached maturity in body size and function (Rauf et al., 2021). The impact of increasing age on the elderly is their vulnerability to experiencing various health problems. Hypertension is number one health problem that is often suffered by the elderly where the trigger is a decrease in physiological function (Maisarah et al., 2022).

Hypertension or high blood pressure is an abnormal blood pressure in the arteries continuously for more than one period. It is a degenerative disease that still a serious problem in the world because it can lead causes of mortality and significantly affects a person's quality of life and productivity. Hypertension requires self-care management, namely the client's ability to detect and manage symptoms, self-medication and care. This situation is a trigger factor for the emergence of anxiety or anxiety in hypertensive clients, which in turn will affect the stability of blood pressure. Hypertension usually shows asymptomatic until complications develop in the target organs. Headache or heaviness in the neck, dizziness, palpitations, fatigue, blurred vision, ringing in the ears (tinnitus), and nosebleeds are some of the signs and symptoms of hypertension. Early detection of high blood pressure is very important due to hypertension often referred to as a "silent killer". It because sufferers do not experience any symptoms, high blood pressure puts you at an increased risk for heart disease, heart failure, and stroke, among other things (Mayasari et al., 2019).

World Health Organization (WHO) predicted 1.28 billion adults aged 30 – 79 years old in the world suffer from hypertension, the majority occurs in low and middle-income countries. An estimated 46% of adults with hypertension are unaware of their condition (WHO, 2023). In Indonesia, the prevalence of hypertension in the population aged 18 years or more has increased to 34.1%, or 70 million of population and Badan Litbangkes Kementerian Kesehatan RI reported women have a prevalence of 36.8%, while men have a prevalence of 31.3%. The age group of 18 –

24 years has a hypertension prevalence of 13.2%, the age group of 25 – 34 years has a prevalence of 20.1%, and the age group over 75 years has a prevalence of 69.5%. South Kalimantan has the highest prevalence of hypertension, at 44.1% among people while North Sumatera reached a prevalence at 6.7% or approximately 12.42 million people in each regency (Badan Litbangkes Kementerian Kesehatan RI, 2018). According to the Central Bureau of Statistics of Toba Regency, hypertension is the third largest after upper respiratory tract infections and dyspepsia with a total of 7032 out of 206,199 people or around 3.41%.

Management of hypertension is divided into two, namely pharmacological therapy (using anti - hypertension drugs) and non - pharmacological. Pharmacologically, hypertension therapy uses blood pressure - lowering or anti - hypertension drugs (Patricia A. & Perry, 2009). Meanwhile, non - pharmacological management including lifestyle modification, managing stress and anxiety are the first steps to be taken (Brunner Suddarth, 2000; Bhatt et al., 2007; Lewis et al., 2016). One of the efforts to manage hypertension pain, stress and anxiety that can be done is progressive muscle relaxation, where the response from the relaxation technique is expected to inhibit the autonomic nervous system and the central nervous system, and will increase parasympathetic activity which will reduce the heart rate so cardiac output decreases and eventually blood pressure will also decrease (Brunner & Suddarth, 2000; Hahn & Kim, 2006; Sheu et al., 2003; Lewis et al., 2016).

Complementary therapy is a complementary intervention to conventional medicine, obtained through certain training that is guided by health science (Hartatik & Sari, 2021). Types of complementary therapy include meditation, yoga, foot massage therapy, Benson therapy, cupping, acupressure, food combining, hypnotherapy, Swedish massage and progressive muscle relaxation techniques (Megawati, 2020).

Progressive muscle relaxation technique is a relaxation method by tensing certain muscles, then releasing them with the aim of reducing tension and causing relaxation in the muscles. This complementary therapy has several advantages, including the technique is easy to learn and do, it can be done anywhere and at any time without requiring a specific place (Tasalim & Cahyani, 2021). This progressive muscle relaxation is suitable if given to people with hypertension because when the body relaxes the heart rate will be normal so that blood pumping throughout the body becomes optimal, the effect is that blood pressure decreases (Junaidi & Noor, 2010). In interviews in the initial study with 12 elderly people with hypertension who attended the elderly posyandu in Rejosari Village, Gondang District, Tulungagung Regency, data was obtained that to reduce blood pressure, the effort made was to ask elderly posyandu cadres for medication. The elderly above also did not know about progressive muscle relaxation and its benefits on blood pressure.

RESEARCH METHODS

The method used is descriptive qualitative with a case study design using a nursing care process approach. The problem focused on the elderly with chronic hypertension. Nursing care was implemented on January 30 to February 1, 2024 in Ujung Tanduk Village. Subject in this case study used one of citizens who was adjusted according to the inclusion and exclusion criteria. The inclusion criteria in this case study were patient with chronic pain problems with persistent or chronic hypertension, cooperative patient, and able to carry out daily activities. At the same time, the exclusion criteria were patient with severe psychological problems such as dementia. Data collection was done by way of interviews and observation.

