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EFFECTIVENESS OF ROLLING MASSAGE AND COMPRESS TECHNIQUES WARM TO BREAST MILK EXPENDITURE IN MOTHERS POST SECTION CAESARIA

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Abstract

Background. Inadequate breastfeeding is a problem often experienced by mothers who are breastfeeding. Breast milk release time in post sectio caesarean mothers is later than normal postpartum mothers. This study aims to determine the rolling massage technique and warm compresses on breast milk production in post-section caesaria mothers at hospital Denisa. **Method.** The research design of this study is Quasy Experimental with design (pre post test design). Purposive sampling method. The sample taken was 28 respondents. Divided into 2 groups, 14 respondents were intervened with rolling massage techniques and 14 respondents get warm compresses. Independent variables were rolling massage techniques and warm compresses. The dependent variable is breast milk production in post-section caesarea mothers. Data collection was using the SOP (Standard Operating Procedure) rolling massage technique, warm compress SOP and questionnaire sheet. **Result.** Wilcoxon test results p-value = 0.001 for breast milk production in the rolling massage technique. Rolling massage technique means there is an influence on breast milk production. The Wilcoxon test result p value = 0.001 for the result of Wilcoxon test showed that the p-value = 0.001 for breast milk production on warm compress means that there is an effect on breast milk production. The Mann Whitney U Test statistical test results obtained a significance value of p = 0.009 so that there is a difference between rolling massage and warm compress techniques on breast milk production. **Conclusion.** The rolling massage technique and warm compress can be used as a therapy for breast milk production.

keyword : Rolling massage technique, warm compresses, breast milk production

INTRODUCTION

Breast milk is the most beautiful gift from mother to baby that is secreted by two sides of the mother's breast glands, the best nutritious and high-energy milk that is easily digested and contains a balanced and perfect nutritional composition for baby's growth and development that is available at any time (Wiji, 2013). Infant growth is strongly influenced by breast milk production. Rapid growth can occur at the age of 2 weeks, 6 weeks and 3 months which at that time requires more breast milk (Meilirianta et al., 2014). Breast milk production is a very complex interaction

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between mechanical stimuli, nerves and various hormones (Mansyur & Dahlan, 2014). According to Suradi (2008), the criteria for breast milk production are: Breast milk seeps because the breast is full, breast milk comes out when pressed, breast milk drips when not breastfeeding or breast milk gushes out. In some cases, breast milk cannot be released smoothly so that the mother cannot breastfeed her baby. Breast milk release time in post sectio caesarea mothers is slower than normal post partum mothers (Desmawati, 2016). Based on the results of a survey at RSU Denisa in the obstetrics clinic of 10 post cesarean section mothers, there were 7 mothers whose smooth breast milk production required more than 1-2 days and 3 mothers whose smooth breast milk production after cesarean section surgery was completed. Interventions carried out to facilitate breast milk production only by providing information about breast care and expressing breast milk. However, the results were not optimal. Almost all of them chose to be given drugs / pills to increase breast milk. The intervention of rolling massage and warm compress techniques has never been done directly so that its effect on breast milk production cannot be explained.

According to WHO (World Health Organization, 2015), the incidence of sectio caesarea is increasing in developing countries. WHO sets an indicator sectio caesarean delivery rate of 5-15% for each country, if not indicated. sectio caesarea surgery can increase the risk of morbidity and mortality in the mother and baby. mother and baby. Data from the results of Riskedas (Basic Health Survey, 2017) shows that the incidence of delivery by cesarean section in Indonesia reached 9.8% of the total number of deliveries. In East Java in 2017 reached 20% of the total number of deliveries. Meanwhile, a preliminary study was conducted preliminary study of the last three months at Denisa General Hospital. In April - June 2021 the number of sectio caesarean deliveries was 235 patients out of 345 patients. Obtained from April 75 mothers post cesarean section (27 primiparas and 48 multiparas), decreased in May 72 mothers post cesarean section (27 primiparous and 45 multiparous), increased again in June 88 mothers post cesarean section (36 primiparous and 52 multiparous). primiparous and 52 multiparous), so on average per month there are 78 mothers post sectio caesarea (30 primiparous and 48 multiparous) at Denisa Hospital.

