

Article

## The Effect of Warm Footbath With Salt of Edema Under Extremity In Postpartum Pre Eclamsia

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### A B S T R A C T

Preeclampsia is a complication of pregnancy that is acute and can occur ante, intra postpartum. Ideally during the postpartum blood pressure 120/80 mmHg. However, based on the preliminary there were 73.9% who experienced lower extremity edema in postpartum preeclampsia. The purpose of this study was to analyze the effect of a warm foot bath with salt edema under extremity in postpartum preeclampsia. The research design was a quasi-experimental pre-post test with control group design. The independent variable was soaking the foot using mixed salt warm water mixed. The dependent variable was extremity edema in the postpartum mother pre-eclampsia. The population was 9 respondents. Samples taken were 9 respondents. The results in the treatment group obtained a value of  $p = 0.04$  while the control group  $p = 0.05$ . Test results obtained by Whitney  $p = 0.004$ . Based on the results of this study, it is expected that patients with extreme edema in postpartum preeclampsia should be advised to soak the foot using mixed salt warm water to improve blood circulation, especially for sufferers of lower extremity edema in postpartum preeclampsia.

## I. INTRODUCTION

Postpartum women who experience pre-eclampsia there are usually symptoms and signs such as proteinuria  $> 3\text{gr} / \text{liter}$ , systolic blood pressure  $> 140\text{ mmHg}$ , diastolic blood pressure  $> 100\text{ mmHg}$ , and edema on the face and feet. But not all postpartum mothers with cases of pre-eclampsia signs and symptoms are found simultaneously. Sometimes there is only an increase in systolic blood pressure  $> 160\text{ mmHg}$ , diastolic blood pressure  $> 110\text{ mmHg}$  and edema on the face and legs, but even if only this sign of postpartum can be diagnosed with preeclampsia. Usually, preeclampsia also occurs in pregnancies over the age of 20 weeks (Rukiyah&Yulianti, 2010)

Edema is a general and excessive accumulation of fluid in body tissues. And usually, it can be seen from weight gain and swelling of the feet, fingers, hands, and face. Mild pretibial edema is often found in normal pregnancies so it is not important to determine the diagnosis of pre-eclampsia. In addition, the increase in  $\frac{1}{2}$  kg of BB per week in pregnancy is still considered

normal, but if the increase of 1 kg per week, it is necessary to be aware of the emergence of pre-eclampsia (Wilyani, 2015).

Ideally, the normal blood pressure of the postpartum mother is 120/80 mmHg (Marmi, 2011). Postpartum in normal cases, blood pressure usually does not change. Changes in blood pressure to be lower after childbirth can be caused by bleeding. Whereas if you have a history of morbidity associated with hypertension, post-partum preeclampsia can occur (Fraser & Cooper, 2009).

Foot edema was found in 40% of normal pregnancies, 60% were found in hypertensive pregnancies, 80% occurred in pregnancies with hypertension and proteinuria (pre-eclampsia-eclampsia) (Lestari, 2018).

Based on observations conducted briefly on the last November-December in getting 23 patients suffering from preeclampsia there were 19 patients experiencing lower extremity edema (73.9%).

The causes of postpartum edema include pre-eclampsia, heart failure, reference salt and water by the kidneys, decreased plasma protein, pressure from the uterus during labor, and increased capillary permeability (Rahmawati, 2011).

During the puerperium day 1 to 28 days, the mother must be aware of the symptoms of preeclampsia. If the condition gets worse, eclampsia usually occurs, where consciousness is lost and blood pressure is very high. As a result, the brain blood vessels rupture, pulmonary edema occurs which triggers coughing up blood, all of which usually cause death. (Anggraini, 2010). The existence of problems in the mother will also affect the welfare of the baby will not get maximum care from his mother. Thus, infant morbidity and mortality will increase (Sulistiyawati, 2009).

Treatment of lower extremity edema can be done pharmacology and non-pharmacology. One non-pharmacology therapy that can be used to reduce hypertension is Healing Touch therapy and warm water soak therapy with a mixture of salt (Kamalluddin, 2010). Therapy soak the feet (foot hydrotherapy) with warm water with a mixture of salt 15 cm above the ankles for 15 minutes every morning and evening for 3 days this helps improve blood circulation by widening the blood vessels so that more oxygen is supplied to the tissue that has swelling. Improving blood circulation also facilitates lymph circulation so that it cleanses the body of poisons (Wulandari et al. 2016).

Moreover, a Footbath with warm water may increase blood flow and ambient temperature, with no increase or decrease in core temperature; and thereby could facilitate the onset of sleep and improve sleep quality (Valizadeh et al, 2015).

