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Effectiveness Aromatic Ginger With Lemongrass Hydrotherapy On Reducing Blood Pressure In Mild Preeclampsia Pregnant Women

Tuti Sukini[1)] Ulya Rahmawati[2)] Siti Maryani[3)] Ribkha Itha Idhayantii[4)]
Email : sukinituti@gmail.com

ABSTRACT

Background: The third leading cause of maternal death in Indonesia is preeclampsia, with 1,077 cases, a 2-fold increase from the previous year. Several interventions were carried out to reduce high blood pressure in pregnant women non-pharmacologically including aromatic ginger hydrotherapy and lemongrass. This therapy is easy to do independently and ingredients are easy to find in society. This study were to identify blood pressure before and after intervention and to determine the effectiveness of kencur hydrotherapy with lemongrass in reducing blood pressure in pregnant women with mild preeclampsia
Method: This research was conducted in the district of Magelang. This type of quantitative research with Quasi Experimental designs using a two group pretest posttest approach. The sample in this study were pregnant women with mild preeclampsia at the Muntilan 1 Public Health Center. The sampling technique used total sampling.
Results: The results of the Independent t-test analysis, systolic blood pressure before and after treatment obtained p value (0.000) < α (0.05), while diastolic blood pressure obtained p value (0.033) < α (0.05) means there is significant difference between the kencur group and the lemongrass group. From the results of the analysis, the mean difference was 5,750, thus kencur hydrotherapy was more effective than lemongrass hydrotherapy.
Conclusion: The results of this study are expected that health workers can provide socialization to pregnant women with mild preeclampsia to apply non-pharmacological treatment, namely with aromatic ginger hydrotherapy so that it can reduce blood pressure.

Keywords: Preeclampsia; hydrotherapy; aromatic ginger hydrotherapy

[1,2,3,4]*Department of Midwifery, Health Polytechnic of Semarang, Indonesia*
Jl. Perintis Kemerdekaan No.143 Magelang , Jawa Tengah, Indonesia

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Background. Health Mother has become very issue noticed by the world. Death Rate Mother (AKI) in 2021 experienced enhancement as many as 2,762 cases from the year then. Deaths the most mothers in Indonesia third caused by hypertension in pregnancy that is as many as 1,077 cases (Indonesian Ministry of Health, 2021) . Preeclampsia is hypertension in accompanying pregnancy symptoms with edema and proteinuria after age 20 weeks pregnant (Anam et al., 2022) .

According to WHO cases preeclampsia seven times more high in developing countries than in developed countries its prevalence namely 1.8%-18% (Ministry of Health, 2017) . There is an effort For control pressure blood high in preeclampsia use therapy pharmacology or non- pharmacological , either non- pharmacological therapy that is hydrotherapy is one of them with Soak your feet in warm water (Inayah & Anonymous, 2021) .

Hydrotherapy soaking feet in warm water can cause vessels blood will dilate increase circulation blood , so capable lower pressure blood high in mother pregnant (Arifin, 2022) . Principle theory Work therapy soak feet in warm water temperature 38-40 ° *C* for 20 minutes in a way conduction can give rise to displacement hot from warm water to in body so that vessels blood experience widening and smoothing circulation blood to all over body . (Arifin, 2022) .

How to reduce inconvenience in pregnancy like leg edema is one of them can be done with soakin warm water mixture aromatic ginger

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(Ernawati et al., 2022) . Aromatic ginger (*Kaempferia galanga L*) is type empon in group Intersections (*Zingiberaceae*) are rich in content oil essential oils and nutritious alkaloid compounds medicine . Benefit aromatic ginger including , among others jamu For look after health (Arianto, 2018) . Based on results study soak in warm water with mixture temperature 38 °C aromatic ginger done 5 days consecutive capable lower degrees leg edema in the mother third trimester of pregnancy (Zaenatushofi & Sulastri, 2019) . Besides That Galangal also contains flavonoids in the group flavonones (naringenin) viz amounting to 43.79 mg/100 g (Mustafa et al., 2010)

Lemongrass is something plants that have substance For warming, anti- inflammatory, lowering painful joints and can also expedite Genre blood. Many methods are possible applied with Lemongrass is one of them Soak your feet in warm water mixed with lemongrass. Based on results study found that therapy Soak your feet with warm water and lemongrass own influence in lower pressure blood in mild preeclampsia pregnant women, its decline systolic amounted to 3,408 mmHg and decreased diastolic amounting to 4,607 mmHg. *Wilcoxon* test on pressure systolic obtained *p value* = 0.001. Meanwhile, *the Paired t-* test on pressure diastolic produce *p value* = 0.000 then Ha is accepted and Ho is rejected, with It means that There is influence Soak your feet in warm water and lemongrass to pressure blood Mother pregnant with preeclampsia. Reducing pressure blood occurs because one efficacy lemongrass is lower pressure blood with flavonoid and alkaloid compounds contained in oil essential (Liszayanti & Rejeki, 2019) .

