

Management Application of Aloe Vera Compresses and Back Massage for Breast Engagement in Postpartum Mothers: Experiment Study

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ABSTRACT

Swelling of the breast (engorgement) is a reservoir of milk caused by a narrowing of the lactofery duct by glands that are not completely emptied. Non-pharmacologically by giving aloe vera compresses can reduce breast swelling. aloe vera plant which contains anthraquinone, aloemodin, bradikanase enzymes, carboxy peptidase, salicylates, tannins and saponins which have benefits in overcoming pain and anti-inflammatory. The potential use of aloe vera in the treatment of breast swelling has not been widely used by the public. Research on the management of aloe vera compresses and back massage on breast swelling used a quasy experimental research design with one group pre-test and post-test design. The study was conducted on 30 respondents who experienced breast swelling. The location of the research was carried out in the working area of the Sang Timur Clinic. The sampling technique uses purposive sampling. Statistical analysis of data to determine the effectiveness of giving aloe vera compresses and back massage in reducing breast swelling through the SPES (Six Point Engorgement Scale) score and clinical examination of the breast with the Paired Sample T-Test. The results showed that aloe vera compresses combined with back massage were effective in the management of swollen breasts in nursing mothers with a p value <0.005 (0.000).

Keywords: *Aloevera, Back massage, Engorgement*

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1. INTRODUCTION

The stunting issue currently circulating in Indonesia is caused by a lack of nutrition from the womb to the early period after delivery, known as the First 1000 Days of Life (1000 HPK). The impact of this stunting issue is causing failure of child growth and development, emergence of health problems in infants and adults, decreased IQ and susceptibility to disease [1]. Exclusive breastfeeding is an important part of the 1000 HPK in the stunting alleviation program [2]. In accordance with WHO recommendations that the general policy of exclusive breastfeeding without giving additional food or fluids is six months [3]. Based on the evidence showing that ASI provides all the nutritional, immunological, and psychological needs that support the development and growth and well-being of mother and baby [4].

17% of breastfeeding mothers experience breast problems such as swelling which can result in mastitis and abscesses which can affect milk production [5]. The research contribution to health is utilizing the local wisdom of the local aloe vera plant to treat health problems in postpartum and lactating mothers. Non-pharmacologically by giving aloe vera compresses and back massage. Breast massage, one of which is back massage in general, can help smooth the breast ducts which cause swelling and mastitis [6][7]. Back massage is carried out along the spine which will stimulate the medulla oblongata to directly send messages to the hypothalamus in the posterior pituitary to release oxytocin which causes milk to flow smoothly [8].

Aloe vera is a medicinal plant that is widely available and easily found in various regions in Indonesia. The novelty of the idea in this research is to take advantage of the natural potential that exists in the surrounding environment for health benefits, providing non-pharmacological methods as pain control to be cheaper, simple, effective, independent and without harmful chemical effects. Aloe Vera (Aloe Vera) can be used to treat breast pain due to its anthraquinone content which contains aloin and emodin as analgesics [9]. Aloe Vera compresses on the breasts that are experiencing swelling due to breast milk dam pain can be decreased by stimulating the immune system to block the biosynthesis of prostaglandins [9][10]. And back massage stimulates the release of the hormone oxytocin [11][8]. Back massage aims to stimulate the hormone prolactin and the hormone oxytocin, these hormones will stimulate alveoli cells in the breast glands which will contract, with contractions causing milk to flow out into the ducts [12].

The most common problem experienced by breastfeeding mothers is swelling of the breasts (engorgement). Swelling of the breasts also causes the mother to stop the breastfeeding process because the breasts feel sore, feel uncomfortable while breastfeeding, and think that if the breasts have problems then the breastfeeding process must be stopped so as not to transmit the disease to her child [4]. The problem so far is that many treatments for breast swelling only focus on pharmacological treatment. Meanwhile, the effects of pharmacology on the administration of drugs to breastfeeding mothers in infants have not been studied much about their impact on the health of infants. To minimize pharmacological effects on drug administration in nursing mothers, non-pharmacological treatment of breast problems is required [13][14].