This study used primary analysis by interviewing and direct patient observation, used a gerontic nursing analysis questionnaire, and secondary data analysis was gained from patient medical record at Ujung Tanduk Health Center. Researchers used therapeutic communication during

interviews, observations, and assessments in the nursing process. This research is a gerontic nursing care case study and has obtained a permission to serve as a managed patient. After that, the nursing care process was carried out for managed patient by asking about the patient's general health condition in order to identify the health problems experienced by the patient.

Researchers created a comfortable environment and build a trusting relationship with the patient during the gerontic nursing assessment stage. Researchers chose non -pharmacological therapy that could be performed on patient but based on evidence – based practice and adapted to the Indonesian Nursing Diagnosis Standards (IDHS), Indonesian Nursing Outcomes Standards (SLKI), and Indonesian Nursing Intervention Standards (SIKI). Non – pharmacological therapy implemented to the managed patient was progressive muscle relaxation therapy for hypertension chronic pain and relaxation therapy with the spiritual and emotional freedom for anxiety and sleep disorder using music before go to sleep. Blood pressure, pulse frequency, and pain scale were checked before and after therapy. Pain scale observations was checked using Numerical Rating Scale (NRS) to determine changes in the patient's condition after being given relaxation therapy.

RESULTS AND DISCUSSION

In this case study, the client is one of elderly who lives in Ujung Tanduk Village. The client is Mrs. T with female sex and aged 59 years old. The client's health problem is hypertension known since two years ago and client takes Captopril as medications for her disease. After further studies, a problem analysis was carried out on the client and found a nursing problem, namely chronic pain. Pain or dizziness experienced by the client sometimes appears not too often, and the blood pressure is 180/90 mmHg. The client said she is disturbed when the headache occurred so that the client could not continue doing her work and she got tired quickly when working. Oliveros et. al (2020) stated that many conditions increase the incidence of hypertension with age, with the prevalence increasing from 27% in patients aged less than 60 years to 70% in individuals over 80 years. The Framingham Heart, research showed that more than 90% of respondents had normal blood pressure at 55, increased with age and eventually became hypertension. Chronic pain is related to an imbalance of neurotransmitters, neuromodulators, and receptors as evidenced by PQRST pain assessment, namely P: The client has a history of hypertension and headaches (dizziness) since two years ago, Q: like being hit by a heavy object, R: part nape of the back of the neck, S: NRS Scale 7, T: intermittent and heavy when waking up, the client looks grimacing and restless. The client's condition is in accordance with nursing guidelines for establishing nursing diagnoses, namely chronic pain (D. 0078).

On the other hand, the client said that she often experiences sleep pattern disturbances especially because of a bedmate absence, never takes an afternoon nap, wake up so often at night that she only has four hours night sleep, and the increased blood pressure she has is due to anxiety/burdened thoughts experienced by the client. The client also said she was worried about thinking of her daughter going through a divorce just like she was going through a divorce from his husband. The client's condition is in accordance with nursing guidelines for establishing nursing diagnoses, namely sleep pattern disturbances related to the absence of a bedmate and lack of sleep control (D.0055).

The research conducted by Putra et al. (2022) with a case study of a 79 years old client suffering from hypertension for three years, the client often complaining of dizziness and difficulty sleeping due to headaches so that the client wakes up during sleep. Many researchers have not been able to explain with certainty the pathophysiological mechanisms of chronic headaches in people with hypertension. However, several researchers are linking endothelial dysfunction with the

incidence of migraine in people with hypertension. According to Arca et al. (2019), the pathophysiology of headaches in patients with hypertension is irregular cerebral autoregulation, which causes headaches in clients when blood pressure is not controlled.

The implementation carried out in this case study is in accordance with the chronic pain intervention, namely relaxation therapy. Relaxation therapy implemented in this study is progressive muscle relaxation therapy. Participating in progressive muscle relaxation therapy can release some hormone that plays an important role in reducing pain of clients with hypertension. In this study, the researchers gave a progressive muscle relaxation therapy training to the client which including 14 movements as follows:

1. The client is asked to wrinkle her forehead in a frown and hold
2. The client is asked to close her eyes tightly and hold
3. The client is asked to press her lips together while pressing her teeth tightly and hold
4. The client is asked to make the letter "O" on the lips
5. The client is asked to press the head backward
6. The client is asked to bend and lower the chin
7. The client is asked to hold hands while making a fist
8. The client is asked to bend both wrists backward
9. The client is asked to hold both hands together and bring her fists to her shoulders
10. The client is asked to raise both shoulders towards her ears as high as possible
11. The client is asked to lift her body from the chair
12. The client is asked to pull in her stomach as hard as she can
13. The client is asked to pull the stomach in
14. The client is asked to straighten both sides of the leg.

