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Aloe Vera Gel Compression as Breast Engorgement Pain Relief

Evi Susanti, Lady Wizia
Institut Kesehatan Prima Nusantara Bukittinggi

ABSTRACT

Background: Breast engorgement is a condition where the breast becomes firm, diffuse, painful overfilling due to infrequent or ineffective removal of milk from the breasts. Engorgement usually begins around days 3 to 7 during the postpartum period when the breast milk starts to come out. Breast engorgement tends to experience by Primiparous patients.
Purpose: This study aimed to determine the effects of Aloe vera gel compression on reducing breast engorgement pain on breastfeeding mother
Methods: This was an experimental study with one group pretest-posttest. The analysis was performed in a Private midwifery Practice in Sarolangun. The sample of this study was twelve postpartum women who experienced breast engorgement. The intervention of this study was using aloe vera gel, as external usage with 10 mg for every square centimeter. The pain scale was measured twice, before and after the intervention. Pain scale measurement was using NRS (Numeric Rating Scale)
Results: paired T-test results p-value of 0.002 < 0.05 indicates that aloe vera compression brings positive impact on reducing breast engorgement pain scale in postpartum women
Conclusion: Aloe vera compression can relieve pain associated with breast engorgement. Therefore, this intervention may be suggested to postnatal mothers for managing breast engorgement.

Keywords: *Breast engorgement; postpartum women; pain relief; aloe vera gel*

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BACKGROUND

Scientific data shows, there are many advantages of breastfeeding both for the baby and mother. It is proven that breastfed children have a higher opportunity to reduce diabetes mellitus and overweight risk in later life. Moreover, children who have been breastfed for a more extended period have some advantages such as a lower mortality rate, lower dental malocclusions, and higher intelligence than children who experienced breastfeeding for a short period (Victora, Bahl, Barros, França, Horton, Krasevec, Murch, Sankar, Walker, Allen, et al., 2016). According to the data, increased breastfeeding could save approximately 820.000 lives each year (Who, 2020). Breastfeeding also brings several positive impacts for mothers. The data showed that breastfeeding could prevent breast cancer, reducing diabetes mellitus and ovarian cancer risk in women, and be favorable in birth spacing. (Victora, Bahl, Barros, França, Horton, Krasevec, Murch, Sankar, Walker, Rollins, et al., 2016).

Unfortunately, Indonesia has a poor exclusive breastfeeding rate. According to RISKESDAS (Indonesian National Basic Health Research) data in 2018, the national rate of exclusive breastfeeding was 37.3 % (Riskesdas, 2018b). The data shows a significant decrease when compared to the Riskesdas data in 2003 where the rate of exclusive breastfeeding was 54.3% (Riskesdas, 2018a). The target of achieving adequate breastfeeding is recommended by WHO in 2030 to be at least 50% of babies getting adequate breastfeeding.

According to (Amaral et al., 2015), several factors are influencing the inhibition of exclusive breastfeeding in breastfeeding mothers, such as; mother's knowledge related to breastfeeding, factors predictive that inhibit the exclusive breastfeeding, and experiences of the breastfeeding mothers during the process of breastfeeding.

Six out of ten postpartum women discontinue breastfeeding earlier than they expected. Early termination was associated with some reasons, such as; difficulty in breastfeeding, baby's weight, the focus on nutrition for babies who need to use some medications, and the problem associated with pumping milk (Odom et al., 2013). Difficulties in breastfeeding were divided based on several reasons, such as; being overfull or engorged, experiencing pain a lot, and having sore nipples (Odom et al., 2013).

Breast engorgement is a condition where the breast becomes firm, diffuse, painful overfilling due to infrequent or ineffective removal of milk from the breasts. Engorgement usually begins around days 3 to 7 during the postpartum period when the milk starts to come out. Breast engorgement tends to be experienced by Primiparous patients (Mass, 2004).

Breast engorgement is one of the most common reasons for the discontinuation of breastfeeding in the first weeks after childbirth. There are some consequences of breast engorgement: generalized swelling, pain, diffuse edema, redness, decreased flow of milk, usually bilateral presentation, and a slight increase in body temperature (< 38.4 °C) (Jacobs et al., 2013).

