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Difference In Blood Pressure Before And After Of Effleurage Massage Preeclampsia At Suradadi Hospital Tegal Regency

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ABSTRACT

Background of study: The changes in mothers' immunity in labor normally happened. One of the changes during labor was the changes in blood pressure; on the other hand, it would cause pre-eclampsia if the changes in blood pressure exceeded normal limits. Effleurage message gave a comfortable response and increasing blood circulation so that the pre-eclampsia can be reduced. The survey showed that the significance of the number of preeclampsia patients was 187 cases (27,3%) of 685 labor patients with the average systolic blood pressure was 150 mmHg and diastolic blood pressure was 100 mmHg in 2018; while the amount of eclampsia was 27 cases (3,9%). **Objective**: The research aimed to determine the effectiveness of effleurage massage on blood pressure in patients with preeclampsia at RSUD Suradadi, KabupatenTegal. Method: The research used a quasi-experiment method by using pre and post-test without control group design. The samples consisted of 20 people that were taken using consecutive sampling technic. Result: The systolic blood pressure of respondents before message effleurage was obtained with a median value of 155 mmHg and diastolic of 100 mmHg. The systolic blood pressure of respondents after message effleurage was obtained with a median value of 140 mmHg and diastolic of 90 mmHg. Based on Wilcoxon test was obtained p-value 0,001 (systolic) and 0,003 (diastolic); both indicated that p<0,05. **Conclusion**: Effleurage massage was effective in blood pressure in patients with pre-eclampsia at RSUD Suradadi, KabupatenTegal. **Recommendation**: The labor mothers and her relatives could be applied effleurage massage for handling the enhancement of blood pressure in patients with pre-eclampsia.

Keyword :

Introduction

Childbirth is a series of events that end with the expulsion of a full-term or nearly full-term baby, followed by the expulsion of the placenta and fetal membranes from the mother's body. Childbirth is a process of expelling the results of conception that can live in the uterus through the vagina to the outside world. Changes to the mother's body system during the labor process are normal. One of the changes that occurs during labor is a change in blood pressure, if this change in blood pressure is more than the normal limit it will actually cause preeclampsia(Prawirohardjo, 2014).

Preeclampsia is a syndrome characterized by increased blood pressure and proteinuria that appears in the second trimester of pregnancy that always recovers in the postnatal period. Currently chronic hypertension is a complication of 3-5% of pregnancies, women with chronic hypertension will tend to have a greater risk (20-40%) of experiencing preeclampsia(Robson & Waugh, 2012).The incidence of preeclampsia experienced by pregnant women will also provide The impact on the baby is in the form of stunted growth in the uterus, prematurity, neonatal asphyxia, intrauterine death, increased rates perinatal mortality and morbidity. Based on the research results, stated that the condition of babies born to mothers with severe preeclampsia, namely asphyxia, low birth weight, and premature birth.

Regional Health Research Data (RISKESDAS) in 2018 noted that the mortality rate decreased by 105/100,000 live births compared to 2017, which was around 107.25/100,000 live births. Based on an audit by the Central Java government, the cause of maternal death was due to preeclampsia of around 13.47%, bleeding 19.75%, infection 4.74%, prolonged labor 3.65% and abortion 0.30%. Meanwhile, based on research on childbirth with complications at the end of the first semester of 2018 at the Tegal City Health Office (DKK), the incidence of preeclampsia was recorded at 12.79% and eclampsia at 0.51%(Balitbangkes, 2018).

Interventions that can be done to prevent risk factors that can increase the occurrence of preeclampsia in pregnant women include routine pregnancy and blood pressure checks during pregnancy, diet, adequate rest and relaxation techniques (messages). Relaxation techniques for pregnant women aim to relax blood vessels and can smooth the blood circulation system throughout the body and the fetus she is carrying(Cunningham, 2012).