The formulation of the problem to be examined is how effective is the aloe vera compress and back massage on swelling of the breasts in postpartum mothers. This can have an impact on exclusive breastfeeding in infants [6]. If the baby does not get breast milk, the baby's nutritional needs are not properly met and they are susceptible to disease [5]. Relevance to current needs is non-pharmacological management of breast swelling using aloe vera compresses and back massage which is expected to help breastfeeding mothers support the success of exclusive breastfeeding so that it can support stunting alleviation programs.

2. METHOD

Research on the management of aloe vera compresses and back massage on breast swelling used a quasy experimental research design with one group pre-test and post-test design. Statistical analysis of data to determine the effectiveness of giving aloe vera compresses and back massage in reducing breast swelling through the SPES (Six Point Engorgement Scale) score and clinical examination of the breasts with paired sample t-test. Location This research will be carried out in the working area of the Sang Timur Klaten Clinic (As a Partner). Respondents to this study were postpartum and lactating mothers who experienced breast milk swelling. Respondents needed in this study were 30 postpartum mothers. The criteria for selecting research samples included: postpartum mothers and currently breastfeeding their babies, not allergic to aloe vera, willing to participate in the research until it is finished. Data analysis to see differences in effectiveness on the SPES score and clinical breast examination before and after intervention.

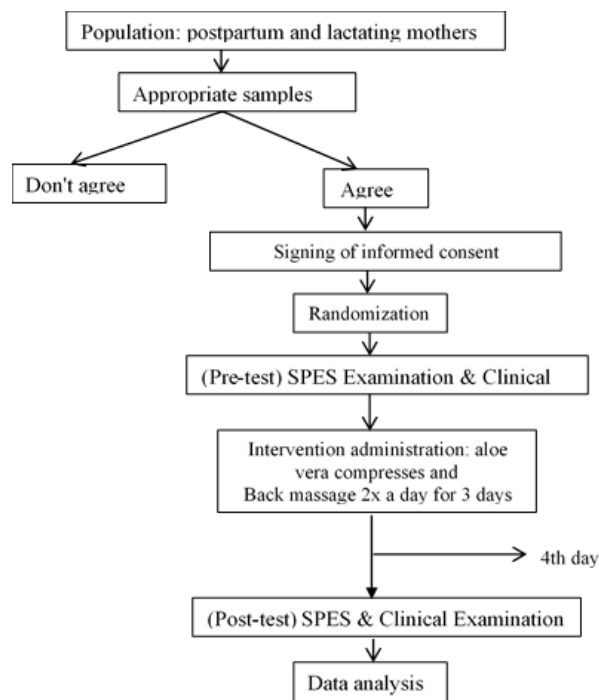


Figure 1. Research Flow

3. RESULTS AND DISCUSSION

a. Research Results and Data Analysis

1) Results of the determination test of aloe vera plants from the Klaten region

Based on the results of the determination test of the local Klaten aloe vera plant conducted at the Center for Research and Development of Medicinal and Traditional Medicinal Plants Tawangmangu, Karanganyar Regency, Central Java, the results showed that the Klaten aloe vera was aloe from the Asphodelaceae family, Species: Aloe Vera (L) Burm. f. with the synonym Aloe Perfoliata var Vera . L. Plants are shrub or arborescent, perennial, xerophytic, succulent, pea green in color. It grows mainly in dry areas. Based on the results of the phytochemical screening of the local Klaten aloe vera, the most abundant content was Flavonoids.

2) Characteristics of Respondents

Table 1. Characteristics of Respondents

Characteristics of Respondents	n	%
Age		
< 20 years	1	3,3
20-35 years	25	83,3
>35 years	4	13,3
Parity		
Primipara	10	33,3
Skundipara	13	43,3
Multipara	7	23,4
History of previous breastfeeding		
There is history	19	63,3
No history	11	36,7
History of swollen breasts		
There is history	16	53,3
No history	14	46,7
Total (n)	30	100

Based on the table above, it shows that the majority of respondents are of healthy reproductive age / 20-35 years, 25 respondents (83.3%), most parity are skundipara (having 2 children), 13 respondents (43.3%), have a history of breastfeeding as many as 19 respondents (63.3%), and had a history of previous breast swelling as many as 16 respondents (53.3%).

