

ORIGINAL ARTICLE:**The effect of sitting and soaking therapy with binahong leaf (*Anredera cordifolia*) decoction on perineal wound healing**

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ABSTRACT

Objective: To analyze the effect of sitting and soaking therapy with the decoction of *Anredera cordifolia* on the perineal wound healing in postpartum period mothers.

Materials and Methods: The research method used is the Quasi-Experiment with pretest-posttest control group design, a sample of 62 primiparous postpartum period mothers with 2nd-grade perineal rupture. The sampling technique used is purposive sampling to obtain 31 respondents treated by 31 respondents. The wound healing variable was observed using the REEDA scale. The characteristic analysis is tested using Mann-Whitney statistical test, while to test the effect analysis is tested using the Wilcoxon test.

Results: The results of this study in the intervention group showed 52.71% was cured after getting treatment for perineal wounds sitting and soaking therapy with the decoction of *Anredera cordifolia*. On the other hand, in the control group, using only clean water shows 27.90% recovered. Analysis data effect of using the decoction of *Anredera cordifolia* 25% containing on perineal wound healing showed results with Wilcoxon Test with value ($p < 0.05$).

Conclusion: Based on this result there is an effect of sitting and soaking therapy with the decoction of *Anredera cordifolia* on perineal wound healing for postpartum mothers.

Keywords: Postpartum period; perineal wounds; treatment; traditional medicine; decoction of *Anredera cordifolia*, sitting and soaking.

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ABSTRAK

Tujuan: Untuk menganalisis efek penggunaan rebusan *Anredera cordifolia* yang duduk dan direndam pada penyembuhan luka perineum pada ibu postpartum.

Bahan dan Metode: Metode penelitian yang digunakan adalah Quasi-Experiment dengan desain kelompok kontrol pretest-posttest, sampel 62 ibu postpartum primipara dengan ruptur perineum kelas 2. Teknik pengambilan sampel yang digunakan adalah purposive sampling untuk memperoleh 31 responden yang dirawat oleh 31 responden. Variabel penyembuhan luka diamati menggunakan skala REEDA. Analisis karakteristik diuji menggunakan uji statistik Mann-Whitney, sedangkan untuk menguji pengaruh analisis diuji menggunakan uji Wilcoxon.

Hasil: Hasil penelitian ini pada kelompok intervensi menunjukkan 52,71% disembuhkan setelah mendapatkan perawatan untuk luka perineum menggunakan rebusan *Anredera cordifolia* yang duduk dan direndam. Di sisi lain, pada kelompok kontrol, hanya menggunakan air bersih menunjukkan 27,90% pulih. Analisis data efek menggunakan rebusan *Anredera cordifolia* 25% yang mengandung penyembuhan luka perineum menunjukkan hasil dengan Uji Wilcoxon dengan nilai ($p < 0,05$).

Simpulan: Berdasarkan hasil ini ada efek rebusan *Anredera cordifolia* yang duduk dan direndam pada penyembuhan luka perineum untuk ibu nifas.

Kata kunci: Periode postpartum; luka perineum; pengobatan; obat tradisional; rebusan *Anredera cordifolia*, duduk dan rendam.

INTRODUCTION

The postpartum period is a period of recovery, starting from the time of delivery until the size of uterus turn as before pregnancy. Puerperal changes are physiological processes, but in the process, there are frequent infections caused by congenital disabilities. Perineal wounds if no proper treatment is carried out risks causing infection.¹ Based on data from the World Health Organization (WHO) in 2015 the incidence of infections caused by wound infections in the birth canal was 25-55 percent. Based on data from the Ministry of Health of the Republic of Indonesia the incidence of perineal lacerations experienced by 75% of women giving birth to vaginal infections, in 2015 found that of the total spontaneous births 57% of mothers received perineal sutures. Infection of 7.3 percent is caused by injury to the birth canal.^{2,3}

The lack of maintaining the behavior of vulva hygiene in postpartum mothers will affect the healing of perineal wounds whose effects result in infection of the perineum. Treatment by soaking the wound facilitates the cleaning process of damaged tissue and blood hemolysis faster. Alternative treatments for healing perineal wounds are the use of traditional and herbal medicines, only their use must be done carefully.^{1,4}

The Ministry of Health has a 2015-2019 strategic plan, the Community Health Center (Puskesmas) has a target for coaching and developing integration with the community based on traditional, alternative and complementary 75 percent. Utilization of traditional medicine is widely used again by the community both from plants and natural ingredients because the side effects are lower compared to chemical drugs.⁵

One of the plants commonly used for traditional medicine is binahong (*Anredera cordifolia*). As a wound medicine, the decoction of binahong leaves contains several compounds, namely saponins, alkaloids, phenolics, and flavonoids. Saponin compounds function as cleansers and can stimulate collagen I formation, which is a protein that plays a role in wound healing. The content of ascorbic acid in this plant is important to activate the prolyl hydroxylation enzyme which supports the hydroxylation stage in the formation of collagen so that it can accelerate the healing process of wounds.⁶

One factor that inhibits the process of perineal wound healing is the proliferation of bacteria that enter the perineal wound area so that there should be no bacteria that enter the perineal wound area. Natural chemical

content found in binahong leaves has antibacterial, antioxidant and anti-inflammatory activities. Flavonoids can become antioxidants, which can bind to free radicals that can damage cell membranes, making cells unable to function correctly.