To make the body relax can be done in several ways such as classical music therapy, yoga, deep breathing techniques, and message therapy. Several studies show that message therapy/massage that is done regularly can lower systolic and diastolic blood pressure, lower levels of the stress hormone cortisol, lower anxiety so that blood pressure will drop and body function will improve and preeclampsia will not occur(Muhadi, 2016).In messages there are many manipulations/techniques that can be done, one of the most common and easy to do techniques is the effleurage technique. Research conducted by Ananto (2017) states that giving effleurage massage techniques to the back and upper extremities in hypertension sufferers in Kalirejo Village, Purworejo Regency can reduce systolic blood pressure from 156.60 mmHg to 141.33 mmHg, and diastolic blood

pressure from 87.60 mmHg becomes 81.20 mmHg with p value = 0.000 (p < 0.05).

The initial survey conducted by researchers through interviews with midwives and obstetrician on duty doctors found that so far there has been no Standard Operating Procedure (SOP) on message effleurage in the management of patients with preeclampsia. So far, what has been done in the treatment of patients with preeclampsia is to give antihypertensive drugs so that the patient's condition does not lead to eclampsia. Based on the results of temporary observations at the Suradadi Regional Hospital, Tegal Regency, out of 10 patients with severe preeclampsia, 9 people (90%) were given blood pressure lowering drugs and 1 person (10%) only experienced mild preeclampsia and was advised to rest at home.

Method

This research is a type of quantitative research, with the research method used being quasi-experimental, which is research that has treatments, impact measurements, experimental units in order to conclude changes caused by treatment(Hartjarjo, 2012). The design of this study used a pre and post test without control group design. The population in this study were all preeclampsia patients at Suradadi Hospital, Tegal Regency who gave birth in April to May 2019, with an estimated number of 32 people.

The sampling technique used is consecutive sampling, which is a sampling technique that involves selecting samples from among the population over a certain period of time until the number of samples is sufficient from the number of samples that have been determined(Nursalam, 2012).The sample used is respondents who fulfill the requirements Inclusion and exclusion criteria are as follows: a. Inclusion criteria 1) Patients who want to give birth normally at Suradadi Regional Hospital Tegal Regency. 2) Patients with a diagnosis of mild-severe preeclampsia 3) The patient is willing to become a respondent. 4) Patients can communicate well. 5) Patients aged 20 – 35 years. 6) The patient is not taking anti-hypertension medication. b. Exclusion criteria 1) Preeclampsia patients with signs of decreased consciousness or seizures. 2) Patients with preeclampsia who will undergo a surgical program caesarean section. Total sampels are 20 respondens.The respondent is in a comfortable position (leaning to the left or sitting in a chair supported by a pillow/bolster). Instruct to inhale deeply through the nose and exhale through the mouth slowly until relaxed. Pour oil on your palms then rub your hands together until warm. Place both hands on the patient's back, start with a rubbing movement and move to press both sides of the back from the lumbar 5 area towards the top of the back, after reaching the upper back again from the head to the lumbar 5 area via the right and left of the back. Make up and down movements and rhythmic until 20 minutes at first stage of labor.

The univariate analysis is presented in the form of central tendency: Mean, minimum, maximum and standard deviation. While the bivariate analysis to determine the effectiveness of message effleurage on blood pressure in preeclampsia patients at Suradadi Hospital, Tegal Regency uses the Wilcoxon statistical test.

Result

Table 1. Distribution of Respondents' Blood Pressure Before Message Effleurage at Suradadi Regional Hospital, Tegal Regency, July 2019 (n = 20)

Blood Pressure Before	Mean	Median	Standar Deviasi	Min	Maks
Systolic Blood Pressure	156,50	155	14,609	140	180

Diastolic Blood Pressure	99,50	100	10,501	90	120

Based on table 1, it is known that the respondents' systolic blood pressure before message effleurage was carried out had an average value of 156.50 mmHg with a mean value (median) of 155 mmHg and a standard deviation or standard deviation of 14.609 and the lowest pressure value was 140 mmHg and the highest pressure was 180 mmHg.

Meanwhile, for the respondents' diastolic blood pressure before message effleurage, the average value was 99.50 mmHg with a median value of 100 mmHg and a standard deviation of 10.501 and the lowest pressure value was 90 mmHg and the highest was 120 mmHg.

