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Differences of Effectiveness of Povidone-Iodine and *Binahong* Leaf Stew Water on the Healing of Perineal Laceration in Postpartum Mothers

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Abstract
Background: *Based on the health and demographic survey in Indonesia, 57% of maternity women experienced rupture and surgical suture on their perineum. Efforts have been made to prevent perineal laceration by pharmacologic therapy using iodine and non pharmacologic therapy in the form of a binahong leaf. The results of early pre survey showed that there were 18 people who experienced rupture in 30 maternity women. The average duration of perineal wound healing was more than 10 days.*
The Objective: *The purpose of this research was to know the difference of effectiveness of povidone-iodine and binahong leaf stew water on the healing of perineal laceration in postpartum mother in the community empowerment working area of Lampung Selatan district health office of Indonesia in 2017.*
Method: *This study used true experimental post-test only design. The population in this study was all postpartum mothers who experienced perineal laceration community empowerment working area of Lampung Selatan district health office. Samples taken were 80 respondents which were divided into 2 groups with different interventions. Forty respondents were treated with povidone-iodine and 40 respondents were treated with binahong leaf stew water. Primary data was collected with 3 times of observation. Data analysis was done using independent T-test.*
Result: *The results of this study showed that95% of postpartum mothers who were given laceration treatment with povidone-iodine required longest wound healing for more than 7 days with an average healing time of 8 days, while 50% of respondents treated with binahong leaf stew water required 5 days in wound healing. The average duration of healing using binahong leaf was 5 days.*
Conclusions: *Based on the result of a statistical test using T-Test, it was concluded that there was a significant difference between perineal wound healing by using povidone-iodineand binahong leaf stew water.*
Keywords: *binahong leaves, perineal laceration, postpartum mother, povidone-iodine.*

Introduction

The case of perineal laceration in maternal mothers occurred in 2.7 million people worldwide in 2009. This figure is estimated to reach 6.3 million by 2050. In Asia, perinea rupture is also a considerable problem in society as 50% of the world's perineal rupture occurred in Asia. It was found out that from 1951 total spontaneous vaginal births, 57% of mothers experienced perineal rupture, with the detail of 28% due to

episiotomy and 29% due to spontaneous tear (Kemenkes RI, 2013).

Efforts to prevent perineal laceration may be provided with pharmacological therapy and non pharmacological therapy. Pharmacologic therapy is by administering antibiotic and antiseptic (povidone-iodine) drugs for the treatment of the perineal wound. These drugs have side effects such as allergies and inhibit the production of collagen that works for wound healing. Non pharmacological therapy that can be given to accelerate wound healing in order to avoid infection is using binahong leaves (Firdayanti, 2009).

The results of early pre surveyin South Lampung district showed that there were 18 people who experienced perineal rupture in 30 maternity women, with the details of spontaneous rupture as many as 10 people and the 8 people of episiotomy. The average duration of perineal wound healing was more than 10 days. According to the midwife, there is no written record of the incidence of puerperium infection (postpartum infection). From the number of incidences, it was known that there were 7 people who experienced wound healing inmore than 10 days. Based on the description above, the authors were interested to conduct research with the title of differences of the effectiveness of povidone-iodine and binahong leaf stew water on the healing of perineal laceration in postpartum mother in the community empowerment working area of Lampung Selatan district health office of Indonesia in 2017.

Method

This study used true experimental post-test only design. It is said to be true experimental (actual experiment) because in this design the researcher can control all external variables that influence the experiment. The population in this study was all postpartum mothers who experienced perineal laceration community empowerment working area of Lampung Selatan district health office. Samples taken were 80 respondents which were divided into 2 groups with different interventions. Forty respondents were treated with povidone-iodine and 40 respondents were treated with binahong leaf stew water. Primary data was collected with 3 times of observation. Data analysis was done using analytical and descriptive statistics using bivariate analysis, inferential statistics using independent T-test, and data processing using a computer.

