Using slow deep breathing for patient with hypertension having ineffective Tissue Perfusion

Abstract
Hypertension is blood pressure that exceeds normal limits where systolic blood pressure > 140 mmHg and diastolic blood pressure > 90 mmHg. To overcome this, it is necessary to do non-pharmacological therapy, namely the application of Slow Deep Breathing Exercise. This study aims to apply the application of Slow Deep Breathing Exercise to decrease blood pressure in patients with hypertension with ineffective brain tissue perfusion. The method used in this research is a case study, with a sampling technique that is purposive sampling. The results of this study indicate that the application of Slow Deep Breathing Exercise can reduce blood pressure in patients with hypertension with ineffective brain tissue perfusion. The application of Slow Deep Breathing Exercise can lower blood pressure by activating the autonomic nerves so that vasodilation occurs in blood vessels.

Keywords: hypertension, nursing intervention, nursing care, complementary therapies, community practice, health care

Introduction
Hypertension is blood pressure that exceeds normal limits where systolic blood pressure is > 140 mmHg and diastolic blood pressure is > 90 mmHg (Russo, Santarelli, & O’Rourke, 2017). Hypertension is a non-communicable disease and has a high prevalence and is increasing. The prevalence of hypertension in 2018 reached 30% of the total population and is the biggest cause of death at 7.1 million per year (Andri et al., 2018). The World Health Organization (WHO) states that from the entire population in the world, the incidence of hypertension causes 7.5 million deaths and 12.8% of all deaths (Sartika et al., 2018). In 2018 the prevalence of hypertension sufferers in Southeast Asia reached 36%, while in Indonesia it was 34.1% of the population, which increased from the previous figure in 2013 which was 25.8%. Hypertension attacks the population of Central Java by 35% of the population (Purwono et al., 2020).

The causes of hypertension are age, gender, genetics, obesity, smoking and comorbidities such as Diabetes Mellitus (Singh, Shankar, & Singh, 2017). Hypertension is a major problem because the prevalence of hypertension continues to increase and there are still many hypertension patients who have not received treatment or who have been treated, but blood pressure cannot reach the target. In addition, hypertension is considered a major problem because of complications that can increase morbidity and mortality. Hypertension that is not treated immediately will cause several complications, namely heart failure, kidney failure, stroke, and cerebrovascular disease (Berek, 2018). Complications of hypertension can cause the death of 9.4% of the world’s population (Khanal et al., 2019).

Treatment of hypertension can be done pharmacologically and non-pharmacologically. Pharmacological treatment is treatment carried out by giving antihypertensive pharmacological drugs. While non-pharmacological treatment can be done with relaxation, exercise, and therapy. Non-pharmacological relaxation treatments include Autogenic Relaxation, Finger Clasp...
Relaxation, Deep Breathing Relaxation, and Slow Deep Breathing. The application of Slow Deep Breathing Exercise is an activity to regulate breathing slowly and deeply whose activities are realized by the perpetrator (Kalaivani, Kumari, & Pal, 2019). This exercise can affect the autonomic nerves and can cause vasodilation in blood vessels, so that oxygen to the brain is not blocked. The study is important as this will help nurses integrating the intervention to the patient. A number of clinical studies described that deep breathing may reduce the blood pressure (Yau & Loke, 2021; Nuckowska et al., 2021). This can overcome the ineffective perfusion of brain tissue. Therefore, the Slow Deep Breathing Exercise application can be used to reduce blood pressure of people with hypertension. It is hoped that this study bring a fresher perspective of using complementary therapy in nursing.

Method

In this study, the case study method was chosen, while the respondent sampling technique used was purposive sampling. Respondents selected were patients aged 55 years who suffered from hypertension grade I. Data collection in this study was taken using participatory observation methods, unstructured interviews, and documentation. Data collection tools are SOP (Standard Operating Procedure) application of Slow Deep Breathing Exercise, blood pressure measurement using manual tension meter and stethoscope. In addition, data was collected through documentation in the form of previous medical history data. This study uses a qualitative research approach and a research strategy in the form of a case study, while the respondent collection technique used is purposive sampling. The sampling technique used is purposive side, the sample taken is a male patient aged 55 years who suffers from hypertension grade I with a blood pressure of 150/90 mmHg. Data collection in this study was taken using participatory observation methods, unstructured interviews, and documentation. This activity is carried out directly by providing nursing care to respondents, conducting interviews at the time of data collection, conducting physical examinations, and performing interventions on patients with data collection tools in the form of SOP (Standard Operating Procedures) application of Slow Deep Breathing Exercise, blood pressure measurement using blood pressure manual meter and stethoscope. In addition, data was collected through documentation in the form of previous medical history data.