With this bond, damage to the cell membrane can be reduced, and the proliferation phase in wound healing can occur very well. Flavonoids can also function as microbial destroyers, especially Gram-negative bacteria. Flavonoids have a mechanism as an anti-bacterial by forming complex compounds by damaging bacterial cell walls, which are followed by the release of intracellular compounds.^{7,8}

The Pandeglang community has cultivated many binahong plants because of its many benefits for health. So, the purpose of this study was to measure the effect of sitting and soaking with water from binahong leaves on the healing of perineal wounds in postpartum mothers. This study is expected to test and strengthen the theory of wound healing from the results of previous studies related to binahong leaf decoction water. The results of this study may become an input for health workers as a complementary treatment, the use of binahong leaf decoction water, as a complementary medicine for the treatment of perineal wounds.

MATERIALS AND METHODS

The research method used is quantitative which uses the quasi-experimental design in two groups with pre-test and post-test control group design techniques. Researchers wanted to assess the effect of sitting and soaking within the decoction of *Anredera cordifolia* on perineal wound healing. The research sample divided into two groups. The first group intervened against primiparous postpartum mothers who had second-degree perineal wounds due to rupture or episiotomy. For the treatment of perineal wound vulva hygiene was performed on the first day (pre-test). The second day (post-test) treated the perineal wound utilizing hygiene vulva first and then given binahong leaf decoction by soaking the perineal wound for 10 minutes a day two times.

Before doing the intervention, the researchers had made the decoction of binahong leaves first by boiling 50-grams of fresh binahong leaves in 1500 ml of clean water. The control group was not given binahong leaf decoction only vulva hygiene was done by washing the

vagina using clean water without using anything, then dried using a towel. The intervention and control groups continued to take antibiotics three times a day, for three days.

The target population in this study is all postpartum mothers who have perineal wounds to the second degree. Affordable populations are all postpartum women who give birth in Menes Public Health Center who usually deliver with perineal wounds due to perineal rupture or second-degree episiotomy from May 2018 to July 2018. The sampling method used in this study uses purposive sampling method. Calculations using the formula of the sample size, the total number of samples was 62 people, 31 interventions, and 31 controls.

The type of data used in this study comes from primary data. Data collection techniques start from May to July by observing postpartum mothers directly at the Puskesmas. Observations carried out from the first day to the seventh day were observed at the respondents' house in the morning and afternoon. To perform perineal care and wound healing assessment using an observation sheet based on the REEDA scale. While the control factors that influence wound healing are age, education and nutritional status, to know age and

education using questionnaires that are directly filled in by researchers to measure nutritional status by measuring with scales and meters. The bivariate analysis used in this study is the Wilcoxon test as a hypothesis tester.

RESULTS AND DISCUSSION

The results of the univariate analysis below are a description of the distribution of the characteristics of respondents. The following are the results of univariate analysis based on the characteristics of age, education, and body mass index in primiparous postpartum mothers.

There is no difference between age, education, and body mass index between the group of binahong leaf decoction and only those using clean water. Before the bivariate analysis was conducted to determine the effect of interventions on the healing of perineal wounds, a normality test was performed to determine the test to be carried out in the next analysis. Data normality test results using Shapiro-Wilk as follows and homogeneity test using Levene Test.

Table 1. Frequency distribution of subject characteristics based on age, education, and body mass index of postpartum in Menes Public Health Center, Pandeglang Regency, Banten Province

Characteristics	Control Group		Intervention Group		P value
	n	%	n	%	
Age					
< 20 years	2	6.5	1	3.2	0.655
20-35 years	28	90.3	29	93.5	
> 35 years	1	3.2	1	3.2	
Education					
Elementary School	4	12.9	2	6.5	0.185
Junior High School	7	22.6	4	12.9	
Senior High School	15	48.4	18	58.1	
Bachelor	5	16.1	7	22.6	
IMT					
18,5-24,9	23	74.2	27	87.1	0.202
< 18,5 – ≥ 25	8	25.8	4	12.9	

Table 2. Homogeneity and normality tests for perineal wound healing for postpartum in control and intervention groups

Variable	Homogeneity Test		Normality test	
	<i>Levene Test (Sig.)</i>	Terms	Shapiro-Wilk (<i>Sig.</i>)	Terms
Wound Healing				
Control	0.681	<i>Sig.</i> > 0,05	0.000	<i>Sig.</i> > 0,05
Intervention	0.681	<i>Sig.</i> > 0,05	0.006	<i>Sig.</i> > 0,05

Table 3. Effect of perineal wound healing on postpartum in intervention and control groups

Group	REEDA score		Enhancement (%)	P value
	Pre-wound	Post-wound		
	(n = 31)	(n = 31)		
Intervention	14	6.62	52.71	0.000
Control	14.55	10.49	27.90	0.000

Based on the results of the homogeneity test of the two sig value groups is 0.05 so that the data homogeneously distributed, the results of the sig value normality test < 0.05 so it is concluded that the data is not normally distributed both in the control and intervention groups so that the effect test between the control and intervention groups uses the Wilcoxon test.