The inhibiting factor in breastfeeding is the milk supply itself. Insufficient breast milk production is influenced by many factors such as: Lack of breastfeeding frequency, low birth weight (LBW) infants have a lower ability to suck breast milk than normal birth weight (>2500) infants compared to normal birth weight babies (>2500), acute/chronic illnesses, and poor breast care (Juarni, 2014). acute/chronic illness, and poor breast care (Juarni, 2014). Reasons reasons for not providing breast milk other than non-breastfeeding are the mother's lack of (Turlina & Wijayanti, 2015). The impact that occurs when breast milk does not come out smoothly is: obstructed duct, swollen breasts, mastitis, and the baby does not like to suckle due to poor milk flow. The impact of young mothers who do not breastfeed their babies will cause the baby to be at risk of various infectious diseases such as infections respiratory tract infections, ear infections, low immunity, resulting in a less intelligent generation. generation, increased morbidity rates, increased child mortality, increased hospital subsidies and child mortality, increased hospital subsidies and more foreign exchange to buy formula milk (Nugroho, 2011).

Efforts that can be made for breast milk production are one of them with rolling back massage that can provide a relaxing sensation to the mother, the technique of giving rolling back massage can stimulate the parasympathetic nervous system. Technique of administering rolling back massage can stimulate the parasympathetic nervous system to convey commands to the back of the brain so that the process arises. Oxytocin action potential response is released into the systemic blood from the pituitary posterior. Oxytocin stimulates these cells so that the alveolus sac is depressed, the pressure increases and the ducts shorten. Increases and the ducts shorten and dilate. Milk is then ejaculated from the nipple. Rolling massage back will provide comfort and relax the mother because the massage can stimulate the release of breast milk and stimulate the uterus to contract (Ekawati, 2017). contract (Ekawati, 2017). Warm breast compresses during breastfeeding will can increase milk flow from the milk-producing glands. Other benefits of warm breast compresses include; stimulation of the let down reflex; preventing preventing breast engorgement which can cause breast swelling; improving blood circulation in the breast area (Saryono & Roischa, 2009).

METHOD

The research design used in this study was Quasy Experimental with design (pre post test design). Population in this research were all post sectio caesarea mothers at Denisa General Hospital as many as 78 respondents (30 primiparas and 48 multiparas) in monthly averages. The sample in this study was determined based on inclusion criteria and exclusion. The sample size was 14 people per group, so the number is large the overall sample is 28 people. Sampling in this study is using purposive sampling method. Inclusion Criteria: 1) Post sectio caesarea mothers who are willing to be respondents; 2) First day of post sectio caesarea; 3) Mothers post sectio caesarea primipara; 4) Mother post sectio caesarea with hospitalization for 3 days at Denisa General Hospital; 5) Post sectio caesarea mothers are cooperative. Meanwhile, the exclusion criteria were: 1) Post-sectio caesarea women with co-morbidities, such as: swollen breasts, mastitis and breast abscess; 2) Post sectio caesarea mothers who take drugs that can inhibit milk production, for example: bromocriptine, aspirin, reserpine; 3) Post sectio caesarea mothers whose babies have congenital abnormalities (congenital abnormalities) based on the doctor's diagnosis so that during the intervention they cannot breastfeed with their mothers, such as: premature, cleft lip, short tongue string, and hiccups); 4) Post-sectio caesarea mothers who consume breast-feeding pills, herbal milk-boosting herbs (a concoction of katuk leaves, turmeric, tamarind).

This research was conducted at Denisa Gresik General Hospital. In this study, the rolling technique became independent massage and warm compresses, the dependent variable is milk production in post sectio caesarea mothers. This research instrument used SOP (Standard Operating Procedure) for Giving Rolling Massage Techniques, RI Ministry of Health (2007) in Trijayati (2017), SOP (Standard Operating Procedure) for Giving Warm Compresses, Kristiana (2014), Runiari and Surinati (2013) in Hartanti (2017), and To assess the effect of giving rolling massage and compress techniques warm towards the expenditure of breast milk in mothers post sectio caesarea using a questionnaire sheet, in (Mashluchi, Y.A, 2019).