Retrieval of data obtained from Service Health Regency Magelang in 2021 there are Mother pregnant with preeclampsia as many as 123 people. Data from book Puskesmas register Muntilan 1 in 2022 there will be 307 mothers pregnant with age pregnancy over 20 weeks and obtained _ Mother second and third trimester of pregnancy with preeclampsia light totaling 37 people (12.4%).

Methods. This study used Quasi Experimental Design with 2 group approach study *pretest* and *posttest* (*two groups pretest posttest*) which aims For know effectiveness aromatic ginger and lemongrass hydrotherapy to reducing blood pressure pregnant women with mild preeclampsia. Amount sample in study This were 16 respondents given aromatic ginger hydrotherapy and 16 respondents given hydrotherapy lemongrass, treated to each group given for 5 days consecutive between afternoon until with Evening day before sleep, for a long period of immersion namely 15 minutes. Respondent in study This is Mother pregnant with mild preeclampsia in the work area Muntilan I Community Health Center Regency Magelang in May - June 2023. Tools measuring in study This is sheet observation aromatic ginger and lemongrass hydrotherapy as well as new digital blood pressure monitor. Analysis used namely univariate and bivariate analysis using the Paired t-test and independent *t-test* with provision testing if p<0.05 then Ha is accepted.

Result and Discussion. Based on research that has been done with title “Effectiveness Aromatic ginger With Lemongrass Hidrotherapy To Reducing Pressure Blood In Mild Preeclampsia Pregnant Women” at the Community Health Center Muntilan 1, with sample of 32 respondents consists on two groups, aromatic ginger hydrotherapy group consist of 16 respondents and lemongrass hydrotherapy group consist of 16 respondents. Study This using instruments in the form of sheet *check list* hydrotherapy galangal, sheet *check list* hydrotherapy lemongrass, and sheet observation.

Application intervention done for 5 days consecutive with duration time hydrotherapy (foot soak) 15 minutes. Water used as much as 5 liters with temperature 38ºC-43ºC, dose galangal and lemongrass are given amount of 100 grams.

Measurement pressure blood Mother pregnant before and after intervention done use still a digital blood pressure meter new. Measurement results pressure blood obtained

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before and after intervention aromatic ginger and lemongrass hydrotherapy will tested use analysis univariate and bivariate.

Table 1. Average Blood Pressure *Pre* and *Post* Aromatic Ginger Hydrotherapy

Pressure Blood	Pre	Post
Mean Systolic	151.38	136.50
Mean Diastolic	95.25	85.41
P value	0,000	0,000

Based on Table 1 shows the average pressure blood systolic in the mother pregnant before given intervention hydrotherapy aromatic ginger is 151.38 mmHg and after given treatment to 136.50 mmHg so There is decline around 14.88 mmHg. Meanwhile, the average pressure blood diastolic respondents before given treatment is 95.25 mmHg and after treatment to 85.81 mmHg so. There is reducing of 9.44 mmHg. So that hydrotherapy aromatic ginger can lower pressure blood in the mother pregnant preeclampsia light.

Analysis results with *paired t*- test, pressure blood systolic diastolic before and after intervention hydrotherapy aromatic ginger obtained mark p (0.000) < α (0.05). So Ha is accepted and H 0 is rejected which means decline pressure blood in the mother pregnant with mild preeclampsia use aromatic ginger hydrotherapy.

Hypertension in pregnancy is complications midwifery Because can endanger Mother pregnant. In a number of cases, morbidity or mortality can happened, but there are also some impactful disruption bad for the fetus including solution placenta, premature birth, failure kidney acute, bleeding intracerebral, and edema lungs (Ministry of Health, 2017) .

Non-pharmacological approach is handling beginning noticed by someone who is in therapy medicine. Non-pharmacological treatment is used for reduce impact hypertension for patient hypertension is one of them is relaxation. A number of possible relaxation done like Soak your feet in warm water, stretch breath in, divert attention with fun activity or with hypnotizing self Alone (Kurniawati et al., 2020) .