Based on the table above shows the results of the level of perineal wound healing in the intervention group can be cured by 52.71% (from 14 to 6.62) after receiving treatment of perineal wounds using binahong leaf decoction, while the control group experienced a healing rate of 27.90% (from 14.55 to 10.49) who treats perineal wounds using clean water only. Analysis of post wound healing data experienced significant results with the Wilcoxon test there were differences in the average wound healing scale between the intervention and control groups, the results of the analysis were obtained by $p < 0.05$. It concluded that statistically there is an effect of using binahong leaf decoction water on perineal wound healing.

The duration of perineal wound healing has decreased both the control group and treatment on day one. However, significantly the intervention group at day six had reached the healing score value of 0. There was no redness, swelling, bleeding spots, and discharge. Moreover, wound healing heals quickly. While the control group on day six just got a healing scale score of 6, which means that only a small percentage of perineal wounds healed. The difference between intervention and control is 25%. So that the value of $p < 0.05$ obtained. There is an effect of binahong leaf decoction water on the healing of perineal wounds.

According to the researchers, the results of the analysis proved that the treatment of perineal wounds by immersion using binahong leaf decoction water affected perineal wound healing, which meant that the perineal wound treatment made it easier to clean the damaged tissue and the blood hemolysis process was faster. The process of making binahong leaves boiled water requires a long time of manufacture because its use must wait for the boiled leaves of binahong leaves to cool so that only 25% of the boiled water of the binahong leaves affects the healing of perineal wounds. Based on the theory, the wound is a continuation of a network due to injury or surgery. Wound healing in the skin describes the principles of repair for most body tissues. Perineal suture injuries experienced by 75% of women who have the vaginal delivery.^{9,10} The quality of the perineal suture wound is said to be good if there are no signs of infection, namely red, swollen, hot, painful. Perineal wounds if no proper treatment is carried out risks causing infection. Perineal wound care is very important to speed up the healing process.¹ Signs of infection in perineal wounds can be assessed using the examination of Redness, Ecchymosis (bleeding spots on wound sutures), Edema (swelling), Discharge (discharge) and Approximation (wound suture attachment).¹¹

From the results of the study proved by Widotiasari⁶ that the decoction of binahong leaves has an active compound, namely flavonoids, the pharmacological activity of flavonoids is anti-inflammatory. The anti-inflammatory mechanism occurs through inhibitory effects on the pathway of arachidonic acid metabolism, the formation of prostaglandins, release of histamine in

inflammation so that the water decoction of binahong leaves can accelerate wound healing.

Binahong leaf decoction water contains saponin. Saponin is an active compound and is like soap, and can be detected based on the ability to form foam and hemolysis of blood cells.⁸ Saponins can increase monocyte proliferation which will ultimately increase the number of macrophages that release growth factors which can reduce the size of the wound seen from edema or in other words, stimulate antigen formation so that the ecchymosis mark on the wound reduced. Saponins can also speed up the migration process of keratinocytes which have an important role in the re-epithelialization process so that the wound healing process can take place quickly.⁸ Saponins work as antibacterials by disrupting the stability of bacterial cell membranes, causing bacterial cell lysis, while the mechanism of action of saponins belongs to the antibacterial class because it disrupts the permeability of damaged cell membranes which results in the release of important components in bacterial cells, namely proteins, nucleic acids, and nucleotides, so can prevent microorganisms from entering the wound area.¹²

Ecchymosis is a small bleeding patch, wider than lesion (small, perfectly rounded purple purplish spots), forming flat, round or irregular blue or purple patches. Ecchymosis appears in the inflammatory phase occurs immediately after injury on days 0-5. The presence of trauma due to trauma or injury due to surgery results in damage to the tissue structure and results in bleeding, resulting in platelet degranulation and activation of coagulation factors.¹¹ Based on the results of the study Murni et al.¹² Test results from binahong plants contain saponin compounds in all parts of the Binahong plant, positively indicating the presence of triterpenoid saponins and steroids.

The approximation is the closeness of the sewn network. Injuries due to trauma or surgery result in damage to the tissue structure. The content of binahong leaf decoction water contained flavonoid compounds which proved to play a role in accelerating the process of unification of the tissue in the wound, where the content of flavonoid compounds is responsible through an anti-inflammatory mechanism, as inhibition of free radical activity, and increase the speed of epithelialization, ascorbic acid content supporting collagen formation, where immediately after injury, exposure to fibrillary collagen into the blood will cause platelet aggregation and activation and release of chemotaxic factors that begin the wound healing process. Collagen fragments release leukocytic

collagenase to attract fibroblasts to the wound area. Furthermore, collagen becomes the foundation for the new extracellular matrix, thus accelerating the formation of granulation tissue, and saponin content in binahong leaves to prevent infection in the wound.⁹

CONCLUSION

The boiled water of binahong leaves for sitting and soaking therapy affects the healing of perineal wounds in postpartum mothers.

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