The research procedure includes: Respondents totaling 28 were divided into 2 groups, in group A 14 post sectio caesarea mother who was given rolling massage intervention, at group B 14 post sectio caesarea mothers who were given intervention warm compress. The researcher conducted a pre-test to groups A and B before it was carried out intervention accompanied by the researcher, then the researcher gave intervention to group A in the form of rolling massage for 3 days, 2x/day post SC with a duration of 10 minutes/intervention on days 1-3, and intervention in group B in the form of warm compresses for 3 days, 2x/day with a duration of 15 minutes/intervention on days 1-3. Both groups did a post-test after it was done last intervention. Assessment for output results ASI is categorized: 1) Current (76-100%) if the questionnaire getting a score of 8-9; 2) Enough (56-75%) if the questionnaire gets scores 6-7; 3) Not current (<56%) if the questionnaire get a score of 1-5. With ASI criteria: 1) ASI seeps because of full breasts; 2) ASI comes out on pressed time; 3) ASI drips when not breastfeeding or milk is gushing Go out; 4) Breast milk oozes out when the areola is squeezed; 5) ASI comes out gushing without squeeze breasts; 6) Breast milk is gushing out within 48 hours after delivery; 7) Breast milk comes as soon as the baby starts suckling; 8) 24 hours after delivery the milk has come out; 9) Breast milk is still dripping after feeding. Breast milk production was checked using a questionnaire sheet, adopted from Mashluchi, Y.A, 2019. Classification based on the score of the questionnaire as many as 10 criteria for breast milk production with the answer options Yes and No. After that, scoring of the percentage results was carried out.

Analysis was tested using the Wilcoxon test to determine differences in the dependent variable before and after treatment with a significance level of $p<0.05$. Furthermore compared the effectiveness of the rolling massage technique and warm compresses given intervention using the Mann Whitney U Test $p <0.05$ means for determine the significance of the effectiveness of rolling massage and compress techniques warm towards the expenditure of breast milk in mothers post sectio caesarea.

RESULT AND DISCUSSION

Table 1. Respondent Characteristics

No	Category	Intervention Group With The Rolling Massage Technique		Compress intervention group	
		n	%	n	%
1	Age				
	18-23 years old	5	36	4	29
	24-29 years old	7	50	7	50
	30-35 years old	2	14	3	21
	36-41 years old	0	0	0	0
2	Education				
	Elementary School	0	0	0	0
	Junior High School	2	14	2	14
	Senior High School	10	72	8	57
	College	2	14	4	29
3	Work				
	Housewife	9	64	6	43
	Working as Private Sector	5	36	8	57
4	Breastfeeding Schedule				
	Every 2 hours	14	100	12	86
	Every 3 hours	0	0	2	14
	Every 4 hours	0	0	0	0
5	Baby Weight				
	2-2,4 kg	0	0	0	0
	2.5-3 kg	5	36	6	43
	3,1-4 kg	9	64	8	57
6	Breastfeeding Position				
	Sit Down	14	100	14	100
	Lie Dow	0	0	0	0
7	Break Time				
	Yes	12	86	14	100
	No	2	14	0	0
8	Consuming Food Provided by the Hospital	14	100	13	93
	Yes	0	0	1	7
9	Finished the food provided by the hospital	14	100	8	57
	1 Portion	0	0	6	43
	Not Spent				
10	Mother's Nutritional Intake				
	Good	9	64	6	43
	Enough	5	36	8	57

Based on Table 1, in the intervention group with the rolling massage technique, the results obtained from 14 respondents aged 24-29 were 7 (50%), had senior high school education 10 (72%), worked as a housewife 9 (64%),

breastfeeding schedule every 2 hours once 14 (100%), 9 (64%) babies were born with a body weight of 3.1-4 kg, with a sitting breastfeeding position 14 (100%), resting while in hospital 12 (86%), consuming food provided by the hospital 14 (100%), spent 1 portion of food provided by the hospital 14 (100%), good maternal nutrition intake was 9 (64%). whereas in the warm compress intervention group the results were obtained from 14 respondents, namely aged 24-29 years as many as 7 (50%), senior high school education 8 (57%), working as a private sector 8 (57%), breastfeeding schedule every 2 hours as many as 12 (86%), 8 babies born weighing 3.1-4 kg (57%), breastfeeding position by sitting 14 (100%), resting according to hours 14 (100%), consuming food provided by Hospital 13 (93%), spending 1 portion of food 8 (57%), maternal nutritional intake in the adequate category 8 (57%).