According to the schedule planned with the client, therapy is carried out every day in the morning, so this therapy is carried out once a day. The therapy was practiced in a comfortable position sitting in a place that the client would be undisturbed for 10-15 minutes. The researchers asked the client to focus her attention on each of the movements in the list above, tense each muscle group and notice how that muscle feels when it is tensed, hold this tension for five seconds while breathing in then released and relaxed that muscle all at once. The client should pay close attention to the feeling of relaxation when releasing the contracted muscle. This therapy is used to reduce chronic pain experienced by the client. progressive muscle relaxation therapy can reduce sympathetic nerve activation, which results in decreased respiratory rate, blood pressure, and heart rate. Evidence that progressive muscle relaxation therapy can be done is a response from tension and the body in doing relaxation techniques that can reduce headaches, insomnia, joint pain and irritation syndrome (McCallie, Blum, & Hood, 2006). Progressive muscle relaxation therapy is done with full attention which is a management technique stress that can reduce negative thoughts worries (Feldman, Greeson, & Senville, 2010). The effects of progressive muscle relaxation in pulmonary patients did not make changes but this therapy was able to reduce anxiety and depression for his illness (Lolak, Connors, Sheridan, & Wise, 2008). Baird & Sands (2004) found that the effectiveness of progressive muscle relaxation in osteoarthritis could reduce pain and difficulty in do activities. Study conducted by (Rausch, Gramling, & Auerbach, 2006) found that progressive muscle relaxation training by providing stress induction for 1 minute and 10 minutes of treatment therapy found a decrease in anxiety in respondents.

After being given nursing action in the form progressive muscle relaxation therapy with 14 movements, the evaluation results proved a significant change from the first day to the third day. On the third day, the dizziness and pain in the client's head decreased and the pain scale decreased from scale 7 to scale 5, and the client was able to carry out progressive muscle relaxation techniques independently, the client's blood pressure changed from 180/90 mmHg to 160/80 mmHg. The client

stated that after the therapy, she became calmer and relaxed. The result is aligned with the research conducted by Ayu (2020), showed that progressive muscle relaxation therapy is efficient in reducing pain, where during therapy, hypertension sufferers are trained to concentrate, regulate breathing and maintain a relaxed condition. Apart from that, a research carried out by Apriliani & Amira (2023) stated that apart from not requiring costs, progressive muscle relaxation therapy is easier to apply for the elderly because it is related to movement exercises which can help muscle movement and joint movement compared to other relaxation therapies. The author's application of progressive muscle relaxation therapy to client Mrs. T is also in line with the research by Eyet, Zaitun, Ati (2018) which stated that progressive muscle relaxation therapy can reduce anxiety, muscle tension, blood pressure and oxygen demand in hypertensive patients.

On the other hand, the implementation carried out in accordance with sleep pattern disturbances intervention, namely sleep support. This study showed that on the third day, the client stated that she felt more comfortable, relax, was able to sleep 6 hours, and take a nap for 1 hour by listening to music before going to bed. The client understands the dangers of not sleeping and what can and cannot consume before going to bed. The results of this research are in accordance with the Ministry of Health (2018) which stated that the elderly's need for sleep will continue to decrease, only 7 hours per day is enough and for elderly people aged 60 years and over, the need for sufficient sleep is only 6 hours per day. Sleep is essential for health; insufficient sleep and untreated sleep disorders are harmful for health and well-being. Sleep patterns change with aging, independent of other factors, and include advanced sleep timing, shortened nocturnal sleep duration, increased frequency of daytime naps, increased number of nocturnal awakenings and time spent awake during the night, and decreased slow wave sleep. The sleep-related hormone secretion changes with aging. This study is in line with a research conducted by Ayu (2020) stated that listening to music can influence a person's thoughts, feelings and personality in overcoming sleep pattern disorders due to the sound they feel. Apart from that, avoid consuming alcoholic drinks and spicy food. This author's advice is supported by research results from Natalia & Nugraha (2019) to avoid consuming foods that disturb sleep, such as consuming coffee and alcohol, drinks containing caffeine and spicy foods before bed because these types of food and drinks can make the digestive system work harder.

CONCLUSION

Factors affecting the client Mrs. T has chronic pain hypertension due to aging process and anxiety, the client is 59 years old. The assessment data showed that the client experienced hypertension with chronic pain nursing problems. Nursing evaluation that has been carried out for three days, such as health education, demonstrating progressive muscle relaxation therapy exercises, and accompanying client in accordance with standard operating procedures to reduce client discomfort, namely chronic pain headaches and sleep pattern disturbance. Based on the research results, it can be concluded that progressive muscle relaxation therapy has an effect on reducing chronic pain headaches and lowering blood pressure in the elderly people with hypertension. Thus, this progressive muscle relaxation therapy can be applied to elderly people with hypertension as a complementary therapy. Apart from that, this intervention is also a way to control blood pressure in order to minimize the negative impact of hypertension in the elderly. Sleeping support by listening to music can be used as a therapy that can divert pain and anxiety to client and provide a sense of comfort and relaxation. It was proven that client feels better during the three days the client's nursing actions were carried out. The clients felt the decrease in pain scale and blood pressure.

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