A previous study from India found that the prevalence of breast engorgement among breastfeeding mothers was 65%-75% (Govoni et al., 2019b). This Indian study explained that 1 of 2 postpartum women had a breastfeeding-related disease, 3 of 10 breastfeeding mothers had some problems about breast such as; breast engorgement, fissures, hypo Galactica, discontinuation of breastfeeding, galactocele, mastitis, and candidiasis (Govoni et al., 2019a)

The purpose of the management of breast engorgement is to maintain the flow of breast milk and successfully and effectively empty the breast, as well as to prevent

engorgement during the breastfeeding process. Some approaches for managing breast engorgement involve a combination of pharmacotherapy such as pain medications, progesterone gel (Gresh et al., 2019), and non-pharmacological management such as acupuncture, cabbage leaves, and cold packs (Zakarija-Grkovic & Stewart, 2020).

Aloe Vera is a herb that has been spread and cultivated across the world. This plant has some functions such as a natural fighter against all sorts of infections. Besides, Aloe vera is rich in antioxidants that efficiently help to treat all the digestive problems, heartburn, arthritis, wound healing, analgesics, etc. Besides, aloe vera contains antibacterial, antifungal, antiseptic, antibiotic, antiviral, anti-dandruff, antihelminthic, anti-inflammatory, white blood cell production, and laxative effect (Sushen et al., 2017).

Aloe vera contains anthraquinone which has aloin and emodin which can serve as an analgesic. Analgesic activity in aloe vera is also associated with enzymes carboxypeptidase and bradykinesia, which are effective in relieving pain. Pain reduction occurs through stimulation of the immune system body and decreases its prostaglandins responsible for pain (Mwale & Masika, 2010)

The previous study showed that there are statistically significant differences in breast engorgement pain before and after treatment between the herbal, which contains some traditional herb and hot compress groups. The traditional herb includes Plai or Cassumunar ginger (Zingiber cassumunar Roxb.), turmeric (Curcuma longa L.), and camphor (Ketsuwan et al., 2018a). Turmeric and ginger also contains antiseptic, antibiotic, and antiinflammatory

OBJECTIVE

The objective of this study was to determine the effect of aloe vera gel compression in reducing breast engorgement pain in breastfeeding mothers.

METHODS

This was an experimental study with one group pretest-posttest design. The study was performed in a Private midwifery Practice. The population of this study was postpartum women on day 2^{nd} -10^{th} of the postpartum period who experienced breast engorgement. Breast engorgement was assessed using a six-point breast engorgement scale (SPES) Ethical clearance was issued by the ethical committee of Prima Nusantara Bukittinggi Health Institute. Inclusion criteria of this study were normal postpartum women (without any complication during the postpartum period), who did not get any analgesics or drugs before breast engorgement treatments for at least 6 hours., no contraindications to breastfeeding and did not have an allergic history of aloe vera. The exclusion criteria of this study were women who experienced a postpartum complication.

The sample of this study was taken by using the Lemeshow formula. Twelve postpartum women who experienced breast engorgement was being the sample of this study. A consecutive sampling technique was applied here. Postpartum women who met the inclusion criteria were selected until either the required sample size was achieved as a respondent.

The intervention of this study was giving aloe vera gel to a mother who was diagnosed with breast engorgement. Aloe vera which was used in this study was 98% aloe vera gel and has a mother safe label. This was external usage with 10 mg for every square centimeter. The gel was applied to the women's breasts for 30 minutes. After the application, the aloe vera gel was cleaned by using tissue and warm water.

The pain scale was measured two times before and after the intervention. NRS (Numeric Rating Scale) was used to measure the pain scale.
The data was then analyzed by using paired sample t-test with the SPSS program to see the difference between the pretest and post-test scores with α = 0.05 and 95% confidence interval (CI). Before using a paired sample t-test, it is assumed that the data is normally distributed. The normality distribution was measured by the Shapiro-Wilk test (≤ 50%).