Table 2. Expenditure of Breast Milk Pre Test and Post Test Rolling Technique Massage on Post Sectio Caesaria

No	Breast milk Withdrawal	Pre Test		Post Test	
		n	%	n	%
1	Fluent	0	0	9	64
2	Enough	3	21	4	29
3	Not Enough	11	79	1	7
Uji Wilcoxon Test p = 0,001					

Table 2 explains that the provision of rolling massage technique interventions changed from not fluent 11 (79%) to fluent 9 (64%) and quite fluent 4 (29%).

Table 3. Expenditure of Breast Milk Pre Test and Post Test Compression Warmly Post Sectio Caesaria

No	Breast milk Withdrawal	Pre Test		Post Test	
		n	%	n	%
1	Fluent	0	0	3	21
2	Enough	2	14	7	50
3	Not Enough	12	86	4	29
Uji Wilcoxon Test p = 0,001					

Table 3 shows that before and after giving the warm compress intervention there was a change from not fluent 12 (86%) to quite fluent 7 (50%).

Table 4. Differences in Expenditure of Breast Milk between the Rolling Massage Technique and Warm Compress on Post Sectio Caesaria

No	Milk Production	Rolling Technique Massage		Compression Warmly	
		Pre Test	Post Test	Pre Test	Post Test
		n	n	N	n
1	Fluent	0	9	0	3
2	Enough	3	4	2	7
3	Not Enough	11	1	12	4
Mean		18.39		10.61	
Median		257.5		148.5	
Uji Mann-Whitney Test		P = *0,009*			

Based on table 4 shows the mean data rank after the rolling massage technique was 18.39, while for warm compresses mean rank is 10.61 which means there is a difference milk production between the rolling massage technique group and the compress group warm. The results of the Mann-Whitney U Test statistical test obtained a sign value (2-tailed) p = 0.009 which is smaller than 0.05, which means there is a significant difference between the technique groups rolling massage and warm compress group on milk production.

Based on table 5.13 the results of statistical analysis using the test the Mann-Whitney U Test statistic obtained a significant value of p = 0.009 which is more smaller than 0.05 which means H1 is accepted, so there is a significant difference between the rolling massage technique and warm compresses on milk production.

The results of Rukayah's research (2020) show that breastfeeding is smooth as much as 54.5%. The results of this study are in accordance with research that has been conducted by Hanifah (2018), the results of the research hypothesis are p value 0.000 <0.002 which indicates that there is significant differences in smoothness of milk ejection between Massage interventions Back with Warm Breast Compresses, where in the intervention group. Back Massage obtained a p-value smaller than the p-value Warm Compress intervention which means giving Back Massage intervention more effective in expelling breast milk than warm compresses breast.

Breastfeeding can be provided with the intervention of rolling massage techniques and warm compresses. The mechanism of the rolling massage technique is neck massage with knuckles from the base of the mother's neck to the part under the shoulder blades on both sides of the spine (Nurhanifah, 2013:102). Back

massage can provide somatic sensory stimulation through the afferent pathway thereby stimulating the posterior pituitary to release the hormone oxytocin which is a hormone that plays a role in secretion ASI, oxytocin stimulates the let down reflex so that the process will occur milk ejection from the alveoli and lactiferous ducts which automatically becomes breast milk go out. In addition, rolling massage techniques can also increase relaxation thereby preventing the occurrence of stress and depression in post sectio caesaria mothers which lowers serum prolactin levels. (MOH RI, 2007; Groer 2005; Patel & Gadam, 2013) in (Dewi, 2017). Effect of rolling massage technique breastfeeding expenditure with an average (mean) of 18.39, where before given the rolling massage technique intervention 11 people did not expel breast milk smoothly and 3 people express enough milk, after being given technical intervention rolling massage 9 people express breast milk smoothly, 4 people express enough milk, and 1 person breastfeeding is not smooth. Rolling massage plays an effective role in increasing milk production through physiological and biomedical mechanisms. Physiologically, this massage technique helps stimulate the area around the breast and back, thereby increasing blood flow to the breast glands. This increased circulation facilitates the supply of oxygen and nutrients needed for milk production. In addition, massage stimulation can activate the release of the hormone oxytocin from the posterior pituitary gland, which plays an important role in the milk let-down reflex. From a biomedical aspect, massage provides a relaxing effect that can reduce levels of stress hormones such as cortisol, which if high can inhibit milk production. This combination of physical and hormonal effects of rolling massage makes it one of the safe and effective complementary methods to support smooth lactation in breastfeeding mothers.