Table 2. Distribution of Respondents' Blood Pressure After Message Effleurage at Suradadi Hospital, Tegal Regency, July 2019 (n = 20)

Blood Pressure After	Mean	Median	Standar Deviasi	Min	Maks
Sistolic Blood Pressure	137,5	140	10,699	120	160
Diastolic Blood Pressure	91,0	90	9,679	80	110

Based on table 2, it is known that the respondents' systolic blood pressure after message effleurage was carried out had an average value of 137.50 mmHg with a mean value (median) of 140 mmHg and a standard deviation or standard deviation of 10.699 and the lowest pressure value was 120 mmHg and the highest was 160 mmHg.

Meanwhile, for the respondents' diastolic blood pressure after message effleurage, the average value was 91.0 mmHg with a median value of 90 mmHg and a standard deviation of 9.679 and the lowest pressure value was 80 mmHg and the highest was 110 mmHg.

Tabel 3. Wilcoxon Test of Effectiveness of Message Effleurage on Systolic and Diastolic Blood Pressure in Preeclampsia Patients at Suradadi Hospital, Tegal Regency, July 2019 (n = 20)

Variabel	Response	N		p- value
		f	%	
Systolic blood pressure before and after *message effleurage*	Down Up Still	15 0 5	75,0 0,0 25,0	0,001
Diastolic blood pressure before and after*message effleurage*	Down Up Still	14 2 4	70,0 10,0 20,0	0,003

The results of the Wilcoxon test obtained a p-value of 0.001 <α (0.05) for systolic blood pressure and a p-value of 0.003 <α (0.05) for diastolic blood pressure, so it can be concluded that message effleurage is effective on blood pressure in preeclampsia patients at Suradadi Hospital, Tegal Regency.

Discussion

The results of the study showed that before message effleurage, the median value of systolic blood pressure was 155 mmHg and the median value of diastolic blood pressure was 100 mmHg. The results of this study are in line with Winarsih's theory (2010) which states that blood pressure is the force exerted by the blood

on the inside of the arteries when blood is pumped throughout the circulatory system. This blood pressure is important because it is the driving force for the blood to circulate throughout the body to provide fresh blood containing oxygen and nutrients to the body's organs. Blood pressure that is too high can be dangerous, this high blood pressure is called hypertension. Hypertension in labor is also called preeclampsia. Increased blood pressure is a process that occurs due to excessive and almost non-constant blood pressure in the arteries. Pressure is generated by the strength of the heart when pumping blood. Hypertension is associated with increased pressure in the systemic arterial, both diastolic and systolic or both continuously. This can be caused by blockages in the blood vessels or the elasticity of the blood vessels that begins to decrease. Maintaining stable blood pressure is very important during pregnancy or during labor(Manuaba et al., 2013).

Based on the researcher's analysis, there was no gap between the theory and the results of the research that had been conducted. Systolic blood pressure before message effleurage in this study was 180 mmHg while diastolic was 120 mmHg. This is because in childbirth there are several factors that can increase blood pressure. For mothers with primipara who have no experience of previous childbirth, it will cause anxiety and stress so that it can increase the adrenaline hormone which can increase blood pressure. Physiologically, it can also be influenced by the presence of a fetus in the mother's body so that it will increase the workload of the heart in meeting the nutritional and circulation needs of the mother herself and the fetus she is carrying, as compensation, blood pressure will increase along with increasing gestational age. During the labor process, uterine contractions occur, causing increased activity by the fetus so that the need for blood supply also increases. This causes blood pressure during labor to increase and is commonly called preeclampsia.

The results of this study are in accordance with previous research conducted by Ananto (2017) regarding the effect of message effleurage techniques on blood pressure in hypertension patients in Kalirejo Village, Purworejo Regency. It was found that the average blood pressure of 61 before message effleurage was 154.60 for systolic while diastolic was 87.6 mmHg and was included in the mild hypertension category(Ananto, 2017).Another study by Wahyuni (2014) on the effect of extremity massage with lavender aromatherapy on reducing blood pressure in elderly hypertensive patients in Grendeng Village, Purwokerto, showed that the average systolic blood pressure before the intervention was 140.00 mmHg(Wahyuni, 2014).