3) Results of clinical examination of the breast before and after being given aloe vera compresses combined with back massage

Table 2. Results of clinical examination of the breast before and after being given aloe vera compresses combined with back massage

Clinical examination results	Before treatment		After treatment		P value
	Yes (%)	No (%)	Yes (%)	No (%)	
Tense Breasts	30 (100%)	0	21 (70%)	9 (30%)	0,001
Local warm breasts	30 (100%)	0	15 (50%)	15 (50%)	0,000
Local Breast Pain	24 (80%)	6 (20%)	11 (36,7%)	19 (63,3%)	0,000
Breast Redness	8 (26,7%)	22 (73,3%)	2 (6,7%)	28 (93,3%)	0,012
Swelling of the Breasts	20 (66,7%)	10 (33,3%)	5 (16,7%)	25 (83,3%)	0,000
Fever	9 (30%)	21 (70%)	2 (6,7%)	28 (93,3%)	0,006

n: 30, primary data sources

Based on Table 2, it shows that the results of clinical examination of the breast before and after being given aloe vera compresses combined with back massage show that there are changes towards breast repair and healing. Based on clinical examination before giving treatment 100% of respondents felt that their breasts were tense after being given treatment decreased to 70%, before treatment 100% felt local warmth and after treatment became 50%, before treatment felt breast pain 80% after treatment became 36.7%, before treatment the breasts experienced redness 26.7% after treatment 6.7%, before treatment experienced breast swelling 66.7% after treatment decreased to 16.7% and before treatment felt a fever 30% after treatment decreased to 6.7%.

Based on the results of statistical tests using the paired t test, it was found that all p values in the clinical examination component were <0.005. So that it can be concluded that aloe vera compresses combined with back massage can improve clinical conditions in breast swelling which

include tense breasts, local warmth of the breasts, local breast pain, breast redness, swelling of the breasts and feeling body fever.

- 4) The results of the SPES score of the breast before and after being given aloe vera compresses combined with back massage

Table 3. The results of the SPES score of the breast before and after being given aloe vera compresses combined with back massage

	Mean	St. deviasi	Min	Max	t	P value
Before treatment	4,333	0,758	3,0	6,0	15,031	0,000
After treatment	1,766	0,679	1,0	3,0		

n: 30, primary data sources

Based on table 3, it shows that there is a change in the average SPES score before and after being given treatment. Before being given aloe vera compresses combined with back massage, the average SPES score was 4.333 while after that the average SPES score was 1.766. Changes in the maximum score before and after treatment experienced a change from 6 to 3. Meanwhile, there was a decrease in the minimum value of the SPES score before and after, namely 3 to 1. Based on statistical tests there was a significant difference in the decrease in the SPES score before and after giving aloe vera compresses combined with back massage with a p-value of 0.000 (<0.05). This shows that aloe vera compresses combined with back massage are effective in reducing the SPES score for breast swelling in breastfeeding mothers.

b. Discussion

Based on the data, it shows that based on the age characteristics of the respondents, there were 25 respondents (83.3%) in the healthy reproductive age range, namely 20-35 years, while the rest were in the age range <20 years and more than 35 years. This shows that the prevalence of breast swelling is higher at reproductive age because at that age is the age recommended by WHO for the reproductive process, namely pregnancy, childbirth and breastfeeding. According to theory, a person's age will affect the addition of one's knowledge. Age is one of the factors that affect the level of knowledge. Apart from that they already have physical and mental readiness, they also have a very positive level of suggestion during their postpartum period. So that mothers will be more accepting of new things that are given additional knowledge about compressing the breast using Moringa leaves and being serious about applying the knowledge given. Increasing one's age will increase one's self-control ability, so that the person's attitude towards something new becomes more open to new things [15]. So that the process of accepting how to apply moringa compresses to breast swelling is also easy and fast.