Giving warm compresses to the breast can improve smoothness milk production. The mechanism of the warm compress is the skin of the body which getting a warm compress will experience the body's natural/physiological system, namely dilation of blood vessels, with the dilation of blood vessels in the skin. If the compressed area is compressed, the blood flow will increase in that part. Blood which has a liquid form is an intermediary medium (convection). Hot what happens to our body will also be delivered by blood and of course to a place where the blood vessels are wider (at the place of compression). Because the dilated blood vessels

are located in the skin close to outside air (lower temperature than body temperature). Then its hot flowed by blood will easily evaporate (evaporate) giving compresses. Warmth may also give a signal to the body's heat center there is a brain (thermostat) not to increase the temperature anymore (Yuwono S, 2011) in (Zulaikhah, 2017). The effect of warm compresses on milk production with an average (mean) of 10.61, which was before the intervention was given warm compresses 12 people milk production is not smooth and 2 people are spending Enough breast milk, after being given a warm compress intervention 7 people expended milk enough, 4 people breastfeeding is not smooth, and 3 people breastfeeding is smooth. Warm compresses have an important role in increasing breast milk production through biomedical and physiological mechanisms. Physiologically, warm temperatures applied to the breast area can facilitate vasodilation or dilation of blood vessels, resulting in increased blood flow to the breast tissue. This increased blood flow improves the supply of oxygen and nutrients needed for the milk production process. In addition, warm stimulation also stimulates the release of the hormone oxytocin from the posterior pituitary, which plays a role in the let-down reflex. From a biomedical aspect, the relaxation condition caused by warm compresses can reduce levels of stress hormones such as adrenaline, which is known to inhibit oxytocin production. Thus, giving warm compresses can create optimal physiological conditions to increase the production and smoothness of breast milk release.

The results of this study indicate that there is a significant difference between the rolling massage technique and warm compresses on milk production. During pregnancy, the hormone prolactin from the placenta increases but breast milk usually does has not come out because it is still inhibited by high levels of estrogen. On the day second or third postpartum, estrogen and progesterone levels fall dramatically, so that the influence of prolactin is more dominant and this is when it starts to happen milk secretion. With earlier breastfeeding there is stimulation of the nipples, prolactin is formed by the pituitary, so that milk secretion becomes smoother. Two reflex in the mother which is very important in the process of lactation, prolactin reflex and The flow reflex arises from stimulation of the nipple by the baby's sucking (Kristiyanasari, 2009). After delivery, oxytocin also

tones the muscles Smooth around the alveoli to squeeze the milk into the milk ducts. Milk production occurs because the smooth muscle cells around the mammary gland shrink so that squeezing milk to come out, milk can come out of the breast due to constricted muscles which can be stimulated by a hormone called oxytocin (Rahayuningsih et al, 2016).

CONCLUSION

The rolling massage technique is more effectively used for smoothness milk production compared to warm compresses. Rolling massage techniques and warm compresses can be one alternative to increase milk production.

DECLARATION

Conflict of Interest

the authors declare that there is no conflict of interest in this research

Authors' Contribution

This research was conducted by a team from the Faculty of Health Sciences, University of Gresik, so for the task all contributed in completing the research and completion of the article from beginning to end.

Ethical Approval

Ethical approval was obtained from the University of Gresik under number 065/PSIK.UG/EX/VIII/2021.

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Data Availability

The data supporting the findings of this study are available upon reasonable request from the corresponding author, with restrictions due to participant confidentiality.

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