The results of the study showed that after message effleurage was carried out, the mean (median) value of systolic blood pressure was 140 mmHg and the mean (median) value of diastolic blood pressure was 90 mmHg.

The results of this study are in accordance with the theory that blood pressure is regulated by a series of autonomic nerves and hormones that monitor blood volume in circulation, blood vessel diameter, and heart contractions. Each of these factors is intrinsically closely related to the regulation of blood pressure in blood vessels. Blood pressure values depend on the strength of heart contractions, blood vessel diameter, and blood volume in circulation. It is stated that the effleurage technique aims to increase blood circulation, provide pressure, warm the abdominal muscles and increase physical and mental relaxation. The mechanical effect of effleurage is to help the work of the veins and cause body heat so that effleurage manipulation can function as a warm-up (warning up)(Gasibat & Suwehli, 2017).

The physiological effects of gentle rubbing in the effleurage technique stimulate the sympathetic nervous system and muscles trigger a relaxation response and increase blood return, affecting blood circulation in the deepest tissues. Effleurage is a safe, easy massage technique, does not require many tools, does not require costs, has no side effects and can be done alone or with the help of others. This technique causes a relaxation effect. This is because massage on the lower back causes relaxation of the abdominal muscles and increases blood supply, in addition to providing distraction and becoming an alternative focal point for stimulus. The relaxation experienced by the mother stimulates the brain to reduce adrenaline hormone levels and increase oxytocin production which is an important factor in the emergence of adequate uterine contractions(Chen et al., 2013).

According to the researcher's analysis, there was no gap between the research results and the theory. The results of this study indicate that after message effleurage there was a decrease in blood pressure, both systolic and diastolic pressure. Systolic blood pressure after message effleurage decreased by 20 mmHg and diastolic decreased by 10 mmHg. This is because the pressure given during the message process has a relaxing effect on the muscles and blood vessels, causing vasodilation and facilitating blood circulation to both the periphery and blood flow back to the heart, which increases the stability of blood flow so that blood pressure becomes lower and more stable.

The results of this study are reinforced by previous research conducted by Halimatussakdiyah (2017) regarding back effleurage massage (BEM) on pain and blood pressure in mothers in the first stage of labor, which stated that the average blood pressure in mothers in labor after receiving back effleurage massage was 124.33 mmHg for systolic pressure and 82.66 mmHg for diastolic pressure(Halimatussakdiah, 2017).Another study conducted by Fitriani (2015) on the effect of foot massage on reducing blood pressure in hypertension patients in the Bontomarannu Community Health Center work area, Gowa Regency, found that the median systolic blood pressure after massage was 110 mmHg with a median diastolic pressure of 79 mmHg (Fitriani, 2015).

The results of the study showed that the results of statistical analysis with the Wilcoxon test obtained a z value of -3.472 dap-value 0.001 ($p < \alpha$ 0.05) on systolic blood pressure and a z value of -2.993 and p value 0.003 ($p < \alpha$ 0.05) on diastolic blood pressure so that it can be concluded that there is effectiveness of message effleurage on blood pressure in preeclampsia patients at Suradadi Hospital, Tegal Regency. This is indicated by the response of preeclampsia patients after receiving the message, they appear calmer and can follow the delivery instructions given by the officer. The patient also said that she was no longer worried and was ready to undergo childbirth.

The results of this study are supported by the theory that severe and prolonged labor pain can affect ventilation, circulation, metabolism, and uterine activity. With each contraction, 400 ml of blood is released from the uterus and enters the mother's vascular system. This will increase cardiac output by about 10% to 15% in the second stage of labor. There are several factors that change maternal blood pressure. Blood flow, which decreases in the uterine arteries due to contractions, is redirected to the peripheral blood vessels. Peripheral resistance arises, blood pressure increases, and the pulse rate slows. In the first stage of labor, uterine contractions increase systolic pressure to about 10 mmHg(Maria A. Wijayarini, Peter I. Anugerah, Irene M. Bobak, Margaret Duncan Jensen, 2013).

