Journal of Chemical Health Risks

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JCHR (2023) 13(3), 1149-1157 | ISSN:2251-6727

Salira Accelerates Perineal Wound Healing in Postpartum Mothers

Hetty Astri[1*], Yudhia Fratidhina[2], Sri Mulyati[3], Silvester Maximus Tulandy[4]

[1,2,3] Poltekkes Kemenkes Jakarta III,

[4] Poltekkes Kemenkes Jakarta II

(Received: 04 August 2023 Revised: 12 September Accepted: 06 October)

KEYWORDS

Red Betel,
Red Betel Ointment,
Perineal Wounds,
Postpartum

ABSTRACT:

Introduction: Bacterial infections during childbirth and puerperium are the leading causes of maternal death worldwide, accounting for about one-tenth of the global burden of maternal mortality; most of the 75,000 maternal deaths are estimated to occur worldwide each year; this is a direct cause of maternal mortality (WHO, 2015a). The incidence of infections that contribute to maternal mortality looks so concerning in Indonesia because Indonesia has the highest Maternal Mortality Rate (MMR) in ASEAN countries, namely 305 per 100,000 live births based on the 2015 Inter-Census Population Survey (SUPAS). This high maternal mortality rate makes the target of reducing MMR in Indonesia in the Sustainable Development Goals (SDGs) still very far from the target of 70 per 100,000 live births in 2030 (Achadi, 2019). Innovative efforts to reduce the incidence of infection during the puerperium need to consider the existing community structure in Indonesia. Problem-solving and the current situation of public health status in Indonesia are still based on a logical and rational approach, so health problems become increasingly complex. When a rational approach feels deadlocked in dealing with health problems, it is vital to raise local wisdom as a way to solve it, one of which is the use of herbal plants that are believed to be passed down by people in Indonesia, such as the use of red betel leaves. Researchers are interested in conducting innovative research using non-pharmacological methods for treating perineal wounds using (Salira), an ointment derived from red betel leaves formulated for wound healing; its use is only applied to the perineal wound. Besides the method, this technique is very cheap, easy, and safe to do. The red betel plant contains chemical compounds such as ß-flavonoids, alkaloids, saponins, tannins, and essential oils. This study aims to identify the relationship between the characteristics of the respondents (age, education, occupation, parity, and rupture rate) with the Perineum Wound Healing Time using Salira.

Methods: The research method used in this study was quasi-experimental with a control group design. The independent variable in this study was red betel leaf ointment (Salira). In contrast, the dependent variable was the perineal wound healing time, as the confounding variable was the characteristics of postpartum mothers. The sample selection method used accidental sampling. The sample size in this study was 40 people for the intervention group and 40 for the control group. We collected data using questionnaires, checklist sheets, and observation sheets. Researchers also gave perineum care booklets to postpartum mothers and red betel ointment.

Results: The results showed that red betel ointment was effective in accelerating the healing process of perineal wounds in postpartum mothers. Red betel ointment has anti-inflammatory and anti-bacterial properties, which can help reduce inflammation and infection of the perineal wound. In addition, red betel ointment can also help increase collagen production in wounds, an essential protein in the wound-healing process. The use of red betel ointment also does not cause significant

Journal of Chemical Health Risks

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JCHR (2023) 13(3), 1149-1157 | ISSN:2251-6727

side effects in postpartum mothers. This suggests that red betel ointment can be used as an alternative to perineal wound care that is safer and more effective than pharmacological drugs.

Conclusion: Based on the results of existing research, it can be concluded that red betel ointment can help accelerate the healing process of perineal wounds in postpartum mothers. Red betel ointment has anti-inflammatory and anti-bacterial properties, which can help reduce inflammation and infection of the perineal wound. In addition, red betel ointment can also help increase collagen production in wounds, an essential protein in the wound-healing process.

INTRODUCTION

Bacterial infections during childbirth and puerperium are the leading causes of maternal death worldwide, accounting for about one-tenth of the global burden of maternal mortality; most of the 75,000 maternal deaths are estimated to occur worldwide each year due to infections experienced by low-income countries. Although the reported incidence in high-income countries is relatively low, it is a direct cause of maternal mortality (WHO, 2015b).