The purpose of this study was to analyze the effect of a warm foot bath with salt edema under extremity in postpartum pre-eclampsia at IRNA C of RSUD Syarifah Ambami Rato Ebu Bangkalan.

## II. METHODS

This study was Quasy Experimen Design, pre-post-test with Control group design in IRNA C of RSUD Syarifah Ambami Rato Ebu Bangkalan. The ethics and legality of this study were approved by the Institute of Health Science Ngudia Husada Madura.

The population of the study was all mother with edema under extremely in IRNA C of RSUD Syarifah Ambami Rato Ebhu Bangkalan. The subjects of this study were 18 women, 9 experiments and 9 control no experiment.

The research subjects were taken based on inclusion and exclusion criteria, criteria inclusion respondents are conscious, willing to be a respondent, respondents were diagnosed with pre-eclampsia who experienced edema in the extremities, criteria exclusion respondents on their feet were experiencing open wounds, bleeding, currently undergoing other complementary therapies, co-morbid diseases (diabetes mellitus, stroke, kidney failure).

This study cooperated with midwifery in IRNA C of RSUD Syarifah Ambami Rato Ebhu Bangkalan, Experiment of this study researcher. Soak the feet 15 cm above the ankles using warm water salt mixture containing MgSO<sub>4</sub> for 15 minutes morning and evening for 3 days, The data on this study collected by observation edema.

Statistical analysis was performed by using T-Test and Mann Withney Test. The data of subject characteristics were analyzed using frequencies and percentages. Univariate analyzed.

### III. RESULT

**Table 1. Treatment Group Before and After Foot Soak Using Salt Mix Water.**

Respondents	Before (Second)	After (Second)	Difference
1	9	5	4
2	7	5	2
3	5	3	2
4	5	3	2
5	7	5	2
6	5	2	3
7	7	2	4
8	5	0	5
9	7	5	2
Mean	6.33	3.33	2.89
Minimum	5	0	2
Maximum	9	5	5
Uji statistic Paired T-test Asymp sigh: 0.04			

Based on statistical tests using paired T-test with a p-value of 0.04 which means smaller than  $\alpha$  (0.05). Thus it can be stated that edema in postpartum pre-eclampsia mothers is soaked using warm water mixed with salt almost all lower extremity edema decreases in IRNA C Syarifah Ambami Regional Hospital Rato Ebu Bangkalan.

**The Effect Of Soak Using Warm Water Mixed Salt Of Edema Under Extremity In Post Partum Pre Eclampsia**

**Table 2. Control Group Before and After Without Foot Bath Using Salt Water**

Respondents	Before (Second)	After (Second)	Difference
1	7	6	1
2	7	7	0
3	5	5	0
4	5	5	0
5	7	5	2
6	5	5	0
7	7	7	0
8	8	7	3
9	7	5	2
Mean	6.44	5.78	0.88
Minimum	5	5	0
Maximum	9	7	3
Uji statistic Paired T-test Asymp sigh: 0.05			

Based on statistical tests using paired T-test with  $p$ -value of 0.05, which means the equivalent of  $\alpha$  (0.05). thus it can be stated that there is no difference in the pretest and the posttest control group without being given afoot bath using salt mixed warm water against edema in the postpartum mother pre

Based on statistical tests using the Mann-Whitney test, the value of  $p$ -value 0.006 is obtained which means it is smaller than  $\alpha$  (0.05). thus it can be stated that there was an influence before and after the foot soak using warm mixed saltwater against lower extremity edema in postpartum preeclampsia mothers.

#### IV. DISCUSSION

Based on the results of the study of the degree of lower extremity edema in postpartum preeclampsia mothers before foot bathing using the warm saltwater mixture in respondents who experienced lower extremity edema. And after soaking the feet using warm water mixed with salt, it was found that all respondents from lower extremity edema had decreased. Before and after based on statistic  $p < 0.05$ .

When blood flow to the tissues decreases, the delivery of oxygen and nutrients decreases. If the blood flow becomes very low to maintain normal tissue metabolism, the cell membrane ion pump becomes depressed. If this happens, sodium ions which usually enter the cell can no longer pump out of the cell causing water osmosis in the cell, so edema can occur in inflamed tissue (Rahmawati, 2011).

According to Batjun (2015) Soaking the feet using warm water with a conduction system occurs heat/warmth in the body will cause widening and muscle tension so that it can facilitate blood and with a salt that contains magnesium sulfate on the skin acting as a diuretic and stimulates the secretion of fluid from the body so that reduce swelling in the legs.