Characteristics of respondents based on parity, namely primipara 10 respondents, skundipara 13 respondents and multipara 7 respondents. Mothers who have given birth for the first time (primipara) certainly have different preparations and coping mechanisms when facing labor and the postpartum period compared to mothers who have given birth 2-4 times (multipara), especially in carrying out postnatal breast care, so they often experience swollen breasts [16]. This is due to the mother's lack of experience in breastfeeding and breast care, it could also be due to the mother's habit of often wearing tight bras which can put pressure on the breasts and cause excessive accumulation of breast milk, causing the breasts to swell [17].

The average scale of breast swelling before compressing Moringa leaves is 4.3. Scale 4 is the swelling scale with the highest frequency, namely 53.3% of the total number of respondents. According to Humenick and Hill scale 4 is a scale of swelling where the breast feels hard/firm and feels pain in the breast [18]. After being given aloe vera compresses combined with back massage, the average SPES score was 1.76. The p value of 0.000 indicates that aloe vera compresses combined with back massage are effective in reducing the SPES score for breast swelling. Meanwhile, based on clinical examination of the breast before and after it also showed significant results at 1-6 points. In clinical examination, there was a decrease in complaints of local breast pain (3rd clinical examination) between before and after treatment with a p value of 0.000. Aloe vera contains anthraquinones which have aloin, and emodin, which can function as analgesics. The analgesic activity of aloe vera is also related to carboxypeptidase and bradykinesia enzymes, which are useful in relieving pain. Pain reduction occurs through stimulation of the body's immune system and lowering prostaglandins which are responsible for pain [19].

On clinical examination breast redness (4th clinical examination) and breast swelling (5th clinical examination) there was a significant effect between before treatment and after treatment with p values 0.012 and 0.000 respectively. Aloevera has an anti-inflammatory effect caused by the content of flavonoids, vitamins A and C, salicylic acid (effectively inhibits the formation of bradykinin and histamine) and arachidonic acid oxidation in it (effectively inhibits prostaglandin synthesis) [20]. Supported by previous research which states that Aloe Vera is a herbal product that has anti-inflammatory, antioxidant, moisturizing, bactericidal, anti-viral, and antifungal effects that are used to relieve pain and irritation. The results of the research show that aloe vera can be considered as an option

to relieve pain or irritation in the breasts of breastfeeding women compared to routine care or other treatments [21].

Aloe vera gel has an anti-inflammatory effect by inhibiting the cyclooxygenase pathway and reducing the production of prostaglandin E2 from arachidonic acid. A new anti-inflammatory compound called C-glucosylchromone was isolated from aloe vera gel [22]. In addition to the benefits of topical application of aloe vera gel, cold compresses to the breasts before breastfeeding are thought to be soothing and reduce blood flow to the skin caused by vasoconstriction, which in turn is believed to reduce swelling in the breasts [23]. The reported therapeutic benefits of aloe vera products are myriad such as aiding in wound healing, treating burns, minimizing frostbite damage, protection against skin damage from X-rays, lung cancer, intestinal problems. Real evidence shows that aloe vera gel is safe for external use, allergies and other adverse reactions are rare [24].

Based on the results of a literature study from the cochrane library showing that herbal compresses with aloe vera are more effective than hot compresses for the management of breast swelling. Massage therapy combined with aloe vera compresses was more effective than massage therapy alone (MD -1.27 VAS points, 95% CI -1.75 to -0.79). For breast swelling, aloe vera compresses may be more effective than massage (RR 0.66, 95% CI 0.51 to 0.87). While the combination of aloe vera compresses with massage reduces breast pain in cases of swelling/engorgement compared to massage alone (RR 0.38, 95% CI 0.25 to 0.58) [25].

4. CONCLUSION

Based on the results of the study, it was shown that aloe vera compresses combined with back massage were effective in the management of swollen breasts in nursing mothers with a p value <0.005 (0.000). For the community this action needs to be done to increase public health self-sufficiency with natural ingredients. For further research, it is necessary to carry out development research to create a special formulation of aloe vera.

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