RESULTS

Table 1. Baseline Baseline characteristic of respondens

Women data	f	%
Ages		
< 20 years	1	8,3
20-35 years	11	91,7
> 35 years	0	0
parity		
1	12	100
2-4	0	0
>4	0	0
Education		
High school and lower	6	50
Diploma and higher	6	50
Postpartum period (day)		
1-4	2	16.67
4-10	10	83.3

Based on table 1; the number of postpartum women who had enrolled in this study was 12 cases. A flow chart of the number of participants is shown in table 1. Women were predominated of reproductive age (20-35 years old). All women have one child, and 10 of 12 women experience breast engorgement between day 4th-10th of postpartum.

Table 2. Average of breast engorgement pain score before intervention

	n	**Mean**	**SD**	**Min- Max**	**95% CI**
Pain scale before intervention	12	6,542	0,3343	6 – 7	6,329 – 6,754

Based on table 2, it was found that the average pain scale before aloe vera gel intervention was 6.542 with a minimum score was 6, and the maximum score was 7.

Table 3. The average breast engorgement pain score after intervention

	n	Mean	SD	Min- Max	95% CI
Pain scale after intervention	12	2,417	0,3589	2 - 3	2,189- 2,645

Based on table 3, it was found that the average pain scale after aloe vera gel intervention was 2.417 with a minimum score was two and a maximum score was 3.

Table 4. Effectiveness of aloe vera gel on reducing breast engorgement pain scale

Pain scale	N	Mean	Standard deviation	P
Before	12	6,542	0,3343	0,002
After	12	2,417	0,3589	

According to table 4, before being given aloe vera compression, the average breast pain scale is 6,542, with a standard deviation of 0,3343. In comparison, the average breast pain scale after being given breast pain scale is 2,417 with a standard deviation of 0,3589. The paired T-test results p-value of 0.002 < 0.05 indicates aloe vera compression effect on reducing breast engorgement pain scale in postpartum women.

DISCUSSION

The study showed that breast engorgement pain score before aloe vera compression is shown an upward trend. Engorgement is defined as swelling and distension of the breasts, which cause pain. It is a common early complaint after delivery. There is much variation of symptoms reported for engorgement (Berens, 2015).

After aloe vera gel compression, the study showed that the pain scale of breast engorgement is significantly decreased. Aloe vera contains anthraquinone which has aloin, and emodin, which can serve as an analgesic. Analgesic activity in aloe vera is also associated with enzymes carboxypeptidase and bradykinesia, which are useful in relieving pain. Reduction of pain occurs through stimulation of the immune system body and decrease its prostaglandins responsible for pain (Eghdampour et al., 2013).

This research is supported by previous research by Ratih Indah Sari (2019): Effectiveness of Aloe Vera Compression in Reducing Breast Engorgement Pain conducted in Harapan Baru Public Health Center. The result of this study showed that Aloe vera compression is effective in decreasing the pain intensity of breast engorgement in postpartum mothers (Sari et al., 2019)

Similar research was performed by Emilda in 2017: The Effect of Aloe vera Compression on Reducing Breast Pain Scale in Postpartum. The result showed that aloe vera was effective in reducing the pain scale of the breast in postpartum (Emilda, 2017).

This study is also in line with the previous research which conducted by Oswati Hasanah (2017). The study analyzed aloe vera compression effect on reducing Grade of Phlebitis due to Intravenous Therapy in Children. The study stated that aloe vera is effective in lowering phlebitis grades (p=0.000) (Hasanah et al., 2017).

Another study conducted by Farideh Eghdampour observed the aloe vera effect on accelerating episiotomy wound healing. The result showed a statistically significant difference between control and experimental groups so that the use of Aloe vera and Calendula ointment considerably increases the speed of episiotomy wound healing.

Another previous study explaining the analgesic effects of the herbal plan was conducted by Ketsuwan. In his study: Effect of Herbal Compresses for Maternal Breast

Engorgement at Postpartum, Ketsuwan proved that there were differences in breast engorgement pain before and after treatment, between the herbal and hot compress groups (Ketsuwan et al., 2018b).

According to the researcher's opinion, analgesic content in aloe vera has a significant effect on pain relief in breast engorgement women. A cooler sensation of aloe vera gel also gives calming effect for women.

CONCLUSION

There was a reduction in pain in mothers with breast engorgement from before being given aloe vera gel and after being given aloe vera gel. Aloe vera gel is proven to be effective in reducing breast engorgement pain

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