

Effectiveness of Miana Leaves Extract (*Coleus Scutellarioides* Lamiaceae Benth) on Perineal Rupture Wound Healing in Postpartum Mother

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Abstract - The condition of postpartum perineal wounds is always moist by lokea, and it causes bacteria to thrive so that infection is prone. Currently, antiseptic on perineal wounds using 10% povidone-iodine has an allergic effect, so it is necessary to do research on herbal alternatives for perineal wounds, one of them is with Miana leaf extract. This study aims to prove the effectiveness of 80% Miana leaf extract on perineal rupture wound healing compared with 10% povidone-iodine in the wound healing process and decrease in the number of coccus bacteria. This study was anquasi experimental with pre-test and post-test group design. The results showed 80% miana leaf extract proved effective in the wound healing process based on REEDA scale indicators and decreased the number of bacteria compares to povidone-iodine 10%.

Keywords - Miana Leaf Extract, Povidone Iodine, Perineal Rupture Wound, Postpartum Mother, REEDA Scale, Gram Coloring.

I. INTRODUCTION

During labor, tears from the moist birth canal, passed by lokea (fluid from the uterine cavity and vagina), the wound is close to the anus where sewage is a fertile place for the development of bacteria in the perineum such as bacterii gram-positive class of coccus or other bacterial vaginosis. So that it triggers the infection and slows the healing process of the wound.^[1]

The genital tract is an area that is prone to infection; if treatment is not optimal, it can cause infection.^[2] The condition of worsening wounds in the perineum can be caused by classes of pathogenic bacteria (infection bacteria) such as the class of coccusnamely, staphylococcus epidermidis, staphylococcus aureus, enterococcus (group D streptococcus), streptococcus group B, low pathogen bacterial virulence, but in chronic wounds, it can arise due to poor wound care

Intervention treatment for perineal wound rupture is currently still using pharmacological drugs such as antibiotics, Amoxicillin, Ampicillin, and so on but the

Pharmacological drugs can cause a resistance effect. Wound compresses using antiseptics such as povidone-iodine 10% have side effects, such as pain and irritation, besides that it also contraindicated in patients with

hyperthyroidism (overactive thyroid gland) and patients with skin disease (Dhurin)^{[3],[4],[5]}

Previous research on perineal rupture wounds using povidone-iodine control and complete complementary interventions have clinically meaningful effects such as binahong leaf liquid extract (effect size 2.8), research of wallet ointment (effect size 0.6), black cumin ointment, and aloe vera (effect size 0, 1) topical administration of breast milk in perineal wounds (effect size 1,2). Previous studies have clinically meaningful results, but there has been no innovation on how they affect bacteria for the healing process of perineal rupture wounds by laboratory examination of quantification of gram dyes.

Selection of 80% miana leaves extract for perineal rupture wound treatment according to Debyin 2013 state that80% dose of miana leaves extract in microscopic testing is the most effective in decreasing the number of bacteria. Invivo research has been carried out by Marpaung in 2014 that found in the form of miana ointment at a dose of 20%, 40%, and 80% proved effective in inhibiting bacteria.^[6]

Miana leaves are plants that are easily available in Indonesian. Many Indonesian people empirically use miana leaves as traditional treatments, such as for the treatment of diarrhea, for menstrual pain (dysmenorrhea), vaginal discharge, boils/abscesses, bleeding in haemoroide / hemorrhoids, coughing, and so on. Miana leaves belong to 14 classes of medicinal plants, have 25 benefits and one of which is anti-inflammatory, antibacterial, antiviral, Cytotoxic and anti-tumor, analgesic, fungicidal, antipyretic, and immunomodulation.^[7]

The innovation of this research is to prove the effectiveness of Miana leaf extract with a maximum dose of 80% in perineum rupture wound treatment based on REEDA score and laboratory examination for bacterial inhibitory in postpartum mothers at PONED Cimarga health center, Lebak Regency – Banten

II. METHODS

A. Design

This study is a quasi-experimental research with pre-test and post-test design, which is done in PONED Cimarga health center from April until June 2018



B. Population and sample

The population in this study were postpartum mothers with perineal wounds degree 2, and by *purposive sampling* technique, the sample in this study is 38 respondents.

