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EFFECT OF LOWER EXTREMITY MASSAGE WITH LAVENDER ESSENTIAL OIL FOR DECREASING BLOOD PRESSURE IN ELDERLY WITH HYPERTENSION IN UPTD GRIYA WERDHA SURABAYA

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ABSTRACT

Introduction

An aging process occurs naturally with many problems which is physical problems, mental, and social. One of that physical problems is the increasing of blood pressure. The name is hypertension. At UPTD Griya Werdha Surabaya, the was many elderly had hypertension, where 17 out of 54 elderly had high blood pressure. The Data indicated to need a modify nursing interventions to decrease their blood presssure.

Method(s)

This Study used pre-eksperimental design with one group pre test and test post design. Population comprised elderly who had hypertension, and the total population are 17 individuals. Samples were taken using purposive sampling who meet the criteria. And total sampling who available are 13 individuals The independent variable was lower extremity massage with lavender essential oil. The dependent variable was bood pressure. This research was carried out for 1 weeks (Januari 31th - Februari 6th, 2016). Data analysis used paired t Test with significance level $p \leq 0.05$. An instrument to used aneroid spigmomanometer.

Result(s)

Result Showed that lower ekstremity massage with lavender essential oil had significant effect to decrease blood pressure with p value = 0,000 for systolic pressure and p value = 0.01 for diastolyc pressure. It can be concluded that there is the influence of massage lower ekstremitas with lavender essential oil to decrease blood pressure for the elderly hypertension in UPTD Griya Werdha Surabaya.

Conclusion(s)

Based on research and discussion on lower extremity massage with lavender essential oil on reducing blood pressure in elderly with hypertension at UPTD Griya Werdha Surabaya, the following conclusions can be drawn: Systolic and diastolic blood pressure before intervention was given to respondents had an average value of 157.69 / 84.61 mmHg and entered the category of stage 1 hypertension.

INTRODUCTION

Hypertension is persistent blood pressure with systolic pressure above 140 mmHg and diastolic pressure above 90 mmHg. WHO in 2008 noted that around 40% of people over 25 years old in the world suffer from hypertension and this number continues to increase. Around 20% of the elderly population experiences hypertension, more than 90% of them suffer from primary (essential) hypertension where the medical cause is not determined (Smeltzer & Bare, 2001). In a study by Wang, Tiwari, & Wong in 2014 in China in middle age (45-64) the prevalence of hypertension was 36.7% and in the elderly (over 65 years) the prevalence was 56.5%, and in India from 165 subjects 75 cases (45.46%) of hypertension were found at the age of 51-60 years. Meanwhile, in Indonesia, according to Rahajeng & Tuminah (2009), of the 146,093 people in Indonesia who suffer from hypertension, 29.8% are elderly. The Ministry of Health of the Republic of Indonesia (2013) estimates that the number of cases will increase every year. Specifically, the Ministry of Health of the Republic of Indonesia (2013) stated that hypertension has become the main cause of outpatient care in the age group 45-64 and over 65 years. Up to the age of 55 years, men suffer more from hypertension than women. However, over the age of 55 years, women are more likely to suffer from hypertension (Suyatmo, 2009). Hypertension is still a major risk factor for stroke, heart failure, and coronary disease, where its role is estimated to be greater than in younger people (Kuswardhani, 2007). Given the incidence and impact of hypertension, hypertension management is carried out consisting of pharmacological therapy and non-pharmacological therapy. One of the best ways to lower blood pressure with complementary methods is with massage therapy. Massage techniques at certain points can remove blockages in the blood so that blood flow and energy in the body return to normal (Dalimartha, 2008). In this case, massage will be done on the lower extremities, namely the feet. When massaging the leg muscles, it can increase pressure on these muscles gradually to relax tension, thereby helping to smooth blood flow to the heart. Foot massage ends with massage on the soles of the feet which will stimulate and refresh the feet, thereby restoring the balance system and helping relaxation (Aslani, 2003).

