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THE EFFECT OF ROBUSTA COFFEE WATER EXTRACT ON HEALING OF PERINEUM WOES DUE TO PARTUS TRAUMA IN POSTPARTUM MOTHER

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ABSTRACT

In normal labor with perineum rupture, perineum infection may occur due to poorly maintained of perineum hygiene. The treatment of perineum wounds after labor is useful in reducing infections and discomfort on the mother. One of the treatments of perineum that can be used is non-pharmacological therapy using the water extract from Robusta coffee. The results shows that the content of Robusta coffee are as an antioxidant, antibacterial and anti-inflammatory, and absorbing a good smell of wound so that it can be heal faster. The method used was Quasy Eksperimental Design retrieval sampling with consecutive sampling with sample size as many as 38 postpartum mother of primipara with perineum rupture of degree 2 (spontaneous rupture and episiotomy). The study was conducted from October to December 2017. Retrieval sampling with random sampling was obtained as many as 19 respondents of treatment group using extract water of Robusta coffee and 19 respondent of control group who only performed Vulva Hygiene. The independent variable uses Robusta coffee water extract, while the perineum wound healing variables uses REEDA assessment scale. The analysis and influence used in the study was Mann-Whitney and lavene's statistical test.The results show that there was a significant difference of p =0.005 between healing using extract water of Robusta coffee and control group which only performed vulva hygiene. The healing of perineum in average in the intervention group was 6-7 days while in the control group was 7-8 days. Based on the result, it can be concluded that there is influence of extract water of Robusta coffee on healing of perineum wound due to trauma of labor on postpartum mother.

Keywords: the extract of Robusta Coffee, Healing of Perineum Wound.

INTRODUCTION

Birth canal contamination can result in infections in the area between the vaginal opening and anus, the outside of the genitals, vagina and uterine mouth.[1] According to the World Health Organization (WHO), in 2012 there were more than 585,000 in the world where maternal deaths occurred during pregnancy or childbirth. In 2015 in Indonesia, 5% of maternal deaths were caused by infections, 25-55% of these infections were caused by infections in the birth canal.[2]

In normal childbirth with perineal rupture there can be infection of the perineum due to poor hygiene of the perineum. Perineal wound treatment is one way to prevent the occurrence of infections in the birth canal. In addition to the use of topical antiseptics for the treatment of perineal wounds, it is not uncommon for the use of herbs to be used by the public because the price is more economical and the side effects are more minimal compared to modern medicine.[3] Many plants in Indonesia can be used as traditional medicines including coffee. Coffee contains more antioxidants than fruits and vegetables. Some of the antioxidant compounds found in coffee include polyphenols, flavonoids, proantosianidin, coumarins, chlorogenic acid, trigonelin and tocopherol.[4]

Hendro Sudjono Yuwono, a vascular surgeon from RSUP Dr. Hasan Sadikin, Bandung, has conducted a series of coffee powder studies since early 2004 and the results of his research show that coffee powder can be used to treat various types of wounds, ranging from scratched wounds of sharp objects, burns, to scabs that have been infected.[5] In his research, Hendro Sudjono Yuwono found antibacterial substances in coffee powder, which has been shown to be effective in eradicating methicillin Resistant Starhylococcus Aureus (MRSA) germs that are often found in purulent wounds. Coffee can be used as a remedy to prevent infections and accelerate drying of wounds. Not only wounds due to sharp object scratches, burns, even wounds that have occurred infections can still be healed by topically giving coffee powder.[6]

In the study hendro Sudjono Yuwono also conducted a study on his patients with shallow 2nd degree burns carried out by comparing burns with robusta coffee in the form of creams and comparing with creams containing Ag-sulfadiazine by paying attention to the incidence of erythema, burn area, wound location, wound drying speed, epithelialization, the results showed that both of them provided good healing.6 Damarianto CS and Dumadi S in their research compared the use of coffee powder in the burns of Wistar rats and guinea pigs versus Ag-sulfadiazine. Results show good healing with coffee grounds and with Ag-sulfadiazine.[7,8]