C. Instrument

In this study, miana leaves were extracted from Semarang State University until the researcher got the liquid extract from miana leaves. Wound observation using the REEDA scale started from 1st day, 3rd day, 5th day, and 7th day and continued with laboratory tests in Adjidarmo Hospital to determine the inhibitory of bacteria with quantification of gram dyes on 3rd and 7th days.

D. Intervention

The sample was divided into 2 groups, treatment group as much as 19 respondents were given miana leaves extract 80% 2 times a day during 7 days, and control group as much as 19 respondents were given povidone-iodine 10% 2 times a day during 7 days.

E. Data Analysis

Data analysis used t-test and Mann Whitney test.

F. Ethical Consideration

This study has been approved by the ethics committee of Poltekkes Kemenkes Semarang with no. 155/KEPK/Poltekkes-Smg/EC/2018 and each research subject examined in this study has first received and approved informed consent from the researcher.

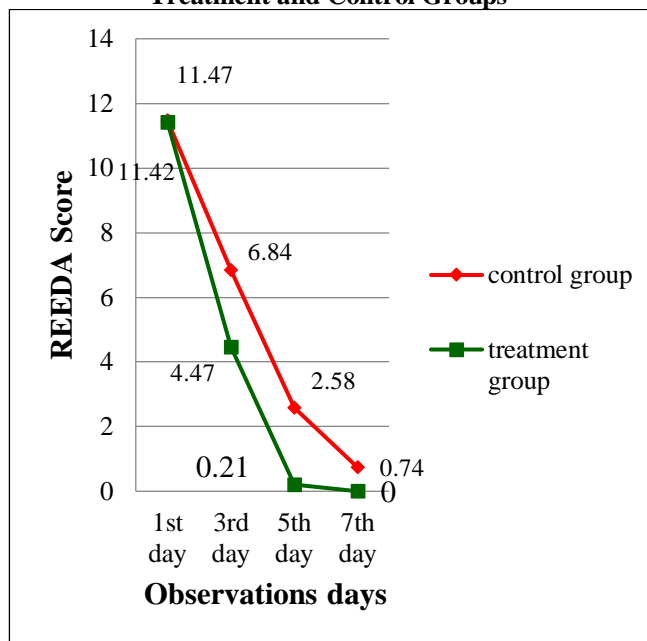
III. RESULTS

Table 1. Characteristic Frequency Distributions by Age, Anemia Status, and Nutritional Status (N:38)

		treatment	control	P
Age (years)	N	19	19	
	AVG	25,5	27,3	*0,181
	SD	3,8	5,7	
	Min-Max	22-40	18-43	
Anemia Status	N	19	19	*0,253
	AVG	10,9	10,7	
	SD	0,56	0,51	
	Min-Max	10,2-12,0	10,2-12,1	
Nutritional Status	N	19	19	*0,161
	AVG	19,3	19,6	
	SD	1,5	1,1	
	Min-Max	16,4-23,5	18,1-22,4	

Based on table 1 above, it was found that all variables (age, anemia status, nutritional status) had a p-value > 0,05. This means there is no difference in variance between both groups (treatment and control) in age, anemia status, and nutritional status.

Picture 1. Graph of Observation Time Interval on Treatment and Control Groups



Based on picture 1 above, it was found that the treatment group has a better result in wound healing score (0) compare to the control group (0,74) on the last days of observation.

