
Original Articles: Case Study

**REDUCING BLOOD PRESSURE IN ELDERLY WITH STAGE 2 PRIMARY
HYPERTENSION USING SLOW DEEP BREATHING EXERCISE INTERVENTION**

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Article history:

Received: February, 01, 2023

Accepted: May, 16, 2023

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Keywords:

*Elderly, Hypertension, Slow Deep
Breathing Exercise.*

Page Number: 13-20**Abstract**

Background: Elderly with hypertension is a phenomenon that is currently widely encountered in society. Uncontrolled hypertension in the elderly can cause various conditions that will affect the productivity and quality of life of the elderly.

Objective: The purpose of this scientific work is so that students are able to carry out gerontic nursing care, namely assessment, diagnosis, intervention, implementation and evaluation in the elderly with hypertension.

Methods: The method used is a case study of nursing care for the elderly with hypertension. This research was conducted by providing slow deep breathing exercise interventions to the elderly with hypertension as an effort to reduce blood pressure. There is non-pharmacological nursing care to maintain normal blood pressure so that the elderly can maintain their condition. Slow deep breathing exercise is a relaxation technique to lower blood pressure.

Result: After being given the slow deep breathing exercise intervention to the client for 11 days and carried out 2 times a day there was a decrease in blood pressure in the client with the average decrease in systolic blood pressure in the client was 16.7 mmHg and the average decrease in diastolic blood pressure in the client was 6,7 mm Hg.

Conclusion: It is recommended for nurses to provide slow deep breathing exercise therapy to elderly clients with hypertension as a companion to hypertension treatment to reduce blood pressure.

INTRODUCTION

Elderly with hypertension is a phenomenon that is currently commonly found in society. Elderly with hypertension is defined as people aged over 60 years with a systolic blood pressure of more than 140 mmHg and a diastolic of more than 90 mmHg. Hypertension is the most common and common cardiovascular disease experienced by society, so that it is currently a health threat for a person because it has the potential to cause various complicating conditions such as coronary heart disease, stroke and kidney failure (Ministry of Health RI, 2019).

According to *the World Health Organization* (WHO) in 2021 around 1.28 billion people aged 30 to 79 years worldwide suffer from hypertension and most of them are in regions or countries with low and middle income (WHO, 2021). Based on the 2018 Basic Health Research (Riskesmas) the prevalence of hypertension in Indonesia occurs in the age group 31-44 years of 31.6%, ages 45-54 years of 45.3%, and ages 55-64 years of 55.2%. Based on these data, the elderly group in Indonesia has the highest prevalence of hypertension (Ministry of Health RI, 2019). Based on the results of a study conducted at RW 02 Klampok Village, Singosari District, it was found that from 33 elderly who attended the Elderly Posyandu, 9 elderly (27.3%) had normal blood pressure, 8 elderly (24.2%) were included in the pre-hypertension category, hypertension stage 1 as many as 9 elderly (27.3%), and hypertension stage 2 as many as 7 elderly (21.2%).

Hypertension is often referred to as the *silent killer* because people who have hypertension often have no symptoms so they are not aware of this disease. Even though it is not contagious, hypertension has a fairly high mortality rate as a result of the complications it causes and affects a person's productivity and quality of life (Hasnawati, 2021). Elderly with uncontrolled hypertension will cause various conditions such as stroke, myocardial infarction, kidney failure, encephalopathy, and seizures. A serious complication of hypertension is death resulting from blockage and rupture of blood vessels in the brain. Therefore, it is important for elderly people with hypertension to take measures to control hypertension by controlling their blood pressure regularly, making prevention with healthy lifestyle changes, and taking adequate medication (Sahar et al., 2019).

Several studies have shown that a non-pharmacological approach in the form of *slow deep breathing exercise interventions* is effective for people with hypertension. According to research conducted by Aritonang (2020) shows that in addition to lowering blood pressure, giving slow deep breathing exercises for four days and doing them four times a day has an effect on reducing the headache scale. In addition, other studies state that there is a significant decrease in blood pressure in elderly hypertensive patients after being given a *slow deep breathing exercise intervention* (Andri et al., 2021).

Slow deep breathing exercise is a relaxation technique that can affect the nervous system and regulate blood pressure. This relaxation technique can also be used as an alternative therapy, exercise or treatment for hypertensive clients (Sumartini & Miranti, 2019). *Slow deep breathing exercise* which is done regularly can increase blood flow in hypertensive clients thereby reducing blood pressure. The best results will be obtained if it is done regularly (Andri et al., 2021).