It was concluded that actually in terms of benefits and effects, coffee powder has a fairly high antibacterial, antioxidant and anti-inflammatory power. Antioxidants in coffee such as chlorogenic acid, caffein acid are all antibacterial and anti-inflammatory, so it's no wonder that coffee helps heal wounds. The role of antioxidants is considered important for accelerating wound healing. The more acidic, the stronger the anti-bacterial contained in it, the greater the antioxidants, thereby accelerating wound healing. Coffee is also considered fast in absorbing wound fluid (hygroscopic), so that wound fluid will be absorbed with bacteria. The coffee powder will unite with the wound fluid causing the wound fluid to become hyperosmolar which will help kill bacteria.[9]

METHOD

The research method used was Quasy Experimental Design by sampling consecutive sampling of the number of samples of 38 primiparous postpartum mothers with perineal rupture of degree 2 (spontaneous and episiotomy). The study was conducted in October 2017 – December 2017. Sampling by random sampling, researchers determined the sample by drawing lots with the required number of samples, obtained 19 respondents of the treatment group who carried out vulva hygiene and were given robusta coffee water extract. The water extract of robusta coffee can be steamed first for 20 minutes, with 150 grams of robusta coffee in 200 ml of mineral water. After steaming, then the robusta coffee water extract is taken into a 100 ml spray bottle container, the robusta coffee used is robusta coffee which is 5 years old. The administration of robusta coffee water extract is carried out a day 3 times for 11 days, namely by spraying it on the perineal wound. The control group obtained 19 respondents who only did Vulva Hygiene. The free variable uses robusta coffee water extract, while the perineal wound healing variable uses the REEDA assessment scale. Observation is carried out for 11 days, by conducting direct observations in the first 6 hours of postpartum, day 3, day 5, day 7, day 9 and day 11 postparum. The assessment criteria observed were redness, swelling, bleeding patches, discharge, and wound union. The analysis and influence used in the study used the Mann-Whitney statistical test.

RESULT

Table 1. Overview of the Average Duration of Perineal Wound Healing of Postpartum Mothers

Variable	Mean±SD (Day)	Min – Max (Day)
	Wound Healing Time	
Control	7.67±0.485	7-8
Treatment	6.11±0.323	6-7

In table 1, it can be seen for the intervention group the Mean ±SD value of 6.11±0.323 with a minimum healing duration of 6 days and a maximum perineal wound healing duration of 7 days. In the control group, there was a Mean±SD value of 7.67±0.485 with a minimum of perineal wound healing of 7 days and a maximum of 8 days.

Table 2. Perineal Wound Healing Judging From Redness

Variable	Control Group	Treatment Group	p value
	Mean±SD (Skor Redness Scale)	Mean±SD (Skor Redness Scale)	
Day 3	2.84±0.501	2.37±0.496	0.002*
Day 5	2.42±0.607	0.79±0.631	0.000*
Day 7	1.53±0.697	2.11±0.315	0.000*
Day 9	0.11±0.658	0.00±0.000	0.000*
Day 11	0.47±0.612	0.00±0.000	0.002*

* Mann-Whitney Test Statistical data using the Mann-Whitney test obtained a $p<0.05$ value, it was found that changes in perineal wound healing there were significant differences in redness values in the intervention group and control group.

Table 3. Perineal Wound Healing Seen From Edema (Swelling)

Variable	Control Group	Treatment Group	p value
	Mean±SD (Skor Edema Scale)	Mean±SD (Skor Edema Scale)	
Day 3	1.63±1.212	2.00±0.333	0.503*
Day 5	1.05±0.911	0.58±0.607	0.098*
Day 7	1.53±0.697	0.5±0.229	0.008*
Day 9	0.26±0.562	0.00±0.000	0.037*
Day 11	0.11±0.315	0.00±0.000	0.152*

* Mann-Whitney Test The statistical data showed that there was a significant difference in the value of the REEDA scale in the edema value between the intervention and control groups with a p value value of < 0.05 found on day 7 and day 9 postpartum.