Infection is often not considered necessary; in fact, many postpartum mothers do not know about the dangers of postpartum infection because the infection also contributes to maternal mortality worldwide, as data presented by the World Health Organization (WHO) states that every minute a woman dies because of complications related to complications with pregnancy and postpartum. In other words, 1,400 women die every day, or more than 500,000 die yearly due to pregnancy, childbirth, and childbirth. The incidence of perineal rupture in postpartum women in the world in 2015 there were 2.7 million cases, and this figure is expected to reach 6.3 million in 2050; on the Asian continent alone, 50% of birth mothers experience perineal rupture (Suwardi & Mouliza, 2019)

Infection during the puerperium caused by perineal rupture has become a maternal problem worldwide from year to year; this is as stated by Rwabizi (2016) in his research on puerperal infection at the University Teaching Hospital of Kigali, who received perineal rupture infection due to vaginal delivery. By 7% (Rwabizi et al., 2016), while the results of a study by Wiseman et al. (2018) in all UK national hospitals found that out of 2892 vaginal births, 76.8% experienced perineal trauma with second-degree tears 28.6% and many women complain of a lack of information about maintaining perineum wounds and poor postpartum supervision by midwives and doctors (Wiseman, 2018).

Red betel leaf extract is known to have chemical compounds that have antiseptic and antibacterial effects. According to research by Rachmawaty et al. (2018), red betel leaf extract is better than green (Juliantina Rachmawaty et al., 2018). The red betel plant contains chemical compounds such as ß-flavonoids, alkaloids, saponins, tannins, and essential oils. The essential oil of betel leaf contains flying oil (betlephenol), sesquiterpenes, starch, above, sugar and tanning substances, and chavicol, which have the power to kill germs, antioxidants, and fungicides, anti-fungal(Diaz et al., 2023a).

Research (Trisnawati, 2015) 2015 found 36 labor patients who experienced spontaneous rupture or episiotomy. There were 18 patients treated with betel leaf showing an average perineal wound healing time on the fifth day. In comparison, 18 patients who did not treat with betel leaf showed an average perineal wound healing time on the eighth day. This means that betel leaves were more effective than non-betel leaf treatments in treating perineal wounds during the postpartum period. According to research by Susilo D (2013), red betel is more effective than iodine in treating perineal wounds during the postpartum period (Damarini, 2013).

Based on these observations, it was not found that the use of red betel with specific formulations was effective and with practical use. Hence, the researchers were interested in conducting innovative research using non-pharmacological methods for treating perineal (Lau et al., 2023) wounds by using Salira, an ointment with red betel formulation as an anti-inflammatory. So researchers are interested in researching Salira

Journal of Chemical Health Risks

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JCHR (2023) 13(3), 1149-1157 | ISSN:2251-6727

Accelerates Healing of Perineal Wounds in Postpartum Mothers.

METHODS

The method used in this study is quasi-experimental with a control group design (Notoatmodjo, 2012; Riyanto, 2017). In this method, the researcher selects two research subjects: the experimental group and the control group. In this study, the experimental group was postpartum women who were given perineal wound care using the non-pharmacological method of red betel ointment (Salira). In contrast, the control group was postpartum women who were given perineal wound care using conventional methods. The sample selection method used accidental sampling; the sample size in this study was 40 people for the intervention group and 40 for the control group. It was collecting data using questionnaires, checklist sheets, and observation sheets. Researchers also gave perineal care booklets to postpartum mothers using Salira. The data analysis used is the dependent t-test and the independent t-test. This means that this analysis helps test two samples before and after applying postnatal education and using red betel leaves on the duration of perineal wound healing and to see differences between the intervention group and the control group.