From this description the researchers were interested in *intervening slow deep breathing exercise* in the elderly with hypertension in Klampok Village, Singosari District.

METHODS

Study Design

This study used a case study technique in the form of nursing care for the elderly with hypertension with ineffective health management nursing problems.

Settings

The case study was conducted in RW 02, Klampok Village, Singosari District, Malang Regency.

Research subject

The participant is Mrs. S who is 71 years old.

Instruments

Data collection in this study used the format of nursing care owned by the Nursing Study Program, Faculty of Medicine, Brawijaya University. In its implementation, the research subjects were given a treatment in the form of slow deep breathing exercise. The treatment given to the research subjects was carried out for 11 days. After the 11 days of treatment, the researchers conducted an evaluation related to blood pressure.

Data collection

This research was conducted by providing slow deep breathing exercise interventions to the elderly with hypertension as an effort to reduce blood pressure. The treatment given to the research subjects was carried out for 11 days. After the 11 days of treatment, the researchers conducted an evaluation related to blood pressure.

Data Analysis

The data analysis used in this study is descriptive analysis based on data in the format of nursing care.

Ethical Consideration

The implementation of this case study activity has received approval and supervision from the Nursing Science Study Program, Faculty of Medicine, Brawijaya University.

RESULTS**Patient Assessment Analysis**

Based on the results of the study, it was found that Mrs. S was 71 years old, was Muslim and had her address at Jl. Raya Klampok RT 04 RW 02 Singosari complained he often feels dizzy and has headaches when his blood pressure is high. The client says sometimes it's hard to sleep because of his complaints. Hypertension in Mrs. S is hypertension level 2 because her blood pressure is 200/110 mmHg.

Analysis of Emerging Nursing Problems

Based on the results of the assessment of nursing diagnoses that are upheld, namely ineffective health management. This problem arises because clients lack information about hypertension, hypertension treatment, and how to lower blood pressure using relaxation techniques.

Nursing Action Analysis on Nursing Diagnosis

In planning nursing care that will be carried out to Mrs. S with the problem of ineffective health management nursing, the researchers set goals after nursing actions were carried out, namely increasing health management and increasing knowledge levels. The output of the nursing actions that will be carried out on the client is that the client can implement a hypertension control treatment program and also has no difficulty becoming a care/ treatment program.

Analysis of Nursing Actions According to Research Results

In interventions aimed at clients, researchers use slow deep breathing exercise. This is because slow deep breathing exercise is a non-pharmacological therapy that can be performed on patients with primary hypertension and can also provide a sense of comfort so as to reduce tension in sufferers of hypertension (Izzati et al., 2021). Researchers do slow deep breathing exercise to clients for 11 days and do it 2 times a day. On the first day the researchers taught the client slow deep breathing exercise and evaluated it continuously for 4 days. Then afterwards the researcher gave the client the opportunity to do slow deep breathing exercise independently and was evaluated on the 8th and 11th day.

Nursing Evaluation Analysis

In the application of slow deep breathing exercise carried out by researchers, it was found that there was a decrease in blood pressure after the intervention of slow deep breathing exercise.

Table 1. Client's Blood Pressure Before and After Slow Deep Breathing Exercise.

Date and time	Before slow deep breathing exercise	After slow deep breathing exercise
Wednesday, May 25, 2022	200/110 mm Hg	180/100 mm Hg
Thursday, May 26, 2022	180/100 mm Hg	170/90 mm Hg
Friday, May 27, 2022	180/100 mm Hg	160/90 mm Hg
Saturday, May 28, 2022	200/110 mm Hg	180/100 mm Hg
Wednesday, June 01, 2022	180/90 mm Hg	160/90 mm Hg
Saturday, 04 June 2022	170/90 mm Hg	160/90 mm Hg

It can be seen in the table that there is a decrease in blood pressure in the client after the slow deep breathing exercise intervention. The average decrease in systolic blood pressure for clients is 16.7 mmHg and the average decrease in diastolic blood pressure for clients is 6.7 mmHg. A decrease in blood pressure can occur because the client feels comfortable doing slow deep breathing exercise. This exercise can reduce tension so that blood pressure can decrease.