High blood pressure in mothers with preeclampsia can be reduced with self-obstetric

therapy, including relaxation therapy or calming. Relaxation therapy that can be done is using massage therapy. The benefits of massage are to improve blood and lymph circulation. Where massage will help improve metabolism in the body. Massage treatment will affect the contraction of the capillary walls so that vasodilation or widening of the capillary blood vessels and lymph vessels occurs. The flow of oxygen in the blood increases, the disposal of metabolic waste is smoother so that it stimulates the endorphin hormone which functions to provide a sense of comfort(Ekowati et al., 2012).

The application of massage therapy with the effleurage technique because this technique aims to smooth blood circulation, lymph fluid and if done with gentle pressure will provide a calming effect. This is proven by the results of a significant study showing a decrease in blood pressure after being given an effleurage massage technique in preeclampsia patients at the Suradadi Hospital, Tegal Regency. The smooth blood flow is because the blood vessels experience widening (vasodilation) and the calming effect given by the massage causes blood pressure to decrease. The effleurage technique means pressing gently massaging or kneeling with the hands to smooth blood circulation. With a rhythmic massage and calm technique, gentle pressure towards the distal or downward direction. A stimulation of the abdominal skin by rubbing using the fingertips of the palms with the direction of movement forming a butterfly-like abdominal movement pattern along with abdominal breathing. Both techniques aim to increase blood circulation, provide pressure, warm the abdominal muscles and increase physical relaxation and can lower blood pressure in preeclampsia patients (Potter & Perry, 2013).

According to the researcher's analysis, there was no gap between the research results and the theory. Where the research results showed that there was significant effectiveness of message effleurage on blood pressure in preeclampsia patients at Suradadi Hospital, Tegal Regency. This is because the message with the effleurage technique provides a comfortable effect that can reduce tension during the labor process so that the metabolism and blood circulation processes can be optimal. The massage technique with effleurage provides stimulus to the abdominal muscles to reduce discomfort during uterine contractions, with this the mother can be more comfortable during the contraction process so that a vasodilation system occurs which can lower blood pressure.

This study is in line with the study conducted by Ananto (2017) which stated that giving effleurage massage techniques to the back and upper extremities in hypertension patients in Kalirejo Village, Purworejo Regency can reduce systolic blood pressure from 156.60 mmHg to 141.33 mmHg, and diastolic blood pressure from 87.60 mmHg to 81.20 mmHg with a p value = 0.000 (p <0.05). The results of this study are due to the massage treatment on the back and upper extremities can provide a relaxed response to the body and smooth the blood flow system so that this can reduce blood pressure(Ananto, 2017).

Another study conducted by Purbosari (2019), on the analysis of nursing clinical practices with innovative effleurage massage interventions to reduce pain and blood pressure in inpartu clients in the Emergency Room of Abdul Wahab Sjahranie Hospital, Samarinda, stated that innovative effleurage massage actions have been able to reduce pain complaints by an average of 3.67 points on a scale of 0-10 and average blood pressure for systolic by 14.3 mmHg and diastolic by 5.67 mmHg.(Purbosari & Ismahmudi, 2019). Other research that also supports it was conducted by Halimatussakdiyah, (2017) with the results that back effluerage massage (BEM) can reduce the intensity of pain in mothers giving birth with a value of p = 0.000, the difference in systolic

blood pressure with a value of p = 0.000, the difference in diastolic blood pressure with a value of p = 0.016. The conclusion of the study is that there is an effect of Back effluerage massage on changes in pain and maternal Blood Pressure in the first stage of labor (Halimatussakdiah, 2017).

Conclusion

There is difference in blood pressure before and after of message effleuragein preeclampsia patients at Suradadi Hospital, Tegal Regency. The systolic blood pressure of respondents before message effleurage was obtained with a median value of 155 mmHg and diastolic of 100 mmHg. The systolic blood pressure of respondents after message effleurage was obtained with a median value of 140 mmHg and diastolic of 90 mmHg.

Wilcoxon test obtained a p value of 0.001 on systolic blood pressure and a p value of 0.003 on diastolic blood pressure. The results of this study are expected to provide information and knowledge for families, so that families can apply messages with effleurage techniques in dealing with increased blood in mothers with preeclampsia.

Conflict Of Interest

The researcher states that he has no conflict of interest with anything or anyone regarding the research conducted.

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