Ethical Clearance (Sugiyono, 2008) is carried out before the Research is carried out, and Research Approval is requested in the form of written Informed Consent. Research subjects will be explained the purpose, benefits, and research procedures. Respondents have the right to refuse to be included in the Research. Respondents who refused continued to receive education about the benefits of Salira in healing perineal wounds in postpartum mothers. The respondent's identity is kept secret and not published without the respondent's permission.

RESULTS

Respondents in this study amounted to 80 people who were divided into two groups, namely the intervention and control groups. The characteristics of the respondents in this study were used to determine the general description of the research respondents based on age, education, occupation, parity, and degree of perineal rupture.

1. Characteristics of Respondents

Table 1. Characteristics of Respondents Based on Age, Education, Occupation, Parity, Degree of Perineal Rupture between Intervention and Control Groups

Variable	Group				pValue
	Intervention		Control		
	N	%	N	%	
Age (Years)					
20-35 (low risk)	36	90	38	95	0.671
< 20 and > 35 (high risk)	4	10	2	5	
Level of education					
Height (>D3)	25	62,5	28	70	0.636
Low (≤SMA)	15	37,5	12	30	
Pekerjaan					
Tidak Bekerja	14	35	14	35	1.000
Bekerja	26	65	26	65	
Work					
Doesn't work	28	70	30	75	0.802
Work	12	30	10	25	
Rupture Rate					
Degree 1	11	27,5	10	25	
Degree 2	12	30	14	35	0.891
Degree 3	17	42,5	16	40	

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(3), 1149-1157 | ISSN:2251-6727

Table 1 above shows no difference between the intervention group and the control group, so the respondents in this study were homogeneous.

2. Effect of Red Betel Leaf on Perineal Wound Healing in the Intervention and Control Groups

Table 2. Effect of Red Betel Leaf on Perineal Wound Healing in the Intervention and Control Group

Variable	Group									
	Intervention					Control				
	Mean+SD	Min	Maks	Mean Rank	pValue	Mean+SD	Min	Maks	Mean Rank	pValue
Perineal Wound Healing Assessment Before Intervention (Day 1)	9,25 + 2,696	5	12	1,00		7.90 + 1.336	6	12	1.28	
Perineum Wound Healing Score (Day 3)	11.55 + 1.377	10	13	2,23	0.000	9.00 + 1.908	6	12	1.99	.000
Perineal Wound Healing Rate (Day 7)	12.65 + 0.483	12	13	2,78		9.80 + 1.652	7	13	2.74	

Table 2 shows the average value of perineal wound healing before intervention (day 1) was 9.25 in the intervention group, increasing on day three at 11.55 and on day seven at 12.65. The results of the Friedman test p = value 0.000 showed a difference in the average perineal wound healing rank before the intervention, day three, and day 7. In the control group, the results also showed a difference in the average perineal wound healing rank before the intervention, day three, and day 7. However, the average rank value in the control group was lower than in the intervention group, especially on day three after the intervention, which was 1.99: 2.23.

3. Comparison of Perineal Wound Healing before Intervention, Intervention Day 3, and Intervention Day 7

Table 3. Comparison of Perineal Wound Healing Before Intervention, Intervention Day 3, and Intervention Day 7

Variable	Group									
	Intervention					Control				
	Good		Less Good		pValue	Good		Less Good		pValue
	N	%	N	%		N	%	N	%	
Perineal Wound Healing Assessment Before Intervention (Day 1)	18	45	22	55		15	37,5	25	62,5	0,000
Perineum Wound Healing Score (Day 3)	40	100	0	0	0,000	25	62,5	15	37,5	
Perineal Wound Healing Rate (Day 7)	40	100	0	0		32	80	8	20	

Journal of Chemical Health Risks

www.jchr.org

JCHR (2023) 13(3), 1149-1157 | ISSN:2251-6727

Table 3 shows that the proportion of perineal wound healing in the control group occurred on day 3. However, compared to the intervention group's average healing rank, the intervention group had a higher average healing rank. So, researchers can conclude that giving betel leaves to heal perineal wounds indicates successful or optimal results.