Based on the explanation above, it can be concluded that the handling of blood pressure reduction in the elderly with hypertension as an effort to improve the health of the elderly in Indonesia is very important. Furthermore, research to determine the effect of massage therapy combined with lavender essential oil is deemed necessary to further optimize the handling of blood pressure reduction. Therefore, this study aims to determine the Effect of Lower Extremity Massage with Lavender Essential Oil on Reducing Blood Pressure in the Elderly with Hypertension at UPTD Griya Werdha Surabaya.

METHODS

Research design is a plan on how to collect, process, and analyze data systematically and directed so that research can be carried out efficiently and effectively according to its objectives. The research design used in this study is a pre-experimental design with a one group pre-test and post-test design research design is a research design that uses one group of subjects by taking measurements before and after treatment. The difference in the two measurement results is considered the effect of treatment. This study was conducted to determine the effect of lower extremity massage with lavender essential oil on reducing blood pressure in the elderly with hypertension at Griya Werdha UPT Social Service of Surabaya City. (Nursalam, 2013).

This study only used one sample group without using a control group. The sample group was given an initial test (pre-test) then given treatment seven times and then given a final test (post-test). O1 X1 O2

O1: observation and measurement of blood pressure before being given lower extremity massage treatment with lavender essential oil.

X1: treatment (lower extremity massage with lavender essential oil)

O2: observation and measurement of blood pressure after being given lower extremity massage treatment with lavender essential oil.

The general population in this study were all elderly people with hypertension throughout the world. Then the target population of this study is all elderly people living in UPTD Griya Werdha Surabaya who have hypertension, totaling 17 people, while to obtain an affordable population that will be used as a research sample, the target population is filtered using inclusion criteria, namely

Respondents who are diagnosed with hypertension by a doctor

1) Receive standard antihypertensive

therapy in the Calcium channel blocker, ACE Inhibitor, Thiazide Diuretic, Beta Inhibitor, alpha receptor groups from the Health Center

2) Respondents who experience primary hypertension Based on the inclusion criteria above, the number of affordable populations in this study is 13 elderly people who have hypertension in Griya Werdha Surabaya.

The sample is part of the population to be studied and is considered to have represented the population (Widiyanto, 2012). In his book, Nursalam (2013), explains that the sample requirements consist of representative (representative) and the sample must be quite large. The sample in this study was all elderly people who were included in the affordable population.

The instruments in this study were observational sheets containing respondent data from observations during the study, sphygmomanometers and stethoscopes.

RESULTS

Description of blood pressure in the elderly before lower extremity massage with lavender essential oil

Table 1. Description of blood pressure of respondents before intervention at UPTD Griya Werdha Surabaya in January 2016 (n=13)

Variabel	Median	Sd	Min-Max	95%CI
Systolic Blood Pressure Before Massage	160,00	11,658	140 – 180	150,65 - 164,74
Diastolic Blood Pressure Before Massage	80,0000	11,26601	70 – 100	77,8074-91,4234

Description of respondents' blood pressure after lower extremity massage with lavender essential oil

Table 2. Description of respondents' blood pressure after intervention at UPTD Griya Werdha Surabaya in January 2016 (n=13)

Variabel	Median	SD	Min-Max	95%CI
Systolic Blood Pressure After Massage	130,00	15,484	110-160	123,72-142,43
Diastolic Blood Pressure After Massage	80,00	10,43908	60 – 90	69,8456-82,4621

Differences in blood pressure before being given lower extremity massage with lavender essential oil and after being given lower extremity massage with lavender essential oil.

Table 3. Differences in blood pressure before being given lower extremity massage with lavender essential oil and after being given lower extremity massage with lavender essential oil at UPTD Griya Werdha Surabaya in January 2016 (n=13)

Variable	Mean Before Treatment	After Treatment	Difference	P *value*
Sistolic	157,69	133,08	24,61	0,000
Diastolic	84,6154	76,1538	8,4616	0,01