Table 4. Perineal Wound Healing Seen From Ecchymosis

Variable	Control Group	Treatment Group	p value
	Mean±SD (Skor Ecchymosis Scale)	Mean±SD (Skor Ecchymosis Scale)	
Day 3	2.89±0.315	2.16±0.375	0.000*
Day 5	2.53±0.513	1.16±0.602	0.000*
Day 7	1.79±0.535	2.42±0.507	0.000*
Day 9	1.26±0.653	0.00±0.000	0.000*
Day 11	0.42±0.507	0.00±0.000	0.002*

* Mann-Whitney Test Statistical data using the Mann-Whitney test obtained a p<0.05 value, it was found that changes in perineal wound healing there were significant differences in ecchymosis values in the intervention group and control group.

Table 5. Perineal Wound Healing Seen From Discharge

Variable	Control Group	Treatment Group	p value
	Mean±SD (Skor Discharge Scale)	Mean±SD (Skor Discharge Scale)	
Day 3	3.00±0.000	2.05±0.229	0.000*
Day 5	2.58±0.507	1.47±0.513	0.000*
Day 7	1.79±0.535	0.58±0.507	0.000*
Day 9	1.37±0.761	0.00±0.000	0.000*
Day 11	0.68±0.582	0.00±0.000	0.000*

* Mann-Whitney Test Statistical data using the Mann-Whitney test obtained a p<0.05 value, it was found that changes in perineal wound healing there were significant differences in discharge values in the intervention group and control group.

Table 6. Perineal Wound Healing Viewed From Approximation

Variable	Control Group	Treatment Group	p value
	Mean±SD (Skor Approximation Scale)	Mean±SD (Skor Approximation Scale)	
Day 3	2.89±0.315	2.89±0.315	1.000*
Day 5	2.68±0.478	1.95±0.229	0.000*
Day 7	2.32±0.582	0.37±0.496	0.000*
Day 9	1.68±0.478	0.11±0.315	0.000*
Day 11	0.74±0.562	0.00±0.000	0.000*

* Mann-Whitney Test Statistical data showed that there was a significant difference in the value of the REEDA scale in the approximation value between the intervention and control groups with a p value of < 0.05 was found on day 5, day 7, day 9 and day 11 postpartum.

Table 7. Effect of Robusta Coffee Water Extract on Perineal Wound Healing

REEDA Scale	Group		p value
	Control (n=19)	Intervention (n=19)	
	Skor REEDA Scale		
x (SD)	0.51	0.00	0.005*
Median	1.53	1.00	
Range	1 - 2	1	

* Mann-Whitney Test Data analysis of the effect of robusta coffee water extract on perineal healing obtained a value of p = 0.005 which means that thus it can be concluded that, robusta coffee extract can accelerate the healing of perineal wounds. The results of the analysis showed that robusta coffee water extract has an effect on the healing of perineal wounds.

DISCUSSION

1. Redness

Redness is a reddish appearance on the suturing area. Redness of the wound occurs due to dilation of blood vessels (vasodilation) in inflammatory tissues. Inflammation or inflammation is a normal reaction of the immune system when a tissue injury occurs.10,11 When the wound of the inflammatory phase that occurs that makes the perineum or scars redness occurs, the process can quickly subside because this robusta coffee contains anti-inflammatory. In the inflammatory phase, the purpose of robusta coffee is to stop bleeding and clean the wound area from foreign bodies, dead cells, and bacteria to prepare for the start of the wound healing process. Chlorogenic acid and caffeic acid contained in Robusta coffee bean extract act as antioxidants to neutralize free radicals produced in the wound healing process, one of which is reducing redness due to inflammation of the perineal skin.[12]