Results

1. The result of Univariate Analysis

Table 1 Duration of Healing Duration of Perineal Laceration Using Povidone-iodine

Healing Duration	Frequency	Percentage
3 days	0	0
5 days	2	5
> 7 days	38	95
Total	**40**	**100**

From the above table it can be seen that from 40 respondents, 95% of postpartum mothers whowere given laceration treatment with povidone-iodine required longest wound healing for more than 7 days.

Table 2.Analysis of Povidone-iodine Variable

Variable	Mean	SD	Minimum/Maximum
Povidone-iodine	8.2750	0.96044	5.00 =10.00

The results of the analysis obtained that the average duration of wound healing by using povidone-iodinewas 8.2750 days (8 days.) The shortest duration of treatment was 5 days and the longest was 10 days.

Table 3. Duration of Healing Duration of Perineal Laceration Using Binahong Leaf Stew Water

Healing Duration	Frequency	Percentage
3 days	17	42,5
5 days	20	50
> 7 days	3	7,5
Total	**40**	**100**

From the above table it can be seen that from 40 respondents, 50% of respondents treated with binahong leaf stew water required 5 days in wound healing.

Table 4. Analysis of Binahong Leaf Variable

Variable	Mean	SD	Minimum/Maximum
Binahong leaf stew water	4.8750	1.26466	3.00 =8.00

The results of the analysis obtained that the average duration of wound healing by using binahong leaf stew water was 4.8750 days (5 days.) The shortest duration of treatment was 3 days and the longest was8 days.

2. The result of Bivariate Analysis

Bivariate analysis was used to know the differences of the effectiveness of povidone-iodine and binahong leaf stew water on the healing of perineal laceration in postpartum mothers in the community empowerment working area of Lampung Selatan district health office of Indonesia in 2017.

Table 5. The Difference of Wound Healing Duration using Povidone-iodineand Binahong Leaf Stew Water

Variable	N	Mean	SD	PV
Povidone-iodine	40	8.2750	0.96044	0,000 (2.90012-3.89988)
Binahong leaf stew water	40	4.8750	1.26466	

Based on the above table, the average duration of the treatment by using povidone-iodinewas 8.2750 (8 days) with standard deviation 0.96044, while using binahong leaf stew water was 4.8750 (5 days) with standard deviation 4.8750. The result of the statistical test with T-Test showed T-test p-valueof = 0.000<0,05 so that H0 was rejected. This means that there was a significant difference between the healing of perineal laceration by using povidone-iodine and binahong leaf stew water on postpartummothersin in the community empowerement working area of Lampung Selatan district health office of Indonesia in 2017.

Discussion

Based on data on Table 1 until Table 5, it was obtained that there was a significant difference between the healing of perineal laceration by using povidone-iodine and binahong leaf stew water. This showed that binahong leaf stew water is feasible to be used as a treatment for a perineal laceration. Researcher Anisa (2007)said that binahong leaves contain saponin compound, alkaloid, and polifenol. Saponin serves as a cleanser and is able to stimulate the formation of collagen I, which is a protein that plays a role in the process of wound healing. As a wound medicine, binahong contains some chemical content of flavonoid, oleanolic acid, protein, saponin, and ascorbic acid. Ascorbic acid content in plants is important to activate the prolilhodroksilasi enzyme which supports the hydroxylation stage in the formation of collagen, so it can accelerate wound healing process (Susetya, 2012).

Previous research showed that after being treated with binahong leaf stew water 9.1% respondents were moderately healed and 90.9% respondents were completely healed. In the other hand, respondents who were given povidone-iodine resulted in 54.5% moderately healed respondents and 45.5% completely healed respondents with p

valueof 0,021. This means that there was a significant difference of healing of perineal laceration after the intervention of povidone-iodine and binahong leaf stew water. The percentage of respondents who experienced perinea laceration healing in the binahong group was better than the povidone-iodine group (Wijayanti and Rahayu, 2016).