Table 2. The Difference of Coccus in Control and Treatment Groups

Amount of coccus	Control group (Mean±SD)	Treatment group (Mean±SD)	p
Difference of 3rd and 7th days	1 ± 0,94	1,95 ± 1,27	0,019

***Mann Whitney test**

Because data is not distributed normally, data analysis that used was Mann Whitney test, and from table 2 above, both intervention extract miana leaves 80% and povidone-iodine 10% have significant results on reducing the amount of coccus in the perineal wound, but from table 2, it also found that treatment group who was given extract miana leaves 80% have a better result compare to control group who was given povidone-iodine 10% (1,95 ± 1,27 > 1 ± 0,94) in the difference reduced of coccus from 3rd and 7th days.

IV. DISCUSSION

REEDA score on the first day of the control group was in the same category as in the intervention group, which is > 5. These results indicate that the treatment and control group starts from the same condition of the wound before being treated. Observation of perineal wounds on the 3rd day on treatment group, the final total score was 8 with the score of the injury still heavy. But on the 3rd day, all respondents experienced a decrease with an average value of 4.47 compared to the average value on the first day,

11.42. Perineal wound observation in the control group at day 3 had an average value of 6.84. When compared to the score of the first day with the third day, there was a significant difference ($p = 0,000$).

Perineal wound observations on the 5th day of the treatment group showed a total overall REEDA score was 0 with good category there are 15 respondents and 4 respondents in the less category with a value of 1. In the control group, REEDA score 0 with good category was 1 respondent, 10 respondents in the less category and 4 respondents on the category of serious injury. The last day observation showed that in the treatment group, all respondents have a REEDA score of 0, and in the control group, there were 5 respondents in total score <5 (the wound was declared not cured) and 14 respondents with a score of 0. These results prove that the Miana group is better at the wound healing process.

Mann Whitney test from table 2 showed that both interventions, extract miana leaves 80% and povidone-iodine 10% have significant results on reducing the amount of coccus in the perineal wound, but from table 2 it also found that the treatment group who was given extract miana leaves 80% have a better result compare to control group who was given povidone-iodine 10% ($1,95 \pm 1,27 > 1 \pm 0,94$) in the difference reduced of coccus from 3rd and 7th days.

Miana leaf extract can function as an antiseptic, anti-inflammatory, and analgesic and can inhibit the growth of bacteria. Miana leaves contain flavonoids that function in the inflammatory process, and also saponins that function in increasing the formation of type 1 collagen, and terpenoids that function in removing toxins in the wound.^{[8],[9],[10],[11],[12]}

This result is in line with research conducted by Marpaung, which showed that 80% of Miana leaf extract had an inhibitory effect on the development of *Staphylococcus aureus* bacteria on incision wounds in rabbits.^[8] This result is also in line with the research conducted by Deby in 2013, which stated that miana leaf extract in vitro (microscopic test) concentrations of 5%, 10%, 20%, 80% with positive antibiotic control obtained inhibitory zone averages on bacteria with 80% concentration were 12.33%.^[6]

This means that this study answers that Miana leaf extract is more effective than povidone-iodine as an antiseptic that can inhibit the growth of bacteria, namely through one of its constituents, saponins that can form collagen type 1, which is responsible for preparing the tissue epithelium so that the wound surface becomes stronger and thicker and cannot be penetrated by bacteria. In the healing phase of remodeling or the final phase, the flavonoids contained in the leaves of miana functions to tear the walls of the bacteria in the inflammatory phase so that the inflammatory process can be accelerated. Thus the presence of bacteria can be inhibited, and the wound heals.^[13]

This study also recommends an examination of the initial identification of bacteria with gram coloring because even if it is more than 1 week, the bacteria can still be

read with a microscope, and even though the bacteria are dead, the bacteria can still be detected.^{[14],[15],[16]}

V. CONCLUSIONS

Miana leaf extract 80% proved effective for the treatment of perineal rupture wounds; this is evidenced by the REEDA scale assessment and gram color quantification, which means that the extract of Miana leaves with a concentration of 80% can be used as an alternative therapy on perineal wounds healing.

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