On research This use non- pharmacological therapy with do hydrotherapy galangal containing capable flavonoids give influence as a vasodilator, antiplatelet and antiproliferative and lowering pressure blood, results from oxidation and repair to existing body organs damaged consequence from hypertension (Dafriani, 2016) .

Table 2. Average Blood Pressure *Pre* and *Post* Hydrotherapy Lemongrass

Pressure Blood	Pre	Post
Mean Systolic	148.44	139.31
Mean Diastolic	93.69	86.38
P Value	0,000	0,000

Based on Table 2 shows the average pressure blood systolic in the mother pregnant before intervention hydrotherapy lemongrass is 148.44 mmHg and after treatment to 139.31 mmHg so There is decline around 9.13 mmHg. Meanwhile, the average pressure blood diastolic respondents before treatment is 93.69 mmHg and after treatment to 86.38 mmHg so There is decline of 7.31 mmHg. So that hydrotherapy lemongrass can lower pressure blood in the mother pregnant preeclampsia light.

Analysis results with paired *t -test*, pressure blood systolic diastolic before and after intervention hydrotherapy lemongrass obtained mark p (0.000) < α (0.05). So Ha is accepted and H0 is rejected which means There is decline pressure blood in the mother pregnant with preeclampsia light use hydrotherapy lemongrass.

One efficacy lemongrass is lower pressure blood, as well existing compounds in content lemongrass It has anti- hypertensive flavonoids and alkaloids contained in it extract lemongrass and contains oil essential . Study This has carried out on potential extract lemongrass as source substance can be hypolipidemic lower risk hypertension. Effect hypolipidemic recorded with subtraction real in level low lipid density in Genre blood. Mechanism soak feet in warm water with lemongrass that is there is a dilation process or widening vessels blood and get response physiologically possible increase circulation blood as well as lower

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viscosity blood (viscosity) and content Lemongrass contains flavonoids that affect Work from angiotensin converting enzyme (ACE) so that cause vasodilation and tension muscle reduced , metabolism tissue and permeability capillary increase and can lower pressure blood (Liszayanti & Rejeki, 2019) .

Table 3 Effectiveness Aromatic Ginger With Lemongrass Hydrotherapy To Reducing Blood Pressure Pregnant Women with Mild Preeclampsia Pregnant Women

	Ex	Mean	Mean Difference	P Value
Systolic Difference	Aromatic ginger	14.88	5,750	0,000
	Lemon grass	9.13		
Diastolic Difference	Aromatic ginger	9.44	2,125	0.033
	Lemon grass	7.13		

Based on table 3 shows results analysis with the *Independent t*- test, systolic blood pressure before and after intervention aromatic ginger hydrotherapy and lemongrass hydrotherapy obtained mark *p value* (0.000) < *α* (0.05), whereas pressure blood diastolic before and after intervention obtained mark *p value* (0.033) < *α* (0.05). So Ha is accepted and Ho is rejected which means There is meaningful differences between group aromatic ginger hydrotherapy and group lemongrass hydrotherapy. From the results analysis on differences systolic aromatic ginger and lemongrass hidrotherapy obtained *mean difference* worth 5,750, while the difference diastolic aromatic ginger and lemongrass obtained *mean difference* amounting to 2,125 with thereby can concluded that group hydrotherapy aromatic ginger more effective compared to group hydrotherapy lemongrass to decline pressure blood in the mother pregnant with preeclampsia light .

Conclusion and Suggestions. In the group given hydrotherapy, ginger could reduce the average systolic pressure by 14.88 mmHg, and reduce the average diastolic blood pressure of respondents by 9.44 mmHg. This means that there is a significant difference in reducing systolic and diastolic blood pressure with aromatic ginger hydrotherapy intervention.

Meanwhile, the lemongrass hydrotherapy group could reduce the average systolic pressure by 9.13 mmHg, and reduce the average diastolic blood pressure of respondents by 7.31 mmHg. This means that there is a significant difference in reducing systolic and diastolic blood pressure with lemongrass hydrotherapy intervention.

Based on this, it can be concluded that ginger hydrotherapy is more effective than lemongrass hydrotherapy in reducing blood pressure in pregnant women with mild preeclampsia.

It is recommended that non-pharmacological treatment be applied to pregnant women with mild preeclampsia using ginger hydrotherapy as an alternative for lowering blood pressure. Considering that ginger plants are easy to obtain in Indonesia, and this treatment is based on local wisdom.

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