Miladiyah (2012) stated that the extract of binahong leaves was able to recover wounds better than povidone-iodine on rabbit's skin. The study was also supported by Kaur (2014), stating that the application of binahong leaf paste topically showed better results in the wound removal process compared with 0.9% NaCl and 5% povidone-iodine on mice's skin, so it can be used as an alternative to wound treating in a traditional house. Oriza (2015) stated that leaf extract of binahong can accelerate wound healing on white mice with an effective dose of 30% concentration, compared with povidone-iodine. Another study conducted by Firzanah (2015) stated that there was aninfluence of consuming binahong leaf water stewin the healing the perineal laceration on postpartum mothers.

The secondary metabolite content of plants can be used to treat various diseases. The results of previous phytochemical tests showed that the leaf extract of binahong contains active compounds saponins, flavonoids, steroids, terpenoids, phenols, and alkaloids (Astuti, 2012). Polyphenols and saponins act as anti-bacteria (Wardani, 2012).The extract of the binahong leaf also has the capacity as an antioxidant (Selawa, 2013). Giving binahong leaf on the wound helped wound healing with the formation of more granulation tissue and revitalization occurred faster than wounds that were not given binahong leaves (Ariani, 2013).

Povidone-Iodine is a chemical substance of polyvinylpyrrolidone (also known as Povidone and PVP) and elemental Iodine. Examples of Povidone-Iodine include dressings such as Inadine® and solutions such as Betadine® and Braunol®. The second type of Iodine used in wound treatment is Cadexomer Iodine, a combination of Iodine and complex polysaccharides, such as Iodoflex® and Iodosorb®, which can be used as an antiseptic, especially in hollow wounds. This type of Iodine absorbs exudates, and releases Iodine ions gradually, allowing for longer lasting Iodine antiseptic effects and requiring less replacement of bandages on the wound.

The side effects of Iodine Cadexomer is a burning pain in the wound area, redness,and eczema. Studies on iodine safety showed a minimal risk for thyroid function. Iodine Cadexomer is useful when treating infected wounds with moderate to wet exudate amounts. Its ability to release iodine ions slowly causes this type of iodine to be recommended for use in chronic wounds where there is no need for frequent wound bandage changes. In this research, the fastest perineal wound healing is by using binahong leaf stew water which was 4,8750 days in average (5 days), compared with wound healing using Povidone-Iodine which was 8,2750 days (8 days).

Based on the description above and comparison with the theory, then the authors concluded that the more routinely respondents perform perineal laceration wound care using binahong leaf stew water, the faster the healing duration will be in comparison with povidone-iodine. This is because binahong plants are very good for revitalizing the skin, giving extra stamina, unleash blood circulation, overcome the swelling and blood clotting, restore the weak condition, and heal the wound (Ardiyanto, 2009). Based on the result of the research, the researcher suggested that maternal mothers who experience perineal laceration of grade I and II can do wound treatment by using binahong leaf stew water as antiseptic of non pharmacologic treatment for perineal laceration wound healing so that the wound healing process will be faster and better.

Conclusions

Based on the results of the study and discussion, it can be concluded as follows:

1) Of the 40 respondents, 95% of postpartum mothers who were given laceration treatment with povidone-iodine required

wound healing for more than 7 dayswith an average healing time of 8 days. The shortest duration of treatment was 5 days and the longest was 10 days.

2) Of the 40 respondents, 50% of postpartum mothers who were given laceration treatment with binahong leaf stew water required 5 days in wound healing. The average duration of healing using binahong leaf was 5 dayswith the shortest duration of treatment was 3 days and the longest was 8 days.
3) The result of T-Test showed difference T-test p-value = 0.000 <0,05 so H0 was rejected meaning that was a significant difference between the healing of perineal laceration by using povidone-iodine and binahong leaf stew water on postpartum mothers in the community empowerment working area of Lampung Selatan district health office of Indonesia in 2017.

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