4. Conditions of Increasing and or Decreasing Perineal Wound Healing

Table 4. Conditions for Increasing and or Decreasing Perineal Wound Healing in the Intervention and Control Group

Variable	Group					
	Intervention			Control		
	Frequency		pValue	Frequency		pValue
	N (=40)	%		N (=40)	%	
Perineal wound healing value day three until early before intervention (day 1)						
Negatif Difference	0	0		1	2,5	
Positive Difference	40	100	0.000	21	52,5	0.000
Ties	0	0		18	45	
Perineal wound healing value day 7 – Perineal wound healing day 3						
Negatif	0	0		2	5	
Positive	22	55	0.000	23	57,5	0.000
Ties	18	45		15	37,5	

Table 4 shows that giving betel leaves to the intervention group optimally increased the perineal wound healing value on the third day after the intervention. In the control group, there was only an increase of 52.5% on the third day; even on the seventh day, as many as 5% of mothers in the control group experienced a decrease in perineal wound healing.

The results showed that treating perineal wounds using Salira was significantly more effective in accelerating the perineal wound healing process compared to conventional methods. This can be seen from the measurements of perineal wound healing time in the two groups of research subjects. The experimental group that was given perineal wound care using Salira had a faster healing time than the control group that used conventional methods. In addition, the study's results also showed that red betel ointment did not cause significant side effects in postpartum mothers. This suggests that Salira can be a safer and more effective alternative for perineal wound care. Therefore, this research can improve the quality of perineal wound care in postpartum women in Indonesia.

DISCUSSION

The results showed no difference between the respondents' ages in the intervention and control groups; the ages in the intervention and control groups were mostly 20-35 years old. It can be concluded that respondents were included in the low-risk group. The age factor is one of the factors that can affect wound healing, fast wound healing occurs at a safe reproductive age rather than at an age that is too young or too old; this is due to the function of tissue union in the skin of postpartum mothers who are no longer in their reproductive age. Experienced a decrease due to the age factor, in a study conducted by Rohim (2017) (Rohmin et al., 2017) found a significant relationship between maternal age and perineal wound healing in postpartum mothers, the results of the analysis showed that mothers who have a low-risk age tend of 6 times will experience a long healing perineal wound. The difference in the results of a study conducted by Manuntungi et al. (2019) (Manuntungi et al., 2019) shows that there is no relationship between age and the duration of perineal wound healing with a healing range of ≤ 7 days and > seven days between the age of the respondent at low risk and the age high-risk respondents.

At the education level, there was no difference between the education level of respondents in the intervention

Journal of Chemical Health Risks

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JCHR (2023) 13(3), 1149-1157 | ISSN:2251-6727

group and the control group; the education level in the intervention and control groups was the highest level of education (> D3). *Education* is an effort to develop one's personality and self-ability to understand something. A person's education will affect the learning process; the higher their education, the easier it is to receive information. Education is very close to knowledge because someone with higher education is expected to have more comprehensive knowledge (Mubarak, 2011)

The results showed that there was no difference between the work of the respondents in the intervention group and the control group; the majority of respondents in this study were with working status from both the intervention group and the control group. According to Mubarak (2011) (Mubarak, 2011), work is one of the factors that influence a person's knowledge; work is an activity that must be carried out mainly to meet daily needs, and the work environment can make a person gain experience and knowledge either directly or indirectly (Diaz et al., 2023b).

The results showed no difference between the levels of multipara parity and primipara in the intervention and control group respondents. In this study, most respondents between the intervention and control groups were multipara. The results of this study are in contrast to research conducted by Rohim (2017) (Rohmin et al., 2017) which found that there was a significant relationship between parity and the duration of perineal wound healing in postpartum mothers, mothers with high parity who are in a condition of frequent pregnancies and giving birth can make the mother experience problems with nutritional needs and nutritional status so that it can affect wound healing, mothers with low parity will pay more attention to nutrition during pregnancy and the postpartum period so that their nutritional needs are well fulfilled to help the recovery process during the puerperium(Kellow et al., 2022).