2. Edema (Swelling)

Edema is the presence of an abnormal large amount of fluid in the intracellular tissue space of the body, indicating a pronounced amount in the subcutaneous tissue, edema can be limited caused by obstruction of the veins or lymphatic ducts or by an increase in vascular permeability. In the inflammatory phase the formation of kinin and prostaglandins causes

vasodilation and increased permeability of blood vessels in the wound area. This causes edema and then causes swelling and pain at the beginning of the wound.[13] Edema in the perineum can be reduced because there is a kahweol compound in robusta coffee. The substance kahweol has the potential to be an anti-inflammatory in coffee shown in inhibition of COX-2 and MPC-1 in the endothelium. Kahweol (coffee antioxidant) exhibits anti-inflammatory and antiangiogenic properties.[9] In addition to being anti-inflammatory and antiangiogenic, the kahweol compounds in robusta coffee also act as anti-tumorgenic and anti-oxidative which are reported to inhibit the effects of several carcinogens including polycyclic aromatic hydrocarbons and chlorogenic acids that have anti-oxidative properties,[14] in other studies kahweol also acts as an antitumor compound with an inhibitory effect on tumor cell growth and survival, especially against breast cancer cells MDA-MB231,[15] in addition to kahweol also induces glutathione synthesis, which has a role in detoxification and prevention in liver damage.[16]

3. Ecchymosis (Bleeding Spots)

Ecchymosis is a small bleeding spot on the skin of the perineum forming an even, round or irregular blue or purple spot. Ecchymosis appears in the inflammatory phase occurs immediately after the dispossession on the 0-5th day. The presence of wounds due to trauma or surgical wounds results in damage to tissue structures and results in bleeding, resulting in platelet degranulation and activation of hageman factors (coagulation factors).[11] Coffee has a hemostatic ability through the surface of thrombogenic coffee grounds that facilitate the adesion of platelet and erythrocyte cells. This ability helps the blood clotting process, helping to stop bleeding.[9] Coffee can reduce reactive oxygen with direct antioxidant effects. Potential Mechanisms of coffee chemopreventive effects involve dna regulation of repairing genes and genes involved in the detoxification process, as well as inflammatory processes, apoptosis, angiogenesis, and metastasis.[17]

4. Discharge Discharge

Discharge Discharge namely the excretion or removal from the perineal wound, can be in the form of blood components, including platelets and leukocytes. Polymorph Nuclear (PMN) is the first leukocyte cell that goes to the place where the wound occurs. The number increases rapidly and reaches its peak at 24 – 48 hours (inflammatory phase). Its main function is to phagocytosis incoming bacteria.13 Phenolic compounds in robusta coffee have been shown to be active in skin tissues inhibiting collagen damage and collagenase activation.[18] Polyphenols contained in coffee are proven to have strong antioxidants, [19] and have antiaging properties and are able to neutralize the effects of oxidative damage to the skin, [20] thereby accelerating wound healing in the perineum. Caffeine compounds in coffee are antioxidants and act as antagonists in adenosine, which can speed up the wound closure process. Caffeine suppresses the process of proliferation in wounds so that wounds heal quickly and also increases cell counts and cell work better due to its nature as an antioxidant.[21] Caffeine acts as an antagonist of adenosis receptors, as well as accelerates wound healing because it stimulates angiogenesis and inhibits DNA damage by free radicals.[22]

5. Approximation Approximation

Approximation Approximation brings the edges of the wound to be sutured closer together. The presence of wounds due to trauma or surgical wounds results in damage to the tissue structure. During the inflammatory phase, the tissue does not have sufficient traction, but depends only on the thread material used for suturing in order to bring the edges of the perineal laceration closer together. Under good conditions epithelialization of the pe rineum can occur between 48-72 hours.[23] Robusta coffee has a higher amount of polyphenols than arabica coffee.[24] Chlorogenic acid and caffeic acid have much stronger antioxidant properties

than vitamins C and E.[25] Before the inflammatory phase, robusta coffee plays a role in stopping bleeding and cleaning the wound area from foreign bodies, dead cells, and bacteria to prepare for the start of the healing process. Chlorogenic acid and caffeic acid contained in Robusta coffee bean extract act as antioxidants to neutralize ROS which is a free radical produced in the wound healing process.[12] Antioxidants in robusta coffee have an important role in the wound healing process and protect tissues from oxidative damage. The antioxidant mechanism contained in robusta coffee is expected to protect cells that play a role in the wound healing process.[26]

CONCLUSIONS AND SUGGESTIONS

In this study, the conclusion was that robusta coffee water extract has an effect and accelerates the healing of perineal wounds.

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