Result

The data obtained from the study on June 1, 2021 at 07.30 WIB showed that the respondent was Mr. W, 55 years old. Address in Pogalan, Pakis, Magelang, the patient works as a farmer. Clients often complain of frequent headaches, shoulders feel heavy, headaches increase when the client is tired and when he can’t sleep at night. The patient said he had hypertension for the past 7 years, but had never checked his health regularly. The client’s lifestyle has never smoked, and rarely does exercise. The client said that when he felt dizzy he was only made to rest. At the time of the assessment, the data obtained were blood pressure 150/90 mmHg, pulse 88x/minute, temperature 36.5° C, and respiration 20x/minute. Based on an assessment that was carried out on June 1, 2021 at 07.00 WIB, data on the problem of Ineffective brain tissue perfusion was obtained. Subjective data, the client said that for about 7 years since 2014 he had
hypertension, the client said his head was often dizzy and his shoulders felt heavy, the client said the dizziness increased when he was tired and couldn’t sleep at night, the client said if the dizziness didn’t go away, the client check with the nearest nurse. The objective data obtained were Blood Pressure: 150/90 mmHg, Pulse 88x/minute, Temperature 36.5°C, and Respiration 20x/minute.

In this intervention the author will discuss the nursing plan carried out on June 1, 2021 at 07.30 WIB, namely the ineffectiveness of brain tissue perfusion. The general goal is that after nursing actions for 21 visits, the client is expected to recognize the problem of ineffective brain tissue perfusion. While the specific goal is that after nursing actions for 21 visits, it is expected that the ineffectiveness of brain tissue perfusion will decrease, measuring blood pressure on Mr. W, the client is able to carry out routine control, and the client understands about hypertension. Nursing action plan, namely observing the client’s blood pressure, instructing the client to reduce excessive activity, recommending not to stress, teaching the client to do the Slow Deep Breathing Exercise application. Implementation carried out on Mr. W with nursing problems of ineffective brain tissue perfusion, namely the application of Slow Deep Breathing Exercise for 21 consecutive days in the morning and evening. Implementation is carried out from June 01, 2021 to June 21, 2021. In the implementation phase, the author measures the client’s blood pressure before giving the Slow Deep Breathing Exercise application, then takes the blood pressure measurement again after giving the application. Respondents’ responses when given the application, the client always feels relaxed and comfortable.

Evaluation of respondents with nursing problems of ineffective brain tissue perfusion, obtained a subjective evaluation of the client saying he did not feel dizzy, the client said his body felt relaxed after being given the application of Slow Deep Breathing Exercise for 21 days. Objective evaluation found that the client looked relaxed, the client looked calm and comfortable,
blood pressure 140/90 mmHg, pulse 80x/minute, temperature 36.5°C, and respiration 20x/minute. Analysis of the client’s Hypertension problem is resolved, with the next nursing plan is to encourage the client to carry out routine checks to the nearest health service. The graph of measuring blood pressure before and after the application of Slow Deep Breathing Exercise shows a decrease in blood pressure of 10 mmHg, from 150/90 mmHg to 140/90 mmHg (Figure 1).

Discussion

Assessment is the initial stage and the main basis of the nursing process. The assessment phase begins with data collection and the formulation of client needs or problems (Rothman, Solinger, Rothman, & Finlay, 2012). The data collected includes biological, psychological, social, and spiritual data. The focus that needs to be studied on clients with hypertension is the main complaint, current medical history, previous medical history, family medical history, physiological data, and blood pressure checks (Muntner et al., 2019). Nursing diagnoses that may appear in hypertension clients are the risk of decreased cardiac output, impaired sense of comfort, acute pain, activity intolerance, and ineffective brain tissue perfusion. Nursing diagnosis according to NANDA (2018) which was found in Mr. W was ineffective brain tissue perfusion. It can be seen from the subjective data that the client says he often has headaches, feels heavy on the shoulders, and objective data shows that blood pressure is 150/90 mmHg exceeding normal limits. Hypertension can cause disruption of blood circulation to the brain so that the supply of O2 decreases and can cause problems of ineffective brain tissue perfusion (Alosco et al., 2014).

The implementation of nursing is a series of activities carried out by nurses to help clients from the health status problem they are facing to a better health status. The purpose of this nursing implementation is to assist clients in achieving the goals that have been set which include health promotion, disease prevention and health recovery. In Mr. W with a nursing diagnosis of ineffective brain tissue perfusion, the implementation carried out was the application of Slow Deep Breathing Exercise for 21 consecutive days in the morning and evening. In the implementation phase, the authors measure the client’s blood pressure before giving the application of Slow Deep Breathing Exercise, then measure the blood pressure again after giving the application.

The results of the evaluation on Mr. W for 21 days with the diagnosis of ineffective brain tissue perfusion being partially resolved, it was found that Mr. W's blood pressure decreased from 150/90 mmHg on the first day to 140/90 mmHg on the last day. In the first week there was a problem when giving the Slow Deep Breathing Exercise application to the client. The first week was carried out on June 01, 2021 to June 07, 2021, there was no decrease in the client's blood pressure. This is because the client is experiencing stress, and has a burden on his mind.

Conclusion

The application of Slow Deep Breathing Exercise can affect the decrease in blood pressure of people with hypertension with ineffective brain tissue perfusion. The mechanism of lowering blood pressure in the application of Slow Deep Breathing Exercise can be caused by increased activity of central inhibitory rhythms which have an impact on sympathetic output. The application of Slow Deep Breathing Exercise for 21 consecutive days in the morning and evening can reduce
blood pressure by 10 mmHg. Further studies is needed to explore the benefits of this therapy in wide populations.

References