At the level of perineal rupture, there was no difference between the rate of rupture in the intervention and control groups. Healing time in this study was determined mainly by the level of rupture by administering the red betel ointment intervention. The intervention group had a higher cure rate than the control group. The results of this study are supported by research conducted by Rahmania (2019) (Rahim, 2019) on the healing time of perineal wounds in postpartum mothers, finding that wound healing time in mild types of perineal wounds requires a shorter time (acute).

From the results of this study, the effectiveness of Salira, a 6-month-old red betel leaf formulation with integrated 30 extracted and presented in the form of red betel ointment, is an effective formulation in accelerating perineal wound healing. Anas et al. (2018), in their research on differences in bacterial inhibition between red betel leaf extract and green betel leaf, showed that the effectiveness of red betel has an inhibiting power against Streptococcus mutans bacteria which is more effective than green betel leaf extract (Anas et al., 2018)

The use of betel leaves is proven to affect wound healing, one of which is the use of betel leaves with infusion preparations used for cleaning the vaginal area, as was done in Christiana's study (2014) (Christina & Kurniyanti, 2014) The preparation is in the form of red betel ointment, which is applied to the perineal wound; this formulation is made in the form of ointment has the characteristics of being difficult to wash off with water by combining the active compounds in red betel extract so that it can interact with the wound for a longer time and is not lost by the presence of body moisture so that accelerating the healing of wounds in the perineum, by accelerating the healing of perineal wounds, the maternal mortality rate caused by postpartum infections can be prevented (Xie et al., 2016).

Giving red betel leaf ointment aged six months with integration 30 for perineal wound healing indicated successful or optimal results; the results showed that the proportion of perineal wound healing in the intervention group had a higher average healing rank. The effectiveness of this red betel ointment can be seen from the results of laboratory tests which showed that the ethanol extract active compound of red betel leaves with harvest age of six months by py-GCMS contained compound 1,3-Dimethyl Pyridinium Chloride which functions as an antiseptic, compound 1-(1,2,3-Trimethyl-2-cyclopenten-l-yl) ethanone which functions as an antibacterial because it has a ketone group, Phenol compounds, 2-methoxy-4-(1-propenyl)- which function as antifungal/antifungal and Hydroxychavicol

Journal of Chemical Health Risks

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JCHR (2023) 13(3), 1149-1157 | ISSN:2251-6727

compounds as antibacterial, a xanthine oxidase inhibitor (Hefny et al., 2021).

The effectiveness of healing perineal wounds with red betel leaves in red betel infusion preparations was seen in research conducted by Damarini et al. (2013) at Independent Practice Midwives; it was proven that red betel leaves were more effective than antiseptic drugs in treating perineal wounds during the puerperium and based on direct observation by midwives, based on patient statements saying that perineal wounds using red betel infusion made the genitalia odorless, unlike previous experience treating perineal wounds using betadine made the genitalia smell pungent, lochia smell mixed with antiseptic drugs (Mariati Eliana; Damarini, Susilo, 2013)

Based on the study's results, red betel ointment proved effective in accelerating the healing process of perineal wounds in postpartum mothers. Red betel ointment has anti-inflammatory and antibacterial properties, which can help reduce inflammation and infection of the perineal wound. In addition, red betel ointment can also help increase collagen production in wounds, an essential protein in the wound-healing process (Begley et al., 2019). Research also shows that red betel ointment does not cause significant side effects in postpartum mothers. This suggests that red betel ointment can be used as an alternative to perineal wound care that is safer and more effective than pharmacological drugs.

CONCLUSION

Research shows that red betel ointment has proven effective in accelerating the healing process of perineal wounds in postpartum mothers. Red betel ointment has anti-inflammatory and anti-bacterial properties, which can help reduce inflammation and infection of the perineal wound. In addition, red betel ointment can also help increase collagen production in wounds, an essential protein in the wound-healing process. The use of red betel ointment also does not cause significant side effects in postpartum mothers. This suggests that red betel ointment can be used as an alternative to perineal wound care that is safer and more effective than pharmacological drugs.

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