DISCUSSIONS

The selected blood pressure classification is the grade 1 range starting from systolic blood pressure of 140 mmHg and up to a range of 200 mmHg. The blood pressure of the respondents, the highest systolic pressure was 180 mmHg and the highest diastolic was 100 mmHg. The lowest systolic blood pressure was 140 mmHg and the lowest diastolic was 70 mmHg. The respondents as the subjects of this study were hypertensive patients, with an average blood pressure value in the stage 2 hypertension category. The factors that caused hypertension in this study, firstly, could be caused by age. The results showed that the average age of hypertensive patients at UPTD Griya Werdha Surabaya was in the early elderly category (60-64 years) reaching 46% and the elderly category (65-75 years). This means that the early elderly and elderly ages both have the potential for increased blood pressure. According to Harison, Wilson & Kasper (2005)

the older a person is the higher their blood pressure, so older people tend to have higher blood pressure than younger people. According to Perry & Potter (2013) stated that adult blood pressure increases with age, in the elderly systolic blood pressure increases, in connection with decreased elasticity of blood vessels. Applegate (1998) in Patminingsih (2010) stated that in general blood pressure will increase with age, especially after the age of 60 years. This happens because after the age of 45 years the artery walls will thicken due to the accumulation of collagen in the muscle layer, so that the blood vessels will gradually narrow and become stiff (Anggaraini, 2009). Furthermore, blood at each heartbeat is forced to pass through blood vessels that are narrower than usual, which will cause blood pressure to increase (Susalit, 2001). The results of research that are in accordance with these conditions were carried out by Patminingsih (2010). In his research, the results showed that the respondents with hypertension according to age were highest in the 46-60 year age group. The results of the study in Tainan City, Taiwan, showed that at the age of over 65 years, the prevalence of hypertension was found to be 60.4% (Kuswardhani, 2006). The two research results above are in line with the results of the researcher's analysis which illustrates that the characteristics of the respondents' ages on average show the early elderly and elderly categories. The second factor that can possibly cause an increase in blood pressure is gender. Based on gender, the majority of research respondents were women (54%). Female gender is one of the factors that influences blood pressure values. Women usually have higher blood pressure after menopause (Kozier, et al, 2010). This is in accordance with Stessen's research (2003) that in premenopause women begin to lose little by little the estrogen hormone that has protected blood vessels from damage. This process continues where the estrogen hormone changes in quantity according to the woman's age naturally, which generally begins to occur in women aged 45-55 years. This opinion is supported by the theory of Harrison, Wilson and Kasper (2005) which states that women who have not experienced menopause are protected by the hormone estrogen which plays a role in increasing High Density Lipoprotein (HDL) levels. High HDL cholesterol levels are a protective factor in preventing the occurrence of atherosclerosis. The protective effect of estrogen is considered to be an explanation of the immunity of women at premenopausal age. Applegate (1998) in Setyawati (2010) stated that gender affects blood pressure, namely blood pressure tends to be higher in men than women. This is due to higher renin activity in men than women. However, the results of this study have illustrated that the male gender is less than the female gender (11.1%). This is due to the age of the respondents in this study, which is ≥ 45 years. Where at this age women have entered menopause which causes women to tend to experience increased blood pressure. So the results of the study are in accordance with the analysis that the majority of respondents are women. In addition, the high number of female respondents who suffered from hypertension in this study is likely because most of the samples in this study were women.

Description of blood pressure in the elderly after being given lower extremity massage with lavender essential oil.

Giving lower extremity massage treatment with lavender essential oil to respondents with hypertension. The frequency distribution of respondents showed that blood pressure after the intervention was the lowest systolic pressure of 110 mmHg and diastolic pressure had a minimum value of 60 mmHg. Systolic pressure had a maximum value of 160 mmHg and diastolic pressure had a maximum value of 100 mmHg.

The results of the study showed that 13 respondents experienced a decrease in systolic blood pressure and 9 respondents experienced a decrease in diastolic blood pressure. No respondents experienced an increase in systolic blood pressure and did not experience an increase in diastolic blood pressure.

The results of the study above are supported by the opinion of Tarigan (2009) who stated that one of the non-pharmacological therapies to lower blood pressure is massage therapy (massage), if the therapy is carried out regularly it can lower blood pressure, lower cortisol hormone levels and reduce anxiety, so that it will have an impact on lowering blood pressure and improving body function. With massage therapy

(massage), endurance increases so that body stamina also increases. The results of this study are in line with the truth of the theory. which states that therapy (massage) can stimulate muscle tissue, eliminate toxins, relax joints, increase oxygen flow, eliminate muscle tension, thus having an impact on reducing blood pressure (Akoso, 2009).