DISCUSSION

Patient Assessment Analysis

Hypertension in the client can be referred to as primary hypertension characterized by increased blood pressure caused by age. The increase in blood pressure in a person can be influenced by the age factor. As you get older, it will affect the elasticity of a person's arterial walls, this affects blood pressure regulation and causes blood pressure to increase (Anggreini, 2021) .

At the time of the assessment it was known that the client sometimes forgot to take the medicine and only realized after the next day there were complaints. Even though hypertension medication should be taken on a regular basis to maintain blood pressure stability in order to avoid various complications of hypertension. Apart from the client not knowing the importance of taking medication regularly, the client also has never known non-pharmacological techniques to be able to lower blood pressure. It is important for clients to know non-pharmacological techniques as a treatment companion to maintain the stability of the client's blood pressure.

Analysis of Emerging Nursing Problems

The lack of information obtained by the client results in the client having minimal knowledge about hypertension so that the client does not undergo an appropriate treatment/ medication program. If this problem is not resolved properly it can cause the client's blood pressure to rise, causing various complaints to the client such as headaches, dizziness and insomnia.

Nursing Action Analysis on Nursing Diagnosis

The intervention plan that will be carried out to clients is health education and family involvement in client care. Health education for clients focuses on hypertension in clients, the importance of routine hypertension treatment and also relaxation techniques of slow deep breathing exercise as a non-pharmacological technique to reduce blood pressure in clients. The family is involved in client care because the family has an important role for the elderly to maintain their health. The family will find out information about the client's condition and how to care for the client.

Analysis of Nursing Actions According to Research Results

Slow deep breathing exercise carried out by researchers is in accordance with the steps according to the University of Pittsburgh Medical Center (2003) in (Setyaningrum et al., 2018) and performed with a frequency of 2 times a day. According to research conducted by (Andri et al., 2021) shows that slow deep breathing exercise with a frequency of 2 times a day and is carried out for 5 days regularly can show significant changes in blood pressure between before and after doing slow deep breathing exercise. In addition, another study conducted by (Septiawan et al., 2018) showed that slow deep breathing exercise was carried out 2 times a day for 21 days, showing the results of differences in blood pressure values before and after slow deep breathing exercise.

Nursing Evaluation Analysis

Yanti in (Septiawan et al., 2018) explains that slow deep breathing exercise causes an increase in the activity of central inhibitory rhythms which has an impact on sympathetic output. A decrease in sympathetic output will cause a decrease in the production of the hormone epinephrine which is captured by alpha receptors so that it will affect the smooth muscle of the blood vessels so that vasodilation occurs, vasodilation in the blood vessels will reduce peripheral resistance which also causes blood pressure to fall. Therefore, slow deep breathing exercise can be used as a non-pharmacological therapy for clients with hypertension.

On the fourth day the client's blood pressure returned to 200/110 mmHg. The client revealed that last night he forgot not to take the medicine. This resulted in the client complaining of back dizziness and the back of the head feeling heavy. According to researchers, complaints that occur to clients are caused by an increase in blood pressure on clients. From this it can be concluded that in addition to non-pharmacological nursing actions in the form of slow deep breathing exercise, it is important for clients to keep taking their medicine. Doing slow deep breathing exercise and taking medication regularly can lower blood pressure so that complaints on clients are reduced.

LIMITATION

There is no limitation.

CONCLUSION

The implication of this research is for nurses to teach relaxation techniques in the form of slow deep breathing exercise to elderly clients with hypertension as a companion for taking medication to lower blood pressure so that complaints on clients are reduced. Another implication is for clients with hypertension to do slow deep breathing exercise as a routine exercise at home so that their blood pressure decreases. Nurses can provide slow deep breathing exercise therapy to elderly clients with hypertension as a companion to treating hypertension to reduce blood pressure. People who have hypertension can apply slow deep breathing exercise. There is a Standard Operating Procedure (SOP) for slow deep breathing exercise at the Public Health Care Center. Adding pain assessment in the application of slow deep breathing exercise.

AUTHOR CONTRIBUTION

Niluh Gita Dharmahita Krisnadeva: Literature review, conceptualization, methodology, investigation, resources, project administration, and manuscript drafting.

Ridhoyanti Hidayah: Literature review, conceptualization, methodology, supervise, project administration, and manuscript drafting.

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Niluh Gita Dharmahita Krisnadeva : None.

Ridhoyanti Hidayah : None.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

ACKNOWLEDGEMENT

We express our deepest gratitude to the Nursing Science Study Program, Faculty of Medicine, Brawijaya University and the respondent who greatly help with our successful research.

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