Physiological foot edema arises accumulation of fluid in the legs due to uterine suppression enlarged so that it inhibits venous return (Coban & Sirin, 2010; Nurhasanah, 2013). Some of the review articles are integrated to be examined accordingly in this article. Research in this article is a basic blend of research which mentions foot massage and soaking warm water can reduce foot edema.

This 20-minute frequency proved effective for reducing swelling in pregnant women because touching or rubbing or repetitive message will cause an increase in temperature in which massage will stimulate the foot nerve sensor resulting in vasodilation of blood vessels and lymph that affect increased blood flow, blood circulation smooth, reduce swelling and can mobilize muscle fibers, tendons with the skin, and cause relaxation effects (Aditya, Sukarendra, and Putu (2013) in (Afianti & Mardhiyah, 2017).

Soaking the feet in warm water will provide a relaxing effect, reduce pain and improve the ability of the instrument. Scientifically, warm water has a physiological impact on the body. The hydrostatic pressure of water on the body encourages the enlargement of blood vessels from the legs to the chest cavity and blood will accumulate in the blood vessels of the heart. Warm water will cause dilation of blood vessels, reduce blood viscosity, reduce muscle tension, increase tissue metabolism and increase permeability (Sustrani, 2006)

This is in line with the research conducted by Lestari (2018) "the application of foot massage and soaking warm water to the mixture of kencur against edema of Trimester III pregnant women in the work area of Wagon Banyumas I health center" The research design used was Quasy Experiment with non equivalent control group method design. The population was 18 respondents who experienced foot edema, with a sample of 9 treatment group respondents, 9 control group respondents with the results that the application of foot massage therapy and

warm water soak kencur mixture was effective in reducing foot edema in trimester III pregnant women.

Based on the results of the study in the group without the foot soak using salt mixed warm water against lower extremity edema in postpartum pre-eclampsia mothers from the results of pretest and posttest observation without being given a foot soak using salt mixed warm water there was no difference in the pretest and posttest control group no experiment.

The results of previous studies conducted by Wulandari (2016) Effect of foot soak using warm water with a mixture of salt and lemongrass to decrease blood pressure in patients with hypertension. The results of the study of foot bath therapy using warm water mixed with salt and lemongrass can reduce blood pressure in patients with hypertension. The research design used Quasy Experiment with Time Series Method Design Without Control with 86 sample respondents. Based on the Wilcoxon match pairs test results obtained a value of Value = 0.000 for that means the value of P-value  $< \alpha = 0.05$  so it can be concluded that there is the effect of soaking feet using warm water with a mixture of salt and lemongrass in patients with hypertension.

According to Mitayani (2012), Pre-eclampsia is a condition in which hypertension is accompanied by proteinuria, edema or both that occur due to pregnancy after the 20 th week or sometimes arises earlier if there are extensive hydatidiform changes in villi and corals.

Therapy soak the feet (foot hydrotherapy) with warm water with a mixture of salt 15 cm above the ankles for 15 minutes every morning and evening for 3 days this helps improve blood circulation by widening the blood vessels so that more oxygen is supplied to the tissue that has swelling. Improving blood circulation also facilitates lymph circulation so that it cleanses the body of poisons (Wulandari et al. 2016).

The use of warm water in foot bath therapy (Hydrotherapy foot) also helps stimulate dilation or dilation of blood vessels so that circulation becomes smooth which will affect ventricular pressure. Blood flow becomes smooth so that blood can be pushed into the heart so that it lowers blood pressure. In the mixture of lemongrass and salt itself has the effect of calming aromatherapy, balancing, stimulation, antidepressants, relaxes the muscles and vasodilator effects due to its oil content (Nuraini, 2014).

This has been examined by Prananto (2016), the effect of massage and foot soak using a mixture of warm salt water to reduce insomnia in the elderly by using the research method Quasy Experiment. The study sample consisted of 15 respondents in the intervention group and 15 for the control group using a sampling technique that was simple random sampling with the results of the study. The average measurement in the intervention group was 16.33 in the pre-test and post-test after 12.27. whereas in the pre-test control group it was 16.87 to 16.13, which concluded that the intervention group affected the skin and foot soak using salt mixed warm water to reduce insomnia.

## V. CONCLUSION

Soaking the feet using warm water mixed with salt can reduce edema in the legs, especially in preeclamptic postpartum mothers, because warm water mixed with salt will dilate blood vessels so that blood flow will smooth and reduce edema, it is important for midwives to get postpartum mothers who experience lower extremity edema. so you can soak warm water mixed with salt

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