According to Dalimartha (2008) Massage techniques in certain areas of the body can remove blockages in blood vessels so that blood flow and energy in the body return to normal. According to the researcher's assumption, in the elderly with hypertension, blockages or narrowing of blood vessels can occur, causing blood circulation throughout the body to be disrupted. This causes the body to respond physiologically to fulfill blood circulation throughout the body by increasing blood flow. By massaging the feet using lavender essential oil, it is hoped that blood flow back to the heart will be smooth and a relaxation response will be created which will provide a vasodilation effect on blood vessels and stimulate parasympathetic nerve activity which will ultimately lower blood pressure.

Differences in blood pressure before lower extremity massage with lavender essential oil and after lower extremity massage with lavender essential oil

The analysis data concluded that systolic pressure had a significance value of 0.000 and diastolic pressure had a significance value of 0.01 so it can be concluded that there is an effect of lower extremity massage with lavender essential oil on reducing blood pressure in elderly hypertensive patients at UPTD Griya Werdha Surabaya, which means that non-pharmacological therapy of lower extremity massage with lavender essential oil has a significant effect in lowering blood pressure. This shows that lower extremity massage with lavender essential oil can be used as an alternative choice in providing intervention to hypertensive patients, especially in lowering blood pressure. Based on the results of the study and theory, the researcher argues that the cause of the decrease in blood pressure after being given lower extremity massage intervention with lavender essential oil is the relaxation effect caused. Research from Holand (2001) stated that massage intervention for patients in the rehabilitation room had the effect of eliminating anxiety, a sense of calm and a relaxed condition. This decrease in blood pressure occurs because the blood vessels experience dilation and relaxation. After experiencing relaxation, the heart's pumping activity decreases, the arteries experience dilation, and a lot of fluid comes out of circulation. This will reduce the workload of the heart because people with hypertension have a faster heart rate to pump blood (Ramdhani & Putra, 2009). In this case, lower extremity massage with lavender essential oil can produce relaxation by tactile stimulation of body tissue causing a complex neuro humoral response in The Hypothalamic-Pituitary Axis (HPA) to the circuit through the nervous system pathway. Stress adaptation is regulated by the capacity of the HPA to secrete endorphin hormones that reduce the activity of the sympathetic nervous system and increase the response of the parasympathetic nerves. While lavender essential oil works to stimulate the olfactory nerve cells and affects the work of the limbic system by increasing positive and relaxed feelings. When inhaling, odor stimuli come to the sensory cells through diffusion through the air. Odor molecules bind directly through olfactory receptors or to specific binding proteins that carry odors to receptors and cause nerves to fire action potentials. All events are conveyed to the limbic system which is responsible for emotions and the brain registers as a specific odor, the brain then releases serotonin which makes physiological changes in the body, mind and soul and produces a calming effect on the body. Thus, the heart does not require strong pressure to pump and blood circulation throughout the body will be maximized (Remington, 2002).

From the results of the research that has been conducted, it shows that the blood pressure of respondents experienced a decrease in systolic pressure and a decrease in diastolic pressure. Comparison of research with Nugroho (2012) on The effectiveness of foot reflexology massage and hypnotherapy on reducing blood pressure in hypertensive patients states the same thing, that there is a decrease in systolic blood pressure and diastolic blood pressure.

CONCLUSIONS

Based on research and discussion on lower extremity massage with lavender essential oil on reducing blood pressure in elderly with hypertension at UPTD Griya Werdha Surabaya, the following conclusions can be drawn: Systolic and diastolic blood pressure before intervention was given to respondents had an average value of 157.69 /84.61 mmHg and entered the category of stage 1 hypertension Systolic and diastolic blood pressure after intervention was given to respondents had an average value of 133.08 /76.15 mmHg. and entered the prehypertension category There is a significant effect of lower extremity massage with lavender essential oil on reducing blood pressure in elderly with hypertension at UPTD Griya Werdha Surabaya with a significance value of p = 0.000 for systolic pressure and a significance value of p = 0.01 for diastolic pressure.

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